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EDITOR

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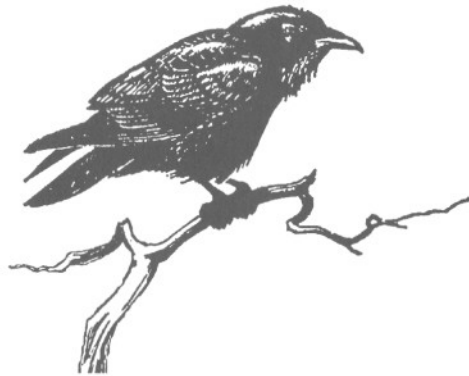
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THE WILSON'S STORM-PETREL IN CHESAPEAKE BAY

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INTRODUCTION

As a result of Rowlett's excellent 1980 paper, much information, carefully compiled and analyzed, is available on the pattern and timing of occurrence of Wilson's Storm-Petrel (*Oceanites oceanicus*) in the Atlantic Ocean off Maryland and Virginia. In contrast, even though many records of this storm-petrel in the Chesapeake Bay and its tidal tributaries (hereinafter, the Bay) have accumulated in bird-record collections and publications through the years, to my knowledge they have never been compiled. This paper is an attempt to draw these records together and use them to paint as thorough a picture of the occurrence of *O. oceanicus* in the Bay as is reasonable at this time.

METHODS

To compile these records I searched the complete series of *The Raven*, *Atlantic Naturalist*, and *The Wood Thrush*, along with bird-sighting columns that include the Bay in *American Birds*, *Audubon Field Notes*, and *Bird-Lore*. I also examined the applicable books in the Virginia Society of Ornithology's *Virginia Avifauna* series, and *Birds of Maryland and the District of Columbia*. I accessed other Maryland records for Wilson's Storm-Petrel in the Bay via a printout provided by Robert F. Ringler of his database for this species. Roger Clapp additionally provided me with information on U.S. National Museum specimen records for this storm-petrel in Virginia and Maryland and Teta Kain allowed me to look through Chesapeake Bay Bridge-Tunnel sighting logs maintained from 1983 to the present. Finally, I made contact with several people who I thought might have unpublished personal records of Wilson's Storm-Petrels in the Bay, and I examined the records in the VSO Master List. This search is not exhaustive, but it does cover most of the more likely record sources. In all, 77 records were amassed for this paper. All records used and their sources are presented in order by month in Table 1 on pages 4-6.

RESULTS

The relative precision and nature of the records made it seem most appropriate to depict spatial occurrence using zones. The zones selected are somewhat arbitrary but are meant to split the Bay into meaningful units, while also bracketing the most frequent locations of observations. Thirteen zones were selected. They are depicted in Fig. 1 on page 10 and their boundaries are specified in Table 2 on page 7. The total number of sightings and total number of individual Wilson's Storm-Petrels reported by zone are presented in Table 3 on page 8. Imprecise counts were made numeric by arbitrarily considering "some" or "small numbers" to mean two, a "few" to mean three, "numerous" or "a number of" to mean five, "unknown" to be one, and "hundreds" to be 200. When a range was given, the low number was used.

TABLE 1. *Records of Wilson's Storm-Petrels in Chesapeake Bay*

Date	Number	Location	Source(s)
??/??/1859 ²	1	Potomac River, MD or DC	Wetmore (1925) Cooke (1929) Murray (1952) Stewart & Robbins (1958)
21 Mar 1943	Many	Lower Chesapeake Bay, VA	Grey (1950)
10 May 1952	1	Little Creek-to-Kiptopeke ferry, VA	Murray (1953)
Late May 1949	1	Cape Henry, VA	Potter & Murray (1949b)
3 Jun 1985	80	Just up from the Virginia Capes in the lower Bay, VA	Armistead (1985a)
5 Jun 1988	9	Off Point Lookout, MD	Ringler (1988) Armistead (1989a)
8 Jun ????	?	Lower Chesapeake Bay, VA	Grey (1950)
9 Jun 1973	18	One mile west of Kiptopeke, VA	Scott (1974)
10 Jun 1990	5	York River, VA	Armistead (1990)
11 Jun 1941	A few	Little Creek-to-Kiptopeke ferry, VA	McIlwaine (1941)
13 Jun 1960	76	Little Creek-to-Kiptopeke ferry, VA	Scott & Cutler (1960)
13 Jun 1988	14	Five miles east of Reedville, VA	Armistead (1989a)
17 Jun 1989	7	Chesapeake Bay Bridge-tunnel (CBBT), VA	Armistead (1989b)
17 Jun 1990 ¹	20+	Off Bethel Beach, Mathews Co., VA	Armistead (1990) pers. notes
18 Jun 1990 ¹	9	Off Bethel Beach, Mathews Co., VA	Pers. notes
19 Jun 1973	4	Inside the mouth of York River, VA	DuMont & Dumont (1974) Scott (1974)
21 Jun 1924	1	Chesapeake Beach, Calvert Co., MD	Wetmore (1925) Stewart & Robbins (1958)
21 Jun 1986	1-2	Island 4, CBBT, VA	CBBT Log Sheets VSO Master List
22 Jun 1988	1	Near Watts Island, VA	Armistead (1989a)
23 Jun 1973	42	Mobjack Bay, VA	Scott & Cutler (1973) Scott (1974)
24 Jun 1937 ¹	1	A few miles off Little Creek, VA (from ferry)	Murray (1937)
27 Jun 1914 ²	1	Near Marshall Hall, Potomac River, Charles or Prince Georges Co., MD	Swales (1920) Wetmore (1925) Cooke (1929) Cross (1950)
29 Jun 1939	31	Little Creek-to-Kiptopeke ferry, VA	Reed (1939)
29 Jun 1971	14	Off Kiptopeke Beach, VA	Scott, 1971 Scott & Cutler (1971)
29 Jun 1974 ³	300-400	Mobjack Bay and at the mouths of the East and North Rivers, VA	Ake, Peake & Scott (1975) Scott & Cutler (1974)
29 Jun 1986	4	Off St. Jerome's Creek, St. Mary's Co., MD	Armistead (1986)
30 Jun 1985	3	Fort Story, Virginia Beach, VA	VSO Master List
30 Jun 1990 ¹	20	Off Mathews Co., VA	Armistead (1990)

TABLE 1. (Continued)

Date	Number	Location	Source(s)
1 Jul 1989 ¹	1	Near buoy #3, off Hole in the Wall, Mathews Co., VA	Mary Pulley, pers. comm.
2 Jul 1989 ¹	1	Near buoy #3, off Hole in the Wall, Mathews Co., VA	Mary Pulley, pers. comm.
2 Jul 1989 ¹	5	Off Bethel Beach, Mathews Co., VA	Pers. notes
3 Jul 1975 ¹	45	Mobjack Bay, VA	Ake & Scott (1976) Scott (1975)
5 Jul 1940	Some	Near Norfolk on the Little Creek-to-Kiptopeke ferry, VA	Freer (1940)
3 Jul 1989 ¹	56	Off Bethel Beach, Mathews Co., VA	Armistead (1989b)
4 Jul 1948	57	Little Creek to Cape Charles (ferry?), VA	Potter & Murray (1948)
4 Jul 1989 ¹	3	Off Bethel Beach, Mathews Co., VA	Pers. notes
4 Jul 1990	3	CBBT, VA	Armistead (1990)
5 July 1940	Some	Near Norfolk on the Little Creek-to-Kiptopeke ferry, VA	Freer (1940)
5 Jul 1968	110	CBBT, VA	Scott & Cutler (1968)
5 Jul 1985 ¹	1	Near Deep Rock, off Gwynn Island, Mathews Co., VA	Mary Pulley, pers. comm.
5 Jul 1989 ¹	5	Off Bethel Beach, Mathews Co., VA	Pers. notes
6 Jul 1985 ¹	1	Off northeast Mathews Co., VA	Mary Pulley, pers. comm.
7 Jul 1971	24	In the mouth of the Rappahannock River, VA	Scott (1971) Scott & Cutler (1971)
9 Jul 1938	A few	Cape Henry, Virginia Beach, VA	Grey (1938)
10 Jul 1985 ¹	1	Off northeast Mathews Co., VA	Mary Pulley, pers. comm.
11 Jul 1955	111	Little Creek-to-Kiptopeke ferry, VA	Potter & Murray (1955a)
11 Jul 1987	3	West of Tangier Island, VA	Armistead (1987)
13 Jul 1987	3	Near Watt's Island, VA	Armistead (1987)
19 Jul 1948	70	Lower Chesapeake Bay, VA	Grey (1950)
19 Jul 1952	1	Little Creek-to-Kiptopeke ferry, VA	Murray (1952)
20 Jul 1972	400	Mouth of Chesapeake Bay, VA	Scott & Cutler (1972)
24 Jul 1935	1	Kenwood Beach, Calvert Co., MD	Kolb & Bond (1943) Stewart & Robbins (1958)
24 Jul 1938	Numerous	Cape Henry, Virginia Beach, VA	Grey (1938)
24 Jul 1989 ¹	1-2	Halfway between Reedville and Tangier Island, VA	Armistead (1989b) John & Thelma Dalmas, pers. comm.
28 Jul 1948	48	Little Creek-to-Kiptopeke ferry, VA	Potter & Murray (1948)
30 Jul 1985	Small numbers	Off Cape Henry, Virginia Beach, VA	VSO Master List Armistead (1985b)
30 Jul 1985	12	East of Point Lookout, MD	Armistead (1985a) Ringler (1985)
31 Jul 1915	1	Near Chesapeake Beach, Calvert Co., MD	McAtee (1918) Wetmore (1925) Cooke (1929) Stewart & Robbins (1958)
31 Jul 1938	2	Cape Henry, Virginia Beach, VA	Grey (1938)
?? Aug 1842 ²	1	Potomac River, MD or DC	McAtee (1918) Wetmore (1925) Cooke (1929) Cross (1950) Stewart & Robbins (1958)

TABLE 1. (Continued)

Date	Number	Location	Source(s)
1 Aug 1985 ¹	1	Off northeast Mathews Co., VA	Mary Pulley, pers. comm.
4 Aug 1987	4-7	CBBT, VA	Harry & Kirsi Lehto, CBBT log sheets
8 Aug 1947 ¹	17	Newport News-to-Norfolk ferry, VA	Scott (1948)
8 Aug 1947 ¹	70	Little Creek-to-Kiptopeke ferry, VA	Scott (1948)
8 Aug 1953	A number of	Little Creek-to-Kiptopeke ferry, VA	Steirly (1953)
8 Aug 1987	4-7	CBBT, VA	Harry & Kirsi Lehto, CBBT log sheets
5 Oct 1982	2	CBBT, VA	Kain (1987)
11 Aug 1951	Some	Little Creek-to-Kiptopeke (ferry?), VA	Steirly (1951)
13 Aug 1989 ¹	3	Off Bethel Beach, Mathews Co., VA	Pers. notes
Mid Aug 1955 ²	1	Shore of Calvert Co., MD (after Hurricane Connie on 12 Aug.)	Davis (1955) Potter & Murray (1955a and b)
17 Aug 1985	Small numbers	Off Cape Henry, Virginia Beach, VA	VSO Master List Armistead (1985b)
21 Aug 1974 ³	1	Off Fishermans Island, Northampton Co., VA	Abbott (1974)
24 Aug 1933 ²	100s	Near Watts Island, VA	English (1933)
28 Aug 1971 ²	1	Wye River, Queen Anne Co., MD	Sharp (1971)
30 Aug 1948	5	Cape Charles ferry, VA	Potter & Murray (1949a)
11 Sep 1963	80	Off Kiptopeke, Northampton, Co., VA	Scott & Cutler (1964)
23 Sep 1972 ²	1	Near Poplar Island, Talbot Co., MD	Robbins (1972)
1 Oct 1962	4	Solomons area, Calvert Co., MD	Davis, 1963
5 Oct 1982	2	CBBT	Kain (1987)

Notes:

¹ Presence felt specifically to not be associated with a storm.² Presence felt definitely to be associated with a storm.³ Presence felt probably to be associated with a storm.

The spatial distribution is generally what would be expected if this species usually enters the Bay through its mouth from the Atlantic Ocean, though it does not indicate the impetus for this behavior. Storm- or wind-forcing and choice are the most likely reasons. Numbers of sightings and individuals generally and substantially decline from the mouth of the Bay up to the Virginia-Maryland state line. The exceptions to this pattern are the Upper Bay, Virginia, zone, where a single hurricane greatly increased the number of reported individuals, and the Mobjack Bay, Virginia, zone, where the number of individuals was also greatly increased by a probable storm event but the number of sightings is relatively low. Too, the Wilson's Storm-Petrels that enter the Bay are rarely reported from its tributaries, though some of these are quite wide near their mouths. It is unusual for this species to reach Maryland waters and it has never done so in large numbers. The scatter of records there makes it seem as though the Wilson's Storm-Petrel may be encountered with about equal frequency anywhere north to the North Central Bay, Maryland, zone in the exceptional years when it gets north of the state line. The most northerly record for the Bay seems to be the individual seen on the Wye River, Queen Anne County, Maryland, on 28 August 1971.

Tempering this assessment of spatial distribution of the Wilson's Storm-Petrel in the Bay, however, is the relative likelihood of its being observed and reported in each zone. Opportunities for observation have been far greater in the Lower Bay, Virginia, zone because of the long existence of public ferries and the Chesapeake Bay Bridge-Tunnel across the mouth of the Bay. At least 20 of the 37 Lower Bay, Virginia, zone records have been made in this way. Also, all 14 of the records for the Central Bay, Virginia, zone have been made by Mary Pulley and me in the last six years of the period. By this time we had both learned how to find Wilson's Storm-Petrels and also learned to expect to see them in this part of the Bay, even from the Mathews County coast. Thus, the number of zonal occurrence records and total numbers by zone to date may be as much an artifact of observation opportunities as a true indication of the likelihood of this storm-petrel being in the zone. Nonetheless, Wilson's Storm-Petrels probably do mostly or entirely enter the Bay through its mouth (there are no records of them passing overland) and so occurrences must be more likely the closer one gets to the ocean.

TABLE 2. *Boundaries of selected Chesapeake Bay Zones.*

Zone name	South or east Boundary	North or west boundary
Lower Bay, VA	Cape Charles point to east edge of Cape Henry	North Back River mouth to Cape Charles town
James River, VA	I-64 bridge	Fall Line
Central Bay, VA	North Back River mouth to Cape Charles town	South Rappahannock River mouth east to Eastern Shore
Mobjack Bay, VA	New Point Comfort to Hog Island, Guinea marshes	End of tidal water
York River, VA	Hog Island, Guinea marshes to the Point	West Point
Upper Bay, VA	South Rappahannock River mouth east to Eastern Shore	Virginia-Maryland state line
Rappahannock River, VA	Windmill Point to Stingray Point	Fall Line
Lower Bay, MD	Virginia-Maryland state line	Cedar Point East to Eastern Shore
Potomac River, MD-DC	Point Lookout, MD to north Little Wicomico River mouth, VA	Fall Line
South-central Bay, MD	Cedar Point east to Eastern Shore	South Choptank River mouth west to western shore
Patuxent River, MD	Drum Point to Patuxent River Naval Air Station	Anne Arundel County line
North-central Bay, MD	South Choptank River mouth west to Western Shore	Rt. 50/301 bridge (Chesapeake Bay Bridge)

Annual temporal occurrence of the Wilson's Storm-petrel, in numbers of records and birds, in the Bay is presented in Table 4 on page 8. The March record may well be incorrect, (especially for "many" to be present) as it appears to be much too early, compared to the data in Rowlett (1980) and the other data in this study. In general, it

TABLE 3. *Number of records and birds by zone.*

Zone name	Total records	Total birds	Probable storm birds
Lower Bay, VA	37	1232	1
James River, VA	1	17	...
Central Bay, VA	14	127	...
Mobjack Bay, VA	3	387	300
York River, VA	2	9	...
Upper Bay, VA	6	222	200
Rappahannock River, VA	1	24	...
Lower Bay, MD	3	25	...
Potomac River, MD-DC	3	3	3
South-central Bay, MD	3	6	1

appears that only in exceptional years do Wilson's Storm-Petrels arrive in the Bay as early as May. In years when they occur in the Bay, they seem most likely to enter it beginning in early to mid-June, to increase in numbers into the middle of July, then decline into mid- or late August. Only rarely do they remain as late as September and early October. It is interesting that the Maryland records span a time range (early June

TABLE 4. *Wilson's Storm-petrels in Chesapeake Bay during annual time periods.*

Time Period	Total Records	Total Birds	Probable Storm Birds
March	1	5	...
April	...	...	...
May	2	2	...
1-10 June	5	113	...
11-20 June	7	133	...
21-30 June	12	419	301
1-10 July	16	319	...
11-20 July	6	588	...
21-31 July	8	72	...
1-10 August	6	99	...
11-20 August	5	20	1
21-31 August	5	208	201
September	2	81	...

to early October) that is almost as great as that for Virginia. The records seem to indicate that Wilson's Storm-Petrels can move quite rapidly up the Bay after they enter it. They may not occur over a much longer time span near the mouth of the Bay than in the more northerly areas they reach.

The record-scatter makes it impossible to tell if this storm-petrel enters the Bay every year or not. During the 61-year period from 1930 through 1990, when reporting of Virginia bird records has been heaviest, the Wilson's Storm-Petrel has been reported in the Bay area in 31 (slightly over half) of the years. In each of the six complete decades in this period, too, about half (four to six) of the years saw reports of this species in the Bay area. The Wilson's Storm-Petrel has also been reported in the study area, however, in each of the last six years of the period, so years for which no records were found may simply be artifacts of failures in reporting.

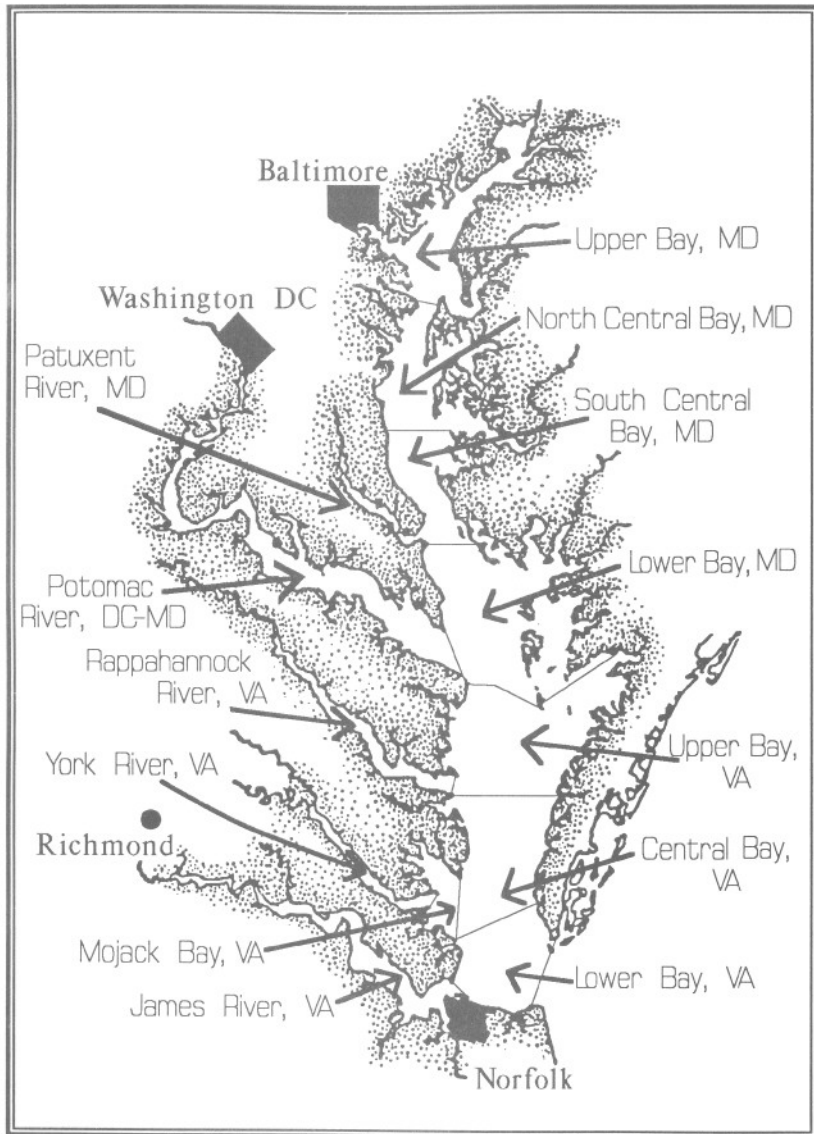
Early reports (English 1933; Murray 1937; Scott 1948) seem to indicate that it was once thought to be most likely that Wilson's Storm-Petrels occurred in Chesapeake Bay largely as a result of storms. Indeed, there are several storm-related records for the Bay. Most records, however, contain no mention of storms and a number of these reports also specifically indicate that storms were not a factor (storm and non-storm records are indicated in Table 1). That has certainly always been the case in the 14 Central Bay, Virginia, observations over the last six years of the period.

DISCUSSION

Wilson's Storm-Petrels nest during the austral summer on islands from the southern tip of South America to Antarctica. They then begin a migration into the North Atlantic Ocean in late March or April (Griffin 1974). Rowlett (1980) reports that Wilson's Storm-Petrels begin to arrive in the northern Chesapeake Bight area (which extends from Cape May, New Jersey, south to the mouth of Chesapeake Bay) during April. At this point, however, they are still well offshore (30 miles or more, over water 20 fathoms or more deep). In May a few begin to reach nearshore waters, and in June this nearshore presence reaches moderate numbers. This pattern correlates quite well with available records of the appearance of this species in the Bay. Rowlett also reports, however, that moderate nearshore numbers continue into September, with fairly large numbers being present only a short distance offshore (as close as 10 miles, over water 10 fathoms or more deep) during August. This pattern does not correlate as well with records from the Bay, which decline during August and are very few in September. The reason for this seeming discrepancy may be that Wilson's Storm-Petrels begin their southward migration in August, departing Chesapeake Bay by the end of that month. More northerly birds from the Atlantic Ocean continue to migrate offshore as late as October.

The records assembled for this paper leave little doubt that although storms can affect their presence and sometimes produce high counts, Wilson's Storm-Petrels usually move into the Bay on their own. It is unclear if this species enters the Bay every year, but it may be that ocean conditions in some years are more conducive to this behavior. For instance, Armistead (1985a) indicated that during the period from late spring to early summer in 1985 easterly winds brought blue (Gulf Stream) water close to shore. This pattern was presumably responsible for unusual nearshore and Bay

FIGURE 1. *Selected Chesapeake Bay zones*



records of warm water fish at that time. Concurrently, Wilson's Storm-Petrels occurred as far up the Bay as Point Lookout, Maryland.

Storms have evidently played a role at times in moving Wilson's Storm-Petrels into the Bay, however. The most dramatic example is the great hurricane of 22-23 August 1933, which devastated the southern part of the Bay, including sending a 12-foot storm surge into Mathews County. This storm ran the Bay steamer City of Norfolk aground near Watts Island in the northern Bay waters of Virginia. English (1933) quotes from a *Virginian-Pilot* newspaper article of 26 August 1933, written by a staffer of the Norfolk-based paper who was on a tug that went to the steamer's rescue:

"One lifeboat drew alongside empty, but for the pitiful clinging-on of one of Mother Carey's chickens. . . Hundreds of Mother Carey's chickens were hovering about, some of them perched on the rails of the 'City of Norfolk' . . ."

This storm is probably also responsible for a report of 25 Leach's Storm-Petrels (perhaps more likely to have been Wilson's) on the Potomac River near Washington, D. C., on 25 August 1933 (Oberholser 1933). The three Potomac River records specified as Wilson's Storm-Petrels are also a result of storms. These are the only riverine records that are far removed from the river mouths. The Wilson's Storm-Petrel found (dead) on the shore of Calvert County, Maryland in mid-August, 1955, was probably a result of Hurricane Connie, which passed through on 12 August.

Mary Pulley and I have noticed that in the Central Bay, Virginia, zone, at least, there seems to be a strong tendency for these birds to be seen on the west side of the Bay when the wind is out of the east quadrant and on the east side of the Bay when the wind is from the west quadrant. All records from the coast of Mathews County have been made during east-quadrant winds, even when these were not strong.

There is obviously much more to learn about Wilson's Storm-Petrels in the Chesapeake Bay area. I hope that observers will look for them there and report what they find. Boat or airplane surveys, with accurate recording of numbers and locations, would be very useful. All observations should also include information on winds and other physical and biological conditions that help explain the presence of the birds. Surveys might also prove that other pelagic species enter the Bay in the summer sometimes, albeit probably in much lower numbers than Wilson's Storm-Petrels.

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PROTHONOTARY WARBLERS NESTING IN NEST BOXES: CLUTCH SIZE AND TIMING IN VIRGINIA

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INTRODUCTION

The Prothonotary Warbler (*Protonotaria citrea*) is one of only two species of wood-warblers (*Parulinae*) that nest in secondary cavities (i.e., cavities created by woodpeckers) (Bent 1953, Petit 1989), the other being Lucy's Warbler (*Vermivora luciae*). The Prothonotary Warbler is locally common in riverine or swamp ecosystems throughout much of the eastern United States, but may be declining because of loss of wetland habitat (Graber et al. 1983). Droege and Sauer (1990) present breeding bird data indicating the species has decreased over its entire range by 0.1 percent per year during the period 1966-1989.

Interest in Prothonotary Warblers has increased recently (Fleming and Petit 1986, Kowalski 1986, Petit and Petit 1986, 1987, Petit 1989, Blem and Blem 1991), not only because of the potential importance of the reported decline of Neotropical migrants, but also because of the value of comparative studies of the advantages of cavity nesting. The Prothonotary Warbler is relatively common in the coastal plain of Virginia (Kain 1987), although ornithologists have not studied it there in detail. The present paper presents results from a long-term study of nesting Prothonotary Warblers in tidal swamps, where this bird's ecology is poorly known.

METHODS

Beginning in March 1987, we placed nest boxes in the Presquile National Wildlife Refuge, along the James River near Hopewell, Virginia, and in the lower reaches of nearby Four Mile Creek, a tributary of the James River (37° 20' N 77° 15' W). All boxes were placed in swamps along the banks of tidal creeks and were approximately 100 m apart. These swamps were dominated by red maple (*Acer rubrum*), black gum (*Nyssa sylvatica*), and ash (*Fraxinus* spp.). The study area was a mosaic of tidal swamp, tidal marsh, and riverine forest. Tidal swamps are harsh environments, being inundated with river water about twice daily during high tides and having mid-summer upper temperatures often exceeding 40°C.

The boxes were constructed of salt-treated pine or red cedar and were 28 cm in height, 9 cm in width and 6 cm in depth (Blem and Blem 1991). The entrance hole was 3.8 cm in diameter. The direction of the entrance hole was determined by a lottery system that produced equal numbers of boxes in each 30° angle of the compass (Blem and Blem 1991). Height of the nest box was determined by availability of attachment points, but ranged from 20 to 280 cm. Neither direction of the nest entrance nor height of the entrance hole above the ground appeared to be important in selection of boxes by birds, and during 1987-1988 we determined that boxes placed in the shade on large trees near

water were most likely to attract warblers (Blem and Blem 1991). The number of boxes was not consistent from year to year (Table 1) because of the time required for construction of boxes and the loss of boxes with slumping of trees into tidal creeks.

TABLE 1. *Contents of nest boxes in Presquile Swamp and Four Mile Creek.*

Year	Total available boxes	Warbler nests ¹	Partial warbler nests	Empty warbler nests	Nest of other species	Predated warbler nests
1987	141	51	19	70	1	8
1988	214	104	38	69	3	17
1989	241	114	45	77	5	15
1990	246	93	39	109	5	11
1991	238	95	46	88	9	20

¹All nests possessing a terminal cup (see methods).

We visited each box 5-7 times each year before and during the breeding season. Old nest materials were removed shortly before the appearance of the warblers each spring. Prothonotary Warblers may produce two clutches per season (Petit 1989). Therefore we divided observed nests with eggs into two groups, "early clutches"—eggs laid from 25 April through 20 May and "late clutches"—eggs laid after 20 May (Table 2, also see Petit 1989). We analyzed data only for those nests known to have been completed by specific dates. We used the separation date of 20 May because of the length of time required for Prothonotary Warblers to complete one nesting cycle (about 25 days) and because this time represents the time during which fewest first eggs were laid (Fig. 1). Petit (1989) used dates of 22 May and 30 May for separation dates for late clutches in nest boxes in Tennessee. Completed nests are distinctive as they always are topped by a cup composed of dry materials including grasses, rootlets, and parts of leaves. As a result, incomplete nests (partial nests; Table 1) are obvious and were recorded as such if they remained in this condition throughout July. It appears that male Prothonotary Warblers simultaneously bring materials to two or more cavities (Petit 1989), eventually abandoning the less suitable ones.

TABLE 2. *Number of eggs in complete clutches (mean \pm one standard deviation) of Prothonotary Warbler in swamps along the lower James River.*

Year	Early clutches ¹	Late clutches ¹	First egg ²
1987	4.65 \pm 0.75 (21)	3.80 \pm 0.68 (15)	27 April
1988	4.66 \pm 0.80 (31)	3.85 \pm 0.46 (27)	28 April
1989	4.87 \pm 0.79 (45)	3.95 \pm 0.52 (38)	27 April
1990	4.76 \pm 0.71 (46)	3.86 \pm 0.66 (14)	25 April
1991	4.33 \pm 0.77 (18)	3.82 \pm 0.60 (11)	28 April
All years	4.71 \pm 0.76 (161)	3.87 \pm 0.58 (105)	

¹Number of nests in parentheses.

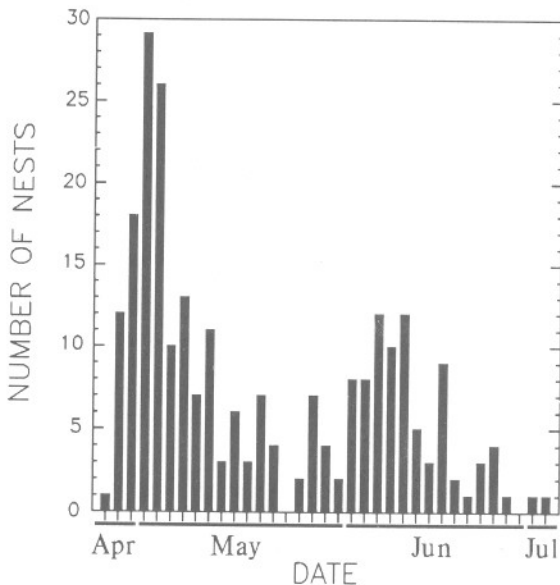
²First egg of the year for all nests.

We used small hand-nets to capture adult females as they left nest boxes and banded them with U. S. Fish and Wildlife Service bands. We banded nestlings weighing at least 8 g.

RESULTS

Over the five-year period of this study, 42.3 percent (457/1080) of the available boxes were used by Prothonotary Warblers to at least the stage of egg laying (Table 1). We calculate that approximately 2,000 eggs were produced in our nest boxes from 1987 through 1991. The remainder of the nest boxes contained incomplete warbler nests (17.4 percent; 187/1080), or the nests of other species of birds (2.1 percent: 23/1080), or were empty (38.3 percent: 413/1080). Species other than Prothonotary Warblers using these nest boxes included Eastern Bluebirds (*Sialia sialis*), 13 instances; Carolina Wrens (*Thryothorus ludovicianus*), 6; Carolina Chickadees (*Parus carolinensis*), 3; and Tufted Titmouse (*P. bicolor*), 1.

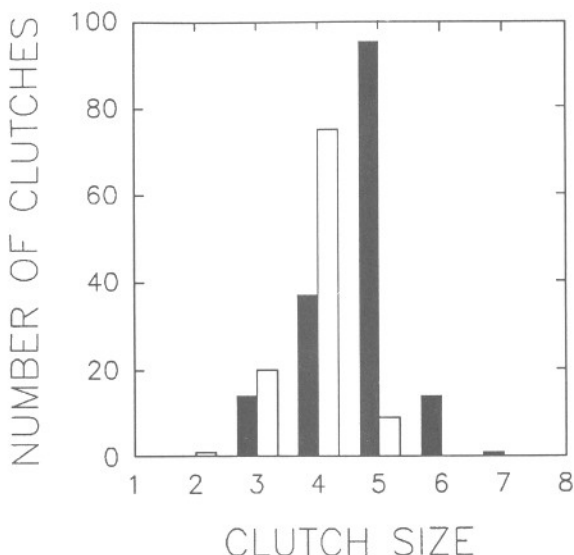
FIGURE 1. Dates of first eggs in nests of Prothonotary Warblers in tidal swamps along the lower James River.



Male Prothonotary Warblers typically return before females in the spring. In 1987-1990, males arrived on April 20-22, but in 1991 were present on April 11, possibly because of favorable weather conditions. (The mean April temperature from the national weather service for 1991 was third highest in the past 30 years, largely because of above-normal temperatures in the first third of the month.) The first eggs of each year were found from April 25 to April 28 (Fig. 1). Dates of laying of first eggs (Fig. 1) indicate two peaks of nesting, and the latest known laying dates for eggs that successfully hatched ranged from July 8 through July 15 over the five years. Prothonotary Warblers may produce two clutches each year (Petit 1989), but we have never found the same female incubating two sets of eggs in any single year. The mean size of 266 complete clutches

was 4.38 eggs. Early clutches averaged significantly larger than late clutches ($t = 10.2$; $P < 0.01$; Table 2). Early clutches most often included 5 eggs (range 3-7), and late clutches most often consisted of 4 eggs (range 2-5; Fig. 2). There was no significant variation from year to year in the size of either early or late clutches.

FIGURE 2. Clutch size of Prothonotary Warblers. Solid bars represent early clutches; hollow bars represent late clutches (eggs laid after 20 May).



We banded 92 adult females and 441 nestlings. We have recorded only 14 returns at our nest boxes in subsequent years (plus one from a banding station in Georgia), and only two of these birds were banded as young.

DISCUSSION

Natural nests of Prothonotary Warblers are typically in cavities in branches over water (Walkinshaw 1953; pers. observ.). We have observed only about 12 natural nests during the course of this study, possibly because of the use of our nest boxes by many birds. It was impossible to obtain egg data from natural nests because of the location and fragile nature of the trees within which the birds nested.

Predation of nests can be a major cause of nest failure in Prothonotary Warblers (Walkinshaw 1941, Petit 1989) and was important in the present study (Table 1). We detected predation of 15.5 percent of all nests. This is similar to the frequency of predation of Prothonotary Warbler nest boxes in Tennessee (20.9 percent; Petit 1989). Predators detected at our nest boxes included raccoons (*Procyon lotor*), cotton mice

(*Peromyscus gossypinus*), white-footed mice (*P. leucopus*), and black rat snakes (*Elaphe obsoleta*). We also suspect that gray squirrels (*Sciurus carolinensis*) predate nests as we have observed several disturbed nests at sites that would be difficult for raccoons to reach (e.g., boxes hanging over water on small branches on small trees).

Many species of small birds nesting early in the spring (e.g., March-April) use secondary cavities, suggesting that inclement weather might be a significant factor determining cavity use. Prothonotary Warblers in our study area built nests composed largely of fresh, green moss. As a result, nest box temperatures are often lower than ambient temperatures and box humidity is usually elevated above that of outside air (Blem and Blem, unpublished data).

Clutch sizes of Prothonotary Warblers in Virginia tidal swamps averaged smaller than published values. Walkinshaw (1953) recorded 5.07 eggs/clutch in Michigan (N = 94) and Petit (1989) found an average clutch size of 4.77 in Tennessee (N = 120; early and late clutches combined). The cause of this variation is only partly understood. There is a well-known latitudinal decrease southward in clutch size in many species of birds, thus at least partly accounting for the difference between Michigan and the southern study localities. Petit's (1989) Tennessee location is south of our Virginia site, however. Since she also used data from nest boxes, some other factor may be involved in clutch-size difference.

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THE GREENSVILLE COUNTY FORAY OF JUNE 1991

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This latest in the series of breeding bird forays sponsored by the VSO was held in southeastern Virginia from 4 to 9 June 1991, with twenty-three observers participating. Headquarters was at the Hampton Inn in Emporia. The area covered is bounded on the north by latitude $36^{\circ}52'30''\text{N}$, on the south by the North Carolina state line, and on the east and west by longitudes $77^{\circ}15'\text{W}$ and $77^{\circ}52'30''\text{W}$, respectively. This 790 square-mile area contains Virginia Atlas Project quadrangles 666-670, 729-733, and 792-796, and includes most of Greensville County plus portions of adjacent Brunswick, Sussex, and Southampton counties.

The primary objective of this foray was to continue the long overdue assessment of the frequency and distribution of breeding birds in southside Virginia. This was begun in 1977 with the Kerr Reservoir foray (Scott 1979) and continued from 1984 through 1989 with the Virginia Atlas Project (hereafter VAP). Species of particular interest sought during the foray included the following:

(a) Mississippi Kite (*Ictinia mississippiensis*)—frequent sightings during the past three years during the VAP and the U.S. Fish & Wildlife Service's Breeding Bird Surveys.

(b) Red-cockaded Woodpecker (*Picoides borealis*)—critically endangered; recent records only from Sussex and Southampton counties.

(c) Loggerhead Shrike (*Lanius ludovicianus*)—now very rare, only two breeding records (but both confirmed) during VAP work in this area.

(d) Bachman's Sparrow (*Aimophila aestivalis*)—rediscovered in 1986; breeding at this site confirmed during work on VAP. Two other sites have since been found in Virginia. All sites are in the foray area.

(e) Henslow's Sparrow (*Ammodramus henslowii*)—colony found in 1990 at one of the Bachman's Sparrow sites; thought to be spreading from similar sites on the North Carolina Coastal Plain.

The foray area straddles the fall line and so includes portions of both the Coastal Plain and Piedmont provinces. The Nottoway River and its tributaries dominate the northern half of this area, while most of the southern half is drained by the Meherrin River and its tributaries. The area is subdivided into four topographic sectors by the two major highways, Interstate 95 (north-south) and U. S. 58 (east-west), which intersect at Emporia. Accordingly, all checklists were compiled on the basis of the total time spent in one sector on a given day. Procedures for this foray were the same as for other recent forays, with available parties covering different areas each day. The most interesting areas were thus covered on successive days by different parties, compensating for variations in weather and ability of observers. Field checklists were prepared specifically

for this foray, as an aid both to the participants and to the compiler. In all, 42 lists representing about 150 party-hours of field work were submitted.

The drainage for all of this area is south and east, with all streams eventually emptying into Albemarle Sound, North Carolina. Elevations range from almost 400 feet north of Lawrenceville to only 40 feet south of Branchville. The largest body of water in the area is the Pea Hill Creek finger of Lake Gaston, with a fairly stable pool elevation of 200 feet. There are several other well-established artificial lakes and millponds, notably Brunswick County Lake, Slagles Lake, Emporia Reservoir (Meherrin River), Harrell's Pond, and Taylor's Millpond. The most distinctive feature of the area, however, is the numerous swampy creeks and river bottoms, especially Fountains (Fontaine) Creek. The part of this swamp lying just north of the state line is particularly extensive because of the underlying granite, which outcrops a few miles to the west at Skippers quarry.

Land use is mostly timberland, a checkerboard of second-growth mixed pine-hardwood, various-aged pine plantations and clearcuts, virtually all of which is leased to hunt clubs. Mature stands are found only in the most inaccessible swamps. There are also many large farms, especially in the southeast sector. Much of the formerly extensive swampland here has been drained for agricultural use, and many of these fields were planted in cotton. Overall, most of the farm acreage seemed equally split between other crops and pastures. Fallow fields were very infrequent. Cultivated areas seemed fairly sterile and devoid of breeding birds. Less than one percent of the foray area comprised cities and towns, with the only urban areas found in Emporia and Lawrenceville.

The weather throughout the foray period was sunny, dry and cool, ideal for the participants, if not for all of the birds. Rainfall in the area was minimal from March through the end of June. This drought may have adversely affected the insect population during the foray period. There was no shortage of insects, however, during a follow-up visit to the area the first week of July. The abundance of dragonflies and damselflies (order *Odonata*) was particularly impressive southeast of Emporia along the Meherrin River, a very slow-flowing, meandering stream, with many backwaters and stagnant pools. This is superb habitat for the *Odonata*, further enhanced by the dry season and the density of fallen timbers along the riverbanks. These conditions could account for the apparent influx of Mississippi Kites, which feed almost exclusively on large insects (Bent 1961).

All observations were for the foray period except as noted. Preliminary work in the foray area was accomplished on 18-19 May, and follow-up work was completed on 21-22 June and 5-6 July. Where appropriate, comparisons to the VAP database and the U. S. Fish & Wildlife Service's Breeding Bird Survey (hereafter BBS) are made, since these appear to be the only other recent sources of information on breeding birds of this area. One BBS route (Branchville) lies entirely within the eastern part of the foray area and has been run by the same observer (Dorothy Silsby) since 1979. The only other information found on birds of this area was the annotated checklist of the birds of Brunswick County by John B. Lewis (Lewis 1938) for the period 1912-1928. Mr. Lewis, a charter member of the VSO, was also the field naturalist at the Seward Forest experimental station in southeastern Brunswick County from 1940 to 1946, and

submitted numerous articles to this journal on the birds of Seward Forest during that period.

Some of the foray areas in southern Brunswick County were also covered, though not extensively, on the 1977 Kerr Reservoir foray (Scott 1979). Much of the area around Pea Hill Creek has now been developed. Only small remnants remain of the Seward Forest, then a five-square-mile tract of mature mixed forest with a number of unusual plant and animal species, including two colonies of Red-cockaded Woodpeckers (Scott 1979, 1973). On the plus side, the extensive young pine plantation which replaced much of the Seward Forest is currently host to the largest known colony of Bachman's Sparrows in Virginia. These birds, however, have very specific habitat preferences and will surely move to another area of younger trees in the next few years. Fortunately for this species, this is an increasingly frequent habitat in southside Virginia.

There were 103 species found during the foray period, plus two others found on follow-up trips. There was little night or wetlands coverage on this foray, thus the apparent under-reporting of owls, goatsuckers and water birds. Species looked for, but not found during the foray period, include Pied-billed Grebe* (*Podilymbus podiceps*), Least Bittern (*Ixobrychus exilis*), Yellow-crowned Night-Heron* (*Nyctanassa violaceus*), American Black Duck* (*Anas rubripes*), Hooded Merganser (*Lophodytes cucullatus*), Osprey (*Pandion haliaetus*), Bald Eagle (*Haliaeetus leucocephalus*), American Kestrel (*Falco sparverius*), King Rail (*Rallus elegans*), Virginia Rail (*Rallus limicola*), Common Moorhen (*Gallinula chloropus*), Spotted Sandpiper (*Actitis macularia*), Barn Owl* (*Tyto alba*), Common Nighthawk (*Chordeiles minor*), Red-cockaded Woodpecker* (*Picoides borealis*), Horned Lark (*Eremophila alpestris*), Tree Swallow (*Tachycineta bicolor*), Cliff Swallow (*Hirundo pyrrhonota*), Marsh Wren (*Cistothorus palustris*), Cedar Waxwing* (*Bombycilla cedrorum*), Loggerhead Shrike* (*Lanius ludovicianus*), Warbling Vireo (*Vireo gilvus*), Black-throated Green Warbler (*Dendroica virens*), Dickcissel (*Spiza americana*), and Henslow's Sparrow (*Ammodramus henslowii*).

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Participants are identified by last name only in the annotated list: Mary Arginteanu, John and Thelma Dalmás, John Dillard, Keith Guthrie, Charles and Melva Hansrote, Robert Hilton, Valerie Kitchens, Dorothy Mitchell, Dick and Martha Peake, Larry Robinson, Fred Scott, Allan Sharrett, Dorothy Silsby, Zelda Silverman, Mike Smith, Charles Stevens, Sue Thrasher, Bob and Laura Watson, and Josephine Wood.

*Those species that were recorded during the six years of the VAP in these 15 quadrangles (Carter-Lovejoy, pers. comm.).

FORAY SPECIES LIST

DOUBLE-CRESTED CORMORANT (*Phalacrocorax auritus*). One record. One bird was seen at Harrell's Pond along Sussex County Rt. 609 on 5 June (Dillard and Scott).

GREAT BLUE HERON (*Ardea herodias*). Common in the town of Emporia and the SE sector, uncommon elsewhere. A report of a possible nesting colony in a swamp near the Emporia sewage treatment plant was confirmed on 18 May (Sharrett and Dalmases) and also by a number of foray participants. The maximum count was seven nests and 12 birds recorded by Stevens on 8 June. The frequency of observations during the VAP had been a strong indication that a breeding colony might exist here. (There are very few rookeries in the state away from the coast.)

GREAT EGRET (*Casmerodius albus*). Three SE sector reports at different sites, one of a single bird on 5 June (Hansrotes) and the others of two birds on 8 June (R. Peake and Kitchens, Arginteanu and Robinson). These birds could be vagrants, but the possibility of breeding in the area, perhaps along with the previous species, should not be overlooked. Great Egrets have bred just west of Franklin at a site about 20 miles to the east (Ridd 1989).

GREEN-BACKED HERON (*Butorides striatus*). Fairly common in the SE sector, where the peak count was of eight birds on 5 June (Hansrotes) and 6 June (Mitchell et al.). Surprisingly uncommon elsewhere, with no more than two birds reported.

CANADA GOOSE (*Branta canadensis*). Four reports, the maximum count being a flock of 19 birds seen flying on 9 June over Brunswick County Rt. 603 (Watsons et al.). Two adults with one gosling had been seen along Rt. 603 on 6 June (Hansrotes). Also, two adults and three young were observed 8 June on Lake Gaston from the Brunswick County Rt. 718 bridge (Guthrie).

WOOD DUCK (*Aix sponsa*). Scarce, with only two reports. A female with eight young was observed on 5 June from Poplar Swamp bridge on Sussex County Rt. 631 (Guthrie). Three adults and five young were seen in the SE sector on 8 June (Stevens).

MALLARD (*Anas platyrhynchos*). Only one report of two birds on a pond near Purdy on 5 June along Greensville County Rt. 608 (Mitchell et al.).

BLACK VULTURE (*Coragyps atratus*). Widespread, but common, with a peak count of four birds on 7 June (Watsons et al.).

TURKEY VULTURE (*Cathartes aura*). Common throughout. There were 28 reports with a peak count of 40 individuals.

MISSISSIPPI KITE (*Ictinia mississippiensis*). There were two records during the foray. An adult found on 18 May by Sharrett and the Dalmases along the Meherrin River just north of Greensville County Rt. 730 appeared to be on territory and was seen by numerous observers, including most of the foray participants. It was still being seen at this location as late as 27 July (Sharrett). Mitchell, Silsby and Silverman found two kites, one adult and one immature, while playing a Barred Owl tape on 7 June along Southampton County Rt. 661, about 4 miles northeast of Greensville County site. This tape had also attracted three Barred Owls (see below).

Birds continued to be seen by numerous observers in the following weeks, reaching a peak of eight birds (one adult and seven immatures) found on 27 June along Greenville County Rt. 730, only one mile southwest of the first location (Silsby, pers. comm.). One bird seen on 5 July near Interstate 95 Exit 2 (Dalmases) was almost as far north and west as Emporia.

Individuals of this species sporadically sighted in southside Virginia since the late 1970s have been considered vagrants from a sizable population near Scotland Neck, North Carolina, less than 30 miles south of the foray area. Silsby recorded this species on the Newsoms BBS in 1979 and 1988, and on the Branchville BBS in 1991 (pers. comm.). Birds were also reported from this area during VAP work in 1988 and again in 1989 (Armistead 1989a, 1989b). Although the increasing frequency of observations suggests breeding, confirmation of this species as a breeding bird in Virginia may prove to be difficult. There is an abundant food supply in this area, as noted, but the scarcity of large trees limits the potential nesting sites. Also, despite the continued presence of a relatively large population since the mid-70s, this species has yet to be confirmed as a breeder in North Carolina (LeGrand 1991).

SHARP-SHINNED HAWK (*Accipiter striatus*). One record, of a bird seen at the intersection of Greenville County Rts. 730 and 622 on 7 June (Guthrie).

RED-SHOULDERED HAWK (*Buteo lineatus*). Fairly common, with 14 reports for a total of 22 birds.

BROAD-WINGED HAWK (*Buteo platypterus*). One report, of a bird seen on Southampton County Rt. 653 on 8 June (R. Peake and Kitchens).

RED-TAILED HAWK (*Buteo jamaicensis*). Common. There were 18 reports which totaled 40 individuals.

WILD TURKEY (*Meleagris gallopavo*). Probably more common than the four reports would indicate, three of single birds. The maximum count was two birds in the SE sector on 6 June (Wood and Thrasher).

NORTHERN BOBWHITE (*Colinus virginianus*). Common. Reported on 32 of the 42 lists with a high count of 40 individuals.

KILLDEER (*Charadrius vociferus*). Limited habitat during the foray period. There were only seven records, with the peak count of three birds reported in the SE sector on 8 June (Stevens).

AMERICAN WOODCOCK (*Scolopax minor*). One report of a single bird along the south side of the Nottoway River just below Greenville County Rt. 619 on 9 June (Stevens).

ROCK DOVE (*Columba livia*). Locally common. There were 14 reports with a peak count of 20 birds.

MOURNING DOVE (*Zenaida macroura*). Abundant. There were 33 reports with a high count of 88 birds.

BLACK-BILLED CUCKOO (*Coccyzus erythrophthalmus*). One report, of a bird flying across U. S. 58 on 7 June just east of the Emporia town limits (Peakes), probably a late migrant. This species was once considered a "fairly common summer resident" of Brunswick County (Lewis 1938).

YELLOW-BILLED CUCKOO (*Coccyzus americanus*). Uncommon. There were 17 reports, with several parties reporting a high count of four birds.

EASTERN SCREECH-OWL (*Otus asio*). Two daylight-hour reports, one in the SW sector (Dalmases) and one in the SE sector (R. Peake and Kitchens), both on 8 June.

GREAT HORNED OWL (*Bubo virginianus*). One report from the SE sector on 8 June (Arginteanu and Robinson).

BARRED OWL (*Strix varia*). Eight reports, six of these from the SE sector. The maximum count was of three birds that flew overhead in response to a taped call along Southampton County Rt. 661 on 7 June (Mitchell et al.).

CHUCK-WILL'S-WIDOW (*Caprimulgus carolinensis*). Three reports, with a maximum of three birds calling in the SW sector on 4 June (Hansrotes).

WHIP-POOR-WILL (*Caprimulgus vociferus*). Two reports, with a maximum of six calling in the NW sector on 9 June (Dalmases).

CHIMNEY SWIFT (*Chaetura pelagica*). Common. Recorded on 25 lists with a high count of 28 birds. The Hansrotes saw birds entering a nest site on Greensville County Rt. 638 on 5 June, and on Brunswick County Rt. 603 the next day.

RUBY-THROATED HUMMINGBIRD (*Archilochus colubris*). Uncommon. Only 11 reports, although there was one very high count of 14 birds in the SE sector on 7 June (Mitchell et al.). Formerly an "abundant summer resident" in Brunswick County (Lewis 1938).

BELTED KINGFISHER (*Ceryle alcyon*). Uncommon. There were only eight reports, mostly of single birds. The high count of three was made in Emporia on 5 June (Scott, Stevens and Smith).

RED-HEADED WOODPECKER (*Melanerpes erythrocephalus*). Fairly common. Mitchell, Silsby and Silverman had the high count of six birds in both the NW sector on 5 June and the NE on 6 June, and reported one bird feeding young at the latter site. The Watsons also confirmed nesting at this site the next day. Another bird was seen excavating a nest hole on 8 June along Sussex County Rt. 662 (R. Peake and Kitchens).

RED-BELLIED WOODPECKER (*Melanerpes carolinus*). Common in the SE sector but uncommon elsewhere. The high count was of 15 birds on 8 June (Stevens).

DOWNY WOODPECKER (*Picoides pubescens*). Surprisingly uncommon. There were only 11 reports. The peak count was of nine birds on 8 June (Arginteanu and Robinson).

HAIRY WOODPECKER (*Picoides villosus*). Very uncommon, although there was one count of six birds in the SE sector on 8 June (Stevens). Five of the other six reports were of single birds.

RED-COCKADED WOODPECKER (*Picoides borealis*). This bird was not found on the foray. Silsby found what appeared to be a recent nest tree in Sussex County in the foray area on 17 June. This site was reported to the Virginia Game Department and confirmed to be a previously known site.

NORTHERN FLICKER (*Colaptes auratus*). Fairly common. The high count was of 11 birds in the NW sector on 7 June (Peakes).

PILEATED WOODPECKER (*Dryocopus pileatus*). Uncommon, with only eight reports, all from the NW and SE sectors. The high count was of six birds in the SE on 6 June (Mitchell et al.) and on 8 June (Stevens).

EASTERN WOOD-PEWEE (*Contopus virens*). Common. There were 30 reports with a maximum of 14 birds.

ACADIAN FLYCATCHER (*Empidonax virens*). Abundant in low-lying areas, common elsewhere. The high count among the 30 reports was of 27 birds.

WILLOW FLYCATCHER (*Empidonax traillii*). One report. A singing bird was found on Greensville County Rt. 651 just east of Rt. 619 on 5 June (Mitchell et al.). There are several recent spring records from southeast Virginia that were presumed to be late migrants (e.g. Armistead 1989a).

EASTERN PHOEBE (*Sayornis phoebe*). Common, with a high count of 16 birds among the 28 reports.

GREAT CRESTED FLYCATCHER (*Myiarchus crinitus*). Common. There were 25 reports, with one very high count of 24 individuals in the NW sector on 5 June (Mitchell et al.). A nest was found along Greensville County Rt. 627 on 6 June (Hansrotes and Smith).

EASTERN KINGBIRD (*Tyrannus tyrannus*). Common in the Piedmont, with 14 reports of up to 23 birds. Uncommon on the Coastal Plain, with only seven reports and a high count of three.

PURPLE MARTIN (*Progne subis*). Locally common. There are numerous martin houses in the area, and the maximum count was of 40 birds.

NORTHERN ROUGH-WINGED SWALLOW (*Stelgidopteryx serripennis*). Very uncommon. There were five reports from Emporia and the NW sector, but none was reported elsewhere. The high count was of only three birds, found in the NW on 7 June (Watsons et al.). A nest was found in the town of Emporia on 4 June (Hansrotes).

BARN SWALLOW (*Hirundo rustica*). Common. The highest count among the 22 reports was of 32 birds. A nest was found on a barn along Greensville County Rt. 624 on 5 June (Hansrotes and Smith). Formerly known as an "irregular and rare migrant" in Brunswick County (Lewis 1938).

BLUE JAY (*Cyanocitta cristata*). Fairly common. The high count out of the 24 reports was of 13 birds.

AMERICAN CROW (*Corvus brachyrhynchos*). Abundant. Young birds were also observed by several parties.

FISH CROW (*Corvus ossifragus*). Very uncommon but widespread, with six records from Emporia and the SW and SE sectors. The high count was of five birds in the SW sector on 8 June (Dalmases) and in the SE on 8 June (Stevens).

CAROLINA CHICKADEE (*Parus bicolor*). Common, but less so than expected. It was reported on 19 lists, and the high count was of 15 individuals.

TUFTED TITMOUSE (*Parus bicolor*). Common. There were 27 reports and a maximum of 26 birds.

WHITE-BREASTED NUTHATCH (*Sitta carolinensis*). Uncommon, only 14 reports with a high count of six birds.

BROWN-HEADED NUTHATCH (*Sitta pusilla*). Uncommon and local. Five of the seven reports were from the NE sector, with a peak count of four birds on 5 June (Wood and Thrasher) and again on 7 June (Guthrie) at a site on Sussex County Rt. 645. A pair was seen flying in and out of an apparent nest hole on the latter date.

CAROLINA WREN (*Thryothorus ludovicianus*). Common. There were 30 reports with a maximum of 22 individuals.

HOUSE WREN (*Troglodytes aedon*). Uncommon in urban areas; absent elsewhere. There were only three reports, and the high count was of two birds in the town of Lawrenceville on 9 June (Dalmases). This was once a fairly common summer resident of Brunswick County (Lewis 1938).

BLUE-GRAY GNATCATCHER (*Poliophtila caerulea*). Common. The high count among the 26 lists was of 17 birds. A nest was found along Southampton County Rt. 662 on 8 June (R. Peake and Kitchens).

EASTERN BLUEBIRD (*Sialia sialis*). Abundant on farmlands, especially in the NW sector. There were 32 reports, with one count of 42. Fledged young were seen on 6 June along Greenville County Rts. 627 and 639 (Hansrotes and Smith).

WOOD THRUSH (*Hylocichla mustelina*). Common. There were 28 reports, and one high count of 26.

AMERICAN ROBIN (*Turdus migratorius*). Common. A count of 36 individuals was the highest of the 29 reports. Adults were seen feeding young at two sites in the town of Emporia on 4 and 5 June (Hansrotes).

GRAY CATBIRD (*Dumetella carolinensis*). Uncommon. there were 10 scattered reports of a total of 26 birds, with a high count of nine in the NW sector on 9 June, all in Brunswick County (Dalmases). This species was considered "abundant" in Brunswick County in the early 1900s (Lewis 1938).

NORTHERN MOCKINGBIRD (*Mimus polyglottos*). Abundant. There were 32 reports with a high count of 44 birds.

BROWN THRASHER (*Toxostoma rufum*). Common. There were 21 reports with a maximum of 18 birds.

LOGGERHEAD SHRIKE (*Lanius ludovicianus*). Not found on the foray, but Fenton Day and Joe Garvin found one on Greenville County Rt. 730 about one mile west of the Meherrin River bridge on 6 July (pers. comm.). This is the same place where an individual of this species was seen carrying nesting material on 4 July 1988 during work on the VAP (Dalmases).

EUROPEAN STARLING (*Sturnus vulgaris*) Abundant.

WHITE-EYED VIREO (*Vireo griseus*). Common and widespread. There were 31 reports and a maximum of 13 birds.

SOLITARY VIREO (*Vireo solitarius*). One report, of a singing bird on Greenville County Rt. 605 at the bridge over Three Creek on 7 June (Peakes), probably one of the small summer population in the Virginia Piedmont.

YELLOW-THROATED VIREO (*Vireo flavifrons*). Fairly common. Reported frequently (25 lists), but in low numbers, with one very high count of 10 in the SE sector on 5 June (Hansrotes and Smith).

RED-EYED VIREO (*Vireo olivaceus*). Abundant. There were 35 reports and a maximum of 53 birds.

NORTHERN PARULA (*Parula americana*). Uncommon. There were 12 scattered reports, mostly from the low-lying areas. The high count was of five birds in the SE sector on 8 June (Arginteanu and Robinson).

YELLOW WARBLER (*Dendroica petechia*). The only report was of two birds along Greenville County Rts. 730 and 622 on 5 June (Hansrotes and Smith), despite ample habitat. This species was fairly common on the Branchville BBS in the mid-80s, but there has been only one report in the last two years (Silsby, pers. comm.). Lewis considered this species a "rather rare spring migrant" in Brunswick County (Lewis 1938).

YELLOW-THROATED WARBLER (*Dendroica dominica*). Surprisingly uncommon. There were only 11 reports, with a maximum of four birds in the SE on 7 June (Arginteanu and Robinson). This species is an early nester and can be difficult to find in June.

PINE WARBLER (*Dendroica pinus*). Common. There were 27 reports with a high count of 20 birds.

PRAIRIE WARBLER (*Dendroica discolor*). Common. There was one very high count of 41 birds among the 28 reports. An adult was seen carrying food in the SW sector on 6 June (Hansrotes and Smith).

CERULEAN WARBLER (*Dendroica cerulea*). One report. A singing bird was found in Fountains Creek Swamp along Greenville County Rt. 624 on 5 June by Smith and Hansrotes. Probably a late migrant, but it is noted that there had been a report of a singing bird at this same spot on 12 June 1988 (Armistead 1989a). The only known summer records on the Coastal Plain are from the Chickahominy River swamps just east of Richmond (Kain 1987).

BLACK-AND-WHITE WARBLER (*Mniotilta varia*). Very uncommon. There were three reports, all of single birds. The Peakes found one bird on 7 June in the NW sector, and the others were found in the NW and SW sectors on 9 June by Arginteanu and Robinson. This used to be a fairly common summer resident of Brunswick County (Lewis 1938).

AMERICAN REDSTART (*Setophaga ruticilla*). As for the previous species, there were only three reports of single birds. One was found in the SE sector on 5 June (Hansrotes and Smith), and the others were found in the SW (Hansrotes and Smith) and NW (Hansrotes) sectors on 6 June.

PROTHONOTARY WARBLER (*Protonotaria citrea*). Common in low-lying areas; not found elsewhere. There were 20 reports, 10 of these from the SE sector, with a high count of 18 individuals on 8 June by Arginteanu and Robinson.

WORM-EATING WARBLER (*Helmitheros vermivorus*). Only one report, of two singing birds in the NW sector on 7 June (Watsons and Kitchens).

SWAINSON'S WARBLER (*Limnothlypis swainsonii*). One report. R. Peake and Kitchens found a singing bird on Southampton County Rt. 662, 0.2 miles south of Rt. 615, on 8 June. This spot is about 50 miles west of the known breeding areas in the Dismal Swamp, so this bird was probably a vagrant. Still, there is undoubtedly much habitat in this area that would support breeding birds.

OVENBIRD (*Seiurus aurocapillus*). Fairly common, with 19 reports. Mitchell, Silsby and Silverman had an unexpectedly high count of 28 birds in the NW sector on 5 June, 24 of these on Rt. 619 alone. No other party reported more than 10. Stevens found young birds just out of the nest along the Nottoway River off Greensville County Rt. 619 on 9 June.

LOUISIANA WATERTHRUSH (*Seiurus motacilla*). Uncommon, with only nine reports. The high count of four birds, one of which was seen carrying food, was from the SW sector on 6 June (Hansrotes and Smith).

KENTUCKY WARBLER (*Oporornis formosus*). Uncommon. There were eight reports. The high count of four birds was in the SE sector on 8 June (Stevens).

COMMON YELLOWTHROAT (*Geothlypis trichas*). Common and widespread. There were 29 reports and a high count of 22 birds.

HOODED WARBLER (*Wilsonia citrina*). Fairly common. There were 22 reports with a maximum of 10 birds.

YELLOW-BREASTED CHAT (*Icteria virens*). Very common, with high counts of 36 and 30 individuals among the 29 reports.

SUMMER TANAGER (*Piranga rubra*). Common. There were 26 reports. The Mitchell party had an surprisingly high count of 32 birds in the NW sector on 5 June; no other party had more than 13.

SCARLET TANAGER (*Piranga olivacea*). Much more widespread than expected, with 17 reports; five parties recorded the maximum of three birds. Lewis considered this species a rare spring migrant in Brunswick County in the early 1900s (Lewis 1938). As late as 1973, the occurrence of two singing males near Skippers was considered noteworthy (Lynch 1974).

NORTHERN CARDINAL (*Cardinalis cardinalis*). Common. There were 35 reports with a high count of 30 birds.

BLUE GROSBEAK (*Guiraca caerulea*). Common. There was a high count of 22 birds among the 25 reports.

INDIGO BUNTING (*Passerina cyanea*). Abundant. There were 35 reports, with five over 30 individuals and a high count of 69.

RUFIOUS-SIDED TOWHEE (*Pipilo erythrophthalmus*). More common in the Piedmont, where there were 14 reports of a total of 108 birds and high count of 19. There were 13 reports and a total of 48 birds in the Coastal Plain, with a high of 10.

BACHMAN'S SPARROW (*Aimophila aestivalis*). Locally common, but found in only two previously known areas on Sussex County Rt. 645 and Brunswick County Rt. 603. Hilton had five singing birds at the Brunswick County site on 4 June, along with two presumed females and one juvenile. There were four singing birds at the Sussex County site on 6 July (Dalmases). Many other similar habitats in the foray area were checked. The site along Brunswick County Rt. 611, where the birds were originally discovered in 1986, is overgrown and is no longer suitable habitat for this species.

CHIPPING SPARROW (*Spizella passerina*). Common. There were 26 reports of this species, with high counts of 27, 26, and 24. An adult was observed feeding a cowbird fledgling at the Greenville County Rt. 730 Meherrin River bridge on 8 June (R. Peake and Kitchens).

FIELD SPARROW (*Spizella pusilla*). Common. There were 29 reports with a maximum of 19 birds.

GRASSHOPPER SPARROW (*Ammodramus savannarum*). Uncommon and local. There were only five reports, four from the SE sector. The maximum of five birds was reported by the Hansrotes and Smith on 5 June. There is no shortage of habitat, but this area is the edge of the known range of this species.

HENSLOW'S SPARROW (*Ammodramus henslowii*). Not found on the foray despite a thorough search. A single bird was singing sporadically at the known site along Sussex County Rt. 645 on 4 May (Robert Hilton, pers. comm.) and on 19 May (Dalmases). Hilton also reported six singing birds at this site on 21 June, but the Dalmases could not find them on 6 July.

The habitat of this site resembles pocosin scrub, nothing like the more typical weedy hayfield or marsh habitats. It is possible that these birds are spreading from recently discovered sites on the North Carolina Coastal Plain, which are also described as clearcut pocosins (LeGrand 1989).

SONG SPARROW (*Melospiza meloda*). Uncommon in urban areas, rare elsewhere. Four of the 12 reports were from Emporia, where the Watsons had the high count of five on 7 June. All of the other reports were of single birds.

RED-WINGED BLACKBIRD (*Agelaius phoeniceus*). Uncommon. There were 16 reports. The high count of 26 individuals was reported from the NW sector on 5 June (Mitchell et al.), but no one else had more than eight.

EASTERN MEADOWLARK (*Sturnella magna*). Common. There were 22 reports with a high count of 48 birds.

COMMON GRACKLE (*Quiscalus quiscula*). Abundant. There were 28 reports, with a high count of 64 individuals. A bird was observed feeding three fledged young at Lake Gaston on 8 June (Dalmases).

BROWN-HEADED COWBIRD (*Molothrus ater*). Locally common. There was one report of 58 birds, but the other 20 reports totaled only 76, and many of these were of single birds.

ORCHARD ORIOLE (*Icterus spurius*). One report. Two birds were found along Greensville County Rt. 651 on 6 June (Wood and Thrasher).

NORTHERN ORIOLE (*Icterus galbula*). One report. Two birds were found along Greensville County Rt. 651 on 6 June (Wood and Thrasher).

HOUSE FINCH (*Carpodacus mexicanus*). Common in urban areas, uncommon elsewhere. There were 14 reports. The peak count, which included at least one nest, was of 14 birds in the town of Emporia on 4 June (Hansrotes).

AMERICAN GOLDFINCH (*Carduelis tristis*). Locally common. There were only 18 records, but a high count of 56.

HOUSE SPARROW (*Passer domesticus*). Common.

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MONK PARAKEETS NESTING IN NEWPORT NEWS, VIRGINIA

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On 27 March 1991 Virginia Wildlife Division and Virginia Department of Agriculture and Consumer Services staff responded to a complaint within a housing subdivision in the city of Newport News. The problem was the depredation of fruit trees by Monk Parakeets (*Myiopsitta monachus*). A colony of parakeets was found nesting in the backyards of several of the residences. There were six nests, the largest measuring approximately one meter in diameter and located on top of a Purple Martin (*Progne subis*) house. Other nests were all in loblolly pines (*Pinus taeda*) and located within 15-20 m of the largest nest. The colony consisted of 40-50 individuals, and at all nests birds were entering and departing. In conversation with residents, it was learned that the parakeets visit feeders throughout the neighborhood and are present all year.

The parakeet is considered an agricultural pest and, since a complaint had been received, it was decided that the birds should be removed from the wild and placed in captivity. It was found that this large colony had its beginnings approximately 11 years ago. A resident had had three birds in an outdoor porch or aviary, and while furniture was being moved, the birds escaped from the porch when the door was left open. The birds have been increasing ever since.

An attempt to capture the birds was carried out on 14 May 1991 by the authors and persons from the Virginia Department of Agriculture. Two 7x12 m mist nets were erected at 4:30 p.m. in the yard containing the largest nest. The yard had been baited with commercial birdseed mix and sunflower seeds. Many species of birds and mammals were using the bait and only two to five parakeets coming to the bait. During the trapping period only 13 to 17 parakeets were seen. Only three parakeets came to the part of the bait which was outside the area covered by the mist nets. At 7:30 p.m. the nets were closed and no parakeets had been trapped.

No further attempts at trapping have been undertaken. Many of the home owners are removing the trees containing the parakeet nests. The colony will be forced to move the nests.

VIRGINIA CHRISTMAS BIRD COUNTS—1990-91 SEASON

TETA KAIN

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Forty-two Christmas counts were held in Virginia in 1990-91, the most ever conducted in the state in one year. The newest addition was the Martinsville count, conducted and compiled by James Beard. The center of the Martinsville count circle is located at the south end of the dam at Martinsville Reservoir No. 2, and includes Martinsville Raceway to the south, all of Martinsville and Collinsville, and portions of the Smith River.

A re-entry to the list of Virginia counts is Bristol. That count has not appeared in *The Raven* since 1981, nor have the data been published in *American Birds* for several years. Compiler, Richard Lewis, states, however, that the count has been held continuously since 1956 and results have published in *The Migrant*, Tennessee's state ornithological journal. The center of the Bristol count circle is located in Virginia at the intersection of Rts. 647 and 654 in Washington County. Neither the Bristol nor the Claytor Lake count results were submitted to *American Birds* for publication this year.

Two other counts, Breaks Interstate Park and John H. Kerr Reservoir, have been reorganized and appear on this list, after an absence of two years for each count. Roanoke was the only regular Virginia count not held in 1990-91. That lapse snapped a record of 38 continuous years that that census has been conducted.

Approximately 733 field observers participated in the 42 counts, and of that number, 93 took part in two counts, 29 in three, 12 in four, two in five, and one in six counts. There were also 67 feeder watchers. A total of 199 species, one form, and two races were found in 1990-91, four more species than were counted last year. One new species, the Yellow Warbler (*Dendroica petechia*), was added to the cumulative Christmas count list this year, and several other unusual species turned up around the state.

Total party-hours reached an all-time high of 3364.5 in 1990-91. Hours on foot were lower than the totals of recent years, probably due to the high number of counts that experienced rain during most of the daylight hours. Time spent owling, however, was almost the same as last year's total.

The counts in Table 1 on pages 36-59 are arranged in an order generally from east to west and north to south. Counts 1-11 are located on the Coastal Plain, 12-23 on the Piedmont, and 25-42 in the Mountains and Valleys region of the state.

(Continued on page 60)

TABLE 1. (on the following 24 pages). The 1990-91 Christmas bird counts in Virginia. The bold, underlined figures indicate an unusual species or an unusual number of individuals for that particular count. "CW" indicates that the species was seen during count week, but not on count day.

	Red-throated Loon	Common Loon	Pied-billed Grebe	Horned Grebe	Northern Gannet	Brown Pelican	Great Cormorant	Double-crested Cormorant	cormorant, sp.
1. Chincoteague	26	105	2	38	4	...	...	3	...
2. Wachapreague	...	3	3	1	...	...	...	...	...
3. Cape Charles	25	72	8	57	1815	...	16	40	...
4. Little Creek	15	21	20	4	7600	64	16	525	...
5. Back Bay	29	63	3	1	686	26	...	13	...
6. Newport News	3	21	11	23	65	...	...	252	...
7. Mathews	2	35	3	9	58	...	...	1	...
8. Williamsburg	...	7	12	75	...	...	...	325	...
9. Hopewell	3	...	...	...	...	43	...
10. Brooke	...	4	17	...	...	...	...	...	...
11. Fort Belvoir	...	2	12	13	...	...	...	3	2
12. Manassas-B.R.	...	4	...	...	...	...	...	...	...
13. Nokesville	1	...	...	...	...	...	...
14. Lake Anna	...	2	12	8	...	...	...	...	...
15. Gordonsville	2	...	...	...	...	...	...
16. Charlottesville
17. Warren
18. Kerr Reservoir	...	17	11	7	...	...	...	16	...
19. Banister WMA	1	...	...	...	...	...	...
20. Lynchburg	9	...	...	...	...	...	...
21. Danville	CW	...	...	...	...	...	...
22. Martinsville	3	...	...	...	...	...	...
23. Philpott Res.	...	2	8	1	...	...	...	...	...
24. Calmes Neck
25. N. Shen. Valley	7	...	...	...	...	...	...
26. Shen. NP-Luray	1	...	...	...	...	...	...
27. Big Flat Mtn.
28. Rockingham Co.
29. Augusta Co.
30. Waynesboro
31. Lexington	1	...	...	...	...	...	...
32. Peaks of Otter
33. Clifton Forge
34. Fincastle
35. Blacksburg	1	...	...	...	...	...	...
36. Claytor Lake	...	2	7	...	...	...	...	...	...
37. Tazewell	4	...	...	...	...	...	...
38. Glade Spring	2	...	...	...	...	...	...
39. Bristol	...	2	10	3	...	...	...	1	...
40. Nickelsville
41. Breaks I.S. Park
42. Wise County	1	...	...	...	...	...	...
Total individuals	100	362	175	240	10,228	90	32	1222	2

	American Bittern	Great Blue Heron	Great Egret	Snowy Egret	Little Blue Heron	Tricolored Heron	Cattle Egret	Green-backed Heron	Black-crowned Night-Heron	White Ibis	Glossy Ibis	Tundra Swan
...	...	47	28	3	3	10	...	...	1	...	...	470
...	...	21	...	...	...	...	...	...	18	...	...	21
1	1	81	32	6	1	15	...	...	5	1	1	54
...	...	162	28	...	...	...	...	...	8	...	...	6
1	1	38	8	...	...	...	7	...	1	...	...	155
...	...	65	...	...	...	...	...	...	8	...	...	1
...	...	47	1	...	...	...	...	...	...	...	...	307
...	...	106	...	...	...	...	...	...	...	...	...	156
...	...	222	1	...	...	...	...	...	2	...	...	1
...	...	29	...	...	...	...	...	...	...	...	...	175
...	...	115	...	...	...	...	...	...	1	...	...	113
...	...	10	...	...	...	...	...	...	...	...	...	...
...	...	14	CW	...	...	...	...	...	...	...	...	...
...	...	16	...	...	...	...	...	...	...	...	...	...
...	...	9	...	...	...	...	...	...	...	...	...	...
...	...	10	...	...	...	...	...	...	...	...	...	...
...	...	7	...	...	...	...	...	...	...	...	...	...
...	...	54	...	...	...	...	...	...	...	...	...	...
...	...	24	...	...	...	...	...	1	...	...	...	...
...	...	6	...	...	...	...	...	...	...	...	...	1
...	...	12	...	...	...	...	...	...	...	...	...	...
...	...	3	...	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...
...	...	5	...	...	...	...	...	...	...	...	...	19
...	...	31	...	...	...	...	...	...	...	...	...	5
...	...	13	...	...	...	...	...	...	...	...	...	...
...
...	...	5	...	...	...	...	...	...	...	...	...	...
...	...	8	...	...	...	...	...	...	...	...	...	1
...	...	12	...	...	...	...	...	...	...	...	...	...
...	...	2	...	...	...	...	...	...	...	...	...	...
...
...	...	2	...	...	...	...	...	...	...	...	...	...
...	...	7	...	...	...	...	...	...	...	...	...	1
...	...	11	...	...	...	...	...	...	...	...	...	...
...	...	5	...	...	...	...	...	...	...	...	...	...
...	...	5	...	...	...	...	...	...	...	...	...	...
...	...	6	...	...	...	...	...	...	...	...	...	...
...	...	20	...	...	...	...	...	...	...	...	...	...
...	...	2	...	...	...	...	...	...	...	...	...	...
...
...	...	1	...	...	...	...	...	...	...	...	...	...
Total individuals	2	1234	98	9	4	25	7	1	44	1	1	1486

Mallard hybrid	Northern Pintail	Northern Shoveler	Gadwall	Eurasian Wigeon	American Wigeon	Canvasback	Redhead	Ring-necked Duck	Greater Scaup	Lesser Scaup	scaup, sp.
2	1098	46	103	...	1	...	...	...	...	3	...
...	3	...	4	...	...	...	...	3	...	...	1
...	109	21	235	1	489	...	3	106	11	18	20
...	48	33	53	1	266	46	...	14	3	1	10
...	86	13	13	...	6	1	...	3	...	1	15
...	4	3	34	...	336	166	8	101	25	32	...
...	...	...	...	...	8	11	...	...	...	...	...
...	105	...	14	...	44	2647	4	194	...	54	...
...	24	...	...	...	...	3	...	407	...	6	...
...	3	2	5	...	80	4	...	17	...	182	...
6	85	69	389	...	34	176	12	78	255	4845	13,600
...	...	...	...	...	...	...	...	...	...	1	...
...	...	...	...	...	8	...	...	...	...	...	...
...	...	...	...	...	...	...	1	...	...	3	...
...	...	...	...	...	...	...	...	100	...	...	...
...	...	...	...	...	...	...	...	1	...	...	...
...	...	...	...	...	...	...	...	4	...	...	...
...	...	...	12	...	4	...	...	125	...	53	...
...	2	...	...	...	2	31	...	3	...	...	...
...	...	1	...	...	...	...	...	3	...	3	...
...	1	...	1	...	...	...	...	1	...	...	...
...	CW	...	...	...	CW	...	...	2	...	...	...
...	...	...	...	...	29	...	...	14	...	...	...
...	4	2	4	...	10	...	...	3	...	...	...
...
...	...	2	15	...	69	...	...	...	...	...	...
...	...	...	...	...	1	...	...	1	...	2	...
...	27	...	...	...	8	...	...	CW	CW	...	...
...	...	...	...	...	1	...	...	CW	...	9	...
...
...
...	...	...	...	...	3	...	...	2	...	38	...
...	...	...	5	...	4	...	...	...	...	...	...
...
...
...	1	1	9	...	12	...	...	26	...	...	...
...
...	...	...	...	...	...	...	1	...	...	...	...
...
8	1600	193	896	2	1415	3085	29	1208	294	5251	13,646

	King Eider	Oldsquaw	Black Scoter	Surf Scoter	White-winged Scoter	scoter, sp.	Common Goldeneye	Bufflehead	Hooded Merganser
1. Chincoteague	...	103	386	538	55	1	54	323	48
2. Wachapreague	...	24	...	...	...	...	15	344	4
3. Cape Charles	6	144	4671	1600	42	...	137	1055	378
4. Little Creek	...	27	9	18	...	1	13	395	550
5. Back Bay	...	1	17	8	...	...	1	6	7
6. Newport News	...	147	...	1301	...	...	96	432	167
7. Mathews	...	237	85	624	2	77	608	1328	8
8. Williamsburg	73	238	287
9. Hopewell	4	3	81
10. Brooke	1	32	2
11. Fort Belvoir	...	11	...	3	8	16	4	384	87
12. Manassas-B.R.	1	...	12
13. Nokesville	30
14. Lake Anna	4	97	4
15. Gordonsville	1	23
16. Charlottesville	5
17. Warren	7	3	4
18. Kerr Reservoir	23	35
19. Banister WMA	6	19
20. Lynchburg	CW	11
21. Danville	2
22. Martinsville	1	CW	12
23. Philpott Res.	32	...
24. Calmes Neck	...	1	...	...	...	...	...	...	...
25. N. Shen. Valley
26. Shen. NP-Luray
27. Big Flat Mtn.
28. Rockingham Co.
29. Augusta Co.
30. Waynesboro	CW	...
31. Lexington
32. Peaks of Otter
33. Clifton Forge
34. Fincastle	7	4
35. Blacksburg	70	20
36. Claytor Lake	37	7
37. Tazewell
38. Glade Spring
39. Bristol	20	81
40. Nickelsville
41. Breaks I.S. Park
42. Wise County
Total individuals	6	695	5168	4092	107	95	1019	4836	1929

Common Merganser	Red-breasted Merganser	Ruddy Duck	duck, sp.	Black Vulture	Turkey Vulture	Osprey	Bald Eagle	Northern Harrier	Sharp-shinned Hawk	Cooper's Hawk	Northern Goshawk
...	133	33	...	20	113	1	1	15	5	2	...
...	42	1	...	10	47	...	3	9	7	3	...
1	503	...	...	89	210	...	3	31	8	2	1
...	1100	51	...	...	10	1	4	4	14	2	1
...	76	...	100	28	12	...	...	27	7	5	...
3	80	376	...	...	CW	...	...	5	6	1	...
29	155	10	...	10	160	...	3	10	15	2	...
...	...	2873	...	15	112	...	9	2	11	1	...
...	...	14	...	28	37	...	40	23	13	2	...
32	39	...	...	5	62	...	8	2	1	1	...
81	11	2635	...	...	31	...	67	2	7	1	...
...	...	11	...	1	6	...	1	5	4	1	...
...	CW	...	...	57	220	...	2	30	9	4	...
...	...	1	...	63	158	...	2	6	2	...	...
...	...	...	...	37	87	...	...	3	5	1	...
...	...	...	...	70	223	...	...	...	5	...	...
...	...	...	...	101	262	...	...	2	7	3	...
...	...	...	...	14	13	...	3	9	5	2	...
8	...	...	...	75	265	...	2	4	3	1	...
...	...	...	...	122	222	...	...	...	6	2	...
...	...	...	90	2	24	...	...	3	1	6	...
...	...	...	...	56	79	...	...	2	1	1	...
...	...	...	...	5	12	...	...	1	CW	...	...
...	...	...	...	8	54	...	...	2	4	1	...
...	9	2	...	82	361	...	CW	36	5	7	...
...	...	...	...	393	340	...	...	22	6	21	...
...	...	...	...	...	4	...	...	...	...	...	...
...	...	...	...	26	45	...	...	1	2	2	...
...	1	...	...	5	212	...	...	4	2	3	...
...	...	...	...	34	83	...	...	1	3	2	...
...	...	1	...	35	61	...	...	2	2	...	...
...	...	...	...	2	18	...	...	...	1	...	...
...	...	...	...	2	32	...	...	...	1	1	...
...	...	...	...	16	83	...	1	...	7	2	...
...	2	...	...	148	83	...	...	...	8	4	...
...	...	...	6	CW	3	...	...	6	3	2	...
...	...	CW	...	...	...	...	...	1	2	3	...
...	...	...	...	71	76	...	...	1	3	1	...
...	...	...	...	26	4	...	1	4	3	3	...
...
...	...	...	...	...	...	...	...	...	1	...	...
...
154	2149	6010	196	1656	3824	2	150	275	195	95	2

	Accipiter, sp.	Red-shouldered Hawk	Red-tailed Hawk	Rough-legged Hawk	Buteo, sp.	Golden Eagle	American Kestrel	Merlin	Peregrine Falcon
1. Chincoteague	...	4	16	...	...	...	22	2	1
2. Wachapreague	...	4	14	...	...	...	57	1	1
3. Cape Charles	...	4	31	...	...	...	42	1	3
4. Little Creek	...	2	11	...	...	...	26	3	...
5. Back Bay	...	10	25	...	...	...	59	3	...
6. Newport News	...	3	5	...	...	...	12	...	1
7. Mathews	...	11	14	...	1	...	24	...	...
8. Williamsburg	...	9	19	...	...	...	15	1	...
9. Hopewell	...	19	33	...	...	...	35	...	...
10. Brooke	...	18	20	...	...	...	10	...	...
11. Fort Belvoir	1	21	30	...	...	...	8	...	2
12. Manassas-B.R.	...	10	27	...	1	...	...	...	...
13. Nokesville	...	24	113	2	...	...	79	2	...
14. Lake Anna	...	4	34	...	...	...	17	...	...
15. Gordonsville	...	7	26	...	...	...	14	...	...
16. Charlottesville	...	1	24	...	...	...	17	...	...
17. Warren	...	1	51	...	...	...	25	...	...
18. Kerr Reservoir	...	4	20	1	...	...	18	...	...
19. Banister WMA	...	5	17	...	...	...	25	...	...
20. Lynchburg	...	1	18	...	...	...	11	...	...
21. Danville	...	1	21	...	...	...	19	...	...
22. Martinsville	...	1	19	...	...	...	8	...	...
23. Philpott Res.	5	...	2	...	2	...	...
24. Calmes Neck	...	5	54	3	...	...	39	1	...
25. N. Shen. Valley	...	2	96	5	...	CW	83	...	...
26. Shen. NP-Luray	...	3	78	3	...	...	29	...	...
27. Big Flat Mtn.	3	...	...	...	...	...	...
28. Rockingham Co.	14	...	...	...	38	...	...
29. Augusta Co.	45	1	...	...	76	...	...
30. Waynesboro	...	2	36	...	...	1	23	1	...
31. Lexington	...	2	14	...	...	...	5	...	...
32. Peaks of Otter	8	...	...	...	...	...	...
33. Clifton Forge	4	...	...	...	5	...	...
34. Fincastle	...	1	34	...	...	...	39	...	...
35. Blacksburg	2	1	19	...	3	...	20	...	...
36. Claytor Lake	19	...	...	...	18	...	...
37. Tazewell	7	...	...	...	10	...	...
38. Glade Spring	37	...	...	1	34	...	...
39. Bristol	...	1	11	...	...	...	38	...	...
40. Nickelsville	...	1	5	...	...	...	16	...	...
41. Breaks I.S. Park	2	...	...	...	1	...	...
42. Wise County	...	2	CW	...	...	...	4	...	...
Total individuals	3	184	1079	15	7	2	1023	15	8

hawk, sp.	Ring-necked Pheasant	Ruffed Grouse	Wild Turkey	Northern Bobwhite	Clapper Rail	King Rail	Virginia Rail	Sora	Common Moorhen	American Coot	Black-bellied Plover
...	35	2	...	1	...	...	...	45
...	17	2	...	...	...	...	...	80
...	11	27	...	1	...	1	3	95
...	3	5	...	...	...	...	140	...
...	23	...	10	13	6	1	1	1
...	1	2	...	...	...	...	4	37
...	13	2	...	...	...	...	...	8
...	3	51	9	...	...	...	...	2	...
...	1	...	40	15	...	...	...	...	...	...	...
...	1	29	...	...	...	...	...	700	...
...	32	...
...	CW	10	...	...	...	...	...	20	...
...	11	...	...	...	...	...	...	...
...	CW	67	...	...	...	...	...	11	...
...	19	...	...	...	...	...	...	...	...
...	...	6	13	17	...	...	...	...	...	...	...
...	29	26	...	...	...	...	...	...	...
...	1	4	...	...	1	...	...	...	...
...	14	17	...	...	...	...	...	...	...
...	21	1	...	...	...	...	...	4	...
...	1	...	2	59	...	...	...	...	...	1	...
...	11	1	...	...	...	...	...	...	...
...	...	CW	5	...	...	...	...	...	...	...	...
...	...	13	14	8	...	...	...	...	...	1	...
...	...	8	41	43	...	...	...	...	...	3	...
...	...	23	46	11	...	...	...	...	...	...	...
...	...	6	...	...	...	...	...	...	...	...	...
...	...	CW	...	CW	...	...	...	...	...	1	...
...	2	...	...	...	...	...	...	...
...	...	3	...	...	...	...	...	...	...	...	...
...	...	5	2	...	...	...	...	...	...	...	...
...	...	3	...	...	...	...	...	...	...	...	...
...	...	3	53	...	...	...	...	...	...	...	...
...	2	1	...	...	...	...	...	...	...
...	...	1	2	8	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	...	49	...
...	...	1	...	...	...	...	...	...	...	1	...
...	...	4	...	1	...	...	...	...	...	...	...
...	29	...	...	...	...	...	37	...
...	...	1	...	...	...	...	...	...	...	...	...
...	8	...	...	...	...	...	...	...	...
...	...	2	...	...	...	...	...	...	...	...	...
1	1	80	327	514	49	10	16	6	2	1010	266

	Semipalmated Plover	Piping Plover	Killdeer	American Oystercatcher	Greater Yellowlegs	Lesser Yellowlegs	Willet	Spotted Sandpiper	Whimbrel
1. Chincoteague	1	...	1	138	65	11	16	...	...
2. Wachapreague	30	CW	10	...	...	...	...
3. Cape Charles	3	2	43	236	94	3	50	1	1
4. Little Creek	15	62	...	...	...	...	...
5. Back Bay	146	...	3	1	...	...	...
6. Newport News	1	...	72	...	10	...	...	...	...
7. Mathews	30	...	1	...	...	...	...
8. Williamsburg	31	...	...	...	...	...	...
9. Hopewell	92	...	...	...	...	...	...
10. Brooke
11. Fort Belvoir	39	...	...	3	...	...	...
12. Manassas-B.R.	26	...	...	...	...	...	...
13. Nokesville	33	...	...	...	...	...	...
14. Lake Anna	11	...	...	...	...	...	...
15. Gordonsville
16. Charlottesville	1	...	...	...	...	...	...
17. Warren	2	...	...	...	...	...	...
18. Kerr Reservoir	1	...	...	...	...	...	...
19. Banister WMA	6	...	...	...	...	...	...
20. Lynchburg	5	...	...	...	...	...	...
21. Danville	69	...	...	...	...	...	...
22. Martinsville	13	...	...	...	...	...	...
23. Philpott Res.	2	...	...	...	...	...	...
24. Calmes Neck	22	...	...	...	...	...	...
25. N. Shen. Valley	24	...	...	...	...	...	...
26. Shen. NP-Luray	2	...	...	...	...	...	...
27. Big Flat Mtn.
28. Rockingham Co.	17	...	...	...	...	...	...
29. Augusta Co.
30. Waynesboro	26	...	...	...	...	...	...
31. Lexington
32. Peaks of Otter
33. Clifton Forge	1	...	...	...	...	...	...
34. Fincastle	2	...	...	...	...	...	...
35. Blacksburg	25	...	...	...	...	...	...
36. Claytor Lake
37. Tazewell
38. Glade Spring	8	...	...	...	...	...	...
39. Bristol	44	...	...	...	...	...	...
40. Nickelsville
41. Breaks I.S. Park	1	...	...	...	...	...	...
42. Wise County	6	...	...	...	...	...	...
Total individuals	5	2	846	436	183	18	66	1	1

[illegible]

	Long-billed Dowitcher	dowitcher, sp.	Common Snipe	American Woodcock	phalarope, sp.	Laughing Gull	Little Gull	Common Black-headed Gull	Bonaparte's Gull
1. Chincoteague	14	8	1	2	...	...	...	1	2
2. Wachapreague	CW	...	...	...	...	...
3. Cape Charles	...	7	6	30	...	...	...	...	618
4. Little Creek	10	1	...	3075
5. Back Bay	4	5	...	1	...	...	178
6. Newport News	19	2	...	1	...	...	...
7. Mathews	1	...	...	...	...	CW
8. Williamsburg	1	1	...	6	...	...	29
9. Hopewell	15	1	...	2	...	...	...
10. Brooke
11. Fort Belvoir	70	1	...	16	...	...	6
12. Manassas-B.R.	1	...	...	...	...	...	1
13. Nokesville	5	1	...	...	...	...	...
14. Lake Anna	35
15. Gordonsville	13	...	...	...	...	...	...
16. Charlottesville	4	1	...	...	...	...	...
17. Warren	2	...	...	...	...	...	...
18. Kerr Reservoir	10	3	...	...	...	...	...
19. Banister WMA	3	4	...	...	...	...	3
20. Lynchburg	1	...	...	...	...	...
21. Danville
22. Martinsville
23. Philpott Res.	CW	...	...	...	...
24. Calmes Neck	6	...	...	...	...	...	...
25. N. Shen. Valley	12	...	...	...	...	...	...
26. Shen. NP-Luray	3	1	...	...	...	...	...
27. Big Flat Mtn.	1	...	...	...	...	...
28. Rockingham Co.	17	...	...	...	...	...	...
29. Augusta Co.	3	...	...	...	...	...	...
30. Waynesboro	1	...	...	...	...	...	...
31. Lexington	9	...	...	...	...	...	...
32. Peaks of Otter
33. Clifton Forge
34. Fincastle	6	...	...	...	...	...	...
35. Blacksburg	7	...	...	...	...	...	...
36. Claytor Lake	1	...	...	...	...	...	...
37. Tazewell
38. Glade Spring	4	...	...	...	...	...	...
39. Bristol	17
40. Nickelsville
41. Breaks I.S. Park
42. Wise County
Total individuals	14	15	223	55	-	36	1	1	3964

Ring-billed Gull	Herring Gull	Lesser Black-backed Gull	Glaucous Gull	white-winged gull, sp.	Great Black- backed Gull	gull, sp.	Royal Tern	Forster's Tern	Rock Dove	Mourning Dove	Barn Owl
1055	924	...	...	...	195	...	...	...	105	460	...
4624	2435	...	...	...	52	1061	...	...	179	322	...
1573	1874	1	...	...	467	...	...	...	464	360	1
9650	5355	4	...	1	3075	...	6	21	885	585	...
1900	600	3	...	...	237	...	5	3	290	730	...
6086	567	...	...	...	143	...	...	1	955	1285	...
1220	697	...	...	...	99	...	...	15	33	524	...
1440	367	...	...	...	115	...	...	51	115	349	...
8924	161	...	...	...	81	...	...	...	417	601	...
1200	600	...	...	...	109	...	...	...	11	326	...
2456	875	1	...	...	160	...	...	...	300	862	...
194	8	...	...	...	...	...	...	...	294	565	2
5950	1697	2	1	...	166	...	...	...	404	836	23
1767	195	...	...	...	17	...	...	...	50	192	...
...	...	...	...	...	...	...	...	...	86	328	...
...	...	...	...	...	...	...	...	...	286	658	...
6	...	...	...	...	...	...	...	...	232	520	...
850	3	...	...	...	...	...	...	...	60	220	...
197	...	...	...	...	...	...	...	...	201	401	...
CW	...	...	...	...	...	...	...	...	197	605	...
12	...	...	...	...	...	...	...	...	549	690	...
13	...	...	...	...	...	...	...	...	56	185	...
...	...	...	...	...	...	CW	...	...	66	40	...
...	...	...	...	...	...	...	...	...	718	1256	...
...	...	...	...	...	...	...	...	...	1095	2778	...
...	...	...	...	...	...	...	...	...	542	920	2
...
...	...	...	...	...	...	...	...	...	603	1324	...
...	...	...	...	...	...	...	...	...	480	847	...
CW	...	...	...	...	...	...	...	...	514	453	...
...	...	...	...	...	...	...	...	...	131	105	...
...
3	...	...	...	...	...	...	...	...	236	16	...
...	...	...	...	...	...	...	...	...	406	608	...
562	4	...	...	...	...	21	...	...	815	2546	...
192	...	...	...	...	...	...	...	...	199	216	4
1	...	...	...	...	...	...	...	...	111	87	...
...	...	...	...	...	...	...	...	...	116	146	1
230	...	...	...	...	...	...	...	...	155	529	1
...	...	...	...	...	...	...	...	...	9	414	...
...	...	...	...	...	...	...	...	...	50	14	...
...	...	...	...	...	...	...	...	...	134	147	...
50,105	16,362	11	1	1	4916	1082	11	91	12,549	24,050	34

	Eastern Screech-Owl	Great Horned Owl	Barred Owl	Long-eared Owl	Short-eared Owl	Belted Kingfisher	Red-headed Woodpecker	Red-bellied Woodpecker	Yellow-bellied Sapsucker
1. Chincoteague	3	3	...	...	5	18	...	39	4
2. Wachapreague	...	2	...	...	...	22	...	22	2
3. Cape Charles	14	9	...	...	2	21	...	37	6
4. Little Creek	5	6	...	...	...	31	3	59	...
5. Back Bay	9	17	4	...	...	26	...	51	4
6. Newport News	6	1	...	...	...	40	36	...	1
7. Mathews	4	3	1	...	...	30	...	66	9
8. Williamsburg	1	8	1	...	...	32	22	105	20
9. Hopewell	...	8	6	...	...	36	28	158	25
10. Brooke	...	...	...	...	...	12	1	64	10
11. Fort Belvoir	1	7	5	...	...	51	5	169	18
12. Manassas-B.R.	2	1	...	...	...	3	10	20	2
13. Nokesville	2	31	5	...	5	2	...	63	6
14. Lake Anna	2	2	2	...	...	8	...	15	...
15. Gordonsville	1	2	2	...	...	3	1	40	5
16. Charlottesville	1	1	...	...	...	16	...	53	17
17. Warren	2	1	...	...	...	5	1	56	13
18. Kerr Reservoir	2	15	6	...	...	17	...	33	8
19. Banister WMA	6	1	2	...	...	6	70	36	13
20. Lynchburg	17	4	2	...	...	13	...	42	15
21. Danville	2	...	2	...	...	5	4	21	1
22. Martinsville	4	...	...	...	...	3	1	16	3
23. Philpott Res.	1	1	...	...	...	7	...	6	4
24. Calmes Neck	3	2	1	1	1	5	7	109	9
25. N. Shen. Valley	9	3	3	...	42	26	3	111	8
26. Shen. NP-Luray	11	11	2	...	...	12	...	44	7
27. Big Flat Mtn.	...	1	...	...	...	...	...	9	4
28. Rockingham Co.	1	3	...	...	...	5	...	21	1
29. Augusta Co.	3	3	1	...	4	16	...	48	3
30. Waynesboro	1	5	3	...	...	13	...	23	8
31. Lexington	9	3	...	...	...	12	...	15	5
32. Peaks of Otter	9	...	...	...	...	...	...	9	9
33. Clifton Forge	2	...	...	...	...	3	...	7	3
34. Fincastle	11	...	...	...	...	19	1	18	3
35. Blacksburg	5	2	1	...	...	24	...	64	1
36. Claytor Lake	2	1	...	...	6	3	1	14	2
37. Tazewell	2	...	1	...	...	9	...	2	4
38. Glade Spring	2	5	...	...	...	17	...	17	4
39. Bristol	4	9	1	...	...	10	...	13	5
40. Nickelsville	...	...	...	...	...	3	...	8	5
41. Breaks I.S. Park	...	...	...	...	...	1	...	...	...
42. Wise County	3	1	1	...	...	2	...	16	3
Total individuals	162	172	52	1	65	587	194	1719	270

Downy Woodpecker	Hairy Woodpecker	Northern Flicker	Pileated Woodpecker	Eastern Phoebe	Western Kingbird	Horned Lark	Tree Swallow	Blue Jay	American Crow	Fish Crow	crow, sp.	Common Raven
39	12	135	11	4	...	21	...	178	150	3	...	...
14	2	45	3	1	1	...	...	163	458	8	...	...
26	3	120	...	2	...	1	18	160	212	...	...	...
35	4	81	17	3	...	...	...	129	2320	3220	...	...
41	5	160	27	8	...	1	...	174	185	12	...	...
28	...	83	8	...	...	11	...	176	236	15	...	...
42	5	132	12	3	...	...	...	247	882	4	...	...
66	12	177	51	11	...	...	...	214	309	29	...	...
77	8	288	42	16	...	...	...	302	495	117	...	...
96	15	103	28	8	...	...	...	228	550	10	...	...
184	50	200	53	3	...	4	...	134	1765	240	366	...
40	6	68	4	2	...	...	...	124	562	10	...	...
67	17	111	18	4	...	130	...	221	937	247	315	...
10	4	21	3	3	...	3	...	66	893	...	...	...
43	4	96	8	7	...	...	...	51	916	...	...	...
76	10	85	41	9	...	...	...	17	541	13	...	3
84	11	41	32	14	...	36	...	22	857	...	...	4
36	19	65	5	24	...	...	...	190	305	...	...	...
18	14	96	10	8	...	...	...	229	317	...	...	...
52	8	36	27	11	...	8	...	159	525	...	...	3
7	3	31	3	7	...	12	...	234	553	...	...	...
34	6	32	2	11	...	...	...	57	213	...	...	3
32	9	15	19	6	...	3	...	1	226	...	...	3
112	17	47	48	4	...	247	...	172	504	7	...	5
166	26	79	50	3	...	78	...	169	2339	...	...	8
53	20	24	39	12	...	251	...	110	1867	2	21	88
21	4	16	22	...	...	...	...	2	21	...	...	9
19	2	9	9	1	...	293	...	94	261	CW	...	2
41	3	10	4	...	...	35	...	272	951	88	436	2
51	3	18	26	10	...	79	...	63	1606	322	904	13
32	2	3	13	2	...	...	...	10	574	...	...	2
33	6	4	10	9	...	...	...	3	85	...	...	5
58	1	8	11	1	...	...	...	12	242	...	...	4
36	6	15	19	1	...	7	...	21	1414	...	...	5
105	14	43	27	5	...	7	...	160	1110	...	...	9
46	14	17	20	2	...	8	...	67	263	...	...	6
13	1	4	1	...	...	...	...	80	85	...	...	2
32	3	12	4	2	...	...	...	67	253	...	...	1
23	6	7	18	9	...	...	...	115	657	...	...	4
22	2	14	9	10	...	...	...	93	402	...	...	...
8	...	3	12	...	...	...	...	1	30	...	...	1
26	5	2	5	...	...	12	...	50	190	...	...	2
2044	362	2556	771	236	1	1247	18	5037	27,261	4347	2042	184

	Black-capped Chickadee	Carolina Chickadee	chickadee, sp.	Tufted Titmouse	Red-breasted Nuthatch	White-breasted Nuthatch	Brown-headed Nuthatch	Brown Creeper	Carolina Wren
1. Chincoteague	...	159	...	35	5	5	18	7	99
2. Wachapreague	...	137	...	32	2	1	10	2	74
3. Cape Charles	...	212	...	31	12	3	14	27	163
4. Little Creek	...	143	...	69	6	13	22	20	75
5. Back Bay	...	176	...	86	...	32	29	5	142
6. Newport News	...	133	...	88	4	7	...	6	47
7. Mathews	...	207	...	108	...	2	16	8	216
8. Williamsburg	...	201	...	148	4	86	45	17	228
9. Hopewell	...	294	...	181	...	39	...	39	266
10. Brooke	...	300	...	180	2	81	...	15	100
11. Fort Belvoir	...	840	...	581	2	130	...	47	297
12. Manassas-B.R.	...	258	...	151	2	29	...	11	63
13. Nokesville	...	272	...	221	6	57	...	20	146
14. Lake Anna	...	138	...	59	10	16	...	12	34
15. Gordonsville	...	145	...	79	...	29	...	5	69
16. Charlottesville	...	301	...	166	4	46	...	11	250
17. Warren	...	265	...	108	2	39	...	8	173
18. Kerr Reservoir	...	120	...	75	2	12	21	10	110
19. Banister WMA	...	92	...	193	1	31	4	11	61
20. Lynchburg	...	191	...	188	1	52	...	13	122
21. Danville	...	106	...	88	3	12	10	6	73
22. Martinsville	...	122	5	45	...	11	14	2	64
23. Philpott Res.	...	63	10	84	8	21	2	9	61
24. Calmes Neck	1	396	4	259	4	137	...	28	96
25. N. Shen. Valley	28	558	...	345	7	131	...	35	171
26. Shen. NP-Luray	21	377	...	295	7	101	...	24	30
27. Big Flat Mtn.	...	59	...	7	2	11	...	3	24
28. Rockingham Co.	...	28	...	66	2	11	...	1	24
29. Augusta Co.	6	160	...	130	...	32	...	10	79
30. Waynesboro	...	192	...	140	4	55	...	7	79
31. Lexington	40	83	16	67	...	20	...	1	47
32. Peaks of Otter	5	94	...	65	...	27	...	5	24
33. Clifton Forge	2	56	...	45	1	30	...	1	28
34. Fincastle	20	108	...	70	4	39	...	12	115
35. Blacksburg	40	323	72	225	6	115	...	13	172
36. Claytor Lake	4	97	38	119	10	52	...	3	85
37. Tazewell	...	41	...	57	...	17	...	...	21
38. Glade Spring	...	57	...	58	...	21	...	...	103
39. Bristol	...	87	...	76	...	25	...	3	108
40. Nickelsville	...	110	...	69	...	32	...	1	55
41. Breaks I.S. Park	3	20	...	22	...	14	...	...	13
42. Wise County	...	127	...	114	...	42	...	4	49
Total individuals	170	7848	145	5225	123	1666	205	462	4256

House Wren	Winter Wren	Sedge Wren	Marsh Wren	Golden-crowned Kinglet	Ruby-crowned Kinglet	Blue-gray Gnatcatcher	Eastern Bluebird	Hermit Thrush	American Robin	Gray Catbird	Northern Mockingbird
1	2	...	4	103	10	...	110	7	270	4	52
...	1	...	...	33	3	...	297	3	371	5	94
11	6	2	5	118	10	...	82	15	67	9	40
...	12	2	2	107	28	...	17	13	740	2	67
1	14	40	19	103	40	...	64	8	540	46	100
...	1	2	1	40	10	...	12	2	65	7	118
1	3	1	1	114	8	...	724	7	1646	6	85
2	13	...	4	115	43	...	242	7	159	1	64
...	12	...	...	105	61	2	239	25	3318	2	99
...	8	...	...	108	6	...	199	9	160	3	116
5	17	...	...	260	13	...	153	23	330	5	118
...	2	...	...	33	2	...	69	9	12	...	120
...	2	...	...	108	...	...	287	5	19	...	147
...	6	...	...	90	7	...	199	4	186	...	39
...	2	...	...	62	9	...	204	2	25	...	106
1	11	...	...	208	24	...	160	5	105	...	92
...	5	...	...	168	5	...	193	2	127	...	95
3	27	...	2	195	48	...	190	9	56	1	37
...	15	...	...	58	8	...	336	7	29	CW	41
...	6	...	...	147	26	...	155	8	22	...	101
...	1	...	...	55	6	...	199	...	84	...	90
2	4	...	...	83	38	...	93	...	20	...	59
1	11	...	...	176	11	...	66	5	4	...	16
...	6	...	...	46	4	...	121	11	15	...	207
...	7	...	...	73	11	...	265	7	129	...	282
...	9	...	...	185	19	...	229	8	124	...	127
...	8	...	...	57	1	...	7	...	...	...	1
...	4	...	...	5	CW	...	42	...	10	...	42
...	3	...	...	78	2	...	157	1	117	...	128
...	11	...	...	100	10	...	133	6	17	...	98
...	3	...	...	266	4	...	62	5	14	...	33
...	3	...	...	116	11	...	20	3	...	...	5
...	3	...	...	8	6	...	38	1	6	...	7
...	8	...	...	92	4	...	191	4	2	...	105
...	17	...	...	179	4	...	128	1	43	1	115
...	6	...	...	122	...	...	54	2	...	...	51
...	1	...	...	...	...	...	5	2	12	...	14
4	1	...	...	46	...	...	43	2	76	...	48
...	2	...	...	40	3	...	96	1	9	...	92
...	2	...	...	12	3	...	78	1	3	...	33
...	1	...	...	10	1	...	15	...	1	...	...
...	4	...	...	16	8	...	6	1	61	...	8
32	280	47	38	4040	507	2	5980	231	8994	92	3292

	Brown Thrasher	American Pipit	Cedar Waxwing	Loggerhead Shrike	European Starling	Solitary Vireo	Orange-crowned Warbler	Yellow Warbler	Yellow-rumped Warbler
1. Chincoteague	6	75	100	...	3436	...	1	...	1729
2. Wachapreague	2	...	100	...	2000	...	...	...	518
3. Cape Charles	5	217	23	...	5249	...	2	...	3498
4. Little Creek	9	12	166	...	8140	1	3	...	400
5. Back Bay	32	30	72	...	2100	3	11	...	3010
6. Newport News	12	...	...	...	2027	...	...	...	610
7. Mathews	9	...	407	...	1101	...	...	...	1164
8. Williamsburg	10	47	98	...	894	1	...	...	492
9. Hopewell	17	1	1614	3	3770	...	...	...	158
10. Brooke	...	...	300	...	1600	...	...	...	135
11. Fort Belvoir	...	8	222	...	3253	...	...	...	117
12. Manassas-B.R.	1	...	...	...	1936	...	...	...	68
13. Nokesville	...	7	15	1	6954	...	...	...	62
14. Lake Anna	...	14	433	...	734	...	...	...	38
15. Gordonsville	1	...	129	3	2689	...	...	...	46
16. Charlottesville	1	...	147	...	1290	...	...	...	97
17. Warren	...	...	80	2	713	...	...	1	76
18. Kerr Reservoir	8	6	23	8	150	...	...	...	60
19. Banister WMA	6	9	41	2	421	...	...	...	18
20. Lynchburg	1	...	4	...	2356	...	...	...	32
21. Danville	2	...	15	...	3512	...	...	...	7
22. Martinsville	...	...	1	...	1387	...	...	...	66
23. Philpott Res.	1	...	...	...	950	...	...	...	13
24. Calmes Neck	...	40	45	5	5224	...	...	...	5
25. N. Shen. Valley	...	...	68	6	19,759	...	...	...	21
26. Shen. NP-Luray	...	...	32	3	16,659	...	...	...	15
27. Big Flat Mtn.	...	...	...	...	6	...	...	...	...
28. Rockingham Co.	...	...	...	...	5129	...	...	...	2
29. Augusta Co.	1	...	8	1	8867	...	...	...	8
30. Waynesboro	...	...	11	3	2857	...	...	...	11
31. Lexington	...	...	...	2	618	...	...	...	10
32. Peaks of Otter	...	...	...	...	...	...	...	...	8
33. Clifton Forge	...	...	...	...	239	...	...	...	4
34. Fincastle	...	...	8	1	1562	...	...	...	10
35. Blacksburg	2	76	...	2	4523	...	...	...	9
36. Claytor Lake	...	...	30	6	3228	...	...	...	11
37. Tazewell	...	...	...	...	1203	...	...	...	...
38. Glade Spring	...	...	...	8	3344	...	...	...	3
39. Bristol	...	...	2	10	2628	...	...	...	27
40. Nickelsville	2	...	...	3	707	...	...	...	1
41. Breaks I.S. Park	...	...	21	1	61	...	...	...	1
42. Wise County	1	...	3	...	475	...	...	...	3
Total individuals	129	542	4218	70	133,751	5	17	1	12,563

	Pine Warbler	Prairie Warbler	Palm Warbler	Common Yellowthroat	Northern Cardinal	Rufous-sided Towhee	American Tree Sparrow	Chipping Sparrow	Field Sparrow	Vesper Sparrow	Lark Sparrow	Savannah Sparrow
21	36	1	79	22	...	67	52	...	...	26
6	3	...	126	8	...	3	44	...	...	44
5	57	1	165	20	...	26	157	4	...	220
20	4	1	90	61	...	...	20	...	...	22
21	1	...	5	9	183	67	...	28	115	...	...	109
1	1	...	158	28	...	6	18	...	...	24
18	1	1	268	71	...	38	141	...	...	47
12	4	...	295	76	...	14	103	...	...	40
2	2	290	70	...	8	79	...	1	5
1	230	8	8	2	65	...	...	3
...	3	...	458	4	1	1	53	...	...	2
...	317	5	1	...	18	1	...	2
...	1	...	313	4	10	3	27	...	...	3
...	138	2	1	...	46	...	...	1
...	303	...	...	...	28	...	...	...
2	334	7	...	...	172	...	...	2
2	360	23	2	...	170	...	...	4
12	3	4	175	65	...	8	210	1	...	18
2	191	22	...	54	24	...	...	1
4	316	26	...	12	34	...	...	...
9	150	7	...	...	23	...	...	...
9	117	22	...	4	70	...	...	6
4	111	5	...	...	23	...	...	CW
1	708	3	28	...	14	...	...	1
1	1	...	819	1	52	1	104	...	...	1
1	359	...	1	...	40	...	...	...
...	36	...	...	...	...	...	...	...
...	151	...	...	...	1	...	...	8
...	359	2	4	...	84	...	...	2
1	216	CW	4	...	68	...	...	2
...	165	...	...	...	19	...	...	...
...	47	2	...	...	34	...	...	...
...	78	...	...	...	9	...	...	2
...	264	16	...	...	84	...	...	1
...	590	28	...	3	30	...	...	...
...	122	1	...	...	1	...	...	...
...	85	12	...	...	7	...	...	...
...	128	12	...	1	26	...	...	...
...	189	23	...	...	37	...	...	3
...	125	16	...	...	31	...	...	...
...	9	...	...	...	3	...	...	...
...	139	8	...	...	17	...	...	...
Total individuals	155	1	119	19	9756	747	112	279	2301	6	1	599

	Savannah (Ipswich) Sparrow	Sharp-tailed Sparrow	Seaside Sparrow	Fox Sparrow	Song Sparrow	Lincoln's Sparrow	Swamp Sparrow	White-throated Sparrow	White-crowned Sparrow
1. Chincoteague	...	2	7	...	238	...	26	223	...
2. Wachapreague	287	...	23	422	...
3. Cape Charles	3	30	9	8	366	...	119	727	2
4. Little Creek	...	33	4	6	55	...	50	297	...
5. Back Bay	7	199	...	146	436	2
6. Newport News	...	2	...	6	100	...	42	301	...
7. Mathews	2	208	...	5	223	...
8. Williamsburg	4	325	...	66	257	1
9. Hopewell	2	385	...	60	844	5
10. Brooke	221	1	8	460	...
11. Fort Belvoir	2	318	...	27	622	...
12. Manassas-B.R.	6	137	...	...	180	7
13. Nokesville	1	203	...	5	363	62
14. Lake Anna	41	...	2	106	5
15. Gordonsville	71	...	3	342	42
16. Charlottesville	4	257	...	8	524	19
17. Warren	6	454	...	23	813	5
18. Kerr Reservoir	1	375	...	325	710	...
19. Banister WMA	2	90	...	65	198	5
20. Lynchburg	132	...	2	379	4
21. Danville	2	91	...	2	268	5
22. Martinsville	1	267	...	34	275	...
23. Philpott Res.	90	...	3	113	5
24. Calmes Neck	232	...	3	267	260
25. N. Shen. Valley	239	...	12	396	301
26. Shen. NP-Luray	9	208	...	5	492	247
27. Big Flat Mtn.	1	3	...	...	61	...
28. Rockingham Co.	CW	56	...	...	183	107
29. Augusta Co.	1	118	...	5	187	173
30. Waynesboro	CW	134	...	9	177	64
31. Lexington	52	...	...	167	1
32. Peaks of Otter	17	...	...	28	...
33. Clifton Forge	13	...	...	15	...
34. Fincastle	124	...	...	251	69
35. Blacksburg	6	300	...	3	453	215
36. Claytor Lake	72	...	...	35	16
37. Tazewell	49	...	...	21	2
38. Glade Spring	96	...	...	101	11
39. Bristol	126	...	1	113	3
40. Nickelsville	93	...	...	48	10
41. Breaks I.S. Park	15	...	...	2	...
42. Wise County	100	...	5	44	2
Total individuals	3	67	20	80	6957	1	1087	12,124	1650

	sparrow, sp.	Dark-eyed Junco	Dark-eyed (Oregon) Junco	Snow Bunting	Red-winged Blackbird	Eastern Meadowlark	Rusty Blackbird	Brewer's Blackbird	Boat-tailed Grackle	Common Grackle	Brown-headed Cowbird	blackbird, sp.
...	307	...	...	...	1009	207	2	...	65	1498	39	...
130	408	...	...	...	1466	105	...	...	6	40	104	...
...	125	...	...	...	876	161	15	...	92	148	106	...
...	272	...	13	...	940	6	200	...	82	6550	3320	...
...	379	...	...	...	2802	121	50	...	118	125	51	...
...	196	...	...	...	999	47	...	...	50	654	60	...
...	1033	...	...	...	631	162	...	...	188	510	200	56
...	606	...	2	...	2124	139	1	...	...	111	37	...
...	610	...	...	...	1174	152	19	...	...	69	752	...
...	600	...	...	...	500	3	...	...	...	...	23	...
...	672	...	...	...	1004	1	34	...	...	5322	100	...
...	1200	...	...	...	23	...	...	...	...	102	...	...
...	1059	...	...	...	996	211	11	4	...	326	644	...
...	449	...	11	...	1	17	...	...	...	193	4	...
...	607	...	...	...	...	35	...	...	...	6	1	...
...	628	CW	...	...	...	17	4	...	...	...	...	...
...	811	...	...	...	605	148	3	...	...	51	32	...
...	420	...	...	...	1100	35	145	...	...	5	3	...
...	1052	...	...	...	153	43	...	...	...	11	...	...
...	674	...	...	...	18	36	...	...	...	5	9	...
...	694	...	...	...	30	43	...	...	...	36	20	...
...	638	...	...	...	158	27	12	...	...	...	13	7
...	445	...	...	...	...	12	...	...	...	2	...	...
...	957	...	...	...	99	48	1	...	...	13	37	...
...	2185	...	...	...	279	231	302	...	...	53	331	...
...	803	...	...	...	159	20	80	1	...	3	85	...
...	172	...	...	...	...	...	...	...	...	...	...	...
...	479	...	...	...	40	82	24	...	...	10,017	596	...
...	946	...	1	...	1	19	...	...	...	15	3	...
...	369	...	...	...	35	6	...	...	...	258	8151	...
...	413	...	...	...	...	4	27	...	...	...	...	...
...	185	...	...	...	...	...	...	...	...	...	...	...
...	250	...	...	...	5	...	...	...	...	...	...	...
...	482	...	...	...	41	56	2	...	...	1	...	...
...	574	...	...	...	41	10	1	...	...	10	2	...
...	124	...	...	...	...	7	...	...	...	...	...	50
...	97	...	...	...	7	1	...	...	...	3	4	...
...	126	...	...	...	...	36	...	...	...	178	12	...
...	136	...	...	...	...	61	...	...	...	...	...	...
...	174	...	...	...	4	2	5	...	...	18	8	...
...	31	...	...	...	...	...	...	...	...	...	...	...
...	126	...	...	...	...	2	...	...	...	22	2	...
130	22,514	-	27	17,320	2313	938	5	601	26,355	14,749	113	

	Northern Oriole	Purple Finch	House Finch	<i>carpodacus</i> , sp.	Red Crossbill	Common Redpoll	Pine Siskin	American Goldfinch	Evening Grosbeak	House Sparrow
1. Chincoteague	...	3	294	...	...	...	1	233	...	178
2. Wachapreague	252	...	...	...	...	118	...	125
3. Cape Charles	...	12	301	...	19	...	9	144	...	2
4. Little Creek	...	23	168	...	...	...	...	67	...	240
5. Back Bay	...	20	195	...	...	2	3	201	...	80
6. Newport News	245	...	...	...	...	71	...	234
7. Mathews	...	3	650	...	...	...	1	404	...	68
8. Williamsburg	...	15	212	...	...	...	7	356	13	56
9. Hopewell	2	7	341	...	...	...	...	243	21	13
10. Brooke	...	81	250	...	...	...	...	275	...	131
11. Fort Belvoir	...	3	412	...	...	...	...	260	2	398
12. Manassas-B.R.	195	...	...	...	...	61	...	123
13. Nokesville	...	3	440	...	...	...	1	183	...	611
14. Lake Anna	...	4	141	...	...	...	...	128	...	29
15. Gordonsville	...	3	64	...	...	...	3	19	...	65
16. Charlottesville	...	30	177	...	...	...	4	133	...	79
17. Warren	...	16	24	...	...	...	...	153	...	7
18. Kerr Reservoir	...	6	145	...	2	...	...	260	...	60
19. Banister WMA	...	1	27	...	...	...	...	115	...	120
20. Lynchburg	...	43	359	...	...	...	13	158	3	51
21. Danville	...	82	434	...	...	...	5	95	...	163
22. Martinsville	...	47	89	...	...	...	...	107	4	46
23. Philpott Res.	...	1	9	...	...	...	...	24	CW	8
24. Calmes Neck	...	5	385	...	...	...	...	217	...	344
25. N. Shen. Valley	...	27	1486	...	CW	...	CW	203	4	561
26. Shen. NP-Luray	...	27	243	...	...	...	...	147	...	597
27. Big Flat Mtn.	...	14	...	...	...	...	...	8	...	...
28. Rockingham Co.	142	...	...	...	...	55	...	622
29. Augusta Co.	...	6	488	...	...	...	...	81	...	397
30. Waynesboro	...	25	134	...	...	...	6	93	5	446
31. Lexington	22	...	...	...	...	27	5	3
32. Peaks of Otter	...	3	...	...	...	...	...	27	...	...
33. Clifton Forge	...	12	99	...	...	...	2	40	5	17
34. Fincastle	...	14	99	...	...	...	...	96	1	42
35. Blacksburg	...	89	670	...	...	...	CW	388	1	333
36. Claytor Lake	...	5	49	4	...	...	16	71	6	45
37. Tazewell	...	7	19	...	...	...	...	40	1	70
38. Glade Spring	38	...	...	...	1	77	...	107
39. Bristol	...	6	64	...	...	...	...	49	...	24
40. Nickelsville	...	21	75	...	...	...	5	55	...	45
41. Breaks I.S. Park	1	...	...	...	...	1	...	...
42. Wise County	...	4	92	...	...	...	20	84	4	146
Total individuals	2	668	9530	4	21	2	97	5567	75	6686

(See explanation of symbols for water conditions and weather in Table 2 on page 61.)

Total species	Total individuals	Date	Time in field (a.m. to p.m.)	Water/snow conditions Inches of snow in parentheses	Skies (a.m.)	Skies (p.m.)
138	33,773	29 Dec	6:30-5:10	WOP	CLD, FOG, LGR	CLD
97	18,851	15 Dec	6:30-4:30	WOP	LGR	LGR
155	38,463	27 Dec	4:15-5:30	WOP	CLD	CLD, LGR
129	66,534	31 Dec	5:00-5:30	WOP	PCD, LGR	CLR
131	26,339	28 Dec	5:30-5:45	WOP	CLD, FOG, LGR	CLD
110	21,560	15 Dec	6:30-5:00	WOP	HVR	LGR
107	20,322	30 Dec	4:15-5:00	WOP	CLD	CLR
111	22,100	16 Dec	5:00-5:00	WOP	CLD, FOG	PCD
99	29,435	16 Dec	5:00-5:00	WOP	PCR	CLD
85	11,749	17 Dec	6:45-5:00	WOP	PCD	PCR
111	53,940	23 Dec	3:00-6:00	WOP	CLD, LGR	CLD, LGR
73	8371	29 Dec	5:00-5:00	SPF, MWO S(3-5)	FOG	FOG
88	28,423	16 Dec	3:00-5:30	WOP	PCD	CLR
80	8218	30 Dec	4:00-5:00	WOP S(0.5)	PCD	CLD
65	8548	16 Dec	7:00-5:00	WOP	PCR	PCD
69	8074	23 Dec	6:00-5:20	WOP	CLD	CLD, LGR
79	9116	30 Dec	6:00-5:30	WOP	CLD	CLD
96	7769	16 Dec	5:00-5:30	WOP	PCD	CLD
85	5841	16 Dec	7:00-6:00	WOP	PCD	CLD
77	7978	15 Dec	5:30-5:30	WOP	LGR	LGR
70	9018	15 Dec	5:30-6:00	WOP	LGR	CLD
74	4870	1 Jan	3:00-5:30	WOP	PCD	PCD
63	2907	23 Dec	6:30-4:30	WOP	CLD, FOG, HVR	CLD, LGR
86	15,343	29 Dec	6:30-6:00	WOP S(4-10)	PCD, FOG	PCD, FOG
90	39,296	15 Dec	12:01-6:00	WOP	RAI	LGR
78	27,129	16 Dec	5:00-6:15	WOP	PCD	CLR
33	604	16 Dec	6:30-4:50	WOP	CLD	CLD
62	21,148	29 Dec	8:00-5:00	SWF, MWO S(5)	CLD, FOG	PCD
76	16,739	15 Dec	7:00-5:00	WOP	CLD, LGR	CLD, LGR
75	18,470	31 Dec	7:00-5:15	WOP	PCD	CLR
61	3360	26 Dec	5:00-5:00	SPF, MWO	PCD	PCD
37	943	18 Dec	8:00-4:00	WOP	CLD	CLD
55	1734	15 Dec	8:00-4:00	WOP	CLD, FOG, LHR	CLD, FOG, LHR
70	6991	16 Dec	4:00-7:00	WOP	CLD	PCR
82	16,669	15 Dec	5:45-5:30	SPF, MWO	CLD, FOG, LGR	CLD, LGR
69	6027	29 Dec	7:00-5:00	WOP S(1)	HVF	PCR
52	2380	28 Dec	6:30-5:00	WOP	CLD	CLD, LGR
62	6191	22 Dec	4:00-5:00	WOP	PCD	PCD
78	7046	30 Dec	7:30-5:30	WOP	CLD, RAI	CLD, RAI
50	2863	22 Dec	7:30-4:30	WOP	CLD, FOG	CLD, LGR
37	415	29 Dec	7:30-4:00	WOP	PCD	CLD
56	2356	15 Dec	5:45-5:00	WOP	CLD, LGR	CLD, HVR
199	647,903	...	...	...	...	...

	Temperatures (° Fahrenheit)	Wind direction	Wind speed (miles/hour)	Number of field observers	Number of field parties (non-owling)	Number of feeder observers	Number of hours at feeders
1. Chincoteague	37-48	SSE	0-10	23	13	...	...
2. Wachapreague	40-53	SE	0-10	19	12-13	7	5.00
3. Cape Charles	34-42	NE	20-25	24	8-14	...	...
4. Little Creek	44-70	NE	5-40	25	13-18	...	...
5. Back Bay	39-51	N	5-10	30	12-20	...	...
6. Newport News	43-48	calm	...	35	11	...	...
7. Mathews	55-68	SW	10-25	31	11-13	...	...
8. Williamsburg	49-58	NW	5-10	19	9	1	7.00
9. Hopewell	37-54	SW	7-14	32	11-17	2	1.50
10. Brooke	36-45	S	0-5	27	10-11	...	...
11. Fort Belvoir	60-75	S	9	78	25	5	16.00
12. Manassas-B.R.	32-38	calm	...	40	17-18	2	8.00
13. Nokesville	42-50	SW-NW	0-20	37	18	1	1.00
14. Lake Anna	46-64	SSE	15-20	17	6-7	1	8.00
15. Gordonsville	35-50	E	0-5	24	7-8	...	...
16. Charlottesville	60-67	SW	5-20	19	16	...	...
17. Warren	47-68	SW	5-25	19	13	...	...
18. Kerr Reservoir	45-55	WNW	0-15	7	4-6	...	...
19. Banister WMA	42-54	NW	5-10	8	7	...	...
20. Lynchburg	34-39	NW	0-3	29	11-15	...	...
21. Danville	40-45	W-NW	0-15	13	8	2	5.00
22. Martinsville	32-42	V	0-5	11	5	...	...
23. Philpott Res.	59-67	SE	0-15	9	4	...	...
24. Calmes Neck	26-38	N	0-9	29	16	1	4.00
25. N. Shen. Valley	32-40	W-SW	3-15	53	23	...	...
26. Shen. NP-Luray	24-50	NW	10-20	39	22	6	19.00
27. Big Flat Mtn.	40-48	W	5-30	3	3	...	...
28. Rockingham Co.	33-50	calm	...	11	8	...	...
29. Augusta Co.	32-43	S-SW	0-15	27	15	...	...
30. Waynesboro	35-51	V	0-15	30	13	...	...
31. Lexington	20-38	SW	0-5	12	3-6	1	1.00
32. Peaks of Otter	40-55	SE	5-15	12	5	...	...
33. Clifton Forge	40-50	calm	...	8	5	4	8.00
34. Fincastle	38-48	SW	10-20	23	12	...	...
35. Blacksburg	30-46	NW	0-7	36	20	27	43.50
36. Claytor Lake	36-46	V	0-5	19	6-7	1	4.00
37. Tazewell	35-42	SW	3-5	5	3	2	8.00
38. Glade Spring	54-67	SE	10	15	6	2	3.00
39. Bristol	52-70	S	0-15	13	7	...	...
40. Nickelsville	38-48	NW	3-5	6	3	...	...
41. Breaks I.S. Park	50-64	W	5-10	3	2	...	...
42. Wise County	35-48	SW	5-40	12	7-8	2	10.00
...	...	...	...	932	430-473	67	152.00

Hours owling	Miles owling	Hours on foot	Hours by car	Hours by boat/canoe	Total hours (excludes owling and feeder hours)	Miles on foot	Miles by car	Miles by boat/canoe	Total miles (excludes owling miles)
0.50	0.50	73.50	23.50	...	97.00	56.00	196.00	...	252.00
0.50	0.75	12.00	69.75	...	81.75	11.00	534.50	...	545.50
5.00	20.50	75.00	23.00	3.00	101.00	65.00	200.00	10.00	275.00
6.00	22.00	85.00	27.00	...	112.00	49.00	416.00	...	465.00
7.00	39.00	94.00	16.00	...	110.00	61.00	414.00	...	475.00
2.00	4.25	26.00	65.50	...	91.50	22.50	395.75	...	418.25
7.00	31.00	58.50	47.00	...	105.50	49.00	416.50	...	465.50
4.50	18.00	59.50	29.00	...	88.50	35.00	280.00	...	315.00
7.00	17.75	70.00	20.00	5.00	95.00	50.50	299.00	6.00	355.50
0.50	0.50	58.50	34.50	...	93.00	51.50	153.00	...	204.50
16.00	77.00	143.00	39.00	4.00	186.00	127.00	329.00	6.00	462.00
8.00	52.00	66.00	49.00	...	115.00	70.00	534.00	...	604.00
14.00	102.00	58.50	75.00	...	133.50	67.50	655.00	...	722.50
11.00	93.50	14.50	43.75	...	58.25	14.50	368.00	...	382.50
2.00	12.00	14.00	44.00	...	58.00	13.00	397.00	...	410.00
3.50	23.00	86.00	27.00	...	113.00	94.00	293.00	...	387.00
3.50	20.00	81.50	16.50	...	98.00	94.00	210.00	...	304.00
7.00	59.00	33.00	21.00	...	54.00	23.00	195.00	...	218.00
1.50	4.00	34.00	15.00	...	49.00	37.00	178.00	...	215.00
7.00	37.00	29.00	48.00	...	77.00	25.00	446.00	...	471.00
1.50	2.00	26.50	29.50	...	56.00	32.50	300.50	...	333.00
4.00	60.00	31.75	12.50	...	44.25	14.00	323.00	...	337.00
0.50	2.50	17.00	22.00	...	39.00	13.50	210.75	...	224.25
0.50	...	29.50	66.50	...	96.00	36.00	499.00	...	535.00
7.00	34.00	57.00	140.00	28.00	225.00	69.00	992.00	22.00	1083.00
7.50	20.00	86.25	75.00	...	161.25	75.00	567.50	...	642.50
0.50	3.00	27.50	...	...	27.50	43.00	...	...	43.00
0.50	...	11.75	33.50	...	45.25	13.00	290.00	...	303.00
1.50	15.00	22.25	65.50	...	87.75	13.75	573.00	...	586.75
4.00	36.00	63.00	34.00	...	97.00	62.00	308.00	...	370.00
2.00	15.00	19.50	12.50	...	32.00	20.00	118.00	...	138.00
...	...	20.00	10.00	...	30.00	22.00	29.00	...	51.00
...	...	12.50	11.50	...	24.00	16.00	166.00	...	182.00
6.00	13.00	40.00	29.00	...	69.00	43.00	216.00	...	259.00
1.50	17.50	100.50	37.25	...	137.75	76.50	330.50	...	407.00
...	...	36.25	16.75	...	53.00	30.50	143.50	...	174.00
...	...	3.00	17.00	...	20.00	6.00	58.00	...	64.00
6.00	3.00	18.00	35.00	...	53.00	18.00	356.00	...	374.00
4.50	37.00	18.00	33.00	...	51.00	12.00	371.00	...	383.00
...	...	2.50	27.00	...	29.50	3.00	204.00	...	207.00
...	...	8.00	8.00	...	16.00	5.50	103.00	...	108.50
2.50	24.00	22.75	30.50	...	53.25	18.50	237.00	...	255.50
163.50	915.75	1845.00	1479.50	40.00	3364.50	1658.25	13,305.50	44.00	15007.75

VIRGINIA CHRISTMAS BIRD COUNTS—1990-91 SEASON

(continued from page 35)

For the most part, temperatures for all counts were higher than usual. The highest temperature recorded was 75° F. at Fort Belvoir on 23 December; the lowest temperature recorded was 20° F. at Lexington on 26 December. Wise County participants experienced the windiest conditions with gusts up to 40 mph. Birders who took part in counts held on 15 December were pelted with light to heavy rain which lasted throughout most of the daylight hours. Heavy clouds, fog, and light rain presented problems for participants on the six counts conducted on 29 December. There was very little snow cover around the state, with only five counts reporting any appreciable accumulations. Both still and moving water were open except for four counts where still water was either partly or completely frozen. The prolonged warm spell before and during the count period may have accounted, to some degree, for the poor showing of many waterfowl species and for the low numbers of winter finches. In any event, many birders, especially those participating in coastal counts, were dismayed to find very low numbers of ducks and geese.

Horned Grebe (*Podiceps auritus*) numbers dropped substantially in 1990, with only 240 found on 13 counts, the lowest-ever for this species. In the past two decades, Horned Grebe numbers have plummeted. In the 1970s the average number found each year was 1300; in the 1980s the average number was 600. At the same time, Pied-billed Grebes (*Podilymbus podiceps*) have not displayed such a drastic decrease in population, but their numbers also show a decline.

Northern Gannet (*Morus bassanus*) numbers reached an all-time high of 10,228, almost doubling the second highest number of 5767 in 1978. Little Creek accounted for 7600 of the total, the highest record for that count. Brown Pelican (*Pelecanus occidentalis*) numbers continued an upward trend, with Little Creek and Bay Bay recording 64 and 26 birds, respectively.

American Bittern (*Botaurus lentiginosus*) numbers were at an all-time low with only one found at Cape Charles and another at Back Bay. In the 1970's, it was not unusual for birders to find five or more on any of the Eastern Shore or southeastern Virginia counts for a yearly average of 27 birds. One White Ibis (*Eudocimus albus*) and one Glossy Ibis at Cape Charles, along with seven Cattle Egrets (*Bubulcus ibis*) at Back Bay, were the first individuals of those three species found on Virginia Christmas counts in five years.

Hopewell is usually the state stronghold of the blue form of the Snow Goose (*Chen caerulescens*), with 200-1000 wintering at Presquile National Wildlife Refuge. None were found there this year, however. Only three were recorded at Chincoteague and five were tallied at Back Bay. Brant (*Branta bernicla*) numbers were also down, with 6745 birds the lowest total since 1981.

American Black Duck (*Anas rubripes*) numbers were the lowest ever, with only 5392 found on 32 counts around the state. The number of Northern Pintail (*Anas acuta*) was the lowest since 1983 and no Blue-winged Teal (*Anas discors*) were found on any

TABLE 2. Explanation of abbreviation used in the tables on page 57.

Abbreviations used to describe weather conditions		Abbreviations used to describe water conditions	
CLD	= Cloudy	MWO	= Moving water open
CLR	= Clear	SPF	= Still water partly frozen
FOG	= Fog or foggy	SWF	= Still water frozen
HVF	= Heavy fog	WOP	= Water open
HVR	= Heavy rain		
LGR	= Light rain		
LHR	= Light to heavy rain		
PCD	= Partly cloudy		
PCR	= Partly clear		
RAI	= Rain		
S(1-10) = Snow on the ground (numbers in parentheses denotes depth in inches)			

counts. A Northern Shoveler at Lynchburg was a first for that count. Two Eurasian Wigeon (*Anas penelope*) appeared, one at Cape Charles, the other at Little Creek.

Six King Eiders (*Somateria spectabilis*) at Cape Charles were the most birds of that species present since 1985 when 11 were found on three counts. Black Scoter (*Melanitta nigra*) numbers were the highest since 1963. Common Merganser (*Mergus merganser*) numbers were the lowest since 1966.

For the fifth year in a row, Ospreys (*Pandion haliaetus*) were recorded, one at Chincoteague, and one at Little Creek, but the most surprising raptor finds were the Northern Goshawks (*Accipiter gentilis*) in southeastern Virginia, —one at Cape Charles, and one at Little Creek. More Cooper's Hawks (*Accipiter cooperii*) (95), Red-tailed Hawks (*Buteo jamaicensis*) (1079), and American Kestrels (*Falco sparverius*) (1023) were found than ever before. Besides being spotted in their usual coast haunts, Merlins (*Falco columbarius*) showed up unexpectedly on several inland counts—Williamsburg, Nokesville, Calmes Neck and Waynesboro. Two Peregrine Falcons (*Falco peregrinus*) were counted at Fort Belvoir, the first seen on that count since 1980.

Ring-necked Pheasant (*Phasianus colchicus*) numbers continue to decline with only one found at Hopewell. On the other hand, Wild Turkeys (*Meleagris gallopavo*) were seen in record numbers (327), almost double the previous state total. An active release program in many parts of the state has obviously augmented the numbers of this species. Northern Bobwhites (*Colinus virginianus*) did not fare well. The total of 514 birds is about half the numbers tallied in the 1980s.

Noteworthy shorebird sightings were as follows: three Lesser Yellowlegs (*Tringa flavipes*) at Fort Belvoir, that count's third record; a Spotted Sandpiper (*Actitis macularia*) and Whimbrel (*Numenius phaeopus*) at Cape Charles; a White-rumped Sandpiper (*Calidris fuscicollis*) at Chincoteague (only the second time this species has been recorded on a Virginia Christmas count); the lowest number (3474) of Dunlin (*Calidris*

alpina), and the lowest number (55) of American Woodcock (*Scolopax minor*) in over 20 years.

A lone Little Gull (*Larus minutus*) was located on the Little Creek count; a Common Black-headed Gull (*Larus ridibundus*) was present at Chincoteague; and a Glaucous Gull (*Larus hyperboreus*) was seen foraging at a landfill near Nokesville. Of the three species, the Glaucous Gull is the most rarely found on Christmas counts with only four sightings in the 1980s and two in the 1970s.

Mourning Dove (*Zenaidura macroura*) numbers reached an all-time high with 24,050 spotted on all but the two counts at very high elevations—Big Flat and Peaks of Otter—where this species is recorded very rarely.

Ken Bass's Barn Owl (*Tyto alba*) nesting program in the Nokesville area paid off handsomely this year with 23 individuals tallied to augment the all-time state high count of 34. The 42 Short-eared Owls (*Asio flammeus*) on the Northern Shenandoah Valley count were equally impressive. In the past, participants there have sporadically turned up only one or two individuals. Calmes Neck counters enjoyed the first-ever Long-eared Owl (*Asio otus*) for that count.

Pileated Woodpecker (*Dryocopus pileatus*) numbers reached an all-time high, barely edging out the previous high total of 763 in 1987-88. Individual count totals indicate that more individuals of this species are recorded simply because there are more counts conducted, not because the number of birds is actually increasing.

It was a good year for the Eastern Phoebe (*Sayornis phoebe*). Nine counts recorded this species in double-digits to bring the state total to an all-time high of 236. The previous high was 181 in 1975. The other noteworthy flycatcher was a Western Kingbird (*Tyrannus verticalis*) at Wachapreague, a first for that count, and only the second seen on any count in a decade or more.

Another all-time high count was that of the Carolina Wren (*Thryothorus ludovicianus*), with a total of 4256 birds. That number surpasses the previous high of 3998 recorded in 1985. This increase probably reflects the higher number of counts conducted, rather than a true increase in population numbers. Golden-crowned Kinglet (*Regulus satrapa*) numbers also reached an all-time high of 4040, outstripping the previous high of 3263 last year by almost 800 individuals.

Eastern Bluebird (*Sialia sialis*) totals continue to soar with another all-time high this year of 5980 birds. Mathews County and Hopewell birders tallied record numbers of 724 and 239, respectively.

Seventy Loggerhead Shrikes (*Lanius ludovicianus*) were found on 19 counts. That number is higher than any total for the previous seven years, but the addition of Bristol's 10 shrikes must be taken into consideration. Because that count's tally has not been included in the total number for the past several years, the data are somewhat misleading.

Two vagrant warblers were found this year—a Yellow Warbler (*Dendroica petechia*) on the Warren count and Prairie Warbler (*Dendroica discolor*) at Back Bay. Prairie Warblers were found on three counts in the last decade, but to my knowledge, no Yellow Warbler has ever been recorded during 87 years of Virginia Christmas counts.

Hopewell birders were surprised to find a Lark Sparrow (*Chondestes grammacus*), the first time that species has appeared on that count. The Ipswich race of the Savannah Sparrow (*Passerculus sandwichensis*) was very rare this year with only three found at Cape Charles. A single Lincoln's Sparrow (*Melospiza lincolnii*) was recorded at Brooke.

Red-winged Blackbird (*Agelaius phoeniceus*) numbers were the lowest in over 20 years. Brewer's Blackbirds (*Euphagus cyanocephalus*) turned up again at Nokesville for the third year in a row. The one at Shenandoah NP-Luray, however, was only the second ever found on that count. About 1500 fewer Boat-tailed Grackles (*Quiscalus major*) were found on seven counts this year. The usual state total for this species ranges from 2000 to 4000. The only Northern Orioles (*Icterus galbula*) in the state were two at Hopewell.

Instead of frequenting their usual inland and higher-elevation haunts, Red Crossbills (*Loxia curvirostra*) turned up at Cape Charles and Kerr Reservoir. They were found at Northern Shenandoah Valley during count week, but not on count day. Back Bay counters located two Common Redpolls (*Carduelis flammea*), the only individuals of this species seen on Virginia Christmas counts since 1986. Pine Siskins (*Carduelis pinus*) were not much in evidence this year with only 97 recorded state-wide, the lowest total since 1982. Evening Grosbeak (*Coccothraustes vespertinus*) numbers were also very low. Only three Coastal Plain counts recorded them. The rest were concentrated in the lower Piedmont and Mountains and Valleys regions.

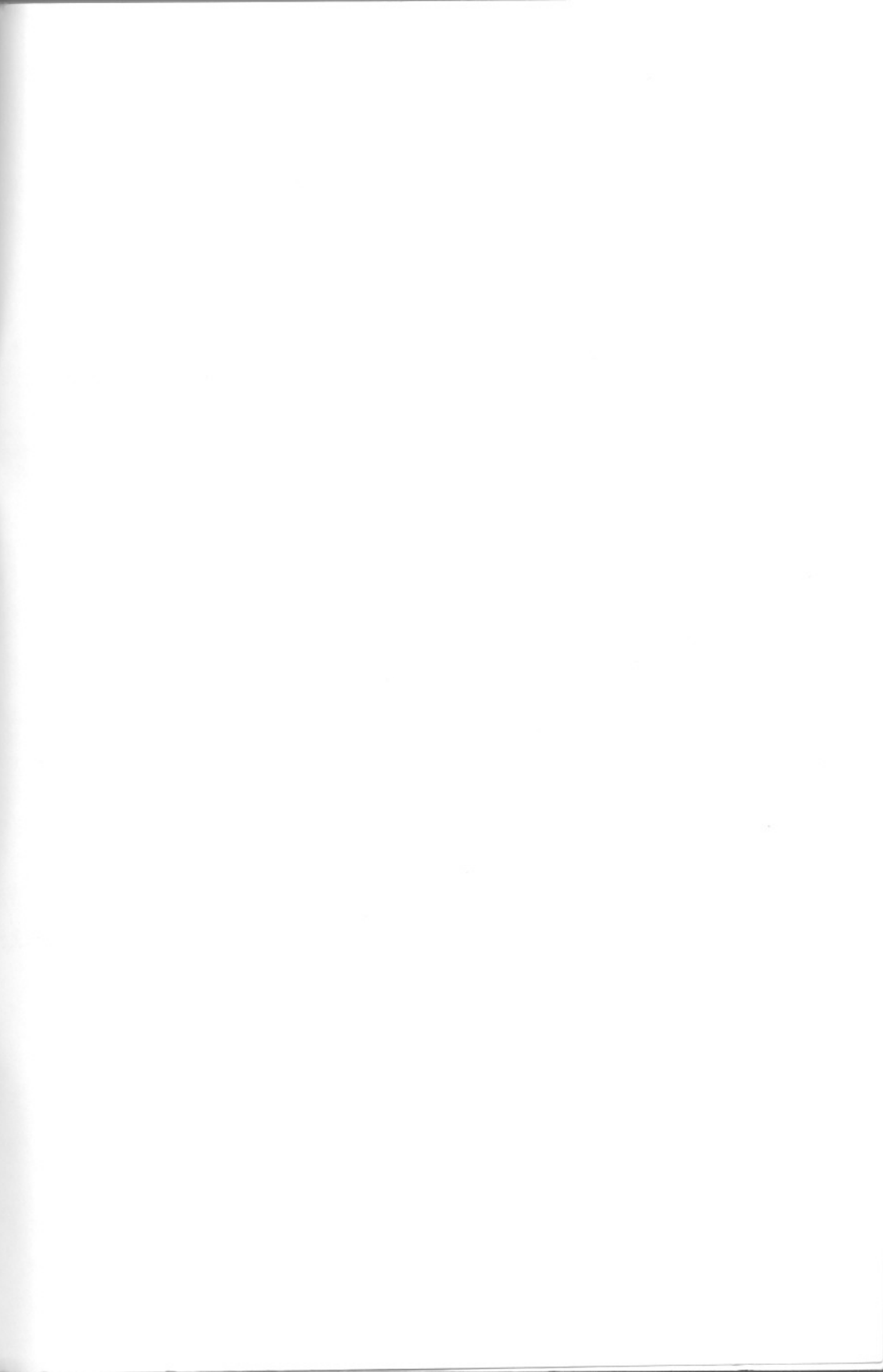
CHRISTMAS COUNT DESCRIPTIONS

1. CHINCOTEAGUE NATIONAL WILDLIFE REFUGE. 37°58'N 75°22'W
Center: 2 miles north of center of Chincoteague.
Compilers: Teta Kain (Rt. 5, Box 950, Gloucester, VA 23061) and F.R. Scott (115 Kennondale Lane, Richmond VA 23226)
2. WACHAPREAGUE. 37°40'N 75°42'W
Center: jct. CRs. 789 and 715.
Compiler: Irvin Ailes (RFD 1, Box 365-22, Chincoteague VA 23336)
3. CAPE CHARLES. 37°02'N 75°56'W
Center: 1.5 miles southeast of Capeville Post Office.
Compiler: Henry Armistead (523 E. Durham St., Philadelphia PA 19119)
4. LITTLE CREEK. 36°51'N; 76°06'W
Center: 3.8 miles northeast of Kempsville in Virginia Beach.
Compiler: Paul Sykes, Jr. (1080 Forest Rd., Watkinsville GA 30677)
5. BACK BAY NATIONAL WILDLIFE REFUGE. 36°39'N 76°00'W
Center: 1.5 miles east of Back Bay.
Compiler: Paul Sykes, Jr. (1080 Forest Rd., Watkinsville GA 30677)
6. NEWPORT NEWS. 37°05'N 76°25'W
Center: northern corner of Magruder & Cmdr. Shepard Blvds.
Compiler: Teta Kain (Rt. 5, Box 950, Gloucester VA 23061)

7. MATHEWS. 37°25'N 76°18'W
Center: 0.5 mile east of Beaverlett Post Office.
Compiler: Mary Pulley (Redart VA 23142)
8. WILLIAMSBURG. 37°17'N 76°42'W
Center: Colonial Williamsburg Information Center.
Compiler: Brian Taber (104 Druid Court, Williamsburg VA 23185)
9. HOPEWELL. 37°23'N 77°17'W
Center: Curles Neck.
Compilers: Larry Robinson (3320 Landria Dr., Richmond VA 23225) and John Dillard (7803 Brentford Dr., Richmond, VA 23225)
10. BROOKE. 38°22'N 77°20'W
Center: at road 3 miles east southeast of Brooke.
Compiler: David Stewart (10715 Midsummer Dr., Reston VA 22091)
11. FORT BELVOIR. 38°41'N 77°12'W
Center: Pohick Church.
Compiler: David F. Abbott (2314 Hunters Square Ct., Reston, VA 22091)
12. MANASSAS-BULL RUN. 38°50'N 77°26'W
Center: Centreville.
Compilers: J. Duncan Love (4204 Holborn Ave., Annandale VA 22003) and Charles E. Chambers (8911 Moreland Lane, Annandale VA 22003)
13. NOKESVILLE. 38°37'N 77°33'W
Center: Fleetwood Dr. (Rt. 611) at Cedar Run.
Compiler: Ken Bass (12604 Valley View Dr., Nokesville VA 22123)
14. LAKE ANNA. 38°05'N 77°49'W
Center: center of bridge over Lake Anna on SR 208.
Compiler: Michael R. Boatwright (307 Sugar Mill Dr., Amherst VA 24521)
15. GORDONSVILLE. 38°09'N 78°12'W
Center: jct. of US 15 & 33 north of the town of Gordonsville.
Compiler: Donald R. Ober (PO Box 6, Orange VA 22960)
16. CHARLOTTESVILLE. 38°04'N 78°34'W
Center: near Ivy.
Compiler: Charles Stevens (615 Preston Pl., Charlottesville VA 22903)
17. WARREN. 37°51'N 78°33'W
Center: at Keene.
Compiler: Charles Stevens (615 Preston Pl., Charlottesville, VA 22903)
18. JOHN H. KERR RESERVOIR. 36°36'N 82°07'W
Center: east end of John GH. Kerr Dam.
Compiler: Brian Patteson (PO Box 125, Amherst, VA 24521)
19. BANISTER RIVER WILDLIFE MANAGEMENT AREAS. 36°43'N 78°48'W
Center: at Banister River WMAs.
Compiler: Jeffrey Blalock (103 Elizabeth Court, South Boston VA 24592)

20. LYNCHBURG. 37°24'N 79°11'W
Center: Lynchburg College.
Compiler: John Dalmás (502 Rainbow Forest Dr., Lynchburg VA 24502)
21. DANVILLE. 36°34'N 79°25'W
Center: Ballou Park.
Compiler: Penultima J. Wiseman (162 Howeland Cir., Danville VA 24541)
22. MARTINSVILLE. 36°44'N 79°49'W
Center: south end of dam at Martinsville Reservoir #2.
Compiler: James S. Beard (401 Hairston St., Martinsville, VA 24112)
23. PHILPOTT RESERVOIR. 36°53'N 80°03'W
Center: near intersection Rts. 605 and 623.
Compiler: Clyde Kessler (PO Box 3612, Radford VA 24143)
24. CALMES NECK. 39°07'N 77°54'W
Center: Castlemans Ferry Bridge, SR 7 and the Shenandoah River.
Compilers: Frances Endicott (Rt. 1, Box 448, Bluemont, VA 22012) and Gregory Justice (PO Box 226, Millwood, VA 22646)
25. NORTHERN SHENANDOAH VALLEY. 39°03'N 78°10'W
Center: jct. Crooked Run and Rt. 606.
Compiler: Rob Simpson (Rt. 1, Box 154-B, Stephens City, VA 22655)
26. SHENANDOAH NATIONAL PARK—LURAY. 38°35'N 78°28'W
Center: Hershberger Hill.
Compiler: Terry Lindsay (Shenandoah National Park, Rt. 4, Box 348, Luray, VA 22835)
27. BIG FLAT MOUNTAIN. 38°11'N 78°43'W
Center: on Pasture Fence Mountain.
Compiler: Charles Stevens (615 Preston Pl., Charlottesville, VA 22903)
28. ROCKINGHAM COUNTY. 38°26'N 79°02'W
Center: Ottobine.
Compiler: Max Carpenter (Rt. 1, Box 396, Dayton VA 22821)
29. AUGUSTA COUNTY. 38°12'N 78°59'W
Center: jct. CR 780 and 781.
Compiler: John Mehner (Mary Baldwin College, Staunton VA 24401)
30. WAYNESBORO. 37°59'N 78°57'W
Center: Sherando at jct. of Rts. 610 and 664.
Compiler: Allen Hale (Rt. 1, Box 242, Shipman VA 22971)
31. LEXINGTON. 37°51'N 79°29'W
Center: Big Spring Pond.
Compiler: Robert O. Paxton (460 Riverside Dr., #72, New York NY 10027)
32. PEAKS OF OTTER. 37°27'N 79°36'W
Center: Peaks of Otter Visitor Center.
Compiler: Barry Kinzie (PO Box 446, Troutville VA 24175)

33. CLIFTON FORGE. $37^{\circ}49'N$; $79^{\circ}46'W$
Center: jct. Rts. 42 and 60.
Compiler: Allen LeHew (76 Allegeny, Clifton Forge VA 24422)
34. FINCASTLE. $37^{\circ}31'N$ $79^{\circ}52'W$
Center: north of Fincastle near jct. of Rts. 220 and 679.
Compiler: Barry Kinzie (PO Box 446, Troutville VA 24175)
35. BLACKSBURG. $37^{\circ}14'N$ $80^{\circ}25'W$
Center: jct. Rts. 685 and 657 near Linkous Store.
Compiler: Clyde Kessler (PO Box 3612, Radford VA 24143)
36. CLAYTOR LAKE $37^{\circ}03'N$ $80^{\circ}44'W$
Center: jct. Rt. 611 and Norfolk & Southern Railroad.
Compiler: Clyde Kessler, (PO Box 3612, Radford VA 24143)
Observers: Becky Atkinson, Mary Ann Bentley, Stan Bentley, Kelly Brennan, Ken Cooper, Clyde Kessler, Doug Kessler, Susie Leslie, Don Mackler, Eric Miller, June Miller, Tom Miller, Linda Myers, Betsy Palmer, Pat Polentz, Kitty Sawyer, Rob Solomon, Connie Stone, Tom Wieboldt.
37. TAZEWEEL. $37^{\circ}08'N$ $81^{\circ}30'W$
Center: Fourway.
Compiler: Sarah Cromer (Box 765, North Tazewell VA 24630)
38. GLADE SPRING. $36^{\circ}47'N$ $81^{\circ}47'W$
Center: jct. Rts. 750 and 609.
Compiler: Steven L. Hopp (Box II, Emory VA 24327)
39. BRISTOL. $36^{\circ}36'N$ $82^{\circ}07'W$
Center: jct. Rts. 647 and 654, east of Bristol.
Compiler: Richard P. Lewis (407 V. I. Ranch Road, Bristol, TN 37620)
Observers: J. Wallace Coffey, Bert Hale, Ken Hale, Loraine Hale, Joe Jackson, Rick Knight, Tom Laughlin, Richard Lewis, Don Littrell, Alice Nair John Shumate, Lorrie Shumate, Randy Smith.
40. NICKELSVILLE. $36^{\circ}45'N$ $82^{\circ}25'W$
Center: Nickelsville.
Compiler: Betsy McConnell (PO Box 293, Coeburn VA 24230)
41. BREAKS INTERSTATE PARK. $37^{\circ}15'N$ $82^{\circ}13'W$
Center: 4.5 miles n.e. of Haysi.
Compiler: D. Scott Ferrell (PO Box 67, Breaks, VA 24607)
42. WISE COUNTY $36^{\circ}57'N$ $82^{\circ}39'W$
Center: at Dorchester.
Compiler: Richard Peake (Clinch Valley College, College Ave., Wise VA 24293)
-



INFORMATION FOR CONTRIBUTORS

The following information should be of help to anyone wishing to submit articles to be considered for inclusion in future editions:

The Raven, the official journal of the Virginia Society of Ornithology, functions to publish original contributions and review articles in ornithology, not published elsewhere, mostly relating to the birdlife of Virginia. *The Raven* may also rarely reprint an article published elsewhere if it appears to be of particular interest to VSO members. Although most bird papers published in this journal concern the distribution, abundance, and migration of birds in Virginia, other aspects of ornithology are also covered, such as historical and bibliographic reviews and life-history and behavioral notes, especially when these are based on observations in Virginia. The activities of various public and private organizations engaged in biological and conservation work in Virginia is also of interest to the readership of *The Raven*. In addition, the journal serves to publish the official proceedings of the Society and other formal items pertaining to all aspects of the Society's activities. It may also print articles pertaining to the activities of VSO chapters and the various public and private organizations engaged in biological and conservation work in Virginia.

All contributions should be sent to the editor (Route 5, Box 950, Gloucester, Virginia 23061). Those having IBM compatible computers at their disposal are urged to submit materials for publication on either high- or low-density 5 1/4-inch diskettes, preferably using WordPerfect word-processing program. Modem transmission should be discussed with the editor by calling (804) 693-7699. If computer use is not possible, manuscripts, tables, and literature cited should be typewritten (*everything*, including tables and literature cited) and double-spaced on only one side of 8 1/2 x 11-inch good quality paper. Handwritten materials are discouraged.

At this time, only black-and-white photographs, graphs, maps, illustrations, figures, etc. may be used in *The Raven*. Generally the original size should not exceed 5 x 7 inches, keeping in mind that all such materials must be reduced substantially for final copy.

Format of *The Raven* generally follows guidelines set by the Council of Biology Editors as outlined in *CBE Style Manual*, 5th edition, published by Council of Biology Editors, Inc., Bethesda, Maryland 20814. It is standard policy that most manuscripts will be reviewed by someone qualified in the subject matter. The editor will acknowledge, by phone or letter, receipt of all articles submitted and will discuss reviewing policies with the author at that time.

Under most circumstances vernacular and technical names of birds should adhere to those in the Sixth edition of the A.O.U. Check-list of North American Birds and subsequent supplements. For bird measurements and weights, metric units are now the accepted standard. All figures and tables should be on separate pages and not included in the narrative text, and figures must be in a form suitable for photographic reproduction. Any extensive changes in figures must be charged to the author.

Deadlines for submission of articles are 1 January for the spring issue and 1 August for the fall issue. Authors contemplating submitting lengthy papers requiring review or those with extensive tabulations or figures should contact the Editor in advance.



The Raven

JOURNAL OF THE VIRGINIA SOCIETY OF ORNITHOLOGY

Volume 63

Number 2

1992



The Virginia Society of Ornithology, Inc. exists to encourage the systematic study of birds in Virginia, to stimulate interest in birds, and to assist the conservation of wildlife and other natural resources. All persons interested in those objectives are welcome as members. Present membership includes every level of interest, from professional scientific ornithologists to enthusiastic amateurs.

Activities undertaken by the Society include the following:

1. An annual meeting (usually in the spring), held in a different part of the state each year, featuring talks on ornithological subjects and field trips to nearby areas.
2. Other forays or field trips lasting a day or more and scheduled throughout the year so as to include all seasons and to cover the major physiographic regions of the state.
3. A journal, *The Raven*, published yearly, containing articles about Virginia ornithology, as well as news of the activities of the Society and its chapters.
4. A newsletter, published quarterly, containing current news items of interest to members and information about upcoming events and pertinent conservation issues.
5. Study projects (nesting studies, winter bird population surveys, etc.) aimed at making genuine contributions to ornithological knowledge.

In addition, local chapters of the Society, located in some of the larger cities and towns of Virginia, conduct their own programs of meetings, field trips, and other projects.

Those wishing to participate in any of the above activities, or to cooperate in advancing the objectives of the Society, are cordially invited to join. Annual dues are \$10.00 for active members, \$15.00 for sustaining members, \$25.00 or more for contributing members, \$250.00 for life members, and \$18.00 for family members (limited to husband, wife and their dependent children).

Editorial queries and comments may be directed to Teta Kain, Rt. 5, Box 950, Gloucester, Virginia 23061.

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The Raven

JOURNAL OF THE VIRGINIA SOCIETY OF ORNITHOLOGY

EDITOR

TETA KAIN

EDITOR EMERITUS

F. R. SCOTT

ASSISTANT EDITOR

CLAUDIA P. WILDS



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SPRING RAPTOR MIGRATION AT WILLIAMSBURG

BRIAN TABER

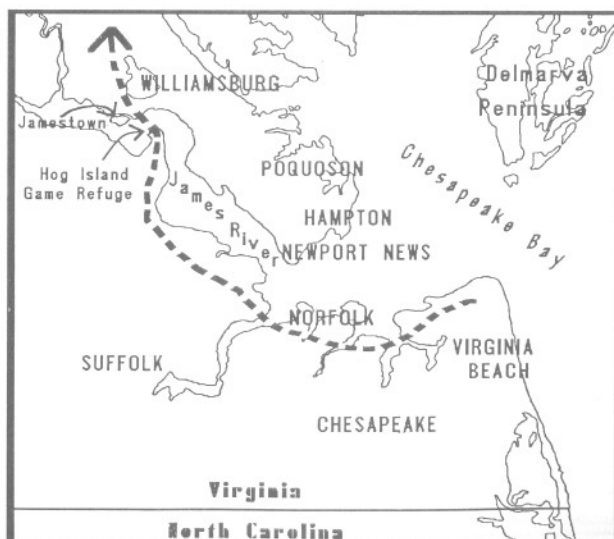
104 Druid Court

Williamsburg, Virginia 23185

Raptors, migrating northward along the East Coast in spring, encounter a major water crossing at the Hampton Roads area of southeastern Virginia. There, they must fly over the Chesapeake Bay, across 20 miles or more of open water, to reach the southern tip of Virginia's Eastern Shore and continue northward up the Delmarva Peninsula. This route represents the most direct course northward along the coast. It is a reversal of the well-documented, and sometimes spectacular, fall raptor flights seen from the hawkwatching stations at Kiptopeke, Virginia, and Cape May, New Jersey. There has been documentation of these flights at Cape May, but the spring movement of raptors in Virginia has been little studied.

Some birds might be reluctant to cross such a large body of water as the Chesapeake Bay and instead, choose to turn northwestward, following the south shore of the James River (Fig. 1). After forty miles, the James jogs sharply westward and narrows to a width of 1.5 miles between Hog Island Game Refuge and a point just east of Jamestown Island on the north bank. Birds continuing their northward direction of flight might take advantage this easier water crossing—a flight path that would carry them along the western edge of the city of Williamsburg.

FIGURE 1. A map of the Hampton Roads area of Virginia. The dotted line indicates the possible northwestward migration route that raptors might choose instead of crossing the mouth of the Chesapeake Bay to the Delmarva Peninsula.



For three years, in late winter and early spring, I observed and counted raptors that I judged to be migrating northward over my hawkwatching station in Williamsburg, located three miles north of the James River crossing point described above. Watches were conducted only in April and May in 1990, but I extended my hawkwatching activities into March in 1991, and into February in 1992. Table 1 provides a summary of days, hours, and birds observed during all three years.

TABLE 1. *Observations of migrating raptors at Williamsburg during the spring months of 1990 through 1992.*

Month and year	No. of days station manned	No. of hours station manned	No. birds per hour	No. birds identified	No. birds unidentified	No. species seen
April 1990	4	19	2.8	51	2	10
May 1990	2	2	4.0	8	...	3
March 1991	6	15	2.3	33	2	7
April 1991	23	41	1.6	60	4	13
May 1991	3	9	0.6	4	1	4
February 1992	7	11	2.0	22	1	6
March 1992	9	12	1.1	13	...	6
April 1992	9	10	3.3	30	3	9
May 1992	10	14	1.3	13	5	6
Total	73	133	1.9	234	18	13

My hawkwatching station has all the comforts of home and is, in fact, on the front steps of my house. The station is quite convenient, especially for conducting short watches at lunchtime and in the early evening. There is a fair view of the sky to the south and a good view directly overhead. Trees in the yard severely limit views to the east, west, and north, though it is possible to observe a high-flying raptor for at least 15 to 30 seconds, if the bird is on a steady course, and longer, if it is circling.

Birds seen from this site may represent part of a group that splits at the mouth of the Chesapeake Bay and chooses a less-direct route north. Though perhaps this is not a major flyway, it may represent an alternate "trail" for northbound migrants. The 13 species of raptors and total numbers seen during the study period are summarized in Table 2.

TABLE 2. *Total number of birds seen by species during the study period.*

Species	Number seen	Species	Number seen
Black Vulture (<i>Coragyps atratus</i>)	21	Northern Goshawk (<i>Accipiter gentilis</i>)	1
Turkey Vulture (<i>Cathartes aura</i>)	13	Red-shouldered Hawk (<i>Buteo lineatus</i>)	9
Osprey (<i>Pandion haliaetus</i>)	25	Broad-winged Hawk (<i>Buteo platypterus</i>)	6
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	17	Red-tailed Hawk (<i>Buteo jamaicensis</i>)	13
Northern Harrier (<i>Circus cyaneus</i>)	14	Golden Eagle (<i>Aquila chrysaetos</i>)	2
Sharp-shinned Hawk (<i>Accipiter striatus</i>)	58	American Kestrel (<i>Falco sparverius</i>)	50
Cooper's Hawk (<i>Accipiter cooperii</i>)	5		

Production of thermal updrafts is good around Williamsburg because there are large areas of land and water to provide uneven heating of the air. Both gulls and raptors are frequently seen using such updrafts to assist them in migration.

It is especially difficult to determine whether Bald Eagles (*Haliaeetus leucocephalus*), Turkey Vultures (*Cathartes aura*), and Black Vultures (*Coragyps atratus*) are actually migrating, because there is a substantial year-round population of those species in the area. For all observations, however, only those birds that were traveling high and directly northward past the hawkwatching site were tallied. Counting raptors is not a precise science, however, and there may have been birds heading north that were not actually migrating, as well as birds heading in other directions that were.

Two species, rare for the Williamsburg area, were seen: a single adult Golden Eagle (*Aquila chrysaetos*) on 29 April 1991 and 13 April 1992, and an immature Northern Goshawk (*Accipiter gentilis*) on 23 April 1991. Interestingly, an adult Northern Goshawk was seen by two other observers less than ten miles north of my hawkwatching site on 24 April 1992. There are two previous local records for Northern Goshawk and no other records for Golden Eagle.

Raptors were observed flying most frequently on northwest and southwest winds and rarely on northeast or east winds. Windier days generally produced more birds; the Northern Goshawk and Golden Eagles, however, were seen on calm days.

It often seemed that raptors accompanied or followed closely behind small groups of migrating birds, especially Tree Swallows. I began to notice a general pattern of one or two small waves of birds per hour. The waves would last for several minutes each.

For some comparison data, I spent two days hawkwatching at Hog Island on 6 April 1991 and 3 May 1992, and three days at Kiptopeke hawkwatching station on Virginia's Eastern Shore on 8 March, 29 March, and 11 April 1992. This may have been the first hawkwatching activity in late winter and early spring at those sites. In five hours at Hog Island, 15 migrating birds were seen. There were nine Turkey Vultures, four Sharp-shinned Hawks (*Accipiter striatus*), and two American Kestrels (*Falco sparverius*), all heading directly toward Williamsburg. In 25 hours at Kiptopeke, 41 migrating raptors were seen. There were 27 Ospreys (*Pandion haliaetus*), 12 American Kestrels, one Sharp-shinned Hawk, and one Red-tailed Hawk (*Buteo jamaicensis*). All five days were generally clear and warm, with winds mostly from the west or south. The relatively modest showing of raptors at Kiptopeke may be a further indication that there is more or less a broad front of migrating birds in late winter and early spring.

Conclusions cannot be easily drawn about the movement of birds over Williamsburg from this short-term study. This information is offered mainly as proof of a steady flow of raptors over the area, with excellent variety of species from late February to mid-May, noticeably increasing in activity beginning at the end of March and peaking around 9 April.

The data presented here represent only snapshots of events over many widely-spread days. I certainly missed all of the early-moving raptors on weekdays, seeing only those that passed by at lunchtime or in the evening. On the weekend, when I had

more time, weather was, unfortunately, often poor, either for birds flying or for viewing them. Even so, variety was excellent, with up to nine species of raptors seen in a day. Although there were some days with up to ten birds per hour, I often could not remain at the station to see how long the stream of birds continued. Just because I had the time, I also watched on many days that were obviously not flight days, often resulting in no birds being recorded during those times.

I hope these results may serve as an enticement for others to document raptor movement in the spring in Virginia. Despite such challenges as poor lighting behind the birds and smaller concentrations of birds than are found in the fall months, the rewards are many. More information is needed to recognize such trends as weather-related movements. Lack of coverage is certainly an obstacle to be overcome.

NORTHERN ROUGH-WINGED SWALLOWS BUILDING NEST IN SEMI-TRAILER

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On 5 May 1991, while driving behind the Giant food store in Leesburg, Loudoun County, Virginia, I noted a Northern Rough-winged Swallow (*Stelgidopteryx serripennis*) flying with a beakful of nesting material. Intrigued, I pulled over and watched the bird fly to the underside of a van of a parked semi-trailer and up into a round hole about six inches across on the front underside. When I checked the hole, I found a mass of nesting material just inside, resting on the sheet metal in a space about four inches deep between the sheet metal outer shell and the floor of the trailer. I watched for about ten minutes as this bird and its mate continued to carry nesting material to the trailer.

On 21 May, the trailer was gone, but Northern Rough-winged Swallows were still present and one was seen entering a similar hole in another trailer while its mate sat on the concrete pavement nearby. This hole contained no nest material, suggesting that the birds were either prospecting or, if the same birds, trying to find their former nest. These birds then flew under an adjacent trailer and cab and perched in the undercarriage until flushed by the sound or vibrations of men moving a cart into the trailer. The driver's subsequent return and presence kept the birds from returning.

At another trailer on the opposite side of the loading area, a European Starling (*Sturnus vulgaris*) was carrying nesting material into another hole similar to the one

described above. An employee of the Giant store informed me that this trailer had been there only since the preceding evening and that such trailers are rarely present for more than 24 hours. When I returned the following day, the trailers that had held the beginnings of a European Starling nest and the one in which the Northern Rough-winged Swallows had perched were gone. The swallows were heard but not seen, and none was present during several casual visits in June.

I know of only one similar nesting attempt in Virginia. Robert L. Ake (pers. comm.) found a nest with four young in the understructure of a junked flatbed trunk in the period between 27 June and 4 July 1987. The nest was in a tubular underpinning of the trunk which was at a work site off Interstate 64 and near the northeast corner of the Dismal Swamp, not far from Bower's Hill.

Stedman and Simbeck (*Migrant* 59(2):51-52, 1988) recorded three instances of Northern Rough-winged Swallows carrying nesting material into the underside of semi-trailers in Tennessee and another instance of birds evidently inspecting a similar site. None of these efforts was known to result in fledged young; In one instance, movement of a trailer resulted in birds leaving the area.

I suspect that swallows attempted to nest in the trailer in Leesburg because few nest sites are available in that portion of the northern Virginia Piedmont. I found few of this species while atlasng in that area. Only a few of the many bridges that I checked for nests had the round drainage holes that this species seems to prefer for nesting.

It should be feasible to mount tubular pipes beneath bridges and in culverts to increase populations of this species in northern Virginia. Such tubes were built and used by Lunk (1962, Publ. Nuttall Ornithol. Club 4) in a study in Michigan. He found that Northern Rough-winged Swallows readily used such structures and apparently selected them in preference to more usual sites.

1991 GREENSVILLE COUNTY FORAY CORRIGENDA

The following corrections should be made in the article "Greensville County Foray of June 1991" appearing in Volume 63, Number 1 of *The Raven*:

Page 24 - The scientific name for Great Blue Heron should be *Ardea herodias*.

Page 28 - The scientific name for Carolina Chickadee should be *Parus carolinensis*.

Page 32 - The entry for Orchard Oriole (*Icterus spurius*) should read: "Common but widespread. There were 21 reports and a maximum of nine birds. A male was seen carrying a fecal sac as it flew along Sussex County Rt. 645 on 7 June (Kitchens).

EASTERN SCREECH-OWL NESTING AND FEEDING IN ACCOMACK COUNTY

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During the spring months of 1991 and 1992, the Commonwealth's waterfowl biologist, Dr. Gary Costanzo, monitored over 200 Wood Duck (*Aix sponsa*) nesting boxes erected in 1988 and 1989 by the Eastern Shore Waterfowl Trust (ESWT) in Accomack County. He was assisted by the author (mainly in 1991), and by wildlife technician Donald Hayes (mainly in 1992). Besides Wood Ducks, several other species used the artificial cavities, including a Great Crested Flycatcher (*Myiarchus crinitus*) (one brood in each year, but at different locations), Carolina Wren (*Thryothorus ludovicianus*) (one nest in 1992), and Tree Swallows (*Tachycineta bicolor*) (two broods in 1991 and one in 1992 at different locations), as well as one hundred or more pairs of European Starlings (*Sturnus vulgaris*) (in both years), whose eggs and/or young were destroyed. In 1991, a Hooded Merganser (*Lophodytes cucullatus*) laid four eggs in a nest that already contained ten Wood Duck eggs. The hen Wood Duck went on to brood and hatch four of her own eggs and three of the merganser eggs.

The principal non-waterfowl user of the ESWT's nesting boxes is the Eastern Screech-Owl (*Otus asio*) including both rufous and gray morphs, with pairs as often comprising different morphs as of the same. In 1991, the ESWT's boxes fledged thirteen broods of owls; in 1992, twelve broods. Costanzo did not obtain screech-owl bands in time that first year to band more than seven nesting owls. Of these, only four returned in 1992 to the same boxes or territories they used the previous year. One owl used the same box, two used the box adjacent (on the same pole) to the box they used in 1991, and the fourth owl nested in a box across the pond from where she had nested the previous spring.

None of the three owlets we banded in 1991, and neither of the two adult owls we caught and banded in boxes adjacent to nesting owls (their probable mates), were recaptured in 1992.

In addition to the common pairing of red and gray color morphs—which may be unusual because, according to G. P. Hekstra (1973), rufous-morph owls favor broad-leaf forests, whereas gray-morph birds favor conifers—several other observations concerning Accomack screech-owls are worth recording.

Although screech-owl clutches of up to seven eggs have been reported, the largest we found contained five. Most had three or four eggs and the resulting average brood size was three. On 12 April 1991, we found a screech-owl incubating two owl eggs and one Wood Duck egg. Unfortunately, we never got back to see the results.

The most intriguing aspect of screech-owls is their diets. What they eat seems to depend on nesting locations and time of year, but possibly even the tastes of individual birds. Although screech-owls are presumed to live primarily on insects, we monitored

the boxes in April and May and found the remains of migrating warblers, as well as resident chickadees. The gray-morph female that nested in the same box both years (and hatched four owlets both years) was supplied with food by a gray-morph mate who appeared to specialize in mice and starlings. During both springs, Gary Costanzo was treated to the sight of the male bringing a mouse to his mate. While cleaning out this box after the nesting season of 1991, we also found nine starling wings.

On the reverse side of the pole supporting this successful "owl box" is a Wood Duck box that produced hatches of ducklings by the same hen in both years. Screech-owls may compete with other cavity nesters—particularly woodpeckers, which the owls occasionally eat, as well as evict—but screech-owls and Wood Ducks throughout Accomack County co-exist without apparent conflict.

From the evidence of pellets and food remains found in the nesting boxes, screech-owls in the Finney and Rattrap Creek swamps eat crayfish and frogs as well as occasional songbirds. They snip off crayfish heads and claws just the way humans eat the crustaceans. Several species of frogs are also eaten; the most common found in Accomack boxes is the southern leopard frog (*Rana sphenoccephala*). Although American (*Bufo americanus*) and Fowler's (*B. woodhousei fowleri*) toads are common throughout the county, we found no evidence that the owls prey on them.

Screech-owls are sometimes characterized as "feathered wild cats" because of their ability to kill creatures even more feisty than themselves. At least one owl that roosts along Finney Creek lives up to that reputation. In addition to the usual assortment of Northern Cardinal (*Cardinalis cardinalis*) beaks, Blue Jay (*Cyanocitta cristata*) feathers, and woodpecker legs we find at most owl roosting sites, this owl has successfully killed at least one half-grown rabbit and a weasel.

A weasel is no small undertaking for a raptor of any size. King (1991) reported a European buzzard overwhelmed by a weasel, and an eagle barely survived a similar encounter. An Accomack neighbor, Steve Van Kesteren, remembers a domestic gobble turkey on his farm that was killed by an ambitious weasel weighing only a tiny fraction of his 45-pound bird. For a screech-owl to take on a weasel requires either a blissful ignorance of its capacity for self-defense or a fecklessness to match the weasel's own.

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LARK SPARROWS IN PRINCE WILLIAM COUNTY

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The Virginia Society of Ornithology's publication, *Virginia's Birdlife, an Annotated Checklist* (1987) lists the Lark Sparrow (*Chondestes grammacus*) as a rare transient and winter visitor to the Coastal Plain, mostly along the coast, with a peak count of three at Craney Island in November 1969. The Spring 1990 issue of *The Raven* noted one Lark Sparrow recorded at Back Bay during the 1988-89 Christmas Bird Count (Kain 1990). Wilds (1983) described the bird as a rare visitor along the coast "with most records in August and September, a few in May, and others from October to April." Certainly the Lark Sparrow is not seen often in Virginia. The following is a recapitulation of details pertaining to the identification of a Lark Sparrow in eastern Prince William County, Virginia, in January 1992.

As part of an ongoing study of the area around Marumsco National Wildlife Refuge (NWR), Woodbridge, Virginia, the authors were in the fallow field on the south side of Marumsco Marsh, during the early morning of 15 January. A cold front had passed overnight and winds were gusting from 17 to 23 mph or more with a temperature estimated at 25°F. Sky conditions were clear; the ground surface was frozen. Bird activity was lighter than normal in and about the field, but Northern Mockingbirds (*Mimus polyglottos*), Northern Cardinals (*Cardinalis cardinalis*), Song Sparrows (*Melospiza melodia*), and White-throated Sparrows (*Zonotrichia albicollis*) were evident, as well as American Goldfinches (*Carduelis tristis*) and House Finches (*Carpodacus mexicanus*). Among a small group of the latter we observed a Lark Sparrow.

The first sighting occurred at 8:20 a.m. at the north end of the open field in the rough edge of the thicket separating field from marsh. The bird was conspicuously perched atop a stack of brush trimmings and showed the characteristic white, unstreaked breast and sharply patterned face and crown. As we moved closer it flew ahead of us along the edge, always staying in the open. Each time it flew it showed the blackish tail with white edging. Eventually we closed to within about 15 yards before it dropped into dense cover and disappeared. The total time of observation was perhaps five to seven minutes. This individual showed an number of field marks: a white median line on the bright chestnut or russet-colored crown; a white superciliary line that shaded to bright buff toward the rear; a black eye line; russet ear patches; sharp black malar marks; a light, unstreaked chest and belly shading to gray on the flanks; a hint of buffy wing bars; dark striping on the upper back going to unmarked mouse-brown over the back and rump; a long tail colored whitish below and darker above, with the suggestion of a notch when the bird was at rest, but of a rounded shoehorn shape in flight. The central breast spot was indistinctly defined in this individual.

At 9:45 a.m. a second individual was seen in the open marsh. It was perched on tall grass near the NWR sign about 30 yards in front of the viewing platform on Veterans

Memorial Park's nature trail, just east of the Park's south entrance. This location is approximately 200 yards north-northeast of the original sighting. We judged this to be a different bird because of its bold and more sharply defined central breast spot and more sharply defined head pattern and coloration. We observed it for one to two minutes before it dropped into high grass. No song or call note was heard from either individual. Observations were with 7-15 x 35 and 7-21 x 50 binoculars. Notes were made on the spot and immediately upon departing the field. Photos were taken of the first individual (Kodachrome slides with a Canon AE-1 and 70-205mm lens).

On 16 January, at 7:30 a.m., I returned to the location of the previous day's first sighting. A temperature in the low to mid-twenties and winds gusting to 30-35 mph produced a negative chill factor. Clouds were broken-to-overcast, but visibility was unimpaired. In the higher winds, sparrow and finch activity was limited, but Song and White-throated Sparrows and House Finches were seen as well as a Savannah Sparrow (*Passerculus sandwichensis*). While focusing on this last bird, I saw the Lark Sparrow huddled nearby. It seemed somewhat larger than the Savannah and with a longer tail. It appeared to be the same bird as before, *i.e.*, the ear patch, though russet, seemed not as vivid or as distinctly delineated as in the previous day's second bird. When the nearby Savannah Sparrow flew into the open grassy field, it was followed closely by this Lark Sparrow, displaying clearly the black, rounded, white-edged tail. This sighting occurred at 8:30 a.m. I walked through the field flushing several Song Sparrows and probably the same Savannah Sparrow which stayed on top of the grass briefly, but I was able to catch only one more glimpse of the Lark Sparrow, popping out of and back into tall grass toward the far (south) side of the field. No additional photos were possible.

My revisit to this area of Friday, on 17 January, failed to yield additional sightings. On Sunday, 19 January, at 10:00 a.m., however, I got a brief, but close, look at one Lark Sparrow on the west shoulder of Featherstone Road just below the park entrance. I was able to stop the car within 8-10 feet of the bird and look down on it for a few seconds before it flew behind me into the thick edge of the marsh. It showed the same head pattern and, in flight, the white-edged, black tail. It flew off in the company of another sparrow, but I observed no Lark Sparrow field marks on the latter bird. Weather conditions at the time were clear—15°F., winds northwest, 5-10 mph. Total time of observation was no more than 30 seconds.

On 20 January, Laase and I returned again to the original area at 8:30 a.m. and, in the course of about one hour, turned up the usual suspects, but no Lark Sparrow. After surveying the main marsh, we returned for another look and observed one Lark Sparrow in the same area as the first sighting of 15 January. It flew ahead of us along the edge toward Featherstone Road with a group of Song Sparrows. The sighting occurred at 10:50 a.m. Total time of observation was six to eight minutes. No call notes were heard. Additional color photos were taken from 15-25 yards with the telephoto lens. Erika Wilson reported seeing the Lark Sparrow here on 24 January, and Laase and I led a local VSO group to the same area for an additional look at one bird on 25 January. This and all the earlier sightings occurred within 150 yards of the center of a roughly triangular area on the marsh's south edge.

Marumsco National Wildlife Refuge lies south of Occoquan Creek in northern Virginia. It is a tidal marsh fed by Marumsco Creek and bordered on the north by an industrial park, on the west by Prince William County's Veterans Memorial Park, on the south by a small, established, residential community, and on the west by the Woodbridge Research Facility of the U. S. Army's Harry Diamond Laboratories (at present a closed, secure reservation, but on the Defense Department's base-closure list). Marumsco Creek opens on Occoquan Bay and the Potomac River. The area of this sighting is on the south perimeter of Marumsco Marsh (NWR) in an area used for many years, until recently, as community garden plots and now fallow. It has been vacated to be developed as additional soccer fields for the county's nearby Veterans Park. It is a rich old field-edge habitat with plentiful seeds and berries that have brought hundreds of Cedar Waxwings (*Bombycilla cedrorum*), sparrows, and finches throughout the fall and winter. Access to the area is from U. S. Route 1 via Featherstone Road. Just south of Veterans Park, opposite a parking area and recycling site on the left, Bay Street leads to the right into the Bayside community. Immediately after turning toward Bayside, the sparrow field will be on the left. It is suggested that one park just off the road and walk to the woodland edge.

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RESPONSE OF FEEDER BIRDS TO AN ALBINO HOUSE FINCH

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On 9 November 1990 at 7:30 a.m. I observed a spectacular albino House Finch (*Carpodacus mexicanus*) at my residence in Aldie, Loudoun County, Virginia. When first seen, the bird was perched on an exposed branch of one of several small dead trees that I have put on stands to hold feeders. for the next three or four minutes this bird fed at several hanging feeders in these trees with no response from other feeding House Finches or from nearby Downy (*Picoides pubescens*) and Red-bellied (*Melanerpes carolinus*) woodpeckers.

The albino House Finch flew to a tree in the hedgerow nearby. Immediately, White-throated Sparrows (*Zonotrichia albicollis*) in the brush below gave a series of alarm calls, and other birds nearby responded to the albino. These birds included three Carolina Chickadees (*Parus carolinensis*) and one Tufted Titmouse (*Parus bicolor*) that approached the albino within about two feet and peered at it. They did not raise crest feathers nor seem particularly alarmed, although the titmouse was flicking its wings. One Golden-crowned Kinglet (*Regulus satrapa*), apparently attracted by the commotion below, descended from high in a large tree and approached the albino, flicking its wings. A female Northern Cardinal (*Cardinalis cardinalis*) also flew up nearby giving alarm "chips," but I do not know whether this bird was reacting to the albino or to calls of the White-throated Sparrows.

The House Finch eventually flew down into the brush out of my sight, but the White-throated Sparrows continued giving alarm calls for another six to eight minutes until about 7:17 a.m., when all signs of interest in the albino apparently ended. Thus the birds at the station responded for about 15 minutes, and the titmouse and kinglet ceased to react within about half that period.

The following day I photographed this bird when it returned to the feeder (Fig. 1). None of the birds attending the station reacted to the bird in any way, including American Goldfinches (*Carduelis tristis*) and Pine Siskins (*C. pinus*), with which the albino fed. The bird was seen briefly on the following day, but not thereafter; it had presumably left the area. (I was at home during the following days and certainly would have seen the bird had it been present.)

FIGURE 1. Albino House Finch at Aldie, Virginia, 10 November 1990.



I examined the literature thoroughly for reports of birds' interactions with albinos but found that most notes report only descriptions of the birds or state that other birds treated the bird normally (e.g. Keyes 1910, White 1961). Several groups of birds seem particularly intolerant of albinos, however, with regular reports of albinos chased or dominated by other members of their species. These intolerant species include oystercatchers (*Haematopus* sp.) (Scarlett 1980, Goodwin 1980) and swallows (Rough-winged Swallow, *Stelgidopteryx serripennis* [Janssen 1973], Bank Swallows, *Riparia riparia* [McNeil 1979], Barn Swallows, *Hirundo rustica* [Janssen 1976, Knox 1979, Ellis 1981], House Martins, *Delichon urbica* [Elliott 1981], and Purple Martins, *Progne subis* [Larrison 1945]). A few other species have also occasionally been noted chasing or otherwise reacting to albinos of their own species: Bristish Storm-Petrel, *Hydrobates pelagicus* (Roberts 1978); Chimney Swift, *Chaetura pelagica* (Wing 1930); White-breasted Nuthatch, *Sitta carolinensis* (Burk 1941); European Starling, *Sturnus vulgaris* (Stoner 1959); Common Grackle, *Quiscalus quiscula* (Cortelyou 1966); and Red-winged Blackbird, *Agelaius phoeniceus* (McCarney 1946). Such responses are evidently quite uncommon in some of these species. This concept is suggested by the large number of reports of albinos I found for starlings, grackles, and red-wings compared with the single instance of intraspecific reaction found for each of these species.

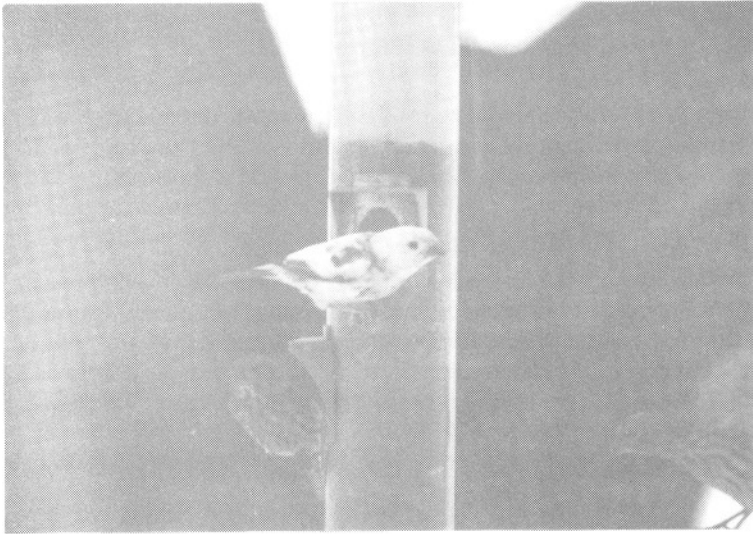
On 17 November another abnormally colored House Finch appeared at my feeder. This bird was a dull-colored male with his forecrown, cheeks, and crown from the middle to the back of the head, a uniform light pink. The right side of the head had a darker stripe running back from the eye and the forecrown was a darker pink than the rest of the head. The bird was otherwise normally colored and elicited no unusual reaction from any of the other birds at the feeder.

I have found only four reports of albinism in House Finches, all but one in California birds (Swarth 1899, McGregor 1900, Michener and Michener 1936, Ross 1973). David W. Johnston (pers. comm.) informs me, however, that he saw photographs of completely white and partially white House Finches in a Wild Birds shop in Burke, Virginia. According to the owner of the store, the photographs had been taken of birds that had appeared that winter at a local feeder. George M. Jett (pers. comm.) also informs me that he had photographed an almost completely white bird at his feeder in Waldorf, Maryland, in February 1990. I suspect that albinism is actually less frequent in this species than in some other groups on the basis of the relatively high numbers of reports for other common birds such as the American Robin (*Turdus migratorius*), various icterids, and the House Sparrow (*Passer domesticus*), compared with the generally few reports for any of the cardueline finches. Further, the two albino House Finches reported here are the only noticeably abnormally colored House Finches that I have seen among the many hundreds visiting these feeders from 1987 to 1991.

I suspect that the response to the more spectacular albino was a response to its novelty, as it seems likely that I saw it when it first appeared at the station. I had been watching the station periodically during the preceding two days and believe I would have seen the bird had it been present. That the first albino was seen when it first arrived is also suggested by the lack of response of other birds after the initial encounter.

There was an interesting postscript to my observations of the first albino House Finch seen in Aldie. Almost certainly the same bird was seen by Randy and Richard Crook (pers. comm., in litt.) at their feeder in Catonsville, Maryland, ca. 50 miles east-northeast of Aldie on 29 December 1991 and 7 January 1992. The unique combination of white and dark feathering that show well in pictures taken by the Crooks (e.g., Fig. 2) convinced not only me, but also M. R. Browning and R. C. Banks, that the two observations were of the same bird.

FIGURE 2. Albino House Finch at Catonsville, Maryland, 7 January 1991.



The only differences between the two are a slightly more extensive distribution of dark feathers in January. Pictures of the bird taken in Virginia show some of the feathers in sheath, indicating active molt at the time. Thus, the bird was molting out of its albinistic plumage during the winter. Michener and Michener (op. cit.) reported an opposite case in which a bird banded as a normally colored juvenile was a motley albino nearly four years later.

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EARLY REPRODUCTION IN THE STARLING

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On 28 February 1992, a fully feathered, apparently healthy, fledgling European Starling (*Sturnus vulgaris*) was observed within the town limits of Christiansburg, Montgomery County, Virginia, by P. H. Ireland. The fledgling was alternately hopping and fluttering its wings in an apparent effort to fly or to elicit a feeding response from the parent birds. Several adult starlings were observed in the immediate area of the fledgling, but none of the adults attended the fledgling and none made any effort to defend the fledgling when it was approached by the observer.

This observation represents an extremely early record for breeding of starlings in western Virginia. Stokes (1979) reports that courtship in starlings begins usually in late February, nest-building in late March, and breeding in early April. Kain (1987) reports eggs in the nests of starlings in the Mountain and Valley region of Virginia as early as 30 March. No records of February nesting activities in starlings have been found.

An increase in daylight hours (photoperiod) in the spring of the year has long been recognized as a major factor stimulating reproductive activities in birds. While an increase in the photoperiod may be the only regular and dependable environmental variable that triggers the breeding activities of birds, unseasonably warm winter and spring temperatures might also stimulate early reproduction. The unusually warm temperatures in western Virginia during the 1991-1992 winter months may have been partly responsible for what appears, in this case, to be an exceptionally early instance of starling reproduction.

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WHITE-EYED VIREOS IN WINTER IN THE GREAT DISMAL SWAMP

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The U. S. Fish and Wildlife Service bird checklist of the Great Dismal Swamp indicates that White-eyed Vireos (*Vireo griseus*) are commonly found there in the spring, summer and fall, but not in the winter months. During the past three winters, however, I have observed White-eyed Vireos over a wide area of the Swamp (latitude $36^{\circ}44'N$). Table 1 lists the number of vireos seen and the locations and dates of these sightings.

TABLE 1. Dates, numbers of birds seen, and locations of sightings of White-eyed Vireo Vireos in Great Dismal Swamp during the winter months of 1989-1992.

Date of observation	No. of birds seen	Location of observation
14 November 1989	1	Railroad Ditch
24 November 1989	1	Railroad Ditch
14 January 1990	1	Railroad Ditch
18 February 1990	1	Railroad Ditch
23 December 1990	2	Railroad Ditch
9 February 1991	1	Jerico Ditch
10 February 1991	1	Lynn Ditch
2 March 1991	2	Railroad Ditch
24 March 1991	1	Jerico Ditch
16 November 1991	2	Railroad Ditch
14 December 1991	4	Lynn Ditch
17 December 1991	1	Hudnell Ditch
8 January 1992	1	Jerico Ditch
12 January 1992	2	Railroad Ditch
12 January 1992	1	Washington Ditch
1 February 1992	2	Jerico Ditch
8 February 1992	1	Railroad Ditch
7 March 1992	5	Lynn Ditch

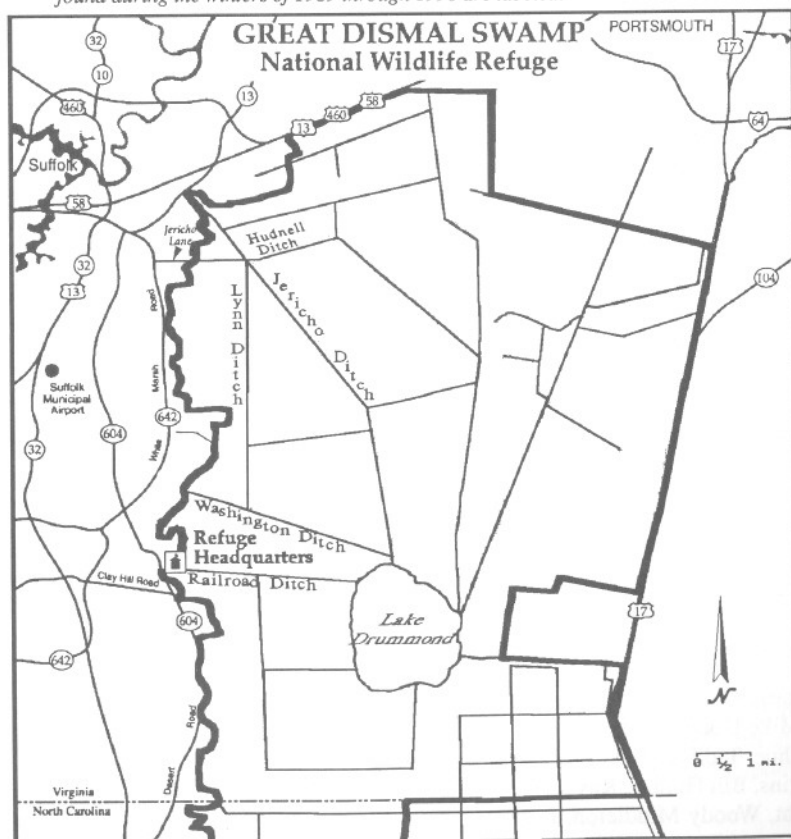
Observers, on Christmas Bird Counts held in the adjacent region, have reported few White-eyes north of Mattamuskeet, North Carolina (latitude $35^{\circ}27'N$). Table 2 on page 85 lists the birds seen on selected Virginia and North Carolina Christmas Bird Counts from 1984 through 1990 from the southernmost latitude of $34^{\circ}08'N$ to the northernmost latitude of $37^{\circ}40'N$.

Areas where vireos have been found most frequently during the winter months in Great Dismal Swamp are shown on the map in Figure 1 on page 85. It appears that White-eyed Vireos spotted at the Swamp in mid-March may not necessarily be early migrants, after all, but may have remained in the Swamp all winter.

TABLE 2. *White-eyed Vireo* sightings on selected Virginia and North Carolina Christmas Bird Counts from 1984 through 1990.

Christmas Count Name	Latitude	1984	1985	1986	1987	1988	1989	1990
Wachapreague, VA	37°40'N	...	...	...	...	...	...	...
Cape Charles, VA	37°12'N	...	...	2	1	...	...	...
Newport News, VA	37°05'N	...	...	...	...	...	...	...
Little Creek, VA	36°51'N	...	...	...	...	...	...	...
Back Bay, VA	36°39'N	...	...	...	...	...	...	...
Kitty Hawk, NC	35°27'N	...	...	...	...	...	...	...
Mattamuskeet, NC	35°27'N	2	...	1	1	1	1	...
Cape Hatteras, NC	35°13'N	3	3	...	3	1	2	4
New Bern, NC	35°03'N	...	...	...	...	...	...	1
Morehead City, NC	35°45'N	...	...	3	2	...	1	5
Wilmington, NC	34°08'N	2	1	1	1	1	...	...

FIGURE 1. A map of the Virginia portion of Great Dismal Swamp. The boundaries of the refuge are shown as heavy lines. The ditches and lane where *White-eyed Vireos* were found during the winters of 1989 through 1990 are labeled.



1990 ROANOKE CHRISTMAS BIRD COUNT

In the article "Virginia Christmas Bird Counts—1990-91 Season" appearing in Volume 63, Number 1, on page 35, it was erroneously stated that the Roanoke Christmas Count was not held in 1990. The count was conducted and the results are as follows:

Roanoke, VA 1990-91 Christmas Bird Count: 37° 18'N 79°56'W, centered at Oakland Blvd. and Williamson Rd. 15 December; 4:30 a.m. to 4:30 p.m.; Temperature 30° to 44°F. Wind N, 0-5 mph. A.M. partly cloudy, foggy, light rain. P.M. partly clear. Observers: 20 in field in 10-11 parties (non-owling). 2 hours and 1 mile owling. Total party-hours 78 (40.25 on foot and 37.75 by car). Total party-miles 272 (32.50 on foot and 240.50 by car).

Common Loon 3; Pied-billed Grebe 9; Great Blue Heron 8; Canada Goose 6; Great-winged Teal (Am.) 3; American Black Duck 23; Mallard 105; Northern Pintail 2; Lesser Scaup 6; Bufflehead 20; Hooded Merganser 26.

Black Vulture 17; Turkey Vulture 79; Sharp-shinned Hawk 2; Cooper's Hawk 2; Red-shouldered Hawk 1; Red-tailed Hawk 11; American Kestrel 9; Wild Turkey 22; Northern Bobwhite 15.

Killdeer 1; Common Snipe 1; **Bonaparte's Gull 13**; Ring-billed Gull 728; Herring Gull 3; Rock Dove 516; Mourning Dove 308; Barn Owl 1; Eastern Screech-Owl 9; Great Horned Owl 3; Barred Owl 1; Belted Kingfisher 9.

Red-bellied Woodpecker 20; Yellow-bellied Sapsucker 6; Downy Woodpecker 49; Hairy Woodpecker 4; Northern (Yel.-sh.) Flicker 35; Pileated Woodpecker 14; Eastern Phoebe 7; Blue Jay 33; American Crow 289; Common Raven 4; Black-capped Chickadee 37; Carolina Chickadee 167; Tufted Titmouse 112; Red-breasted Nuthatch 14; White-breasted Nuthatch 38; Brown Creeper 15; Carolina Wren 174; House Wren 1; Winter Wren 15.

Golden-crowned Kinglet 218; Ruby-crowned Kinglet 14; Eastern Bluebird 84; Hermit Thrush 8; American Robin 2; Northern Mockingbird 123; European Starling 2780; Yellow-rumped (Myrtle) Warbler 41.

Northern Cardinal 226; Rufous-sided (E.) Towhee 8; Field Sparrow 23; Fox Sparrow 1; Song Sparrow 203; Swamp Sparrow 1; White-throated Sparrow 263; White-crowned Sparrow 12; Dark-eyed (Slate-col.) Junco 134; Common Grackle 1; Brown-headed Cowbird 1; House Finch 11; American Goldfinch 119; House Sparrow 10.

Total: 75 species; 7279 individuals.

Participants: Co-compilers—Peggy Spiegel, 303 Market St., Roanoke, VA 24011 and Mike Donahue, 4814 Bandy Rd. SE Apt 4, Roanoke VA 24014; Jim Ayers, Mike Donahue, Tad Finnel, Dorothy Hancock, David Holt, Joyce Hot, Eunice Hudgins, John Hudgins, Bill Hunley, Kay Johnson, Tom Johnson, Tina Kemper, Barry Kinzie, Katrina Knight, Woody Middleton, Bill Opengari, Mike Smith, Peggy Spiegel, Jerry Via, Liz Williams.

1992 REPORT OF THE VSO RECORDS COMMITTEE

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This report covers the actions of the VSO Records Committee from 1 September 1991 through 31 July 1992. There were no additions to the Virginia state list, so the number remains at 419. The committee reviewed 12 submissions of which six were accepted, two were not accepted, and four are unresolved pending the receipt of further information or further rounds of voting. The 1992 committee members are as follows:

Chairman: Robert L. Ake

Non-voting Secretary-compiler: Teta Kain

Voting members:

Three-year term: Brian Patteson, Richard Peake, Claudia P. Wilds

Two-year term: Robert L. Ake, David Johnston, Bill Williams

One-year term: David F. Abbott, Kenneth H. Bass, Thomas W. Simpson

ACCEPTED RECORDS:

(Documentation was submitted by the person(s) whose name(s) appears in brackets.)

SHARP-TAILED SANDPIPER (*Calidris acuminata*). A single bird was found on 16 September 1989 at Hunting Creek in Alexandria [Gail Mackiernan]. This becomes the third state record. All three records have been from the Coastal Plains.

CALIFORNIA GULL (*Larus californicus*). A bird was observed at Fort Story, Virginia Beach, on 28 January 1989 [Fenton Day, Kenneth Bass]. This is the second state and Coastal Plains record. Although the bird was photographed, the quality of the photograph was not sufficient to remove the species from the hypothetical list.

GREAT BLUE HERON (WHITE MORPH) (*Ardea herodias*). A single bird of this striking color phase of the Great Blue Heron was seen and photographed near Bristol, Washington County, on 15 and 16 October 1990 [Rick Knight]. This record is the second for the state, both records occurring in the Mountains and Valleys region.

MISSISSIPPI KITE (*Ictinia mississippiensis*). On 8 May 1990 a single bird was observed in flight and perched in a tree at Huntley Meadows, Fairfax County [Kerrie Kirkpatrick, Susan Wood]. The sighting is the fifth record for the Coastal Plain.

THAYER'S GULL (*Larus thayeri*). A bird was observed and photographed on the Chesapeake Bay-Bridge Tunnel on 26 February 1989 [David Abbott]. This is the third record for both the state and the Coastal Plains. The committee is currently deciding whether the quality of the photographs is sufficient to move the species from hypothetical to accidental status.

ROCK WREN (*Salpinctes obsoletus*). Two years after the first bird of this species was recorded, a second individual was found and photographed at Craney Island, Portsmouth, on 4 November 1990 [David Hughes, George Harris]. The bird remained at Craney Island until mid-March. This the second state and second Coastal Plain record.

UNACCEPTED RECORDS, identification questionable:

BOBOLINK (*Dolichonyx oryzivorus*). An individual, believed to be a female-plumaged bird of this species, was observed at Mason Neck during the Fort Belvoir Christmas Bird Count on 23 December 1990. The committee felt the details which were submitted did not sufficiently support the identification. If accepted, the record would have been the first winter record for Virginia and one of the very few winter records for the United States.

THAYER'S GULL (*Larus thayeri*). A sighting of this species, made on 6 December 1987 on the fourth island of the Chesapeake Bay Bridge Tunnel, was rejected for lack of detail.

UNRESOLVED, further committee action required:

YELLOW-HEADED BLACKBIRD (*Xanthocephalus xanthocephalus*). Occurrence in Bath County, 29 September 1990.

WHIMBREL (*Numenius phaeopus*). Occurrence near Lynchburg, 2 June 1990.

REDDISH EGRET (*Egretta rufescens*). Occurrence at Craney Island, Portsmouth, February 1975.

WILLOW FLYCATCHER (*Empidonax traillii*). Occurrence near Emporia, 4 June 1991.

FIRST VIRGINIA RECORD OF A BLACK GUILLEMOT

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On 23 February 1986 I was observing a group of sea ducks at Back Back National Wildlife Refuge when I noticed a very light-plumaged bird sitting on the water about 175-200 ft offshore. At first I thought it might be a Bonaparte's Gull (*Larus philadelphia*), but something about its posture and behavior made me take a closer look. I suddenly realized that the bird was something quite different and I immediately set up my 20 x 60 zoom spotting scope to get a better look. The sky was clear and bright, the wind from the northeast at 15 to 25 m.p.h., the air temperature about 30° to 35° F., and viewing conditions were excellent.

The shape of the bird was definitely not that of a gull, and on closer inspection, I could see that the bill was distinctly different from that of a Bonaparte's. As I watched, the bird suddenly dove underwater and stayed submerged for about one minute. By then, I had seen enough field marks to know it was an *Alcid*, but which one? My first thought was that it might be a Common Murre (*Uria aalge*), but murrelets of either species display lots of black in all plumages. This bird was mostly white and pale gray, with some dark smudges and spots. I concluded that it was a Black Guillemot (*Cephus grylle*) in immature or winter plumage.

The bird floated higher on the water than a Bonaparte's Gull, but not as low as most ducks. It had a rather long neck with a comparatively small head and a long, thin, black bill which it held at a distinct upturned angle, in the manner of a Red-throated Loon (*Gavia stellata*). The bird, overall, was small and thin compared to the Black Scoters (*Melanitta nigra*) and Ring-billed Gulls (*Larus delawarensis*) near by. Its head, neck, breast and sides were white and there were dark smudges of gray and light brown on the crown and hindneck. A dark patch on the side of the body extended to the rump area. There was also a small dark area behind the black eye. The folded wings were mostly pearl-gray in color, with some mixing of darker and lighter areas, mostly at the wingtips and tail. A white, oval patch on the wing was about the size and shape of a hen's egg, but the top edge of the oval was slighly flattened.

I watched the bird for a half hour or more as it continued to dive under water every few minutes in an upward-arching motion, presumably to feed. On one such dive I saw an orangish flash at the rump area which I believe was a leg or a foot.

(Editor's note: This record was reviewed by the Records Committee and accepted in November 1989 as the first record of this species for the state of Virginia. It is placed on the hypothetical list because no physical evidence, such as a specimen or photograph, was obtained. It is the 419th bird to be added to the state list.)

BLACK-CAPPED PETRELS IN THE MOUNTAINS OF VIRGINIA

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On the afternoon of 23 September 1989, following Hurricane Hugo, a Black-capped Petrel (*Pterodroma hasitata*) was found on a lawn in Vernona, Augusta County, Virginia, by Glenn Testerman, who took the bird to the Wildlife Center of Virginia in Weyer's Cave. Personnel at the Center reported that the bird was weak, but displayed no visible injuries.

It was given oral fluids and placed under a heat lamp, but died on 24 September. A necropsy at the Center on 26 September by Dr. Stuart Porter showed that the bird was female and that its right caudal thoracic air sac was thickened and opaque.

Initially identified as this species by Mehner and YuLee Lerner, the specimen was taken to the National Museum of Natural History where Clapp confirmed its identity and installed it in the collection (USNM 59672). The petrel possessed an unenlarged ovary (9 x 4 mm) and very little fat.

There are records of four other Black-capped Petrels in the mountains of Virginia, two previously unreported. Kain (1987) listed a single record of a bird caught alive at Blacksburg (Montgomery County), 30 August 1893 (Smyth 1893). Scott (1948) reported that the bird was No. 349314 in the collection of the American Museum of Natural History, where the specimen still resides. The label on this bird, a much-emaciated female, gives the date of collection as 31 August, the bird having died a day after its capture "after the fearful gale of Aug. 27th."

Two other petrels, taken in the Mountain and Valley region following the same storm, have been overlooked for nearly a century. Both were collected near Winchester (Frederick County) by Dr. W. F. Hutchinson at the end of August 1893. One of these birds is in the National Museum (USNM 152522). A note in the museum catalog, in what appears to be Charles W. Richmond's handwriting, states that this bird was "one of a pair picked up in exhausted condition, after an eastern storm." Another note shows that this petrel's considerable rarity made it a highly desirable specimen, because four other specimens were exchanged for it.

Yet another note indicates that the other bird from Winchester went to John E. Thayer (of Thayer's Gull fame). This specimen is now at the Museum of Comparative Zoology at Harvard (MCZ 328581).

The fifth petrel reported from the Mountain and Valley region is less certainly identified. Hall (1980) reported that an exhausted Black-capped Petrel had been picked up at Covington (Allegheny County) on 6 September 1979 following Hurricane David. The bird was taken to a veterinarian, but it died. Jerry Via examined the bird but could not confirm its identity (Via, pers. comm.). The specimen was sent to the U. S. National Museum for identification, but apparently was lost in transit.

The four specimens resemble one another closely but the MCZ specimen and USNM 152522 are faded, presumably because both were once mounted specimens. The plumage in the Verona specimen is decidedly fresher than in the other three, but comparable measurements are quite similar (e.g. culmen 31.2-32.9 mm, \bar{x} 31.78; tarsus: 35.1-37.4, \bar{x} 36.53 mm, n : 4). The wing and tail of the Verona bird were 294 and 127 mm, typical for specimens of this species (Murphy 1936.)

The storms that deposited the Black-capped Petrels in the mountains of Virginia were also responsible for a number of records in other states. Following the August 1893 storm, two birds were found in New York (Bagg 1894, G. M. Allen 1909), one in New Hampshire (Allen 1904), and one in Vermont (J. A. Allen 1894, G. M. Allen 1909). Following the September 1889 storm, another five birds were found inland in Pennsylvania (States 1990) and one (Ostrander 1990) or perhaps two (Paxton et al. 1990) in New York.

The mountain region of Virginia, with records for five individuals, has half the total for the Virginia coast, where the species might be expected and where some eight individuals have been seen on five occasions, all in the fall and in a short period between 15 August (1980) and 16 September (1981) (Rowlett 1977, seasonal reports in *American Birds*.)

We thank Raymond A. Paynter of the Museum of Comparative Zoology and Francois Vuilleumier of the American Museum of Natural History for the loan of the Black-capped Petrel specimens at their respective institutions and thank Richard C. Banks for commenting on the manuscript.

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HAWKWATCH—1991

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The autumn of 1991 marked another hawkwatching season of successes and disappointments. On the plus side, 62 hawkwatchers manned 12 observation sites around the state, and many volunteers made appreciable contributions to the effort, especially at Snicker's Gap, Short Hill, and Kiptopeke. On the negative side, coverage at some stations that had been regularly manned in the past, was sharply reduced this year.

Snicker's Gap took honors for the best coverage. Jesse Fulton launched a highly significant full-time watch at that site this year. He enlisted the help of more volunteers, and consequently, the station was very well covered from September through November. It is hoped that this high level of interest can be maintained for many years to come.

Steve Cardano continued to count, as well as band, raptors at Knob Mountain, and scored the second-highest number of Red-tailed Hawks (*Buteo jamaicensis*) in the state for 1991.

Roger Anderson and Charlotte Friend have been conducting hawkwatches in their respective backyards in Arlington for a number of years, but this was the first time that they reported their results. Each observer recorded single-day Broad-winged Hawk (*Buteo platypterus*) counts that were exceeded only by Rockfish Gap and Mendota stations. Certainly, this is an inducement for others to try their luck in their own backyards around the region.

No other station in the state equalled the Broad-wing count recorded at either of the Arlington sites on 21 September. It is also interesting to note that nearly all the Broad-wings that passed by Mendota Tower were tallied *before* 21 September. This seems to indicate, once again, that Broad-wing migration through the state does not follow any discernable pattern and that observers should not wait for word of a large migrational movement in the north before manning their stations further to the south.

The coverage at Mendota was improved this year with the station manned for 19 days in September, four days in October, and one day in November, thanks to almost 140 observation-hours logged by G. Larkin.

After counting 221 Broadwings in ten minutes at the Jelly Stone campground on Rt. 250, Alice Davis drove 10 miles west to the Rockfish Gap hawkwatching station and was surprised that no large group of Broad-wings had passed by that observation point in the half-hour or more before she arrived. Indeed, Rockfish Gap tallied only 313 Broad-wings all that day. The Jelly Stone campground is the same location where, in one day, Davis and Crutchfield counted more than 4000 hawks in 1989—a day when Rockfish Gap was closed because of inclement weather. It is, in fact, the third time that large groups of hawks were at this site when, at the same time, Rockfish Gap observers either could not, or did not, spot any significant number of raptors moving by the lookout. Such occurrences certainly cannot be written off as mere coincidence.

David Raines' attempts to continue his watch at Birch Gap in Dickenson County, were thwarted by closure of the roads leading to the area. Alternate locations proved to be sadly unproductive. It is hoped that this situation will be remedied next year and that Raines will be able to resume his observations at this important site.

A substantial reduction of coverage, both at Harvey's Knob and Rockfish Gap was a setback to the hawkwatching program in Virginia in 1991. These two ridgetop stations have been fully manned for many years and data collected from both sites provided the standard by which all hawkwatching activities in the state have been measured. Hopefully, this downward turn in observation time is only for this year and full coverage will resume next year.

In spite of some setbacks, the positives far outweighed the negatives during the 1991 hawkwatching efforts in Virginia. The results of data collected from observers from around the state is presented in Table 1 on page 94-95. Descriptions of the site locations are listed below the table.

TABLE 1. Virginia hawk lookout totals—1991

Species	Osprey	Bald Eagle	Northern Harrier	Sharp-shinned Hawk	Cooper's Hawk	Northern Goshawk	Red-shouldered Hawk	Broad-winged Hawk
1. Kiptopeke Beach	717	18	259	4674	523	4	5	57
2. Snickers Gap	203	46	156	2317	312	16	184	2152
3. Rockfish Gap	103	13	49	633	37	1	17	9386
4. Harvey's Knob	72	10	24	358	39	1	12	2020
5. Mendota Fire Tower	45	7	16	270	104	4	7	10,638
6. Knob Mountain	...	...	1	18	9	...	8	...
7. Arlington (Friend residence)	11	...	...	8	10	...	3	1693
8. Skegg Knob	2	...	...	1	...	...	...	503
9. Arlington (Anderson residence)	7	2	...	11	...	1	6	2065
10. Birch Gap	...	...	...	2	1	...	2	9
11. Breaks Interstate Park	2	...	1	...	1	...	...	76
12. Rockfish Valley	...	...	...	...	...	...	...	221
Totals	1162	96	506	8292	1036	27	244	28,820

1991 VIRGINIA HAWK LOOKOUT SITES

1. *Kiptopeke Beach*: At the southern tip of the Eastern Shore peninsula
2. *Snickers Gap*: At the intersection of Rts. 7 and 601 on the Loudoun-Clarke county line.
3. *Rockfish Gap*: Crest of the Blue Ridge on Afton Mountain, adjacent to Interstate Hwy. 64.
4. *Harvey's Knob*: Crest of the Blue Ridge at milepost 95 on the Blue Ridge Parkway.
5. *Mendota Fire Tower*: Crest of Clinch Mountain near Rt. 802 in Washington County.
6. *Knob Mountain*: A foothill off the western slope of the Blue Ridge near Rileyville.

Red-tailed Hawk	Rough-legged Hawk	Golden Eagle	American Kestrel	Merlin	Peregrine Falcon	Unidentified	Total Individuals	Total hours Station manned	Total days Station manned
222	...	3	2273	285	245	105	10,809	541	61
1543	3	6	176	17	33	117	7410	432	83
119	1	3	61	3	5	40	10,473	250	44
276	...	2	50	1	2	57	2962	248	46
115	...	3	45	2	4	64	11,666	138	27
352	...	1	1	...	...	17	407	55	10
56	...	...	7	0	1	5	1842	36	11
2	...	...	...	...	...	7	517	19	3
4	...	...	5	1	...	...	2116	14	6
2	...	...	...	...	...	2	18	11	3
...	...	...	1	...	...	4	85	9	4
...	...	...	...	...	...	...	221	1	1
2691	4	18	2619	309	290	418	48,526	1754	299

1991 VIRGINIA HAWK LOOKOUT SITES (con't)

7. *Arlington F*: The residence of Charlotte Friend in Arlington.
8. *Skegg Knob*: Approximately 2.5 miles southwest of Breaks Interstate Park on the Virginia-Kentucky border.
9. *Arlington A*: The residence of Roger Anderson in Arlington.
10. *Birch Gap*: On Pine Mountain in Dickenson County (elevation 3149 ft.)
11. *Breaks Interstate Park*: In the far northwestern corner of Dickenson County on the Virginia-Kentucky line.
12. *Rockfish Valley*: Twelve miles east of Rockfish Gap on U. S. Rt. 250 in Albemarle County.

THE 1991 VIRGINIA BARRIER ISLANDS BEACH-NESTING AND COLONIAL WATERBIRDS SURVEY

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The seventeenth consecutive Virginia barrier island beach-nesting and colonial waterbird survey was conducted 16-19 June 1991, encompassing all islands from Assawoman Island on the north through Fishermans Island on the south. The authors were ably assisted in the field by Michael Beck and Vernon "Bud" Hall.

May of 1991 in eastern Virginia produced weather extremes that may have influenced colonial and beach-nesting birds. The dates of 18 and 19 May found the coast pummeled by continuous 20-mile per hour northeast winds, conditions which typically inundate and destroy beach and marsh nesting sites. Record high temperatures were recorded 29-31 May, reaching 100°F on 31 May. The Chesapeake Bay water temperature also reached a May record high of 76°F on 31 May, completing a 14°F rise in less than ten days. What effect, if any, this had on colonial bird prey species is unknown.

June was no kinder. Major weather-related colony washouts occurred on 6 June, 23 June, and 29-30 June. During the survey, herons, ibises, and egrets were found to be well-along with nesting. Downy-to-feathered young were found at all colony sites. Beach-nesting species were predominantly renesting as a result of washouts.

Table 1 on pages 98-99 provides an island-by-island summary of the 1991 survey data. A comparison of these data with data from previous reports (Williams 1990a; 1990b; 1991) reveals several noteworthy trends. This year's 125 Glossy Ibises (*Plegadis falcinellus*) was an all-time low count for the species, significantly below the previous low of 195 in 1989 (Williams 1990a). On the other hand, White Ibises (*Eudocimus albus*) were at an all-time high of 12 birds, eleven on Fishermans Island and one on Wreck Island, the first time this species has been recorded at the latter island since 1982.

This year's total of 27 Green-backed Herons (*Butorides striatus*) was a 100 percent increase over the 1990 total of 13 (Williams, 1991) but 25 percent below the 1988 fourteen-year mean of 35 (Williams 1990). Likewise, 71 Little Blue Herons (*Egretta caerulea*) was an increase over last year's all-time low count of 30, but still significantly below the 1988 fourteen-year mean of 168.

Cattle Egret (*Bubulcus ibis*) counts fell from 1990's increase of 215 to 152, well below the 1988 fourteen-year mean of 236. Great Egret (*Casmerodius albus*) numbers doubled this survey to 390, slightly above the 382 fourteen-year mean. Snowy Egret (*Egretta thula*) and Tricolored Heron (*E. tricolor*) numbers continued a relatively stable four-year trend but were significantly below the fourteen-year means of 759 and 606 respectively.

Black-crowned Night-Herons (*Nycticorax nycticorax*) rebounded from last year's all-time low of 169 up to 464. Although this number is encouraging, it is well below the fourteen-year mean of 1120. Yellow-crowned Night-Herons (*Nyctanassa violaceus*) were at an all-time low of fifteen, 80 percent below the fourteen-year mean of 76. It is worth noting that a colony of 100 Black-crowned and eight Yellow-crowned Night-Herons was located about a mile south of Hog Island's north end. This was a first for the island in that location.

Ninety-four Brown Pelican (*Pelecanus occidentalis*) were located on Fishermans Island this year. On 16 June, fifteen nests still had eggs in them. Eight nests had hatchlings, and 121 downy young were counted. It was noted that several of the nesting adults had U. S. Fish and Wildlife Service aluminum bands. Also noteworthy was the nesting of about a dozen Herring Gull (*Larus argentatus*) pairs around the periphery of the pelican colony. All pelican nests were located on a high, isolated dune area on the island's northeast corner.

Herring Gull numbers (3660) were up 44 percent over the previous two years—2584 and 2545, respectively (Williams 1990a; 1991). Although this was approximately 20 percent higher than the 1988 fourteen-year mean (3089) it does not indicate a trend. Great Black-backed Gulls (*Larus marinus*) had their third highest count of 334, far short of the all-time high of 561 in 1986 (Williams 1990b). The single Laughing Gull (*L. atricilla*) colony on Wreck Island had 12,065 birds compared to 8431 in 1990.

For the most part, tern species numbers remained stable or showed moderate increases. No significant changes were noted for Common (*Sterna hirundo*), Least (*S. antillarum*), Royal (*S. maxima*), Sandwich (*S. sandvicensis*), or Caspian (*S. caspia*) terns compared to the previous 16 surveys.

Gull-billed terns (*S. nilotica*) increased to 375 over 1990's all-time low of 214. Surveys of in-shore marshes revealed 324 Gull-billed Terns nesting on shell-spoil areas (Virginia Nongame and Endangered Wildlife Investigations Annual Report, 1991). The combined total of barrier island and shell-spoil Gull-billed Terns was still significantly below the barrier island survey fourteen-year mean of 919. Obviously, there is a continued need for concern for this species.

Concerns must also be registered for the Black Skimmer (*Rhynchops niger*). This year's total of 2722 adults was second only to the 1990 count of 2594 as an all-time low survey count. Given that virtually no nesting success for this species has been noted on the barrier islands for the last seven years, there is cause for alarm.

This season's total of 971 American Oystercatchers (*Haematopus palliatus*) was an increase over last year's second all-time low count (789), yet represent the fourth lowest total recorded.

Piping (*Charadrius melodus*) and Wilson's (*C. wilsonia*) plover counts were both all-time highs, with 147 and 85 respectively. Metompkin Island continued to be the nesting stronghold for these species, with most of the birds found on its northern portion. Totals for each from that island were 63 Piping and 35 Wilson's. Cedar Island, immediately south of Metompkin, had 23 Piping and 16 Wilson's. Other islands of significance for these species included Cobb (19 Piping, 7 Wilson's), Myrtle (17 Piping, 5 Wilson's) and Assawoman (8 Piping, 16 Wilson's).

Of additional interest was a Common Nighthawk's (*Chordeiles minor*) nest with one downy chick on Wreck Island 17 June. A total of six nighthawks was recorded for the survey, four on Myrtle Island. Other nesting species encountered were: Song Sparrow (*Melospiza melodia*), one nest with four eggs, 16 June on Fishermans Island; and Blue-winged Teal (*Anas discors*), a nest with seven young, also on Fishermans Island 16 June.

Horned Larks (*Eremophila alpestris*) were found on Metompkin (2), Cedar (3), Hog (3), and Fishermans (1) Islands. Northern Harriers (*Circus cyaneus*) were encountered on Metompkin (1), Cobb (2), and Wreck (1) islands and a Wilson's Storm-Petrel (*Oceanites oceanicus*) was seen off Metompkin Island 18 June. Red-breasted Mergansers (*Mergus serrator*) were found off Fishermans and Smith islands. On 17 June, a single Hudsonian Godwit (*Limosa haemostica*) was seen on Myrtle Island, and a Marbled Godwit (*Limosa fedoa*) was observed just north of there on Ship Shoal Island the same day. Cedar Island produced a second-year Iceland Gull (*Larus glaucooides*) on 18 June. Also found on that day was a lone American White Pelican (*Pelicanus erythrorhynchos*) roosting among nesting gulls on Cedar Island's north sandbar, making nine out of the last ten surveys that this species has been recorded in that approximate location. Notched sternums of 13 dead Laughing Gulls found on Cobb Island 17 June indicated likely Peregrine Falcon (*Falco peregrinus*) kills.

No significant physiographic changes to the barrier islands were noted for this nesting season. Herring Gulls returned to Metompkin Island, with 16 birds nesting along a high berm in the mid-section of the island's southern half. The heronry on Chimney Pole Marsh continued to flourish for the third consecutive season. Fox tracks were in evidence on Assawoman Island for the fourth consecutive year.

A new heronry was found on Flounder Point, a high marsh area between Cedar and Metompkin Islands. On 18 June, the colony had 26 Green-backed Herons, 12 Great Egrets, 105 Snowy Egrets, 3 Black-crowned Night-Herons, 22 Herring Gulls, and 14

Forster's Terns (*Sterna forsteri*). Because this colony is outside the survey area, none of these figures was included in the survey data.

We are deeply indebted to Barry Truitt, Manager of the Virginia Coast Reserve, for his able and skillful boat transportation and attention to careful island management. Jackie and Charlie Farlow made our Hog Island stay at the Machipongo station truly a home away from home. Mr. Sherman Stairs, Manager of the Eastern Shore of Virginia National Wildlife Refuge, and his staff graciously provided vehicular transportation on Fishermans Island. Mr. Walkley Johnson allowed us access to the "The Issacs" portion of Fishermans Island.

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BANDING RESULTS ON THE VIRGINIA EASTERN SHORE—1991

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In 1991 the Virginia Society of Ornithology operated a banding station for the 29th consecutive year in the Kiptopeke area of the Eastern Shore. The station opened on 31 August and closed on 25 October. Nets were not opened two days because of rain and one day because of lack of available personnel, so the total number of days that the station was operated was 53.

The station that had been located at Kiptopeke Beach for the past 28 years, was moved to the Eastern Shore of Virginia National Wildlife Refuge (ESNWR) this year because of projected development at the previous site. The refuge is located three miles southeast of the old location and is adjacent to the community of Kiptopeke. Initially 25 nets were operated south of the public use area. During the first three weeks of operation, only one-fifth as many birds (approximately 10 a day) were captured as compared to the same period in 1990. At the beginning of the fifth week of operation, half of the nets were placed alongside the nature trails in the public-use area, where undergrowth is thick and the yield increased to 97 birds a day for October, 40 percent higher than the previous year.

During the 1991 season, 2456 birds of 67 species were banded in 9489 net-hours. There were two recoveries of birds banded elsewhere and 79 repeats of birds banded in 1991. There were no recoveries of birds banded at Kiptopeke Beach in previous years.

The most commonly banded bird was, (numbers banded in parentheses) as in previous years, Yellow-rumped Warbler (*Dendroica coronata*) (1508), followed by Gray Catbird (*Dumetella carolinensis*) (134), Common Yellowthroat (*Geothlypis trichas*) (119), Northern Waterthrush (*Seiurus noveboracensis*) (72), and Black-throated Blue Warbler (*Dendroica caerulescens*) (52). Belted Kingfisher (*Megasceryle alcyon*) was added to the station list, bringing the aggregate number of species banded to 156.

Changes in habitat at the new location may be one explanation for the decrease in numbers of birds banded in 1991. Among those birds that fell into this category were (numbers banded in parentheses) various species of flycatchers (17), vireos (8), American Redstarts (*Setophaga ruticilla*) (44), Common Yellowthroats (119), and Northern Mockingbirds (*Mimus polyglottos*) (2). These are species that migrate in September when, as mentioned earlier, nets were located in a habitat-deficit area.

Not explained by change in habitat are decreases in the numbers of Golden-crowned (*Regulus satrapa*) and Ruby-crowned (*R. calendula*) kinglets (14) and Palm Warblers (*Dendroica palmarum*) (35), and an increase in numbers of Northern Waterthrushes (*Seiurus noveboracensis*) (72) captured. The results of the data in this and the preceding

paragraph will be reanalyzed when records from other banding stations on the flyway are available.

Licensed banders who shared administration duties of the station included Walter Smith, David Leake, John Dillard, Karen Terwilliger, and Don Schwab. They were helped by many volunteer assistants, whose aid is greatly appreciated. Special thanks is extended to Walter Smith for providing a summary of banding results and for his invaluable help in operating the station.

Permission to band on the refuge was granted by Sherman W. Stairs, Refuge Manager. Able assistance was provided by Ben Nottingham and Steve Alvarez, members of the refuge staff.

THE JACKSON MILES ABBOTT WETLAND REFUGE

JOHN B. BAZUIN, JR.
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Jackson Abbott is well known to many members of the VSO for his lifelong dedication to birds and birding. He lived in Alexandria during most of his association with the Society. He birded up and down the Virginia shore of the Potomac River countless times during his nearly 45 years of residence in the area. He was twice a director of the VSO, won the Federal Duck Stamp design contest in 1957, and led the Bald Eagle nesting survey in the upper Chesapeake Bay region for many years. Additionally, Jack contributed a huge number of important records to Virginia's ornithological knowledge.

Jack was, however, most closely associated with Fort Belvoir, where he was employed for about 45 years, first as a military man, and then, as a civilian engineer. His records from the fort appeared regularly in *American Birds*, *The Raven*, and other bird-record compendia. He doubtless raised environmental consciousness appreciably at the fort during his association with it.

It is, therefore, fitting that on 20 October 1989, a 150-acre portion of the fort was dedicated in his honor as the Jackson Miles Abbott Wetland Refuge. The dedication was made by General Arvid West, Jr. (Fig. 1, p. 104), Jack's wife, Smoky, also addressed the participants at the dedication ceremony.

FIGURE 1. General Arvid West, Jr. and "Smoky Abbott unveil the information board for the kiosk within the Jackson M. Abbott refuge.



Photo courtesy of Belvoir Eagle

The refuge consists of bottomland along Dogue Creek in the northwest part of Fort Belvoir, not far from Huntley Meadows Park. It contains swampland, marshes, and open water, including both manmade ponds and beaver ponds (Fig. 2). The preserve has hiking trails, and no hunting or fishing is permitted. A parking area marked by a fine entrance sign has been created beside Pole Road, at the edge of the refuge, for automobile access.

FIGURE 2. A view of one of the ponds in the Jackson M. Abbott Wetland Refuge.



Photo courtesy of Stan Russell

IN MEMORIAM: MARVIN WASS

Dr. Marvin Wass was born 24 April 1922 in Worthington, Minnesota, and reared in Crow Wing County, Minnesota. He died on 5 September 1990 in Gloucester, Virginia where he had lived since 1960, while pursuing a 22-year research and teaching career at the Virginia Institute of Marine Science at Gloucester Point.

Very early in his life, Marvin displayed a great interest in nature, especially birds. At age nine, he began sending records of his observations to the U. S. Fish and Wildlife Service, and later, to the National Audubon Society. Throughout his life, ornithology remained his favorite kingdom of study.

Wass received his masters degree at Florida State University (FSU). Several years after meeting Lorna Cowle of Eustis, Florida, at a FSU bird club meeting, he married her and they became life-time partners in nature studies. In 1959, Wass earned his PhD at the University of Florida. He then spent two years as Curator of the Marine Museum at Mullet Key where he maintained a marine station for FSU. At the same time, he compiled checklists of Florida's west coast plants and animals.

When the Wasses moved to Gloucester County, Virginia, in 1960, they chose a homesite on a steep slope of Beaverdam Creek, just three blocks from the main street of Gloucester Court House. For many years, Marvin studied birds on the broad wetlands along the creek and regularly submitted reports on nesting activities and winter populations to *American Birds* and *The Atlantic Naturalist*.

The Wasses were instrumental in founding the John Clayton Historical Society in 1970. One of the functions of this organization is to promote awareness of the natural environment by inviting experts to the area for the purpose of presenting programs to members on various topics of nature. Another important activity of the club was to develop checklists of the area's birds, plants and record-size trees.

For many years, both Dr. and Mrs. Wass were active members of the Nature Conservancy of Virginia and they made frequent weekend trips, on behalf of the Conservancy, to evaluate properties being considered for acquisition by the Trust. They were also members of VSO, and in 1969, Dr. Wass received the Water Conservationist of the Year Award for his tidal wetland studies. In 1979, he helped plan Virginia's first conference on endangered and threatened species at Virginia Polytechnic Institute. He convened the marine invertebrate section of the conference. In 1990, the Isaac Walton League of America named Wass, posthumously, the Special Honoree for the fifth annual Chesapeake Bay Conservation Award. This award cited him as a "true naturalist" for studies in biogeography and ornithology.

Dr. Wass was also an accomplished wildlife photographer and he generously shared his slides with many groups and individuals. His "Nature Notes," written for the local newspaper, and numerous popular articles for journals, display the wide knowledge and interests of this "complete" naturalist.

THE 1992 ANNUAL MEETING

JOHN DILLARD
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The 58th annual meeting of the VSO was opened by Gray Puryear, President of the Cape Henry Audubon Society (CHAS) at 7:30 p.m. on 24 April in Virginia Beach at the Ramada Ocean Tower. He welcomed the group and recognized the contribution of Joyce Livermore as General Chairman and other members of the local chapter who made the meeting possible.

VSO President John Bazuin opened the business meeting by thanking the chapter for being our host. The work of Bob Ake and Joyce Livermore in organizing the meeting with only one year's notice was specifically noted.

Treasurer Thelma Dalmas reported that the Society had \$16,609 at the beginning of 1991 and ended the year with \$19,220. Since the first of this year, receipts to the General Fund have been \$5,053 and to the Endowment Fund, \$3,250. Balances in each fund at the present were also noted.

Woody Middleton made the nominating committee report as follows and the slate of nominees was unanimously elected:

<i>President</i>	Clair Mellinger
<i>Vice President</i>	Bill Akers
<i>Secretary</i>	Larry Robinson
<i>Treasurer</i>	Sue Thrasher
<i>Raven Editor</i>	Teta Kain
<i>Newsletter Editor</i>	Bettye Fields
<i>Directors (three-year terms):</i>	
Mary Anne Kellam, Brian Taber, Erika Wilson	

The president reported that the following changes to the bylaws will be proposed prior to the next annual meeting:

1. Creation of an Executive Committee composed of elected officers who can act in certain circumstances between meetings of the Board of Directors.
2. Elimination of the Auditing Committee and empowerment of the president to specify how a yearly audit will be performed.
3. Elimination of the Resolutions and Program Committees and Local Committee on Arrangements which are no longer needed.
4. Appointment of the Nominating Committee to be made 180 days before the Annual Meeting rather than the current 90 days which is inadequate.

5. Provision for operating with an annual budget which will require board approval. Expenditures in excess of the budget will be the obligation of the person incurring them unless approved by the board.

The audience was asked to take note of forms which have been made available to report nesting information that is needed to complete the Breeding Bird Atlas book which is now being prepared. Other information available to members included the 1992 membership list, "How to lead a bird walk" pamphlet, The VSO Speakers' Bureau Directory, and the "Who's who" local chapter lists of VSO. Teta Kain and Larry Lynch, respectively, requested information to complete upcoming issues of the latter two publications. Thelma Dalmas announced availability of field checklists at a greatly reduced price.

Larry Lynch, Local Chapters Committee Chairman, introduced the following speakers:

Thelma Dalmas presented a short slide program entitled "How to Lead a Bird Walk.

Myriam Moore gave a history of hawkwatching activities in Virginia through her program, "Glory in the Sky."

Teta Kain outlined proper procedures for reporting bird sightings to the Records Committee.

David Hughes announced the conversion of Kiptopeke Beach to a state park. He announced an owl walk for Friday night. Hughes also reviewed the field trips and asked everyone to sign up before leaving the evening's meeting.

The Friday evening session was adjourned at 9:02 p.m.

Vice President Clair Mellinger opened the papers session at 1:30 p.m. by thanking Bob Ake and the Cape Henry Audubon Society for arranging such an impressive array of papers. Before introducing the speakers, he noted that the Murray Award Chairman position is vacant and asked for volunteers or nominees for that position.

The papers presented were as follows:

1. "A preliminary analysis of Golden Eagle (*Aquila chrysaetos*) records in Virginia," David W. Johnston, Fairfax.

2. "Clutch size variation in Least Terns (*Sterna antillarum*) at Grandview Beach: a 19-year study," J. William Akers, Midlothian, Jerry W. Via, Virginia Polytechnic Institute and State University, Ruth Beck, College of William and Mary.

3. "Cover preference and flocking behavior of shorebirds foraging in agricultural fields in Northampton County, Virginia," Stephen C. Rottenborn, College of William and Mary.

4. "From marsh edge to tree top: the habits and habitat parameters of Great Blue Herons (*Ardea herodias*) breeding on the Coastal Plain of Virginia," Amanda S. Allen, College of William and Mary.

5. "Nesting substrate preference and breeding success of Common Terns (*Sterna hirundo*) and Black Skimmers (*Rynchops niger*) on the Hampton Roads Bridge Tunnel," Gregory S. Keller, College of William and Mary.

6. "Effects of gull predation of terns and skimmers in Virginia," Timothy J. O'Connell, College of William and Mary.

7. "A summary of the Department of Game and Inland Fisheries Nongame and Endangered Species Program bird conservation efforts," Karen Terwilliger, Virginia Department of Game and Inland Fisheries.

8. "The distributions and abundances of fall migrants of the Delmarva and Cape May Peninsulas: a focus on the conservation implications of Virginia's Eastern Shore," Sarah E. Mabey, Virginia Department of Conservation and Recreation.

9. "Population trends in the family *Parulidae* at Kiptopeke Bird Banding Station," Elizabeth Pruitt, Old Dominion University.

10. "Breeding bird work in the Virginia portion of the Great Dismal Swamp National Wildlife Refuge," Don Schwab, Virginia Department of Game and Inland Fisheries, and Thomas M. Gwynn, Norfolk.

A field trip tally was held by David Hughes at the conclusion of the paper session. A total of 177 species seen by all field trip participants was reported.

Gary Puryear opened the Saturday night session at 7:45 p.m. by thanking the committees that organized the Annual Meeting and provided the floral arrangements. He presided over the awarding of door prizes and turned the meeting over to John Bazuin, VSO president.

John Bazuin again thanked Cape Henry Audubon Society for hosting the VSO meeting, especially on the short notice that was provided. Carol Schwartz and Betty Burgess of the Chesapeake Bay Bridge-Tunnel Authority attended the banquet by invitation of the CHAS. They were recognized for their help to everyone who benefits from the permits they issue to bird the tunnel-islands.

President Bazuin then talked about the present state of the VSO and highlighted the following activities:

1. *The Raven*: After bringing the journal up to date, Teta Kain has maintained its timeliness, despite many other demands on her time.

2. *The Newsletter*: Bettye Fields continues to run an effective operation which is now attracting more articles than can be accommodated at times.

3. *The Foray*: Fred Scott and John Dalmas led the well-attended foray at Emporia in 1991. The results were published in the March 1992 edition of *The Raven*. The number of species counted was 103, the most notable of which was Mississippi Kite, Swainson's Warbler, and Bachman's Sparrow. John Dalmas will lead the foray in Lee County in 1992.

4. *Breeding Bird Atlas book*: The emphasis of efforts to produce the book is now on writing species accounts. Roger Clapp, Senior Editor, has assembled literature and data for the project. Current plans are to have the book for sale by 1995. The scope of the book has been expanded beyond the Atlas Project to include as much information as possible about the breeding birds of Virginia.

5. *Kiptopeke Banding Station*: After operating the station at the Eastern Shore of Virginia National Wildlife Refuge in 1991, John Dillard has accepted an invitation from Dennis Baker, Director of the Virginia Parks Division, to return to Kiptopeke Beach this year. This is possible because the property is now being administered as a state park which will open 1 June 1992. Habitat restoration is being planned by the Division of Natural Heritage.

6. *Kiptopeke Hawkwatching Station*: Dorothy Silsby was thanked for running the station in 1991 at the Kiptopeke Beach location.

7. *Field Trips*: Popularity of field trips continues to increase under the leadership of Chairman Peggy Spiegel. Bill Akers, David Hughes, and Jerry Via continue to do an excellent job as trip leaders. Dick Peake will lead a trip to Mount Rogers this year.

8. *Migratory Songbird Coastal Corridor Study*: VSO volunteers for the 1991 study will be glad to know that the study will be resumed this coming autumn, but in an abbreviated fashion. Data from the initial study is still being analyzed.

9. *Partners in Flight*: This long-term neotropical breeding bird monitoring program, which is nationwide in scope is being led by the Virginia Department of Game and Inland Fisheries (hereafter VDGIF). Future assistance of VSO volunteers will be sought.

10. *VSO financial status*: Thelma Dalmas is stepping down as treasurer. She was thanked for the 15 years of service to the VSO and she leaves us in excellent financial condition. She will retain membership-related duties and become the Membership Chairman.

11. *Local Chapters Committee*: Larry Lynch has accepted the job as chairman of this important committee and has made great headway in starting to work with the chapters and reissuing an updated "Who's Who," the Society's publication that lists all local chapters, their officers, their club activities and their meeting dates.

12. *Preservation of Virginia bird records*: Efforts to secure storage of archival materials have been successful. The personal records of Almon English and James Eike are now stored in the Smithsonian Institute and the Jackson Abbott files are expected to be stored there in the near future. Facilities at the University of Virginia are so overloaded

that it was not possible to make arrangements for archival storage with them as had originally been planned.

13. *Record Data Entry Project*: Teta Kain has been working with the VDGIF to establish a computerized database of Virginia bird records. She has already enlisted several volunteers to help with data entry, but more assistance is needed to complete the task.

14. *VDGIF Directors Advisory Committee*: The VSO is now represented in this group of Game Commission clients. This is important as the VDGIF moves toward accepting a larger role in nongame activities.

15. *Records Committee*: Review of records is proceeding expeditiously due to the joint efforts of Teta Kain, Bob Ake and the committee members.

16. *Secretary*: John Dillard was thanked for his many years of service as Circulation Chairman and Secretary. He will retain the Migratory Birds Committee chairmanship.

17. *Murray Award*: The effective chairmanship of Charles Ziegenfus was recognized. He is resigning due to increasing involvement in ornithological activities.

18. *Legal Counsel*: Cricket Barlow's assistance and expertise in legal matters has been needed, and been given cheerfully, many times during the past year.

19. *Education Committee*: Jo Wood's competence in managing the educational materials was recognized. She wishes to be replaced in the near future and volunteers were solicited.

20. *Annual Meetings*: Bettye Fields continues her good work in this job while requesting a replacement to take over the duties of this position.

21. *Public Information*: Paul Saunier has pursued new ideas for improving communications with the chapters during the past several years.

22. *Virginia Birdline*: Mike Boatwright contributes both his time and expenses to this project which is part of an ongoing national effort to report birds.

23. *Endowment Fund*: A \$500 scholarship is being provided for an ornithological student to attend the Mountain Lake Biological station this coming summer.

24. *All About Birds*: An account of Dorothy Mitchell's birding adventures with her late husband, Mike, has been enjoyed by over 800 people who have purchased or received copies of her book, *All About Birds*. Fifty books have been donated to the VSO with the proceeds to be used to support the Society's activities.

25. *Jackson M. Abbott Conservation Award*: No nominations were made for this award in 1992. The membership was encouraged to think about candidates for next year's award. The board will consider nominees for selection for a period of three years after their names have been submitted for consideration to receive the award.

26. *Ruskin S. Freer Presidents Award*: This award was initiated to commemorate the founding of the VSO by Dr. Freer in 1929. It recognizes the time and effort expended by our presidents in carrying on the business of the Society and was presented by Thelma Dalmas to the outgoing president, John Bazuin.

27. *James W. Eike Service Award*: Thelma Dalmas, as Membership Chairman elect, presented the 1992 award to David Hughes. He has been a VSO member for 23 years, was a charter member of the Cape Henry Audubon Society, and served as one of its presidents. He has served as either Field Trip Chairman or as one of the trip leaders of VSO outings for the past 15 years.

28. *Kiptopeke Banders*: The following people were recognized for banding five or more years at Kiptopeke Banding Station, helping make it one of the few continuously manned long-term stations in the eastern United States:

John Buckalew	Mike Mitchell
Jane Church	Don Schwab
Dorothy Foy	Fred Scott*
Roger Foy	Fred Schaeffer
Charles Hacker*	Walter Smith*
Elizabeth Lancaster	Karen Terwilliger
	Dorothy Mitchell

*Served more than 20 years

29. *Virginia Atlas Project Coordinators*: Certificates of appreciation for their work in all aspects of the Atlas Project were presented to the coordinators.

30. A resolution of thanks to the CHAS from the VSO was read by John Bazuin.

Dr. James Parnell, guest speaker, was introduced by the president. Dr. Parnell was born in Timmonsville, South Carolina, and received his Ph. D. in zoology from North Carolina State University in 1964. He currently holds a position at the University of North Carolina at Wilmington. His research interests are in ecology and management of colonial nesting waterbirds and wetlands ecology. He talked about his experiences during 20 years of living along the middle Atlantic coast and his study of water birds in that area. In particular, he focused on changes taking place in the East Coast wetlands environment.

The meeting was adjourned at 9:30 p.m.

OFFICERS AND COMMITTEES OF THE VSO, 1991-92

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Raven Editor Emeritus: F.R. SCOTT, 404 Beechwood Drive, Richmond, VA 23229

Newsletter Editor: BETTYE FIELDS, 39 Culpeper Avenue, Newport News, VA 23606

Immediate Past President: JOHN BAZUIN, JR., 7495 Little River Turnpike, Apt. 201 Annandale, VA 22003

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Publications: Bill Williams, 108 Deerwood Drive, Williamsburg, VA

Records: Robert L. Ake, 615 Carolina Avenue, Norfolk, VA 23508

Research: John Dalmas, 520 Rainbow Forest Drive, Lynchburg, VA 24502

Site Guide: Richard H. Peake, Jr., Box 103, Clinch Valley College, Wise VA 24293

LOCAL CHAPTERS OF THE VSO

This list of local chapters, compiled by VSO Membership Committee (Larry Lynch, Chairman) has been revised to May 1992. The number in parentheses after the chapter name is the approximate total number of members in that chapter.

1. Augusta Bird Club (141), Staunton-Waynesboro
 2. Bristol Bird Club (40), Bristol
 3. Cape Henry Audubon Society (450), Norfolk
 4. Clinch Valley Bird Club (20), Tazewell
 5. Cumberland Nature Club (10), Wise
 6. Eastern Shore Bird Club (37), Accomac
 7. Fairfax Audubon Society (5300), Vienna
 8. Foothills Bird Club (25), Martinsville
 9. Hampton Roads Bird Club (100), Newport News-Hampton
 10. Lynchburg Bird Club (200), Lynchburg
 11. Margaret H. Watson Bird Club (35) Farmville
 12. Marion Bird Club (15), Marion
 13. Monticello Bird Club (170), Charlottesville
 14. Montpelier Naturalists (25), Gordonsville-Orange County
 15. New River Valley Bird Club (80), Blacksburg
 16. Northern Neck of Virginia Audubon Society (356), Kilmarnock-White Stone
 17. Northern Shenandoah Valley Audubon Society (500)
Winchester-Strausburg-Front Royal
 18. Northern Virginia Chapter (650), Arlington-Fairfax
 19. Richmond Audubon Society (1350), Richmond
 20. Roanoke Valley Bird Club (150), Roanoke-Salem
 21. Rockbridge Bird Club (10), Lexington
 22. Rockingham Bird Club (100), Harrisonburg
 23. Virginia Beach Audubon Society (650), Virginia Beach
 24. Westmoreland Bird Club (69), Montross
 25. Williamsburg Bird Club (120), Williamsburg
-

REVIEWS

Richard H. Peake

Box 103

Clinch Valley College

Wise, Virginia 24293

Birds of the Blue Ridge Mountains. Mark Simpson. 1992. The University of North Carolina Press, Chapel Hill, North Carolina. xviii + 354 pp., numerous maps. Black and white illustrations by H. Douglas Pratt. \$29.95.

Mark Simpson is familiar to many members of the VSO, but whether or not Virginia birders know the author, they will most likely want to know his volume about birding the Virginia and North Carolina mountains. This book is more than a bird-finding guide. Beautifully printed and masterfully illustrated with line drawings of birds by Douglas Pratt, it contains an introductory section with comments on subjects such as the geology of the Blue Ridge Mountains and tips on birding. In fact, the only adverse criticism I would venture about this book is that it seems too beautiful to subject it to the abuse that birders generally accord the average bird-finding guide. That caveat aside, I must also say that any VSO member who expects to bird the mountains should buy this guide, though I would suggest photocopying appropriate sections to take into the field to avoid ruining the book. Between them, Claudia Wilds (author of *Finding Birds in the National Capitol Area*) and Mark Simpson have rendered the Virginia Site Guide almost redundant. For the Blue Ridge Mountains and adjacent areas, Simpson's guide will doubtless be the best available for many years. Centered on the Skyline Drive and Blue Ridge Parkway, the book gives detailed instructions on bird-finding at locations along the route. One handy feature is the notations about birding areas off the parkway, at spots providing the easiest access from the main route. These areas, which include such favorites as the Mt. Rogers area, are covered in a later section of the book.

Chesapeake Bay, a Field Guide: Nature of the Estuary. Christopher P. White. 1989. Centreville, Maryland: Tidewater Publishers. 212 pp., numerous maps, line drawings, and other illustrations by Karen Teramura. ISBN 0-87033-351-8. \$12.95.

This book seeks to reach students and residents of the Bay area. It is intended as a field guide for the person who is seriously interested in learning about the Bay's flora and fauna and its ecology. Though the book might prove useful to the scientist, the author has sought to create "an easy-to-use primer on the estuarine system" and has thus kept scientific "jargon" at a minimum. The guide seems admirably suited for its intended audience. Although those who are especially knowledgeable about a particular group of organisms, such as birds, may not find much new about their special interest here, they will find that this book will enable them to learn the other organisms with which birds interact. The sections on Bay ecology seem clear and well written. The book, throughout, is enhanced by what are, for the most part, excellent pen-and-ink illustrations. The chief

weakness of the book, however, lies in some of the illustrations of birds. Some of the gulls do not sit in the water properly, some of their bills are too large, and so on. All of the bird illustrations, however, permit anyone who has never seen the bird to identify it. For a person looking for a comprehensive guide to the life on the Bay, this is a small flaw, indeed, in a book that will prove practical in the field and will be a pleasure to read in the armchair.

REVIEW

TETA KAIN

Route 5, Box 950

Gloucester, Virginia 23061

Virginia's Endangered Species. Karen Terwilliger, coordinator. 1991. McDonald and Woodward Publishing Co., Blacksburg, Virginia. viii + 672 pages, 229 color plates, 331 black and white figures, 44 tables, 8.5 x 11. Cloth (0-939923-16-5) \$59.95. Paper (0-939923-17-3) \$32.95.

Seldom does one find a book that contains so much information between its covers as this book on Virginia's threatened and endangered species. More than 80 authors were enlisted to complete accounts of over 250 species of vascular plants, arthropods, mollusks, fishes, amphibians, reptiles, birds, and mammals. Each account is written in a specific format with information given under the following headings: description, distribution, habitat, life history, threats, status, recommendations and remarks.

One of the best features of the book is the maps. For each species, a map of Virginia is presented that highlights state-wide distribution, and a tiny inset of a North American map allows the reader to visualize the organism's general distribution over the continent. Also, a number of tables allow quick reference to a variety of data.

Color plates, representing almost all the species presented, are scattered throughout the book and are a little difficult to find quickly. The photographic quality, for the most part, however, is very good and worth the small effort it takes to find the plates. Line drawings that appear in some sections to highlight certain identifying features, are well done and add to the book's completeness.

Most VSO members will find the section on birds engrossing reading. The species accounts are well-done and the introduction is highly informative, giving a good overview of the problems facing anyone coping with bird conservation in the state.

The book is not intended to serve as a field guide, but it is a must-have volume for anyone concerned about Virginia's threatened and endangered species. It will serve as an invaluable reference for those who are concerned and involved in the protection of all rare flora and fauna. As an added bonus, those who purchase this book will be pleased to know that any royalties from sales will go to the Non-game and Endangered Species Fund to support future conservation efforts in Virginia.

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INFORMATION FOR CONTRIBUTORS

The following information should be of help to anyone wishing to submit articles to be considered for inclusion in future editions:

The Raven, the official journal of the Virginia Society of Ornithology, functions to publish original contributions and review articles in ornithology, not published elsewhere, mostly relating to the birdlife of Virginia. *The Raven* may also rarely reprint an article published elsewhere if it appears to be of particular interest to VSO members. Although most bird papers published in this journal concern the distribution, abundance, and migration of birds in Virginia, other aspects of ornithology are also covered, such as historical and bibliographic reviews and life-history and behavioral notes, especially when these are based on observations in Virginia. The activities of various public and private organizations engaged in biological and conservation work in Virginia is also of interest to the readership of *The Raven*. In addition, the journal serves to publish the official proceedings of the Society and other formal items pertaining to all aspects of the Society's activities. It may also print articles pertaining to the activities of VSO chapters and the various public and private organizations engaged in biological and conservation work in Virginia.

All contributions should be sent to the editor (Route 5, Box 950, Gloucester, Virginia 23061). Those having IBM compatible computers at their disposal are urged to submit materials for publication on diskettes, preferably using WordPerfect word-processing program. Details may be discussed with the editor by calling (804) 693-5246. If computer use is not possible, manuscripts, tables, and literature cited should be typewritten (*everything*, including tables and literature cited) and *double-spaced* on only one side of 8 1/2 x 11-inch good quality paper. Handwritten materials are discouraged.

At this time, only black-and-white photographs, graphs, maps, illustrations, figures, etc. may be used in *The Raven*. Generally the original size should not exceed 5 x 7 inches, keeping in mind that all such materials must be reduced substantially for final copy.

Format of *The Raven* generally follows guidelines set by the Council of Biology Editors as outlined in *CBE Style Manual*, 5th edition, published by Council of Biology Editors, Inc., Bethesda, Maryland 20814. It is standard policy that most manuscripts will be reviewed by someone qualified in the subject matter. The editor will acknowledge, by phone or letter, receipt of all articles submitted and will discuss reviewing policies with the author at that time.

Under most circumstances vernacular and technical names of birds should adhere to those in the Sixth edition of the A.O.U. Check-list of North American Birds and subsequent supplements. For bird measurements and weights, metric units are now the accepted standard. All figures and tables should be on separate pages and not included in the narrative text, and figures must be in a form suitable for photographic reproduction. Any extensive changes in figures must be charged to the author.

Deadlines for submission of articles are 1 January for the spring issue and 1 August for the fall issue. Authors contemplating submitting lengthy papers requiring review or those with extensive tabulations or figures should contact the Editor in advance.

