

The Raven

JOURNAL OF THE VIRGINIA SOCIETY OF ORNITHOLOGY

Volume 79

Number 1 & 2

2008



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 twice yearly, containing articles relevant to Virginia ornithology, as well as news of the activities of the Society and its chapters.
4. A newsletter, the VSO Newsletter, is 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 additions, 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 and should contact Thelma Dalmus, the Membership Secretary. Annual dues are \$15.00 for active members, \$25.00 for sustaining members, \$50.00 or more for contributing members, \$400.00 for life members, and \$20.00 for family members (limited to husband, wife and their dependent children).

Additional Information can be found on the internet, at www.virginiabirds.net

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Editor
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Volume 79

Published by
THE VIRGINIA SOCIETY OF ORNITHOLOGY

2008

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ISSN 0034-0146

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SOUTHWEST VIRGINIA'S FIRST WINTER NEST RECORD OF BARN OWL (*Tyto alba*)

CHRISTOPHER J. O'BRYAN¹

J. WALLACE COFFEY²

ANDREW W. JONES^{3,4}

An active winter Barn Owl (*Tyto alba*) nest was discovered 02 January 2005 near DeBusk Mill in Washington County, Virginia. DeBusk Mill is located on Rt. 736 along the Middle Fork Holston River, 5 km south of Glade Spring. The elevation is 591.3 m.

This is apparently the first regional record of winter nesting for the species, and one of only a handful for the state of Virginia (Clapp 1997).

The nest was found by Christopher J. O'Bryan, J. Wallace Coffey, and Andrew W. Jones. The observers were participating in the Glade Spring Christmas Bird Count and were near out-buildings on a farm when they heard what was believed to be young Barn Owls either food begging or calling from within an agriculture storage hopper bin. A small, adjacent shed containing farm equipment revealed extensive droppings and castings (pellets). The maximum temperature that day was 16.6°C.

O'Bryan was able to climb to the top of the 9 m high structure and look down into the bin through a small trap door. One adult and two nestlings were perched on a crossbeam midway down in the bin; another adult flew out a side opening as O'Bryan approached the top. The two young dropped deep into the bin where a third smaller nestling was at the bottom on a floor covered with castings. The remaining adult flew to the bottom and partially covered the smallest owlet. The other young crouched nearby.

Judging from the feathering of the more advanced young, none appeared developed enough to have fledged. Two nestlings appeared to have been feathered for several weeks, placing them in the later stages of three to seven weeks of age (Baicich and Harrison 1997). The youngest appeared to be in second natal down (Johnsgard 1988).

According to Johnsgard (1988), it is possible to have as much as about three-weeks difference in hatching times possible between the youngest and oldest hatchlings. He reports that sometimes the female will lay a second clutch before a brood has fledged. It would seem doubtful that a second clutch would have hatched just one young. Since incubation is 32-34 days (Baicich and Harrison 1997), the initiation of egg laying for this brood can be calculated to about 10 weeks prior to 2 Jan. Thus egg laying began around the last week of October 2004.

Barn Owls have been known to nest throughout the year in other parts of their range, with fall and winter nesting recorded in many areas, including locations north of Virginia (Marti et al. 2005).

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BIRDS OF THE KIPTOPEKE PLATFORM

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The 30 meter long observation platform at Kiptopeke State Park, on Virginia's Eastern Shore, was built through a partnership of the Virginia Society of Ornithology, the Virginia Department of Game and Inland Fisheries, the Virginia Department of Conservation and Recreation and the Virginia Department of Environmental Quality's Coastal Zone Management Program. It was designed to provide an improved view for the annual volunteer hawkwatchers at the site as well as for the enjoyment of all Park visitors throughout the year. It was dedicated at the first Eastern Shore Birding Festival on October 9, 1993, when the State Park was two years old.

The view from the platform is spectacular, as it overlooks Chesapeake Bay, dunes, forests and fields. The wide view of diverse habitats, together with the location near the tip of the Eastern Shore, where millions of migrating birds converge and pass through annually, make the platform the best bird viewing site in Virginia and one of the premiere locations for observing birds in eastern North America.

Hawkwatch volunteers conducted the hawkwatch at the platform in 1993 and 1994, and in 1995, Coastal Virginia Wildlife Observatory (CVWO; then called K.E.S.T.R.E.L.) began hiring professional hawkwatchers, who were assisted by a corps of volunteers. These staff and volunteers, who have conducted the hawkwatch daily from September 1 through November 30 each year have compiled an impressive list of all bird species seen from the platform during the past 17 years. The total stands at 267. Virginia's total bird list is 459 (Rottenborn and Brinkley, 2007), which includes about 37 species of ocean-going "pelagic" birds and eight whose "wild status" is questionable (escaped captives, or intentional introductions?) or where historical records indicate they may have occurred, but physical evidence is lacking. Another 34 species are rare, represented in Virginia by only one or two records. Thus about 70% of Virginia's regularly occurring, non-pelagic birds have been seen from the platform.

Bird observations have also been made in winter, spring and summer, during other, short-term CVWO studies and visits to the platform, but these have added no new species to the fall list.

As the platform is such a remarkable place to view birds, it was chosen as a site for the "Big Sit," a bird census sponsored by the New Haven CT Bird Club on one designated day in October at selected localities throughout North America and Europe. A "Big Sit" has been conducted at the platform by CVWO staff and volunteers from 1999 through 2009. The platform's "Big Sit" team has placed as

high as third nationally out of more than 100 such teams, with the highest one-day count being 85 species.

It was from the platform, during the Kiptopeke Hawkwatch seasons, that Swainson's Hawks (*Buteo swainsoni*) were first noted to be regular, though rare, migrants down the Eastern Shore (Sullivan and Taber, 2003). Two of Virginia's four Gyrfalcon (*Falco rusticolus*) records were seen from the platform and one of Virginia's three coastal plain records for Harris' Sparrow (*Zonotrichia querula*) is from the feeders which the platform overlooks. The feeders have also hosted rarities such as Lark Sparrow (*Chondestes grammacus*), Clay-colored Sparrow (*Spizella pallida*) and one of few eastern North American records of the "Pink-sided" Dark-eyed Junco (*Junco hyemalis mearnsi*). Among 13 species of flycatchers is one of Virginia's six records of Fork-tailed Flycatcher (*Tyrannus savana*), one of Virginia's 16 Ash-throated Flycatchers (*Myiarchus cinerascens*) and one of six Virginia records of Say's Phoebe (*Sayornis saya*). A Black-bellied Whistling Duck (*Dendrocygna autumnalis*) was recorded there, one of only seven State records.

A hummingbird feeder is present at the platform during September, October and November, next to a dense stand of wax myrtles (*Myrica cerifia*) inside the ramp area. The feeder has attracted very late-migrating Ruby-throated Hummingbirds (*Archilochus colubris*) in November on several occasions. A second hummingbird feeder, placed with the seed feeders nearby, has attracted Selasphorus hummingbirds.

The platform is one of very few places in Virginia where both Swallow-tailed Kites (*Elanoides forficatus*) and Mississippi Kites (*Ictinia mississippiensis*) have been recorded. Cave Swallows (*Petrochelidon fulva*) are seen from the platform more often than from any other Virginia site. A Common Raven (*Corvus corax*) was recorded from there for one of the few Eastern Shore reports of that species since 1882. The platform may well be the best place in the world to see migrating Peregrine Falcons (*Falco peregrinus*) and Merlins (*Falco columbarius*), due to the closeness of the flights and the annual reliability of their remarkable numbers.

Of Virginia's 37 species of regularly-occurring warblers, an impressive 32 species has been recorded from the platform. Some other rarities highlights include Magnificent Frigatebird (*Fregata magnificens*), Anhinga (*Anhinga anhinga*), Ross' Goose (*Chen rossii*), Sandhill Crane (*Grus canadensis*), Buff-breasted Sandpiper (*Tryngites subruficollis*), Parasitic Jaeger (*Stercorarius parasiticus*), Eurasian Collared Dove (*Streptopelia decaocto*), White-winged Dove (*Zenaida asiatica*), Long-eared Owl (*Asio otus*), Scissor-tailed Flycatcher (*Tyrannus forficatus*), Western Kingbird (*Tyrannus verticalis*) and Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*). The tremendous November flights past the platform, comprised of hundreds of thousands of Red-winged Blackbirds (*Agelaius phoeniceus*), Common Grackles (*Quiscalus quiscula*), Tree Swallows (*Tachycineta bicolor*) and American Robins (*Turdus migratorius*), is a most impressive spectacle.

Interesting in its absence of records at the platform, among such a remarkable array of species, is the very common White-breasted Nuthatch (*Sitta carolinensis*), a species that is very difficult to find on the Eastern Shore. Also noteworthy is that the only American Bittern (*Botaurus lentiginosus*) record from there is of a bird that

perched for hours in a nearby pine tree and the only King Rail (*Rallus elegans*) record is of an early morning bird that landed on the platform.

ACKNOWLEDGMENTS

Over the past 17 years, there have been dozens of excellent birders who have regularly contributed to the records of the Kiptopeke platform and their efforts are greatly appreciated. Thanks also to architect Ed Pease who voluntarily contributed the platform design and to Dennis Baker, Director of State Parks, for coordinating the effort.

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VIRGINIA CHRISTMAS BIRD COUNTS: 2007-2008 SEASON

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After several months of drought over much of the state, Mom Nature let fly with all kinds of grievous weather conditions during the 2007-08 count season. Rain, snow, fog, high winds, and cold weather made for unpleasant conditions on 28 counts. To make matters worse, most of the bad weather fell on the weekends that most counts were scheduled. In spite of those difficulties, observers still managed to find 213 species, which is about the average number tallied each year.

Results for Chesapeake Bay, Darlington Heights, Lynchburg, Danville, Big Flat Mountain, Peaks of Otter, Roanoke, and Giles County were submitted to The Raven, but not to National Audubon's Christmas Bird Count database. Bristol results were submitted to both, but are listed under Tennessee in the Audubon count, even though the circle center is located in Virginia. Missing for 12 years, the Nokesville count, centered in Prince William County, was resurrected by Kim Hosen, and, after a year's absence, The Plains count is back on the roster. This brings the total number of counts to 50, equaling the previous high set in 1996.

Numerous changes on the roster of compilers took place this year. After 37 years at the helm, Mary Pulley stepped down as co-compiler and organizer of the Mathews County count; John Bazuin will continue as compiler and Joyce McKelvey will serve as organizer. After a 17-year hiatus from the count he started in 1977, Bill Williams has again taken up the reins at Williamsburg. Robert Shipman agreed to compile the Manassas-Bull Run count, and Bob Ake took over Nansemond River compiler duties from Les Willis, who ran that count for 11 years. Ill health precluded Dave Stewart from compiling at Brooke; John Keith stood in for him this year. Ann Smith and T. Paul Smith substituted for Wachapreague compiler Irv Ailes, who was out of state during the count period.

Charles "Mo" Stevens' retirement from Xmas count activities in 2007, due to failing health, marks the end of a very special era in Virginia Xmas count history. Regarded by many as one of the best naturalists in the state, Mo is respected and admired by all who know him. His knowledge of all things natural is unsurpassed, especially when it comes to birds and botany. With topo maps always in hand whenever he ventured into the field, Mo had a penchant for leaving the beaten path to traipse across fields and woods, over mountains and into valleys, exploring places few people had ever visited. Participating in over 220 Virginia counts during a span of 63 years, Mo served as compiler 166 times. Looking through the records, I found his name listed as compiler or participant on at least 17 different counts

ranging over almost all of Virginia. We salute this special man, whose Christmas count record in this state will probably never be surpassed. With his retirement from the Big Flat Mountain and Warren counts, the duties of compilation have been taken over by Tom Wiebolt and Allen Hale, respectively.

Another noteworthy compiler was Francis Endicott, Although she gave up compiling the Calmes Neck count several years ago, Francis remained a very important part of that event right up to 2006. Her death this year was a sad loss for all who knew her and the count has been dedicated to her memory.

The premier bird of the season was a very cooperative Black-chinned Hummingbird (*Archilochus alexandri*), who hung around a Lynchburg feeder long enough to be captured, photographed and banded. This is the first Xmas count record of that species in Virginia and brings the cumulative Christmas count total to 314 species. However, that number is a bit nebulous, due to exotics, questionable identifications, changes in species status over the years, and inclusion of exotics that probably should not have been counted because their feral status was not, or could not be determined. A case in point is that of two Trumpeter Swans (*Cygnus buccinator*) seen at The Plains. It is impossible to determine if those birds are truly feral, or are merely escapees from one of the several collections of exotic waterfowl in the Northern Virginia area. Other extreme rarities recorded around the state were Yellow Rail (*Coturnicops noveboracensis*) at Wachapreague and Back Bay, Nashville Warbler (*Vermivora ruficapilla*) at Wachapreague and Williamsburg, Barn Swallow (*Hirundo rustica*) at Back Bay, and Painted Bunting (*Passerina ciris*) at Nansemond River.

Documentation of rarities continues to improve, and the upsurge of digital photography has facilitated the verification process immeasurably. Great photographs of a Peregrine Falcon (*Falco peregrinus*) at Shenandoah NP-Luray, a close-up of a Yellow-throated Warbler (*Dendroica dominica*) at Fort Belvoir, and a video clip of a Long-eared Owl (*Asio otus*) clutching a tree limb in a high wind provided unambiguous proof for reports of some of the unusual species found in unexpected places. Conversely, reported sightings of Solitary Sandpiper (*Tringa solitaria*), Scarlet Tanager (*Piranga olivacea*) and Common Nighthawk (*Chordeiles minor*) could not be accepted, due to a lack of sufficient documentation.

Every once in a while there comes a count day that is perfect in every way, and birds seem to be everywhere. Such was the case at Blackford this year. In most years, everything is frozen solid in those high inland areas and pickings are few, but this year the water was wide open and waterfowl took full advantage of the situation. Even though this count has run only 12 years, it is still quite a feat to find eight new species and all-time high tallies for 13 species. On top of that, birders in the Blackford count circle chalked up 10 Golden Eagles (*Aquila chrysaetos*) and 71 Common Ravens (*Corvus corax*).

Walkerton and Washington's Birthplace also had banner days; between them they had four new or very unusual birds and all-time high counts for 33 species. Even the venerated, 80-year-old Lexington count came up with a species new to it: Common Loon (*Gavia immer*).

Conversely, this year was an “un-banner” one for Cape Charles, which usually comes in as the stellar count of the state and almost always lists some exotic rarities. The only noteworthy items on that count were all-time high counts of Black-bellied (*Pluvialis squatarola*) and Semipalmated Plovers (*Charadrius semipalmatus*). Even Red-throated Loon (*Gavia stellata*) numbers fell to normal levels, after five years of spectacular highs. Likewise, heavy rains, high winds, and fewer participants on The Plains count probably contributed to lower-than-usual numbers of passerines, although some exciting species were found in spite of the inclement conditions.

There were eight state-record-high counts this year. Not surprisingly, Ross’s Goose (*Chen rossii*) and Cackling Goose (*Branta hutchinsii*) fell into that category, with 10 and 16 birds, respectively. Wild Turkeys (*Meleagris gallopavo*) have been increasing in many areas around the state. Remarkable totals reported by the Nassawadox, Walkerton, Fincastle, Tazewell, Bristol, and Wise County counts rocketed the state total to a new high of 915 turkeys found on 42 counts. Central Loudoun and Calmes Neck helped spike Red-shouldered Hawk (*Buteo lineatus*) numbers to a new state high of 646, with 116 and 67 birds reported, respectively. The all-time high of 180 Semipalmated Plovers (*Charadrius semipalmatus*) topped the previous state high by more than 200%. Common Ravens continue to tiptoe closer to the coast, with one showing up on the Banister River count for the first time and two, again, at Fort Belvoir. Central Loudoun posted a new high of 20 ravens and, as mentioned previously, Blackford birders found 71, to help set a new high of 324 statewide, breaking the old record of 253 set in 1979.

Several owls showed up for the first time on counts scattered all across the state, with a Barn Owl (*Tyto alba*) at Darlington Heights, Northern Saw-whets (*Aegolius acadicus*) at Lynchburg and Calmes Neck, Barred Owl (*Strix varia*) at Mount Rogers-Whitetop, and Long-eared Owls (*Asio otus*) at The Plains and Waynesboro. Other first-occurrences for birds of prey were Rough-legged Hawk (*Buteo lagopus*) at The Plains, Bald Eagle (*Haliaeetus leucocephalus*) at Big Flat, Golden Eagle at Peaks of Otter and Calmes Neck, Northern Goshawk (*Accipiter gentilis*) at Big Flat Mountain, and Peregrine Falcon at Calmes Neck.

There were some interesting waterfowl numbers. Williamsburg recorded over 8,200 Canvasbacks (*Aythya valisineria*), the second highest number for that count. Record highs of 501 Lesser Scaup (*Aythya affinis*) and 1,539 Ring-necked Ducks (*Aythya collaris*) were also a nice find on that same count. Both Fort Belvoir and Brooke reported huge numbers of American Coots (*Fulica americana*), swelling the state total to 14,804, the most found in the state since 1975. The only uncommon duck sightings were of Eurasian Wigeon (*Anas penelope*) at Little Creek and Newport News and a first occurrence of Ring-necked Duck (*Aythya collaris*) on the Wise County count. Gordonsville birders found their first-ever Double-crested Cormorant (*Phalacrocorax auritus*) and Chancellorsville had its first Horned Grebe (*Podiceps auritus*).

Although it wasn’t exactly a thrilling discovery, Rock Pigeons (*Columba livia*) were recorded for the first time on the Dismal Swamp count. Birders there were a bit more excited by the Common Loon (*Gavia immer*) seen on Lake Drummond, another first for that count. That species was also found for the first time at Lexington.

Other good sightings: Cave Swallow (*Petrochelidon fulva*) at Little Creek, the third record for the extreme southeastern counts; Tree Swallows (*Tachycineta bicolor*) at Little Creek and Newport News, with impressive record counts of 876 and 1,002, respectively; and 2000 Fish Crows (*Corvus ossifragus*) at Dismal Swamp, the best state total since 1998. Statewide, American Crow (*Corvus brachyrhynchos*) numbers held steady in the 5-digit range, as they have since 1955.

The Laughing Gull (*Larus atricilla*) and Brewer's Blackbird (*Euphagus cyanocephalus*) at Banister River WMA, Laughing Gull and Brown-headed Nuthatch (*Sitta pusilla*) at Blacksburg, Fox Sparrow (*Passerella iliaca*) at Mount Rogers-Whitetop, White Ibis (*Eudocimus albus*) at Chincoteague and Back Bay, Willet (*Catoptrophorus semipalmatus*) at Hopewell, and Clay-colored Sparrow (*Spizella pallida*) at Walkerton round out the list of first occurrences around the state.

Though they were scarce in the far western areas of Virginia, American Robins (*Turdus migratorius*) abounded in the central and eastern part of the state. Of the 30 Coastal Plain and Piedmont counts, 22 reported robins in the thousands, and in the northwest, Northern Shenandoah Valley added over 20,000 individuals to the record-breaking statewide total of 89,854. The final state-record-high for the year 2007 was the count of 1,118 Chipping Sparrows (*Spizella passerina*), which tops the previous state high of 1023, set in 2006.

It was nice to see a total 20 Loggerhead Shrikes (*Lanius ludovicianus*) on seven counts, including a count-week bird at Central Loudoun. This, by no means, signifies a come-back of this species, but it is the most found statewide since 1998. Actually, the numbers have held fairly steady over the past 12 years, averaging 16 birds per year. Of course, that is a far cry from the previous three decades, when the average was 83 birds per year, with a high (recorded in 1974) of 170. The downward slide started in 1980, and this year's slightly higher number is rather meaningless in the grand scheme of things.

A sad note is the precipitous, statewide decline of Northern Bobwhites (*Colinus virginianus*), especially in the Mountains and Valleys region. Consider this: Every year from 1976 through 1989, the 18 counts from Shenandoah Park-Luray to Wise County (see the table for those counts, numbered 33 through 50) chalked up a combined bobwhite total in the triple digits, with a high of 587 in 1976. In 2007 those same 18 counts, combined, recorded only one bird! And this is an area in which there has been relatively little change in the count roster or the number of participants from year to year.

Changes in distribution on Christmas bird counts are a little easier to discern with today's powerful computer programs. The longevity of many counts throughout the state also allows us to see trends, especially when one considers the fact that 33 of the 50 counts held this year have had continuous runs of at least 20 years, and some have stretched over half a century or more.

To demonstrate this point, it is interesting to examine Osprey (*Pandion haliaetus*) appearances on counts over the years. From 1942 to 1986, one to six birds were reported statewide, with long stretches of none reported at all. Starting in 1986, Ospreys have occurred in double digits almost every year. As another example of

change, no ospreys were reported for the first 23 years of the Williamsburg count. Since the first occurrence of that species on that count (three in 2001), ospreys have been tallied every year except in 2003 and 2006.

The abrupt appearance of Brown Pelicans (*Pelecanus occidentalis*) can be noted by viewing a spreadsheet of this species. In 1983, great excitement swept through the birding community when pelicans were spotted off the Chesapeake Bay Bridge-Tunnel. That winter, Little Creek recorded the first Christmas count record: six individuals. From then on, pelicans have been found in ever-increasing numbers every year except 1986. The premier year to date was 2002, when numbers swelled to 1,553. This year's 125 birds at Mathews County are a new high for that count, and highlights the tendency of these birds to winter further and further up the Bay each year.

The recent eastward trend of Common Raven (*Corvus corax*) brings to mind the story of how The Raven got its name. Back in 1929 when the Virginia Society of Ornithology came into being and the founders were searching for an appropriate name for the Society's journal, Editor J. J. Murray suggested the name "Raven." His explanation for that choice was that, by naming the publication after this species, it would serve as a reminder to members that, historically, ravens had ranged over the entire state of Virginia, but had gradually receded westward. The hope was that the trend would reverse itself someday and ravens would once again soar over the skies of the entire state. It will be a while yet before we know whether that will really happen.

Data from the counts are tabulated in three Tables on the following pages. In all three Tables, the counts ("Count Circles") are numbered in identical order from 1 to 50, beginning with the Eastern Shore counts and proceeding in a roughly east-to-west and north-to-south configuration. Eastern Shore Count Circles are numbered 1-5, Coastal Plain Count Circles 6-17, Piedmont Count Circles 18-30, and Mountains and Valleys Count Circles 31-50. Table 1 lists the number of individuals of each species seen, Table 2 the field conditions (primarily collection and meteorological data), and Table 3 the primary compiler for and central location of each of the 50 Count Circles.

CODES AND ABBREVIATIONS USED IN THE TABLES:

a - adult
Blvd - Boulevard
CLD - Cloudy
CLR - Clear
Co. - County
CW - Count week
E - East
FST - Frost
HVR - Heavy rain
ILR - Intermittent light rain
i - Immature
Jct - Junction
LGR - Light rain
LHR - Light to heavy rain
LSN - Light snow
MCD - Mostly cloudy
MCR - Mostly clear
MPO - Moving water partly open
Mt - Mount or Mountain
MWO - Moving water open
N - North
NP - National Park
NWR - Nat'l Wildlife Refuge
PCD - Partly cloudy
PCR - Partly clear
Rt. - Route
S - South
SNO - Snow
sp - species
SPF - Still water partly frozen
SWO - Still water open
UNK or u - Unknown
V - Variable
VARCOM = Virginia Avian Records Committee
W - West
WFZ - Water frozen
WMA - Wildlife Management Area
WOP - Water open
WPO - Water partly open
WPZ - Water partly frozen

Table 1. Species and Numbers of Individuals Seen

Species	Greater White-fronted Goose	Snow Goose (white form)	Snow Goose (blue form)	Ross's Goose	Brant	Cackling Goose	Canada Goose	Mute Swan	Trumpeter Swan
1. Chincoteague	...	20,942	12	...	138	2	2,861	...	...
2. Wachapreague	...	24,086	...	...	110	...	3,022	...	...
3. Nassawadox	...	501	...	...	1,193	1	1,434	...	...
4. Cape Charles	...	6,481	17	4	437	...	2,338	...	...
5. Chesapeake Bay
6. Little Creek	...	161	...	...	63	...	562	...	...
7. Back Bay	...	10,000	1	1	...	...	515	...	...
8. Nansemond River	1,885	...	...
9. Dismal Swamp NWR	...	25	...	...	...	...	30	...	...
10. Newport News	...	30	...	...	27	...	558	...	...
11. Mathews County	...	31	...	...	3	...	914	...	...
12. Williamsburg	...	4	3	...	...	...	2,848	9	...
13. Hopewell	CW	243	2,423	4	...	6	13,177	...	...
14. Walkerton	1	...	...	...	6,800	...	...
15. Washingtons Birthplace	...	1	...	...	...	...	16,984	...	...
16. Brooke	1,577	53	...
17. Fort Belvoir	14,300	...	...
18. Central Loudoun Co.	...	1	...	...	...	...	6,164	2	...
19. The Plains	1	6,644	...	2
20. Manassas-Bull Run	3,128	...	...
21. Nokesville	2,149	...	...
22. Chancellorsville	1,023	8	...
23. Lake Anna	182	...	...
24. Gordonsville	3,037	...	...
25. Charlottesville	966	1	...
26. Warren	1,417	5	...
27. Darlington Heights	430	...	...
28. Banister River WMAs	189	...	...
29. Lynchburg	1,276	...	...
30. Danville	112	...	...
31. Calmes Neck	...	4	...	...	...	...	7,360	...	...
32. N. Shenandoah Valley	2	3,378	...	...
33. Shenandoah NP- Luray	1,004	...	...
34. Big Flat Mountain
35. Rockingham County	181	...	...
36. Augusta County	2	750	...	...
37. Waynesboro	2	1,996	...	...
38. Lexington	299	...	...
39. Peaks of Otter
40. Fincastle	479	...	...
41. Roanoke	318	...	...
42. Blacksburg	656	...	...
43. Giles County	112	...	...
44. Tazewell	249	...	...
45. Mount Rogers-Whitetop	4	...	...
46. Glade Spring	88	...	...
47. Blackford	143	...	...
48. Bristol	...	3	1	1	...	...	859	2	...
49. Breaks Interstate Park
50. Wise County
Totals	CW	62,513	2,458	10	1,971	16	114,398	80	2

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Tundra Swan	swan, sp.	Wood Duck	Gadwall	Eurasian Wigeon	American Wigeon	American Black Duck	Mallard	Black Duck / Mallard
1. Chincoteague	105	...	1	233	CW	97	1,021	548	17
2. Wachapreague	7	...	10	32	...	19	287	238	...
3. Nassawadox	5	...	28	1	...	...	173	79	...
4. Cape Charles	54	...	11	240	...	123	494	383	...
5. Chesapeake Bay	...	...	...	1	...	...	...	...	...
6. Little Creek	56	...	43	64	1	61	73	481	...
7. Back Bay	946	...	7	662	...	35	600	267	...
8. Nansemond River	24	...	7	483	...	234	89	204	...
9. Dismal Swamp NWR	...	...	58	26	...	8	25	24	...
10. Newport News	41	...	22	28	1	163	39	610	...
11. Mathews County	394	15	6	...	...	...	40	203	...
12. Williamsburg	59	...	19	47	...	18	73	413	...
13. Hopewell	...	...	162	132	...	45	146	501	...
14. Walkerton	15	...	120	420	...	20	464	1,214	...
15. Washingtons Birthplace	235	...	7	86	...	4	770	797	...
16. Brooke	453	...	18	18	...	23	7	197	...
17. Fort Belvoir	202	...	31	2,099	...	576	1,488	3,375	...
18. Central Loudoun Co.	11	...	1	...	...	1	34	387	...
19. The Plains	21	...	7	53	...	64	36	72	...
20. Manassas-Bull Run	...	...	7	...	...	...	17	146	...
21. Nokesville	...	...	...	4	...	3	48	324	...
22. Chancellorsville	...	...	...	...	...	CW	2	80	...
23. Lake Anna	...	...	5	...	...	...	1	45	...
24. Gordonsville	...	...	...	...	...	...	...	18	...
25. Charlottesville	...	...	7	2	...	...	12	213	...
26. Warren	...	...	3	...	...	2	2	1	...
27. Darlington Heights	...	...	1	...	...	...	...	14	...
28. Banister River WMAs	...	...	9	...	...	...	...	4	...
29. Lynchburg	...	...	15	24	...	2	2	250	...
30. Danville	...	...	...	...	...	...	...	20	...
31. Calmes Neck	...	...	...	...	...	1	289	320	...
32. N. Shenandoah Valley	CW	...	18	17	...	38	54	864	...
33. Shenandoah NP- Luray	...	...	...	17	...	...	4	97	...
34. Big Flat Mountain	...	...	...	...	...	...	...	...	...
35. Rockingham County	...	...	...	...	...	...	...	258	...
36. Augusta County	...	...	...	21	...	...	1	234	...
37. Waynesboro	...	...	3	7	...	...	...	193	...
38. Lexington	...	...	2	7	...	...	9	88	...
39. Peaks of Otter	...	...	...	...	...	...	...	...	...
40. Fincastle	...	...	1	...	...	...	...	60	...
41. Roanoke	...	2	1	48	...	...	...	282	...
42. Blacksburg	...	...	...	60	...	5	36	452	...
43. Giles County	...	...	...	14	...	...	1	57	...
44. Tazewell	...	...	...	3	...	...	3	144	...
45. Mount Rogers-Whitetop	...	...	...	...	...	...	...	26	...
46. Glade Spring	...	...	...	10	...	...	...	115	...
47. Blackford	...	...	3	10	...	...	...	108	...
48. Bristol	...	...	CW	62	...	17	CW	605	...
49. Breaks Interstate Park	...	...	2	...	...	...	...	33	...
50. Wise County	...	...	...	...	...	...	...	16	...
Totals	2,628	17	635	4,931	2	1,559	6,340	15,060	17

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Blue-winged Teal	Northern Shoveler	Northern Pintail	American Green-winged Teal	duck, sp.	Canvasback	Redhead	Ring-necked Duck	Greater Scaup
1. Chincoteague	...	496	794	335	...	...	...	19	4
2. Wachapreague	30	...	...	1	60	...
3. Nassawadox	...	3	...	113	...	...	...	6	...
4. Cape Charles	...	16	23	57	...	...	2	144	...
5. Chesapeake Bay
6. Little Creek	...	99	2	47	...	...	...	40	...
7. Back Bay	...	78	48	302	77	3	12	151	...
8. Nansemond River	...	24	...	13	252	1,750	...	218	1
9. Dismal Swamp NWR	25	...	...	4	...
10. Newport News	...	16	1	12	...	9	11	57	...
11. Mathews County	9	...	...	...
12. Williamsburg	30	347	...	8,237	10	1,539	...
13. Hopewell	...	3	...	46	...	11	2	500	6
14. Walkerton	...	22	462	157	...	...	...	887	...
15. Washingtons Birthplace	20	...	40	...	14	5
16. Brooke	...	2	...	11	...	4	61	74	4
17. Fort Belvoir	1	120	239	536	...	52	44	2,035	5
18. Central Loudoun Co.	34	...	...	...	171	...
19. The Plains	...	4	...	...	...	2	...	558	...
20. Manassas-Bull Run	12	...
21. Nokesville	8	...	...	...	36	...
22. Chancellorsville	245	...
23. Lake Anna	1	...
24. Gordonsville	17	...	...	23	...
25. Charlottesville	3	...	...	...	...	...	...
26. Warren
27. Darlington Heights	12	...
28. Banister River WMAs	1	...	...	...	5	...
29. Lynchburg	...	2	1	1	...	...	...	168	...
30. Danville
31. Calmes Neck	...	7	7	13	...	...	2	39	...
32. N. Shenandoah Valley	...	1	2	31	...	...	...	174	...
33. Shenandoah NP- Luray	2	...	...	...	...	...
34. Big Flat Mountain
35. Rockingham County	4	...	...	...	...	...
36. Augusta County	2	9	...	21	...	...	...	1	...
37. Waynesboro	4	...
38. Lexington	...	1	...	...	...	...	...	9	...
39. Peaks of Otter
40. Fincastle	25	...	1	2	12	...
41. Roanoke	22	...	...	...	20	...
42. Blacksburg	6	...	...	...	...	...
43. Giles County	2	...	...	...	8	...
44. Tazewell	10	...	...	...	1	...
45. Mount Rogers-Whitetop
46. Glade Spring	2	...	...	...	...	...	...	...	...
47. Blackford	2	...	...	3	4	...
48. Bristol	12	...	...	1	57	...
49. Breaks Interstate Park
50. Wise County	1	...
Totals	5	903	1,612	2,220	371	10,118	151	7,309	25

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Lesser Scaup	scaup, sp.	Common Eider	Harlequin Duck	Surf Scoter	White-winged Scoter	Black Scoter	scoter, sp.	Long-tailed Duck
1. Chincoteague	65	...	...	2	15	...	51	15	2
2. Wachapreague	200	...	...	...	...	...	...	...	40
3. Nassawadox	...	4	...	...	...	...	...	...	...
4. Cape Charles	6	...	2	...	3,047	...	56	32	26
5. Chesapeake Bay	...	...	1	...	1,600	17	5	...	33
6. Little Creek	21	...	...	...	25	12	6	...	52
7. Back Bay	51	...	...	...	9	...	...	...	...
8. Nansemond River	30	...	...	...	48	...	5	...	1
9. Dismal Swamp NWR	...	...	...	...	...	...	...	...	...
10. Newport News	14	...	2	...	24	2	19	...	3
11. Mathews County	70	50	...	...	276	2	5	...	19
12. Williamsburg	501	...	...	...	...	...	...	...	...
13. Hopewell	24	...	...	...	...	...	...	...	...
14. Walkerton	38	...	...	...	...	...	...	...	...
15. Washingtons Birthplace	135	1	...	...	1,111	2	...	...	5
16. Brooke	87	...	...	...	...	...	...	...	...
17. Fort Belvoir	15,665	1,086	...	...	...	...	...	...	...
18. Central Loudoun Co.	...	...	...	...	...	...	...	...	...
19. The Plains	4	...	...	...	...	...	...	...	...
20. Manassas-Bull Run	...	...	...	...	...	...	...	...	...
21. Nokesville	...	...	...	...	...	...	...	...	...
22. Chancellorsville	11	...	...	...	...	...	...	...	...
23. Lake Anna	...	...	...	...	...	...	...	...	...
24. Gordonsville	...	...	...	...	...	...	...	...	...
25. Charlottesville	...	...	...	...	...	...	...	...	...
26. Warren	4	...	...	...	...	...	...	...	...
27. Darlington Heights	...	...	...	...	...	...	...	...	...
28. Banister River WMAs	...	...	...	...	...	...	...	...	...
29. Lynchburg	...	...	...	...	...	...	...	...	...
30. Danville	...	...	...	...	...	...	...	...	...
31. Calmes Neck	1	...	...	...	...	...	...	...	...
32. N. Shenandoah Valley	5	...	...	...	6	...	...	...	...
33. Shenandoah NP- Luray	...	...	...	...	...	...	...	...	...
34. Big Flat Mountain	...	...	...	...	...	...	...	...	...
35. Rockingham County	...	...	...	...	...	...	...	...	...
36. Augusta County	2	...	...	...	...	...	...	...	...
37. Waynesboro	...	...	...	...	...	...	...	...	...
38. Lexington	...	...	...	...	...	...	...	...	...
39. Peaks of Otter	...	...	...	...	...	...	...	...	...
40. Fincastle	...	...	...	...	...	...	...	...	...
41. Roanoke	...	...	...	...	...	...	...	...	...
42. Blacksburg	2	...	...	...	...	...	...	...	...
43. Giles County	...	...	...	...	...	...	...	...	...
44. Tazewell	...	...	...	...	...	...	...	...	...
45. Mount Rogers-Whitetop	...	...	...	...	...	...	...	...	...
46. Glade Spring	...	...	...	...	...	...	...	...	...
47. Blackford	...	...	...	...	...	...	...	...	1
48. Bristol	4	...	...	...	...	...	...	...	...
49. Breaks Interstate Park	...	...	...	...	...	...	...	...	...
50. Wise County	...	...	...	...	...	...	...	...	...
Totals	16,940	1,141	5	2	6,161	35	147	47	182

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Bufflehead	Common Goldeneye	Hooded Merganser	Common Merganser	Red-breasted Merganser	Ruddy Duck	Ring-necked Pheasant	Ruffed Grouse	Wild Turkey
1. Chincoteague	857	14	123	4	403	136	...	...	5
2. Wachapreague	561	...	178	...	45	77	...	...	18
3. Nassawadox	323	...	148	...	141	162	...	...	46
4. Cape Charles	558	5	171	2	383	109	...	...	17
5. Chesapeake Bay	12	1	...	...	55	...	...	...	...
6. Little Creek	728	1	385	...	364	23	...	...	...
7. Back Bay	35	3	64	...	593	376	...	...	...
8. Nansemond River	289	1	157	...	154	987	...	...	1
9. Dismal Swamp NWR	...	...	9	...	...	...	...	...	14
10. Newport News	774	1	171	1	21	1,281	...	...	7
11. Mathews County	1,341	3	67	...	166	1,395	...	...	17
12. Williamsburg	153	7	405	...	14	6,059	...	...	5
13. Hopewell	174	...	118	6	8	194	...	...	57
14. Walkerton	470	...	38	20	...	580	...	...	68
15. Washingtons Birthplace	118	75	78	111	24	342	...	...	15
16. Brooke	56	16	192	13	34	914	...	...	26
17. Fort Belvoir	555	16	482	115	29	1,889	...	...	11
18. Central Loudoun Co.	38	...	71	53	...	6	...	...	17
19. The Plains	117	1	312	234	...	149	...	...	CW
20. Manassas-Bull Run	8	...	30	85	3	...	1	...	...
21. Nokesville	1	...	8	...	...	48	...	...	20
22. Chancellorsville	81	...	16	66	...	178	...	...	1
23. Lake Anna	29	...	58	...	...	4	...	...	6
24. Gordonsville	13	2	38	...	...	...	...	...	8
25. Charlottesville	...	...	5	...	...	...	...	...	6
26. Warren	...	...	52	...	...	3	...	...	25
27. Darlington Heights	...	...	17	...	...	...	...	...	3
28. Banister River WMAs	18	...	3	...	...	...	...	...	10
29. Lynchburg	...	...	35	...	...	3	...	...	17
30. Danville	1	...	5	...	...	...	...	...	...
31. Calmes Neck	3	...	18	29	...	4	...	1	3
32. N. Shenandoah Valley	11	...	78	78	1	29	...	...	48
33. Shenandoah NP- Luray	2	...	...	...	...	13	...	1	...
34. Big Flat Mountain	...	...	...	...	...	...	...	3	3
35. Rockingham County	...	...	2	...	...	...	...	1	9
36. Augusta County	6	...	2	...	...	12	...	...	4
37. Waynesboro	...	...	...	...	...	4	...	...	...
38. Lexington	...	...	75	...	...	...	...	...	24
39. Peaks of Otter	...	...	...	...	...	...	...	3	1
40. Fincastle	1	...	39	...	...	1	...	...	81
41. Roanoke	...	...	24	...	3	...	...	...	5
42. Blacksburg	92	...	42	...	...	7	...	1	69
43. Giles County	69	...	77	...	...	...	...	...	24
44. Tazewell	...	...	4	...	...	...	...	...	72
45. Mount Rogers-Whitetop	...	...	...	...	...	...	...	...	6
46. Glade Spring	...	...	2	...	...	...	...	...	30
47. Blackford	8	2	...	...	6	3	...	...	17
48. Bristol	147	1	265	...	...	...	...	2	68
49. Breaks Interstate Park	...	...	...	...	...	...	...	6	6
50. Wise County	...	...	...	...	...	...	...	1	25
Totals	7,649	149	4,064	817	2,447	14,988	1	19	915

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Northern Bobwhite	Red-throated Loon	Common Loon	Pied-billed Grebe	Horned Grebe	Red-necked Grebe	Eared Grebe	Northern Gannet	Brown Pelican
1. Chincoteague	...	11	59	6	77	...	...	1	...
2. Wachapreague	2	45	17	26	10	...	...	...	...
3. Nassawadox	1	...	7	6	1	...	...	...	...
4. Cape Charles	6	283	109	23	22	2	...	41	15
5. Chesapeake Bay	...	50	30	1	...	...	...	120	20
6. Little Creek	...	188	64	32	6	1	...	4,415	311
7. Back Bay	21	510	182	13	1	CW	1	384	41
8. Nansemond River	...	6	7	31	13	...	...	11	45
9. Dismal Swamp NWR	...	...	1	...	1	...	...	...	...
10. Newport News	...	16	26	33	41	...	...	2	146
11. Mathews County	...	19	52	3	8	...	...	56	125
12. Williamsburg	7	1	6	44	24	...	...	...	26
13. Hopewell	...	...	...	...	...	...	...	...	...
14. Walkerton	6	...	...	29	1	...	...	...	...
15. Washingtons Birthplace	3	...	27	1	1	...	...	2	...
16. Brooke	...	...	14	159	39	...	...	...	...
17. Fort Belvoir	5	...	8	52	4	...	...	...	...
18. Central Loudoun Co.	...	...	...	...	...	...	...	...	...
19. The Plains	...	...	2	2	...	...	...	...	...
20. Manassas-Bull Run	...	...	...	...	...	...	...	...	...
21. Nokesville	...	...	...	...	...	...	...	...	...
22. Chancellorsville	...	...	1	26	1	...	...	...	...
23. Lake Anna	...	...	13	9	14	...	...	...	...
24. Gordonsville	...	...	...	2	...	...	...	...	...
25. Charlottesville	...	...	...	10	...	...	...	...	...
26. Warren	...	...	...	6	...	...	...	...	...
27. Darlington Heights	7	...	...	3	...	...	...	...	...
28. Banister River WMAs	10	...	...	...	...	...	...	...	...
29. Lynchburg	...	...	...	19	...	...	...	...	...
30. Danville	...	...	...	...	...	...	...	...	...
31. Calmes Neck	...	...	...	3	...	...	...	...	...
32. N. Shenandoah Valley	12	...	1	8	1	...	...	...	...
33. Shenandoah NP- Luray	...	...	...	5	...	...	...	...	...
34. Big Flat Mountain	...	...	...	...	...	...	...	...	...
35. Rockingham County	...	...	CW	...	...	...	...	...	...
36. Augusta County	...	...	...	...	1	...	...	...	...
37. Waynesboro	...	...	...	...	...	...	...	...	...
38. Lexington	...	...	2	1	2	...	...	...	...
39. Peaks of Otter	...	...	...	3	...	...	...	...	...
40. Fincastle	...	...	...	1	...	...	...	...	...
41. Roanoke	...	...	2	7	1	...	...	...	...
42. Blacksburg	...	...	...	14	...	...	...	...	...
43. Giles County	...	...	...	1	...	...	...	...	...
44. Tazewell	...	...	...	3	...	...	...	...	...
45. Mount Rogers-Whitetop	...	...	...	...	...	...	...	...	...
46. Glade Spring	...	...	...	1	...	...	...	...	...
47. Blackford	...	...	1	70	6	...	...	...	...
48. Bristol	1	...	12	27	12	...	3	...	...
49. Breaks Interstate Park	...	...	...	2	...	...	...	...	...
50. Wise County	...	...	...	1	...	...	...	...	...
Totals	81	1,129	643	683	287	3	4	5,032	729

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Double-crested Cormorant	Great Cormorant	American Bittern	Great Blue Heron (Blue form)	Great Egret	Snowy Egret	Little Blue Heron	Tricolored Heron	Black-crowned Night-Heron
1. Chincoteague	...	...	2	90	116	28	5	1	4
2. Wachapreague	4	...	...	47	2	...	...	...	...
3. Nassawadox	5	...	1	38	9	...	...	...	2
4. Cape Charles	92	16	2	73	6	2	4	12	...
5. Chesapeake Bay	4	45	...	...	...	...	...	...	...
6. Little Creek	2,130	6	1	112	67	7	...	1	9
7. Back Bay	330	...	2	26	12	1	...	2	...
8. Nansemond River	387	...	...	21	10	...	...	...	...
9. Dismal Swamp NWR	...	...	...	33	...	...	...	...	...
10. Newport News	590	...	...	82	72	...	...	...	6
11. Mathews County	...	...	...	55	...	...	...	...	...
12. Williamsburg	681	...	...	65	...	...	...	...	...
13. Hopewell	1,029	...	...	92	...	...	...	...	...
14. Walkerton	17	...	...	45	...	...	...	...	...
15. Washingtons Birthplace	314	...	...	24	...	...	...	...	...
16. Brooke	113	...	...	59	1	...	...	...	...
17. Fort Belvoir	42	...	...	227	1	...	...	...	...
18. Central Loudoun Co.	...	...	...	32	...	...	...	...	...
19. The Plains	1	...	...	12	...	...	...	...	...
20. Manassas-Bull Run	...	...	...	16	...	...	...	...	...
21. Nokesville	...	...	...	6	...	...	...	...	...
22. Chancellorsville	...	...	...	3	...	...	...	...	...
23. Lake Anna	1	...	...	13	...	...	...	...	...
24. Gordonsville	1	...	...	10	...	...	...	...	...
25. Charlottesville	...	...	...	20	...	...	...	...	...
26. Warren	...	...	...	9	...	...	...	...	...
27. Darlington Heights	...	...	...	3	...	...	...	...	...
28. Banister River WMAs	...	...	...	14	...	...	...	...	...
29. Lynchburg	...	...	...	17	...	...	...	...	...
30. Danville	...	...	...	1	...	...	...	...	...
31. Calmes Neck	...	...	...	32	...	...	...	...	...
32. N. Shenandoah Valley	2	...	...	61	...	...	...	...	...
33. Shenandoah NP- Luray	...	...	...	10	...	...	...	...	3
34. Big Flat Mountain	...	...	...	1	...	...	...	...	...
35. Rockingham County	...	...	...	12	...	...	...	...	...
36. Augusta County	...	...	...	11	...	...	...	...	...
37. Waynesboro	...	...	...	7	...	...	...	...	...
38. Lexington	...	...	...	17	...	...	...	...	...
39. Peaks of Otter	...	...	...	...	...	...	...	...	...
40. Fincastle	...	...	...	10	...	...	...	...	...
41. Roanoke	...	...	...	18	...	...	...	...	...
42. Blacksburg	...	...	...	23	...	...	...	...	...
43. Giles County	...	...	...	10	...	...	...	...	...
44. Tazewell	...	...	...	14	...	...	...	...	...
45. Mount Rogers-Whitetop	...	...	...	1	...	...	...	...	...
46. Glade Spring	...	...	...	17	...	...	...	...	...
47. Blackford	...	...	...	20	...	...	...	...	...
48. Bristol	...	...	...	34	...	...	...	...	2
49. Breaks Interstate Park	...	...	...	10	...	...	...	...	...
50. Wise County	...	...	...	2	...	...	...	...	...
Totals	5,743	67	8	1,555	296	38	9	16	26

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	White Ibis	Black Vulture	Turkey Vulture	Osprey	Bald Eagle	bald eagle, age	Northern Harrier	Sharp-shinned Hawk
1. Chincoteague	1	62	271	...	21	14a, 7i	25	10
2. Wachapreague	...	50	214	1	31	13a, 6i, 12u	24	5
3. Nassawadox	...	73	158	...	10	10u	36	18
4. Cape Charles	2	133	171	...	21	21u	39	9
5. Chesapeake Bay	11	...	...	...	...	...
6. Little Creek	...	9	38	4	3	2a, 1i	3	14
7. Back Bay	50	49	111	2	7	6a, 1i	33	8
8. Nansemond River	...	14	63	1	14	8a, 6i	4	5
9. Dismal Swamp NWR	...	120	188	...	37	37u	1	8
10. Newport News	...	37	42	2	16	13a, 3i	7	16
11. Mathews County	...	67	100	...	14	12a, 2i	3	1
12. Williamsburg	...	105	168	2	36	19a, 17i	3	6
13. Hopewell	...	36	90	...	52	29a, 23i	13	8
14. Walkerton	...	99	288	...	66	40a, 26i	12	6
15. Washingtons Birthplace	...	178	170	...	168	104a, 57i, 7u	21	7
16. Brooke	...	118	69	...	28	18a, 10i	7	4
17. Fort Belvoir	...	186	152	...	86	54a, 32i	6	11
18. Central Loudoun Co.	...	79	331	...	18	9a, 9i	13	6
19. The Plains	...	65	247	...	15	8a, 7i	1	3
20. Manassas-Bull Run	...	62	144	...	1	1a	2	10
21. Nokesville	...	43	76	...	9	5a, 4i	1	...
22. Chancellorsville	...	18	71	...	4	4a	3	2
23. Lake Anna	...	56	30	...	7	5a, 2i	...	2
24. Gordonsville	...	37	15	...	2	1a, 1i	2	...
25. Charlottesville	...	96	307	...	1	1a	1	8
26. Warren	...	42	88	...	1	1a	1	3
27. Darlington Heights	...	73	151	...	...	...	8	1
28. Banister River WMAs	...	35	133	...	4	1a, 3i	5	4
29. Lynchburg	...	858	436	...	2	2a	1	8
30. Danville	...	3	3	...	...	...	...	1
31. Calmes Neck	...	75	179	...	15	7a, 8i	8	4
32. N. Shenandoah Valley	...	217	591	...	11	4a, 7i	10	6
33. Shenandoah NP- Luray	...	80	162	...	11	7a, 1i, 3u	3	3
34. Big Flat Mountain	...	3	10	...	3	3a	...	...
35. Rockingham County	...	17	511	...	3	3a	...	6
36. Augusta County	...	118	803	...	1	1a	5	5
37. Waynesboro	...	67	168	...	...	...	1	2
38. Lexington	...	29	144	...	2	2a	1	1
39. Peaks of Otter	...	2	7	...	...	...	...	...
40. Fincastle	...	158	318	...	...	...	2	4
41. Roanoke	...	98	167	...	1	1i	...	5
42. Blacksburg	...	374	64	...	...	...	...	2
43. Giles County	...	86	19	...	...	...	...	1
44. Tazewell	...	31	2	...	...	...	1	1
45. Mount Rogers-Whitetop	5	...	1	1i	...	...
46. Glade Spring	...	152	71	...	...	...	1	4
47. Blackford	...	74	3	...	...	...	...	2
48. Bristol	...	CW	4	...	1	1i	...	3
49. Breaks Interstate Park	...	48	98	...	...	...	...	2
50. Wise County	1	1
Totals	53	4,432	7,662	12	723	397a, 236i, 90u	308	236

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Cooper's Hawk	Northern Goshawk	Accipiter, sp.	Red-shouldered Hawk	Red-tailed Hawk	Rough-legged Hawk	Buteo, sp.	Golden Eagle	golden eagle, age
1. Chincoteague	4	...	...	4	13	...	...	...	...
2. Wachapreague	3	...	...	...	14	...	...	...	...
3. Nassawadox	8	...	...	4	32	...	...	...	...
4. Cape Charles	6	...	...	...	23	...	...	...	...
5. Chesapeake Bay	...	...	...	...	...	...	...	...	...
6. Little Creek	5	...	...	1	21	...	...	...	...
7. Back Bay	5	...	...	9	22	...	...	...	...
8. Nansemond River	3	...	...	2	18	...	...	...	...
9. Dismal Swamp NWR	4	...	...	13	13	...	...	...	...
10. Newport News	7	...	...	2	25	...	1	...	...
11. Mathews County	4	...	...	11	13	...	...	...	...
12. Williamsburg	4	...	...	10	18	...	...	...	...
13. Hopewell	6	...	...	14	21	...	...	...	...
14. Walkerton	3	...	...	23	35	...	...	...	...
15. Washingtons Birthplace	2	...	...	16	17	...	...	...	...
16. Brooke	2	...	...	23	10	...	...	...	...
17. Fort Belvoir	15	...	1	67	61	...	...	...	...
18. Central Loudoun Co.	13	...	1	113	109	1	...	...	...
19. The Plains	2	...	...	63	58	1	...	...	...
20. Manassas-Bull Run	3	...	1	35	30	...	...	...	...
21. Nokesville	...	...	1	35	28	...	1	...	...
22. Chancellorsville	...	...	...	7	5	...	...	...	...
23. Lake Anna	...	...	...	3	5	...	...	...	...
24. Gordonsville	...	...	...	5	14	...	...	...	...
25. Charlottesville	2	...	...	17	36	...	...	...	...
26. Warren	1	...	...	8	29	...	...	...	...
27. Darlington Heights	2	...	...	8	18	...	...	...	...
28. Banister River WMAs	CW	...	...	4	19	...	...	...	...
29. Lynchburg	5	...	...	3	30	...	...	...	...
30. Danville	...	...	...	2	5	...	...	...	...
31. Calmes Neck	8	...	...	67	126	1	...	1	1a
32. N. Shenandoah Valley	12	CW	...	30	146	1	...	CW	...
33. Shenandoah NP- Luray	4	...	1	2	17	...	...	...	...
34. Big Flat Mountain	...	1	...	2	5	...	...	...	...
35. Rockingham County	10	...	...	...	35	...	...	...	...
36. Augusta County	2	...	...	...	53	...	...	...	...
37. Waynesboro	3	...	...	14	60	...	...	...	...
38. Lexington	5	...	1	7	30	1	...	...	...
39. Peaks of Otter	...	...	...	...	10	...	...	1	1a
40. Fincastle	6	...	...	3	38	...	...	...	...
41. Roanoke	4	...	...	1	1	...	...	...	...
42. Blacksburg	4	...	...	1	29	1	...	...	...
43. Giles County	2	...	...	2	16	...	...	...	...
44. Tazewell	2	...	...	2	18	...	...	...	...
45. Mount Rogers-Whitetop	...	...	...	...	9	...	...	...	...
46. Glade Spring	4	...	...	1	25	...	...	...	...
47. Blackford	3	...	...	1	30	1	...	10	1a, 5i, 4u
48. Bristol	9	...	...	1	26	...	...	...	...
49. Breaks Interstate Park	1	...	...	6	3	...	...	...	...
50. Wise County	1	...	...	4	5	...	...	...	...
Totals	189	1	6	646	1,424	7	2	12	3a, 5i, 4u

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	hawk sp.	American Kestrel	Merlin	Peregrine Falcon	Yellow Rail	Clapper Rail	King Rail	Virginia Rail	Sora	American Coot
1. Chincoteague	...	6	2	2	...	3	...	...	...	3
2. Wachapreague	...	28	...	2	1	2	...	...	...	...
3. Nassawadox	...	25	4	3	...	6	...	...	...	...
4. Cape Charles	...	19	1	3	...	27	...	...	...	5
5. Chesapeake Bay	1	...	...	...	...	...	...	...
6. Little Creek	...	5	...	...	...	36	...	...	...	18
7. Back Bay	...	25	1	...	1	...	4	10	1	14
8. Nansemond River	...	6	...	2	...	8	...	...	...	240
9. Dismal Swamp NWR	...	4	...	...	...	...	...	...	...	...
10. Newport News	1	11	...	...	...	1	...	...	...	22
11. Mathews County	...	6	1	...	...	1	...	...	...	...
12. Williamsburg	...	7	...	...	...	CW	...	CW	...	11
13. Hopewell	...	18	1	2	...	...	...	...	...	52
14. Walkerton	...	10	...	1	...	...	...	...	...	628
15. Washingtons Birthplace	...	6	...	...	...	...	...	...	...	CW
16. Brooke	...	2	1	...	...	...	...	...	...	5,001
17. Fort Belvoir	...	9	3	...	...	...	...	...	...	8,241
18. Central Loudoun Co.	...	28	...	...	...	...	...	...	...	...
19. The Plains	...	10	1	...	...	...	...	...	...	1
20. Manassas-Bull Run	...	2	...	...	...	...	...	...	...	...
21. Nokesville	...	15	...	...	...	...	...	...	...	...
22. Chancellorsville	389
23. Lake Anna	...	3	...	...	...	...	...	...	...	5
24. Gordonsville	...	5	...	...	...	...	...	...	...	...
25. Charlottesville	...	7	1	...	...	...	...	...	...	...
26. Warren	...	13	...	...	...	...	...	...	...	...
27. Darlington Heights	...	14	...	...	...	...	...	...	...	...
28. Banister River WMAs	...	5	...	...	...	...	...	...	...	...
29. Lynchburg	...	3	...	...	...	...	...	...	...	11
30. Danville	1	1	...	...	...	...	...	...	...	...
31. Calmes Neck	...	33	...	1	...	...	...	...	...	15
32. N. Shenandoah Valley	...	44	...	...	...	...	...	...	...	7
33. Shenandoah NP- Luray	...	24	...	2	...	...	...	...	...	...
34. Big Flat Mountain
35. Rockingham County	...	37	1	1	...	...	...	...	...	...
36. Augusta County	...	24	...	...	...	...	...	...	...	...
37. Waynesboro	...	19	...	...	...	...	...	...	...	1
38. Lexington	...	9	...	...	...	...	...	...	...	...
39. Peaks of Otter
40. Fincastle	...	16	1	...	...	...	...	...	...	...
41. Roanoke	1	2	1	...	...	...	...	...	...	1
42. Blacksburg	...	17	...	...	...	...	...	...	...	2
43. Giles County	...	5	...	...	...	...	...	...	...	5
44. Tazewell	...	9	...	...	...	...	...	...	...	1
45. Mount Rogers-Whitetop	...	5	...	...	...	...	...	...	...	...
46. Glade Spring	...	29	...	...	...	...	...	...	...	2
47. Blackford	...	13	...	...	...	...	...	...	...	102
48. Bristol	...	28	...	...	...	...	...	...	...	22
49. Breaks Interstate Park	...	1	...	1	...	...	...	...	...	5
50. Wise County	...	3	...	...	...	...	...	...	...	...
Totals	3	611	20	20	2	84	4	10	1	14,804

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Black-bellied Plover	Semipalmated Plover	Killdeer	American Oystercatcher	Spotted Sandpiper	Greater Yellowlegs	Willet	Lesser Yellowlegs	Whimbrel
1. Chincoteague	5	37	11	56	...	185	60	50	...
2. Wachapreague	65	1	27	45	...	37	15	18	...
3. Nassawadox	288	6	61	66	...	65	190	...	...
4. Cape Charles	1,192	129	19	164	...	65	325	8	5
5. Chesapeake Bay
6. Little Creek	1	1	1	27	1	11	14	...	...
7. Back Bay	10	...	104	...	...	44	...	1	...
8. Nansemond River	...	6	39	...	...	...	...	...	...
9. Dismal Swamp NWR	74	...	...	...	...	...	...
10. Newport News	10	...	86	...	...	9	...	12	...
11. Mathews County	8	...	32	...	...	5	...	...	...
12. Williamsburg	44	...	...	8	...	1	...
13. Hopewell	151	...	...	...	1	...	...
14. Walkerton	164	...	...	55	...	3	...
15. Washingtons Birthplace	62	...	...	...	...	...	...
16. Brooke	14	...	...	...	...	...	...
17. Fort Belvoir	59	...	...	14	...	...	...
18. Central Loudoun Co.	7	...	...	...	...	...	...
19. The Plains	7	...	...	...	...	...	...
20. Manassas-Bull Run	36	...	...	...	...	...	...
21. Nokesville	26	...	...	...	...	...	...
22. Chancellorsville
23. Lake Anna	20	...	...	...	...	...	...
24. Gordonsville	1	...	...	...	...	...	...
25. Charlottesville
26. Warren	1	...	...	...	...
27. Darlington Heights	8	...	...	...	...	...	...
28. Banister River WMAs	38	...	...	...	...	...	...
29. Lynchburg	10	...	...	...	...	...	...
30. Danville
31. Calmes Neck	9	...	...	...	...	...	...
32. N. Shenandoah Valley	25	...	...	...	...	...	...
33. Shenandoah NP- Luray
34. Big Flat Mountain
35. Rockingham County
36. Augusta County	3	...	...	...	...	...	...
37. Waynesboro	5	...	...	...	...	...	...
38. Lexington	5	...	...	...	...	...	...
39. Peaks of Otter
40. Fincastle
41. Roanoke	7	...	...	...	...	...	...
42. Blacksburg	66	...	...	...	...	...	...
43. Giles County
44. Tazewell	19	...	...	...	...	...	...
45. Mount Rogers-Whitetop
46. Glade Spring	2	...	...	...	...	...	...
47. Blackford
48. Bristol	55	...	...	...	...	...	...
49. Breaks Interstate Park
50. Wise County
Totals	1,579	180	1,297	358	2	498	605	93	5

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Marbled Godwit	Ruddy Turnstone	Red Knot	Sanderling	Western Sandpiper	Least Sandpiper	Purple Sandpiper	Dunlin	peep. sp.
1. Chincoteague	37	3	...	384	25	5	...	4,298	400
2. Wachapreague	3	30	29	25	15	7	...	2,040	...
3. Nassawadox	193	18	...	2	24	5	...	347	...
4. Cape Charles	16	77	11	152	33	5	2	2,859	...
5. Chesapeake Bay	...	12	...	...	...	...	50	...	...
6. Little Creek	...	30	...	263	...	...	8	270	...
7. Back Bay	359	3	...	...	52	...
8. Nansemond River	32	...	...	...	154	...
9. Dismal Swamp NWR
10. Newport News	...	12	...	67	...	...	...	222	...
11. Mathews County	...	5	...	82	...	...	...	173	...
12. Williamsburg
13. Hopewell	2	...	...	...
14. Walkerton	5	...
15. Washingtons Birthplace
16. Brooke
17. Fort Belvoir
18. Central Loudoun Co.
19. The Plains
20. Manassas-Bull Run
21. Nokesville
22. Chancellorsville
23. Lake Anna
24. Gordonsville
25. Charlottesville
26. Warren
27. Darlington Heights
28. Banister River WMAs
29. Lynchburg
30. Danville
31. Calmes Neck
32. N. Shenandoah Valley
33. Shenandoah NP- Luray
34. Big Flat Mountain
35. Rockingham County
36. Augusta County
37. Waynesboro
38. Lexington
39. Peaks of Otter
40. Fincastle
41. Roanoke
42. Blacksburg
43. Giles County
44. Tazewell
45. Mount Rogers-Whitetop
46. Glade Spring
47. Blackford
48. Bristol
49. Breaks Interstate Park
50. Wise County
Totals	249	187	40	1,366	100	24	60	10,420	400

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	sandpiper, sp.	Short-billed Dowitcher	Long-billed Dowitcher	Wilson's Snipe	American Woodcock	shorebird, sp.	Laughing Gull	Little Gull	Black-headed Gull	Bonaparte's Gull
1. Chincoteague	...	8	...	2	7	...	...	...	...	38
2. Wachapreague	...	12	...	1	2	...	...	...	...	5
3. Nassawadox	...	31	...	11	2	...	...	...	...	5
4. Cape Charles	200	314	...	3	32	...	...	...	...	107
5. Chesapeake Bay	15	2	...	2000
6. Little Creek	2	...	...	4	...	1	816
7. Back Bay	1	62	4	...	4	...	...	77
8. Nansemond River	1	...	...	1	...	...	25
9. Dismal Swamp NWR	4	...	3,000	...	...	...
10. Newport News	1	...	...	1
11. Mathews County	4	...	...	...	...	15
12. Williamsburg	5	CW	...	10	...	...	38
13. Hopewell	10	2	12	1,402	...	...	6
14. Walkerton	71	6	...	...	...	...	...
15. Washingtons Birthplace	9	1	...	...	...	...	...
16. Brooke	5	...	...	29	...	...	1
17. Fort Belvoir	23	10	...	140	...	...	5
18. Central Loudoun Co.
19. The Plains	14	...	...	...	...	...	...
20. Manassas-Bull Run	2	...	...	...	...	...	...	...	...	...
21. Nokesville	1	...	...	...	...	...
22. Chancellorsville	1	...	...	...	...	...	...
23. Lake Anna	31
24. Gordonsville	2	...	...	...	...	...
25. Charlottesville
26. Warren	1	...	...	...	...	...
27. Darlington Heights
28. Banister River WMAs	6	...	...	130
29. Lynchburg
30. Danville
31. Calmes Neck	1	...	...	8	...	...	...	...	...	...
32. N. Shenandoah Valley	8	...	...	...	...	...	...
33. Shenandoah NP- Luray	17	...	...	...	...	...	...
34. Big Flat Mountain
35. Rockingham County	4	...	...	...	...	...	...
36. Augusta County	1	...	...	...	...	...	...
37. Waynesboro	5	1	...	...	...	...	...
38. Lexington	10	...	...	...	...	...	...
39. Peaks of Otter
40. Fincastle	2	...	...	...	...	...	...
41. Roanoke	6
42. Blacksburg	3	...	...	1	...	...	...
43. Giles County
44. Tazewell
45. Mount Rogers-Whitetop
46. Glade Spring	CW	...	...	...	...	...	...
47. Blackford	3	...	...	...	...	...	...
48. Bristol	5	1	...	...	...	...	...
49. Breaks Interstate Park
50. Wise County
Totals	203	365	1	286	80	12	4,613	2	1	3,306

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Ring-billed Gull	Herring Gull	Thayer's Gull	Iceland Gull	Lesser Black-backed Gull	Glaucous Gull	Great Black-backed Gull	gull, sp.	Forster's Tern	Parasitic Jaeger
1. Chincoteague	455	634	...	...	1	...	247	...	78	...
2. Wachapreague	686	758	...	...	...	...	53	20	1	...
3. Nassawadox	143	455	...	...	2	...	22	...	...	...
4. Cape Charles	898	880	...	...	1	...	685	...	18	...
5. Chesapeake Bay	450	250	...	...	3	...	60	...	8	1
6. Little Creek	5,240	740	...	1	13	...	287	...	179	...
7. Back Bay	1,955	148	...	...	76	...	118	...	197	...
8. Nansemond River	3,072	742	1	...	1	1	78	800	7	...
9. Dismal Swamp NWR	3,000	2,000	...	...	5	...	400	...	...	...
10. Newport News	1,877	207	...	...	...	...	530	26	18	...
11. Mathews County	1,092	105	...	...	...	...	107	...	175	...
12. Williamsburg	633	19	...	...	...	...	40	...	87	...
13. Hopewell	14,388	462	...	...	CW	...	227	...	18	...
14. Walkerton	909	4	...	...	...	...	...	...	...	...
15. Washingtons Birthplace	1,154	15	...	...	...	...	14	...	6	...
16. Brooke	1,605	32	...	...	...	...	11	...	23	...
17. Fort Belvoir	4,135	1,149	...	...	CW	...	216	2,782	2	...
18. Central Loudoun Co.	1,109	77	...	...	...	...	2	...	...	...
19. The Plains	252	5	...	...	1	...	...	...	...	...
20. Manassas-Bull Run	888	3	...	...	...	...	...	20	...	...
21. Nokesville	2,014	750	...	CW	2	...	18	...	...	...
22. Chancellorsville	23	...	...	...	...	...	...	...	...	...
23. Lake Anna	484	560	...	...	1	...	86	...	...	...
24. Gordonsville	...	...	...	...	...	...	...	...	...	...
25. Charlottesville	...	...	...	...	...	...	...	...	...	...
26. Warren	...	...	...	...	...	...	...	...	...	...
27. Darlington Heights	39	...	...	...	...	...	...	...	...	...
28. Banister River WMAs	357	2	...	...	...	...	...	...	...	...
29. Lynchburg	381	...	...	...	...	...	...	1	...	...
30. Danville	...	...	...	...	...	...	...	...	...	...
31. Calmes Neck	1	...	...	...	...	...	...	...	...	...
32. N. Shenandoah Valley	19	26	...	...	...	...	...	...	...	...
33. Shenandoah NP- Luray	...	...	...	...	...	...	...	...	...	...
34. Big Flat Mountain	...	...	...	...	...	...	...	...	...	...
35. Rockingham County	2	...	...	...	...	...	...	...	...	...
36. Augusta County	1	...	...	...	...	...	...	...	...	...
37. Waynesboro	...	...	...	...	...	...	...	...	...	...
38. Lexington	...	...	...	...	...	...	...	...	...	...
39. Peaks of Otter	...	...	...	...	...	...	...	...	...	...
40. Fincastle	21	...	...	...	...	...	...	...	...	...
41. Roanoke	221	...	...	...	...	...	...	...	...	...
42. Blacksburg	1,444	3	...	...	...	...	...	...	...	...
43. Giles County	460	...	...	...	...	...	...	...	...	...
44. Tazewell	...	...	...	...	...	...	...	...	...	...
45. Mount Rogers-Whitetop	...	...	...	...	...	...	...	...	...	...
46. Glade Spring	...	...	...	...	...	...	...	...	...	...
47. Blackford	...	...	...	...	...	...	...	...	...	...
48. Bristol	820	2	...	...	...	...	...	...	...	...
49. Breaks Interstate Park	...	...	...	...	...	...	...	...	...	...
50. Wise County	...	...	...	...	...	...	...	...	...	...
Totals	50,228	10,028	1	1	106	1	3,201	3,649	817	1

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Rock Pigeon	Eurasian Collared-Dove	Mourning Dove	Barn Owl	Eastern Screech-Owl	Great Horned Owl	Barred Owl	Long-eared Owl	Short-eared Owl	Northern Saw-whet Owl
1. Chincoteague	183	...	294	...	15	2	3	...	...	2
2. Wachapreague	160	...	285	...	1	1	...	...	1	...
3. Nassawadox	57	...	738	...	1	1	...	...	...	...
4. Cape Charles	512	7	396	...	9	10	...	2	...	...
5. Chesapeake Bay	...	...	...	...	...	...	...	...	...	...
6. Little Creek	1,020	3	241	...	12	6	2	...	...	...
7. Back Bay	153	3	232	...	4	4	1	...	...	...
8. Nansemond River	184	...	302	3	...	1	...	...	...	...
9. Dismal Swamp NWR	37	...	215	...	18	4	19	...	...	...
10. Newport News	774	...	895	...	CW	5	...	...	...	...
11. Mathews County	2	...	334	...	...	1	...	...	...	...
12. Williamsburg	182	...	270	...	1	3	1	...	...	...
13. Hopewell	182	...	719	...	1	1	3	...	...	...
14. Walkerton	3	...	891	...	2	7	7	...	...	...
15. Washingtons Birthplace	10	...	344	3	5	4	...	...	1	...
16. Brooke	27	...	254	...	...	...	...	...	...	...
17. Fort Belvoir	796	...	1,238	...	16	28	22	1	...	1
18. Central Loudoun Co.	363	...	1,197	1	7	5	20	...	...	...
19. The Plains	170	...	116	...	3	...	2	1	...	...
20. Manassas-Bull Run	232	...	361	...	...	2	...	...	...	...
21. Nokesville	140	...	308	1	1	2	2	...	...	...
22. Chancellorsville	30	...	79	...	1	2	...	...	...	...
23. Lake Anna	2	...	81	...	1	1	...	...	...	...
24. Gordonsville	66	...	73	2	...	...	...	...	...	...
25. Charlottesville	308	...	363	...	1	1	1	...	...	...
26. Warren	62	...	266	...	1	7	...	...	...	...
27. Darlington Heights	29	...	215	1	2	4	...	...	...	...
28. Banister River WMAs	29	...	112	...	2	9	3	...	...	...
29. Lynchburg	216	...	246	...	11	5	1	...	...	1
30. Danville	69	...	83	...	...	2	...	...	...	...
31. Calmes Neck	843	...	847	1	15	10	11	...	...	1
32. N. Shenandoah Valley	799	...	2,382	2	25	3	1	1	...	...
33. Shenandoah NP- Luray	242	...	208	...	7	1	1	...	...	...
34. Big Flat Mountain	...	...	...	...	1	3	1	...	...	...
35. Rockingham County	682	...	779	...	5	1	...	...	...	...
36. Augusta County	351	...	480	2	CW	1	1	...	1	...
37. Waynesboro	237	...	465	2	1	1	1	1	...	...
38. Lexington	377	...	370	...	12	1	1	...	...	...
39. Peaks of Otter	...	...	1	...	2	...	...	...	...	...
40. Fincastle	215	...	418	...	2	1	...	...	...	...
41. Roanoke	864	...	385	...	5	2	...	...	...	...
42. Blacksburg	415	56	981	1	14	4	4	...	...	...
43. Giles County	18	...	72	...	1	...	2	...	...	...
44. Tazewell	288	...	78	...	...	...	...	...	...	...
45. Mount Rogers-Whitetop	78	...	176	...	...	...	1	...	...	...
46. Glade Spring	498	...	749	1	7	7	1	...	...	...
47. Blackford	143	...	261	...	4	1	...	...	...	...
48. Bristol	631	...	416	...	11	10	...	...	...	...
49. Breaks Interstate Park	89	...	163	...	2	1	1	...	...	...
50. Wise County	120	...	56	...	1	...	...	...	...	...
Totals	12,888	69	20,435	20	230	165	113	6	3	5

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Black-chinned Hummingbird	Rufous Hummingbird	hummingbird, sp.	Belted Kingfisher	Red-headed Woodpecker	Red-bellied Woodpecker	Yellow-bellied Sapsucker	Downy Woodpecker	Hairy Woodpecker	Northern (Yellow-shafted) Flicker
1. Chincoteague	32	1	15	6	27	13	103
2. Wachapreague	17	...	19	8	16	1	69
3. Nassawadox	18	1	43	2	24	12	119
4. Cape Charles	20	1	14	3	18	4	67
5. Chesapeake Bay
6. Little Creek	26	3	46	10	39	5	35
7. Back Bay	30	...	51	9	25	6	62
8. Nansemond River	12	...	36	12	16	9	36
9. Dismal Swamp NWR	12	5	73	16	56	29	55
10. Newport News	25	...	35	7	22	3	31
11. Mathews County	22	...	71	14	27	2	59
12. Williamsburg	27	21	69	26	35	12	92
13. Hopewell	26	24	90	46	71	16	260
14. Walkerton	23	25	53	20	44	19	185
15. Washingtons Birthplace	14	4	54	21	25	16	90
16. Brooke	35	25	91	14	54	14	61
17. Fort Belvoir	55	12	530	39	387	72	326
18. Central Loudoun Co.	23	17	226	51	159	41	148
19. The Plains	8	3	72	16	41	4	51
20. Manassas-Bull Run	10	3	126	9	104	23	131
21. Nokesville	2	2	50	13	28	6	29
22. Chancellorsville	8	5	85	10	42	8	40
23. Lake Anna	9	4	10	3	14	4	12
24. Gordonsville	4	...	10	2	10	2	17
25. Charlottesville	23	...	117	34	78	11	93
26. Warren	8	1	67	33	60	9	52
27. Darlington Heights	12	1	38	22	31	8	22
28. Banister River WMAs	4	9	26	13	11	1	22
29. Lynchburg	1	2	...	17	5	98	29	66	13	41
30. Danville	1	2	17	5	15	4	15
31. Calmes Neck	28	39	211	105	213	24	135
32. N. Shenandoah Valley	1	65	28	188	66	199	28	179
33. Shenandoah NP- Luray	5	...	22	6	17	2	15
34. Big Flat Mountain	1	...	15	6	5	8	7
35. Rockingham County	5	1	44	3	48	4	14
36. Augusta County	16	...	28	7	20	...	16
37. Waynesboro	6	...	68	14	52	12	53
38. Lexington	13	...	47	15	43	12	39
39. Peaks of Otter	2	...	28	18	33	8	12
40. Fincastle	13	...	23	10	38	3	36
41. Roanoke	13	...	27	14	38	5	8
42. Blacksburg	24	3	69	15	97	16	29
43. Giles County	15	...	21	1	37	8	16
44. Tazewell	9	...	8	1	11	1	13
45. Mount Rogers-Whitetop	4	...	4	2	5	1	7
46. Glade Spring	15	...	34	8	33	5	10
47. Blackford	12	...	15	...	36	7	15
48. Bristol	20	...	29	11	43	14	26
49. Breaks Interstate Park	16	...	8	4	14	5	21
50. Wise County	6	...	7	...	16	2	4
Totals	1	2	1	811	245	3,128	799	2,543	532	2,978

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Pileated Woodpecker	Eastern Phoebe	Loggerhead Shrike	White-eyed Vireo	Blue-headed Vireo	Blue Jay	American Crow	Fish Crow	crow, sp.	Common Raven
1. Chincoteague	8	1	...	...	...	31	180	5	...	...
2. Wachapreague	7	9	...	...	...	38	642	60	...	...
3. Nassawadox	15	21	...	...	...	23	519	...	...	...
4. Cape Charles	7	5	...	...	1	7	483	10	...	...
5. Chesapeake Bay	...	...	...	...	...	...	...	...	...	...
6. Little Creek	17	1	...	...	5	56	930	361	660	...
7. Back Bay	20	14	...	...	2	40	181	101	...	...
8. Nansemond River	...	1	...	...	2	71	149	44	130	...
9. Dismal Swamp NWR	39	8	...	...	6	36	5	2,002	...	...
10. Newport News	1	...	...	...	...	110	415	2	7	...
11. Mathews County	9	3	...	...	...	126	273	...	...	...
12. Williamsburg	18	5	...	...	...	100	196	...	...	...
13. Hopewell	26	21	...	1	...	126	209	...	16	...
14. Walkerton	36	10	...	...	...	59	540	...	...	...
15. Washingtons Birthplace	16	3	...	...	...	84	331	...	...	...
16. Brooke	24	6	...	...	...	274	536	2	...	...
17. Fort Belvoir	134	11	...	...	...	933	1,986	951	629	2
18. Central Loudoun Co.	58	3	CW	...	...	875	916	364	204	20
19. The Plains	9	...	1	...	...	313	376	3	...	15
20. Manassas-Bull Run	29	...	...	...	...	618	483	244	796	...
21. Nokesville	10	2	...	...	...	167	198	509	82	...
22. Chancellorsville	18	2	...	...	...	240	206	...	...	...
23. Lake Anna	6	1	...	...	...	69	131	1	...	...
24. Gordonsville	8	1	...	...	...	78	194	...	...	...
25. Charlottesville	33	10	...	...	...	380	740	3	...	6
26. Warren	36	4	...	...	...	264	406	2	...	6
27. Darlington Heights	26	13	...	...	...	187	583	...	...	1
28. Banister River WMAs	4	7	...	...	...	87	206	...	...	1
29. Lynchburg	32	12	...	...	...	511	604	14	...	16
30. Danville	3	...	...	1	...	74	73	...	...	...
31. Calmes Neck	66	4	...	...	...	647	701	3	9	18
32. N. Shenandoah Valley	52	6	1	...	...	1,469	1,735	...	...	5
33. Shenandoah NP- Luray	13	1	...	...	...	104	515	2	...	40
34. Big Flat Mountain	24	...	...	...	...	3	104	...	...	9
35. Rockingham County	13	3	...	...	...	149	346	2	2	1
36. Augusta County	2	2	...	...	...	161	897	54	...	2
37. Waynesboro	21	3	...	...	...	325	377	14	...	12
38. Lexington	23	8	...	...	...	453	1,149	5	...	8
39. Peaks of Otter	25	3	...	...	...	27	66	...	...	9
40. Fincastle	14	4	...	...	1	301	1,041	6	...	1
41. Roanoke	7	2	...	...	...	83	320	4	...	6
42. Blacksburg	30	13	...	...	...	213	958	...	...	9
43. Giles County	10	3	...	...	...	50	219	...	...	10
44. Tazewell	3	...	1	...	...	25	745	...	...	17
45. Mount Rogers-Whitetop	...	2	1	...	...	49	292	...	...	18
46. Glade Spring	13	19	9	...	...	127	257	...	...	4
47. Blackford	18	3	3	...	...	65	942	...	...	71
48. Bristol	25	15	4	...	...	240	1,241	...	...	3
49. Breaks Interstate Park	28	7	...	...	...	30	194	...	...	7
50. Wise County	8	1	...	...	...	45	720	...	...	7
Totals	1,044	273	20	2	17	10,543	25,510	4,768	2,535	324

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	Horned Lark	Tree Swallow	Cave Swallow	Barn Swallow	Carolina Chickadee	Black-capped Chickadee	chickadee, sp.	Tufted Titmouse	Red-breasted Nuthatch
1. Chincoteague	15	121	...	...	102	...	...	33	26
2. Wachapreague	...	29	...	...	86	...	...	17	34
3. Nassawadox	37	...	...	...	140	...	...	15	14
4. Cape Charles	5	69	...	...	90	...	...	20	17
5. Chesapeake Bay	...	...	...	...	...	...	...	...	...
6. Little Creek	...	408	1	...	209	...	...	64	26
7. Back Bay	1	876	...	1	156	...	...	26	16
8. Nansemond River	...	...	...	...	125	...	...	25	6
9. Dismal Swamp NWR	...	...	...	...	139	...	...	12	1
10. Newport News	...	1,002	...	...	117	...	...	57	2
11. Mathews County	...	...	...	...	144	...	...	36	15
12. Williamsburg	...	1	...	...	128	...	...	85	6
13. Hopewell	195	...	...	...	276	...	...	137	4
14. Walkerton	204	...	...	...	111	...	...	76	3
15. Washingtons Birthplace	677	...	...	...	84	...	...	70	8
16. Brooke	...	...	...	...	236	...	...	160	3
17. Fort Belvoir	...	...	...	...	1,223	...	...	860	33
18. Central Loudoun Co.	110	...	...	...	442	2	...	305	12
19. The Plains	...	...	...	...	157	...	...	99	10
20. Manassas-Bull Run	...	...	...	...	383	...	...	311	10
21. Nokesville	77	...	...	...	86	...	...	57	10
22. Chancellorsville	...	...	...	...	92	...	...	100	12
23. Lake Anna	...	...	...	...	34	...	...	31	22
24. Gordonsville	...	...	...	...	30	...	...	32	...
25. Charlottesville	2	...	...	...	228	...	...	159	21
26. Warren	165	...	...	...	143	...	...	67	9
27. Darlington Heights	...	...	...	...	71	...	...	61	13
28. Banister River WMAs	...	...	...	...	48	...	...	44	8
29. Lynchburg	...	...	...	...	222	...	...	216	20
30. Danville	...	...	...	...	43	...	...	33	6
31. Calmes Neck	...	...	...	...	538	2	...	412	5
32. N. Shenandoah Valley	25	...	...	...	666	37	...	344	24
33. Shenandoah NP- Luray	...	...	...	...	55	3	...	48	3
34. Big Flat Mountain	...	...	...	...	41	...	6	21	12
35. Rockingham County	231	...	...	...	114	2	...	53	4
36. Augusta County	52	...	...	...	73	...	...	71	2
37. Waynesboro	7	...	...	...	180	...	...	152	3
38. Lexington	...	...	...	...	79	21	41	101	14
39. Peaks of Otter	...	...	...	...	52	5	3	65	33
40. Fincastle	...	...	...	...	105	24	...	87	11
41. Roanoke	...	...	...	...	99	11	...	107	7
42. Blacksburg	305	...	...	...	240	10	40	220	23
43. Giles County	...	...	...	...	31	22	1	66	5
44. Tazewell	...	...	...	...	49	...	...	42	...
45. Mount Rogers-Whitetop	...	...	...	...	46	6	...	41	3
46. Glade Spring	...	...	...	...	110	...	...	76	...
47. Blackford	...	...	...	...	93	...	...	54	...
48. Bristol	...	...	...	...	174	...	...	12	4
49. Breaks Interstate Park	8	...	...	...	87	4	...	76	3
50. Wise County	22	...	...	...	102	...	...	59	4
Totals	2,138	2,506	1	1	8,279	149	91	5,315	527

Table 1. Species and Numbers of Individuals Seen (cont.)

Species	White-breasted Nuthatch	Brown-headed Nuthatch	Brown Creeper	Carolina Wren	House Wren	Winter Wren	Sedge Wren	Marsh Wren	Golden-crowned Kinglet	Ruby-crowned Kinglet
1. Chincoteague	5	32	4	71	2	7	3	2	39	24
2. Wachapreague	..	16	4	68	7	...	...	..	18	27
3. Nassawadox	..	20	6	128	2	6	...	1	61	43
4. Cape Charles	1	8	14	158	9	21	...	...	37	43
5. Chesapeake Bay	...	...	...	...	...	...	...	...	...	...
6. Little Creek	14	36	15	96	2	10	1	2	56	66
7. Back Bay	10	40	16	112	7	18	26	16	26	48
8. Nansemond River	4	10	3	51	3	2	1	1	33	34
9. Dismal Swamp NWR	41	3	8	68	...	28	...	...	51	128
10. Newport News	8	1	4	52	...	3	...	...	18	33
11. Mathews County	2	39	20	72	1	8	...	1	29	35
12. Williamsburg	35	9	1	101	1	5	...	2	60	64
13. Hopewell	40	...	11	143	4	45	...	...	64	155
14. Walkerton	26	...	4	104	...	13	...	...	40	39
15. Washingtons Birthplace	16	...	4	100	...	3	...	...	38	52
16. Brooke	80	...	7	124	1	2	...	...	15	37
17. Fort Belvoir	407	...	60	750	...	42	...	1	210	146
18. Central Loudoun Co.	271	...	16	155	...	3	...	...	29	35
19. The Plains	39	...	1	81	...	...	...	...	37	22
20. Manassas-Bull Run	141	...	11	129	...	6	...	...	29	16
21. Nokesville	29	...	10	44	...	1	...	...	20	7
22. Chancellorsville	52	...	5	62	...	...	...	...	47	19
23. Lake Anna	8	...	1	17	...	2	...	...	10	6
24. Gordonsville	22	...	1	9	...	...	...	...	2	1
25. Charlottesville	89	...	6	170	...	1	...	...	63	87
26. Warren	57	...	6	99	...	1	...	...	43	31
27. Darlington Heights	29	...	2	37	1	...	...	...	19	43
28. Banister River WMAs	16	6	2	26	...	2	...	...	11	22
29. Lynchburg	95	...	3	126	1	5	...	...	44	51
30. Danville	18	4	...	25	...	...	...	...	3	2
31. Calmes Neck	230	...	26	127	...	3	...	...	21	16
32. N. Shenandoah Valley	249	...	20	136	...	11	...	...	77	33
33. Shenandoah NP- Luray	41	...	2	38	...	1	...	...	12	10
34. Big Flat Mountain	13	...	5	15	...	9	...	...	92	1
35. Rockingham County	43	...	...	30	2	1	...	...	3	1
36. Augusta County	23	...	1	25	...	5	...	1	7	...
37. Waynesboro	73	...	1	66	...	2	...	...	31	10
38. Lexington	48	...	1	86	...	4	...	...	22	12
39. Peaks of Otter	66	...	2	36	...	1	...	...	37	9
40. Fincastle	39	...	...	46	...	2	...	...	7	3
41. Roanoke	46	...	5	74	...	4	...	...	24	7
42. Blacksburg	147	4	9	147	...	12	...	...	92	8
43. Giles County	54	...	2	59	...	3	...	...	22	4
44. Tazewell	14	...	1	25	...	...	...	...	5	...
45. Mount Rogers-Whitetop	15	...	...	33	...	...	...	...	9	1
46. Glade Spring	56	...	...	102	...	...	...	...	67	10
47. Blackford	23	...	...	55	...	3	...	...	13	1
48. Bristol	60	...	8	110	...	8	...	...	88	10
49. Breaks Interstate Park	47	...	13	38	...	5	...	...	25	3
50. Wise County	33	...	1	40	...	2	...	...	24	4
Totals	2,875	228	342	4,466	43	310	31	27	1,830	1,459

Table 2: Field Conditions

Field Data	Number of Feeder Observers	Hours at feeders	Hours Owling	Miles Owling	Date	Times (a.m.)	Times (p.m.)	Low temperatures	High temperatures
1. Chincoteague	...	...	4.50	19.50	12-29	0600	1700	10	50
2. Wachapreague	...	...	1.00	0.50	12-15	0700	1630	32	42
3. Nassawadox	...	...	1.25	2.25	12-16	0630	1730	45	61
4. Cape Charles	...	...	1.50	4.00	12-30	0530	1730	43	48
5. Chesapeake Bay	...	...	...	...	12-23	0700	1745	44	56
6. Little Creek	...	...	2.00	4.00	12-31	0530	1730	42	53
7. Back Bay	...	...	5.00	45.00	12-29	0400	1730	20	72
8. Nansemond River	...	...	1.50	0.50	1-2	0630	1700	29	42
9. Dismal Swamp NWR	...	...	...	...	12-19	0600	1700	29	43
10. Newport News	...	...	...	...	12-15	0600	1630	32	44
11. Mathews County	...	...	3.00	13.00	12-30	0400	1630	42	45
12. Williamsburg	...	...	...	...	12-16	0400	1700	42	48
13. Hopewell	2	6.00	1.00	10.00	12-16	0600	1715	35	51
14. Walkerton	...	...	3.75	30.00	12-30	0500	1730	44	48
15. Washingtons Birthplace	...	...	3.00	8.25	12-15	0530	1745	32	41
16. Brooke	...	...	...	...	12-14	0700	1700	38	51
17. Fort Belvoir	7	9.00	28.75	46.25	12-30	0400	1700	38	43
18. Central Loudoun Co.	...	...	11.50	48.00	12-28	0015	1800	30	48
19. The Plains	...	...	3.00	20.00	12-16	0500	1730	31	45
20. Manassas-Bull Run	...	...	...	...	12-16	0700	1700	33	45
21. Nokesville	...	...	1.50	15.00	1-4	0645	1715	12	35
22. Chancellorsville	...	...	6.00	19.00	12-29	0730	1715	46	55
23. Lake Anna	...	...	0.25	6.00	12-30	0630	1530	40	45
24. Gordonsville	2	1.00	...	...	12-30	0700	1700	39	41
25. Charlottesville	...	...	...	...	12-16	0600	1715	35	45
26. Warren	...	...	1.25	0.00	12-30	0700	1530	40	42
27. Darlington Heights	1	2.00	...	...	1-6	0700	1730	43	60
28. Banister River WMAs	1	5.00	3.50	10.00	12-16	0700	1700	30	45
29. Lynchburg	9	14.50	6.00	15.50	12-15	0545	1700	33	37
30. Danville	3	1.50	...	...	12-22	0800	1700	39	45
31. Calmes Neck	1	6.00	9.00	40.00	1-5	0500	1845	27	48
32. N. Shenandoah Valley	...	...	11.00	39.50	12-15	0500	1800	24	37
33. Shenandoah NP-Luray	2	UNK	...	...	12-16	0630	1730	30	41
34. Big Flat Mountain	...	...	3.00	5.50	12-27	0445	1830	34	54
35. Rockingham County	...	...	1.00	0.00	12-15	0600	2230	33	39
36. Augusta County	2	2.00	...	...	12-16	0700	1645	28	40
37. Waynesboro	2	2.75	3.50	23.00	1-5	0430	1730	23	52
38. Lexington	2	5.00	4.00	15.00	12-26	0515	1730	32	45
39. Peaks of Otter	...	...	1.00	4.00	12-18	0600	1500	25	35
40. Fincastle	...	...	2.00	2.00	12-16	0600	1800	30	45
41. Roanoke	...	...	...	...	12-15	0700	1730	34	42
42. Blacksburg	2	1.50	10.00	35.00	12-15	0300	1700	30	35
43. Giles County	...	...	1.50	5.00	12-28	0530	1700	43	53
44. Tazewell	1	5.00	...	...	12-28	0800	1730	15	40
45. Mount Rogers-Whitetop	1	0.50	1.00	11.00	12-29	0730	1730	37	47
46. Glade Spring	1	6.00	6.50	30.00	12-29	0600	1730	49	55
47. Blackford	...	...	8.00	45.00	12-29	0400	1745	39	51
48. Bristol	...	...	7.75	66.50	12-30	0715	1730	34	47
49. Breaks Interstate Park	1	1.00	2.00	1.00	12-15	0630	1700	20	40
50. Wise County	2	8.00	...	...	12-16	0700	1730	31	55
Totals	42	76.75	160.50	639.25	...	...	...	...	...

Table 2: Field Conditions (cont.)

Field Data	Wind Direction	Wind Speed (mph)	Ground Conditions	Water Conditions	A.M. Sky	P.M. Sky
1. Chincoteague	UNK	5-7	...	WOP	CLD, LGR	CLD, LGR
2. Wachapreague	NE	10-20	...	WOP	PCD	PCD
3. Nassawadox	W	10-45	...	WOP	CLD, LGR	PCD
4. Cape Charles	NE	15-25	...	WOP	CLD, HVR	CLD, LGR
5. Chesapeake Bay	UNK	UNK	...	WOP	PCD	PCD
6. Little Creek	NW	0-10	...	WOP	CLR	CLR
7. Back Bay	V	10-25	...	WOP	CLD, LGR	PCD
8. Nansemond River	NW	10-25	...	WOP	PCD	PCD, LSN
9. Dismal Swamp NWR	V	0-3	...	WOP	PCD	PCR
10. Newport News	NE	10-17	...	SPE, MWO	CLR	CLD
11. Mathews County	E	10-18	...	WOP	CLD, LGR	CLD, LGR
12. Williamsburg	NW	0-35	...	WOP	CLD, LGR	PCR
13. Hopewell	NW	5-40	...	WOP	CLD, LGR	PCD
14. Walkerton	E	4-10	...	WOP	CLD	CLD, LGR
15. Washingtons Birthplace	NE	2-15	...	WOP	PCD	CLD, LGR
16. Brooke	CALM	...	...	WOP	FOG	CLR
17. Fort Belvoir	NW	0-5	...	WOP	CLD	CLD, LGR
18. Central Loudoun Co.	SE	0-7	...	WOP	CLR	CLD
19. The Plains	NW	5-50	...	WOP	CLD, HVR	CLR
20. Manassas-Bull Run	NW	14-22	...	UNK	CLD, LHR	PCR
21. Nokesville	UNK	1-5	...	WPO	CLR	CLR
22. Chancellorsville	CALM	...	...	WOP	FOG	PCR
23. Lake Anna	V	0-10	...	WOP	PCD, LGR	CLD, HVR
24. Gordonsville	UNK	UNK	...	WOP	CLD	CLD, LGR
25. Charlottesville	UNK	5-30	...	WOP	PCD, LGR	PCD
26. Warren	UNK	UNK	...	WOP	CLD	CLD, LGR
27. Darlington Heights	W	4-6	...	SPE, MWO	MCD, ILR	MCD
28. Banister River WMAs	NW	5-30	...	WOP	CLD, LGR	CLR
29. Lynchburg	UNK	13	BARE	WOP	CLD	CLD, LGR
30. Danville	UNK	UNK	DRY	WOP	PCD	PCD
31. Calmes Neck	UNK	0-2	...	SPE, MWO	CLR	CLR
32. N. Shenandoah Valley	V	0-10	...	SPE, MWO	PCD	CLD, LGR
33. Shenandoah NP- Luray	V	0-30	0.5" SNO	SPE, MWO	CLD, HVR, LSN	PCD
34. Big Flat Mountain	SW	5-10	...	WOP	PCD, LGR	MCR
35. Rockingham County	SW	0-5	...	WOP	CLD	CLD
36. Augusta County	UNK	0-30	...	WOP	CLD	PCD
37. Waynesboro	UNK	0-8	...	WFZ	PCR	PCD
38. Lexington	V	0-12	...	WOP	CLR	CLR
39. Peaks of Otter	NW	2	FST	WOP	MCR	MCR
40. Fincastle	NW	10-20	...	WOP	PCR	PCR
41. Roanoke	V	1-7	OPEN	WOP	MCD	MCD
42. Blacksburg	E	0-10	...	WOP	CLD	CLD, LGR
43. Giles County	CALM	...	WET	SPE, MWO	PCD	PCD
44. Tazewell	SW	3-5	...	WOP	PCD	PCD
45. Mount Rogers-Whitetop	UNK	0-3	...	WOP	FOG, LGR	PCR
46. Glade Spring	V	0-15	...	WOP	CLD, LGR	PCD
47. Blackford	CALM	...	...	SWO, MPO	FOG	PCD
48. Bristol	W	0-10	...	WPF	CLD, LGR	CLD
49. Breaks Interstate Park	UNK	1-5	...	WOP	PCD	PCD
50. Wise County	NW	0-20	...	WOP	CLD	CLD

Table 3: Count Circle

Circle	Longitude-Latitude	Circle Center Locations	Primary Compiler	Compiler's E-mail
1. Chinoateague	3758°N 7522°W	2 miles north of center of Chinoateague in Accomack Co.	Richard Roberts	bandbird@verizon.net
2. Wachapreague	3740°N 7542°W	Jct. of Rts. 789 & 715 in Accomack Co.	Irvin Ailes	irvailes@verizon.net
3. Nassawadox	3743°N 7556°W	Rt. 13 half way between Nassawadox & Birdsnest, Northampton Co.	Henry Armistead	harryarmistead@hotmail.com
4. Cape Charles	3712°N 7556°W	1.5 miles southeast of Capeville Post Office in Northampton Co.	Henry Armistead	harryarmistead@hotmail.com
5. Chesapeake Bay	3705°N 7608°W	Northern 3 bridge-tunnel islands & adjacent waters out to 1 mile.	Ned Brinkley	phoebetria@aol.com
6. Little Creek	3651°N 7606°W	3.8 miles northeast of Kempsville in Virginia Beach.	Paul Sykes	paul_sykes@usgs.gov
7. Back Bay	3639°N 7600°W	1.5 miles east of Back Bay.	Paul Sykes	paul_sykes@usgs.gov
8. Nansemond River	3652°N 7626°W	Jct. of Rts. 17 & 626 in Pughsville, Suffolk	Robert Ake	rake@cox.net
9. Dismal Swamp NWR	3640°N 7629°W	Intersections of Middle & Jericho Ditches in Dismal Swamp NWR.	Don Schwab	vacanebrake@yahoo.com
10. Newport News	3705°N 7625°W	Northern corner of Magruder & Cmdr. Shepard blvds. in Hampton.	Hayes Williams	joycewms@imna.net
11. Mathews County	3725°N 7618°W	0.5 mile east of Beaverlett Post Office in Mathews Co.	John Bazuin, Jr.	bazuin.john@epamail.epa.gov
12. Williamsburg	3717°N 7642°W	Colonial Williamsburg Information Center in Williamsburg.	Bill Williams	jwwill2@wm.edu
13. Hopewell	3723°N 7717°W	Curles Neck in Henrico Co.	Arun Bose	arun.bose@verizon.net
14. Walkerton	3746°N 7702°W	1.5 miles southwest of Walkerton bridge, just west of Whitebank.	Fred Atwood	fredatwood@yahoo.com
15. Washingtons Birthplace	3807°N 7657°W	Horners in Westmoreland Co.	William Portlock	portlock@bealenet.com
16. Brooke	3822°N 7720°W	Center Road, 3 miles east southeast of Brooke in Stafford Co.	David Stewart	dstewart1@verizon.net
17. Fort Belvoir	3841°N 7712°W	Pohick Episcopal Church, Fort Belvoir, in eastern Fairfax Co.	Kurt Gaskill	kurtcap187@aol.com
18. Central Loudoun Co.	3906°N 7738°W	Near jct. of Rts. 704 & 769 in Loudoun Co.	Joseph Coleman	jandkcoleman@erols.com
19. The Plains	3848°N 7752°W	7 miles NW of Warrenton on west side of Watery Mt. in Fauquier Co.	Todd Day	blkvulture@aol.com
20. Manassas-Bull Run	3850°N 7726°W	Centreville in western Fairfax Co.	Robert Shipman	ships333@yahoo.com
21. Nokesville	3837°N 7733°W	Fleetwood Dr. (Rt. 611) at Cedar Run in Prince William Co.	Kim Hosen	kim@pwconserve.org
22. Chancellorsville	3816°N 7740°W	Chancellorsville Battlefield, 10 miles west of Fredericksburg.	Beverly J. Smith	catbirds@verizon.net
23. Lake Anna	3805°N 7749°W	Center of bridge over Lake Anna on Rt. 208.	Mike Boatwright	mboat@att.net
24. Gordonsville	3809°N 7812°W	Jct. of rts. 15 and 33 north of the town of Gordonsville in Orange Co.	Donald Ober	dobert@ns.gemlink.com
25. Charlottesville	3804°N 7834°W	Near Ivy in Albemarle County.	Jennifer Gaden	jgaden@butebooks.com
26. Warren	3751°N 7833°W	Keene in Albemarle County.	Allen Hale	super@butebooks.com
27. Darlington Heights	3712°N 7836°W	Jct. of Rts. 665 & 660 in Darlington Heights in Price Edward Co.	Carolyn Wells	cwells@kinex.net
28. Banister River WMAs	3643°N 7848°W	Banister River Wildlife Management Areas in Halifax Co.	Jeffrey Blalock	jcbabird@gronline.com
29. Lynchburg	3724°N 7911°W	Lynchburg College in Lynchburg.	Rexanne Bruno	bruno@lynchburg.edu
30. Danville	3634°N 7925°W	Ballou Park in Danville.	Laura Meder	laura.meder@averett.edu
31. Calmes Neck	3907°N 7754°W	Castleman's Ferry Bridge on Rt. 7 over Shenandoah River in Clarke Co.	Margaret Wester	margaretwester@hotmail.com
32. N. Shenandoah Valley	3903°N 7810°W	Jct. of Crooked Run & Rt. 606 in Frederick Co.	Rob Simpson	annrobsimpson@adelphia.com

Table 3: Count Circle (cont.)

Circle	Longitude-Latitude	Circle Center Locations	Primary Compiler	Compiler's E-mail
33. Shenandoah NP- Luray	3835'N 7828'W	Hersberger Hill near Stanley in Page Co.	Mary Willeford Bair	mary_willeford_bair@nps.gov
34. Big Flat Mountain	3811'N 7843'W	On Pasture Fence Mountain in Albemarle Co.	Tom Wiebolt	abdw@bev.net
35. Rockingham County	3826'N 7902'W	Ottobine in Rockingham Co.	Chuck Auckerman	aucker@aol.com
36. Augusta County	3812'N 7859'W	Jct. of Rts. 780 & 781 in Augusta Co.	John Spahr	Jspahr@yahoo.com
37. Waynesboro	3759'N 7857'W	Sherando at Jct. of Rts. 610 & 664 in Augusta Co.	Crista Cabe	ccabe@mbc.edu
38. Lexington	3751'N 7929'W	Big Spring Pond in Rockbridge Co.	Dick Rowe	rowera@vmi.edu
39. Peaks of Otter	3727'N 7936'W	Peaks of Otter Visitor Center in Bedford Co.	Barry Kinzie	peckerridge@ntelos.net
40. Fincastle	3731'N 7952'W	North of Fincastle near jct. of Rts. 220 & 679 in Botetourt Co.	Barry Kinzie	peckerridge@ntelos.net
41. Roanoke	3718'N 7956'W	Oakland Blvd. And Williamson Rd. in Roanoke.	Bill Hunley	whunley@cox.net
42. Blacksburg	3712'N 8028'W	Jct. Rt. 657 & Rt. 685 in Montgomery Co.	Patricia Polentz	polentz@va.net
43. Giles County	3719'N 8038'W	Pembroke in Giles Co.	Peggy Opengari	gramby@pemt1.net
44. Tazewell	3708'N 8130'W	Fourway in Tazewell Co.	Sarah Cromer	scromer@netscope.net
45. Mount Rogers-Whitetop	3639'N 8135'W	Jct. of Rts. 600 and 603 in Smyth Co.	Allen Boynton	allenboynton@hughes.net
46. Glade Spring	3647'N 8147'W	Jct. of Rts. 750 and 609 in Glade Spring.	Ronald Harrington	roncharrin@bvunet.net
47. Blackford	3700'N 8155'W	Confluence of the Clinch & Little rivers in Russell Co.	Robert Riggs	bebriding@jetbroadband.com
48. Bristol	3635'N 8206'W	Jct. Rts. 647 & 654, east of Bristol TN in Washington Co, VA.	Richard Lewis	mountainbirds@email.com
49. Breaks Interstate Park	3715'N 8213'W	4.5 miles NE of Haysi in Buchanan Co.	Terry Owens	terrybipvc@yahoo.com
50. Wise County	3657'N 8239'W	Dorchester in Norton City.	Randy Stanley	randy_stanley@comcast.net

THE 2008 VSO FORAY – BREEDING BIRDS OF RIPARIAN AREAS

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INTRODUCTION

The Virginia Society of Ornithology's (VSO) Forays have traditionally provided data on the distribution and abundance of breeding avian species for particular geographic areas of interest within Virginia. In the past two years the Forays have deviated from this approach by targeting specific species such as Northern Saw-whet Owl (*Aegolius acadicus*) or public land systems (Virginia state parks). The 2008 Foray continued this recent trend by focusing on breeding birds of forested riparian habitats over a broad geographic area. Currently there are no surveys in the Commonwealth that adequately capture data on breeding riparian birds. A number of surveys on public lands managed by state and federal agencies are targeted at individual species or at upland bird communities, including grassland and forest birds. These include surveys on National Forests, National Parks, National Refuges, state Wildlife Management Areas and Natural Area Preserves. However, survey effort is not sufficiently focused on riparian areas intersecting or abutting these lands to collect meaningful data for these habitats. The North American Breeding Bird Survey (BBS) yields data on population trends of landbird species across the United States and Canada, which are used by the avian conservation community at large in assessing the status of breeding bird populations. In Virginia, the BBS currently operates 70 routes distributed across the state. The BBS is effective in monitoring a large number of species associated with upland habitats. However, because it operates as a roadside survey, it does not adequately sample riparian and other wetland areas. As a result, species associated with these habitat types are generally underrepresented in BBS data. The 2008 Foray was designed to begin addressing the data gap that exists for riparian breeding birds by establishing a systematic survey along riparian corridors over a broad geographic area of Virginia. Its primary objective was the collection of data on the distribution and abundance of avian breeders associated with forested riparian areas in the Coastal Plain and Piedmont. The Foray is also unique in having been conducted as a boat-based survey. As such, it is one of the few systematic boat-based surveys of forest landbirds in North America to date. Only one other such survey was conducted in Virginia in the 1980s (Dana Bradshaw, personal communication). The boat-based approach served to maximize access to areas that are mostly in private ownership and that may not be connected to a road or trail system. By avoiding the traditional road-based survey approach, the Foray also sought to capture information on avian communities that

may be less impacted by habitat degradation related to roads and their associated disturbance. The survey also marks the first time that the Virginia Department of Game and Inland Fisheries (DGIF) and the VSO have cooperated on design and coordination of a Foray.

The Foray was conducted along 18 broadly distributed riparian routes in the Coastal Plain and Piedmont. These riparian segments ranged in location from extreme southeast Virginia (Northwest and North Landing Rivers) to the northern Piedmont (Rapidan River) (Figure 1), and are contained within two primary watersheds. Twelve segments are located along rivers within the Chesapeake Bay watershed (Rapidan, Rappahannock, Mattaponi, North Anna, South Anna, Rivanna and Appomattox). Six segments are contained within the Roanoke River watershed. They include the Nottoway and Blackwater Rivers, which converge into the Chowan River in North Carolina and drain into Albemarle Sound; and the North Landing (Pocaty) and Northwest Rivers, which are part of the Intracoastal Waterway and drain into Currituck Sound. Survey routes along tributaries to the Chesapeake Bay are well above the tidal influence, whereas waters along the Northwest and North Landing Rivers are subject to wind-blown tides. All survey routes were predominantly characterized by forested habitat within a landscape of forested, agricultural, residential and commercial land types. River segments were generally narrow (< 100 m) and slow-flowing. The exceptions were 2 routes along the Northwest River, which achieves widths > 200 m, and 4 routes along the Rapidan and Rappahannock Rivers, which at points are wider than 100 m and characterized by riffles and rapids. The latter routes were included in the Foray because of interest

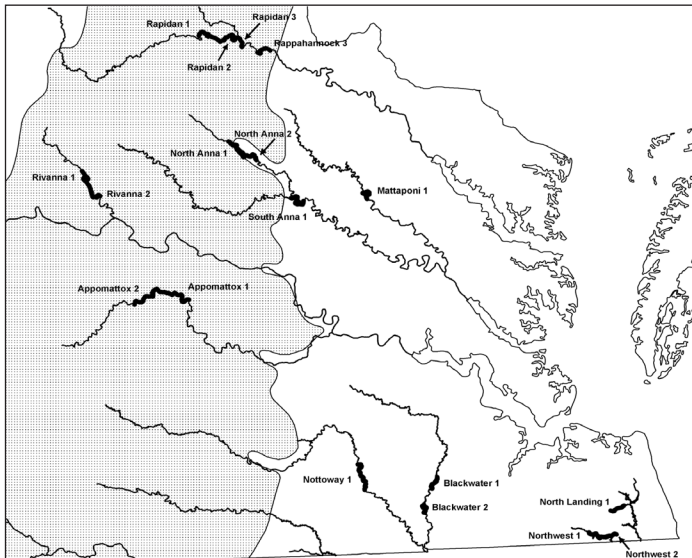


Figure 1. Coastal Plain (white) and Piedmont (stippled) riparian routes surveyed (heavy black lines), also showing major rivers (thin black lines).

in characterizing the bird community along the City of Fredericksburg's Watershed Management Property, which they abut. The Property is a 1,700 ha parcel in easement for which a management plan is being developed in 2009 and for which avian data had until now not been collected.

METHODS

Riparian survey routes were selected in the Coastal Plain and Piedmont on the basis of various factors, including: landscape characteristics that encompassed extensive forested habitat; accessibility in the form of viable launch and take-out points; navigability based on average water flow during the survey period and the absence of obstacles such as downed trees and debris; width of the river channel and velocity of flow such that noise impacts on bird detectability would be minimal; and length of the route between access points. Surveys were conducted at 18 of 23 viable survey routes identified through this process, over a length of approximately 109 river km. These included 8 routes in the Piedmont along the Rapidan, Rappahannock, Rivanna, and Appomattox Rivers, and 10 Coastal Plain routes along the North Anna, South Anna, Mattaponi, Blackwater, Nottoway, Northwest and North Landing (Pocaty) Rivers (Figure 1). Survey points were generated in GIS using aerial imagery. A flip of the coin was used to randomly determine on which side of a river segment to place the points. Points were placed approximately 150 meters from the launch point in order to minimize the impact of traffic noise on bird detectability, and were separated from one another by a 300 meter straight-line distance. The number of points varied between 10 and 20 per route (Table 1) and was determined by the length of the route and by the estimated time period available for survey.

Routes were surveyed by 16 teams of volunteers consisting of an observer and a paddler in canoes and/or kayaks. Two individuals operating alone conducted surveys along 3 routes. Each route was surveyed once between May 30 and June 28 using standard point count methodology (Ralph et al. 1995). The majority of points were surveyed between official sunrise and 1000, while 4.8% of points were surveyed after 1000. Observers strove to conduct surveys during favorable weather conditions, excluding winds blowing at greater than 12 mph, fog and/or rain above a drizzle. Surveys were conducted from a stationary boat or kayak at each point in proximity to the river bank. Surveys at each point were subdivided into three 2-minute time periods, for a total of 6 minutes. One observer recorded onto a standardized data sheet each bird detected by sight or sound, noting the time period and location in which the bird was first detected. The location of first detection consisted of river right (right side of the river when facing downstream) or river left (left side of the river when facing downstream). Juvenile or newly fledged birds and birds detected flying above a survey point rather than from within the vegetation (flyovers) were recorded separately.

Following the surveys, I characterized habitat along the survey routes using the US Geological Survey's National Land Cover Dataset (Homer et al. 2004). I calculated percent coverage for different land categories within a 100 m buffer

around the routes, combining functionally similar categories. I compared results of the surveys with year 2008 BBS results to test for differences in detection rates of particular species at both the route and survey point level. The analyses involved 23 BBS routes (12 in the Coastal Plain, excluding the Eastern Shore, and 11 in the Piedmont). All analyses were based on riparian and BBS routes located within the breeding range of each species, as reported in the 1985-1989 Breeding Bird Atlas (Trollinger and Reay 2001).

RESULTS

A total of 335 points were surveyed, yielding detections of 4539 individual birds. 495 of these detections were flyovers. An additional 31 detections could not be identified to species, including 1 unidentified heron, 11 drumming woodpeckers, 2 unidentified swallow species and 3 unidentified warblers. In addition, two detections of Blue-headed Vireo (*Vireo solitarius*) and one of Brown Creeper (*Certhia americana*) were classified as 'possible' due to the species having been detected outside of their breeding range relatively late in the season. The total number of individuals reported is somewhat lower than the actual number detected, as at least 3 observers did not report birds that they could not positively identify. A total of 95 species were documented during the surveys, ranging from 23 to 55 per route (Table 1). Two additional species were detected between points outside of the formal survey period: one individual of merganser sp. along Appomattox route 1, and one Cooper's Hawk (*Accipiter cooperii*) along the Rappahannock route.

Two species, Red-eyed Vireo (*Vireo olivaceus*) and Carolina Wren (*Thryothorus ludovicianus*), were detected on all 18 routes; 18.9 % species were detected at 75 % or more of the routes; and 40.0 % of the species at 50 % or more of the routes (Table 2). These results are a product of both geographic distribution and detectability of individual species. Including flyovers, the most frequently-detected species across routes was Red-eyed Vireo (63.6 % of points), followed by Northern Cardinal (*Cardinalis cardinalis*, 59.4 %) and Carolina Wren (49.9 %, Table 2). Tufted Titmouse (*Baeolophus bicolor*), Blue-gray Gnatcatcher (*Poliophtila caerulea*), Acadian Flycatcher (*Empidonax virescens*), American Crow (*Corvus brachyrhynchos*), Northern Parula (*Parula americana*), Indigo Bunting (*Passerina cyanea*) and Prothonotary Warbler (*Protonotaria citrea*) were all detected at approximately one third or more of all the points (Table 2). These species, with the addition of Carolina Chickadee (*Parus carolinensis*), were also detected at the greatest abundances (> 100 individuals). Each of the remaining species was represented by detections of fewer than 100 individuals (Table 2). Eleven species were detected at only one survey point, and ten of these were represented by the detection of only one individual (Table 2); three of these detections were flyovers.

Of the species above, Prothonotary Warbler is of particular interest because of its association with wooded wetlands. The species was detected on 8 of 10 Coastal Plain routes and on 4 of 8 Piedmont routes. Within the Coastal Plain, frequency of detection and abundances on the North Landing (*Pocaty River*) and on both Northwest River routes are especially notable. Prothonotaries here were detected

Table 1. Number of points surveyed, total species detected during the survey period of the Foray, and total counts (including flyovers) per species, by survey route. Species with one asterisk (*) indicate species classified as woodland breeders in analyses conducted by the Breeding Bird Survey (BBS). Species with two asterisks (**) indicate species classified as successional-scrub breeders by the BBS.

Common Name	Scientific Name	Appomattox 1	Appomattox 2	Blackwater 1	Blackwater 2	Mataponi 1	North Anna 1	North Anna 2	North Landing 1	Northwest 1	Northwest 2	Nottoway 1	Rapidan 1	Rapidan 2	Rapidan 3	Rappahannock 3	Rivanna 1	Rivanna 2	South Anna 1
	Number of Points Surveyed	20	20	20	20	20	16	14	10	20	20	20	20	19	20	16	20	20	20
	Total Species Detected	49	42	55	46	55	24	27	22	41	35	46	55	43	38	23	32	50	41
Canada Goose	<i>Branta canadensis</i>					1			2				31	20		2	35	2	7
Wood Duck	<i>Aix sponsa</i>	1	1		1	3		2	1	3	2		1			2	1	4	6
Mallard	<i>Anas platyrhynchos</i>	6											3	2	5	11	4		
Wild Turkey*	<i>Meleagris gallopavo</i>		1				1											3	
Northern Bobwhite**	<i>Colinus virginianus</i>	4	3	7	1		1											1	
Great Blue Heron	<i>Ardea herodias</i>	2	4	2	3	3				6	1		1	5	5	6		3	2
Great Egret	<i>Ardea alba</i>				3							1							
Green Heron	<i>Butorides virescens</i>	1	1				1			6	8	2		1				5	1
Black Vulture	<i>Coragyps atratus</i>												1						6
Turkey Vulture	<i>Cathartes aura</i>			1	2	1				3	2			1	1	1		5	
Osprey	<i>Pandion haliaetus</i>		2				1			3	2				1	1	1	1	
Mississippi Kite	<i>Ictinia mississippiensis</i>		1																
Bald Eagle	<i>Haliaeetus leucocephalus</i>	1										4			2				
Red-shouldered Hawk*	<i>Buteo lineatus</i>		1	2		10							3						1
Broad-winged Hawk*	<i>Buteo platypterus</i>																	1	1
Red-tailed Hawk	<i>Buteo jamaicensis</i>									3								1	
American Kestrel	<i>Falco sparverius</i>	1																	
Killdeer	<i>Charadrius vociferus</i>			2								1			1				
Solitary Sandpiper	<i>Tringa solitaria</i>	1																	
Spotted Sandpiper	<i>Actitis macularia</i>						1												
Rock Pigeon	<i>Columba livia</i>				16					3									
Mourning Dove	<i>Zenaidura macroura</i>	2		9	3	12	2	1		5	8	10		4			1	6	3
Yellow-billed Cuckoo*	<i>Coccyzus americanus</i>	1	5		1			1				6	6				3	6	
Barred Owl*	<i>Strix varia</i>								3										
Chimney Swift	<i>Chaetura pelagica</i>			2	36		1		3			1			3			1	
Ruby-throated																			
Hummingbird*	<i>Archilochus colubris</i>	3		1		1	2		2			2	7					1	
Belted Kingfisher	<i>Ceryle alcyon</i>	3		1	2	2	6			5		1	1	2	1		1	1	
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>			1															
Red-bellied Woodpecker*	<i>Melanerpes carolinus</i>	4	8	7	5	9		2	5	10	9	2	4		1	1	5	10	7
Downy Woodpecker*	<i>Picoides pubescens</i>	6	2	4	1	6		1	5	5	7	3	5	4	2	5	2	5	4
Hairy Woodpecker*	<i>Picoides villosus</i>			2	1	4				1		1							
Northern Flicker*	<i>Colaptes auratus</i>		2	2		1						3	1						
Pileated Woodpecker*	<i>Dryocopus pileatus</i>	3	7	8	2	5	1		5	2	5	2	3	3	1		3	7	7
Eastern Wood-Pewee*	<i>Contopus virens</i>	7	7	6	5	9	2			1	2	1	2	1	5		1		13
Acadian Flycatcher*	<i>Empidonax virens</i>	12	9	10	4	30		11	2	10		11	6	10	12	4	5	6	15
Eastern Phoebe	<i>Sayornis phoebe</i>						2	2		3	1			2					1
Great Crested Flycatcher*	<i>Myiarchus crinitus</i>	2	3	6	13	3		2	9	5	11	7	1	1	1		1	3	
Eastern Kingbird	<i>Tyrannus tyrannus</i>					1							1		4	4			
Purple Martin	<i>Progne subis</i>					3				3	4		1						
Tree Swallow	<i>Tachycineta bicolor</i>					1			27				3		7				
Northern Rough-winged																			
Swallow	<i>Stelgidopteryx serripennis</i>			2		3				5			1					3	2
Barn Swallow	<i>Hirundo rustica</i>			2		4		10		7	2	1	1	8				1	
Blue Jay	<i>Cyanocitta cristata</i>	2		5	2	4	1	3	7	3	19	3	1	3	3	1		1	1
American Crow	<i>Corvus brachyrhynchos</i>	15	20	9	13	25	9	9	5	8	5	15	17			5	4	21	5

Table 1. (continued)

Common Name	Scientific Name	Appomattox 1	Appomattox 2	Blackwater 1	Blackwater 2	Mattaponi 1	North Anna 1	North Anna 2	North Landing 1	Northwest 1	Northwest 2	Nottoway 1	Rapidan 1	Rapidan 2	Rapidan 3	Rappahannock 3	Rivanna 1	Rivanna 2	South Anna 1
Fish Crow	<i>Corvus ossifragus</i>				3						8		1						1
Carolina Chickadee*	<i>Poecile carolinensis</i>	11	6	14	13	10			4	18	16	7	15	13	3	3	14	12	5
Tufted Titmouse*	<i>Baeolophus bicolor</i>	13	13	24	4	41		13	4	22	10	20	9	26	3	3	5	10	9
White-breasted Nuthatch*	<i>Sitta carolinensis</i>	3	2	10	14	7		3	9	13	11	5	1	2			1	2	2
Brown-headed Nuthatch	<i>Sitta pusilla</i>										6	1							
Carolina Wren**	<i>Thryothorus ludovicianus</i>	19	8	14	14	27	3	1	9	9	20	23	13	13	6	13	9	13	12
House Wren**	<i>Troglodytes aedon</i>																	1	
Blue-gray Gnatcatcher*	<i>Poliophtila caerulea</i>	10	16	28	15	23			1	16	1	7	15	23	11		1	38	10
Eastern Bluebird	<i>Sialia sialis</i>			2	5	1	6				2	1		1					1
Wood Thrush*	<i>Hylocichla mustelina</i>	6	3	2	1	2	3	3		3	3		1	6	4	7	1	5	4
American Robin	<i>Turdus migratorius</i>										1		1			2	4		2
Gray Catbird**	<i>Dumetella carolinensis</i>							1		4									4
Northern Mockingbird	<i>Mimus polyglottos</i>			1														1	
Brown Thrasher**	<i>Toxostoma rufum</i>	2		1		1				1	2		1				1		
Cedar Waxwing	<i>Bombicilla cedrorum</i>					3							6						
European Starling	<i>Sturnus vulgaris</i>				1														
White-eyed Vireo**	<i>Vireo griseus</i>	15	11	1	1	11		6				6	4	4	3				2
Yellow-throated Vireo*	<i>Vireo flavifrons</i>	10	8	4	2	8		3		5		1							4
Red-eyed Vireo*	<i>Vireo olivaceus</i>	29	30	10	4	70	11	10	6	3	3	25	21	15	26	10	18	23	22
Northern Parula*	<i>Parula americana</i>	29	5	4	4	19						6	26	18	22	13	3	12	7
Yellow Warbler**	<i>Dendroica petechia</i>												2	3	6				1
Yellow-throated Warbler*	<i>Dendroica dominica</i>	5	5	5	4	5			1			1	2	1					1
Pine Warbler*	<i>Dendroica pinus</i>	1		9						1	2			2					
Prairie Warbler**	<i>Dendroica discolor</i>	3	9	3	1	5							1					2	
Cerulean Warbler	<i>Dendroica cerulea</i>	1																	
Black-and-white Warbler*	<i>Mniotilta varia</i>		1			1							2						1
American Redstart*	<i>Setophaga ruticilla</i>	10	1														9		
Prothonotary Warbler*	<i>Protonotaria citrea</i>	2	7	15	24	16		1	23	50	53	11		1				2	
Worm-eating Warbler*	<i>Helmitheros vermivorum</i>	1											1		2				
Ovenbird*	<i>Seiurus aurocapilla</i>	6		5	1	8	2	2				2	1	3	5			3	
Louisiana Waterthrush*	<i>Seiurus motacilla</i>	7	6		1	10		1				2	5	7	9	1	2	4	
Kentucky Warbler*	<i>Oporornis formosus</i>	4	9					2					1	2					3
Common Yellowthroat**	<i>Geothlypis trichas</i>	3	8	3	4	3				2	7	2	2		2			4	
Hooded Warbler*	<i>Wilsonia citrina</i>	2	3			9	15	6				6		2					1
Canada Warbler	<i>Wilsonia canadensis</i>		1																
Yellow-breasted Chat**	<i>Icteria virens</i>	3	9	2	1	2		3				4	4	2				7	
Summer Tanager*	<i>Piranga rubra</i>	1		9	3	5				5		5		1	2				2
Scarlet Tanager*	<i>Piranga olivacea</i>	3	2			6	6	5						2	1			1	3
Northern Cardinal**	<i>Cardinalis cardinalis</i>	26	12	33	15	43	11	16		17	23	29	14	24	14	6	11	20	27
Blue Grosbeak**	<i>Passerina caerulea</i>		1	1		4				4		1							
Indigo Bunting**	<i>Passerina cyanea</i>	11	11	9	2	16						13	17	7	9		18	23	6
Eastern Towhee**	<i>Pipilo erythrophthalmus</i>		3	4			1						1	1					
Chipping Sparrow	<i>Spizella passerina</i>			4	1	1											1		2
Field Sparrow**	<i>Spizella pusilla</i>			5		1							1						
Song Sparrow**	<i>Melospiza melodia</i>												1		1				1
Red-winged Blackbird	<i>Agelaius phoeniceus</i>									3								4	
Common Grackle	<i>Quiscalus quiscula</i>			9	15	2			24	19	35	6	1				1		1
Brown-headed Cowbird	<i>Molothrus ater</i>			8	1	4					2	4	6	9	1	1		2	1
Orchard Oriole	<i>Icterus spurius</i>			1									2	2			1	2	2
Baltimore Oriole	<i>Icterus galbula</i>												1						
American Goldfinch**	<i>Carduelis tristis</i>	7	2	5	12	7	7		4		8	4	9	10	11	1	7	4	

Table 2. Species detected during the survey period of the Foray, including: number and percentage of routes (n = 18) where detected, number and percentage of points (n = 335) where detected, number of individuals detected, number of flyovers detected, total count (sum of number of individuals detected and flyovers), and mean of individuals detected per point (excluding flyovers).

Common Name	# of routes	% of routes	# of points	% of points	# of birds	Fly-overs	Total Count	Mean per Point
Canada Goose	8	44.4	17	5.1	54	46	100	0.16
Wood Duck	14	77.8	17	5.1	22	7	29	0.07
Mallard	6	33.3	18	5.4	13	18	31	0.04
Wild Turkey	3	16.7	3	0.9	5	0	5	0.01
Northern Bobwhite	6	33.3	14	4.2	17	0	17	0.05
Great Blue Heron	13	72.2	40	11.9	26	17	43	0.08
Great Egret	2	11.1	2	0.6	0	4	4	0.00
Green Heron	9	50.0	21	6.3	19	7	26	0.06
Black Vulture	2	11.1	2	0.6	6	1	7	0.02
Turkey Vulture	9	50.0	14	4.2	4	13	17	0.01
Osprey	8	44.4	11	3.3	5	7	12	0.01
Mississippi Kite	1	5.6	1	0.3	0	1	1	0.00
Bald Eagle	3	16.7	6	1.8	4	3	7	0.01
Red-shouldered Hawk	5	27.8	15	4.5	14	3	17	0.04
Broad-winged Hawk	2	11.1	2	0.6	2	0	2	0.01
Red-tailed Hawk	2	11.1	3	0.9	1	3	4	0.00
American Kestrel	1	5.6	1	0.3	1	0	1	0.00
Killdeer	3	16.7	4	1.2	2	2	4	0.01
Solitary Sandpiper	1	5.6	1	0.3	1	0	1	0.00
Spotted Sandpiper	1	5.6	1	0.3	1	0	1	0.00
Rock Pigeon	2	11.1	3	0.9	0	19	19	0.00
Mourning Dove	13	72.2	56	16.7	59	7	66	0.18
Yellow-billed Cuckoo	8	44.4	26	7.8	28	1	29	0.08
Barred Owl	1	5.6	1	0.3	3	0	3	0.01
Chimney Swift	7	38.9	23	6.9	1	46	47	0.00
Ruby-throated Hummingbird	8	44.4	18	5.4	17	2	19	0.05
Belted Kingfisher	12	66.7	26	7.8	17	9	26	0.05
Red-headed Woodpecker	1	5.6	1	0.3	0	1	1	0.00
Red-bellied Woodpecker	16	88.9	85	25.4	88	1	89	0.26
Downy Woodpecker	17	94.4	63	18.8	63	4	67	0.19
Hairy Woodpecker	5	27.8	8	2.4	8	1	9	0.02
Northern Flicker	5	27.8	8	2.4	9	0	9	0.03
Pileated Woodpecker	16	88.9	62	18.5	62	2	64	0.19
Eastern Wood-Pewee	14	77.8	57	17.0	62	0	62	0.19
Acadian Flycatcher	16	88.9	123	36.7	157	0	157	0.47
Eastern Phoebe	6	33.3	10	3.0	10	1	11	0.03
Great Crested Flycatcher	15	83.3	56	16.7	68	0	68	0.20
Eastern Kingbird	4	22.2	10	3.0	9	1	10	0.03
Purple Martin	4	22.2	7	2.1	4	7	11	0.01
Tree Swallow	4	22.2	9	2.7	1	37	38	0.00
Northern Rough-winged Swallow	6	33.3	8	2.4	4	12	16	0.01
Barn Swallow	9	50.0	11	3.3	13	23	36	0.04
Blue Jay	16	88.9	43	12.8	52	7	59	0.16
American Crow	16	88.9	122	36.4	165	20	185	0.49
Fish Crow	4	22.2	11	3.3	10	3	13	0.03
Carolina Chickadee	16	88.9	102	30.4	164	0	164	0.49
Tufted Titmouse	17	94.4	150	44.8	228	1	229	0.68

Table 2. (continued)

Common Name	# of routes	% of routes	# of points	% of points	# of birds	Fly-overs	Total Count	Mean per Point
White-breasted Nuthatch	15	83.3	66	19.7	84	1	85	0.25
Brown-headed Nuthatch	2	11.1	3	0.9	7	0	7	0.02
Carolina Wren	18	100.0	167	49.9	225	1	226	0.67
House Wren	1	5.6	1	0.3	1	0	1	0.00
Blue-gray Gnatcatcher	15	83.3	146	43.6	215	0	215	0.64
Eastern Bluebird	8	44.4	17	5.1	19	0	19	0.06
Wood Thrush	16	88.9	45	13.4	54	0	54	0.16
American Robin	5	27.8	9	2.7	10	0	10	0.03
Gray Catbird	3	16.7	8	2.4	9	0	9	0.03
Northern Mockingbird	2	11.1	2	0.6	1	1	2	0.00
Brown Thrasher	7	38.9	9	2.7	9	0	9	0.03
Cedar Waxwing	2	11.1	4	1.2	1	8	9	0.00
European Starling	1	5.6	1	0.3	0	1	1	0.00
White-eyed Vireo	11	61.1	57	17.0	64	0	64	0.19
Yellow-throated Vireo	9	50.0	39	11.6	45	0	45	0.13
Red-eyed Vireo	18	100.0	213	63.6	336	0	336	1.00
Northern Parula	13	72.2	120	35.8	168	0	168	0.50
Yellow Warbler	4	22.2	12	3.6	12	0	12	0.04
Yellow-throated Warbler	10	55.6	28	8.4	30	0	30	0.09
Pine Warbler	5	27.8	15	4.5	15	0	15	0.04
Prairie Warbler	7	38.9	21	6.3	24	0	24	0.07
Cerulean Warbler	1	5.6	1	0.3	1	0	1	0.00
Black-and-white Warbler	4	22.2	5	1.5	5	0	5	0.01
American Redstart	3	16.7	17	5.1	20	0	20	0.06
Prothonotary Warbler	12	66.7	109	32.5	204	1	205	0.61
Worm-eating Warbler	3	16.7	4	1.2	4	0	4	0.01
Ovenbird	11	61.1	32	9.6	38	0	38	0.11
Louisiana Waterthrush	12	66.7	49	14.6	55	0	55	0.16
Kentucky Warbler	6	33.3	17	5.1	21	0	21	0.06
Common Yellowthroat	11	61.1	34	10.1	40	0	40	0.12
Hooded Warbler	8	44.4	33	9.9	44	0	44	0.13
Canada Warbler	1	5.6	1	0.3	1	0	1	0.00
Yellow-breasted Chat	10	55.6	32	9.6	37	0	37	0.11
Summer Tanager	9	50.0	30	9.0	31	2	33	0.09
Scarlet Tanager	9	50.0	27	8.1	29	0	29	0.09
Northern Cardinal	17	94.4	199	59.4	334	7	341	1.00
Blue Grosbeak	5	27.8	9	2.7	11	0	11	0.03
Indigo Bunting	12	66.7	110	32.8	136	6	142	0.41
Eastern Towhee	5	27.8	9	2.7	10	0	10	0.03
Chipping Sparrow	5	27.8	9	2.7	9	0	9	0.03
Field Sparrow	3	16.7	7	2.1	7	0	7	0.02
Song Sparrow	3	16.7	3	0.9	3	0	3	0.01
Red-winged Blackbird	2	11.1	5	1.5	4	3	7	0.01
Common Grackle	10	55.6	49	14.6	37	76	113	0.11
Brown-headed Cowbird	11	61.1	34	10.1	33	6	39	0.10
Orchard Oriole	6	33.3	9	2.7	10	0	10	0.03
Baltimore Oriole	1	5.6	1	0.3	1	0	1	0.00
American Goldfinch	15	83.3	67	20.0	56	42	98	0.17

at 90-100% of points per route, with mean abundances of 2.30 to 2.65 individuals per point. Frequency of detection on other Coastal Plain rivers was also relatively high along certain routes (40-80% of points per route). However, mean abundances along these routes were considerably lower (0.55- 1.20 individuals per point). Caution must be exercised in comparing uncorrected abundance across routes, given the potential for observer effects to influence counts. However, these effects are mitigated by the high level of detectability of the species and by the consistency in results between the two observers conducting surveys along the Northwest and North Landing Rivers.

Unusual summer observations for this region of Virginia included detections of Solitary Sandpiper (*Tringa solitaria*), Mississippi Kite (*Ictinia mississippiensis*), possible Brown Creeper, possible Blue-headed Vireo, Cerulean Warbler (*Dendroica cerulea*), and Canada Warbler (*Wilsonia canadensis*). Each was represented by one individual, with the exception of the vireo (2 individuals). All of these species can reasonably be assumed to be late migrants. The adult Mississippi Kite was detected as a flyover on the Blackwater 1 route dividing Southampton and Isle of Wight counties. Though likely a transient individual, the individual may represent a breeder based on recently documented nesting records for Southampton County (Rottenborn and Brinkley 2007). The Cerulean Warbler is a relatively early migrant, with migration in the mid-Atlantic region generally occurring in the last week of April and with very few individuals found in the South beyond the first week of May (Dunn and Garrett 1997). The Foray detection of this species occurred on May 30 along the Appomattox 1 route, dividing Powhatan and Amelia counties. Piedmont breeders occur primarily near the Blue Ridge and in northwestern Fairfax County (Rottenborn and Brinkley 2007). Although the individual may have been a late migrant, its status as a possible local breeder should also be considered in light of other recent records for this geographic area. These include a July 12, 1996 capture of an adult female with a full brood patch in the vicinity of Powhatan Wildlife Management Area (WMA); the bird had not yet begun her end-of-season prebasic molt (Bob Reilly, personal communication). In addition, a male was heard singing during point count surveys on Powhatan WMA on June 10, 2003 (DGIF unpublished data). The Foray record for Cerulean Warbler was at a point approximately 5 km from the Powhatan WMA.

Also of note was the detection of 7 individual Bald Eagles (*Haliaeetus leucocephalus*) during the surveys, including at least one subadult bird; 2 additional individuals were documented between survey points. Eagles were documented on the Rapidan 3, Appomattox 1, South Anna 1, Nottoway 1 and Blackwater 2 routes. Eagle nests have been documented along all 5 of these rivers (DGIF unpublished data, Watts unpublished data) and the observed adults were likely breeding birds. In addition to supporting resident Virginia birds and their offspring, the Chesapeake Bay area hosts post-breeding and subadult individuals from southeastern states during the summer months (Watts et al. 2007). In Virginia, these birds converge in areas in the tidal freshwater portions of the Potomac, Rappahannock and James Rivers. The distribution of this migrant population in non-tidal segments

of Virginia's Coastal Plain and Piedmont rivers has not been examined, however, such that the resident status of the observed birds is not definitive.

The survey methodology resulted in the vast majority of detections being made by ear. This limited the opportunity for observers to document direct signs of breeding activity, which is primarily a visual exercise. The resulting 11 reports of direct breeding evidence are skewed toward waterfowl, which had relatively high visibility because they were on the water (Table 3).

Table 3. Confirmed breeding activity documented during the Foray.

Route	Species	Breeding Evidence
Blackwater 2	Wood Duck	juvenile (4)
Mattaponi 1	Northern Cardinal	nest with eggs
North Anna 2	American Crow	adult feeding fledged young
North Anna 2	Wood Duck	pair
Northwest 2	Blue Jay	juvenile (2)
Northwest 2	Carolina Chickadee	juvenile (6)
Rapidan 2	Mallard	juvenile (3)
Rappahannock 3	Wood Duck	juvenile (2)
Rappahannock 3	Cooper's Hawk	immature (1)
Rivanna 1	Canada Goose	juvenile (5)
Rivanna 1	Wood Duck	juvenile (>9)

In examining land cover along the survey routes, forested land (including woody wetlands, deciduous and mixed forest) was by far the dominant cover type, accounting for 42-97% of total cover (Table 4). Those routes with lower proportions of forested land had relatively large percentages of cover classified as open water (Northwest 2, Rapidan 2 and 3, Rappahannock 3, Rivanna 1 and 2), emergent marsh (Northwest 2, all three Rapidan routes), or evergreen forest (Rivanna 2). Developed and agricultural lands each made up less than 7% of total land cover along individual routes (Table 4).

I compared results between BBS and riparian routes for species associated with forested riparian habitats, including Green Heron ($\chi^2 = 1.14$, $P = 0.286$), Belted Kingfisher ($\chi^2 = 9.37$, $P < 0.002$), Northern Parula ($\chi^2 = 0.00$, $P = 0.962$), Prothonotary Warbler ($\chi^2 = 0.39$, $P < 0.534$), Louisiana Waterthrush ($\chi^2 = 2.08$, $P < 0.149$), and Kentucky Warbler ($\chi^2 = 0.68$, $P < 0.411$). Although the proportion of routes along which each species was detected was generally higher for the riparian surveys (Figure 2), results were significant only for Belted Kingfisher. This species was detected along only one of the 23 BBS routes in 2008 (Figure 2). Comparisons between BBS and riparian routes are confounded by the differences in sampling period between the two surveys. Because the riparian survey period at each point is twice as long as the 3-min per point survey period along BBS routes, the probability of detection of a species that is present at a point is greater along riparian routes.

Table 4. Proportion (%) of land cover by category within 100 m buffer of riparian routes. Categories were combined as follows: Forested (non-evergreen) includes woody wetlands, deciduous forest and mixed forest; Total Grassland includes Grassland / Herbaceous and Pasture / Hay; Total Development includes Developed / Open Space and three Development categories (low, medium and high intensity).

Route	Open Water	Emergent Herbaceous Wetlands	Forested (non- evergreen)	Evergreen Forest	Shrub / Scrub	Total Grass-land	Barren Land	Cultivated Crops	Total Development
Appomattox 1	2.07	3.77	80.77	8.88	0.44	4.07	0.00	0.00	0.00
Appomattox 2	1.88	2.10	71.12	15.45	1.35	8.10	0.00	0.00	0.00
Blackwater 1	0.00	3.79	86.29	4.96	0.00	0.48	0.00	4.14	0.34
Blackwater 2	0.00	4.23	80.66	0.25	0.00	4.54	0.50	6.41	3.42
Mattaponi 1	0.00	1.60	90.03	1.95	0.00	1.60	0.77	4.04	0.00
North Anna 1	0.00	0.00	97.28	0.83	0.00	0.23	0.08	1.58	0.00
North Anna 2	0.00	0.00	92.09	2.00	0.00	0.53	3.80	1.48	0.11
North Landing 1	0.00	0.00	91.79	5.22	0.00	2.16	0.00	0.52	0.30
Northwest 1	0.00	1.54	88.60	3.15	0.00	5.52	0.00	1.19	0.00
Northwest 2	15.76	13.11	64.74	2.31	0.00	0.75	0.00	3.19	0.14
Nottoway 1	0.34	6.74	83.36	2.20	0.00	0.89	1.93	4.26	0.28
Rapidan 1	2.29	22.39	59.13	1.77	0.00	7.39	0.30	6.65	0.07
Rapidan 2	12.18	18.67	62.73	0.15	0.00	2.14	2.73	1.25	0.15
Rapidan 3	33.67	16.18	42.92	0.29	0.00	0.00	0.36	6.36	0.22
Rappahannock 3	48.46	7.10	42.02	0.19	0.00	1.03	0.75	0.00	0.47
Rivanna 1	18.12	1.17	66.40	8.40	0.00	5.33	0.00	0.44	0.15
Rivanna 2	16.77	0.59	53.77	16.40	0.66	9.90	0.00	1.70	0.22
South Anna 1	0.00	0.59	89.45	0.44	0.00	8.26	0.00	1.25	0.00

For the significant result above, I therefore ran the comparison again using only detections made within the first 2 minutes of the riparian surveys. Results for the Kingfisher were no longer significant ($\chi^2_{\text{Yates}} = 2.68$, $P < 0.102$), although values for the riparian surveys may have been underestimated in this manner due to the shorter survey period and the fact that fly-overs were not included (the time period within

which the fly-over was observed was not recorded). The number of riparian routes on which Kingfishers were detected within the first 2 minutes was 6 (Figure 3), as compared to 12 routes when including data from the entire survey period (Figure 2).

A similar approach was necessary in comparing results between BBS and riparian routes expressed as the proportion of points at which individual species were detected (Figure 4). By limiting this comparison to the first 2 minutes of data collected in the riparian surveys, the number of points at which each species was detected was reduced from the total by approximately 22 – 73%. Reductions were lowest in the four passerines and highest in Green Heron and Kingfisher; for the latter, this was partially a result of a high proportion of points where detections consisted exclusively of fly-overs (one quarter and one third, respectively). This conservative approach to the comparison nonetheless yielded highly significant differences for all six species, with each being detected at higher frequencies than expected on riparian routes (Green Heron: $\chi^2 = 12.51$, $P = 0.001$; Belted Kingfisher: $\chi^2_{\text{Yates}} = 15.50$, $P < 0.001$; Northern Parula: $\chi^2 = 85.68$, $P = 0.001$; Prothonotary Warbler: $\chi^2 = 69.16$, $P < 0.001$; Louisiana Waterthrush: $\chi^2 = 58.51$, $P < 0.001$; and Kentucky Warbler: $\chi^2_{\text{Yates}} = 17.00$, $P < 0.001$).

DISCUSSION

The Foray results provide a valuable snapshot of the breeding bird community associated with forested habitat along a broadly distributed sample of Virginia's Coastal Plain and Piedmont rivers. The surveys documented the full complement of forest generalist species, as well as Neotropical migrants associated with forest interior habitat, common to the two regions. The Foray also successfully documented the avian community more specifically associated with forested riparian habitat. These include aquatic species such as waterfowl, herons, Osprey (*Pandion haliaetus*), Spotted Sandpiper (*Actitis macularius*) and Belted Kingfisher (*Ceryle alcyon*), as well as a variety of passerines such as Acadian Flycatcher, Northern Parula, Yellow-throated Warbler (*Dendroica dominica*), Prothonotary Warbler, Louisiana Waterthrush (*Seiurus motacilla*) and Kentucky Warbler (*Oporornis formosus*). Detection frequencies for particular riparian species, including Acadian Flycatcher, Northern Parula and Prothonotary Warbler, were relatively high (Table 2). The Foray also highlights the importance of riparian habitats in far southeastern Virginia for Prothonotary Warblers.

The mean number of species detected per point per route was highly variable among routes, ranging from 5.1 to 15.9. A number of factors can account for such variation, including the geographic distribution of species, route-level effects related to habitat, and bird detectability. The latter may be in turn be influenced by weather conditions (Robbins 1981a), time of day (Robbins 1981b, Skirvin 1981), habitat and distance to observer (McShea and Rappole 1997), vegetation structure and background noise (Pacifi et al. 2008) as well as observer skill and experience (Sauer et al. 1994). Observer effects in particular may have played a role here, as, unlike past Forays that have relied on groups of observers to report observations, results for each route were based on the survey effort of one individual. Although

route-level summary data are presented (Tables 1 and 2), direct comparisons among routes are not attempted. Comparisons of species abundance among routes may be possible by correcting for detectability factors and testing for observer effect. .

Although the surveys were not designed for direct comparison to BBS survey results, a comparison was nonetheless possible and yielded insight into the efficacy of different approaches to surveying particular species of interest. BBS trend analyses rely on routes as their sampling units, rather than on individual points, and the BBS currently does an adequate job of monitoring population trends of 5 species with forested riparian habitat associations in Virginia (Green Heron, Belted Kingfisher, Northern Parula, Louisiana Waterthrush and Kentucky Warbler). Since 1966, the cumulative number of routes along which each species has been detected is sufficient to produce reliable trend data. The possible exception is Prothonotary Warbler, which, in part due to its restricted distribution in Virginia, has been documented on a total of only 16 BBS routes (Sauer et al. 2008), a relatively low number. In contrast, prothonotaries were detected on 71% of the riparian routes within their breeding range (Figure 2), suggesting that a strategic placement of routes would produce more reliable trends for this species. Population trends generated through short- or long-term collection of breeding bird data along riparian corridors would make for an interesting comparison with BBS trends. Such a comparison could yield insight into whether the trends documented by the BBS are representative of avian trends in areas away from roadways. For the species above, the Foray yielded detection frequencies that were higher than the BBS. This is consistent with the prevalence of forested bottomlands and uplands along the riparian routes (Table 4), habitats that are generally under-surveyed along the roadside-based BBS routes. These results suggest that the statistical precision of trends for these species may be improved by targeting data collection toward forested riparian habitats. In contrast to riparian forest specialists, species associated with early successional (shrubland) habitats were detected with low frequencies (< 20 %, Table 2) by the Foray. This is consistent with the bias of the surveys toward forested lands. Another species with a shrubland affinity, Indigo Bunting, was detected at nearly one third of the points, a testament to its ability to exploit a wide range of early-successional scenarios, including relatively small openings in the forest canopy.

The systematic nature of the surveys allows for their future replication by controlling for effort and by establishing fixed survey point coordinates. There was a reasonable level of precision in locating survey points in the field. GPS units were used along 11 routes to navigate to survey points via the coordinates provided. Observers reported a high level of confidence in navigating to survey points through the use of maps alone on 3 additional routes. Observers on 4 routes (Northwest 1, North Anna 1 and 2, Nottoway 1) reported a lower degree of confidence in navigating to survey points. The use of GPS units for future surveys is highly recommended in order to improve the level of spatial precision.

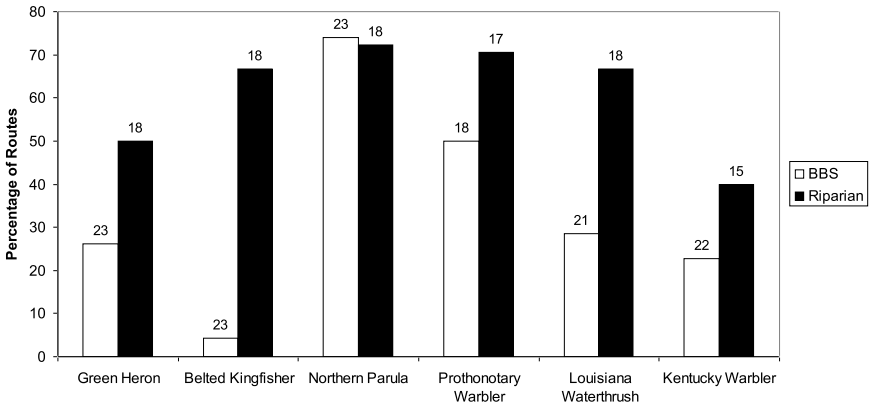


Figure 2. Percentage of BBS and riparian survey routes along which each species was detected. Percentages are based on the total number of routes surveyed within the breeding range of each species in the VA Piedmont and Coastal Plain (this value appears above each bar).

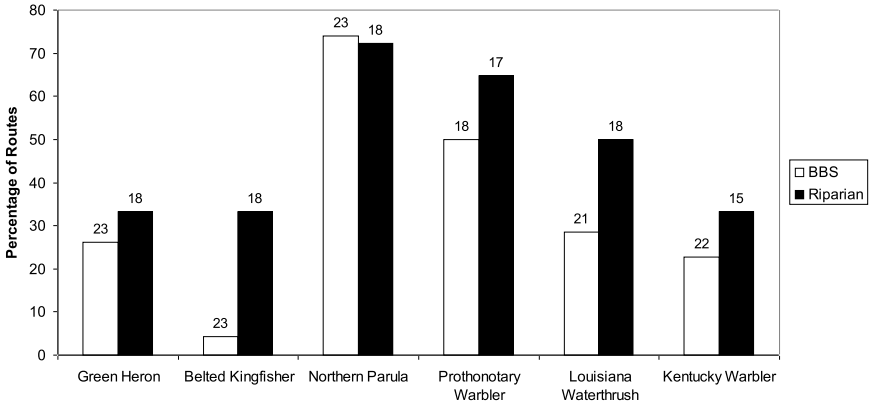


Figure 3. Percentage of BBS and riparian survey routes along which each species was detected. Percentages are based on the total number of routes surveyed within the breeding range of each species in the VA Piedmont and Coastal Plain (this value appears above each bar). Percentages for riparian routes are based on detections made within the first two minutes of the survey period.

ACKNOWLEDGMENTS

The following volunteers participated in the Foray: Bob Ake*, Jenn Allen, Fred Atwood, Jerry Benhase, Steve Botts, Linda Chaney, Andrew Dolby, Adam D'Onofrio, Nick and Alan Flanders, Amy Gilmer, Jim Goehring, Larry Gross, Hilarie Jones, Rebecca Kurylo, Mike Lott, Alex and Mike Minarik, Becky Minor, Maryella Mitchell, Paul Nasca, Art Petty, Bob and James Reilly*, Garrie Rouse, Paul Sanford, Bev Smith, David Spears, Paul Sullivan, and Tina Trice. Thanks to Andrew Dolby for coordinating the Foray, to those landowners providing free launch access to their properties, to Garrie Rouse for providing helpful information on potential Foray routes on the Pamunkey and Mattaponi Rivers, and to Friends of the Rappahannock for providing route-level information and logistical support.

(*surveyed two routes)

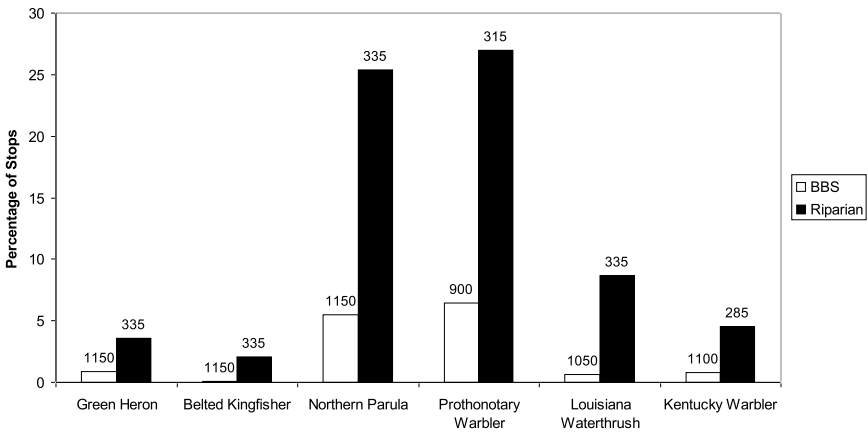


Figure 4. Percentage of BBS and riparian survey points along which each species was detected. Percentages are based on the total number of points surveyed along routes within the breeding range of each species in the VA Piedmont and Coastal Plain (this value appears above each bar). Percentages for riparian points are based on detections made within the first two minutes of the survey period.

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ANNUAL REPORT OF THE VIRGINIA AVIAN RECORDS COMMITTEE

AMY K. GILMER FOR SUSAN A. HEATH
VARCOM SECRETARY

The 2007 Virginia Avian Records Committee (VARCOM) included Ned Brinkley (Chair), Bob Ake, Bob Anderson, Dan Cristol, Mike Stinson, Craig Tumer, David Clark, and Bob Anderson.

The following decisions were made by the Virginia Avian Records Committee during calendar year 2007. Accepted records fall into one of the following Categories, as specified in VSO bylaws:

Category 1. Any bird that has occurred in Virginia and has been accepted by VARCOM as a wild bird on the basis of an observation accompanied by a photograph, specimen, audio or video recording, or band (for bands, only in cases where proof of identification is extant and compelling).

Category 2. Sight records without physical evidence, but for which there is written documentation from one or more observers accepted by VARCOM. This Category currently includes 23 species: Garganey, Barrow's Goldeneye, Yellow-nosed Albatross, Fea's Petrel, Short-tailed Shearwater, Neotropic Cormorant, Greater Flamingo, Reddish Egret, White-tailed Kite, Western Marsh Harrier, Red-necked Stint, Eurasian Woodcock, Black Guillemot, Black-billed Magpie, Bell's Vireo, Boreal Chickadee, Sprague's Pipit, Bohemian Waxwing, Sage Thrasher, Townsend's Warbler, Spotted Towhee, Black-throated Sparrow, and Shiny Cowbird. **Several of these species have reportedly been photographed in Virginia; VARCOM would very much appreciate help in locating photographs or specimens of Category 2 species.** (Green-tailed Towhee has now been photographed in Virginia, but VARCOM would also appreciate receiving documentation and/or photographs of twentieth-century records in the state.)

Category 3. Identity accepted by VARCOM but provenance of the individual bird is uncertain. **Category 3a** shall be comprised of such species with physical evidence in Virginia. **Category 3b** shall be comprised of such species lacking physical evidence. Category 3 shall not include individuals or species deemed by VARCOM to be most likely escaped / released former captives, whether from inside Virginia or otherwise. Species for which there are no Virginia records except Category 3 currently include: West Indian Whistling-Duck, Barnacle Goose, and European Goldfinch.

Category 4. Records that are judged to be acceptable by historical standards but that may not meet current standards of acceptance, including extinct species that once

occurred in Virginia, for which there is no clear written or physical evidence. In this Category, VARCOM currently includes Trumpeter Swan, Eskimo Curlew, and Carolina Parakeet. No status or Category is given to Labrador Duck, Greater Prairie-Chicken, Whooping Crane, Great Auk, or Ivory-billed Woodpecker, which may have occurred in Virginia in centuries past but for which no extant conclusive documentation is known.

Category 5. Species introduced into the Commonwealth of Virginia or into other parts of North America that are currently maintaining self-sustaining wild populations within Virginia. These currently include seven species: Mute Swan, Rock Pigeon, Eurasian Collared-Dove, Monk Parakeet, European Starling, House Finch, and House Sparrow.

Category 6. Species that were introduced into Virginia and that appeared for a time to be sustaining wild populations within the state but that have since been extirpated. This Category currently includes Ring-necked Pheasant and Japanese Green Pheasant.

The following codes are used in the accounts:

† = written documentation

ph. = photograph

vr. = voice recording

vt. = videotape

* = specimen (i.e., labeled and preserved, not simply a dead bird)

Accepted Records

Black-bellied Whistling-Duck (*Dendrocygna autumnalis*), 15 individuals, private farm, Virginia Beach, Jun 9-10, 2006 [David Clark], Category 1, (†, ph.) 2nd Coastal Plain since the January 2004 Review list.

Black-bellied Whistling-Duck (*Dendrocygna autumnalis*), 7 individuals, Back Bay, Virginia Beach, Jul 21 – 23, 2006 [Dorie Stollie, Bob Ake, Adam D’Onofrio], Category 1, (†, ph.) 3rd Coastal Plain since the January 2004 Review list.

Glossy Ibis (*Plegadis falcinellus*), 1 individual, Rockingham County, Jul 26 – Aug 12, 2006, [Clair Mellinger, Benda Tekin], Category 1, plegadis sp., (†, ph.) 1st Mountains and Valleys since the January 2004 Review list.

Wood Stork (*Mycteria americana*), 2 individuals, Old Quarter Farm, New Kent County, Jul 8 – 24, 2006 [Vins Thornhill], Category 1, (†, ph.) 1st State record.

White Ibis (*Eudocimus albus*), 1 individual, Blackjack wetlands, Culpeper County, Aug 2, 2006 [Ian Topolsky], Category 1, (†, ph.) 3rd Piedmont since the January 2004 Review list.

- Sooty Tern** (*Sterna fuscata*), 1 individual (found dead), Alexandria, Sept 3, 2006, [David Bridge], Category 1, (†, ph.) 1st Coastal Plain west of the Bay since the January 2004 Review list.
- Bridled Tern** (*Sterna anaethetus*), 87 individuals, various locations, Northampton County, Sep 1-2, 2006 [Ned Brinkley], Category 1/Category 2, (†, ph.) 3rd inland Coastal Plain since the January 2004 Review list.
- Sooty Tern** (*Sterna fuscata*), 21 individuals, CBBT island 4, Northampton County, Sep 2, 2006 [Ned Brinkley] Category 1/Category 2, (†, ph.) 1st inland Coastal Plain since the January 2004 Review list.
- Sabine's Gull** (*Xema sabini*), 1 individual, CBBT island 4, Northampton County, Sep 2, 2006 [Ned Brinkley], Category 1, (†, ph.) 7th Coastal Plain since the January 2004 Review list.
- Leach's Storm-Petrel** (*Oceanodroma leucorhoa*), 71 individuals, CBBT island 4, Northampton County, Sep 2, 2006 [Ned Brinkley], Category 1/Category 2, (†, ph.) 1st inland Coastal Plain since the January 2004 Review list.
- Black-Chinned Hummingbird** (*Archilochus alexandri*) 1 individual, yard, Cape Charles, Northampton County, Nov 28 – Dec 19, 2004 (first individual) [Ned Brinkley, Mark Adams], Category 1, (†, ph.) 2nd Coastal Plain since the January 2004 Review list.
- Black-Chinned Hummingbird** (*Archilochus alexandri*) 1 individual, yard, Cape Charles, Northampton County, Dec 9 – 11, 2006 (second individual) [Ned Brinkley], Category 1, (†, ph.) 2nd Coastal Plain since the January 2004 Review list.
- Allen's Hummingbird** (*Selasphorus sasin*), 1 individual, yard, Cape Charles, Northampton County, Oct 25–Dec 30, 2005 [Ned Brinkley], Category 1, (†, ph.) 1st Coastal Plain, 2nd State record.
- Bulwer's Petrel** (*Bulweria bulweri*), 1 individual, Chesapeake Bay Bridge-Tunnel island 4, Northampton County, Sep 2, 2006 [Ned Brinkley], Category 2, (†) 1st state record.
- Brown Noddy** (*Anous stolidus*), 2 individuals, Chesapeake Bay Bridge-Tunnel island 4, Northampton County, Sep 2, 2006 [Ned Brinkley], Category 2, (†) 1st Coastal Plain, 1st State record.
- Eared Grebe** (*Podiceps nigricollis*), 2 individuals, Shirley Plantation, Charles City County, Sep 2, 2006 [Adam D'Onofrio, Arun Bose], Category 1, (†, ph.) 1st Coastal Plain since Jan 2004 review list.
- Red-Necked Phalarope** (*Phalaropus lobatus*), 16 individuals, Shirley Plantation, Charles City County, Sep 2, 2006 [Adam D'Onofrio, Arun Bose], Category 1/2, (†, ph.) 1st Coastal Plain since Jan 2004 review list.
- Band-Rumped Storm-Petrel** (*Oceanodroma castro*), 3 individuals, Chesapeake Bay Bridge-Tunnel island 4, Northampton County, Sep 2, 2006, [Ned Brinkley], Category 2, (†) 4th inland.
- American Avocet** (*Recurvirostra americana*), 2 individuals, Shirley Plantation, Henrico County, Aug 10, 2006 [Arun Bose], Category 1, (†, ph.) 2nd Coastal Plain west of the Bay since Jan 2004 review list.

- Sooty Tern** (*Sterna fuscata*), 1 individual, Shirley Plantation, Henrico County, Sep 2, 2006 [Arun Bose], Category 2, (+) 3rd Coastal Plain west of the Bay since Jan 2004 review list.
- Wood Stork** (*Mycteria americana*), 1 individual, Gloucester Family Campground, Gloucester County, Aug 14, 2006 [Steve Hards], Category 1, (+, ph.) 2nd State record.
- Clay-Colored Sparrow** (*Spizella pallida*), 1 individual, near Oak Grove, Westmoreland County, Sep 17 2006 [Fred Atwood], Category 2, (+) 1st Coastal Plain since Jan 2004 review list.
- American Avocet** (*Recurvirostra americana*), 1 individual, Rt. 642, Highland County, Oct 2, 2006 [Steve Thornhill], Category 1, (+, ph.) 2nd Mountains and Valleys.
- Eared Grebe** (*Podiceps nigricollis*), 1 individual, Bell's Lane, City of Staunton, Oct 1, 2006, [Brenda Tekin, Rexanne Bruno, Allen Lerner], Category 1, (+, ph.) 2nd Mountains and Valleys since Jan 2004 review list.
- Henslow's Sparrow** (*Ammodramus henslowii*), 1 individual, Bandy Field, City of Richmond, Oct 27, 2006 [Arun Bose, Paul Bedell], Category 2, (+) 1st Coastal Plain since Jan 2004 review list.
- Buff-Breasted Sandpiper** (*Tryngites subruficollis*), 1 individual, Leonard's Pond, Rockingham County, Aug 29, 2006 [Brenda Tekin], Category 1, (+, ph.) 1st Mountains and Valleys.
- Sabine's Gull** (*Xema sabini*), 1 individual, Craney Island, Portsmouth, Sep 9, 2006 [Dan Cristol], Category 1, (+, ph.) 8th Coastal Plain since Jan 2004 review list.
- Franklin's Gull** (*Larus pipixcan*), 1 individual, Prince William County Landfill, Nov 10, 2006 [Clive Harris], Category 1, (+, ph.) 3rd Piedmont since Jan 2004 review list.
- Eared Grebe** (*Podiceps nigricollis*), 1 individual, Charles City County, Nov 11, 2006 [Arun Bose], Category 1, (+, ph.) 2nd Coastal Plain since Jan 2004 review list.
- American White Pelican** (*Pelecanus erythrorhynchos*), 1 individual, Accotink NWR, Fairfax County, [Betsy True, Bill McGovern], Category 1, (+, ph.) 3rd Coastal Plain west of the Bay since Jan 2004 review list.
- Greater White-fronted Goose** (*Anser albifrons*), 1 individual, Shallom Road, Augusta County, Dec 3-14, 2006 [Allen Lerner], Category 1, (+, ph.) 6th Mountains and Valleys.
- Yellow-headed Blackbird** (*Xanthocephalus xanthocephalus*), 1 individual, Staunton Colonial Mall, Augusta County, May 27, 2006 [Allen Lerner], Category 2, (+) 7th Mountains and Valleys.
- Wood Stork** (*Mycteria americana*), 1 individual, First Landing State Park, Virginia Beach, Jan 19-23, 2007 [Karen and Tom Beatty], Category 1, (+, ph.) 3rd State record.
- Green-tailed Towhee** (*Pipilo chlorurus*), 1 individual, Galax, Feb 13-May 1, 2007 [Robert Perkins], Category 1, (+, ph.) 4th State record, 1st Mountains and Valleys.
- Cave Swallow** (*Petrochelidon fulva*), 1 individual, CBBT island #4, Northampton County, Nov 18, 2005 [Brenda Tekin], Category 1, (+, ph.) 10th Coastal Plain since Jan 2004 review list.
- Pacific Loon** (*Gavia pacifica*), 1 individual, Kerr Reservoir, Mecklenburg County, Dec 6, 2006 [Adam D'Onofrio], Category 2, (+) 5th Piedmont since Jan 2004 review list.

Red-Throated Loon (*Gavia stellata*), 1 individual, Kerr Reservoir, Mecklenburg County, Dec 6, 2006 [Adam D'Onofrio], Category 2, (†) 3rd Piedmont since Jan 2004 review list.

Lesser Black-backed Gull (*Larus fuscus*), 1 individual, Kerr Reservoir, Mecklenburg County, Feb 11, 2007 [Adam D'Onofrio, Tina Trice], Category 1, (†, ph.) 1st Piedmont since Jan 2004 review list.

Submissions Not Accepted

Bewick's Wren (*Thryomanes bewickii*), 1 individual, Roseland, Nelson County, Aug 30, 2006.

Brown Noddy (*Anous stolidus*), 1 individual, James River, James City County, Sep 1, 2006.

Sooty Tern (*Sterna fuscata*), 1 individual, Arlington County, Sep 2, 2006.

Sooty Shearwater (*Puffinus griseus*), 1 individual, College Creek Hawkwatch, James City County, Sep 2, 2006.

Ross's Goose (*Chen rossii*), 1 individual, Chincoteague, Accomack County, Nov 11, 2006.

Green-tailed Towhee (*Pipilo chlorurus*), 1 individual, Gordonsville CBC, Gordonsville, Orange County, Dec 17, 2006.

Ross's Goose (*Chen rossii*) 1 individual, Waynesboro CBC, Stuarts Draft, Augusta County, Dec 30, 2006.

Thick-Billed Murre (*Uria lomvia*), 1 individual, CBBT island #3, Northampton County, Mar 3, 2007.

VIRGINIA SOCIETY OF ORNITHOLOGY 2007 ANNUAL MEETING

MAY 16-18, 2008
MOUNTAIN LAKE HOTEL
GILES COUNTY, VA

FRIDAY

A variety of field trips were held Friday morning and afternoon.

Banquet

Welcome

David Spears welcomed everyone to the meeting and thanked the New River Valley Bird Club for hosting. Special thanks went to Peggy Opengari for all her work combining the event with the 4th Annual Mountain Lake Migratory Bird Festival.

Awards

- The Jackson Abbott Conservation Award went to the Radford Army Ammunition Plant at Radford. The award was accepted by LTC Drushall.
- The J.J. Murray Awards went to Kelly Hallinger for her project, "The Effect of Mercury Contamination on Memory in Food-Caching Birds," and to Jonathan Moore for his project, "Effects of Climate Change on the Stress Response and Demography of Prothonotary Warblers."
- Teta Kain received the Myriam Putnam Moore Award for exemplary service to the VSO.
- Don Messersmith of the New River Valley Bird Club received a 50-year VSO pin.

Speakers

- Don Messersmith presented a short history of the New River Valley Bird Club.
- Keynote Speaker, Ian Sinclair, spoke about the birds of Africa.

SATURDAY

Field trips and paper sessions were offered during the day.

Meeting

Opening Remarks

David Spears convened the meeting shortly after 7:00 p.m. Peggy Opengari reported on how the Annual Meeting and Festival were progressing.

Reports

- Field Trips – Peggy reported that a few spaces remain for the June 21 trip to see red-cockaded woodpeckers at Piney Grove, and that Dick Peake will lead the trip to High Knob the following week, targeting Swainson's warbler. Fall and winter trips include Chincoteague in September, Back Bay in December, and the Outer Banks in February. She is working on the possibility of a pelagic trip in August.
- 2009 Annual Meeting – Andrew Dolby is organizing this meeting to be held in Fredericksburg. This will give us the opportunity to compare the birdlife in one of the fastest growing counties in Virginia with that in the pristine Mountain Lake region. Andrew's contacts at the University of Mary Washington are doing a sculpture and writing a symphony and a poem for the event.
- Nominating Committee – John Spahr read the nominations for Board Members for 2009.
 - Officers:
 - President – David Spears
 - Vice President – Rexanne Bruno
 - Past President – John Spahr
 - Treasurer – Barbara Sue Thrasher
 - Secretary – Alyce Quinn
 - Membership Secretary – Thelma Dalmás
 - Newsletter Editors – Linda Fields and Alan Schreck
 - Raven Editor – Paul Cabe
 - Board of Directors
 - Paul Nasca
 - Patti Reum
 - Wendy Ealding

Teta Kain moved that this slate of officers and directors be accepted. A vote was taken and the motion passed.

- DGIF
 - Jeff Trollinger of the Department of Game and Inland Fisheries (DGIF) spoke on behalf of Sergio Harding. Twelve Breeding Bird Survey routes lost their leaders this year, mostly due to the price of gas, so Sergio is looking for new volunteers to take

over these routes. Stephen Eccles asked if the original volunteers might participate again this year if their gas was paid for. Jeff will check with Sergio.

- Bob Duncan, new Director of DGIF, talked about their goals and new mission statement. He thanked us for our continued work on projects such as bird surveys and wildlife trails.
- State of the VSO – David Spears reported a current membership of about 800, down from a high of 1000, but seemingly on the rise again. He reminded us to invite a friend to join.
- Conservation Committee - David thanked John Spahr for getting the committee going again. Stephen Eccles requested help with research and other conservation elements. He is also looking for worthy conservation projects to help fund, especially those geared toward habitat preservation and species of concern.

Awards

Peggy Opengari announced winners of the art awards, one of whom was in attendance. Three prizes were given for each of three grade levels: 1st through 5th, 6th through 8th, and 9th through 12th. Prizes were awarded in the amounts of \$50, \$75, and \$100.

Meeting was adjourned around 8:00.

Program

After the meeting, Bill Hilton Jr. gave an update on his hummingbird banding efforts.

SUNDAY

Several field trips were offered Sunday morning.

received from Jennifer Gaden, VSO Secretary

INFORMATION FOR CONTRIBUTORS

The Raven, the official journal of the Virginia Society of Ornithology (VSO), functions to publish original contributions and original review articles in ornithology relating to Virginia Birdlife. Electronic files are the required form for manuscript submission. Text files, prepared using a Mac OS-compatible word processing program or Microsoft® Word, should contain minimal formatting. Graphics (photos, maps, graphs, charts) should be sent as high quality EPS or JPEG files. An accompanying "cover" file should be emailed to the editor stating (1) article title, (2) author(s) full name(s) and email and home or institutional address(es) and, for multi-authored manuscripts, (3) the name of one author designated to carry out correspondence with the editor. If the manuscript or report is technical, a list of persons who would be appropriate reviewers should also be included in the "cover file." Authors are encouraged to consult with the editor on additional matters of content, format, or style. NOTE: Editorship of *The Raven* will change on January 1, 2010. After that date, all cover and manuscript files and any other Raven-related correspondence should be sent to: Wesley M. Brown <wbrown@umich.edu>.

Most Manuscripts published in *The Raven* concern the distribution, abundance and migration of birds in Virginia. Manuscripts on other ornithological topics, including Virginia-based historical reviews, bibliographical reviews, life histories, and behavioral observations, are also welcomed. In addition, the journal serves to publish the official proceedings of the VSO and other formal items pertaining to all aspects of the Society's activities. *The Raven* may also publish articles pertaining to the activities of various public and private organizations engaged in biological and conservation work in Virginia. *The Raven* is a peer-reviewed journal; all feature articles and short communications are reviewed before a decision about acceptance for publication is made.

Format of *The Raven* generally follows guidelines set by the Council for Biology editors as outlined in the CBE style manual, 6th edition, 1994 (Council of Biology Editors, Inc., 11250 Roger Bacon Dr., Reston, VA 20190). Recent volumes of *The Raven* should be inspected for style. Vernacular and scientific names of birds should be those in the most recent edition (and supplement) of the A.O.U.'s Check-list of North American Birds (www.aou.org/checklist/north). Vernacular names should be capitalized; scientific names should be italicized. All size, temperature and other measurements should be in metric units.

