

# The Raven

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

Activities undertaken by the Society include the following:

1. An annual meeting (usually in the spring), held in a different part of the state each year, featuring talks on ornithological subjects and field trips to nearby areas.

2. Other forays or field trips lasting a day or more and scheduled throughout the year so as to include all seasons and to cover the major physiographic regions of the state.

3. A journal, *The Raven*, published yearly, containing articles about Virginia ornithology, as well as news of the activities of the Society and its chapters.

4. A newsletter, published quarterly, containing current news items of interest to members and information about upcoming events and pertinent conservation issues.

5. Study projects (nesting studies, winter bird population surveys, etc.) aimed at making genuine contributions to ornithological knowledge.

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

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

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# *The Raven*

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JOURNAL OF THE VIRGINIA SOCIETY OF ORNITHOLOGY

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## THE 1992 FORAY TO LEE COUNTY

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The Virginia Society of Ornithology's 1992 Breeding Bird Foray was held from 16 June through 21 June in Lee County, the westernmost county in the state. This is perhaps the most remote and isolated area of Virginia. All 438 square miles of Lee County lie farther west than West Virginia. Jonesville, the county seat, is on the same longitude as Detroit, Michigan. This factor alone made Lee County an extremely high priority for intensive field work to assess the frequency and distribution of its breeding birds, especially those reaching the eastern edge of their range.

Participants on this foray were pleased to find the Loggerhead Shrike (*Lanius ludovicianus*) in good numbers. In fact, this species, and the Dickcissel (*Spiza americana*), were the only ones found that suggested a western influence. Perhaps the most interesting findings, however, were the records of species in the lowlands which normally occur at much higher elevations at this season and latitude, especially the Least Flycatcher (*Empidonax minimus*) and Dark-eyed Junco (*Junco hyemalis*). This is by no means the first time this phenomenon has been observed, but it is yet to be satisfactorily explained.

Although no single five-day period can provide definitive data, this paper is intended to provide a basis for further studies and consolidate what little historical data are available. The first-known published paper on the birds of Lee County concentrated on incidental observations in the western part of the county (Handley 1962). The first-known intensive field work conducted in the county was a study of the lowland areas by J.J. Murray and John W. Grey Jr. (1964). A similar study was conducted in adjacent Scott County the following year (Murray and Grey 1965). The only previous studies at higher elevations were in Cumberland Gap National Historical Park, a 20-mile strip of land straddling the Virginia-Kentucky border (Croft 1969, Davis et al. 1980). U.S. Fish and Wildlife Breeding Bird Surveys have been conducted in the eastern part of the Powell River valley continuously since 1980 (Bruce Peterjohn, pers. comm., 1992). Other recent field work in this area was the Virginia Atlas Project (1984-1989), most of which was conducted in 1988 (Steven Carter-Lovejoy, pers. comm., 1992). Atlas field work has also been completed in adjacent blocks in Kentucky (Brainard Palmer-Ball, pers. comm.)

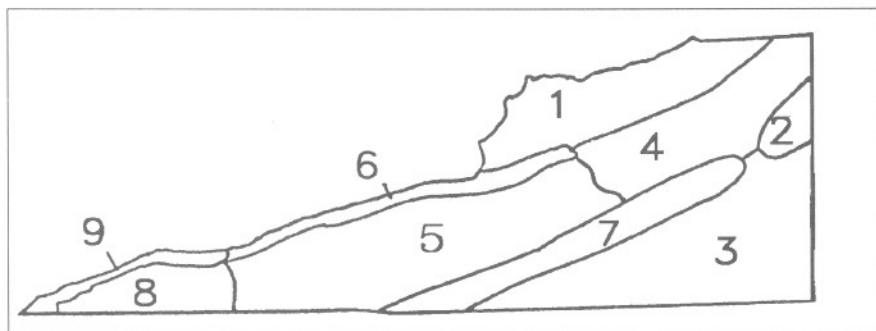
The area covered during the foray included all of Lee County and portions of adjacent Scott and Wise counties, i.e. any 7.5 minute USGS topographic quadrangle which included any part of Lee County. Elevations in Lee County range from 3732 feet at its northernmost Kentucky border to 1160 feet in the southwest corner where Indian Creek crosses into Tennessee. This part of the state lies well within the Mississippi River drainage area, with all streams flowing southwest into the Tennessee River basin. The Cumberland Mountain Ridge along the Kentucky border is the Tennessee valley divide, and all streams on the north side of the mountain are within the Ohio River drainage. This ridge is the first major obstacle encountered by many storm systems moving up from the Gulf of Mexico, giving Lee the highest mean annual precipitation of any county in the state (Hayden 1979). Paradoxically, much of the vegetation is xeric. Most of the

Powell Valley overlies a thick bed of carbonate rocks (limestone and dolomite) which has weathered to a relatively thin soil frequently overgrown with red cedar (*Juniperus virginiana*). Botanists have long known that the most barren of these "cedar glades" are hosts to many unusual plants. One such plant is the false aloe (*Agave virginiana*), which occurs at only one site in Virginia—in central Lee County (Carr 1944).

The foray area is almost entirely rural. The largest towns are Big Stone Gap (population 4800), Pennington Gap (1900) and Jonesville (900). Much of the rolling, rocky terrain of the low ridges and valleys is pastureland, with hayfields predominating in the cultivated areas. In strong contrast, coal fields occupy almost all of the northeastern part of the county. The major highways are U. S. 58 (east-west) and U. S. 23 (north-south) which intersect at Duffield in western Scott County, site of the foray headquarters.

One of the most interesting factors governing the distribution of animal species is their interdependence with vegetation, soil type and the underlying rock strata. In an effort to better understand these influences, the foray area was subdivided into nine major geologic sectors (Fig. 1) which are frequently mentioned in the annotated species list:

FIGURE 1. Lee County foray sectors.



Sectors:

- |                 |                       |                        |
|-----------------|-----------------------|------------------------|
| 1. Northeast    | 4. Powell Valley East | 7. Wallen Valley       |
| 2. Bowling Knob | 5. Central Valley     | 8. Indian Creek Valley |
| 3. Southeast    | 6. Poor Valley        | 9. Cumberland Gap NHP  |

(1) Northeast - All of the area north of Stone Mountain. This is the southwesternmost extension of the coal fields in Virginia. Its acid soils and lush rhododendron thickets are markedly different from the rest of the county. The area is drained by the North Fork of the Powell River. Lake Keokee (2300 feet), a 90-acre fishing lake at the headwaters of this river, is the only large body of water in the foray area.

(2) Bowling Knob - A high sandstone ridge (3550 feet) just north of Duffield at the Lee-Scott County line, and the only easily accessible elevation over 3000 feet. Much of the oak-hickory forest on this ridge was recently clearcut.

(3) Southeast - The parallel ridges and valleys lying south of Powell Mountain. A shale-siltstone formation in this area has produced a thick layer of sediments in the Blackwater Creek and North Fork-Clinch River valleys, most notably at Duffield. This sector also includes Natural Tunnel State Park and a short stretch of the Clinch River.

(4) Powell Valley East - The upper end of the Powell River Valley, lying between Stone Mountain and Wallen Ridge from Woodway east to Big Stone Gap. This part of the river has a wide floodplain and perhaps the most typical riparian habitat in the foray area.

(5) Central Valley - The lower end of the Powell Valley from Woodway south to the Tennessee line and west to Ewing. It is a typical carbonate valley with many sinkholes and flats such as "The Cedars," an extensive cedar glade just southwest of Jonesville. The river cuts a deep meandering gorge through the soft, porous substrate in this part of the valley.

(6) Poor Valley - A long narrow valley between Cumberland Mountain and Poor Valley Ridge, a low ridge extending some 40 miles from Pennington Gap to Cumberland Gap.

(7) Wallen Valley - A fault valley between Powell Mountain and Wallen Ridge. This is also a carbonate valley, but the impervious underlying rock retards drainage, resulting in a swampy bottom along Wallen Creek which is distinctively different from the adjacent Powell Valley.

(8) Indian Creek Valley - Approaching the west end of the county, the cedars thin out in this deeper, more fertile soil. This sector appeared to have the largest concentration of birds in the foray area.

(9) Cumberland Gap National Historical Park - Extends about 17 miles from The Pinnacle (2440 feet) just east of the gap along the Cumberland Ridge to the sheer sandstone cliffs at White Rocks (3500 feet). The Virginia portion of the park is almost entirely a mature oak-hickory forest on a south-facing slope, with few openings in the canopy. The Wilderness Road Campground at the west end of the park is in what is perhaps the only mature pine stand in the foray area.

The procedure followed on this foray was similar to that used in prior years. Choice areas were covered by different parties on successive days, compensating for variations in the weather, time of day and ability of observers. The participants were provided with maps, field checklists and a detailed prospectus of the most promising birding sites. Separate checklists were also kept for elevations above 2000 feet, which included the Keokee area, Bowling Knob and the Cumberland Ridge. Thirty-nine daily field lists representing about 250 party-hours comprised the compilation. With only four of these party-hours conducted between 9:00 p.m. and 5:30 a.m., the nocturnal species are severely underrepresented. Because there is a high probability of duplication with this format, the only meaningful measure of relative abundance is provided by the high count of a species by one party in one day.

A total of 115 species of birds was found during the foray, plus another just outside of the area in Kentucky, and still another, located within the foray area, is believed to be an escape. An annotated list of these species is appended. Species searched for, but not found, include Pied-billed Grebe (*Podilymbus podiceps*), Peregrine Falcon (*Falco peregrinus*), American Woodcock (*Scolopax minor*), Great Horned Owl (*Bubo virginianus*), Common Nighthawk (*Chordeiles minor*), Red-cockaded Woodpecker (*Picoides borealis*), Bank Swallow (*Riparia riparia*), Bewick's Wren (*Thryomanes bewickii*), Blue-winged Warbler (*Vermivora pinus*), Golden-winged Warbler (*Vermivora chrysoptera*), Prothonotary Warbler (*Protonotaria citrea*), Canada Warbler (*Wilsonia canadensis*), Vesper Sparrow (*Poocetes gramineus*), Lark Sparrow (*Chondestes grammacus*), Savannah Sparrow (*Passerculus sandwichensis*), and Red Crossbill (*Loxia curvirostra*).

Twenty-eight VSO members participated in the foray: Mary Arginteanu, Robert Barbee, Christine Burr, Joshua Camblos, Roger Clapp, Wallace Coffey, John Dalmas, Thelma Dalmas, Bruce Davenport, Tony Decker, John Dillard, Steven Eccles, Keith Guthrie, Robert Hindle, Rick Knight, YuLee Larner, Norwood Middleton, William Minor, Dorothy Mitchell, Isabel Obenschain, Richard Peake, Larry Robinson, Zelda Silverman, Charles Stevens, Warren Stout, Randy Thrasher, Sue Thrasher, Josephine Wood. Thanks are extended to all the participants, especially those making the very long drives from the Tidewater area of the state and Northern Virginia. Also, a special "thank you" is extended to Roger Clapp for his 48 hours of field work and meticulously detailed report.

The author gratefully acknowledges the contributions from Wayne Davis, Brainard Palmer-Ball and Mike Stinson of the Kentucky Ornithological Society of relevant articles from *The Kentucky Warbler* and the Kentucky Breeding Bird Atlas data. Thanks again are extended to Bruce Peterjohn of the U. S. Fish & Wildlife Service for extensive Breeding Bird Survey data, and to Steven Carter-Lovejoy of the Virginia Department of Game and Inland Fisheries for Virginia Breeding Bird Atlas data. Richard Peake's kind assistance in the planning of this foray is appreciated. Also, thanks are given to Norwood Middleton, both for his help on the foray and for his review of this paper.

#### ANNOTATED LIST OF SPECIES FOUND DURING THE FORAY

**GREAT BLUE HERON** (*Ardea herodias*). Four reports, all of single birds toward the western end of Lee County. The only previous report of this species for the area was from one block of the Virginia Atlas Project.

**GREEN-BACKED HERON** (*Butorides striatus*). Uncommon. There were 17 reports of up to three birds.

**CANADA GOOSE** (*Branta canadensis*). One record, a single bird on a small pond off Rt. 729 in Indian Creek Valley on 19 June (Eccles and Hindle). Unaware of this record, Coffey and Knight also saw this same bird the following day, and discovered that it was an injured bird which had resided there for the last eight years. It bears U.S. Fish and Wildlife Service band number 758-01219.

WOOD DUCK (*Aix sponsa*). This species was more common than expected. There were 13 reports, including birds found around very small sinkhole ponds. The maximum was 23 birds found in the Central Valley at a pond on Rt. 643 (Clapp) on 16 June, which included three broods of different ages. Clapp found another brood of nearly grown birds in the Southeast sector at the Rt. 600 bridge over Blackwater Creek East Fork on 17 June. Another brood of four birds and a juvenile were found along Wallen Creek on 18 June (Camblos and Guthrie).

MALLARD (*Anas platyrhynchos*). There were seven reports, with a maximum of six birds found in Powell Valley East on 17 June (Camblos and Guthrie). Two females and three downy young were found on Wallen Creek on 20 June (Clapp). There are no known breeding season reports of this species from the foray area, and it is probable that at least some of these birds were recent escapes.

BLACK VULTURE (*Coragyps atratus*). Uncommon. Eight reports, with a maximum of 11 birds reported from Indian Creek Valley on 20 June (Coffey and Knight).

TURKEY VULTURE (*Cathartes aura*). Common. There were 27 reports, with a maximum count of 27 birds on 21 June (Thrashers).

SHARP-SHINNED HAWK (*Accipiter striatus*). Five widespread reports, all but one of single birds. Two birds were seen on 18 June in the Rose Hill area (Clapp).

COOPER'S HAWK (*Accipiter cooperi*). Three widespread reports of single birds, one on 18 June (Camblos and Guthrie) and two on 19 June (Eccles and Hindle; Clapp).

RED-SHOULDERED HAWK (*Buteo lineatus*). Six reports, with the maximum of two birds found on 19 June (Dillard) and on 21 June (Thrashers).

BROAD-WINGED HAWK (*Buteo platypterus*). Eight reports, all of single birds except for one of two individuals at Natural Tunnel State Park on 17 June (Mitchell, Silverman and Burr). A bird was seen gathering nesting material on Bowling Knob on 17 June (Stout and Wood), and a fledged immature was found on the Cumberland Ridge on Rt. 624 north of Keokee on 20 June (Peake). Clapp reported three birds soaring about two miles south of the state line on 17 June.

RED-TAILED HAWK (*Buteo jamaicensis*). Nine reports, with a maximum of three birds found on 19 June (Arginteanu and Robinson). Two birds, believed to be recently fledged immatures, were found on 17 June in Blackwater Creek Valley in the Southeast sector (Clapp).

AMERICAN KESTREL (*Falco sparverius*). Fairly common, with 15 reports from six sectors. High counts of four birds were made on 20 June by Coffey and Knight, and by the Dalmases. The latter count was of two adults and two fledged young in the Central Valley along Rt. 661.

RING-NECKED PHEASANT (*Phasianus colchicus*). A bird heard calling and wing-whirring along Rt. 676 (Central Valley) on 18 June was presumed to be an escape (Clapp).

RUFFED GROUSE (*Bonasa umbellus*). Surprisingly common for mid-June. There were nine reports, five of these from the lowlands. There were three reports from the

Central Valley, including one of four large young along Yellow Creek on 20 June, southeast of Rose Hill on Rt. 668 (Stevens, Barbee and Davenport). This party also reported an adult bird with two young on 17 June on White Rocks Trail in Cumberland Gap National Historical Park. The high count was an adult with nine young on 19 June on the Ridge Trail just north of The Pinnacle, also in the Park (Eccles and Hindle).

**WILD TURKEY** (*Meleagris gallopavo*). Surprisingly uncommon, only one record. Two birds were heard calling young on 17 June on Bowling Knob (Stout and Wood).

**NORTHERN BOBWHITE** (*Colinus virginianus*). Considering the abundance of habitat, the 26 reports and the high count of 11 birds on 18 June in Indian Creek Valley (Arginteanu and Robinson) are evidence of a steep population decline. It was considered common to abundant in the 1960s by both Handley (1962) and Murray and Grey (1964, 1965).

**KILLDEER** (*Charadrius vociferus*). Fairly common. There were 22 lists, with a maximum of 10 individuals reported from Indian Creek Valley on 19 June (Eccles and Hindle). An adult was observed sheltering three half-grown young from the rain in this same area on 18 June (Arginteanu and Robinson).

**SPOTTED SANDPIPER** (*Actitis macularia*). Only one report, a bird at Lake Keokee on 20 June (Peake). The absence of this species is puzzling considering the favorable habitat. Two previously unpublished reports of nests on islands in the Powell River near Big Stone Gap, one of four eggs on 19 June 1933 and another of three eggs on 20 May 1934, suggest this species was once much more common (Camblos, pers. comm.). This species was not recorded in any of the other previous surveys of the area.

**RING-BILLED GULL** (*Larus delawarensis*). One record of two birds flying over the Central Valley on 18 June (Eccles and Hindle). This species is a surprising vagrant anywhere inland at this time of year, especially in an area with virtually no lakes, ponds or parking lots. These birds were apparently moving ahead of the severe thunderstorms reported that morning from Cumberland Gap.

**ROCK DOVE** (*Columba livia*). Thirteen lists and a high count of 42 birds on 20 June (Coffey and Knight).

**MOURNING DOVE** (*Zenaida macroura*). Common, appearing on 35 lists with a maximum of 50 individuals on 19 June (Eccles and Hindle). They were found to be very uncommon at the higher elevations for lack of habitat. An immature bird was observed in the Northeast sector on 20 June (Peake).

**BLACK-BILLED CUCKOO** (*Coccyzus erythrophthalmus*). Rare, only two reports. One report was from Dry Fork near Duffield at about 1600 feet on 17 June (Stout and Wood). The other was reported from the Northeast sector on 20 June (Peake).

**YELLOW-BILLED CUCKOO** (*Coccyzus americanus*). Fairly common. There were 30 reports with a maximum of six birds reported on 18 June (Eccles and Hindle). Compared to the Breeding Bird Survey results, however, this species was underreported during the foray. It was considered common to abundant by Murray and Grey (1964, 1965).

BARN OWL (*Tyto alba*). One record. Eccles and Hindle found a nest with three downy young in a silo at Lee Farm Supply in Jonesville on 18 June. These birds were also seen by at least two other parties later in the week. There are no other known records for this area.

EASTERN SCREECH-OWL (*Otus asio*). Five reports and a maximum of four birds on 18 June and on 19 June (J. Dalmas and Middleton). One bird was found on 17 June just after noon at Hunter Gap (where Va. Rt. 70 crosses Powell Mountain), at an elevation of over 2000 feet (Clapp). Clapp also reported three other birds responding to tapes during daylight hours, which suggests that this species is quite common in the foray area.

BARRED OWL (*Strix varia*). Only one report, a bird at Lake Keokee 20 June (Peake).

CHUCK-WILLS-WIDOW (*Caprimulgus carolinensis*). One report of a single bird at Wilderness Road Campground near Cumberland Gap on 18 June (Arginteanu and Robinson). The species was reported from this location as early as 1978 (Davis et al. 1980), but was originally reported from Lee County by Murray and Grey (1964) as the primary evidence of Mississippi Valley influence on the birdlife of this area.

WHIP-POOR-WILL (*Caprimulgus vociferus*). Two reports, both from Scott County (Southeast Sector). The maximum of two birds was reported from Natural Tunnel State Park on 17 June (Mitchell, Silverman and Burr). The only other report was of a single bird on Rt. 603 on 18 June (J. Dalmas and Middleton).

CHIMNEY SWIFT (*Chaetura pelagica*). Locally common. There were 26 reports, with a maximum count of 42 on 20 June (Dalmases). Thirty of these 42 birds were in the town of Rose Hill.

RUBY-THROATED HUMMINGBIRD (*Archilochus colubris*). Uncommon. Reported on 21 lists, with the maximum of five birds from Blackwater Creek Valley on 17 June (Clapp) and from Indian Creek Valley on 20 June (Coffey and Knight).

BELTED KINGFISHER (*Ceryle alcyon*). Common. There were 29 reports, with a high count of 11 along the North Fork-Clinch River on 20 June (Dillard). Camblos and Guthrie reported a nest in a clay bank along Wallen Creek on 18 June.

RED-HEADED WOODPECKER (*Melanerpes erythrocephalus*). One report, of three birds in Indian Creek Valley on 20 June (Coffey and Knight). There are no other known reports of Red-headed from the foray area.

RED-BELLIED WOODPECKER (*Melanerpes carolinus*). Widely distributed but surprisingly uncommon, appearing on only 17 lists with a maximum of four individuals on 20 June (Dalmases). This species was once considered fairly common in this area (Murray and Grey, 1964, 1965).

DOWNY WOODPECKER (*Picoides pubescens*). Widely distributed but more common at the higher elevations. There were 26 records and a high count of 11 birds on Bowling Knob 17 June (J. Dalmas and Middleton).

HAIRY WOODPECKER (*Picoides villosus*). Eight reports. The maximum count of two birds was reported by three different parties, apparently the same pair of birds along



the Ridge Trail near The Pinnacle, on 18 June (Stout and Wood, Arginteanu and Robinson) and 19 June (Eccles and Hindle).

NORTHERN FLICKER (*Colaptes auratus*). Very widespread, uncommon to locally common. There were 26 reports with a maximum of eight individuals on 20 June (Peake), seven of these from Lake Keokee.

PILEATED WOODPECKER (*Dryocopus pileatus*). Fairly common at the higher elevations and very uncommon elsewhere. The high count among the 18 reports was the seven birds reported on 17 June by J. Dalmas and Middleton, six of these from Bowling Knob.

EASTERN WOOD-PEWEE (*Contopus virens*). Common and very evenly distributed over all sectors. There were 31 reports, with a maximum count of nine birds, mostly in Wallen Valley, on 17 June (Larner, Decker and Obenschain).

ACADIAN FLYCATCHER (*Empidonax virens*). Common. This species appeared on 29 lists. The maximum was 10 birds on Bowling Knob on 17 June (J. Dalmas and Middleton). A nest with three eggs about 13 feet up in a Redbud (*Cercis canadensis*) was found 20 June on Rt. 699, Indian Creek Valley (Coffey and Knight).

WILLOW FLYCATCHER (*Empidonax traillii*). Three reports of singing birds, all from Wallen Valley, possibly of the same individual. Another silent *Empidonax* flycatcher, which was believed to be this species, was reported from Wallen Ridge at about 2000 feet on 18 June (Eccles and Hindle).

LEAST FLYCATCHER (*Empidonax minimus*). Two records. Clapp found singing birds in Wallen Valley at 1700 feet on 16 June, and along Dry Fork in the Central Valley at only 1340 feet on 19 June. The latter bird was also found on 20 June (Dalmases). With the exception of a bird found at an elevation of 520 feet far to the north on the Loudoun County Foray (Scott 1980), this appears to be a low altitude breeding season record for the state.

EASTERN PHOEBE (*Sayornis phoebe*). Abundant. This species was on 37 lists, with a high of 25 individuals on 19 June (Arginteanu and Robinson). Adults were seen carrying food on 17 June and on 19 June (Stout and Wood). Nests were found on 17 June in the Southeast (J. Dalmas and Middleton), Northeast (Camblos and Guthrie) and Wallen Valley (Larner, Decker and Obenschain) sectors. Clapp found seven used nests and 26 active nests of this species in his six days of field work, including 16 nests with eggs, seven with young and three inaccessible.

GREAT CRESTED FLYCATCHER (*Myiarchus crinitus*). Quite uncommon, with only 19 reports and a maximum of five birds in Wallen Valley on 17 June (Larner, Decker and Obenschain).

EASTERN KINGBIRD (*Tyrannus tyrannus*). Common. There were 33 reports. The high count was 12 birds on 18 June (Eccles and Hindle).

HORNED LARK (*Eremophila alpestris*). Three records, all from a single location in the Central Valley along Rt. 661 just east of its intersection with Rt. 833. The original report was of a single bird discovered on 15 June (Clapp). The high count was a flock



of 12 birds found on 18 June (Eccles and Hindle). There are no other known reports of this species from the foray area.

PURPLE MARTIN (*Progne subis*). Locally common. This species only appeared on 10 lists, but a colony of 75 birds was found 16 June on the U.S. Rt. 421 bypass of Pennington Gap (Middleton). Another colony of 40 individuals was found on 18 June near the shopping center just south of Big Stone Gap on U.S. Rt. 23 (J. Dalmas and Middleton).

TREE SWALLOW (*Tachycineta bicolor*). Uncommon and local, with only two reports. Six birds were found at Duffield Industrial Park on 17 June, and one of these was a young bird in a bluebird box being fed by adults (J. Dalmas and Middleton). The other report was of single birds on Rt. 606 and at Lake Keokee on 21 June (Dalmases).

NORTHERN ROUGH-WINGED SWALLOW (*Stelgidopteryx serripennis*). Common, with 29 reports and a maximum of 20 individuals found on 20 June (Coffey and Knight). Birds were seen at nesting sites, one in a bank of the Powell River on 18 June (Camblos and Guthrie) and another in a bank on top of the ridge on Rt. 624 north of Keokee 20 June (Peake), at about 2600 feet. Clapp found five nests, including one with eggs in the Central Valley on 19 June which appears to be a new late date for the Mountains and Valleys of Virginia.

CLIFF SWALLOW (*Hirundo pyrrhonota*). One report. Four birds were found 19 June at Duffield Industrial Park (Thrashers). There are no known prior reports of this species from the foray area.

BARN SWALLOW (*Hirundo rustica*). Common to abundant at low elevations, appearing on 33 lists with a high count of 76 individuals by Eccles and Hindle on 18 June. Adults were seen carrying food in Wallen Valley on 17 June (Larner, Decker and Obenschain), and an adult was seen feeding a fledged young in the Central Valley on 18 June (J. Dalmas and Middleton). There were also reports of two recently fledged young in Wallen Valley on 17 June, and in the Central Valley on 18 June (Clapp).

BLUE JAY (*Cyanocitta cristata*). Common. The maximum number given on the 33 reports was 20 birds on 19 June in the Central Valley (Clapp). Even with these numbers reported, however, this species seemed underreported, compared with the Breeding Bird Survey results.

AMERICAN CROW (*Corvus brachyrhynchos*). Common to abundant, on 38 lists with 11 of those reporting over 30 birds. Fledged young were seen on 18 June (Stout and Wood), and young birds were calling at three places in the Northeast sector on 20 June (Peake).

COMMON RAVEN (*Corvus corax*). Six reports, all of single birds except for one count of two individuals on 17 June from White Rocks Trail (Stevens, Barbee and Davenport).

CAROLINA CHICKADEE (*Parus carolinensis*). Common. Of the 35 reports on which this species appeared, the maximum number of birds was 23 on 19 June (Eccles and Hindle).

TUFTED TITMOUSE (*Parus bicolor*). Common, with 34 reports and a maximum number of 22 birds in Powell Valley East on 17 June (Camblos and Guthrie).

WHITE-BREASTED NUTHATCH (*Sitta carolinensis*). Uncommon, although there was one report among the 26 lists of 20 birds, consisting of several family groups, in Cumberland Gap National Historical Park on 19 June (Eccles and Hindle). No other group had a daily list of more than seven birds. This species appeared to be underreported, compared to the Breeding Bird Survey, but Murray and Grey found none in Lee County and only one individual in Scott County (Murray and Grey 1964, 1965).

CAROLINA WREN (*Thryothorus ludovicianus*). Common. There were 36 lists with a maximum of 26 birds reported by Arginteanu and Robinson on 17 June. A nest was found in a garage at Big Stone Gap on 18 June (J. Dalmas and Middleton).

HOUSE WREN (*Troglodytes aedon*). Uncommon, with 13 reports. Three parties had the high count of four individuals. Murray and Grey did not find this species (Murray and Grey, 1964, 1965).

BLUE-GRAY GNATCATCHER (*Poliophtila caerulea*). Common. This species was on 30 lists, with the maximum of 19 birds reported on 17 June (Arginteanu and Robinson). Camblos and Guthrie observed birds building a nest about 50 feet up in a tulip poplar (*Liriodendron tulipifera*) in Powell Valley East on 17 June, a very late date.

EASTERN BLUEBIRD (*Sialia sialis*). Common to abundant. There were 32 lists with a maximum of 60 birds reported by Eccles and Hindle on 18 June. Adults were seen feeding young on 19 June in a dead snag of a sycamore (*Platanus occidentalis*) about 50 feet up (Stout and Wood). Juveniles and recently fledged birds were found at four places in the Central Valley on 17 and 19 June (Clapp).

VEERY (*Catharus fuscescens*). Not found in the foray area, but there was one report of three birds just across the Kentucky line near White Rocks on 17 June (Stevens, Barbee and Davenport).

WOOD THRUSH (*Hylocichla mustelina*). Common. There were 35 reports, with a maximum of 27 birds reported by Peake on 20 June, 22 of these at Lake Keokee.

AMERICAN ROBIN (*Turdus migratorius*). Abundant. Reported on all 39 lists, with a very high maximum count of 175 birds, mostly in Indian Creek Valley, on 19 June (Eccles and Hindle). Fledged young were found at Lake Keokee on 20 June (Peake).

GRAY CATBIRD (*Dumetella carolinensis*). Common. There were 32 lists with a maximum of 15 birds reported by Mitchell, Silverman and Burr, mostly from Natural Tunnel State Park, on 17 June. Peake observed an adult carrying food on 20 June on Rt. 624 north of Keokee.

NORTHERN MOCKINGBIRD (*Mimus polyglottos*). Locally common at low elevations, with 30 reports and one very high count of 23 birds on 20 June (Dalmases). Most of the reports were of 10 or less. Clapp found an abandoned nest with three eggs five feet up in a red cedar (*Juniperus virginiana*) on 15 June in the Central Valley near the intersection of Rts. 667 and 661.

BROWN THRASHER (*Toxostoma rufum*). Fairly common. The high count among the 31 reports was 14 birds found by Eccles and Hindle on 18 June.

CEDAR WAXWING (*Bombycilla cedrorum*). Uncommon but fairly widespread, reported on 17 lists. The maximum count was eight birds in the Southeast on 17 June (Clapp), including a pair building a nest in a red cedar at Flower Gap. Two adults were seen at a nest 40 feet up in a Virginia pine (*Pinus virginiana*) at The Pinnacle on 20 June (Dalmases). Birds were also seen gathering nesting material on 17 June just east of the foray area (Stout and Wood).

LOGGERHEAD SHRIKE (*Lanius ludovicianus*). This bird appeared on 11 lists, with a maximum of five individuals reported from Indian Creek Valley by Eccles and Hindle on 19 June. Details of the sightings revealed a total of 13 different individuals at eight locations. An apparent family group was found on Rt. 661 in the Central Valley on 15 June (Clapp).

EUROPEAN STARLING (*Sturnus vulgaris*). Abundant.

WHITE-EYED VIREO (*Vireo griseus*). Widespread and fairly common. There were 30 reports, with the maximum count of eight birds occurring on 16 June and 17 June (Clapp) and on 18 June (Larner and Obenschain).

SOLITARY VIREO (*Vireo solitarius*). Uncommon, with 13 reports and a maximum of four birds on 18 June (Arginteanu and Robinson). One of these birds was found in Indian Creek Valley, where the maximum elevation is about 1400 feet. Mitchell, Silverman and Burr found three birds at Natural Tunnel State Park on 17 June, where the highest elevation is about 1900 feet. Clapp reported one bird on 20 June near Ely Creek (Northeast) at 1720 feet.

YELLOW-THROATED VIREO (*Vireo flavifrons*). Fairly common at low elevations, where this species was reported on 20 lists with a maximum of six individuals on 17 June (Larner, Decker and Obenschain). There were two reports from above 2000 feet, both at Lake Keokee on 20 June (Peake; Arginteanu and Robinson). This is another species which appeared to be underreported as compared to the Breeding Bird Survey data.

WARBLING VIREO (*Vireo gilvus*). Four reports of single birds. There were two reports from Wallen Valley on 17 June (Clapp) and 20 June (Thrashers), one from Woodway on 18 June (J. Dalmas and Middleton), and one from Indian Creek Valley on 18 June (Clapp).

RED-EYED VIREO (*Vireo olivaceus*). Abundant, appearing on 37 lists with a maximum count of 63 birds on 20 June (Peake), 40 of these at Lake Keokee. The lowest relative abundance was in the Central Valley, the only sector this species was reported at less than one bird per party-hour. Stevens, Barbee and Davenport found a nest on 20 June with three newly hatched young; the nest was six feet up in a redbud (*Cercis canadensis*) by the Powell River near the Tennessee border. The Dalmases found a nest 20 June in Wilderness Road Campground with two nearly fledged young, about 15 feet up in a red maple (*Acer rubrum*).

NORTHERN PARULA (*Parula americana*). Uncommon. There were 15 reports, with the maximum of seven birds found by Dillard on 20 June along the North Fork of the Clinch River. This species was also fairly common at Lake Keokee.

YELLOW WARBLER (*Dendroica petechia*). Fairly common in the willows along Wallen Creek but very uncommon elsewhere. There were 12 reports and a maximum of six birds on 16 June (Clapp), five of these from Wallen Valley.

CHESTNUT-SIDED WARBLER (*Dendroica pensylvanica*). Common at high elevations, absent elsewhere. Reported on only seven lists, but there were two counts of 12 birds on 17 June, one from Bowling Knob (J. Dalmas and Middleton) and one from White Rocks Trail (Stevens, Barbee and Davenport). Stout and Wood also observed an adult carrying food on Bowling Knob on 17 June.

BLACK-THROATED BLUE WARBLER (*Dendroica caerulescens*). Two reports from Bowling Knob on 17 June, one of a single bird (Stout and Wood) and the other of four birds (J. Dalmas and Middleton), one of which was a female seen carrying food.

BLACK-THROATED GREEN WARBLER (*Dendroica virens*). Found only in Cumberland Gap National Historical Park. The maximum count of two birds was on White Rocks Trail on 17 June (Stevens, Barbee and Davenport). The only other report was of a single bird at Wilderness Road Campground on 18 June (Arginteanu and Robinson). This is also the only block on which this bird was located during the Virginia Atlas Project.

BLACKBURNIAN WARBLER (*Dendroica fusca*). One report, of a female on Bowling Knob on 17 June (J. Dalmas and Middleton). There are no known prior reports of this species from the foray area, although it was reported on several adjacent Kentucky Breeding Bird Atlas blocks.

YELLOW-THROATED WARBLER (*Dendroica dominica*). Uncommon, but widespread and found at all but the highest elevations. There were 18 reports, with a maximum count of six birds on 19 June on the Ridge Trail north of The Pinnacle (Eccles and Hindle). Murray and Grey did not find this species in either Lee or Scott County (Murray and Grey 1964, 1965).

PINE WARBLER (*Dendroica pinus*). This species was absent from most of the foray area, appearing on only five lists. The maximum of five birds was reported from the Wilderness Road Campground area on 18 June by Arginteanu and Robinson. This species appears to have become established in this area since 1979 (Davis et al. 1980). A bird found in Blackwater Creek Valley on 17 June was the only report from another area (Clapp), the same block where it was found on the Virginia Atlas Project.

PRAIRIE WARBLER (*Dendroica discolor*). Fairly common at the lower elevations, appearing on 22 lists with a maximum of nine individuals reported on 17 June by Larner, Decker and Obenschain. The only high elevation report was of two birds near Lake Keokee on 20 June (Arginteanu and Robinson). This species was expected to be much more common; it was considered common to abundant during earlier field work (Murray and Grey 1964, 1965).

CERULEAN WARBLER (*Dendroica cerulea*). On only three lists, with the maximum of four birds reported on Bowling Knob 17 June by J. Dalmás and Middleton. There was one lowland record, a bird at the Rt. 661 bridge at Yellow Creek, just north of the Tennessee line, on 18 June (Eccles and Hindle).

BLACK-AND-WHITE WARBLER (*Mniotilta varia*). Locally common at higher elevations, and only three reports in the lowlands. Reported on 15 lists, with the high count of eight birds from the Ridge Trail north from The Pinnacle on 19 June (Eccles and Hindle). Stevens, Barbee and Davenport found a nest with four eggs near White Rocks Trail on 17 June.

AMERICAN REDSTART (*Setophaga ruticilla*). Common only on Bowling Knob, where seven birds were found on 17 June (J. Dalmás and Middleton). Reported on only seven lists. The only lowland reports were of single birds in the Central Valley on 19 June (Clapp) and in Wallen Valley on 20 June (Thrashers).

WORM-EATING WARBLER (*Helmitheros vermivorus*). This species was found to be uncommon at Lake Keokee and Cumberland Gap National Historical Park, on the extreme east and west ends of the foray area. It was absent elsewhere except for one lowland report of a bird responding to a screech owl tape in Poor Valley on 18 June (Clapp). In all, there were only seven reports, with a maximum of four birds from the Ridge Trail north of The Pinnacle on 19 June (Eccles and Hindle). These birds were not singing very well during the period and are probably more common than these few reports imply.

SWAINSON'S WARBLER (*Limnothlypis swainsonii*). One report, a singing bird in a dense rhododendron (*R. maximum*) thicket along the largest stream feeding Lake Keokee, on 20 June (Peake). There are no other documented records for the foray area. One bird was found, however, in Cumberland Gap National Historical Park on the Kentucky side in 1978 (Davis et al. 1980).

OVENBIRD (*Seiurus aurocapillus*). Common, appearing on 31 lists, with the high count of 44 birds by Peake on 20 June, 34 of these from Lake Keokee. Clapp observed an adult carrying food in Wallen Valley on 17 June.

LOUISIANA WATERTHRUSH (*Seiurus motacilla*). Very uncommon. There were only 11 reports, and the maximum was three birds reported on 17 June from Natural Tunnel State Park (Mitchell, Silverman and Burr). This species is probably more common than this report indicates, but it is hard to find by mid-June.

KENTUCKY WARBLER (*Oporornis formosus*). Uncommon but widespread. There were 22 reports, and the highest count was eight birds on White Rocks Trail on 17 June (Stevens, Barbee and Davenport).

COMMON YELLOWTHROAT (*Geothlypis trichas*). Common, reported on 35 lists with a high count of 30 individuals on 18 June (Eccles and Hindle). Peake found an adult with two bob-tailed young on 20 June along Rt. 606 in the Northeast sector.

HOODED WARBLER (*Wilsonia citrina*). Common on Bowling Knob and at Lake Keokee, uncommon elsewhere. The maximum of the 24 reports was 38 birds on 20 June, 29 of these at Lake Keokee (Peake). No one else had more than 15 birds.

YELLOW-BREASTED CHAT (*Icteria virens*). Common. Reported on 32 lists, with the maximum of 21 birds on 18 June (Larner and Obenschain).

SUMMER TANAGER (*Piranga rubra*). Uncommon. There were only 14 reports. The best count was six birds reported by Clapp from the Central Valley on 19 June. One from Lake Keokee on 20 June was the only high elevation report (Peake).

SCARLET TANAGER (*Piranga olivacea*). Common at higher elevations, uncommon elsewhere. The highest count among the 28 lists was one of 19 birds at Lake Keokee on 20 June (Peake).

NORTHERN CARDINAL (*Cardinalis cardinalis*). Common throughout, especially in Wallen Valley. Reported on 37 lists. The highest count of 37 birds was by Arginteanu and Robinson on 17 June. Stout and Wood observed an adult carrying food on 17 June, and Peake found two adults with a fledged young at Lake Keokee on 20 June.

ROSE-BREASTED GROSBEAK (*Pheucticus ludovicianus*). Only one report, of two birds on Bowling Knob on 17 June (J. Dalmás and Middleton). The only previous report from the foray area was for the westernmost block on the Virginia Atlas Project.

BLUE GROSBEAK (*Guiraca caerulea*). Fairly common at low elevations. This species was reported on 21 lists, and the high count was eight birds on 18 June (J. Dalmás and Middleton). A pair was seen carrying food to a nest site in the Central Valley on 17 June (Larner, Decker and Obenschain). Handley (1962) regarded this bird as common, and there were numerous reports on the Virginia Atlas Project. It appears this species suffered a precipitous decline in the mid-1960s—not one bird was reported in the preliminary surveys of Lee or Scott County (Murray and Grey 1964, 1965).

INDIGO BUNTING (*Passerina cyanea*). Abundant everywhere but at Cumberland Gap National Historical Park, where it was recorded at a rate of only one bird per party hour. This species was on 37 reports which listed totals of such numbers as 99, 76, 72 and 66. The high count of 101 individuals was reported by Clapp on 19 June. Stout and Wood observed a female carrying food on 17 June. This is the one species which was abundant even in the cedar glades of the Powell Valley.

DICKCISSEL (*Spiza americana*). Two reports. Two singing birds were found in a partially mowed hayfield by Rt. 661 in the Central Valley on 19 June (J. Dalmás and Middleton). Several parties tried to find these birds the following day, but the field had been completely mowed by that time, and one bird was found by only one party (Thrashers). The Thrashers also found a second singing bird that same afternoon in a hayfield along U. S. Rt. 58 between Rose Hill and Ewing. The only previous reports for the foray area were on three Atlas blocks, all of which were covered in 1988, an invasion year. The latest reports suggest that this species is a regular summer resident in Lee County.

RUFous-SIDED TOWHEE (*Pipilo erythrophthalmus*). Common and evenly distributed over the foray area. There were 36 lists, with a maximum of 27 birds reported by Larner and Obenschain on 18 June.

CHIPPING SPARROW (*Spizella passerina*). Common, on 32 lists. The maximum of 30 individuals was found on 17 June (Arginteanu and Robinson). Two adults with

bob-tailed young were observed in the Northeast sector on 20 June (Peake). A nest with three downy young was found seven feet up in a large red cedar (*Juniperus virginiana*) in Wallen Valley on 20 June (Clapp).

FIELD SPARROW (*Spizella pusilla*). Common at low elevations, appearing on 34 lists with a maximum of 57 birds on 19 June (Clapp). There were only three reports of single birds at higher elevations.

GRASSHOPPER SPARROW (*Ammodramus savannarum*). This species was found to be common in the Wallen and Central Valleys but absent from what appeared to be perfectly good habitat in the Southeast sector. It was reported on 17 lists, with a high count of 30 individuals on 20 June (Dalmases). Much more common than expected, compared to the Breeding Bird Survey results.

SONG SPARROW (*Melospiza melodia*). Abundant except in mature woodlands, where they were virtually absent. Reported on 38 lists. There were several counts of over 50 individuals and one extremely high tally of 112 birds by Lamer and Obenschain on 18 June. An adult was seen carrying food on 17 June (Stout and Wood).

DARK-EYED JUNCO (*Junco hyemalis*). All but one of the four reports of this species were from Bowling Knob, where three parties reported three birds each. The other report was of a singing bird on 19 June in the Southeast sector at an elevation of about 1700 feet (Stevens, Barbee and Davenport). The bird was singing from the top of a north-facing bluff over the North Fork of the Clinch River, about one mile southwest of Fraleytown. This appears to be the lowest known elevation for this species to occur in Virginia during the breeding season.

RED-WINGED BLACKBIRD (*Agelaius phoeniceus*). Common at low elevations. There were 34 lists with a maximum of 56 birds reported by Eccles and Hindle and 18 June. The only reports from higher elevations were those from Lake Keokee. Much more frequent than expected, compared to the Breeding Bird Survey data. A female carrying food was noted 16 June in the Central Valley (Clapp).

EASTERN MEADOWLARK (*Sturnella magna*). Common at low elevations, absent elsewhere. This species was on 31 lists, the maximum of which was a very high count of 66 individuals on 18 June (Eccles and Hindle). Much more frequent than expected, compared to Breeding Bird Survey results.

COMMON GRACKLE (*Quiscalus quiscula*). Common to abundant. Reported on 31 lists, with a maximum of 52 birds on 18 June (Eccles and Hindle).

BROWN-HEADED COWBIRD (*Molothrus ater*). Fairly common and widespread. Reported on 18 lists, with a high count of 15 individuals on 18 June (Eccles and Hindle).

ORCHARD ORIOLE (*Icterus spurius*). Fairly common at low elevations. There were 22 lists, with the maximum of 11 birds reported on 18 June by J. Dalmas and Middleton. Nests were reported on 17 June by Stout and Wood and by Mitchell, Silverman and Burr, the latter a female on a nest in the Picnic Area, Natural Tunnel State Park. J. Dalmas and Middleton found an adult female feeding a recently fledged young in the Central Valley on 19 June.



NORTHERN ORIOLE (*Icterus galbula*). Uncommon, only eight lists with a maximum of three birds reported by Larner, Decker and Obenschain on 17 June, and by Larner and Obenschain on 18 June. An adult was seen feeding young out of the nest just east of the foray area on 17 June (Stout and Wood), and a used nest was found near Big Stone Gap on 18 June (J. Dalmas and Middleton).

HOUSE FINCH (*Carpodacus mexicanus*). Locally common. This appeared on 20 lists, with a maximum of 31 individuals reported on 18 June (J. Dalmas and Middleton). Thirty of these birds were from Rts. 638 and 642 west of Woodway, in the Central Valley.

AMERICAN GOLDFINCH (*Carduelis tristis*). Common everywhere but at Cumberland Gap National Historical Park. This species appeared on 36 lists, with a maximum of 40 birds (Eccles and Hindle) on 19 June.

HOUSE SPARROW (*Passer domesticus*). Common.

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## INTERSPECIFIC NEST PARASITISM IN WILD TURKEYS?

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Interspecific nest parasitism among galliformes is rare. Bump et al. (1947) reported that of over 2000 Ruffed Grouse (*Bonasa umbellus*) nests, 11 contained Ring-Necked Pheasant (*Phasianus colchicus*) eggs. Five instances of Wild Turkey (*Meleagris gallopavo*) eggs in the nests of incubating Ruffed Grouse have been noted in Ohio and New York (Kenamer 1989, cited in Stoll 1992, Stoll 1992). This paper describes two observations suggesting that Wild Turkeys in Virginia lay eggs in the nests of other species. On 28 April 1991, a Ruffed Grouse nest containing 12 grouse and two Wild Turkey eggs was found approximately 15 kilometers northwest of Marion, Virginia. The nest, discovered after flushing a Ruffed Grouse from it, was under a log that had fallen across an abandoned road. It was a shallow depression in the leaf litter, and was approximately 17 centimeters in diameter. All eggs were contained within the nest and were warm. On 2 May 1991, a Ruffed Grouse was flushed from the nest again, and all eggs seen during the first observation were present and warm. The fate of the nest could not be determined because the grouse eggs were collected to be raised in captivity for a separate research project (Virginia Department of Game and Inland Fisheries permit #SCP9169). A similar report from southwestern Virginia, of turkey eggs in a grouse nest, was related to me by C. Thomas (U.S. Forest Service, pers. comm.), but the original source of this observation could not be located.

The second incident occurred during a ground-nest predation study using artificial ground nests in Montgomery and Craig counties, Virginia. Twenty artificial nests were placed on each of six study sites. Each nest contained five small brown chicken eggs placed in a shallow depression in the leaf litter. All nests were checked for signs of disturbance 10 and 20 days after being established. One study site 10 kilometers north of Blacksburg, Virginia, had nests constructed when checked on 21 April 1992. When these nests were again checked 10 days later, one nest contained three Wild Turkey eggs and another contained two turkey eggs. The nests were 185 meters apart. These nests were photographed and left undisturbed. After 20 days of exposure, the nest that previously had three turkey eggs had been depredated, with shells from three turkey eggs and five chicken eggs scattered around the nest site. The nest that previously had two turkey eggs also had been broken up. One chicken egg was intact in the nest, two others were found broken into 2-3 large pieces, and the last two were not found. Eight turkey eggs were found scattered in three directions and up to 5 meters away from the nest. All the turkey eggs were broken open and all but one of the broken eggs (turkey and chicken) had significant amounts (75 percent) of yolk and albumin left in them. None of the broken or intact eggs showed any signs of rotting (e.g., offensive odors). The leaf litter around the nest was heavily disturbed and looked as if feeding turkeys had been scratching. Turkey breast feathers were found in and around the nest. It seems unlikely that this latter nest had been broken up by a predator because all but one egg contained yolk and albumin. The cause of the nest destruction, however, is not known.

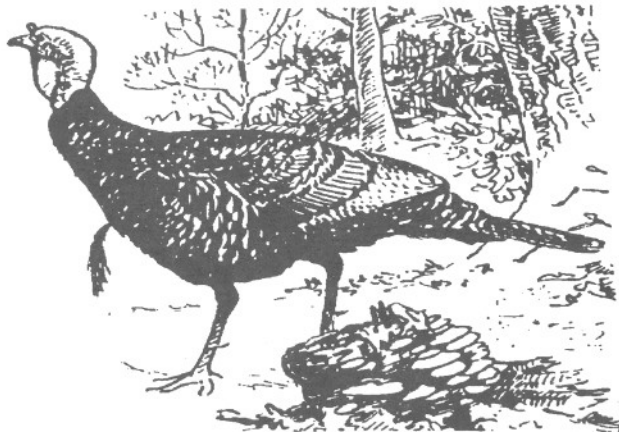
One explanation for the presence of wild turkey eggs in these nests is interspecific nest parasitism. Another explanation is based on communal nesting behavior in Wild Turkeys (Stoll 1992). This behavior, in which two or more hens lay eggs in a single nest, is not common but has been reported (Mosby and Handley 1943, Williams and Austin 1988). It is possible that the grouse and artificial nests acted as releasing factors (Lorenz 1937), as a turkey nest would normally, causing the hen turkey to lay.

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## NESTLING EASTERN PHOEBES ENTANGLED IN FISHING LINE

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On 1 June 1992, while checking Eastern Phoebe (*Sayornis phoebe*) nests for stage of nesting in the northern Virginia Piedmont, I found one nest with four fresh eggs and a long-dead young from an earlier nesting that was hanging below the nest with its leg entangled in fine black fishing line. While banding young at another nest on 6 July, I found one bird with its wing entangled in a similar piece of line. I removed the line and my subsequent observations suggest that the bird and its nestmates fledged successfully.

The first of these phoebe nests was under a bridge over Hungry Run on County Rt. 629, 2.6 miles south of U. S. Rt. 50 (Fauquier County); the second was under a bridge on County Rt. 619, 1.7 miles north of U. S. Rt. 50 (Loudoun County) and over a small stream that runs into Jeffries Run. Both bridges are in open farm country and both streams are small, the latter reduced to a few shallow pools in late summer. Neither are streams that would usually receive much attention from fishermen, but are most likely to be fished intermittently by residents of the farms on which they occur. Amounts of discarded fishing line are likely to be small; as a result it seems possible that the phoebes were selectively choosing this line for constructing their nests.

Reports of encounters with fishing line are relatively common for water birds (Kraak 1986), with some birds entangled, such as Brown Pelican (*Pelecanus occidentalis*) (Schreiber 1975, Mackay 1982), White Pelican (*P. erythrorhynchos*) (Johnston and Sloan 1975), Northern Gannet (*Morus bassanus*) (Lastaval 1981), Canvasback (*Aythya valisineria*) (Kovacs 1975), Osprey (*Pandion haliaetus*) (Denker 1979, Stokes and Stokes 1986), and others ingesting line with both fatal [Canada Goose (*Branta canadensis*) (Tarshis 1971)] and nonfatal [Mute Swan (*Cygnus olor*) (Trapp 1974)] results.

Entanglement of passerines in fishing line is evidently much less common; I found only seven reports for this group of birds. Two of these involved Northern Orioles (*Icterus galbula*) that had hanged while using monofilament in building their nests (Mather 1987, Stokes and Stokes 1986). Others involve Cedar Waxwings (*Bombicilla cedrorum*) (McMullen 1984) and Northern Orioles (Grave 1966) that flew into dangling fishing line and a Black-billed Magpie (*Pica pica*) (Anon. 1978) that became entangled otherwise. The remaining reports both involve nestlings, and a Barn Swallow (*Hirundo rustica*) in Illinois (Bartel 1984) whose legs were trapped by fishing line in nest material.

How often fishing line may pose a hazard to Eastern Phoebes is uncertain. Although I examined 81 phoebe nests in 1992, in only 13 did I actually band young, limiting the chances of finding entangled birds.

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## UNUSUAL NESTING BEHAVIOR IN A NORTHERN HARRIER

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On 13 May 1992, while surveying the birds on Wreck Island with Tim O'Connell of the Virginia Natural Heritage Division and Ruth Beck of the College of William and Mary, I observed a male Northern Harrier (*Circus cyaneus*) sitting on a nest in a grassy swale on the north end of the island. Upon seeing me, the bird flushed from the nest, revealing a single egg within.

This record is noteworthy for two reasons. First, there are only a few records of male harriers incubating at all (Bent 1937, Sealy 1967), and most researchers report that incubation by males does not occur (Breckinridge 1935, Hecht 1951, Bildstein 1988) or occurs only when the female deserts the nest (Simmons et al. 1987; Bildstein 1988). The male seen on Wreck Island was clearly in an incubating position, but the nest had not been deserted by the female; although she was not seen on 13 May, she was present on subsequent dates, and on 3 June she was incubating four eggs.

This observation is also unusual because incubation does not normally begin in harriers until the laying of the second egg (Bildstein 1988, Johnsgard 1990). Thus, it was unusual for the Wreck Island male to be incubating a single egg (although I can not rule out the possibility that more eggs had been originally present and that one or more had been taken by a predator).

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## THE 1992 COLONIAL AND BEACH-NESTING WATERBIRD SURVEY OF THE VIRGINIA BARRIER ISLANDS

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The eighteenth consecutive survey of the Virginia barrier islands' beach-nesting and colonial waterbirds took place 21-24 June 1992, covering the islands from Assawoman on the north through Fishermans on the south. We were assisted in the field by Michael Beck. Mr. Jim Wood of the Eastern Shore of Virginia National Wildlife Refuge provided vehicular access to Fishermans Island.

Factors influencing this year's survey began in late October and early November 1991. A severe northeaster, termed the "Halloween Storm," on 31 October drastically altered many of the islands. This storm was followed a week later by another low pressure system almost as devastating.

Assawoman, Metompkin, and Cedar islands were literally flattened. *Myrica* thickets behind Assawoman Island's foredunes were eliminated over much of the island, leaving a sand overwash 300 meters long and 100 meters wide at its north end and overwash cuts throughout the entire island. The island's southern tip, about 150 meters long, was completely severed from the rest of the island by a narrow channel. Metompkin Island had a second channel punched through its mid-section and Cedar Island had a shallow channel slice into its center. On all three islands sand was pushed well into the *Spartina alterniflora* marsh, most dramatically on Metompkin Island. Cedar Island's once flourishing juniper forest was all but eliminated.

Farther south, Hog Island's large freshwater impoundment was breached by the ocean and Fishermans Island's northeast corner was almost completely isolated by a broad, shallow opening that now inundates at high tide. Other islands were less dramatically affected, yet subtle physiographic changes were apparent. Cobb Island's limited shell cobble area on its north end was destroyed and portions of Ship Shoal, Myrtle, and Smith Islands were overwashed.

As in previous surveys, in June 1992, herons, ibis, and egrets were well along in raising downy and feathered young. Beach-nesting species, however, were renesting throughout the entire island chain.

Significant weather disturbances in May and early June caused colony destruction. Northeasters struck 6-8 May and 19-20 May, with little dry relief in the interim. The period of 25-30 May was quite damp and cool over eastern Virginia. On June 13 beach nesting was washed out by a full-moon high tide. The jet stream dipped south of Virginia on 20 June, allowing cool northern air to penetrate the region and producing a record low of 55°F on 22 June.

The 1992 survey produced several firsts. Table 1 on pages 26-27 is a summary of the survey data and includes updated means for all species. For the first time in known history, Great Blue Herons (*Ardea herodias*) nested on a barrier island. Five adults were counted in Fishermans Island's colony of Great Egrets (*Casmerodius albus*) and at least one occupied nest was observed atop a deciduous tree 10-12 meters tall. The observers were tipped off to the possibility of nesting by the reluctance of the adults to leave the area and by numerous primary feathers discarded beneath likely nest trees. Fishermans Island also had its first survey-recorded Wilson's Plover (*Charadrius wilsonia*).

For the first time Brown Pelicans (*Pelecanus occidentalis*) were found nesting on two islands, Fishermans and Metompkin. The Fishermans Island colony had moved 150-200 meters southeast of its previous position to a high dune ridge occupied by several hundred Herring Gulls (*Larus argentatus*). The former colony site had been somewhat isolated by a shallow overwash channel and much reduced in elevation from past years. Royal Terns (*Sterna maxima*) were present, however, as they had been for the last 13 years. On 21 June the Fishermans Island pelican colony had 79 active nests—4 with one egg, 17 with two eggs, 11 with three eggs, 2 with one hatchling, 16 with two hatchlings, and 11 with three hatchlings; 18 nests had a total of 44 large, downy, ambulatory young. Refuge personnel reported two White Pelicans (*Pelecanus erythrorhynchos*) roosting in this colony. One was seen flying overhead as the survey was being conducted.

The second Brown Pelican nesting was found on Metompkin Island's southern tip less than 100 meters from the site where pelicans first nested in 1987 (Williams 1989), long since destroyed by storms. Over 800 pelicans were roosting there on 23 June, and 23 recently constructed nests were found. One had two eggs.

The Great Egret count was the third highest (554) in the survey's history, marking a three-year upward trend. This figure is significantly above the 18-year mean of 374 individuals.

Snowy Egret (*Egretta thula*) numbers increased over last year (Williams, in press) as did Little Blue Herons (*Egretta caerulea*), Tricolored Herons (*Egretta tricolor*), and Glossy Ibis (*Plegadis falcinellus*). These results seem encouraging until one compares them with the 18-year mean for each species. Snowy Egrets were 20 percent below the mean. The number of Tricolored Herons was exactly equal to the mean and Glossy Ibises were 62 percent below the mean. Black-crowned Night-Heron (*Nycticorax nycticorax*) numbers declined from 464 last year to 341, a figure 64 percent below the 18-year mean.

The decline of Yellow-crowned Night-Herons (*Nyctanassas violacea*) was puzzling. An 18-year mean of 62 indicates their regular presence in small numbers throughout the survey. Since 1983, however, counts steadily declined to this year's alarming total

TABLE 1. Total number of adult birds found on each island during the 21-24 June 1992 Virginia barrier islands survey.

	Assawoman Island	Metompkin Island	Cedar Island	Dawson Shoals	Paramore Island	Sandy Island	Chimney Pole Marsh	Hog Island	Rogue Island
Brown Pelican	...	46	...	...	...	...	...	...	...
Great Blue Heron	...	...	...	...	...	...	...	...	...
Great Egret	...	...	...	...	...	...	61	...	...
Snowy Egret	...	1	...	...	...	...	76	...	...
Little Blue Heron	...	...	...	...	...	...	8	...	...
Tricolored Heron	...	...	...	...	...	...	56	...	...
Cattle Egret	...	...	...	...	...	...	5	...	...
Green-backed Heron	...	2	...	...	...	...	4	...	...
Black-crowned Night-Heron	...	4	...	...	...	...	...	...	...
Yellow-crowned Night-Heron	...	...	...	...	...	...	...	...	...
White Ibis	...	...	...	...	...	...	...	...	...
Glossy Ibis	...	...	...	...	...	...	16	...	...
Northern Harrier	1	...	...	...	...	...	...	4	...
Wilson's Plover	12	7	8	...	...	...	...	...	...
Piping Plover	19	30	6	...	...	...	...	8	...
American Oystercatcher	16	194	72	4	...	22	16	72	3
Laughing Gull	...	...	...	...	...	...	...	...	...
Herring Gull	...	644	19	...	...	152	595	...	...
Great Black-backed Gull	...	...	...	...	...	5	101	...	...
Gull-billed Tern	...	175	70	...	...	...	...	...	...
Caspian Tern	...	...	...	...	...	...	...	...	...
Royal Tern	...	...	...	...	...	...	...	...	...
Sandwich Tern	...	...	...	...	...	...	...	...	...
Common Tern	2	94	230	227	...	20	...	2	...
Forster's Tern	...	18	...	...	...	...	...	...	...
Least Tern	18	77	285	...	...	...	...	34	...
Black Skimmer	...	182	528	173	...	44	...	88	...
Common Nighthawk	...	...	...	...	...	...	...	...	...
Horned Lark	...	...	...	...	...	...	...	...	...

	Cobb Island	Little Cobb Island	Wreck Island	Ship Shoal Island	Godwin Island	Mink Island	Myrtle Island	Smith Island	Fishermans Island	1992 Totals	18-year survey mean
...	...	...	...	...	...	...	...	...	158	204	...
...	...	...	...	...	...	...	...	...	5	5	5
120	...	125	...	...	...	...	...	...	248	554	374
180	...	232	...	...	...	...	...	...	64	553	667
80	...	24	...	...	...	...	...	...	8	120	147
160	...	251	...	...	...	...	...	...	78	545	545
...	...	41	...	...	...	...	...	...	3	49	212
...	...	10	...	...	...	...	...	...	...	16	33
36	...	41	...	...	...	...	...	...	260	341	955
...	...	...	...	...	...	...	...	...	3	3	62
...	...	...	...	...	...	...	...	...	3	3	3
96	...	64	...	...	...	...	...	...	57	233	605
1	...	...	...	...	...	...	...	...	...	6	...
5	...	...	...	3	...	...	2	...	1	38	49
7	2	4	2	...	...	...	7	9	3	97	97
79	12	48	59	...	...	...	22	62	54	735	883
...	...	8056	...	...	...	...	...	...	350	8406	12,805
746	...	1346	...	...	...	...	...	...	866	4368	3133
26	...	154	...	...	...	...	...	...	70	356	160
...	170	72	...	...	...	...	1	...	...	488	793
...	...	...	2	...	...	...	...	...	...	2	4
...	280	...	...	...	...	...	...	...	3380	3660	5515
...	7	...	...	...	...	...	...	...	6	13	37
...	355	167	4	...	...	...	3	...	...	1104	3836
...	...	...	...	...	...	...	...	...	...	18	131
51	...	22	56	...	...	...	...	...	...	543	865
...	879	444	84	...	...	...	...	...	...	2422	5422
...	...	...	1	...	...	...	...	...	...	1	...
1	...	...	...	...	...	...	3	...	...	4	...



of three. The species was seen on Fishermans Island's beach and Hog Island's salt ponds in numbers large enough to suggest they were not nesting in traditional heronry sites and thus undercounted. Nevertheless, their nine-year downward trend warrants concern, especially as an indicator of overall "heronry" dynamics.

The Herring Gull total increased for the second consecutive year. This season's number of 4,368 was 27 percent higher than the 18-year mean and was the second highest for the survey.

Laughing Gulls (*Larus atricilla*) nested on Fishermans Island this year for the first time since 1982. The tightly-bunched colony was situated just above the high tide line on the edge of low dunes occupied by several hundred Herring Gulls. This was also the first time since 1987 that this species had nested on a barrier island other than Wreck Island.

Great Black-backed Gull (*Larus marinus*) numbers increased for a fourth consecutive year. This year's count was the third highest since the species was first recorded nesting in 1976.

Gull-billed Terns (*Sterna nilotica*) continued a three-year increase. Common Terns (*Sterna hirundo*) and Black Skimmers (*Rynchops niger*), however, continued four-year declines, each registering all-time lowest survey totals. For the eighth consecutive season, virtually no Black Skimmer young were found, even during spot follow-up visits to colonies well into July. Common Terns continued renesting efforts through July as well.

Virginia's largest and most successful Common Tern colony is found on the south end of the Hampton Roads Tunnel (Virginia Nongame and Endangered Wildlife Investigations 1991). Speculation that this species has abandoned the barrier islands for the Hampton Tunnel site is tempting. Increases in numbers there are somewhat coincidental with decreases on the islands. This explanation, however, does not take into account population recruitment at the tunnel due to successful breeding there and similarly overlooks lack of breeding recruitment due to poor nesting success on the barrier islands. Clearly there is a need for in-depth study, which should focus on geographic and temporal prey distribution and availability. It is much too simple to continue to dismiss lack of nesting success for Common Terns and Black Skimmers as purely weather-related.

American Oystercatchers (*Haematopus palliatus*) were below the mean of 883, registering the lowest count since a concerted effort was made to census them beginning in 1979. In that year, 1239 were counted (Williams et al. 1990).

After all-time high counts for Piping (*Charadrius melodus*) and Wilson's (*C. wilsonia*) plovers (147 and 85) in 1991 (Williams, in press), this season's declines to 50 and 48 individuals respectively were disturbing. When compared to survey means, however, the Piping Plover total was exactly average and Wilson's Plover was slightly below average. Given the extensive habitat alteration and intrusion of sand into salt marsh mud flats on Metompkin and Cedar Islands, declines were not unexpected.

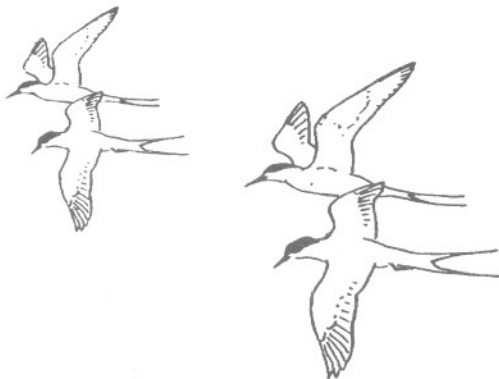
Five Willet (*Catoptrophorus semipalmatus*) nests were found 23 June: four on Assawoman Island and one on Cedar Island. Of those on Assawoman Island, two had two eggs each and two had three eggs each. The Cedar Island nest had three eggs.

Unusual birds for this survey included a dead Northern Fulmar (*Fulmarus glacialis*) on Cobb Island and two dead Sooty Shearwaters (*Puffinus griseus*) on Fishermans Island. Wilson's Storm-Petrels (*Oceanites oceanicus*) were seen off Cobb Island (one) on 22 June and off Parramore Island (four) on 23 June. Two Marbled Godwits (*Limosa fedoa*) were seen almost daily at the Machipongo Station on Hog Island. A Barn Owl (*Tyto alba*) with two young was nesting in an old stove in a burned-out storage shed also at the Machipongo station. Two Common Loons (*Gavia immer*) were seen at Hog Island and one was seen off Cobb Island.

We again thank Barry Truitt for his excellent logistical assistance and Jackie and Charlie Farlow for making our Machipongo Station stay so enjoyable. Mr. Walkley Johnson allowed our access to portions of Fishermans Island.

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## BANDING RESULTS AT KIPTOPEKE BEACH—1992

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The twenty-ninth year of operation at the Kiptopeke Beach banding station opened on 5 September 1992 and banding activities ran continuously through 30 October, a total of 55 days. Of that period, there was only one day during which the station did not open, due to inclement weather.

The station, which overlooks Chesapeake Bay at the southern tip of the Eastern Shore of Virginia, is operated by the Migratory Birds Committee of the Virginia Society of Ornithology. After operating 28 years at Kiptopeke Beach, the station was moved to the Eastern Shore National Wildlife Refuge (ESNWR) in 1991 because of plans to develop the original site into a campground. The Kiptopeke Beach tract was purchased by the Virginia Division of State Parks in 1992. The original banding station has been reestablished and that, along with the hawkwatching site nearby, have been set aside as a natural area which will be used for those activities, as well as educational and conservation functions.

Twenty-one mist nets were used for trapping passerines and four nets were set for hawks. During 1992, 2835 birds of 80 species were banded in 8055 net hours. This was a 6 percent increase of birds captured over the 1990 total at the site. (See *Raven* 63:102 for banding results at ESNWR in 1991.) There were five returns of birds banded in previous years and 113 repeats of birds banded at the site in 1992. There were three foreign recoveries, all Sharp-shinned Hawks (*Accipiter striatus*). Station procedures were similar to previous years except that birds were weighed and assigned a fat-class category when workload permitted. This data will be used to assess fat-recovery success of migrants as the habitat is restored by the Division of State Parks.

The most commonly banded bird was (number banded in parentheses), as in previous years, Yellow-rumped Warbler (*Dendroica coronata*) (1123), followed by American Redstart (*Setophaga ruticilla*) (166), Golden-crowned Kinglet (*Regulus satrapa*) (132), Common Yellowthroat (*Geothlypis trichas*) (130), and Song Sparrow (*Melospiza melodia*) (94).

Individuals of the six sparrow species most commonly trapped increased from 56 percent to 240 percent. This increase is probably attributable to the fact that the area surrounding the station on the north and east sides was formerly lawn and cultivated fields. It has recently been allowed to revert to a weedfield.

A new race, the Ipswich Sparrow (*Passerculus sandwichensis*) was added to the station list in 1992. Other species rarely encountered, but found during the 1992 season, included (year species was last banded at the station in parentheses) Brewster's Warbler (*Vermivora pinus* X *V. chrysoptera*) (1981), Vesper Sparrow (*Pooecetes gramineus*), Seaside Sparrow (*Ammodramus maritimus*) (1976), and Rusty Blackbird (*Euphagus carolinus*) (1974).

Comparison of 1990 and 1992 data show a marked difference in the percentage of birds captured, even though the difference in total net hours for the two years is within .3 percent. At this time reasons for these differences are not fully understood. The sizable difference in numbers of selected species banded during those two years of operation is demonstrated in Table 1.

TABLE 1. *Numbers of selected species captured in 1990 and 1992 and the percentage difference of the totals.*

Species	Total banded 1990	Total banded 1992	Percent change
<i>Empidonax</i> flycatchers	49	24	- 51
House Wren	61	22	- 64
Golden-crowned Kinglet	24	132	+ 450
Ruby-crowned Kinglet	12	59	+ 392
Gray Catbird	134	92	- 37
Red-eyed Vireo	42	25	- 42
Black-and-white Warbler	57	22	- 61
American Redstart	312	166	- 47
Common Yellowthroat	303	130	- 57

Licensed banders who alternated in charge of the station were John Dillard, David Leake, Don Schwab, Walter Smith, and Karen Terwilliger. Walter Smith also edited records and tabulated the yearly summary. The banders were aided by many able assistants whose help is greatly appreciated.

Credit is given to Dennis Baker, Director of the Virginia Division of State Parks, for approving use of the site as a banding station. Assistance with ground maintenance at the site was provided by Scott Flickinger, Kiptopeke State Park Manager. Lastly, a grant, sponsored by Karen Terwilliger and provided by the Virginia Department of Game and Inland Fisheries, supplied funds to cover operating expenses of the station.



## UNUSUAL PLUMAGE IN A YELLOW-THROATED WARBLER

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On 12 April 1990, while on a field trip with the ornithology class from the College of William and Mary, I observed an unusual Yellow-throated Warbler (*Dendroica dominica*) at the Harrison Lake Fish Hatchery in Charles City County, Virginia. For the most part, the bird's plumage was typical of a Yellow-throated (white belly, black streaks on the sides and flanks, blue-gray back and wings, and typical black and white face pattern), but on the yellow upper breast there was a thin dark gray band above a reddish-orange band. These bands, extending all the way to the blackish sides of the breast, were nearly identical (in coloration, size, and placement) to the bands on the breast of a male Northern Parula (*Parula americana*). This bird was singing a typical Yellow-throated Warbler song.

Brian Patteson, of Amherst, Virginia, who was leading the field trip, agreed that the bands were very similar to those on a male Northern Parula, but neither of us had ever heard of a Yellow-throated Warbler/Parula hybrid with such characteristics. This bird was certainly not a "Sutton's" Warbler, the name given to the only known hybrids between these two species. "Sutton's" looks very similar to a Yellow-throated, but has reduced streaking on the sides and a green back. Yellow-breasted Chats (*Icteria virens*) and Prothonotary Warblers (*Protonotaria citrea*) are known to have occasional orange patches on the undersides due to unusual pigment concentrations (Roger Clapp, pers. comm.), so perhaps a similar abnormality was responsible for the unusual plumage of the Harrison Lake bird. Alternatively, the bird could have represented a Yellow-throated Warbler/Northern Parula hybrid in a previously undescribed plumage (hybrids between other species of warblers, such as Golden-winged (*Vermivora chrysoptera*) and Blue-winged (*Vermivora pinus*) Warblers, may take several forms). As the bird was not collected, however, the true nature of its unusual plumage will remain a mystery.



### IN MEMORIAM: GRACE TAYLOR WILTSHIRE

Beginning as a founding member of the Virginia Society of Ornithology at its organizational meeting in 1929, Mrs. James W. Wiltshire, Jr. remained a faithful and productive member of the organization for 63 years. Her work within and for the VSO was outstanding and she remained a continuously active member until overtaken by ill health in recent years.

Several times Grace served on the Board of Directors (then known as the Executive Committee). She also served, with distinction, as Vice President (1960-1963), before becoming the first woman president of the VSO (1963-1966). During her presidency, she advanced ideas for drawing local chapters closer to the central organization, encouraging the formation of new chapters, and urging existing chapters to send representatives to each meeting of the VSO board. She worked closely with the Nature Conservancy in those early years when that organization was working to establish a base within the State of Virginia. In 1971 she accepted the chairmanship of the VSO Membership Committee. The warmth of her personality drew many new members to the organization and she made them feel welcomed.

At the 25th anniversary meeting of the VSO, Grace organized and moderated a panel which described the activities and progress of bird clubs and chapters of the VSO. At the 50th anniversary meeting in 1979, Grace opened the ceremonies with a welcoming keynote speech. The VSO awarded her its service pin in 1987, following previous honors of the president's pin and a lifetime honorary membership in appreciation of her services.

For 35 years (1928 to 1964) Grace taught biology at Randolph-Macon Woman's College, becoming Professor *Emeritus* when she asked for early retirement at the time her husband, Jim, was retiring from business. Her achievements as teacher, biologist, ornithologist and photographer of birdlife were, throughout her life, impressive. Drawing on her experiences as a traveler on five continents pursuing her bird studies, and her magnificent slides from her own camera, she willingly shared her knowledge, through countless lectures about birds. A program by Grace was always "an event" on the calendar of any bird group in Virginia and beyond.

Devotion was as important as birds, if not more so, to Grace. She tirelessly served her local and state church groups in many capacities. She was ultimately elected to the World Division of the General Board of Missions of the Methodist Church, traveling widely at home and abroad in behalf of Methodism. One of her fondest memories was her opportunity to enjoy a quiet walk and conversation with Dr. Albert Schweitzer in 1964 at his famous hospital in the Congo, just a few months before his death.

One dictionary definition of the word grace is: "the condition of being in God's favor." Her beloved husband, who survives her, and her host of friends and admirers can agree that her name exactly suited her outgoing personality and responsive nature. Grace was always a force for good.

Myriam Moore

## VIRGINIA CHRISTMAS BIRD COUNTS—1991-92 SEASON

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Former editor of *The Raven*, Fred Scott, composed summaries of the Christmas Bird Counts for 24 years. In 1974 he wrote, "Each year . . . it becomes more difficult to find new superlatives to describe the increase in the interest and results of the Christmas bird counts in Virginia." That statement also holds true for me in 1991 as I try to summarize these popular yearly events. Virginians continue to participate on more Christmas counts in greater numbers than ever before, and more records are broken each year.

Forty-four counts—the most ever—were conducted in the state in 1991-92. In fact, all but four (Sweet Briar, Powhatan, Chancellorsville, and Massanutten Mountain) of the 50 counts conducted over the past 20-year period, were held this year.

Not only was there a record number of counts, there was also a record number of field participants—approximately 763—in addition to 40 or more feeder watchers. Of the field participants, about 610 individuals took part in only one count, 99 in two counts, 29 in three, 11 in four, 1 in five, and 1 in six. It is difficult to determine just how many feeder watchers actually take part because they are not required to pay a participation fee unless they wish to be listed in *American Birds* and for that reason are not usually listed on count forms.

The newest addition, or perhaps I should say "resurrection," to the growing list of counts is Darlington Heights. Started in 1967 by Margaret H. Watson, this count was held continuously until Watson's death in 1980. For 14 years she invited friends from all over the state to participate in her count, and everyone was invited to stay at her large home which was located in the heart of the little town from which the count derived its name. The yearly gathering was a special social event, as well as a great birding experience. Participants still relate stories of the good times they had during Darlington Heights Christmas Counts. The present organizer and compiler is Carolyn Wells, a biology professor at Longwood College in Farmville. She has revitalized the Margaret H. Watson Bird Club into an active organization with a growing membership. We wish Carolyn and her hearty band of fellow members long and continued success with the club and this important Piedmont count.

Two hundred and eight species were found this year, up considerably from the totals of the past five years, but falling far short of the all-time high total of 214 species set in 1971-72. This year participants also recorded one exotic, one morph, one hybrid, and one race. One new species, Black-headed Grosbeak (*Pheucticus melanocephalus*), was new to the Virginia Christmas Counts, bring the cumulative list total to 297. That number does not include several records that are in doubt for various reasons. It is also a number that is subject to change, if further research of early counts reveals species not listed on the cumulative total calculated from 1930 onward.

Significant records abounded this year as the following list indicates: Northern Goshawk (*Accipiter gentilis*) at Fincastle (only the third record for that count); Peregrine Falcon (*Falco peregrinus*) at Roanoke (first record for that count); Merlin (*Falco*

*columbarius*) at Waynesboro (second year in a row) and Lexington (first record); Yellow Rail (*Coturnicops noveboracensis*) (first record in a decade) at Back Bay; Common Tern (*Sterna hirundo*) at Wachapreague (first record in nine years); three Western Kingbirds (*Tyrannus verticalis*) at Cape Charles and one at Kerr Reservoir (first Piedmont Christmas Count record); Barn Swallow (*Hirundo rustica*) at Williamsburg (third Christmas Count record for the state); three Solitary Vireos (*Vireo solitarius*) at Philpott Reservoir; Cape May Warbler (*Dendroica tigrina*) at Northern Shenandoah; Black-headed Grosbeak (*Pheucticus melanocephalus*) at Cape Charles (first Christmas count record for the state); one Lark Sparrow (*Chondestes grammacus*) at Back Bay and one at Lake Anna (the only Christmas Count Piedmont record); Le Conte's Sparrow (*Ammodramus leconteii*) at Back Bay (fourth record); 30 Brewer's Blackbirds (*Euphagus cyanocephalus*) at Nokesville (an all-time state high count); and two Common Redpolls (*Carduelis flammea*) at Tazewell. The Painted Bunting (*Passerina ciris*) at Chincoteague was only the second state Christmas count record, but it should be pointed out that the bird was found in the Maryland sector of the count circle.

One highly unusual sighting of note was a California Gull (*Larus californicus*) discovered at Little Creek during count week. It should be kept in mind that this species is extremely rare and the record must be evaluated by the Records Committee before it can be officially accepted, even though it is listed in the tables. Other interesting finds during count week (designated "CW" in the count tables), but not seen on count days, were: American White Pelican (*Pelecanus erythrorhynchos*) (practically considered regular in occurrence on the Eastern Shore over the past decade) and Eared Grebe (*Podiceps nigricollis*) at Chincoteague; Greater White-fronted Goose (*Anser albifrons*) and Snowy Owl (*Nyctea scandiaca*) at Northern Shenandoah Valley. It should also be mentioned that in 1990, Barn Owls (*Tyto alba*) were found on the Gordonsville count during count week that year. The entry was inadvertently omitted from the Christmas Count table appearing in Volume 63, page 47 of *The Raven*.

There was an unusually large number of record-highs for certain species this year. The most significant are as follows (number of counts recording all-time highs are in parentheses following the species name): Canada Goose (*Branta canadensis*) (9); Ring-necked Duck (*Aythya collaris*) (7); Turkey Vulture (*Cathartes aura*) (5); Killdeer (*Charadrius vociferus*) (5) Northern Flicker (*Colaptes auratus*) (6); Pileated Woodpecker (*Dryocopus pileatus*) (6); Eastern Phoebe (*Sayornis phoebe*) (9); Carolina Wren (*Thryothorus ludovicianus*) (5); Eastern Bluebird (*Sialia sialis*) (8); American Robin (*Turdus migratorius*) (17); Cedar Waxwing (*Bombycilla cedrorum*) (99); Yellow-rumped Warbler (*Dendroica coronata*) (9); Rufous-sided Towhee (*Pipilo erythrophthalmus*) (6); and House Finch (*Carpodacus mexicanus*) (6).

(Summary continued on page 62)

TABLE 1. (on the following 26 pages) The 1991-92 Christmas Bird Counts in Virginia. The bold, underlined figures indicate an unusual species or an unusual number of individuals for that particular count. "CW" indicates that the species was seen during count week, but not on count day.



	Red-throated Loon	Common Loon	Loon, sp.	Pied-billed Grebe	Horned Grebe	Red-necked Grebe	Eared Grebe	Northern Gannet	American White Pelican
1. Chincoteague	13	61	3	6	46	...	CW	1	CW
2. Wachapreague	...	7	...	10	1	...	...	...	...
3. Cape Charles	39	159	...	17	65	1	...	303	...
4. Little Creek	16	<u>58</u>	...	55	22	<u>CW</u>	...	<u>10,775</u>	...
5. Back Bay	42	195	...	3	7	...	...	672	...
6. Newport News	1	17	...	19	<u>602</u>	...	...	<u>90</u>	...
7. Mathews	5	47	2	4	25	...	...	6	...
8. Williamsburg	...	1	...	14	30	...	...	...	...
9. Hopewell	...	...	...	7	...	...	...	...	...
10. Brooke	...	<u>13</u>	...	<u>150</u>	...	...	...	...	...
11. Fort Belvoir	...	5	...	31	7	...	...	...	...
12. Manassas-B.R.	...	...	...	<u>10</u>	...	...	...	...	...
13. Nokesville	...	...	...	5	...	...	...	...	...
14. Lake Anna	...	<u>13</u>	...	15	16	...	...	...	...
15. Gordonsville	...	...	...	3	...	...	...	...	...
16. Charlottesville	...	1	...	4	1	...	...	...	...
17. Warren	...	...	...	...	...	...	...	...	...
18. Darlington Heights	<u>1</u>	...	...	...	...	...	...	...	...
19. Kerr Reservoir	...	<u>22</u>	...	11	8	...	...	...	...
20. Banister WMA	...	...	...	1	...	...	...	...	...
21. Lynchburg	...	...	...	15	...	...	...	...	...
22. Danville	...	...	...	1	...	...	...	...	...
23. Martinsville	...	...	...	3	...	...	...	...	...
24. Philpott Res.	...	...	...	2	...	...	...	...	...
25. Calmes Neck	...	...	...	...	...	...	...	...	...
26. N. Shen. Valley	...	1	...	12	...	...	...	...	...
27. Shen. NP-Luray	...	...	...	3	...	...	...	...	...
28. Big Flat Mtn.	...	...	...	...	...	...	...	...	...
29. Rockingham Co.	...	...	...	...	...	...	...	...	...
30. Augusta Co.	...	...	...	...	...	...	...	...	...
31. Waynesboro	...	...	...	...	...	...	...	...	...
32. Lexington	...	...	...	...	...	...	...	...	...
33. Peaks of Otter	...	...	...	...	...	...	...	...	...
34. Clifton Forge	...	<u>1</u>	...	...	...	...	...	...	...
35. Fincastle	...	...	...	1	...	...	...	...	...
36. Roanoke	...	1	...	1	...	...	...	...	...
37. Blacksburg	...	...	...	4	...	...	...	...	...
38. Claytor Lake	...	2	...	3	<u>CW</u>	...	...	...	...
39. Tazewell	...	...	...	3	...	...	...	...	...
40. Glade Spring	...	...	...	...	...	...	...	...	...
41. Bristol	...	...	...	16	...	...	...	...	...
42. Nickelsville	...	...	...	...	...	...	...	...	...
43. Breaks I.S. Park	...	...	...	...	...	...	...	...	...
44. Wise County	...	...	...	4	...	...	...	...	...
Total individuals	117	604	5	433	830	1	...	11,847	...

Brown Pelican	Great Cormorant	Double-crested Cormorant	American Bittern	Great Blue Heron	Great Egret	Snowy Egret	Little Blue Heron	Tricolored Heron	Cattle Egret	Green-backed Heron	Black-crowned Night-Heron
...	...	...	2	74	21	1	4	10	...	2	6
9	<u>77</u>	86	1	30	...	1	...	...	...	...	4
5	13	824	...	73	15	7	2	37	...	...	9
8	1	29	2	127	<u>103</u>	5	1	1	<u>2</u>	...	9
7	...	<u>1727</u>	1	60	1	5	...	...	20	...	2
...	...	2	...	<u>98</u>	9	<u>1</u>	...	...	...	...	13
...	...	292	1	44	...	...	...	...	...	1	5
...	...	<u>209</u>	...	79	1	...	...	...	...	...	...
...	...	1	...	199	...	...	...	...	...	...	...
...	...	...	...	36	...	...	...	...	...	...	...
...	...	...	...	<u>210</u>	...	...	...	...	...	...	...
...	...	...	...	4	...	...	...	...	...	...	...
...	...	...	...	15	...	...	...	...	...	...	...
...	...	1	...	23	...	...	...	...	...	...	...
...	...	...	...	10	...	...	...	...	...	...	...
...	...	...	...	10	...	...	...	...	...	...	...
...	...	...	...	16	...	...	...	...	...	...	...
...	...	...	...	2	...	...	...	...	...	...	...
...	...	21	...	73	...	...	...	...	...	...	...
...	...	...	...	<u>35</u>	...	...	...	...	...	...	...
...	...	...	...	9	...	...	...	...	...	...	...
...	...	...	...	7	...	...	...	...	...	...	...
...	...	...	...	2	...	...	...	...	...	...	...
...	...	...	...	4	...	...	...	...	...	...	...
...	...	...	...	15	...	...	...	...	...	...	...
...	...	...	...	38	...	...	...	...	...	1	...
...	...	...	...	9	...	...	...	...	...	...	<u>CW</u>
...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	6	...	...	...	...	...	...	...
...	...	...	...	6	...	...	...	...	...	...	...
...	...	...	...	13	...	...	...	...	...	...	...
...	...	...	...	8	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	<u>5</u>	...	...	...	...	...	...	...
...	...	...	...	7	...	...	...	...	...	...	...
...	...	...	...	25	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	13	...	...	...	...	...	...	...
...	...	...	...	3	...	...	...	...	...	...	...
...	...	...	...	3	...	...	...	...	...	...	...
...	...	...	...	10	...	...	...	...	...	...	...
...	...	...	...	23	...	...	...	...	...	...	...
...	...	...	...	12	...	...	...	...	...	...	...
...	...	...	...	2	...	...	...	...	...	...	...
29	91	3197	7	1438	150	20	7	48	22	4	48

	Yellow-crowned Night-Heron	Glossy Ibis	Tundra Swan	Mute Swan	Greater White- fronted Goose	Snow Goose (blue form)	Snow Goose	Brant	Canada Goose
1. Chincoteague	...	...	393	36	...	...	5884	5989	1396
2. Wachapreague	...	...	17	...	...	...	5432	<b>4416</b>	1288
3. Cape Charles	...	...	<b>549</b>	...	...	1	956	1580	1064
4. Little Creek	...	...	...	...	...	...	1000	2235	281
5. Back Bay	<b>1</b>	<b>1</b>	1430	...	...	11	18,660	...	507
6. Newport News	...	...	12	...	...	...	<b>2</b>	90	62
7. Mathews	...	...	377	...	...	...	<b>2</b>	2	441
8. Williamsburg	...	...	168	<b>4</b>	...	3	<b>51</b>	...	1163
9. Hopewell	...	...	9	...	...	...	...	...	7504
10. Brooke	...	...	<b>560</b>	...	...	...	...	<b>1</b>	300
11. Fort Belvoir	...	...	277	3	...	...	48	...	<b>4477</b>
12. Manassas-B.R.	...	...	...	2	...	...	1	...	<b>1186</b>
13. Nokesville	...	...	5	2	...	...	1	...	1770
14. Lake Anna	...	...	...	...	...	...	<b>1</b>	...	425
15. Gordonsville	...	...	...	...	...	...	...	...	1144
16. Charlottesville	...	...	1	...	...	...	...	...	829
17. Warren	...	...	<b>27</b>	...	...	...	...	...	699
18. Darlington Heights	...	...	...	...	...	...	...	...	...
19. Kerr Reservoir	...	...	...	...	...	...	...	...	67
20. Banister WMA	...	...	...	...	...	...	...	...	<b>118</b>
21. Lynchburg	...	...	...	...	...	...	...	...	33
22. Danville	...	...	...	...	...	...	...	...	11
23. Martinsville	...	...	...	...	...	...	...	...	69
24. Philpott Res.	...	...	...	...	...	...	...	...	...
25. Calmes Neck	...	...	...	2	...	...	<b>4</b>	...	2263
26. N. Shen. Valley	...	...	...	...	<b>CW</b>	...	...	...	<b>2587</b>
27. Shen. NP-Luray	...	...	...	...	...	...	...	...	1
28. Big Flat Mtn.	...	...	...	...	...	...	...	...	...
29. Rockingham Co.	...	...	...	2	...	...	...	...	3
30. Augusta Co.	...	...	...	...	...	...	...	...	<b>221</b>
31. Waynesboro	...	...	...	...	...	...	...	...	445
32. Lexington	...	...	...	...	...	...	...	...	<b>30</b>
33. Peaks of Otter	...	...	...	...	...	...	...	...	...
34. Clifton Forge	...	...	...	...	...	...	...	...	...
35. Fincastle	...	...	...	...	...	...	...	...	39
36. Roanoke	...	...	...	...	...	...	...	...	<b>26</b>
37. Blacksburg	...	...	...	...	...	...	...	...	<b>223</b>
38. Claytor Lake	...	...	...	...	...	...	...	...	<b>CW</b>
39. Tazewell	...	...	...	...	...	...	...	...	2
40. Glade Spring	...	...	...	...	...	...	...	...	254
41. Bristol	...	...	...	...	...	...	...	...	284
42. Nickelsville	...	...	...	...	...	...	...	...	<b>16</b>
43. Breaks I.S. Park	...	...	...	...	...	...	...	...	...
44. Wise County	...	...	...	...	...	...	...	...	...
<b>Total individuals</b>	<b>1</b>	<b>1</b>	<b>3825</b>	<b>51</b>	<b>...</b>	<b>15</b>	<b>32,042</b>	<b>14,313</b>	<b>31,229</b>

goose, sp.	Wood Duck	Green-winged Teal (American)	American Black Duck	Mallard	Mallard hybrid	Northern Pintail	Blue-winged Teal	Northern Shoveler	Gadwall	Eurasian Wigeon	American Wigeon
...	45	192	1024	696	...	497	CW	358	162	...	46
...	11	38	127	359	...	1	...	...	14	...	18
...	8	93	1067	789	...	58	...	4	181	...	504
...	94	72	210	1200	...	7	...	47	75	1	291
...	10	565	592	471	...	95	...	15	18	...	31
...	8	...	44	862	...	...	...	40	12	...	337
...	...	...	21	248	...	...	...	...	...	...	CW
...	2	282	259	696	...	106	3	2	12	...	29
...	822	...	129	984	...	...	...	...	...	...	...
...	3	...	9	600	...	1	...	...	6	...	626
...	43	221	3014	3193	...	145	2	51	974	...	79
...	2	...	...	226	...	...	...	...	2	...	...
...	9	...	39	285	...	...	...	...	...	...	...
...	...	...	1	209	...	...	...	...	3	...	6
...	...	...	...	53	...	...	...	...	...	...	...
...	...	...	36	32	...	...	...	...	...	...	...
...	3	18	55	208	...	...	...	...	7	...	...
...	...	...	...	...	...	...	...	...	...	...	...
...	10	8	33	115	...	15	...	...	38	...	12
...	5	...	5	50	...	...	...	...	2	...	...
...	10	...	14	102	...	...	...	...	9	...	...
...	4	...	4	142	...	...	...	...	1	...	...
...	2	...	7	23	...	...	...	...	...	...	...
...	...	...	3	27	...	...	...	...	...	...	...
...	4	3	129	462	...	...	...	...	6	...	10
...	4	64	50	1880	3	8	...	...	4	...	14
...	3	...	4	240	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...
...	...	18	...	328	...	...	...	...	...	...	48
...	1	8	5	260	...	...	...	...	10	...	1
...	...	...	3	98	...	...	...	...	...	...	...
...	...	...	...	24	...	...	...	...	...	...	4
...	...	...	...	...	...	...	...	...	...	...	...
...	1	...	...	2	...	...	...	...	...	...	...
...	...	...	1	73	...	...	...	...	...	...	...
...	10	7	4	245	...	...	...	...	13	...	...
...	1	...	42	454	...	...	...	...	1	...	8
...	...	...	9	681	...	...	...	...	4	...	...
...	1	...	...	70	...	...	...	...	...	...	...
3	1	...	70	224	...	...	...	...	...	...	...
...	...	12	3	267	...	...	...	...	...	...	...
...	...	1	...	22	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...
3	1117	1602	7013	16,900	3	933	5	517	1554	1	2064

	Canvasback	Redhead	Ring-necked Duck	Greater Scaup	Lesser Scaup	scaup, sp.	Common Eider	eider, sp.	Harlequin Duck
1. Chincoteague	...	...	...	1	...	...	...	CW	...
2. Wachapreague	...	...	...	...	1	...	...	...	...
3. Cape Charles	1	...	<u>227</u>	32	16	2	1	...	...
4. Little Creek	25	...	103	...	34	...	CW	...	CW
5. Back Bay	...	...	...	CW	6	...	CW	...	...
6. Newport News	204	11	<u>237</u>	...	43	...	...	...	1
7. Mathews	5	...	...	...	...	...	...	...	...
8. Williamsburg	<u>3309</u>	2	<u>547</u>	...	14	...	...	...	...
9. Hopewell	...	2	240	...	<u>42</u>	...	...	...	...
10. Brooke	3	...	3	...	12	...	...	...	...
11. Fort Belvoir	648	4	67	29	2796	7263	...	...	...
12. Manassas-B.R.	...	...	...	...	...	...	...	...	...
13. Nokesville	...	...	2	...	CW	...	...	...	...
14. Lake Anna	...	...	16	...	32	...	...	...	...
15. Gordonsville	...	...	5	...	...	...	...	...	...
16. Charlottesville	...	...	...	...	...	...	...	...	...
17. Warren	...	...	2	...	...	...	...	...	...
18. Darlington Heights	...	...	...	...	1	...	...	...	...
19. Kerr Reservoir	...	...	<u>410</u>	...	...	...	...	...	...
20. Banister WMA	17	...	<u>6</u>	...	...	...	...	...	...
21. Lynchburg	2	...	21	...	...	...	...	...	...
22. Danville	...	...	1	...	...	...	...	...	...
23. Martinsville	...	...	...	...	...	...	...	...	...
24. Philpott Res.	...	...	1	...	...	...	...	...	...
25. Calmes Neck	...	...	<u>190</u>	...	...	...	...	...	...
26. N. Shen. Valley	1	...	<u>45</u>	...	...	...	...	...	...
27. Shen. NP-Luray	1	...	...	...	1	...	...	...	...
28. Big Flat Mtn.	...	...	...	...	...	...	...	...	...
29. Rockingham Co.	...	...	...	...	...	...	...	...	...
30. Augusta Co.	...	...	...	...	...	...	...	...	...
31. Waynesboro	...	...	...	...	...	...	...	...	...
32. Lexington	...	...	CW	...	1	...	...	...	...
33. Peaks of Otter	...	...	...	...	...	...	...	...	...
34. Clifton Forge	...	...	...	...	...	...	...	...	...
35. Fincastle	...	...	1	...	...	...	...	...	...
36. Roanoke	...	...	...	...	...	...	...	...	...
37. Blacksburg	...	...	...	...	51	...	...	...	...
38. Claytor Lake	...	...	2	...	...	...	...	...	...
39. Tazewell	...	...	2	...	...	...	...	...	...
40. Glade Spring	...	...	...	...	...	...	...	...	...
41. Bristol	...	...	19	...	...	...	...	...	...
42. Nickelsville	...	...	...	...	...	...	...	...	...
43. Breaks I.S. Park	...	...	...	...	...	...	...	...	...
44. Wise County	...	...	...	...	...	...	...	...	...
<b>Total individuals</b>	<b>4216</b>	<b>19</b>	<b>2147</b>	<b>62</b>	<b>3050</b>	<b>7265</b>	<b>1</b>	<b>...</b>	<b>1</b>

Oldsquaw	Black Scoter	Surf Scoter	White-winged Scoter	scoter, sp.	Common Goldeneye	Bufflehead	Hooded Merganser	Common Merganser	Red-breasted Merganser	Ruddy Duck	duck, sp.
11	47	44	8	5096	3	357	66	1	232	88	
...	...	...	...	...	2	254	93	...	24	25	...
70	396	1560	48	<u>20,200</u>	53	720	137	...	<u>11,465</u>	1	<u>23,000</u>
108	179	252	41	2000	10	503	448	15	767	4	...
CW	1	6	CW	...	CW	6	54	...	121	30	...
68	4	36	4	...	20	252	193	...	165	296	...
65	...	120	...	...	124	567	13	13	224	4	8
...	...	...	...	...	12	196	253	CW	2	1835	...
...	...	...	...	...	...	40	42	14	...	20	...
1	...	...	...	...	47	41	<u>48</u>	52	60	...	...
13	...	1	4	46	7	1190	330	346	26	1013	...
...	...	...	...	...	1	...	<u>44</u>	...	...	3	...
...	...	...	...	...	...	1	4	...	...	1	...
<u>3</u>	...	...	...	...	1	79	47	3	1	1	...
...	...	...	...	...	...	13	<u>65</u>	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	2	2	1	...	...	...
...	...	...	...	...	<u>3</u>	2	<u>18</u>	...	...	...	...
...	...	...	...	...	...	<u>41</u>	35	...	...	...	...
...	...	...	...	...	...	3	11	15	...	...	...
...	...	...	...	...	2	2	9	...	...	CW	...
...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	39	...	...	...	...
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	Black Vulture	Turkey Vulture	Osprey	Bald Eagle	Northern Harrier	Sharp-shinned Hawk	Cooper's Hawk	Northern Goshawk	Accipiter, sp.
1. Chincoteague	58	191	...	...	26	5	2	...	...
2. Wachapreague	72	293	...	3	21	11	5	...	...
3. Cape Charles	93	219	1	7	50	16	3	...	...
4. Little Creek	...	2	1	1	7	16	4	...	...
5. Back Bay	13	36	...	...	39	12	1	...	...
6. Newport News	...	2	...	...	9	14	1	...	...
7. Mathews	...	33	...	...	3	4	2	...	...
8. Williamsburg	24	156	...	12	6	8	1	...	...
9. Hopewell	22	59	...	61	16	12	1	...	...
10. Brooke	49	74	...	10	5	1	2	...	...
11. Fort Belvoir	...	26	...	64	1	13	5	...	...
12. Manassas-B.R.	...	98	...	...	2	6	2	...	...
13. Nokesville	39	165	...	2	10	9	3	...	...
14. Lake Anna	49	122	...	3	3	4	1	...	...
15. Gordonsville	33	97	...	...	1	2	2	...	...
16. Charlottesville	154	329	...	...	...	5	2	...	...
17. Warren	25	61	...	1	4	4	2	...	...
18. Darlington Heights	21	84	...	...	7	1	1	...	...
19. Kerr Reservoir	36	22	...	4	14	2	4	...	...
20. Banister WMA	41	281	...	5	3	3	1	...	...
21. Lynchburg	232	427	...	...	1	4	1	...	1
22. Danville	CW	1	...	...	1	2	1	...	...
23. Martinsville	9	96	...	...	...	1	1	...	1
24. Philpott Res.	...	11	...	...	...	2	...	...	...
25. Calmes Neck	12	8	...	2	1	2	1	...	...
26. N. Shen. Valley	97	317	...	1	5	8	8	...	...
27. Shen. NP-Luray	21	110	...	...	3	12	7	...	...
28. Big Flat Mtn.	3	15	...	...	...	1	...	...	...
29. Rockingham Co.	59	745	...	...	...	2	1	...	...
30. Augusta Co.	55	816	...	...	6	9	1	...	...
31. Waynesboro	38	74	...	...	2	5	1	...	...
32. Lexington	114	52	...	...	...	1	...	...	...
33. Peaks of Otter	10	4	...	...	...	2	2	...	...
34. Clifton Forge	CW	5	...	...	1	2	...	...	...
35. Fincastle	16	65	...	...	...	7	1	1	...
36. Roanoke	171	254	...	...	...	4	2	...	...
37. Blacksburg	192	62	...	1	...	6	1	...	...
38. Claytor Lake	15	4	...	...	5	1	...	...	...
39. Tazewell	1	...	...	...	...	...	...	...	...
40. Glade Spring	70	7	...	...	...	2	1	...	...
41. Bristol	143	39	...	1	...	2	4	...	...
42. Nickelsville	...	1	...	...	...	...	1	...	...
43. Breaks I.S. Park	...	...	...	...	...	...	...	...	...
44. Wise County	...	...	...	...	...	1	1	...	...
<b>Total individuals</b>	<b>1987</b>	<b>5463</b>	<b>2</b>	<b>178</b>	<b>252</b>	<b>224</b>	<b>80</b>	<b>1</b>	<b>2</b>

Red-shouldered Hawk	Red-tailed Hawk	Rough-legged Hawk	Buteo, sp.	American Kestrel	Merlin	Peregrine Falcon	falcon, sp.	hawk, sp.	Ring-necked Pheasant	Ruffed Grouse	Wild Turkey
1	17	2	...	27	1	1	...	3	...	...	...
2	24	...	...	58	...	1	...	...	...	...	...
2	42	...	...	44	3	4	...	...	...	...	...
2	23	1	...	25	1	2	...	...	...	...	...
11	41	...	...	67	4	...	...	...	...	...	...
2	10	...	...	25	1	...	...	1	...	...	...
6	7	...	...	8	1	...	...	...	...	...	7
6	14	...	...	13	...	...	...	...	...	...	...
12	44	...	...	20	...	...	...	...	1	...	3
12	19	...	...	8	...	...	...	...	...	...	...
34	37	...	...	5	...	...	...	...	...	...	1
22	24	...	1	16	...	...	...	...	...	...	4
15	63	...	...	67	...	...	...	...	...	6	CW
7	18	...	...	11	...	...	...	...	...	...	...
3	14	...	...	10	...	...	...	...	...	...	...
4	41	...	...	6	...	...	...	...	...	...	...
5	38	...	...	19	...	...	...	...	...	...	...
4	16	...	...	17	...	...	...	...	...	...	12
4	28	...	...	29	...	...	...	...	...	...	13
4	16	1	...	10	...	...	...	...	...	...	8
1	30	...	...	15	...	...	...	...	...	...	29
...	12	...	...	6	...	...	...	...	...	...	1
1	24	...	1	20	...	...	...	...	...	...	CW
...	8	...	...	6	...	...	...	...	...	...	...
3	66	1	...	31	...	...	...	...	1	16	CW
1	53	2	...	53	...	...	...	...	...	1	34
1	56	1	...	23	...	...	...	...	...	12	10
...	3	...	...	...	...	...	...	...	...	5	8
...	33	...	...	42	...	...	...	...	...	2	...
...	50	...	...	67	...	...	1	...	...	1	...
1	36	...	...	22	1	...	...	...	...	2	...
3	9	...	...	7	1	...	...	...	...	2	2
...	6	...	...	1	...	...	...	...	...	1	...
1	1	...	...	3	...	...	...	...	...	2	6
3	19	...	...	29	...	...	...	...	...	1	...
1	21	...	...	26	...	1	...	...	...	...	3
...	16	...	...	14	...	...	...	...	...	...	...
...	6	...	...	18	...	...	...	...	...	...	CW
...	10	...	...	7	...	...	...	...	...	1	...
...	4	CW	...	54	...	...	...	...	...	1	20
...	10	...	...	38	...	...	...	...	...	1	...
1	5	...	...	18	...	...	...	...	...	...	...
1	1	...	...	...	...	...	...	...	...	1	14
1	4	...	...	7	...	...	...	...	...	4	...
<b>177</b>	<b>1019</b>	<b>8</b>	<b>2</b>	<b>992</b>	<b>13</b>	<b>9</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>59</b>	<b>175</b>

	Northern Bobwhite	Yellow Rail	Clapper Rail	King Rail	Virginia Rail	Sora	Common Moorhen	American Coot	Black-bellied Plover
1. Chincoteague	39	...	5	...	4	...	...	24	98
2. Wachapreague	46	...	11	...	<u>12</u>	...	...	...	...
3. Cape Charles	21	...	33	2	17	...	1	14	472
4. Little Creek	3	...	24	...	...	...	...	93	9
5. Back Bay	11	1	9	15	11	3	5	5	22
6. Newport News	9	...	9	...	...	1	...	8	12
7. Mathews	40	...	<u>26</u>	...	...	...	...	...	...
8. Williamsburg	13	...	1	...	...	...	...	...	...
9. Hopewell	37	...	...	...	...	...	...	2	...
10. Brooke	3	...	...	...	...	...	...	500	...
11. Fort Belvoir	6	...	...	...	...	...	...	1651	...
12. Manassas-B.R.	...	...	...	...	...	...	...	50	...
13. Nokesville	13	...	...	...	...	...	...	...	...
14. Lake Anna	5	...	...	...	...	...	...	160	...
15. Gordonsville	12	...	...	...	...	...	...	...	...
16. Charlottesville	12	...	...	...	...	...	...	...	...
17. Warren	35	...	...	...	...	...	...	...	...
18. Darlington Heights	...	...	...	...	...	...	...	...	...
19. Kerr Reservoir	28	...	...	...	6	2	...	10	...
20. Banister WMA	5	...	...	...	...	...	...	...	...
21. Lynchburg	6	...	...	...	...	...	...	15	...
22. Danville	...	...	...	...	...	...	...	...	...
23. Martinsville	14	...	...	...	...	...	...	5	...
24. Philpott Res.	...	...	...	...	...	...	...	...	...
25. Calmes Neck	27	...	...	...	...	...	...	...	...
26. N. Shen. Valley	51	...	...	...	...	...	...	...	...
27. Shen. NP-Luray	24	...	...	...	...	...	...	<u>2</u>	...
28. Big Flat Mtn.	...	...	...	...	...	...	...	...	...
29. Rockingham Co.	...	...	...	...	...	...	...	3	...
30. Augusta Co.	9	...	...	...	...	...	...	...	...
31. Waynesboro	2	...	...	...	...	...	...	...	...
32. Lexington	3	...	...	...	...	...	...	...	...
33. Peaks of Otter	...	...	...	...	...	...	...	...	...
34. Clifton Forge	...	...	...	...	...	...	...	...	...
35. Fincastle	14	...	...	...	...	...	...	...	...
36. Roanoke	1	...	...	...	...	...	...	...	...
37. Blacksburg	...	...	...	...	...	...	...	7	...
38. Claytor Lake	...	...	...	...	...	...	...	<u>72</u>	...
39. Tazewell	...	...	...	...	...	...	...	...	...
40. Glade Spring	4	...	...	...	...	...	...	...	...
41. Bristol	3	...	...	...	...	...	...	27	...
42. Nickelsville	...	...	...	...	...	...	...	...	...
43. Breaks I.S. Park	...	...	...	...	...	...	...	...	...
44. Wise County	2	...	...	...	...	...	...	2	...
<b>Total individuals</b>	<b>498</b>	<b>1</b>	<b>118</b>	<b>17</b>	<b>50</b>	<b>6</b>	<b>6</b>	<b>2650</b>	<b>613</b>

Semipalmated Plover	Killdeer	American Oystercatcher	Greater Yellowlegs	Lesser Yellowlegs	Willet	Whimbrel	Marbled Godwit	Ruddy Turnstone	Red Knot	Sanderling	Western Sandpiper
3	18	90	34	9	3	...	2	12	2	773	15
...	15	1	63	...	...	...	...	5	...	...	106
15	11	368	91	21	75	4	31	72	6	244	547
...	24	39	...	...	...	...	...	35	...	243	2
...	31	...	14	22	...	...	...	...	...	1145	...
...	80	...	2	...	1	...	...	9	...	39	...
...	37	...	1	...	...	...	...	1	...	49	CW
...	46	...	...	...	...	...	...	...	...	...	...
...	484	...	...	...	...	...	...	...	...	...	...
...	24	...	...	...	...	...	...	...	...	...	...
...	172	...	...	...	...	...	...	...	...	...	...
...	7	...	...	...	...	...	...	...	...	...	...
...	65	...	...	...	...	...	...	...	...	...	...
...	5	...	...	...	...	...	...	...	...	...	...
...	22	...	...	...	...	...	...	...	...	...	...
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...	6	...	...	...	...	...	...	...	...	...	...
...	113	...	...	...	...	...	...	...	...	...	...
...	13	...	...	...	...	...	...	...	...	...	...
...	59	...	...	...	...	...	...	...	...	...	...
...	18	...	...	...	...	...	...	...	...	...	...
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...	24	...	...	...	...	...	...	...	...	...	...
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...	9	...	...	...	...	...	...	...	...	...	...
...	4	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...
...	3	...	...	...	...	...	...	...	...	...	...
18	1373	498	205	52	79	4	33	134	8	2493	670

	Least Sandpiper	Purple Sandpiper	Dunlin	peep, sp.	Short-billed Dowitcher	dowitcher, sp.	Common Snipe	American Woodcock	Parasitic Jaeger
1. Chincoteague	24	...	1797	...	5	12	1	9	...
2. Wachapreague	...	...	50	...	...	1	1	CW	...
3. Cape Charles	2	...	3386	...	...	125	9	23	...
4. Little Creek	...	20	44	...	...	...	3	1	1
5. Back Bay	...	...	19	...	...	5	69	6	1
6. Newport News	...	...	60	...	...	...	...	6	...
7. Mathews	...	...	94	70	...	...	...	...	...
8. Williamsburg	...	...	...	...	...	...	...	2	...
9. Hopewell	5	...	...	...	...	...	4	1	...
10. Brooke	...	...	...	...	...	...	...	...	...
11. Fort Belvoir	...	...	...	...	...	...	66	4	...
12. Manassas-B.R.	...	...	...	...	...	...	...	...	...
13. Nokesville	...	...	...	...	...	...	51	2	...
14. Lake Anna	...	...	...	...	...	...	...	...	...
15. Gordonsville	...	...	...	...	...	...	3	...	...
16. Charlottesville	...	...	...	...	...	...	...	...	...
17. Warren	...	...	...	...	...	...	2	...	...
18. Darlington Heights	...	...	...	...	...	...	...	...	...
19. Kerr Reservoir	...	...	...	...	...	...	5	4	...
20. Banister WMA	3	...	...	...	...	...	16	2	...
21. Lynchburg	...	...	...	...	...	...	...	...	...
22. Danville	...	...	...	...	...	...	...	...	...
23. Martinsville	...	...	...	...	...	...	...	...	...
24. Philpott Res.	...	...	...	...	...	...	...	...	...
25. Calmes Neck	...	...	...	...	...	...	1	...	...
26. N. Shen. Valley	...	...	...	...	...	...	22	1	...
27. Shen. NP-Luray	...	...	...	...	...	...	1	...	...
28. Big Flat Mtn.	...	...	...	...	...	...	...	...	...
29. Rockingham Co.	...	...	...	...	...	...	4	...	...
30. Augusta Co.	...	...	...	...	...	...	8	...	...
31. Waynesboro	...	...	...	...	...	...	1	1	...
32. Lexington	...	...	...	...	...	...	...	1	...
33. Peaks of Otter	...	...	...	...	...	...	...	...	...
34. Clifton Forge	...	...	...	...	...	...	...	2	...
35. Fincastle	...	...	...	...	...	...	2	...	...
36. Roanoke	...	...	...	...	...	...	2	...	...
37. Blacksburg	...	...	...	...	...	...	3	...	...
38. Claytor Lake	...	...	...	...	...	...	1	...	...
39. Tazewell	...	...	...	...	...	...	...	...	...
40. Glade Spring	...	...	...	...	...	...	7	...	...
41. Bristol	...	...	...	...	...	...	1	...	...
42. Nickelsville	...	...	...	...	...	...	...	...	...
43. Breaks I.S. Park	...	...	...	...	...	...	...	...	...
44. Wise County	...	...	...	...	...	...	...	1	...
<b>Total individuals</b>	<b>34</b>	<b>20</b>	<b>5450</b>	<b>70</b>	<b>5</b>	<b>143</b>	<b>283</b>	<b>66</b>	<b>2</b>

[illegible]

	Common Tern	Forster's Tern	Rock Dove	Mourning Dove	Monk Parakeet	Barn Owl	Eastern Screech-Owl	Great Horned Owl	Snowy Owl
1. Chincoteague	...	...	135	429	...	...	7	4	...
2. Wachapreague	<u>1</u>	14	170	357	<u>1</u>	...	8	1	...
3. Cape Charles	...	3	263	489	...	3	4	8	...
4. Little Creek	...	8	1100	1390	...	...	4	5	...
5. Back Bay	...	86	115	<u>1070</u>	...	...	1	8	...
6. Newport News	...	203	719	1280	...	...	5	2	...
7. Mathews	...	2	27	284	...	...	...	4	...
8. Williamsburg	...	<u>148</u>	88	137	...	...	3	<u>15</u>	...
9. Hopewell	...	...	319	426	...	1	1	6	...
10. Brooke	...	...	56	203	...	...	...	...	...
11. Fort Belvoir	...	...	<u>564</u>	1156	...	1	<u>16</u>	13	...
12. Manassas-B.R.	...	...	424	355	...	...	...	1	...
13. Nokesville	...	...	<u>410</u>	699	...	4	5	13	...
14. Lake Anna	...	...	20	89	...	...	3	3	...
15. Gordonsville	...	...	114	141	...	CW	1	4	...
16. Charlottesville	...	...	127	312	...	...	7	3	...
17. Warren	...	...	147	834	...	...	4	1	...
18. Darlington Heights	...	...	20	34	...	...	1	...	...
19. Kerr Reservoir	...	...	55	200	...	...	2	3	...
20. Banister WMA	...	...	51	211	...	...	3	6	...
21. Lynchburg	...	...	377	388	...	...	5	2	...
22. Danville	...	...	65	338	...	...	<u>4</u>	1	...
23. Martinsville	...	...	97	580	...	...	1	...	...
24. Philpott Res.	...	...	43	137	...	...	5	2	...
25. Calmes Neck	...	...	564	949	...	...	8	4	...
26. N. Shen. Valley	...	...	<u>1632</u>	1588	...	2	25	6	CW
27. Shen. NP-Luray	...	...	473	791	...	1	<u>32</u>	7	...
28. Big Flat Mtn.	...	...	...	<u>12</u>	...	...	<u>4</u>	1	...
29. Rockingham Co.	...	...	562	483	...	...	...	2	...
30. Augusta Co.	...	...	494	760	...	1	4	2	...
31. Waynesboro	...	...	128	179	...	1	1	...	...
32. Lexington	...	...	39	86	...	...	13	...	...
33. Peaks of Otter	...	...	...	2	...	...	3	...	...
34. Clifton Forge	...	...	135	8	...	...	1	...	...
35. Fincastle	...	...	110	128	...	...	8	2	...
36. Roanoke	...	...	617	554	...	1	3	3	...
37. Blacksburg	...	...	793	1278	...	1	2	1	...
38. Claytor Lake	...	...	184	174	...	...	2	1	...
39. Tazewell	...	...	44	76	...	...	3	2	...
40. Glade Spring	...	...	158	154	...	CW	3	1	...
41. Bristol	...	...	191	<u>826</u>	...	...	7	5	...
42. Nickelsville	...	...	25	231	...	...	...	...	...
43. Breaks I.S. Park	...	...	...	10	...	...	...	...	...
44. Wise County	...	...	52	53	...	...	5	1	...
<b>Total individuals</b>	<b>1</b>	<b>464</b>	<b>11,707</b>	<b>19,881</b>	<b>1</b>	<b>16</b>	<b>214</b>	<b>143</b>	<b>...</b>

	Barred Owl	Short-eared Owl	Belted Kingfisher	Red-headed Woodpecker	Red-bellied Woodpecker	Yellow-bellied Sapsucker	Downy Woodpecker	Hairy Woodpecker	Northern Flicker	Pileated Woodpecker	Eastern Phoebe	Western Kingbird
...	...	1	37	...	40	3	39	11	151	8	8	...
...	...	...	<u>29</u>	CW	<u>33</u>	2	24	9	61	4	<u>19</u>	...
...	...	2	28	...	27	7	33	3	186	6	7	<u>3</u>
1	...	...	38	4	55	3	39	2	124	22	2	...
1	...	...	29	...	42	6	30	2	131	22	7	...
...	...	...	53	...	40	1	20	2	121	9	1	...
...	...	...	33	...	52	6	37	...	94	10	...	...
3	...	...	26	4	44	24	24	4	64	24	<u>12</u>	...
5	...	...	14	5	86	23	47	2	154	16	15	...
1	...	...	13	12	54	12	57	12	80	27	11	...
9	...	...	53	10	273	40	238	57	280	72	11	...
1	...	...	5	...	73	3	51	6	57	12	...	...
1	4	4	14	80	11	52	17	96	<u>29</u>	3	...	...
4	...	...	19	<u>6</u>	<u>34</u>	<u>22</u>	23	8	27	<u>13</u>	<u>8</u>	...
...	...	...	5	2	12	7	25	4	28	7	1	...
...	...	...	23	...	73	32	61	10	73	32	<u>16</u>	...
3	...	...	11	<u>19</u>	97	<u>47</u>	83	15	<u>131</u>	<u>54</u>	<u>21</u>	...
...	...	...	3	...	8	10	7	...	11	5	11	...
4	...	...	14	...	10	8	14	7	35	5	<u>26</u>	<u>1</u>
3	...	...	4	6	21	13	29	8	58	5	<u>11</u>	...
...	...	...	16	4	66	26	72	11	<u>127</u>	37	13	...
2	...	...	6	2	12	3	9	3	14	4	2	...
...	...	...	8	...	24	7	29	9	38	5	10	...
...	...	...	7	...	18	7	33	5	<u>33</u>	<u>37</u>	<u>12</u>	...
1	...	...	<u>25</u>	12	<u>211</u>	23	<u>247</u>	32	<u>124</u>	<u>76</u>	4	...
1	...	...	44	8	125	12	148	20	106	<u>71</u>	1	...
3	...	...	14	1	53	18	74	7	25	33	7	...
2	...	...	...	...	17	5	28	5	18	21	1	...
...	...	...	10	3	26	...	22	1	5	8	...	...
...	6	7	...	51	3	3	50	9	<u>65</u>	9	1	...
1	<u>1</u>	12	1	29	10	58	10	15	24	10	...	...
1	...	12	...	15	7	31	5	15	16	5	...	...
...	...	...	1	...	6	25	25	4	11	11	<u>14</u>	...
...	...	...	4	...	6	<u>8</u>	30	3	<u>19</u>	8	3	...
...	...	...	16	4	11	12	23	5	22	13	7	...
2	...	...	24	1	11	13	25	6	25	17	7	...
...	...	...	19	2	24	7	51	3	20	10	3	...
...	...	...	6	...	6	3	25	5	11	3	2	...
1	...	...	8	1	3	1	13	...	1	2	...	...
...	...	...	14	...	4	...	18	2	13	CW	2	...
...	...	...	10	...	<u>21</u>	2	25	2	<u>25</u>	13	5	...
1	...	...	9	...	5	1	8	5	6	2	1	...
...	...	...	...	...	...	...	3	1	1	3	...	...
1	...	...	4	...	4	...	28	1	6	6	1	...
<b>52</b>	<b>14</b>	<b>717</b>	<b>121</b>	<b>1902</b>	<b>473</b>	<b>2008</b>	<b>333</b>	<b>2707</b>	<b>811</b>	<b>301</b>	<b>4</b>	



	Horned Lark	Tree Swallow	Barn Swallow	Blue Jay	American Crow	Fish Crow	crow, sp.	Common Raven	Black-capped Chickadee
1. Chincoteague	11	...	...	117	103	...	...	...	...
2. Wachapreague	...	...	...	37	642	19	39	...	...
3. Cape Charles	35	5	...	35	476	61	1	...	...
4. Little Creek	1	...	...	93	655	2600	...	...	...
5. Back Bay	...	...	...	98	313	36	...	...	...
6. Newport News	15	...	...	92	577	8	...	...	...
7. Mathews	...	...	...	144	466	1	20	...	...
8. Williamsburg	...	14	1	56	333	...	...	...	...
9. Hopewell	12	...	...	31	356	25	394	...	...
10. Brooke	...	...	...	191	350	23	...	...	...
11. Fort Belvoir	1	...	...	332	1848	569	528	...	...
12. Manassas-B.R.	...	...	...	296	384	7	66	...	...
13. Nokesville	30	...	...	609	796	458	449	...	...
14. Lake Anna	...	...	...	268	357	2	...	...	...
15. Gordonsville	...	...	...	120	445	...	...	1	...
16. Charlottesville	2	...	...	146	1622	328	...	7	...
17. Warren	240	...	...	471	596	12	...	...	...
18. Darlington Heights	...	...	...	35	495	...	...	...	...
19. Kerr Reservoir	...	...	...	76	310	...	...	...	...
20. Banister WMA	...	...	...	134	465	...	...	...	...
21. Lynchburg	...	...	...	288	644	1	...	3	...
22. Danville	30	...	...	153	264	...	...	...	...
23. Martinsville	...	...	...	197	263	...	...	3	...
24. Philpott Res.	10	...	...	151	448	...	...	2	...
25. Calmes Neck	...	...	...	355	662	...	...	10	14
26. N. Shen. Valley	23	...	...	361	2009	6	...	9	8
27. Shen. NP-Luray	168	...	...	240	1675	2	...	74	5
28. Big Flat Mtn.	...	...	...	3	23	...	...	7	...
29. Rockingham Co.	91	...	...	112	403	1	...	7	...
30. Augusta Co.	97	...	...	357	602	189	202	3	3
31. Waynesboro	...	...	...	143	4931	337	252	26	1
32. Lexington	...	...	...	220	468	...	...	3	11
33. Peaks of Otter	...	...	...	5	68	...	...	24	1
34. Clifton Forge	35	...	...	85	242	...	...	7	2
35. Fincastle	...	...	...	133	734	...	...	4	2
36. Roanoke	...	...	...	105	618	...	...	3	3
37. Blacksburg	...	...	...	198	699	...	...	1	1
38. Claytor Lake	38	...	...	82	414	...	...	1	1
39. Tazewell	...	...	...	37	317	...	...	8	...
40. Glade Spring	...	...	...	116	493	...	...	...	...
41. Bristol	...	...	...	164	630	...	...	7	...
42. Nickelsville	...	...	...	69	119	...	...	...	...
43. Breaks I.S. Park	...	...	...	3	17	...	...	...	...
44. Wise County	6	...	...	32	292	...	...	3	...
Total individuals	845	19	1	6990	28,624	4685	1951	213	52

	Carolina Chickadee	chickadee, sp.	Tufted Titmouse	Red-breasted Nuthatch	White-breasted Nuthatch	Brown-headed Nuthatch	Brown Creeper	Carolina Wren	House Wren	Winter Wren	Sedge Wren	Marsh Wren
156	...	...	40	...	2	35	8	139	6	11	...	2
138	...	...	19	...	1	19	2	167	1	10	...	...
305	...	...	24	...	1	5	8	207	16	17	10	7
189	...	...	72	...	17	32	22	71	3	7	2	5
126	...	...	44	...	15	16	2	146	3	6	61	33
157	...	...	106	...	1	5	5	114	...	4	...	1
125	...	...	68	...	...	6	1	146	...	1	...	...
109	...	...	86	4	29	6	4	94	2	4	...	3
222	...	...	62	...	21	...	20	167	1	6	...	...
181	...	...	176	...	50	...	8	74	1	2	...	...
1129	...	...	822	3	172	...	63	393	4	26	...	...
159	...	...	95	4	21	...	3	53	...	...	...	...
198	...	...	125	5	43	...	12	26	...	2	...	...
125	...	...	70	16	25	...	6	54	...	5	...	...
89	...	...	33	...	19	...	2	23	...	2	...	...
285	...	...	160	1	64	...	9	204	...	10	...	1
215	...	...	75	4	35	...	11	208	...	8	...	...
55	...	...	11	2	2	...	3	16	...	1	...	...
71	...	...	23	2	6	7	8	61	1	12	...	1
110	...	...	72	7	26	2	6	61	...	15	...	...
252	...	...	205	7	50	...	19	216	...	9	...	...
49	...	...	21	...	10	4	1	35	...	1	...	...
127	7	...	67	6	7	14	2	78	...	4	...	...
176	18	...	89	6	23	6	8	137	...	6	...	...
634	...	...	375	1	199	...	59	177	...	16	...	...
578	...	...	283	3	117	...	46	173	...	14	...	...
372	...	...	258	11	80	...	36	106	...	7	...	...
30	...	...	29	1	13	...	7	32	...	4	...	...
25	...	...	63	8	15	...	3	40	...	2	...	...
158	...	...	106	5	38	...	11	76	...	5	...	...
241	...	...	146	1	62	...	7	96	...	8	...	...
58	46	...	73	...	40	...	5	65	...	5	...	...
158	...	...	68	1	30	...	9	38	...	3	...	...
137	...	...	84	15	43	...	7	30	...	2	...	...
113	...	...	49	7	20	...	7	77	...	7	...	...
201	...	...	62	3	10	...	9	167	...	6	...	...
131	64	...	112	6	31	...	23	114	...	10	...	...
92	8	...	55	11	25	...	15	47	...	7	...	...
33	...	...	51	2	14	...	2	30	...	1	...	...
32	...	...	36	...	2	...	...	29	1	CW	...	...
77	...	...	51	2	21	...	2	81	...	2	...	...
37	...	...	149	...	9	...	4	23	...	3	...	...
15	...	...	7	...	5	...	...	3	...	...	...	...
94	...	...	85	7	41	...	2	43	...	1	...	...
7964	143	4707	151	1455	157	487	4337	39	272	73	53	



	Golden-crowned Kinglet	Ruby-crowned Kinglet	Blue-gray Gnatcatcher	Eastern Bluebird	Hermit Thrush	American Robin	Gray Catbird	Northern Mockingbird	Brown Thrasher
1. Chincoteague	51	7	...	137	6	220	39	54	14
2. Wachapreague	<u>83</u>	10	...	<u>299</u>	9	497	7	61	2
3. Cape Charles	76	24	<u>1</u>	36	17	7	18	47	16
4. Little Creek	127	26	...	9	9	217	6	39	12
5. Back Bay	45	39	...	80	7	865	42	85	21
6. Newport News	22	11	...	30	2	131	3	102	6
7. Mathews	17	10	<u>1</u>	537	11	766	6	127	13
8. Williamsburg	43	54	...	149	21	175	...	38	3
9. Hopewell	92	84	...	196	21	628	3	39	3
10. Brooke	62	15	...	<u>409</u>	27	<u>880</u>	1	94	2
11. Fort Belvoir	161	55	...	<u>258</u>	40	372	4	213	3
12. Manassas-B.R.	41	2	...	65	5	<u>825</u>	...	59	...
13. Nokesville	45	3	...	<u>390</u>	11	4190	...	<u>180</u>	...
14. Lake Anna	<u>106</u>	27	...	196	18	1023	...	64	...
15. Gordonsville	18	8	...	132	1	316	<u>1</u>	33	1
16. Charlottesville	188	33	...	165	33	915	...	71	...
17. Warren	126	23	...	<u>304</u>	<u>28</u>	<u>2347</u>	...	117	...
18. Darlington Heights	20	10	...	<u>191</u>	4	<u>753</u>	...	18	...
19. Kerr Reservoir	90	47	...	<u>238</u>	29	<u>635</u>	1	34	5
20. Banister WMA	97	25	...	235	13	<u>671</u>	...	29	1
21. Lynchburg	85	32	...	<u>375</u>	18	277	...	105	...
22. Danville	19	4	...	50	1	<u>405</u>	...	29	1
23. Martinsville	67	43	...	77	30	<u>603</u>	...	31	2
24. Philpott Res.	142	34	...	135	16	<u>5053</u>	...	16	...
25. Calmes Neck	40	6	...	228	7	<u>173</u>	<u>2</u>	211	...
26. N. Shen. Valley	38	6	...	426	9	378	...	220	...
27. Shen. NP-Luray	74	19	...	323	19	673	...	127	...
28. Big Flat Mtn.	16	4	...	16	5	<u>1234</u>	...	...	...
29. Rockingham Co.	24	1	...	60	2	41	...	32	...
30. Augusta Co.	22	4	...	129	<u>5</u>	123	...	127	1
31. Waynesboro	58	32	...	114	5	150	...	82	1
32. Lexington	90	9	...	81	15	1104	...	42	...
33. Peaks of Otter	52	17	...	50	14	35	...	2	...
34. Clifton Forge	55	8	...	11	11	<u>127</u>	<u>1</u>	21	1
35. Fincastle	58	30	...	126	15	53	...	50	1
36. Roanoke	70	17	...	57	7	30	...	56	...
37. Blacksburg	51	5	...	57	1	<u>141</u>	...	79	1
38. Claytor Lake	83	1	...	32	1	<u>235</u>	...	19	1
39. Tazewell	1	2	...	11	4	4	...	3	1
40. Glade Spring	32	3	...	40	...	3	...	32	1
41. Bristol	43	9	...	57	8	<u>608</u>	...	79	1
42. Nickelsville	5	...	...	69	...	<u>1616</u>	...	17	2
43. Breaks I.S. Park	6	...	...	...	...	5	...	...	...
44. Wise County	19	...	...	22	8	50	...	7	1
<b>Total individuals</b>	2660	799	2	6602	513	29,554	134	289	117

	American Pipit	Cedar Waxwing	Loggerhead Shrike	European Starling	Solitary Vireo	Orange-crowned Warbler	Cape May Warbler	Yellow-rumped Warbler	Pine Warbler	Palm Warbler	Black-and-white Warbler	Common Yellowthroat
...	6	96	...	5148	...	...	...	<u>13,384</u>	32	5	...	2
...	<u>337</u>	...	...	3872	...	<u>2</u>	...	<u>1975</u>	19	7	...	...
268	312	...	...	3557	...	<u>2</u>	...	2592	8	9	<u>1</u>	2
1	488	...	...	9325	1	3	...	980	37	3	...	4
19	49	...	...	2700	1	1	...	2130	16	8	...	11
4	200	...	...	5007	...	...	...	1012	4	...	...	...
1	879	...	...	1362	...	...	...	1342	4	3	...	...
...	526	...	...	1438	<u>1</u>	<u>3</u>	...	548	6	<u>9</u>	...	...
<u>484</u>	965	2	...	1456	...	...	...	258	2	...	...	...
...	266	...	...	1600	...	...	...	53	...	...	...	...
4	414	1	...	<u>4832</u>	...	1	...	250	<u>2</u>	...	...	2
...	421	...	...	6944	...	...	...	93	...	...	...	<u>1</u>
91	<u>1014</u>	2	...	<u>32,970</u>	...	...	...	<u>345</u>	...	1	...	...
<u>31</u>	205	1	...	176	...	...	...	142	<u>4</u>	...	...	...
...	59	3	...	1417	...	...	...	118	<u>1</u>	...	...	...
...	468	2	...	756	...	...	...	207	...	...	...	...
<u>56</u>	<u>1194</u>	2	...	1276	...	...	...	<u>340</u>	1	...	...	...
<u>180</u>	146	2	...	4346	...	...	...	66	<u>11</u>	...	...	...
46	475	8	...	130	...	...	...	175	29	1	...	3
<u>80</u>	<u>630</u>	1	...	450	...	...	...	<u>155</u>	9	...	...	...
...	821	...	...	4544	...	...	...	<u>179</u>	11	...	...	...
...	161	...	...	838	...	...	...	10	1	...	...	...
...	279	...	...	2908	...	...	...	70	4	...	...	...
...	<u>356</u>	...	...	812	<u>3</u>	...	...	20	10	...	...	...
...	151	6	...	2217	...	...	...	4	...	...	...	...
...	<u>1807</u>	<u>16</u>	...	21,181	...	...	<u>1</u>	148	1	...	...	<u>1</u>
...	382	2	...	3697	...	...	...	141	2	...	...	...
...	11	...	...	...	...	...	...	...	...	...	...	...
10	7	2	...	6162	...	...	...	11	...	...	...	...
...	51	2	...	53,204	...	...	...	99	...	...	...	...
...	<u>432</u>	2	...	21,411	...	...	...	81	...	...	...	...
...	210	2	...	859	...	...	...	217	...	...	...	...
...	44	...	...	...	...	...	...	19	<u>1</u>	...	...	...
...	87	...	...	231	...	...	...	19	2	...	...	...
...	<u>458</u>	4	...	1804	...	...	...	143	1	...	...	...
...	142	...	...	5287	...	...	...	52	...	...	...	...
...	1	3	...	2739	...	...	...	33	<u>1</u>	...	<u>1</u>	...
...	314	...	...	1377	...	...	...	<u>52</u>	...	...	...	...
...	...	1	...	671	...	...	...	1	...	...	...	...
...	4	7	...	1686	...	...	...	12	...	...	...	...
...	<u>272</u>	3	...	3720	...	...	...	<u>102</u>	...	...	...	...
...	233	3	...	275	...	...	...	<u>290</u>	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...
...	4	...	...	229	...	...	...	3	...	...	...	...
<b>Total individuals</b>	1281	15,371	77	224,614	6	12	1	27,871	219	46	2	26

	Yellow-breasted Chat	Northern Cardinal	Black-headed Grosbeak	Painted Bunting	Rufous-sided Towhee	American Tree Sparrow	Chipping Sparrow	Field Sparrow	Vesper Sparrow
1. Chincoteague	1	111	...	1	66	2	120	78	...
2. Wachapreague	...	140	...	...	22	...	73	67	...
3. Cape Charles	...	273	1	...	67	...	1	38	2
4. Little Creek	...	166	...	...	166	...	12	25	1
5. Back Bay	...	128	...	...	68	...	63	99	...
6. Newport News	...	124	...	...	19	...	4	24	...
7. Mathews	...	269	...	...	44	2	76	266	...
8. Williamsburg	...	71	...	...	48	...	14	61	...
9. Hopewell	...	219	...	...	21	1	...	80	...
10. Brooke	...	164	...	...	15	...	2	38	...
11. Fort Belvoir	...	579	...	...	29	5	...	89	...
12. Manassas-B.R.	...	169	...	...	26	...	...	27	...
13. Nokesville	...	212	...	...	17	5	...	72	...
14. Lake Anna	...	48	...	...	18	...	1	96	...
15. Gordonsville	...	80	...	...	4	...	2	13	...
16. Charlottesville	...	304	...	...	35	...	1	179	2
17. Warren	...	274	...	...	61	...	...	189	...
18. Darlington Heights	...	33	...	...	6	...	...	6	...
19. Kerr Reservoir	...	85	...	...	28	...	2	230	...
20. Banister WMA	...	125	...	...	15	...	4	27	...
21. Lynchburg	...	235	...	...	38	...	6	60	...
22. Danville	...	75	...	...	7	...	...	37	...
23. Martinsville	...	90	...	...	42	...	1	95	...
24. Philpott Res.	...	117	...	...	20	...	...	37	...
25. Calmes Neck	...	941	...	...	2	19	...	16	...
26. N. Shen. Valley	...	404	...	...	1	17	...	19	...
27. Shen. NP-Luray	...	402	...	...	1	1	...	32	...
28. Big Flat Mtn.	...	16	...	...	1	...	...	...	...
29. Rockingham Co.	...	65	...	...	1	...	...	7	...
30. Augusta Co.	...	166	...	...	25	1	...	47	1
31. Waynesboro	...	134	...	...	14	3	4	80	...
32. Lexington	...	70	...	...	16	...	2	42	...
33. Peaks of Otter	...	53	...	...	9	...	...	34	...
34. Clifton Forge	...	41	...	...	23	...	...	17	...
35. Fincastle	...	99	...	...	9	...	...	109	...
36. Roanoke	...	154	...	...	10	...	...	36	...
37. Blacksburg	...	134	...	...	16	...	...	13	...
38. Claytor Lake	...	40	...	...	9	...	...	2	...
39. Tazewell	...	36	...	...	9	...	...	6	...
40. Glade Spring	...	137	...	...	16	...	13	32	...
41. Bristol	...	139	...	...	26	...	...	81	...
42. Nickelsville	...	86	...	...	19	...	...	101	...
43. Breaks I.S. Park	...	20	...	...	...	...	...	...	...
44. Wise County	...	61	...	...	11	...	...	21	...
Total individuals	1	7289	1	1	1100	56	401	2628	6

	Lark Sparrow	Savannah Sparrow	Savannah (Ipswich) Sparrow	Le Conte's Sparrow	Sharp-tailed Sparrow	Seaside Sparrow	Fox Sparrow	Song Sparrow	Lincoln's Sparrow	Swamp Sparrow	White-throated Sparrow	White-crowned Sparrow
...	...	98	1	...	15	14	3	528	...	191	408	CW
...	...	63	...	...	...	...	5	149	...	15	426	2
...	...	94	3	...	23	12	64	402	1	226	551	1
...	...	41	2	...	9	3	5	184	...	54	270	2
1	141	8	1	1	...	...	2	367	1	253	282	...
...	12	...	...	...	...	...	CW	73	...	8	187	...
...	14	...	...	...	2	...	1	215	...	14	383	...
...	25	...	...	...	...	...	CW	145	...	126	207	...
...	12	...	...	...	...	...	5	217	...	9	720	2
...	1	...	...	...	...	...	...	131	...	5	500	2
...	2	...	...	...	...	...	2	483	...	94	574	4
...	...	...	...	...	...	...	1	179	...	...	123	16
...	47	...	...	...	...	...	...	248	...	24	352	62
1	1	...	...	...	...	...	6	147	...	28	175	9
...	...	...	...	...	...	...	...	39	...	...	216	9
...	7	...	...	...	...	...	5	423	...	15	949	15
...	37	...	...	...	...	...	6	626	...	43	1181	47
...	...	...	...	...	...	...	1	38	...	...	84	...
...	100	...	...	...	...	...	1	525	...	380	405	3
...	1	...	...	...	...	...	1	207	...	82	166	3
...	3	...	...	...	...	...	...	203	...	2	480	1
...	1	...	...	...	...	...	...	42	...	5	311	...
...	...	...	...	...	...	...	1	236	...	17	401	...
...	3	...	...	...	...	...	3	262	...	13	248	...
...	...	...	...	...	...	...	...	171	...	7	236	278
...	4	...	...	...	...	...	...	144	...	10	87	100
...	...	...	...	...	...	...	1	133	...	...	329	223
...	...	...	...	...	...	...	2	6	...	...	155	...
...	...	...	...	...	...	...	...	70	...	...	143	38
...	...	...	...	...	...	...	2	145	...	5	228	24
...	5	...	...	...	...	...	...	215	...	2	288	64
...	...	...	...	...	...	...	12	153	...	2	340	1
...	...	...	...	...	...	...	...	17	...	...	158	...
...	5	...	...	...	...	...	...	27	...	...	67	...
...	11	...	...	...	...	...	1	164	...	...	158	134
...	...	...	...	...	...	...	1	135	...	...	272	8
...	1	...	...	...	...	...	2	198	...	1	137	94
...	...	...	...	...	...	...	...	46	...	...	72	23
...	...	...	...	...	...	...	...	62	...	...	15	...
...	...	...	...	...	...	...	...	63	...	...	160	41
...	...	...	...	...	...	...	2	167	...	2	230	1
...	...	...	...	...	...	...	...	66	...	...	63	27
...	...	...	...	...	...	...	...	5	...	2	9	1
...	...	...	...	...	...	...	2	119	...	3	33	2
2	729	14	1	50	29	137	8175	2	1638	12,779	1237	

	sparrow, sp.	Dark-eyed Junco	Snow Bunting	Red-winged Blackbird	Eastern Meadowlark	Rusty Blackbird	Brewer's Blackbird	Boat-tailed Grackle
1. Chincoteague	...	334	26	10,260	295	5	...	308
2. Wachapreague	...	292	...	804	279	1	...	98
3. Cape Charles	...	96	...	1578	136	...	...	591
4. Little Creek	...	127	CW	1230	26	27	...	56
5. Back Bay	...	255	3	10,600	293	6	CW	<u>663</u>
6. Newport News	...	193	...	296	38	...	...	<u>158</u>
7. Mathews	...	962	...	578	182	...	...	126
8. Williamsburg	...	309	...	12,386	112	37	...	...
9. Hopewell	...	359	...	175	158	<u>55</u>	...	...
10. Brooke	...	550	...	230	13	...	...	...
11. Fort Belvoir	...	1050	...	590	5	35	...	...
12. Manassas-B.R.	...	732	...	44	1	5	...	...
13. Nokesville	...	966	...	1887	201	...	<u>30</u>	...
14. Lake Anna	...	569	...	2	30	...	...	...
15. Gordonsville	...	455	...	6	22	...	...	...
16. Charlottesville	...	698	...	27	43	...	...	...
17. Warren	...	723	...	35	103	...	...	...
18. Darlington Heights	...	247	...	...	101	...	...	...
19. Kerr Reservoir	...	340	...	750	75	5	...	...
20. Banister WMA	...	555	...	<u>160</u>	58	...	...	...
21. Lynchburg	...	518	...	201	15	...	...	...
22. Danville	...	481	...	250	88	...	...	...
23. Martinsville	...	406	...	128	15	...	...	...
24. Philpott Res.	5	519	...	<u>25</u>	14	...	...	...
25. Calmes Neck	...	517	...	...	33	...	...	...
26. N. Shen. Valley	...	1211	...	521	6	...	...	...
27. Shen. NP-Luray	...	1050	...	8	30	...	...	...
28. Big Flat Mtn.	...	96	...	...	...	...	...	...
29. Rockingham Co.	...	151	...	<u>985</u>	5	<u>677</u>	...	...
30. Augusta Co.	...	686	...	10	36	...	...	...
31. Waynesboro	...	404	...	1	11	...	...	...
32. Lexington	...	295	...	1	1	...	...	...
33. Peaks of Otter	...	136	...	...	...	...	...	...
34. Clifton Forge	...	211	...	3	2	...	...	...
35. Fincastle	...	284	...	...	127	...	...	...
36. Roanoke	...	113	...	1	3	...	...	...
37. Blacksburg	...	210	...	...	13	...	...	...
38. Claytor Lake	...	140	...	...	23	...	...	...
39. Tazewell	...	54	...	3	16	...	<u>1</u>	...
40. Glade Spring	...	31	...	...	20	...	...	...
41. Bristol	...	172	...	...	61	...	...	...
42. Nickelsville	...	280	...	1	13	7	...	...
43. Breaks I.S. Park	...	72	...	...	...	...	...	...
44. Wise County	...	34	...	...	14	...	...	...
<b>Total individuals</b>	<b>5</b>	<b>17,883</b>	<b>29</b>	<b>43,776</b>	<b>2717</b>	<b>860</b>	<b>31</b>	<b>2000</b>

Common Grackle	Brown-headed Cowbird	blackbird, sp.	Northern Oriole	Purple Finch	House Finch	Red Crossbill	Common Redpoll
57,064	1281	...	...	2	222	...	...
17	120	...	...	...	396	...	...
1822	77	...	...	1	158	2	...
6565	1700	...	...	1	<u>307</u>	...	...
4460	1360	20,600	...	...	101	...	...
8018	36	100	...	...	304	...	...
255	103	...	...	10	351	...	...
<u>49,715</u>	95	...	...	CW	94	...	...
24	60	...	1	11	315	...	...
6	10	...	...	13	<u>274</u>	...	...
3559	259	...	...	2	751	...	...
...	5	...	...	48	258	...	...
4459	208	600	...	8	469	...	...
8	1	...	...	6	160	...	...
17	...	...	...	...	315	...	...
<u>4004</u>	...	...	...	43	478	...	...
185	6	...	...	29	719	...	...
...	410	...	...	7	<u>427</u>	...	...
...	1	...	...	20	<u>255</u>	...	...
52	...	...	...	11	157	...	...
206	4	...	...	26	582	...	...
3252	250	...	...	13	110	...	...
4000	...	...	...	46	230	...	...
<u>14,608</u>	...	...	...	<u>57</u>	<u>99</u>	...	...
200	38	...	...	4	445	...	...
7	1524	...	...	17	2099	...	...
3	102	...	...	12	423	...	...
...	...	...	...	7	...	...	...
2838	867	...	...	...	89	...	...
7329	233	...	...	47	522	...	...
11,051	...	5000	...	3	332	...	...
...	...	...	...	68	263	...	...
...	...	...	...	...	16	...	...
14	...	...	...	18	121	...	...
...	...	...	...	171	284	...	...
4	...	...	...	18	241	...	...
...	...	...	...	16	340	1	...
1	...	12	...	...	<u>85</u>	...	...
2	...	1	...	8	55	...	<u>2</u>
...	...	...	...	1	69	...	...
3	...	...	...	...	161	...	...
1	12	...	...	2	158	...	...
...	...	...	...	...	...	...	...
2	CW	...	...	6	74	...	...
<b>183,751</b>	<b>8762</b>	<b>26,313</b>	<b>1</b>	<b>752</b>	<b>13,249</b>	<b>3</b>	<b>2</b>

	Pine Siskin	American Goldfinch	Evening Grosbeak	House Sparrow	Total species	Total individuals
1. Chincoteague	...	144	...	146	139	120,992
2. Wachapreague	...	165	...	135	108	36,152
3. Cape Charles	5	218	...	134	158	92,431
4. Little Creek	...	105	...	64	144	76,327
5. Back Bay	...	127	...	121	136	76,904
6. Newport News	...	41	...	305	117	30,640
7. Mathews	...	166	...	44	98	14,320
8. Williamsburg	1	58	...	39	110	79,536
9. Hopewell	...	170	...	50	98	24,099
10. Brooke	...	255	...	29	91	14,583
11. Fort Belvoir	...	650	...	531	112	58,098
12. Manassas-B.R.	...	84	...	62	69	14,392
13. Nokesville	1	146	...	328	91	61,972
14. Lake Anna	...	96	...	48	91	6767
15. Gordonsville	...	66	...	13	67	5942
16. Charlottesville	...	267	...	54	71	15,463
17. Warren	...	234	...	21	80	14,915
18. Darlington Heights	...	86	...	98	59	8211
19. Kerr Reservoir	65	130	...	12	98	8298
20. Banister WMA	...	123	...	49	85	6653
21. Lynchburg	...	250	...	75	76	13,193
22. Danville	...	36	...	6	68	8057
23. Martinsville	1	111	...	27	67	11,880
24. Philpott Res.	5	109	...	70	63	24,249
25. Calmes Neck	2	266	...	343	80	14,621
26. N. Shen. Valley	6	337	...	537	92	44,075
27. Shen. NP-Luray	2	266	6	267	82	13,879
28. Big Flat Mtn.	2	9	...	...	42	1878
29. Rockingham Co.	...	36	...	336	64	15,849
30. Augusta Co.	4	144	...	375	77	68,658
31. Waynesboro	26	117	...	200	77	47,816
32. Lexington	8	45	...	3	66	5455
33. Peaks of Otter	38	18	...	...	46	1246
34. Clifton Forge	8	55	...	83	63	2215
35. Fincastle	...	69	...	35	70	6197
36. Roanoke	...	88	...	29	76	11,231
37. Blacksburg	6	131	1	192	78	9995
38. Claytor Lake	69	51	...	71	68	5305
39. Tazewell	2	20	2	87	61	1834
40. Glade Spring	...	64	1	113	57	4417
41. Bristol	...	101	...	17	71	9756
42. Nickelsville	...	180	...	29	54	4343
43. Breaks I.S. Park	2	1	...	...	25	208
44. Wise County	2	51	...	42	60	1620
<b>Total individuals</b>	<b>255</b>	<b>5886</b>	<b>10</b>	<b>5220</b>	<b>208</b>	<b>1,094,672</b>

(See explanation of symbols for water conditions and weather on page 62.)

Date	Time in field (a.m. to p.m.)	Water conditions	Skies (a.m.)	Skies (p.m.)
29 Dec	0600-1710	WOP	CLD, FOG, HVR	CLD, FOG
14 Dec	0500-1730	WOP	HVR	LGR
30 Dec	0545-1713	WOP	CLR	CLD
31 Dec	0430-1730	WOP	CLD	CLD
29 Dec	0520-1745	WOP	CLD, FOG, HVR	PCD
14 Dec	0445-1710	WOP	CLD	CLD, LGR
29 Dec	0600-1800	WOP	FOG, HVR	FOG, LGR
15 Dec	0500-1700	WOP	CLR	CLR
15 Dec	0415-1715	WOP	CLR	CLR
17 Dec	0600-1700	WOP	PCD	CLR
22 Dec	0300-1730	WOP	CLR	PCD
28 Dec	0500-1600	WOP	PCR	CLR
22 Dec	0300-1730	SPO, MPF	CLR	CLR
22 Dec	0400-1730	WOP	PCD	CLR
15 Dec	0700-1700	WOP	CLR	CLR
15 Dec	0630-1715	WOP	CLR	CLR
29 Dec	0600-0700	WOP	CLD	CLD, LGR
15 Dec	0600-1630	WOP	CLR	CLR
15 Dec	0500-1730	WOP	CLR	CLR
15 Dec	0700-1730	WOP	CLR	CLR
14 Dec	0530-1730	WOP	LGR	PCD
28 Dec	0530-1800	WOP	LGR	LGR
1 Jan	0130-1730	SPF, MWO	CLD	CLD
29 Dec	0500-1700	WOP	CLD, LGR	CLD, LGR
28 Dec	0630-0600	SPO, MWO	PCR	PCD, LHR
14 Dec	0001-1800	WOP	CLD	CLD
15 Dec	0500-1700	WOP	CLR	CLR
27 Dec	0630-1815	WOP	PCD	CLR
14 Dec	0800-1700	WOP	CLD	CLD
21 Dec	0630-1700	SPF, MWO	CLD, LGR	CLR
30 Dec	0700-1700	SPO, MWO	CLR	CLR
26 Dec	0500-1700	SWF, MPF	CLR	CLR
17 Dec	0800-1600	WOP	CLR	CLR
15 Dec	0800-1600	SWF, MWO	CLR	CLR
15 Dec	0500-1600	WOP	CLR	PCD
14 Dec	0500-1630	WOP	PCD, FOG, LGR	PCD
14 Dec	0445-1730	WOP	CLD, LGR	CLD
21 Dec	0700-1730	SPF, MWO	CLD, LGR	CLD, LGR
30 Dec	0700-1700	WOP	FOG, LGR	PCD
28 Dec	0330-1730	WOP	CLD, LGR	CLD, LGR
29 Dec	0700-1730	WOP	HVF, LGR	OVC, LGR
21 Dec	0700-1700	WOP	CLD, FOG	PCD
18 Dec	0730-1600	WOP	PCR	PCR
14 Dec	0600-1730	WOP	HVR	PCR
...	...	...	...	...

	Temperatures (° Fahrenheit)	Wind direction	Wind speed (miles/hour)	Number of field observers	Number of field parties (non-owling)	Number of feeder observers	Number of hours at feeders
1. Chincoteague	47-52	NE	0-12	30	19	...	...
2. Wachapreague	45-60	SSW	15-30	15	10-12	2	2.00
3. Cape Charles	40-48	NW-NE	15-25	26	10-14	...	...
4. Little Creek	38-42	N	20-25	21	10-13	...	...
5. Back Bay	50-62	W	0-15	28	11-19	...	...
6. Newport News	52-65	SW	0-15	34	11	...	...
7. Mathews	55-42	N	0-8	26	9-10	...	...
8. Williamsburg	34-48	NW	10-20	16	8	1	10.00
9. Hopewell	33-47	W	8-23	31	13-15	...	...
10. Brooke	34-57	SW	0-15	22	10-11	...	...
11. Fort Belvoir	32-51	SW	16	89	30-35	...	...
12. Manassas-B.R.	45-55	Calm	...	28	11	...	...
13. Nokesville	30-50	W	0-5	36	17	...	...
14. Lake Anna	26-62	NW	5-10	12	7-8	...	...
15. Gordonsville	34-43	NE	0-15	20	7	1	3.75
16. Charlottesville	30-45	SW	0-25	23	17	...	...
17. Warren	35-45	S	0-5	18	12	...	...
18. Darlington Heights	30-51	W	5-10	12	4	...	...
19. Kerr Reservoir	32-46	WNW	5-20	7	5-6	...	...
20. Banister WMA	29-43	NW	1-5	12	8	...	...
21. Lynchburg	58-62	NW	0-25	35	12-15	...	...
22. Danville	37-40	NW	5-10	8	5	2	6.00
23. Martinsville	25-40	NW	5-20	11	5	4	8.00
24. Philpott Res.	33-52	SW	0-10	13	5	...	...
25. Calmes Neck	24-38	N-NW	0-8	32	18	1	3.00
26. N. Shen. Valley	47-61	W-NW	0-25	55	23	...	...
27. Shen. NP-Luray	18-42	NW	5-20	45	23	4	19.50
28. Big Flat Mtn.	31-48	W	0-3	2	2	...	...
29. Rockingham Co.	50-56	SW-N	5-15	15	8	...	...
30. Augusta Co.	40-58	W-SW	4-30	26	11	...	...
31. Waynesboro	30-55	NNE	5-30	26	13	...	...
32. Lexington	15-44	V	0-5	17	6-8	3	3.00
33. Peaks of Otter	24-36	N	5	10	5	...	...
34. Clifton Forge	28-42	W-NW	5-20	10	6	2	4.00
35. Fincastle	22-40	NW	5	20	10	...	...
36. Roanoke	50-60	W	0-20	24	11	...	...
37. Blacksburg	56-52	NW	30	25	13	16	32.50
38. Claytor Lake	36-45	NW	10-15	13	6	...	...
39. Tazewell	30-41	...	...	5	3	2	8.00
40. Glade Spring	36-45	NE	5	15	6	...	...
41. Bristol	38-47	SW	0-10	18	7	...	...
42. Nickelsville	34-45	NW	3-5	6	3	...	...
43. Breaks I.S. Park	26-35	W	5-15	1	1	...	...
44. Wise County	42-33	SW	5-45	12	7-8	2	12.00
...	...	...	...	950	438-472	40	111.75

Hours owling	Miles owling	Hours on foot	Hours by car	Hours by boat/canoe	Total hours (excludes owling and feeder hours)	Miles on foot	Miles by car	Miles by boat/canoe	Total miles (excludes owling miles)
1.50	8.00	67.25	59.25	...	126.50	62.00	362.75	...	424.75
1.00	5.00	36.00	52.00	...	88.00	27.00	369.00	...	396.00
4.00	15.00	101.00	19.00	8.00	128.00	76.00	225.00	21.00	322.00
2.00	7.00	80.00	19.00	...	109.00	65.00	347.00	...	412.00
2.00	28.00	94.00	36.00	2.00	132.00	78.00	362.00	15.00	45.00
4.00	5.50	49.25	50.50	...	99.75	36.25	464.75	...	501.00
2.00	4.50	39.75	44.75	...	84.50	27.50	340.50	...	368.00
4.00	3.00	28.00	38.50	...	66.50	24.00	258.00	...	282.00
7.25	20.50	75.00	13.50	7.00	92.50	47.00	253.50	30.00	330.50
1.00	5.50	59.00	42.00	...	101.00	33.00	228.00	...	261.00
21.00	102.50	206.00	31.50	...	237.50	122.50	406.00	...	528.50
1.50	5.00	50.00	20.00	...	70.00	43.00	171.00	...	214.00
7.00	68.00	66.50	55.50	...	122.00	66.00	367.00	...	433.00
5.50	70.00	35.50	29.50	...	65.00	38.50	338.00	...	376.50
3.75	20.25	19.75	36.25	...	56.00	24.50	397.50	...	422.00
2.00	5.00	107.50	23.00	...	130.50	102.00	212.00	...	314.00
4.00	23.00	83.00	11.00	...	94.00	92.00	140.00	...	232.00
1.00	12.00	15.00	21.00	...	36.00	12.00	187.00	...	199.00
6.00	31.00	28.00	24.00	...	52.00	18.00	446.00	...	464.00
1.50	5.00	34.50	22.50	...	57.00	31.00	278.00	...	309.00
5.00	19.00	503.00	40.00	...	90.00	45.00	376.00	...	421
1.50	5.00	20.50	23.75	...	44.25	13.50	242.50	...	256.00
6.00	67.00	22.00	23.00	...	45.00	12.00	263.00	...	275.00
2.00	10.00	19.00	23.50	...	42.50	16.50	306.00	...	322.50
2.50	3.00	42.50	37.25	...	109.75	46.00	56.75	...	612.75
10.00	60.00	75.00	145.00	13.00	233.00	112.00	1206.00	15.00	1333.00
8.25	17.00	79.50	81.50	...	161.00	90.75	762.50	...	853.25
1.00	5.00	21.00	...	...	21.00	34.00	...	...	34.00
...	...	17.50	32.50	...	50.00	17.50	257.50	...	275.00
3.50	37.00	25.50	57.50	...	83.00	21.50	533.50	...	565.00
4.00	37.00	70.00	34.00	...	104.00	69.00	348.00	...	417.00
1.50	12.00	31.50	8.50	...	40.00	26.00	127.00	...	153
...	...	18.00	6.00	...	24.00	9.00	55.00	...	64.00
...	...	19.50	16.50	...	36.00	14.00	204.00	...	218.00
5.00	21.00	31.00	28.00	...	59.00	19.00	280.00	...	299.00
6.00	25.00	43.25	36.5	6.00	85.75	43.50	242.00	8.00	293.50
2.25	20.00	55.00	35.00	...	90.00	58.50	290.75	...	349.25
...	...	20.00	15.50	...	35.50	22.50	185.75	...	208.25
1.00	1.00	5.00	19.00	...	24.00	6.00	195.00	...	201.00
3.00	6.00	8.00	40.50	...	48.50	12.00	469.00	...	481.00
3.50	35.00	19.50	29.00	...	48.50	16.00	355.00	...	371.00
...	...	1.00	19.50	...	20.50	2.00	237.00	...	239.00
...	...	6.25	2.25	...	8.50	4.50	30.00	...	34.50
2.50	23.00	31.50	27.50	...	59.00	24.50	294.50	...	319.00
150.50	846.75	2460.00	1430.50	36.00	3510.50	1760.50	13,979.75	89.00	15,829.25

To the dismay of many, Mute Swans (*Cygnus olor*) continue to establish themselves in more and more localities around the state. Beautiful, but undesirable because of their detrimental effect on native birds and habitats, this introduced species is regarded as the starling of the waterbird world by many biologists and land managers. Seven counts reported a total of 51 individuals, an all-time high. Williamsburg birders had the dubious distinction of finding four birds on that count. Rockingham County recorded the species for the fifth year in a row.

Occurring in much lower numbers than in previous years were: Common Goldeneye (*Bucephala clangula*), Ring-necked Pheasant, (*Phasianus colchicus*), Northern Bobwhite (*Colinus virginianus*), and American Woodcock (*Scolopax minor*).

Species often found during the counts, but missing this year were: King Eider (*Somateria spectabilis*), Golden Eagle (*Aquila chrysaetos*), Piping Plover (*Charadrius melodus*), Long-billed Dowitcher (*Limnodromus scolopaceus*), Little Gull (*Larus minutus*), Black Skimmer (*Rynchops niger*), and Lapland Longspur (*Calcarius lapponicus*).

Temperatures ranged from a low of 15°F. at Lexington, to a high of 65°F. at Newport News. The biggest weather factor was wide-spread precipitation, with 17 counts experiencing light to heavy rain. For the most part, however, mild weather prevailed during the weeks preceding the count period and continued throughout most of December and into January. Most bodies of water throughout the state were ice-free or only partly frozen. No areas reported snow on the ground. Table 2 is an explanation of codes used to describe weather conditions for each count in Table 1 on page 59.

The count table, as in previous years, is arranged more or less in order of distance inland from the coast. Counts 1-11 were on the Coastal Plain; Counts 12-24 were in the Piedmont; and Counts 25-44 were in the Mountains and Valleys region of the state.

TABLE 2. Explanation of abbreviations used in the tables on page 59.

Abbreviations used to describe weather conditions		Abbreviations used to describe water conditions	
CLD	= Cloudy	MPF	= Moving water partly frozen
CLR	= Clear	MWO	= Moving water open
FOG	= Fog or foggy	SPF	= Still water partly frozen
HVF	= Heavy fog	SWF	= Still water frozen
HVR	= Heavy rain	SWO	= Still water open
LGR	= Light rain	WOP	= Water open
LHR	= Light to heavy rain		
OVC	= Overcast		
PCD	= Partly cloudy		
PCR	= Partly clear		



## CHRISTMAS COUNT DESCRIPTIONS

(Observers are listed for the Darlington Heights, Waynesboro, Claytor Lake, Tazewell, and Bristol counts, which do not appear in *American Birds*.)

1. CHINCOTEAGUE NATIONAL WILDLIFE REFUGE. 37°58'N 75°22'W  
Center: 2 miles north of center of Chincoteague.  
Compiler: Teta Kain (Rt. 5, Box 950, Gloucester, VA 23061)
2. WACHAPREAGUE. 37°40'N 75°42'W  
Center: jct. CRs. 789 and 715.  
Compiler: Irvin Ailes (6479 Myrtle Lane, Chincoteague VA 23336)
3. CAPE CHARLES. 37°12'N 75°56'W  
Center: 1.5 miles southeast of Capeville Post Office.  
Compiler: Henry Armistead (523 E. Durham St., Philadelphia PA 19119)
4. LITTLE CREEK. 36°51'N 76°06'W  
Center: 3.8 miles northeast of Kempsville in Virginia Beach.  
Compiler: Paul Sykes, Jr. (1080 Forest Rd., Watkinsville GA 30677)
5. BACK BAY NATIONAL WILDLIFE REFUGE. 36°39'N 76°00'W  
Center: 1.5 miles east of Back Bay.  
Compiler: Paul Sykes, Jr. (1080 Forest Rd., Watkinsville GA 30677)
6. NEWPORT NEWS. 37°05'N 76°25'W  
Center: northern corner of Magruder & Cmdr. Shepard Blvds.  
Compiler: Teta Kain (Rt. 5, Box 950, Gloucester VA 23061)
7. MATHEWS. 37°25'N 76°18'W  
Center: 0.5 mile east of Beaverlett Post Office.  
Compiler: Mary Pulley (Redart VA 23142)
8. WILLIAMSBURG. 37°17'N 76°42'W  
Center: Colonial Williamsburg Information Center.  
Compiler: Brian Taber (104 Druid Court, Williamsburg VA 23185)
9. HOPEWELL. 37°23'N 77°17'W  
Center: Curles Neck.  
Compilers: Larry Robinson (3320 Landria Dr., Richmond VA 23225) and  
John Dillard (7803 Brentford Dr., Richmond, VA 23225)
10. BROOKE. 38°22'N 77°20'W  
Center: at road 3 miles east southeast of Brooke.  
Compiler: David Stewart (10715 Midsummer Dr., Reston VA 22091)
11. FORT BELVOIR. 38°41'N 77°12'W  
Center: Pohick Church.  
Compiler: David F. Abbott (1737 Quietree Dr., Reston, VA 22094)
12. MANASSAS-BULL RUN. 38°50'N 77°26'W  
Center: Centreville.  
Compilers: J. Duncan Love (4204 Holborn Ave., Annandale VA 22003) and  
Charles E. Chambers (8911 Moreland Lane, Annandale VA 22003)

13. NOKESVILLE. 38°37'N 77°33'W  
*Center:* Fleetwood Dr. (Rt. 611) at Cedar Run.  
*Compiler:* Ken Bass (12604 Valley View Dr., Nokesville VA 22123)
14. LAKE ANNA. 38°05'N 77°49'W  
*Center:* center of bridge over Lake Anna on SR 208.  
*Compiler:* Michael R. Boatwright (307 Sugar Mill Dr., Amherst VA 24521)
15. GORDONSVILLE. 38°09'N 78°12'W  
*Center:* jct. of US 15 & 33 north of the town of Gordonsville.  
*Compiler:* Donald R. Ober (PO Box 6, Orange VA 22960)
16. CHARLOTTESVILLE. 38°04'N 78°34'W  
*Center:* near Ivy.  
*Compiler:* Charles Stevens (615 Preston Pl., Charlottesville VA 22903)
17. WARREN. 37°51'N 78°33'W  
*Center:* at Keene.  
*Compiler:* Charles Stevens (615 Preston Pl., Charlottesville, VA 22903)
18. DARLINGTON HEIGHTS. 37°12'N 78°37'W  
*Center:* Darlington Heights Post Office.  
*Compiler:* Carolyn Wells (204 Fayette St., Farmville, VA 23901)  
*Observers:* Sandra Breil, Vera Copple, John Dalmas, Thelma Dalmas, Dale Hodges, Jane Holman, Bill Pollari, Cathy Pollari, John Rice, Shirley Rice, David Spears, Carolyn Wells
19. JOHN H. KERR RESERVOIR. 36°36'N 82°07'W  
*Center:* east end of John GH. Kerr Dam.  
*Compiler:* Brian Patteson (PO Box 125, Amherst, VA 24521)
20. BANISTER RIVER WILDLIFE MANAGEMENT AREAS. 36°43'N 78°48'W  
*Center:* at Banister River WMAs.  
*Compiler:* Jeffrey Blalock (103 Elizabeth Court, South Boston VA 24592)
21. LYNCHBURG. 37°24'N 79°11'W  
*Center:* Lynchburg College.  
*Compiler:* John Dalmas (502 Rainbow Forest Dr., Lynchburg VA 24502)
22. DANVILLE. 36°34'N 79°25'W  
*Center:* Ballou Park.  
*Compiler:* Russell C. Brachman (139 pendleton Rd., Danville VA 24541)
23. MARTINSVILLE. 36°44'N 79°49'W  
*Center:* south end of dam at Martinsville Reservoir #2.  
*Compiler:* James S. Beard (401 Hairston St., Martinsville, VA 24112)
24. PHILPOTT RESERVOIR. 36°53'N 80°03'W  
*Center:* near intersection Rts. 605 and 623.  
*Compiler:* Clyde Kessler (PO Box 3612, Radford VA 24143)
25. CALMES NECK. 39°07'N 77°54'W  
*Center:* Castlemans Ferry Bridge, SR 7 and the Shenandoah River.  
*Compiler:* Frances Endicott (Rt. 1, Box 448, Bluemont, VA 22012)



26. NORTHERN SHENANDOAH VALLEY. 39°03'N 78°10'W  
*Center:* jct. Crooked Run and Rt. 606.  
*Compiler:* Rob Simpson (Rt. 1, Box 154-B, Stephens City, VA 22655)
27. SHENANDOAH NATIONAL PARK—LURAY. 38°35'N 78°28'W  
*Center:* Hershberger Hill.  
*Compiler:* Terry Lindsay (Shenandoah National Park, Rt. 4, Box 348, Luray, VA 22835)
28. BIG FLAT MOUNTAIN. 38°11'N 78°43'W  
*Center:* on Pasture Fence Mountain.  
*Compiler:* Charles Stevens (615 Preston Pl., Charlottesville, VA 22903)
29. ROCKINGHAM COUNTY. 38°26'N 79°02'W  
*Center:* Ottobine.  
*Compiler:* Max Carpenter (Rt. 1, Box 396, Dayton VA 22821)
30. AUGUSTA COUNTY. 38°12'N 78°59'W  
*Center:* jct. CR 780 and 781.  
*Compiler:* John Mehner (Mary Baldwin College, Staunton VA 24401)
31. WAYNESBORO. 37°59'N 78°57'W  
*Center:* Sherando at jct. of Rts. 610 and 664.  
*Compiler:* Allen Hale (Rt. 1, Box 242, Shipman VA 22971)  
*Observers:* Jim Bellany, Phyllis Binder, Patti Burke, Crista Cabe, Andrew Campbell, David Campbell, Lyle Campbell, Matthew Campbell, Sarah Campbell, Doug Coleman, Allen Hale, Lisa Hamilton, Dick Krider, Nancy Krider, YuLee Larner, Jim Nix, Isabel Obenschain, George Olcott, Terri Olcott, Steve Rottenborn, Sarah Splaun, Ruth Snyder, Charles Stevens, Webb Thomas, Beryl Wilson, Tom Wilson.
32. LEXINGTON. 37°51'N 79°29'W  
*Center:* Big Spring Pond.  
*Compiler:* Robert O. Paxton (460 Riverside Dr., #72, New York NY 10027)
33. PEAKS OF OTTER. 37°27'N 79°36'W  
*Center:* Peaks of Otter Visitor Center.  
*Compiler:* Barry Kinzie (PO Box 446, Troutville VA 24175)
34. CLIFTON FORGE. 37°49'N 79°46'W  
*Center:* jct. Rts. 42 and 60.  
*Compiler:* Allen LeHew (76 Allegeny, Clifton Forge VA 24422)
35. FINCASTLE. 37°31'N 79°52'W  
*Center:* north of Fincastle near jct. of Rts. 220 and 679.  
*Compiler:* Barry Kinzie (PO Box 446, Troutville VA 24175)
36. ROANOKE 37°18'N 79°56'W  
*Center:* Oakland Blvd. and Williamson Road.  
*Compilers:* Peggy Spiegel (303 Market St., Roanoke VA 24011) and Michael Donahue (4814 Bandy Rd. SE, Apt. 4, Roanoke VA 24014)

37. BLACKSBURG.  $37^{\circ}14'N$   $80^{\circ}25'W$   
*Center:* jct. Rts. 685 and 657 near Linkous Store.  
*Compiler:* Clyde Kessler (PO Box 3612, Radford VA 24143)
38. CLAYTOR LAKE  $37^{\circ}03'N$   $80^{\circ}44'W$   
*Center:* jct. Rt. 611 and Norfolk & Southern Railroad.  
*Compiler:* Clyde Kessler, (PO Box 3612, Radford VA 24143)  
*Observers:* Jim Beard, Larry Bechtel, Mary Ann Bentley, Stan Bentley, Harriett Cooper, Ken Cooper, Jeff Crook, Tom DeBusk, Champe Green, Clyde Kessler, Susie Leslie, Curt Roane, Rob Solomon.
39. TAZEWEEL.  $37^{\circ}08'N$   $81^{\circ}30'W$   
*Center:* Fourway.  
*Compiler:* Sarah Cromer (Box 765, North Tazewell VA 24630)  
*Observers:* Sarah Cromer, A. McRae, Harold Parris, J. Parris, Richard Peake.
40. GLADE SPRING.  $36^{\circ}47'N$   $81^{\circ}47'W$   
*Center:* jct. Rts. 750 and 609.  
*Compiler:* Steven L. Hopp (Box ii, Emory VA 24327)
41. BRISTOL.  $36^{\circ}36'N$   $82^{\circ}07'W$   
*Center:* jct. Rts. 647 and 654, east of Bristol.  
*Compiler:* Richard P. Lewis (407 V. I. Ranch Road, Bristol, TN 37620)  
*Observers:* Kathy Barnett, James Brooks, J. Wallace Coffey, Bert Hale, Ken Hale, Loraine Hale, Ron Harrington, Joe Jackson, Lloyd Jones, Rick Knight, Tom Laughlin, Richard Lewis, Alice Nair, John Shumate, Lorrie Shumate, Randy Smith, Mark Spivey.
42. NICKELSVILLE.  $36^{\circ}45'N$   $82^{\circ}25'W$   
*Center:* Nickelsville.  
*Compiler:* Betsy McConnell (PO Box 293, Coeburn VA 24230)  
*Observers:* Reva Baker, Betsy McConnell, Bob Quillen, E. E. Scott, Claudia Stallard, Lisa Stallard.
43. BREAKS INTERSTATE PARK.  $37^{\circ}15'N$   $82^{\circ}13'W$   
*Center:* 4.5 miles n.e. of Haysi.  
*Compiler:* D. Scott Ferrell (PO Box 67, Breaks, VA 24607)
44. WISE COUNTY  $36^{\circ}57'N$   $82^{\circ}39'W$   
*Center:* at Dorchester.  
*Compiler:* Richard Peake (Clinch Valley College, College Ave., Wise VA 24293)
-

## REVIEW

RICHARD H. PEAKE  
Box 104, Clinch Valley College  
Wise, Virginia 24293

*Finding birds in the National Capital area.* Claudia Wilds. 1992. Smithsonian Institution Press. Washington D. C. Rev. edition. xvi + 267 pp., numerous black and white maps by James D. Ingram and Brian T. Davis. Illustrations by Doreen Curtin. \$11.75.

The many users of Wilds's original *Finding Birds in the National Capital Area* will find that this updated version contains 51 more pages than the first edition, but that it covers the same general region: Delaware, Maryland, much of Virginia, and a small portion of coastal North Carolina.

Wilds has done thorough job of updating the book by including expanded coverage of many areas and by adding descriptions of several new birding hotspots. Additionally, David Czaplak aided extensively in the update of the District of Columbia area. He is described by Wilds as having "a more thorough knowledge of the places to find birds in the District of Columbia than anyone in living memory." As a result of these revisions, this book is even more helpful to birders than the first edition.

Wilds has also added one section on documenting rarities and another section detailing ethical guidelines for birders. Sadly, she also found it necessary to list areas lost to development, as well as certain places that have been closed to birdwatching activities because of unscrupulous behavior by some individuals who are more interested in increasing their life lists than practicing good manners. Changes have also resulted from the disappearance from the region of species such as the Red-cockaded Woodpecker (*Picoides borealis*).

Whether or not you have the first edition of *Finding Birds in the National Capital Area*, you will want this version, if only to learn how to find all the newly-discovered good birding places such as that mecca for gulls, Conowingo Dam.





## INFORMATION FOR CONTRIBUTORS

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

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

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

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

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

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

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



# The Raven

JOURNAL OF THE VIRGINIA SOCIETY OF ORNITHOLOGY

Volume 64

Number 2

1993



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

Activities undertaken by the Society include the following:

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

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

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

Editorial queries and comments may be directed to Teta Kain, 7083 Caffee Creek Ln., Gloucester, Virginia 23061.

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# *The Raven*

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JOURNAL OF THE VIRGINIA SOCIETY OF ORNITHOLOGY

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EDITOR

**TETA KAIN**

EDITOR *EMERITUS*

**F. R. SCOTT**

ASSISTANT EDITOR

**CLAUDIA P. WILDS**



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## HOODED MERGANSER BREEDS IN NORTHERN VIRGINIA

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Mason Neck National Wildlife Refuge in Lorton, Virginia, originally established as the nation's first Bald Eagle (*Haliaeetus leucocephalus*) refuge, also provides habitat for thousands of migratory and wintering waterfowl along the Potomac River and on the refuge's freshwater marshes. It also supports small, but stable, breeding populations of the Canada Goose (*Branta canadensis*), Wood Duck (*Aix sponsa*), Mallard (*Anas platyrhynchos*), and American Black Duck (*Anas rubripes*). Hooded Mergansers (*Lophodytes cucullatus*) frequently have been seen resting and feeding there during fall and summer. Since 1989, refuge staff and volunteers have been counting pairs and broods of waterfowl on the refuge and have documented breeding by Hooded Mergansers on High Point Creek in every year except 1991, when no surveys were completed. In 1989 a single hen was seen with nine young on 3 May; in 1990, a single brood was seen four times, with the last sighting of eight young on 2 June; in 1992, a pair was observed with six young on 30 May and five young on 13 June; in 1993, a female was seen with nine downy young on 24 May.

There are only five previous reports of breeding by Hooded Mergansers in Virginia, all but one in southeastern Virginia.

The first record, for which no other details are available, was given by Scott (1954) who reported that "a pair were found breeding" in 1952 near Waverly, Sussex County, apparently based on the observations of C. C. Steirly, a careful observer who made many significant observations in this area. This record is, at least, somewhat suspect. Steirly almost always wrote up his observations of unusual birds breeding in that area and indeed wrote up instances of breeding in 1952 by both Blue-winged Teal (*Anas discors*) in Sussex County (Steirly 1952a) and King Rail (*Rallus elegans*) in Surry County (Steirly 1952b).

Another reason for discarding this record, which appears in both the 1979 (VSO Checklist Committee 1979) and 1987 (Kain 1987) Virginia check-lists, is that this record is not mentioned in any of the five supplements to the 1952 checklist by James J. Murray (1953, 1955, 1957, 1963, 1966). Murray was notable for the care he took in recording details of distribution for Virginia birds and was assiduous in searching out records that he had missed earlier; it seems most unlikely that he would have overlooked this record.

The remaining four records are all substantially better documented. The first acceptable record for the state occurred when Donald Schwab found a female with one young at Dismal Swamp National Wildlife Refuge on 21 April 1977 (Scott 1977). The

second and third state records were both provided by participants in the Virginia Breeding Bird Atlas. On 17 May 1984 C. Preston Poore and Carolyn Poore found a female with six three-quarter grown young swimming off the Long Creek Trail at Seashore State Park in Virginia Beach (Virginia Breeding Bird Atlas data). Then, on 27 May 1989, Clayton Fennel found a female with nine small young in a swamp along the Banister River, near Scottsburg, Halifax County (Armistead 1989, Ridd 1990). The fourth record, for which we have been unable to obtain additional details, was made 17 April 1991 when four Hooded Merganser eggs were found among 10 Wood Duck eggs in a box in northern Accomack County (Armistead 1991).

According to the A. O. U. (1983) Check-list, Hooded Mergansers breed in northern North America from southeastern Alaska east to southern Quebec and southern Nova Scotia south in the eastern portion to central Mississippi, northern Alabama, northern Georgia and rarely to central Florida. What this listing fails to indicate is that the bird is a rare and sporadic breeder in the southern portion of this range. Most occurrences have been on refuges developed for migratory waterfowl. The principal breeding range in eastern North America is from eastern Canada south to eastern Minnesota, central Michigan, northern Ohio, and northern New York (Bellrose 1980, Peterjohn 1989), and, historically at least, in areas bordering the Mississippi River (Palmer 1976). There are now only sporadic breeding records for areas south of New York and New England, with the only regular breeding in any numbers occurring, or having occurred, at areas managed for extensive nesting by Wood Ducks, such as McClintic Wildlife Station in West Virginia (Hall 1983), Hatchie National Wildlife Refuge in far western Tennessee (Robinson 1990), at Big Lake and White River refuges in Arkansas (James and Neal 1986), and at Duck Creek Wildlife Area and Mingo National Wildlife Refuge in southeastern Missouri (Hansen et al. 1973 *vide* Bellrose 1980).

Hooded Mergansers probably will never be more than a rare breeder in Virginia, but they probably breed more frequently than the few known records suggest. It seems likely that they occasionally nest along streams in the Mountains and Valleys region as well as in the wooded swamps of the Virginia Coastal Plain.

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## FORAGING DIFFERENCES AMONG FEMALE AND MALE DOWNY AND HAIRY WOODPECKERS

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Partitioning of foraging resources is generally thought to be the result of past competition among sympatric (co-occurring) species with similar life history strategies (Roughgarden 1976; Pacala and Roughgarden 1982a, 1982b). Numerous examples exist of intraspecific resource partitioning through sexual differences in foraging behaviors of Downy (*Picoides pubescens*), but few for Hairy (*P. villosus*) woodpeckers (Kilham 1965, 1970, 1983; Jackson 1970; Willson 1970, Kisiel 1972; Peters and Grubb 1983). Male Downy Woodpeckers tend to forage on small branches regardless of height (Conner 1977), whereas females forage on tree trunks and larger limbs (Jackson 1970). Male and female Hairy Woodpeckers tend to forage on different substrates independent of the position of the foraging substrate in New York (Kisiel 1972); in Virginia however, females foraged higher in trees than males (Conner 1977).

Conspecific pairs of *Picoides* woodpeckers often forage in closer proximity to each other than they do with other woodpecker species. If competition intensity is the primary natural selective pressure that results in resource partitioning, pairs of *Picoides* woodpeckers might exhibit greater resource partitioning than that observed between species. Downy and Hairy woodpeckers offer an excellent opportunity to explore intra- and interspecific overlap of foraging behaviors with two sympatric species.

Kisiel (1972) investigated foraging behavior similarities among female and male, Downy and Hairy woodpeckers. His results suggested that overlap between female and male Hairy Woodpeckers was similar to interspecific overlap with Downy Woodpeckers. Foraging behavior of female and male Downy Woodpeckers, however, appeared to overlap less than interspecific comparisons. The "single variable at a time" approach (univariate) to measures of overlap used in his study makes interpretation of niche relationships among species and sexes quite difficult.

Between 1972 and 1976 I studied woodpecker foraging ecology in the central Appalachian Mountains (Conner 1979, 1980, 1981). Although the primary focus of that research was to compare niche dynamics among six species of sympatric woodpeckers, data on sexual differences in the foraging behaviors of Downy and Hairy woodpeckers were also collected. In the present study I use a multivariate approach to examine intra- and interspecific foraging resource overlap among foraging female and male, Downy and Hairy woodpeckers.

### STUDY AREA AND METHODS

Foraging behavior of Downy and Hairy woodpeckers was studied on a 20 km<sup>2</sup> area on the upper drainages of Craig and Poverty creeks on the Jefferson National Forest in southwestern Virginia. Oaks (*Quercus* spp.) and hickories (*Carya* spp.) covered 60 percent of the area; oaks and pines (*Pinus* spp.) covered another 20 percent. Yellow-

poplar (*Liriodendron tulipifera*), white oak (*Q. alba*), and northern red oak (*Q. rubra*) stands, and Virginia (*P. virginiana*), white (*P. strobus*), and pitch (*P. rigida*) pine stands each occupied about 10 percent of the area. A wide range of cover types and successional stages resulting from even-aged timber management was present.

Foraging behavior and habitat use of female and male, Downy and Hairy woodpeckers were measured from 1972 through 1976 during the breeding season (15 April through 15 June), post-breeding season (July through October), and winter (December through February). Because sample sizes were small, seasonal comparisons could not be made. All available cover types and stand conditions (age classes) were searched for foraging woodpeckers. Stands searched included all stages of forest succession, forest edge habitat, and agricultural areas adjacent to forest habitat. When foraging woodpeckers were located, I noted foraging methods (Appendix Table 1, Conner 1979, page 83), position within the tree (upper, middle, and lower third), general stem size (twig, branch, limb, trunk), substrate foraged upon (dead, live, or dead portion of live tree), and the micro- and macro-foraging habitat where foraging occurred (Appendix Table 1). Standardized height of a foraging woodpecker was calculated by dividing the height of the woodpecker by height of the tree and multiplying by 100. Habitat data were collected immediately after observing foraging woodpeckers. A sample unit for statistical analyses comprised the behavior and habitat position of each woodpecker at my initial contact. After collecting behavioral and habitat data on an individual woodpecker, I moved to another location (200+ m) before searching for another woodpecker. Thus, the likelihood of observing the same woodpecker more than once was extremely low. Overlap of woodpecker foraging methods during each season was calculated using Horn's  $R_o$  (1966). Overlap of woodpecker use of structural habitat was determined using the minimal density overlap method as developed by Harner and Whitmore (1977). A two-group discriminant function analysis was calculated for each species/sex pair combination for each season. I used a  $z$ -distribution of standardized canonical variates to measure linear overlap, reduced by the multivariate discriminant analyses to a single dimension. This measure of overlap permitted close examination of relative differences in the structural micro- and macro-habitats used by these woodpeckers. I considered that valid comparisons of relative overlap magnitude among groups (species and sexes) can only be made within a habitat category (foraging macro- and micro-habitat, and foraging methods) and not between categories because of the different variables and methods used to measure overlap among the categories. Seasonal measures of overlap within foraging methods and habitat categories were averaged because there were no seasonal differences in relative magnitude or pattern of overlap values.

## RESULTS

Female and male Downy and Hairy woodpeckers selected very similar forest structure (foraging macro-habitat) as foraging sites with one exception (Table 1, page 76). Male Hairy Woodpeckers foraged in habitats with higher basal areas of trees than did male Downy Woodpeckers. Both sexes of both species foraged in stands with similar trees densities and canopy heights.

Woodpeckers varied more in their use of different limb sizes and heights and positions in trees (foraging micro-habitat) than in their selection of forest stands (Table

2). Female Hairy Woodpeckers foraged significantly higher than did other species-sex groups. Downy Woodpeckers exhibited both intra- and interspecific differences in their selection of stem diameters for foraging, whereas female and male Hairy Woodpeckers foraged on similarly-sized stems (Table 2). Female Hairy and Downy woodpeckers foraged significantly higher ( $P < 0.05$ ) than did their respective males. Female woodpeckers also tended to use larger diameter trees than the males.

TABLE 1. *Intraspecific comparisons of means (SE) for Downy and Hairy woodpecker foraging macro-habitat variables.*

Variable	Downy male (N=32)	Downy female (N=42)	Hairy male (N=29)	Hairy female (N=30)
Basal area <sup>1</sup> (m <sup>2</sup> /ha)	14.0 (1.5) <sup>a</sup>	18.3 (1.3) <sup>a,b</sup>	19.3 (2.0) <sup>b</sup>	17.7 (1.8) <sup>a,b</sup>
Density of stems <sup>2</sup> (# per 1.25 ha)	33.0 (4.0)	39.0 (3.1)	44.5 (5.2)	34.6 (4.9)
Canopy height <sup>2</sup> (m)	17.3 (1.2)	19.3 (1.1)	15.5 (1.3)	17.9 (1.6)

<sup>1</sup> Means with common letters are not significantly different, ANOVA and Duncan's new multiple range test,  $P < 0.05$ .

<sup>2</sup> No significant differences detected among means.

Additional insight into Downy and Hairy woodpecker use of foraging micro-habitat can be seen in the relative positions female and male woodpeckers used in trees and the types of substrate selected for foraging (Fig. 1, p. 77). Male Hairy Woodpeckers used primarily trunks and limbs as foraging sites whereas females selected limbs and branches most often (Fig. 1a). Similar to the observations of Jackson (1970), Kisiel (1972), and

TABLE 2. *Intraspecific comparisons of means (SE) for Downy and Hairy woodpecker foraging micro-habitat variables.*

Variable	Downy male (N=43)	Downy female (N=97)	Hairy male (N=45)	Hairy female (N=56)
Woodpecker <sup>1</sup> height (m)	8.0 (0.8) <sup>a</sup>	9.1 (0.7) <sup>a</sup>	8.6 (0.7) <sup>a</sup>	13.2 (0.9) <sup>b</sup>
Stem diameter (cm)	3.6 (0.9) <sup>a</sup>	15.6 (1.0) <sup>b</sup>	11.9 (1.1) <sup>c</sup>	12.1 (1.1) <sup>c</sup>
Tree height (m)	12.4 (1.0) <sup>a</sup>	16.8 (0.8) <sup>b</sup>	15.0 (0.9) <sup>a,b</sup>	20.4 (1.3) <sup>c</sup>
Tree DBH (cm)	36.7 (4.0) <sup>a,b</sup>	42.2 (3.2) <sup>a,c</sup>	27.8 (2.5) <sup>b</sup>	48.5 (3.3) <sup>c</sup>
Standardized woodpecker height (%)	65.7 (3.5) <sup>a</sup>	51.3 (2.3) <sup>b</sup>	56.3 (3.2) <sup>b,c</sup>	64.3 (2.5) <sup>a,c</sup>

<sup>1</sup> Means with common letters are not significantly different, ANOVA and Duncan's new multiple range test,  $P < 0.05$ .



FIGURE 1. Comparisons of female and male Downy and Hairy woodpecker foraging positions (a), relative heights (b), and substrate selection (c) in southwestern Virginia.

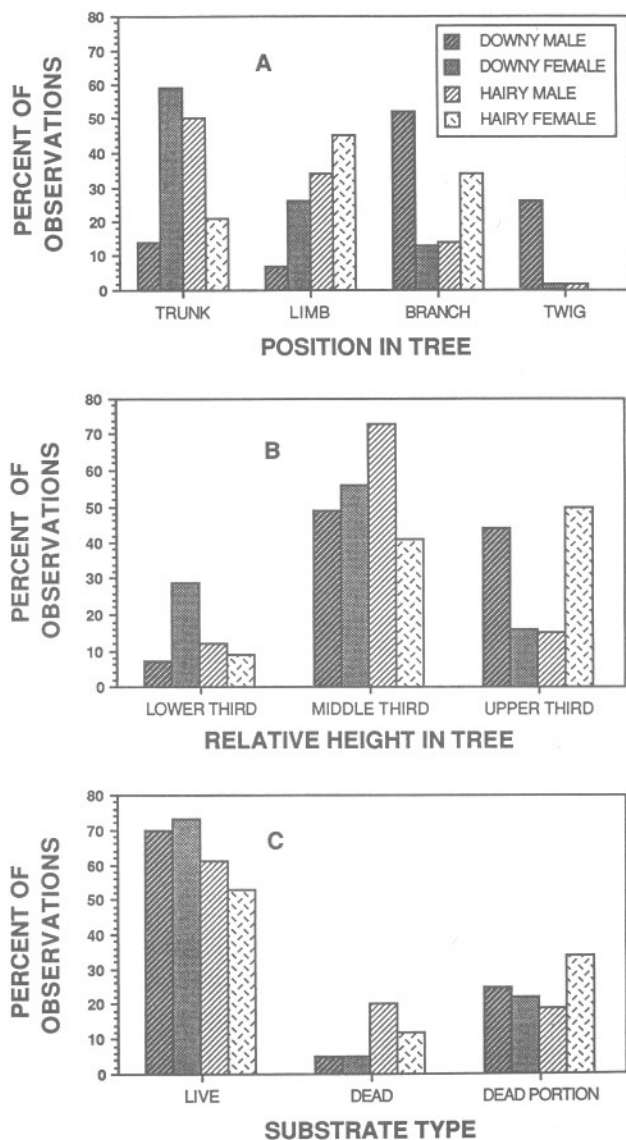


FIGURE 2. Comparison of foraging methods used by female and male Downy and Hairy woodpeckers in southwestern Virginia (PEPO: peer-and-poke gleaning on trees, PECK: pecking on trees, SCAL: scaling bark, EXCA: subcambial excavation on trees, HAWK: hawking insects in the air, VEGF: eating vegetable material, GRDF: foraging on the ground).

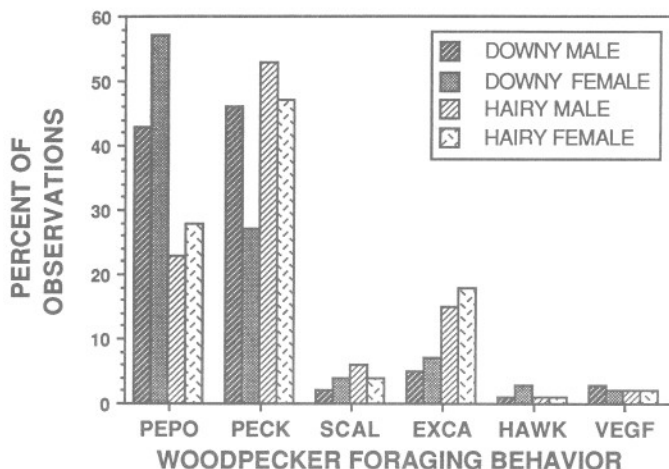
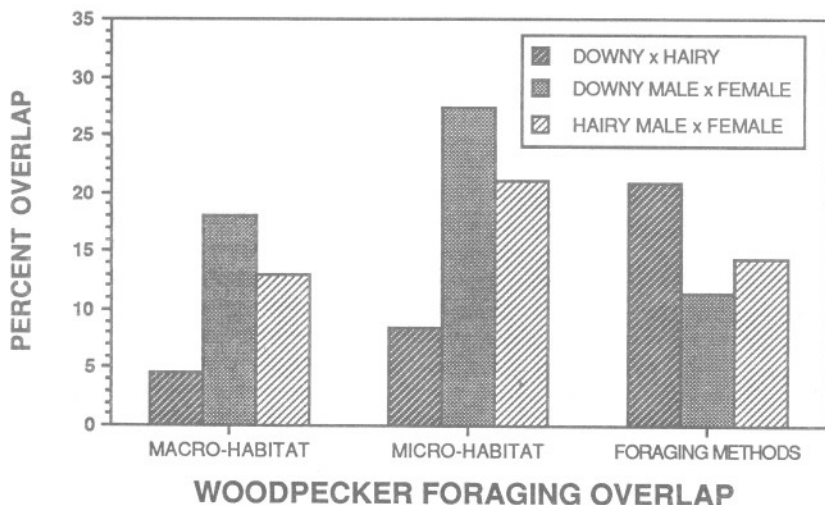


FIGURE 3. Relative overlap of foraging habitat and methods for female and male Downy and Hairy woodpeckers using percent density overlap (Harner and Whitmore 1977) for foraging macro- and micro-habitat overlap and Horn's  $B_D$  (Horn 1966) for overlap of foraging



Brenner et al. (1992), male Downy Woodpeckers foraged primarily on branches and twigs, whereas females selected trunks and limbs most often. Male Downy and female Hairy woodpeckers tended to forage in the upper two-thirds of trees whereas male Hairy and female Downy woodpeckers foraged primarily in the middle third (Fig. 1b). Both sexes of both species used live trees for foraging more than they used dead trees (Fig. 1c).

Downy Woodpeckers used peer-and-poke and pecking more often than other foraging methods (Fig. 2, page 78). Peer-and-poke foraging does not disturb the foraging substrate, and pecking dislodges minimal bark. Hairy Woodpeckers used foraging methods (pecking, excavating, and scaling) that penetrated or disturbed the foraging substrate to a much greater extent than Downy Woodpeckers (Fig. 2).

Patterns of resource overlap between species and sexes differed among foraging habitats and methods (Fig. 3, page 78). Females and males of each woodpecker species overlapped more in their use of foraging micro- and macro-habitat than the two species overlapped. In contrast, female and male woodpeckers of each species diverged more in their use of foraging methods than did species. Female and male Downy Woodpeckers were more similar in their use of macro- and micro-habitat than female and male Hairy Woodpeckers, but less similar in the selection of foraging methods (Fig. 3).

#### DISCUSSION

Based on their selection of different foraging micro-habitats and use of different foraging methods (Table 2, Figs. 1 and 2), resource partitioning appears to be well developed among female and male Downy and Hairy woodpeckers. Over their range, however, the generalized foraging patterns used by female and male Hairy and particularly Downy woodpeckers appear to be quite flexible as a function of current competitive pressure (Williams 1980), weather severity (Grubb 1975, 1977; Travis 1977), availability of food (Kilham 1961, 1965, 1970, 1973; Peters and Grubb 1983; Lima 1984), and social interactions (Grubb and Woodrey 1990, Matthysen et al. 1991).

Downy and Hairy woodpeckers appear to be quite opportunistic feeders, and are known to concentrate on insect infestations (Massey and Wygant 1954, Blackford 1955, Yeager 1955, Koplin 1969). Plasticity of foraging behavior would be essential to exploit "blooms" of prey species. Although many observations of foraging patterns in my study are consistent with previous reports, the variety of differences in the foraging patterns of these two species as reported by others reflect the relative plasticity of their foraging behavior (Conner 1981). Unlike my study, Jackson (1970) detected a significant difference between the foraging heights of female and male Downy Woodpeckers. When male Downy Woodpeckers forage on small diameter stems in a mature forest, such stems are usually located relatively high above the ground. Because my study area included agricultural lands, clearcuts, and other areas with low sparse, second growth, male Downy Woodpeckers could find twig size stems closer to the ground than in mature forests. Thus, male Downy Woodpeckers may select foraging sites more on a basis of stem size, and are flexible with respect to height above the ground. Brenner et al. (1992) suggested that Downy Woodpeckers prefer ecotone type habitat but he did not measure the heights of foraging woodpeckers above the ground.

Kisiel (1972) noted that female Hairy Woodpeckers foraged on live trees to a greater extent than did males, and he found no sexual differences in woodpecker foraging heights in New York. I found the opposite in my study, male Hairy Woodpeckers used live trees more frequently than females, and I observed that females foraged higher in trees than males. In Virginia, female and male Downy Woodpeckers showed very little difference in use of live and dead trees as foraging sites. In Kansas, however, differences in Downy Woodpeckers selection of live and dead trees do exist if height of the foraging woodpecker is considered simultaneously (Jackson 1970).

Intra- and interspecific comparisons of foraging resource overlap varied among habitat and behavior categories (Fig. 3). Intraspecific overlap was greater than interspecific overlap when forest stand structure and position of woodpeckers within trees were examined. In contrast, overlap of foraging methods was greater between species than between sexes. This apparent contradiction clarifies if viewed in greater depth. Pairs of woodpeckers often occupy the same territory, particularly during breeding and post-breeding seasons when sexes are often observed foraging together. Thus, a high degree of overlap of foraging macro-habitat between sexes relative to overlap between species is reasonable to expect (Table 1).

Examination of univariate data measured at foraging macro- and micro-habitats suggests that there may be greater differences between sexes' use of micro-habitat than their use of macro-habitat (Tables 1 and 2). Male Hairy and female Downy woodpeckers have very similar use patterns of stem sizes (Fig. 1a) and both also tend to forage in similar vertical positions within trees (Fig. 1b). Male Hairy and female Downy woodpeckers also have the greatest difference in bill sizes (Selander 1965, Willson et al. 1975) and use quite different foraging methods (Fig. 2), possibly permitting a high similarity of foraging site selection with minimal competitive expense.

There was greater overlap between species than between sexes for foraging methods used by the congeneric woodpeckers (Fig. 3). This suggests that past competitive pressures between female and male woodpeckers of both species may have been greater than divergent selective pressures on foraging methods between the two species. Competitive pressures, however, are also affected by overlap in use of forest stand conditions (macro-habitat) and positions selected for foraging within trees (micro-habitat) which confound the ability to focus on the critical overlap between species-sex combinations. Because of differences in the variables and methods used in this study to measure the habitat and behavioral components of species' foraging niches, it is very difficult, if not impossible, to determine which category (macro-habitat, micro-habitat, or foraging methods) is most critical ecologically in partitioning the foraging resources.

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APPENDIX TABLE 1. *Foraging behavior and habitat variables studied*Macro-foraging habitat (three 11.2-m radius plots at each foraging site)Basal area  $m^2/ha$  measured with a prism

Density of stems: number of stems 6 cm diameter per 1/25 ha

Average height (m) to top of crown canopy measured with a clinometer

Micro-foraging habitat

Height (m) of foraging woodpecker above the ground (clinometer)

Diameter of the stem (branch, bole, etc)(cm) where foraging occurred

Height of the tree (m) in which the woodpecker foraged (clinometer)

Diameter at breast height (cm) of the tree used for foraging (caliper)

Standardized height of foraging woodpeckers in the tree (%)

Foraging methods

Peer-and-poke, a surface gleaning technique

Pecking on the foraging substrate

Scaling bark off a tree

Subcambial excavation at one location for 15 seconds

Aerial forays to capture insects (hawking)

Consumption of any vegetable material

Foraging on the ground



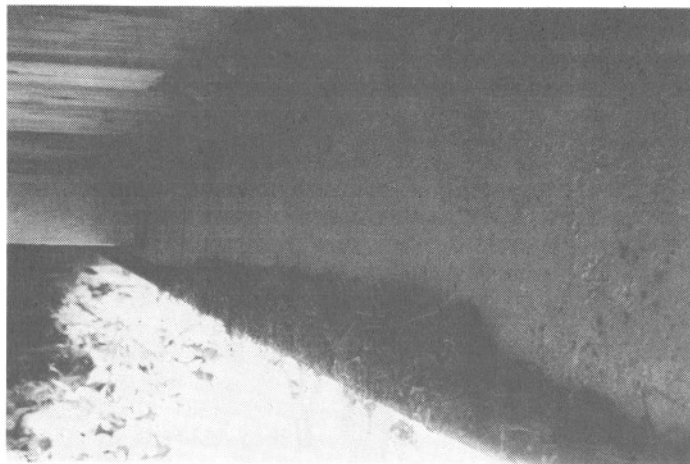
## EASTERN PHOEBES LAY EGGS IN MORE THAN ONE NEST-CUP

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On 22 May 1993, as I walked up to the underside of a bridge over Crooked Run on Virginia Loudoun County Route 727, about 1.2 mi west southwest of Hughesville, an Eastern Phoebe (*Sayornis phoebe*) flew from underneath the bridge. When I looked beneath the bridge, the understructure of which was formed by steel I-beams, I found a series of 11 nest-cups in a row 1.2 m long on the inner side of the ledge formed by the outermost I-beam (Fig. 1). These cups were sketchy approximations of normal nest-cups with heights about half to two-thirds (5.1 to 7.6 cm) those of normal nests. They probably represented refurbished older nest bases left following scourings by floodwaters.

FIGURE 1. Multiple nest cups under bridge near Hughesville, Loudoun County, Virginia. The cup on the right end was the one containing two eggs.



In the largest nest-cup on one end were two eggs; another egg was in a cup two cups away, and yet another egg was in a cup nine cups away. The centers of the nest with single eggs were 27 and 76 cm, respectively, from the nest with two eggs. The four eggs were cold (not being incubated) and candled as completely fresh, which suggests that the bird that I flushed had been about to lay the last egg of a typical five-egg clutch. Because there had been torrential rains some time earlier, and because there was much debris caught up in the understructure of the bridge, it seems likely that these eggs represented a re-laying from an earlier nest failure. This conjecture is strengthened by the fact that 13 of 15 other phoebe

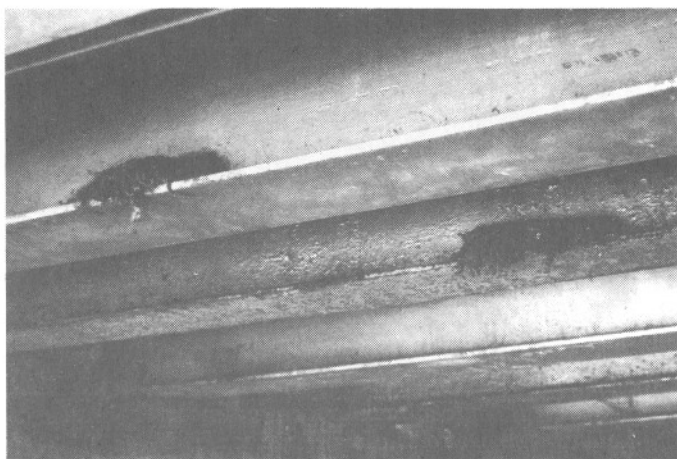


nests observed during this period contained young. One of the two nests with fresh eggs is one that I know was the result of a renesting following a failed nesting attempt; the other nest was situated on an I-beam only a short distance above water and probably was also a renesting following flooding.

When I revisited the site on 12 June, all eggs were gone from the undisturbed cups, suggesting predation by a small mammal or snake. No phoebes were present nor were any at the bridge on subsequent visits on 23 June, and 5 and 24 July.

A second instance of the Eastern Phoebe laying eggs in more than one nest-cup was discovered 26 June 1993 under a bridge on Fauquier County Route 723, 1.15 mi northeast of Asheville, near Marshall, Virginia. There, a phoebe was on a nest with four heavily incubated eggs in one of two complete, normal nest-cups on a ledge formed by the I-beam understructure of the bridge (Fig. 2). This downstream ledge was the third from outermost of those formed by the I-beams. On the second ledge from the outermost and almost directly in from of these nest-cups was a nest with another egg, which was cold, but candled fresh. The center of this nest was 5.8 cm from that with four eggs.

FIGURE 2. Nest cups under bridge near Asheville, Fauquier County, Virginia. The nest on the right is the one that fledged four young.



When I had checked this site on 11 June, the nest-cup containing four eggs on 26 June had one cold fresh egg that must have been laid that morning, but the other two cups were empty. Another nest-cup on an I-beam on the other side of the underside of the bridge contained two maggotty, dead young showing that the first nesting attempt had failed. The chronology of events seems to leave no doubt that all five eggs seen on 26 June were all part of the same second laying under this bridge.

Unlike the nest-cups under the Loudoun County bridge, all three of these near Ashville were "normal" in appearance with a well-developed nest-cup. The breadth of the underside of the Fauquier bridge suggests that this site is rarely flooded, and there was no indication that the site had been flooded in 1993.

Multiple nest-cups made by one phoebe were previously reported by Burroughs (1901) and Weeks (1977). Weeks found a series of five nest-cups, also built on an I-beam, but the single active nest was also the largest and in the center, the two nests cups on either side being progressively smaller. The sizes of the eleven nest-cups in Fauquier County, although generally similar, gradually increased in size toward the end that contained the cup with two eggs. Burroughs reported an instance in which a phoebe began five nest-cups, each situated beside a rafter on a horizontal beam of a stone house. He prevented the phoebe from completing any but one nest, so we cannot know the natural outcome of that nesting attempt.

Probably the lack of location clues provided by the similar appearance of I-beams led to the confusion of the Virginia phoebes. In the first instance the eleven cups in a row were highly similar in appearance, and in the second there was an old nest in good condition on an outer I-beam that was in the direct line of flight to the nest containing four eggs.

Laying in more than one nest-cup has been reported at least twice previously. Ashmole (1968) reported an instance in which a pair of phoebes in Connecticut built two nests in their second nesting attempt, laying two eggs in one nest, and three in the other. The nest-cups were in a situation very like the second one I report here, with one nest on the north side of one girder and the second on the same side of the next girder inward, with the two only about two ft apart. Some incubation was initially done at both nests, but subsequently almost entirely at the outer one, which contained three eggs and which eventually fledged two young. Dike (1903) noted a case in which a phoebe in Vermont built two nests and part of a third, laying two eggs in one of the nests and one in another, subsequently fledgling young from the nest with two eggs. These nests were placed adjacent to studs 15 in (38 cm) apart on a horizontal beam over the entrance to a wood-shed, and like the sites under bridges, provided no visual clues to distinguish them.

It is unclear how frequently such situations occur. I have been checking phoebe nests in Virginia regularly during the last two years and have observed well over 100 nests, but I have usually checked the contents only of nests that had incubating birds or those cups that were best developed and that were evidently the current nest-cups. Most of the nests that I have examined in the northern Virginia Piedmont are on the vertical concrete walls of the underside of bridges, where they are often built on mud-dauber nests or in old nests of Barn Swallows (*Hirundo rustica*). Such nests provide better visual clues to their location and presumably only rarely result in errors of nest choice.

Nests that I have observed along the Blue Ridge mountains in Clarke County, across streams in Fort Valley in Shenandoah County, and on streams running down from Great and Little North mountains in Frederick and Shenandoah counties, and those over streams in Lee County, far more often utilize bridges with steel I-beam understructures

than do phoebes in the northern Virginia Piedmont. Many of these have multiple nest-cups near one another and many first clutches are regularly destroyed by spring floods, increasing the number of instances in which phoebes might make errors in nest-choice. Continuing, more detailed observations in the nest few years should enable me to determine whether such errors occur frequently enough to have a significant effect on productivity in local populations.

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#### WHITE IBISES AT HOG ISLAND WILDLIFE MANAGEMENT AREA

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On 7 July 1993, I was at Hog Island Wildlife Management Area in Surry County with students from the field ornithology class of Longwood College. It was around noon, when we were standing on the observation platform watching an immature Bald Eagle (*Haliaeetus leucocephalus*) soaring over the impoundment, that I noticed a tight flock of birds very far away. In fact, they were barely visible, even viewing them through 10x40 power binoculars. It was not until they approached closer that I realized that they were White Ibises (*Eudocimus albus*).

There were about 40 to 45 individuals in the flock, all immature birds. As the birds reached the impoundment, the Bald Eagle began to make sweeping passes through the flock, widely scattering them. When the individual birds would attempt to regroup, the eagle would again fly through the flock. Eventually the ibises did land in the impoundment, but the harassment of the Bald Eagle seemed to prevent them from landing as a close-knit group.

## UNUSUALLY LATE NESTING OF A RUFOUS-SIDED TOWHEE

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On 8 August 1993, I was surprised to see a female Rufous-sided Towhee (*Pipilo erythrophthalmus*) carrying nesting material along the edge of a road on a sloping mountainside. The location was on High Knob, Warren County, Virginia, along Salt Lick Road at an elevation of 1800 ft. She carried the material into a tangle of grape vines (*Vitis*, spp.) overgrowing a sapling of eastern hop hornbeam (*Ostrya virginiana*) beside the gravel road. Among the grape vines the female was seen weaving the plant fiber into a well-concealed nest about nine ft off the ground. The weather was clear and sunny with a temperature range from 66° to 80° F.

The nesting site was on private property that was covered with a mature deciduous forest composed chiefly of oaks (*Quercus*, spp.) and hickories (*Carya*, spp.) and contained widely spaced houses. Forest ground cover was virtually nonexistent because of overgrazing by an abundant white-tailed deer (*Odocoileus virginianus*) population. The roadsides, however, had shrubby borders of blackberries, raspberries, and hardwood saplings, especially black locust (*Robinia pseudoacacia*). At this mountain location the roadsides probably offered the most secure nesting site for towhees.

When I next visited the nest at noon on 9 August, it was empty, and no towhees were seen or heard. On 13 August, however, the female was incubating three eggs at 9:30 a.m. On my subsequent visits (14, 15, 20, and 24 August), she was incubating, and no male was seen or heard. On the 25th, the female was seen carrying food about 100 ft from the nest, which contained three tiny, naked young birds. This day was quite warm and humid, 88° F at noon; no measurable rain had fallen for many days. Also on the 25th, I briefly glimpsed a different female carrying food in roadside vegetation 0.5 mi to the west, but was unable to follow her.

On 26 August, another hot, humid, and dry day, the female was brooding the three young at 1:00 p.m. When frightened off the nest, she dropped to the ground and repeatedly called "tow-hee, tow-hee." She was immediately joined by her mate, both birds calling excitedly. This was the first time that I saw or heard the male.

On my next and last visit to the nest on 1 September, it was another hot, humid day, with no wind or recent rain, and the nearby woods were notably silent. The nest was empty but did not appear to be in any state of disarray. Nor was there any sign or sound of either parent. When I played the tape of these birds' calls, recorded on 26 August, both birds answered and seemed to appear "out of nowhere." The female was down the bank about 50 ft from the nest and was carrying food. The male was across the road and up a hillside. She was quite agitated over my presence, and several times flew down to forage on the ground. I searched the decaying leaves, sticks, and logs on the bank, and finally found one fledgling, fully feathered, but incapable of flight. As I was banding the bird, it gave several sharp "chip" notes, these setting off a near frenzy by the female. She flew at me several times, then displayed a broken-wing act to my German shepherd walking nearby. After handling the fledgling, my hands and arms were covered with tiny

black mites. As I drove away, the female had found the banded fledgling, flying back and forth over it in the saplings at about 4 ft.

Later summer nests have been reported for several species in Virginia (R. B. Clapp, unpubl. data). For example, eggs in nests have been found in the Virginia mountains for House Wren (*Troglodytes aedon*) on 16 August 1972, Indigo Bunting (*Passerina cyanea*) on 23 August 1942, Cedar Waxwing (*Bombycilla cedrorum*) on 29 August 1937, and Northern Cardinal (*Cardinalis cardinalis*) on 16 September 1931. The latest Rufous-sided Towhee nests with eggs that I have found in the literature were in West Virginia on 18 August 1883 (Hill 1885) and in Tennessee on 12 August 1933 (Monk 1933). The previously latest nest with eggs in Virginia was on 12 August 1932 at Stokesville (R. B. Clapp, unpubl. data).

Thus, the nest found on High Knob represents the latest nesting record for the species in Virginia, and its height, 9 ft off the ground, is unusual because most towhee nests are on or near the ground. Elsewhere in Virginia, towhee nests have been found at heights of 7 ft (C. E. Stevens, pers. comm. to R. B. Clapp) and 5.5 ft (D. W. Johnston, unpubl. data), both near Mountain Lake in Giles County. The extreme nest height for this species appears to be 17 ft 5 in (Bent 1968).

I am grateful to Roger Clapp for providing data on late nesting records for this and other species, and for reading an early draft of the manuscript.

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#### CORRIGENDUM

We sincerely regret the omission of birth and death dates in the obituary of Grace Taylor Wiltshire appearing in volume 64, page 33 of *The Raven*. She was born on 25 October 1904 and died on 30 September 1992.

## NESTING SEASONS, NEST SITES, AND CLUTCH SIZES OF CROWS IN VIRGINIA

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### INTRODUCTION

Crows and jays, family *Corvidae*, have been protected by the Federal Migratory Bird Treaty Act since 1971, when the family was included among those added to the treaty between Mexico and the United States for the protection of migratory birds. There was, however, a tradition of hunting crows in much of the United States, and crows were considered as "vermin" in some places. To permit continuation of the tradition, federal regulations were adopted that allow states (except Hawaii) to prescribe hunting regulations for crows, within broad limits. The regulations (50 CFR 20.133) use only the English name "crows" with no modifier or scientific name. Thus, whether intentionally or inadvertently, all species of crows in the United States are game birds, the only passerines so considered.

The federal guidelines require that seasons may not extend more than 124 days per year and may not include the peak of the nesting season in the state. No special federal stamps or licenses are required for hunting crows as they are for hunting waterfowl. The state of Virginia has had a hunting season for crows since 1973. A recent proposal to change the dates of the open season in the state of Virginia led to an inquiry about the timing of the peak of the nesting season in the state.

### METHODS

We examined data from egg sets taken in Virginia housed in the National Museum of Natural History, and in other museums in North America that Clapp had obtained for another study. Other data were obtained from the literature and a wide variety of unpublished manuscript material, including some data from the Virginia Breeding Bird Atlas Project. A total of 225 nesting records were available, 112 for American Crow (*Corvus brachyrhynchos*) and 113 for Fish Crow (*C. ossifragus*), from all parts of the state. These records include information on locality, date, and stage of nesting activity, and sometimes provide information on nest sites and clutch sizes. In our analysis of clutch size, we used sizes for all clutches for which we knew the stage of incubation as well as clutches obtained by egg collectors, most of whom were probably careful about obtaining complete clutches. We grouped data by 7-day periods and estimated dates of clutch initiation. We calculated dates of initiation for nests by assuming that clutches with fresh eggs had just been completed, and assigned approximate ages to clutches at various stages of incubation. Number of days of incubation assigned for each designated degree of incubation are as follows: slight, begun, or commenced—3 days; well-begun—7 days; well-incubated or advanced—10 days; far-advanced, well-formed, or

soft embryos—12 days; and hard embryos or near-hatching—15 days. We realize that this procedure does not yield exact dates of initiation, but it provides a relatively accurate picture of the development of the nesting season.

## RESULTS

### Nesting Seasons

American Crows usually begin nesting in Virginia in early March. Crows have been seen carrying nesting material in Alexandria as early as 28 February and in nearby Washington, D.C., on 20 February (R. C. Banks, pers. obs.). The initiation of nesting in urban and suburban areas may be advanced relative to that in rural areas because of a generally higher ambient temperature. Nonetheless, crows have been reported carrying nesting material in Albemarle County as early as 5 March (Grey and Stevens 1949) and building at Waynesboro on 11 March (Larner and Mehner 1988).

Laying of eggs follows soon after nest building. Our earliest record of eggs is from Roanoke on 14 March (English 1979). After 21 March, most reports are of eggs or of birds on the nest, presumably incubating. The nestling period is approximately one month.

Some birds reported as "on nest" may be brooding recently hatched young rather than incubating eggs. Indeed, during colder days, early in the nesting season, birds may be brooding fairly well-developed young. The first definite report of young in the nest is 2 April in Augusta County. This nest, which contained four young, suggests that viable eggs may be present as early as the end of the first week of March. Other early reports of young are 6 April in Roanoke (English 1979) and eight-day-old young on 12 April in the Danville area of Pittsylvania County (Eggleston and Lyle 1952).

The nesting season may be extended because of birds that get a late start or that initiate second attempts after loss of the first clutch. The latest report of eggs for American Crow is 19 May near Christiansburg and Blacksburg. Reports of young in the nest continue until 28 June.

Our clutch initiation sample size ( $n: 4$ ) from the Piedmont is too small to compare with those from the Coastal Plain and Mountain and Valley provinces (*see* Kain 1987 for map of regions). Twelve nests from the Coastal Plain have a mean clutch initiation date of 31 March; twelve from the Mountains and Valleys region have a mean clutch initiation date of 11 April. Even if the two Mountains and Valleys clutch initiation dates in May are excluded as representing renesting attempts, the mean clutch initiation date for the Mountains and Valleys region is still between 5 and 6 April, suggesting that nesting is actually somewhat later in that area.

Figure 1 on page 93 graphically illustrates the rapid increase in clutch-initiation by American Crows from mid-March into early April and the more gradual decrease later in the season. About 60 percent of all nests reported are from April; 70 percent are between 21 March and 30 April; nearly 20 percent of the records are from May. The peak period of nesting may be considered to extend from 21 March to 31 May. This is similar to the situation in Maryland, where the nesting peak is considered late March to mid-May (Stewart and Robbins 1958). It is considerably later than in Florida, however,



where Bent (1946) suggests peak numbers of eggs present from late February through the end of March, and considerably earlier than in Saskatchewan, where mean clutch-initiation dates are about 6 to 10 May (Ignatiuk and Clark 1991).

Fish Crows in Virginia have a nesting season that parallels that of the American Crow, but begins about a month later. Most birds are building nests in mid-April, and a peak of laying occurs in late April and early May. Nest building have been reported as early as 24 April in the Dismal Swamp in the Coastal Plain region (Meanly 1977), 12 April at Charlottesville in the Piedmont region (C. E. Stevens, in litt.), and 20 April at Fishersville in the Mountains and Valleys region (Meanley 1981). Our earliest record of a completed clutch is 28 April in the Washington, D. C. area, but collectors' notes on stage of incubation make it clear that some clutches may be completed by the beginning of the third week of April. Nests with eggs and young have been reported as late as 25 June at Hollis Marsh Island, Westmoreland County, and 24 July at Rigby's Island, Mathews County, respectively. Enough nests with eggs have been reported for early and mid-June, however, that it seems evident that young are regularly present in nests through late July, with perhaps a few nests still active in early August.

Bent (1946) suggested that the peak period for the presence of Fish Crow eggs in Virginia, presumably based almost entirely on data from egg collections, was from 14 May through 10 June but our more extensive data indicate that the peak is about a week earlier. About 80 percent of all nests reported are from May; 70 percent are between 8 and 28 May; only about 15 percent of our records are from June, but this certainly underestimates the amount of nesting activity during that period.

Figure 1 on page 93 compares our estimates from clutch initiation dates from both species and clearly shows the differences in nesting season. Only about 20 percent of our American Crow nest records, but slightly over 60 percent of those for Fish Crow, allowed estimations of date of clutch-initiation. Consequently, extremes of egg-laying extend beyond those dates indicated in Figure 1; indeed, the form of the curve for Fish Crow suggests that clutch-initiation continues for another week into June. On the basis of our data, estimated mean clutch-initiation dates for the two species are 6 April and 7 May for American and Fish crows, respectively.

#### Clutch sizes

We report clutch size for "incubated and known complete" clutches alone, as well as for "all" clutches. We do this because mean clutch sizes for nests with "fresh" eggs for American Crows are smaller than those with incubated eggs and because we are not certain what proportion of the nests with "fresh" eggs represent incomplete clutches. On the other hand, mean clutch size for clutches that are either fresh or with stage of incubation unknown are *larger* for Fish Crow.

Mean clutch size for complete clutches for American Crow and Fish Crow in Virginia are 4.68 (n: 22, sd: 0.84) and 4.42 (n: 38, sd: 0.50), respectively. Mean clutch size for all clutches are 4.64 (n: 33, sd: 0.74) and 4.56 (n: 95, sd: 0.58) respectively. Both species usually lay four or five eggs, with about equal numbers of four- and five-egg clutches in Fish Crows, but with five-egg clutches almost twice as common as four-egg clutches in American Crows. Clutches small or larger than these are uncommon in both species,



## Nest Heights of American and Fish Crows in Virginia

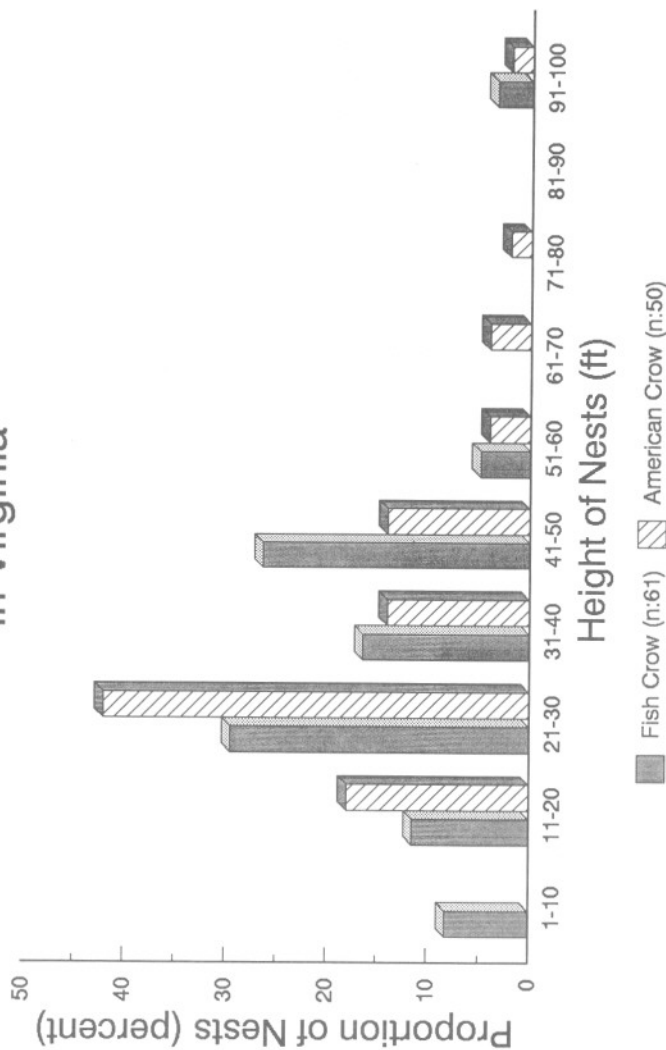


FIGURE 1. Estimated clutch initiation dates for American and Fish crows in Virginia.

with at least some of the reported two- or three-egg clutches probably being incomplete or representing nests in which some predation has taken place. Clutches of six are rare in Fish Crows, with the only three that were found representing only about three percent of all clutches). American Crows average somewhat larger clutch sizes than Fish Crows. We have records of three clutches of six eggs (about nine percent of all clutches).

We lack adequate information on geographical variation in clutch size for Fish Crow and largely lack it for American Crow; the breeding biology of both species has been studied infrequently. American Crows in Virginia almost certainly have a smaller mean clutch size than crows at the northern end of the range. Birds in Saskatchewan (Ignatiuk and Clark 1991) had a mean clutch size of 4.8 (n: 104, sd: 0.6) with almost three times as many clutches of five eggs as of four eggs. In California, where the mean clutch size for completed clutches was 4.5 (n: 14) and for all nests 4.4 (n: 57) (Emlen 1942), the proportion of four- and five-egg nests was the same as in Virginia, but the peak of egg-laying (17-20 April) in this more southern area is clearly about a week later than in Virginia. Remarks by Good (1952) suggest that five-egg clutches in Ohio are probably on the same order of frequency as in Virginia but the proportion of five-egg clutches there (and probably in Virginia) was significantly smaller than in Saskatchewan.

#### Nest Sites

In Virginia, both species of crows predominantly choose nest sites in conifers. Thirty-nine of 55 (70.9 percent) American Crow nests and 62 of 68 (91.1 percent) Fish Crow nests were in conifers. The greater use of conifers by Fish Crows may not indicate a species difference but instead, reflects the fact that most Virginia Fish Crows occur in coastal areas where conifers are relatively much more abundant.

The species of tree chosen for a nest site probably also reflects the distributional differences in the two species and its relationship to local floras rather than any great difference between the species *per se*. At the generic level, American Crows use pines (*Pinus*) most frequently (27 nests, 49.1 percent) and cedars (*Juniperus*, *Thuja*) nest most frequently (20.0 percent). This high use of conifers is similar to the pattern on Cape Cod, Massachusetts, where American Crows (n: 46) used conifers exclusively and pitch pines (*Pinus rigida*) predominantly (Chamberlain-Auger et al. 1990).

Conifer nest-sites in Virginia for which species was indicated (n: 26) included red cedar (*Juniperus virginiana*) (11, 42.3 percent), Virginia or scrub pine (9, 34.6 percent), pitch pine (4, 15.4 percent), yellow or loblolly pine (*P. taeda*) (2, 7.7 percent), white pine (*P. strobus*) (1, 3.8 percent), and arbor vitae (*Thuja occidentalis*) (1, 3.8 percent). Deciduous trees were identified to species for only five nest sites: white oaks (*Quercus alba*) (2); beeches (*Fagus americana*) (2); and black gum (*Nyssa sylvatica*) (1). Hawthorns (*Crataegus*) and crabapples (*Malus*) were reported as sites four and two times, respectively; willows (*Larix*) and locusts (*Gleditsia* or *Robinia*) were reported once each.

Virginia Fish Crow nests are also most frequently placed in pines (85.3 percent) and cedars (5.9 percent). All nests along the coast, except for one in a bayberry (*Myrica* spp.), were in conifers, with the five other sites in deciduous trees inland near Washington D.C., Charlottesville, and Fishersville. Our data provide relatively few specific sites. Nest trees identified to species were Virginia pine (8 nests), red cedar (4), black cherry

# Estimated Clutch Initiation Dates for American and Fish Crows in Virginia

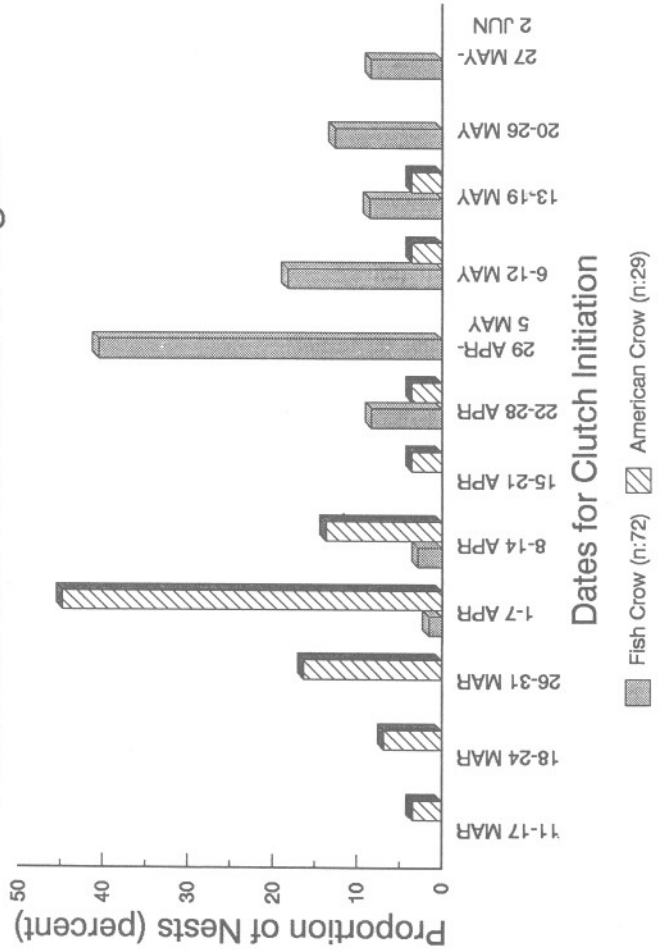


FIGURE 2. Nest heights of American and Fish crows in Virginia.

(*Prunus serotina*) (2), and one each for white pine, longleaf pine (*P. palustris*), and sycamore (*Platanus occidentalis*).

Data on heights of nests are biased toward nests in sites that are more easily seen and climbed to; they probably overemphasize lower nests. Heights reported are also usually estimated rather than measured and thus subject to whatever biases are typical of such estimates.

Reported heights of 50 Virginia American Crow nests range from 12 to 100 ft (x: 34.9, sd: 17.93). This is very close to that reported for Cape Cod, Massachusetts (n: 44, x: 32.4) (Chamberlain-Augur et al. 1990), but there the maximum height (50.5 ft) was considerably less, probably because higher sites were not available.

Virginia Fish Crow nests (n: 62) occur over about the same range of heights and have almost the same mean height (7 - 100 ft, x: 35.4, sd: 17.8) as those of American Crows, but our data suggest that a greater proportion of American Crows nest lower than Fish Crows (Fig. 2, page 95). Forty-two percent of the American Crow nests were found at heights of 25 ft or less, but only 31 percent of the Fish Crow nests were at equivalent heights.

#### DISCUSSION

We emphasize that we have graphed and discussed the chronology only of reports of nesting activity of crows. We assume that the reports fairly mirror the actual chronology of the birds, but we realize that the reflection may be distorted by one or more of several factors. Like the birds themselves, birders are anxious for the spring and experience an increase of activity associated with warming weather. Later in the year, when the temperature approaches the 90's (F), and when ticks and mosquitoes are abundant, field work declines. Oologists were primarily interested in obtaining the largest number of complete clutches in the shortest time possible and scheduled their activities to coincide with the peak periods when fresh eggs were present. Crows may carry nesting material for long distances before the leaves come out on deciduous trees, and nest building is a fairly easily-observable, often noisy, activity. Once the nest is built, however, and the leaves come out, nests in deciduous trees may be difficult to find or observe; those in evergreens may be hidden from the onset. Further, crow nests are often high, near the tops of trees, and determining the contents of the nest may be impossible. In many instances, the contents of the nest may be determined, or estimated, by the behavior of the birds. The change from well-incubated eggs to newly-hatched young may go unmarked or unnoted. Older young, however, may be very noisy when being fed, attracting the attention of observers. The decrease in reports for American Crow in May and June may result from the successful or unsuccessful conclusion of early nesting attempts or to a change in behavior of observers.

Further, the gathering of data for the Virginia Breeding Bird Atlas Project was usually structured to concentrate observations within "safe dates," periods when birds present might safely be assumed to be part of a breeding population rather than migrants. "Safe dates" for the American and Fish Crows were 1 May to 31 August and 10 May to 15 August, respectively. For the former species, at least, this period would tend to concentrate observations relatively late in the nesting season. Because of these various factors

we believe that the very early part and the later part of the nesting season are underrepresented in our data.

#### SUMMARY AND CONCLUSIONS

In Virginia, American Crows may be involved in nesting activity from mid-March until the end of June. Pre-nesting activity and nest-site selection may occupy much of February and early March. Most nesting activity, as indicated by reports, is from 21 March to 30 April, but a considerable amount continues until the end of May. Even when nesting activity *per se* is completed, parents and helpers feed fledged young through July, and in some instances, into August.

Fish Crows in Virginia may be involved in nesting activity from mid-April until the end of July. Most nesting activity, as indicated by reports, is from 1 May through 10 June, but nests with young are badly underrepresented in our data.

We recommend the peak nesting season of the American Crow in Virginia, for the purpose of establishing hunting regulations, be considered to extend from 21 March through 31 May. For the Fish Crow, we recommend the peak nesting season be considered from 21 April through 30 June. For the species combined, the inclusive dates should be 21 March-30 June. Taking into account necessary pre- and post-nesting behavior and activities, the reproductive period for both species extends from mid-February until at least early August.

Complete clutches for both species are typically four to five eggs, with American Crows tending towards slightly larger clutches. Both species primarily use conifers for nesting. Most nests for both species are between 20 and 50 ft high, but American Crows have a higher proportion of their nests at lower levels.

#### ACKNOWLEDGMENTS

We thank Bruce M. Beehler, Bharat Bhushan, and Pamela C. Rasmussen for helpful comments on the manuscript. Claudia Angle prepared the final figures.

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### WHITE-EYED VIREOS AGAIN FOUND WINTERING IN DISMAL SWAMP

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During the winter of 1992-93, I continued periodic surveys of White-eyed Vireos (*Vireo griseus*) in the section of Great Dismal Swamp which lies in Virginia. During five visits to the area, a total of 27 sightings of this species were made between the north end of Jericho Ditch and Corapeake Ditch on the North Carolina line, a linear distance of approximately seven miles. Specific areas searched were the roads along Badger, Corapeake, Hudnell, Interior, Jericho, and Railroad Ditches. The newly-organized Dismal Swamp Christmas Bird Count covering that area will undoubtedly establish that a fairly substantial number of these birds normally winter within the swamp each year.

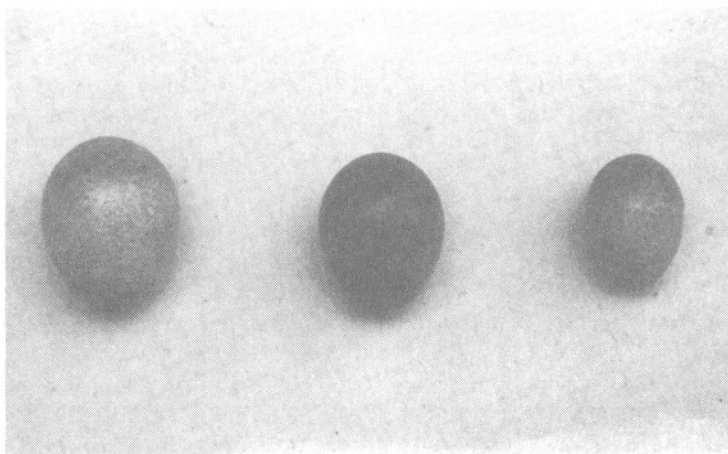
## RUNT EGGS IN A HOUSE WREN

ROGER B. CLAPP

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On 18 June 1993, while checking my string of bluebird boxes along the bridle trail to Lost Mountain in Sky Meadows State Park near Paris, Fauquier County, I found a box with a disrupted House Wren (*Troglodytes aedon*) nest. In this nest, among a thin layer of sticks covering the nest-cup, were three eggs: one normal size (16.7 x 13.1 mm) that had been punctured in two places; another egg, distinctly smaller (15.5 x 11.9 mm); and one that was very small indeed (13.1 x 9.3 mm) (Fig. 1). The second egg was approximately 77 percent the volume of the first and the smallest was only 39 percent.

FIGURE 1. Normal, smaller, and runt eggs found at Sky Meadows State Park on 18 June 1993 (1.49 x life size).



The two larger eggs were of normal shape (length/width ratios of 1.27 and 1.30, respectively), but the extreme runt was relatively more slender (length/width ratio of 1.40). The normal-sized and extreme runt eggs were pigmented as usual with the wreath of darker markings around the larger end that is typical of House Wren eggs; the middle-sized egg (on the border of being a runt), was abnormally heavily pigmented, so dark overall that it closely resembled the chocolate-brown eggs of the Marsh Wren (*Cistothorus palustris*). None of the eggs showed any sign of incubation.

Runt eggs have been reported for a wide variety of birds, mostly by oologists in the late 19th and early 20th centuries, and are still occasionally noted. They are extremely rare

TABLE 1. *Dimensions of individual runt eggs of some North American passerines.*

Species <sup>1</sup>	Shape Index <sup>2</sup> Runt egg(s)	Volume Index <sup>3</sup>	Shape Index Normal eggs	Volume Index <sup>4</sup> Normal eggs	Percent Runt egg volume of Normal egg	Sources <sup>5</sup>
Tree Swallow [8]	1.20	1.20	1.42	3.21	37.4	1
Barn Swallow [2]	1.25	1.07	1.39	3.43	31.2	2
House Wren [5]	1.40	1.13	1.29	2.65	42.6	3
Eastern Bluebird [6]	1.32	0.89	1.27	5.50	16.2	4
	1.16	1.05			19.1	5
	1.20	1.20			21.9	6
American Robin [1]	1.16	3.19	1.41	11.24	28.3	7
Northern Mockingbird [1]	1.06	1.73	1.32	8.51	20.3	8
Brown Thrasher [2]	1.25	2.26	1.37	9.97	22.7	9
	1.63	5.48			55.0	7
European Starling [2]	1.13	2.67	1.38	13.00	20.5	10
Yellow Warbler [5]	1.28	0.90	1.32	2.64	34.1	11
	1.51	1.47			55.7	7
Common Yellowthroat [2]	1.22	1.52	1.32	3.10	49.0	12
Northern Cardinal [5]	1.11	2.37	1.39	8.38	28.3	13
	1.20	2.46			29.4	7
	1.22	4.71			56.2	7
Common Grackle [4]	1.37	3.52	1.37	12.45	28.2	14
	1.24	7.56			60.7	7
House Finch [1]	1.35		1.36	3.58	36.4	15
House Sparrow [3]	1.53	1.32	1.48	5.41	24.4	16

<sup>1</sup> The figure in brackets represents the total number of abnormally small or runt eggs that I have found for the species. In this table, only extreme runts are listed. Measurements in earlier papers have been converted to millimeters. The Tree Swallow egg and last bluebird egg were measured only to the nearest millimeter.

<sup>2</sup> Length divided by width.

<sup>3</sup> Length multiplied by the square of the width/1000. The volumes of most bird's eggs can be fairly accurately determined by multiplying this figure by a species specific constant which here is unnecessary because only relative indications of volume are needed.

<sup>4</sup> Shape and volume indices are calculated from average measurements given in the volumes of Bent's *Life Histories of North American Birds*.

<sup>5</sup> Sources: 1: Bartel 1986, 2: Schneider 1979, 3: this paper, 4: Mulvihill 1987, 5: N[orris] 1889, 6: Zeleny 1983, 7: Jacobs 1898, 8: Short 1909, 9: Ingersoll 1910, 10: Ricklefs 1975, 11: N[orris] 1887, 12: Dillon and Langschied 1991, 13: Ritchison 1984, 14: Rothstein 1973, 15: Ingersoll 1891, 16: Martini 1978.

Ingersoll gave no dimensions for his runt House Finch egg, but photographs showing this egg with normal eggs allow calculation of shape index and relative size by direct measurements of the photograph. If Ingersoll's three normally-sized eggs were average for the species, then the measurements of the runt egg would have been ca. 12.6 x 9.3 mm.



in most passerines, with only 1-2 runt eggs occurring per thousand eggs laid (Koenig 1980). I have found only two previous reports of runt eggs in the House Wren. Jacobs (1898) reported two runt eggs from Illinois in a clutch of four that measured 14.2 x 10.6 mm and 13.0 x 9.9 mm (measurements converted from inches in original) and with shapes (1.33, 1.31) normal for the species. Jacob's two runts represent volumes of ca. 70 and 56 percent of the volume of the two normal eggs in the clutch. Compared to measurements given by Kendeigh, Jacob's measurements for normal eggs, when converted, seem about .2 mm too small, which suggests that his measurements should be used cautiously. The relative figures, however, should remain valid for comparisons.

Kendeigh et al. (1956) reported two runt eggs from Ohio (in a total of somewhat more than 1336 eggs). They did not report dimensions of these eggs but the weights (which are directly proportional to volumes) were 55 and 68 percent of the mean value for eggs at their position (fourth and first eggs in clutches of six and five eggs, respectively) in the order of laying (cf. Table 6, Kendeigh et al. 1956).

Although the runt egg I found is the smallest yet found in a House Wren nest, its size is not relatively smaller than the smallest eggs known for other North American passerines (Table 1, page 100). Judged from the data compiled in Table 1, runt eggs in passerines are usually shaped normally or more closely approach the spherical than usual. Runt eggs that are relatively more narrow than normal eggs, like the one I found, are evidently extremely rare. It also seems apparent that the minimum size of runt eggs tends to be less in birds that lay smaller eggs than in birds that lay larger eggs, possibly because the mechanics of egg-formation make it impossible to lay eggs of more than a certain minimal size.

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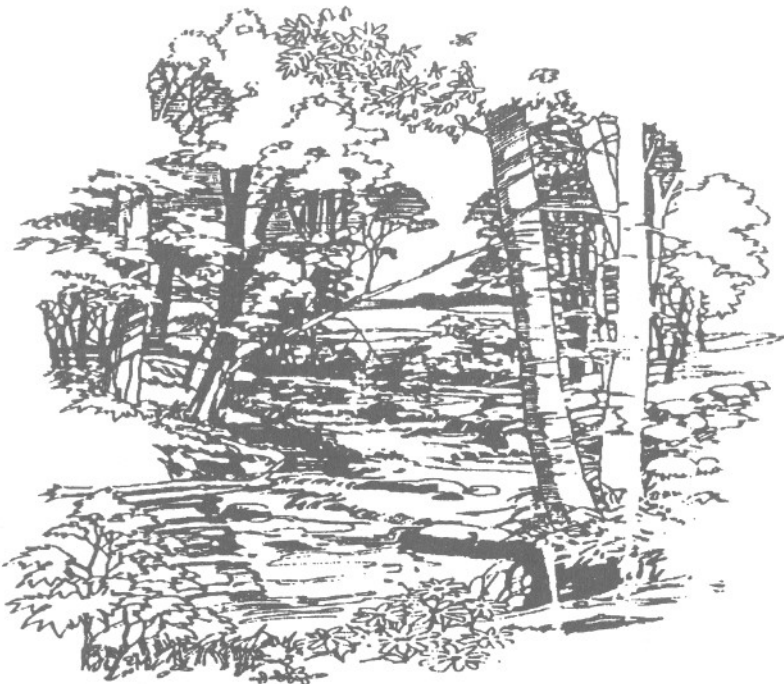
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## HAWKWATCH—1992

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Ten stations, ranging from a backyard lookout to multi-manned, long-term sites, reported their results to Virginia Hawkwatch in 1992 (Table 1, page 103). Most stations are located along the mountain ridges in the western half of the state (Fig. 1) and account for the bulk of the records submitted, but the stations in the Coastal Plain (Arlington and Kiptopeke) also contribute important, and often surprising, data.

Overall coverage was good with the total number of hawkwatching hours the second highest in ten years or more. The total of 392 days of coverage is somewhat higher than the 10-year average of 232 days, but the total number of individual raptors for all sites is down somewhat from numbers reported the past several years.

For the past two years numbers of Black (*Coragyps atratus*) and Turkey (*Cathartes aura*) vultures have not been included in the hawkwatch tables because it is felt by many observers that it is not possible to accurately determine if individuals of these two species are actually migrating, or are birds that remain in the area of the hawkwatching stations for long periods of time.

The stations listed in Table 1 are generally arranged in order of distance inland from the coast and from north to south. This report was compiled under the auspices of the Hawk Migration Association of North America (HMANA). We are grateful to Myriam Moore, coordinator of the Raptorians (an independent group interested in raptor migration), for contributing the much of the data used in this article.

FIGURE 1. The location of the 1992 hawkwatching sites listed in Table 1 on pages 104-105.

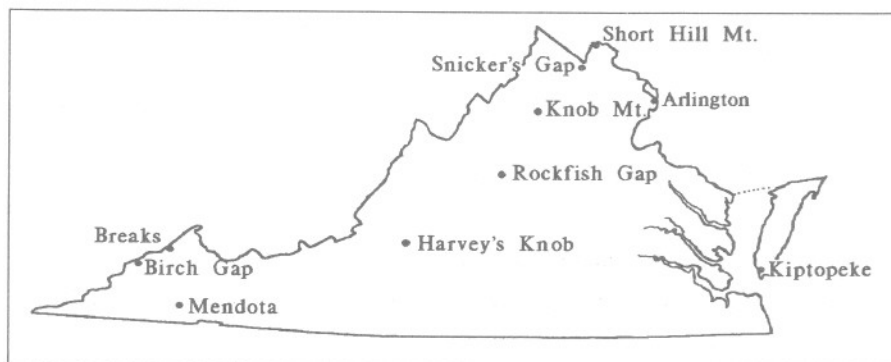


TABLE 1. *Virginia hawk lookout totals—1992.*

Species	Osprey	Bald Eagle	Northern Harrier	Sharp-shinned Hawk	Cooper's Hawk	Northern Goshawk	Red-shouldered Hawk	Broad-winged Hawk
1. Kiptopeke Beach	384	27	251	4672	695	...	21	96
2. Arlington (Anderson residence)	6	5	...	27	2	1	9	413
3. Short Hill Mt.	37	28	63	662	121	7	37	508
4. Snicker's Gap	182	35	160	1929	289	27	194	5477
5. Knob Mt.	1	...	...	50	11	...	2	...
6. Rockfish Gap	82	8	42	448	85	...	18	10,020
7. Harveys Knob	74	2	18	375	39	...	19	7024
8. Mendota	36	1	6	73	50	...	1	4837
9. Breaks	...	...	...	...	...	1	...	...
10. Birch Gap	1	...	1	1	3	...	...	904
Totals	803	106	541	8237	1295	36	301	29,279

## 1992 VIRGINIA HAWK LOOKOUT SITES

1. Kiptopeke Beach: At the southern tip of the Eastern Shore.
2. Arlington: The residence of Roger Anderson in Arlington.
3. Short Hill Mt: Across the Potomac River from Harper's Ferry in Loudoun County.
4. Snicker's Gap: At the intersections of Rts. 7 and 601 on the Loudoun-Clarke county line.
5. Knob Mt.: A foothill off the western slope of the Blue Ridge near Rileyville.

Red-tailed Hawk	Rough-legged Hawk	Golden Eagle	American Kestrel	Merlin	Peregrine Falcon	Unidentified	Total individuals	Total hours station manned	Total days station manned
252	...	...	2145	423	171	111	9248	574	68
61	...	1	5	3	1	...	534	25	18
1182	...	10	50	1	4	53	2763	345	69
1822	4	9	136	49	23	151	10,457	494	81
533	...	4	2	...	...	15	618	...	14
189	...	...	33	7	6	39	10,977	246	46
370	...	7	35	1	7	40	8011	293	66
...	...	1	9	3	1	14	5032	90	15
1	...	...	...	...	...	...	2	1	1
2	...	...	2	1	...	9	924	77	14
4412	4	32	2417	458	213	432	48566	2145	392

## 1992 VIRGINIA HAWK LOOKOUT SITES (con't)

6. Rockfish Gap: Crest of the Blue Ridge on Afton Mountain, adjacent to Interstate Hwy. 64.
7. Harvey's Knob: Crest of the Blue Ridge at milepost 95 on the Blue Ridge Parkway.
8. Mendota: The fire tower on the crest of Clinch Mountain near Rt. 802 in Washington County.
9. Breaks: Breaks Interstate Park in the far northwestern corner of Dickenson County on the Virginia-Kentucky line.
10. Birch Gap: On Pine Mountain in Dickenson County (elevation 3149 ft)

## 1993 REPORT OF THE VSO RECORDS COMMITTEE

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This report covers the actions of the VSO Records Committee from 1 September 1992 through 31 July 1993. There was one new species added to the Virginia state list, bringing the cumulative total to 420. The committee reviewed 39 submissions, of which, 10 were accepted, 7 were not accepted, 7 are unresolved pending further rounds of voting, and 15 are circulating on the first round of evaluation, as of this writing.

The 1993 committee members are:

*Chairman:* Robert L. Ake

*Non-voting secretary-compiler:* Teta Kain

*Voting members:*

*Three-year term:* Fenton Day, Kerrie Kirkpatrick, Brian Taber

*Two-year term:* Brian Patteson, Richard Peake, Claudia Wilds

*One-year term:* Robert Ake, David Johnston, Bill Williams

### ACCEPTED RECORDS:

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

**YELLOW-HEADED BLACKBIRD** (*Xanthocephalus xanthocephalus*). Four individuals of this species were seen by numerous members of the Augusta Bird Club at Fort Lewis Lodge in Bath County on 29 September 1990 [Crista Cabe]. Although there have been numerous other reports of this species in the western part of the state, this is only the sixth sighting to be verified with written documentation. With this report, the species is now placed on the Mountains and Valleys regular list.

**ROSE-BREASTED GROSBEAK** (*Pheucticus ludovicianus*). An immature male appeared at a feeder in Sterling from 15 February to 14 April 1991 [Craig Tufts], allowing photos to be obtained. It becomes the first winter record for the Piedmont.

**MISSISSIPPI KITE** (*Ictinia mississippiensis*). Two adults seen at Eastern Shore of Virginia National Wildlife Refuge on 21 June 1991 [Stephen Rottenborn] become the sixth verified sighting for the Coastal Plain, moving the species from accidental to regular status for that region.

**WHITE-WINGED DOVE** (*Zenaida asiatica*). A single bird in a flock of Mourning Doves (*Zenaida macroura*) just outside the Eastern Shore of Virginia National Wildlife Refuge was cooperative enough for three photographs to be taken of it on 26 July 1991 [Stephen Rottenborn]. It becomes the third State and third Coastal Plain record and is moved from hypothetical to accidental status.

**WHITE-FACED STORM-PETREL** (*Pelagodroma marina*). One bird seen by several pelagic birders [David Abbott, Dave Czaplak, Michael O'Brien] on 17 August 1991, just north of Washington's Canyon off the Virginia coast, was photographed, and becomes the second State and second Coastal Plain record. Because these were the first photographs

obtained of this storm-petrel in the state, the species is moved from hypothetical to accidental status.

**BAND-RUMPED STORM-PETREL** (*Oceanodroma castro*). On the 17 August 1991 pelagic trip off the Virginia coast, this species was observed by many [David Abbott, Dave Czaplak, Michael O'Brien, Paul O'Brien] and photographed. It is the first State and first Coastal Plain record and is placed on the accidental list. It is no. 420 on the Virginia cumulative list.

**BAR-TAILED GODWIT** (*Limosa lapponica*). First discovered by a Canadian birder visiting Chincoteague on 5 September 1991, this bird was seen by many observers until its last appearance on 15 September [David Abbott, Carol and Don Broderick, Robert Hilton, Ottavio Janni, Valerie Kitchens, Michael O'Brien,]. This constitutes the second State and second Coastal Plain sighting of this species, but it remains on the hypothetical list because no identifiable photographs have been located.

**FORK-TAILED FLYCATCHER** (*Tyrannus savana*). A bird hawking insects at False Cape State Park, south of Virginia Beach, was cooperative enough for three photos to be obtained on 12 October 1991 [Thomas Gwynn III, Don Schwab]. This becomes the third State and third Coastal Plain record of this species.

**BLACK SCOTER** (*Melanitta nigra*). The bird seen at the Upper Occoquan Sewerage Authority facility in western Fairfax County [Stephen Eccles, Robert Hindle] constitutes the fourth Piedmont record of this species.

**THICK-BILLED MURRE** (*Uria lomvia*). Finding this bird and obtaining a photograph of it [Fenton Day, Brian Patteson] on a 22 February 1992 pelagic trip in the Norfolk Canyon area off Virginia Beach, keeps the murre on the regular State list as it is the fifth verified sighting of this species in the last 50 years.

#### UNACCEPTED RECORDS, identification questionable:

**SMITH'S LONGSPUR** (*Calcarius pictus*). An ornithologist from Oklahoma who is an expert on longspurs did not feel that the details given about a bird seen on the Chesapeake Bay Bridge-Tunnel on 21 October 1991 sufficiently described a Smith's Longspur. Committee members also felt that there should be a more exhaustive description for a first state record which this would have been, had it been accepted.

**WHIMBREL** (*Numenius phaeopus*). Details given for three birds seen during the 2 June 1990 Lynchburg spring count were insufficient to completely rule out similar species.

**MISSISSIPPI KITE** (*Ictinia mississippiensis*). The description of one seen on the Meherrin River in Greensville County on 11 June 1988 was not sufficient.

**CINNAMON TEAL** (*Anas cyanoptera*). Although the description of an individual seen at Chincoteague on 25 March 1991 was good, the chances that this bird escaped from one of the collections of waterfowl kept on the island of Chincoteague are too great for it to be accepted as a truly wild bird.

PIPING PLOVER (*Charadrius melodus*). Details about an individual observed at Staunton River State Park in Halifax County on 22 September 1991 were not sufficient to rule out the possibility that it could have been a similar species.

GULL-BILLED TERN (*Sterna nilotica*). Characteristics and behavioral patterns described about a bird seen at Staunton River State Park in Halifax County on 23 September left doubts that the bird was a Gull-billed Tern.

MISSISSIPPI KITE (*Ictinia mississippiensis*). Details were not sufficient to accept the sighting of a raptor passing by Harvey's Knob hawkwatch station on 1 October 1991.

UNRESOLVED, further committee action required:

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

WILLOW FLYCATCHER (*Empidonax traillii*). Occurrence at Emporia, 4 June 1991, possible breeding record.

THAYER'S GULL, (*Larus thayeri*). Occurrence at Chesapeake Bay Bridge-Tunnel, 26 February 1989. The written documentation for this sighting has been accepted, but committee members are still evaluating photographs of the bird to determine if they are identifiable to species.

MISSISSIPPI KITE, (*Ictinia mississippiensis*). Occurrence in Greenville County, 8 June 1991.

WHITE-FACED STORM-PETREL (*Pelagodroma marina*). Occurrence at Washington Canyon off the Virginia coast on 17 August 1991.

RUFIOUS HUMMINGBIRD (*Selasphorus rufus*). Occurrence at Charlottesville, 7-11 October 1991.

WESTERN GREBE (*Aechmophorus occidentalis*). Occurrence at Craney Island, Portsmouth on 3 November 1973. This is the only pre-1982 record of the species accompanied by a photograph which may be clear enough to identify the bird as a Western Grebe, as opposed to the recently split Clark's Grebe (*A. clarkii*).

Approximately 15 other records, not listed here, have been sent to committee members for review. Results of the first round of voting on these sightings were not available as of this writing.

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## FIRST RECORD OF A BAND-RUMPED STORM-PETREL IN VIRGINIA

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During a pelagic trip off the coast of Virginia on 17 August 1991, a number of birders studied and photographed a Band-rumped Storm-Petrel (*Oceanodroma castro*) in an area known as "the lumps" on the north rim of Washington Canyon, at 37° 33.27' N 74° 07.97' W. It was among other seabirds—several hundred Cory's ((*Calonectris diomedea*), Greater (*Puffinus gravis*), and Audubon's (*P. lherminieri*) shearwaters, a White-faced Storm-Petrel (*Pelagodroma marina*), and several dozen Wilson's Storm-Petrels (*Oceanites oceanicus*). Water temperature was around 80°F; air temperature was approximately 90°F; and seas were flat to calm with about one-foot swells. Lighting was bright and viewing conditions were very good most of the time, even though the atmosphere was rather hazy, creating a soft glare. We studied the bird for approximately five minutes around 11:30 a.m. at distances ranging from 50 to 300 yards.

The bird was obviously larger than the Wilson's Storm-Petrels, with a wingspan perhaps 20 percent greater than that of the other birds. The size difference made it easy to distinguish the Band-rumped from the Wilson's, both when it was flying or sitting on the water.

It was a very dark bird, appearing blacker than either a Leach's or Wilson's storm-petrel. The rump-patch was conspicuous, bright white, and unmarked, with the edges well-defined and rather square-shaped. The patch covered the area above the tail and extended laterally to the sides of the rump, with only a minor extension below the outer tail feathers. The undertail region was dark, unlike the extensive white area found on Wilson's. The shape was more narrow across the top of the rump (band-like), with clean, crisp edges. The rump patch was similar to Wilson's in brightness and clarity, but much more narrow. This rump-patch is in strong contrast to Leach's Storm-Petrels found in the Atlantic. Those birds consistently show egg-shaped, hazy, diffuse rump-patches. The Leach's also shows a lengthwise brown divider in the rump that is usually noticeable, even at great distances. The tail seemed slightly notched or indented from some angles, at other times, more squared off, but it never showed a deep notch.

There were very faint, dark-gray, diagonal patches across the inner wing, presumably along the greater secondary coverts. These patches were hard to see because they were so narrow. In bright light there was no hint of brown on the mantle area, unlike Leach's. The rest of the plumage was blackish. The eye was dark. Leg color was not noted, but the feet did not project beyond the tail.

The bird had a different wing-shape than Wilson's, with the hand/arm ratio appearing greater, giving it a "long-winged" look as opposed to the "short-winged, paddle-



shaped" look of a Wilson's. The tip of the wing seemed more rounded than on Leach's, and the wings were not angled back so sharply at the wrist as on Leach's.

Typically, the bird flew somewhat higher above the water than the dozen or so Wilson's, with the wings held in a flatter plane, especially when gliding. The strokes seemed more powerful, and perhaps, slower. The typical pattern of flight was occasional glides of one to three seconds interspersed with stroking and some tilting of the wings, but there was not a sharp change of course after each glide or series of strokes. Unlike Leach's, the overall flightline was rather straight, without the characteristic veering of that species. When flushed from the surface with several Wilson's, this bird quickly got up higher and moved away faster than the other birds. Towards the end of the observation period, it picked up an item from the surface of the water and carried it in its bill. The blackish petrel bill, with tubular nostril above, was clearly seen, but no differences in bill-size or shape, compared to the Wilson's, could be distinguished.

We were able to catch up to it twice as we gave chase. On several of the closest approaches, the lighting on the bird was unusually good and photographs of the bird were taken by several people on board.

*Editor's note: This sighting was accepted by the VSO Records Committee and becomes the first State and first Coastal Plain record. It is placed on the accidental list because identifiable photographs were submitted, along with the written documentation. It is no. 420 on Virginia's cumulative list.*

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## SECOND RECORD FOR ROCK WREN IN VIRGINIA

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On 4 November 1990, George B. Harris and I were birding at the U. S. Army Corps of Engineers Facility at Craney Island in Portsmouth, Virginia. We were spending that Sunday morning following up on some sparrow sightings from the previous morning's field trip of the Cape Henry Audubon Society. The southeast corner of the impoundment had held a great number of sparrows of at least six species and we suspected two others.

A small, dark, furtive bird and a larger, very pale individual caused some of our group to believe that a Lincoln's Sparrow (*Melospiza lincolnii*) and a Clay-colored Sparrow (*Spizella pallida*) may have been present on Saturday. George and I returned

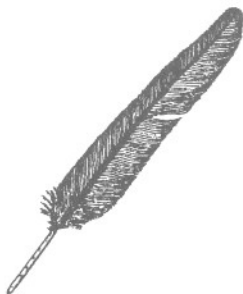
the next morning to try and confirm those sightings. We arrived at 8:00 a.m. and spent almost two hours sorting through the sparrows in the weedy habitat, both up inside the elevated impoundment wall, and down on the lower road-level. We were unable to confirm the previous morning's suspicions, but what happened next made us forget about rare sparrows altogether.

At 9:50 a.m. a movement in a jumbled pile of creosoted poles caught George's eye. He got my attention and we both observed a small, energetic bird perched atop the protruding end of a pole. It was doing "push-ups" and bobbing its head. The rather long, cocked tail and slender, slightly-curved bill immediately made us say, "It's a wren!" The morning light was behind us and our view of the wren was quite clear, because we were only about 30 ft from the bird. At first, George and I were both confused. The wren's gray, speckled back and light eye-line didn't make sense for any Virginia bird, yet the bird seemed strangely familiar. We remarked about the muted streaks on the breast and the rusty rump and tail. It was then that we realized we were looking at a Rock Wren (*Salpinctes obsoletus*). The bird's familiarity stemmed from the fact that George and I, along with our wives, had spent two weeks in southeast Arizona the previous summer and had observed Rock Wrens in their proper place at that time.

Dumbfounded, we continued to observe the Rock Wren as it flitted about the area. It seemed to be searching for food, climbing under logs and boards and examining crevices in minute detail. It showed little interest in our presence and it made soft, buzzy chirps as it worked.

After observing our find for 30 minutes, I left George to "wren-sit" and went to spread the word and grab a camera. I returned in an hour with my wife Linda, Robert and Anne Ake, and Don Snipes. George had kept track of the Rock Wren and we all observed it thoroughly and obtained photographs. Subsequently, many birders from throughout Virginia, and beyond, came to enjoy seeing what turned out to be the State's second record for the species. The Rock Wren remained in the same general area through the winter and my last observation of it was on 17 March 1991.

*Editor's note: Written documentation submitted by Hughes and Harris, along with photographs of the bird submitted by Tom Armour, was accepted by the VSO Records Committee. The sighting becomes the second State and second Coastal Plain record.*



## SECOND STATE RECORD OF A BAR-TAILED GODWIT

OTTAVIO JANNI

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On 8 September 1991, along with several other birders, I observed a Bar-tailed Godwit (*Limosa lapponica*) on the causeway leading to Chincoteague Island, Virginia. The bird had been seen there for several days. On this day our observations were between 6:15 and 7:30 p.m. as it fed on a mudflat. It was near high tide and this was one of the few mudflats not covered with water. I made my observations of the bird with a 55x Questar telescope in good light, at a distance of about 200-300 m.

The godwit was a large, long-billed, and rather long-legged shorebird that stood about as tall as a Willet (*Catoptrophorus semipalmatus*) and was of an overall, bright, tawny-buff color. The bill was very slightly upturned and about three times as long as the length of the head, its basal third was dull, and rather dark pink, while the other two thirds were blackish. The legs were dark and looked rather short for a godwit.

The crown had lots of fine, dark streaks that seemed to form an overall dark brown crown. The bird had a conspicuous pale buff supercilium, which was wider behind the eye than in front of it, and a thin dark line behind the eye. The rest of the head, throat and neck were of the same tawny-buff color as the underparts (although the hindneck seemed slightly paler). Below the neck, an area of dark streaks looked like a broken-off necklace (this was more conspicuous on one side of the neck than the other). The rest of the underparts were of a uniform tawny/buff color, except for the lower belly which was white. The buffy underparts did not fade into white at the belly. Instead, the separation between the two colors was neat, but rather blotchy. The undertail coverts seemed to be washed with a buffy color, but the bird was far enough away that I could not be sure.

The back was buffy with a series of thin dark streaks running down it. The scapulars seemed to be dark brown with pale centers, but because the bird was so distant, the pattern might well have been the reverse (pale scapulars with dark centers). The coverts were rather pale gray, creating a contrastingly paler panel on the folded wing. The tertials looked dark brown. On some occasions, parts of the white rump were visible, along with the black-and-white barred tail. The white bars looked slightly wider than the black bars.

When the bird flushed, the white rump and lower back, white underwings, and rather uniform buffy-brown upperwing were all noted, as was the black and white barred tail. Because I did not see the bird in flight for very long, I cannot give a more detailed description of this aspect of my observation.

*Editor's note: Written documentation about this sighting was also submitted by David Abbott, Robert Hilton, Valerie Kitchens, Michael O'Brien, Carol and Don Broderick to the records committee for review. Because no photographs of the bird have been received, the species remains on the hypothetical list and the sighting becomes the second State and second Coastal Plain record.*

## FORK-TAILED FLYCATCHER AT BACK BAY NATIONAL WILDLIFE REFUGE

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DON SCHWAB

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On 12 October 1991, the authors were working the False Cape State Park-Back Bay National Wildlife Refuge (NWR) deer hunt. The check station was located at the maintenance yard on the NWR. Thomas Gwynn was the first to sight a bird sitting atop a live oak (*Quercus virginiana*) at the northwest corner of the maintenance yard and pointed it out to Schwab. The bird was first observed as it sortied out after prey, returning to the tree approximately 100 ft from the observers. The flycatcher gestalt of the bird, along with the extremely long, forked tail, immediately caught the authors' attention. Upon viewing the bird through binoculars, the black crown, with the black extending below the eye and down the nape, along with the gray back, bright white underside, black wings, and long, forked, black tail, led the authors to conclude the bird was an adult male (based on the large amount of yellow in the cap) Fork-tailed Flycatcher (*Tyrannus savana*). The flycatcher was under observation, in excellent light, for at least 20 minutes. The authors used 8x and 10x binoculars and a 20-60x Kowa scope to view the bird. It was photographed, using a 70mm lens on a 35mm camera. The bird moved from the northwest corner, flying south, and was relocated by the authors southeast of the maintenance yard. The flycatcher was observed hawking several times, effectively showing off the forked tail. It was during this period of observation that the yellow crown patch was seen as the bird hawked insects from electric wires. The bird continually moved in a southerly direction, along the east dike road, and was last seen near the C/B Cross Dike area of the refuge.

At approximately 6:30 p.m. on 12 October 1991, a weather front, approaching from the northwest, moved across southeastern Virginia, bringing cooler temperatures, strong winds and rain. On 13 October, several people tried, unsuccessfully, to find the bird in approximately the same area it had been seen the day before. The flycatcher may have been the same individual seen at Cape May, New Jersey on 29 September 1991. This sighting represents the third record of this species for the state of Virginia and was accepted by the Virginia Records Committee in May 1992.

### LITERATURE CITED

1991. Good birds from the hotline, October 1993. *Winging It* 3(11):3. American Birding Association.

*Editor's note: The documentation from both authors, along with the three photographs, was accepted by the VSO Records Committee and the sighting becomes the third State and third Coastal Plain record.*

## WHITE-WINGED DOVE ON THE EASTERN SHORE OF VIRGINIA

STEPHEN ROTTENBORN

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On 26 July 1991, I was driving north on State Route 600 about 200 m north of the entrance to the Eastern Shore of Virginia National Wildlife Refuge when a flock of about 10 doves flushed from a field on the east side of the road. The birds flew across the road right in front of my car, and as they did so, I noticed that one of them had white patches in the wings. This bird landed on a telephone wire nearby, allowing me to study it. Although the early morning light (it was 6:45 a.m.) was poor, and the sky was overcast, I was only 35 ft from the bird, and 8.5x binoculars, along with a 22x scope, gave me good views of the bird, which I immediately identified as a White-winged Dove (*Zenaida asiatica*). The bird was quite tame, and eventually allowed me to approach as close as 10 ft. The following field marks were noted at the time of the original sighting:

When perched, the white wing-patch showed as a thin line of white on the outer edge of the folded wing. The bird was stockier than the Mourning Doves (*Zenaida macroura*) with which it associated, but was slightly shorter than the adult Mourning Doves present because of its relatively short, blunt-tipped tail. When folded, the rectrices appeared to be grayish with wide white tips; when the bird flew I could see that all but the central pair of rectrices had white tips, while the central pair was completely grayish. The back, nape, crown, undersides, and most of the upperwing coverts were pale gray, lighter than the rest of the head and body. At times, when the bird was seen in the right light, a relatively large patch of blue skin was visible around the eye, which was blood red. The gray-black bill had a distinct crook in it, giving it a slightly decurved appearance. The feet were bright red. In flight, the white wing patch contrasted sharply with the black primaries and secondaries. The bird flew with quick, jerky wingbeats, unlike the more even wingbeats of the Mourning Doves.

After taking some photographs of the bird, I went back to the refuge and persuaded Jim Wood, a refuge employee and long-time birder, to go look at the bird. After observing it for several minutes, he concurred with the identification of the bird as a White-winged Dove. Later that day, the bird was seen by Tim O'Connell, Grayson "Butch" Pearce, and Brian Patteson. Patteson also photographed the bird. The dove was seen again on 27 and 28 July, but I am not aware of any sightings after the 28th.

*Editor's note: Written documentation and photographs of this sighting were accepted by the Records Committee in May 1992 and it becomes the third State and third Coastal Plain record. With identifiable photographs taken of the bird, the species is moved from hypothetical to accidental status on the state list.*

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1. Augusta Bird Club (141), Staunton-Waynesboro
  2. Bristol Bird Club (40), Bristol
  3. Cape Henry Audubon Society (450), Norfolk
  4. Clinch Valley Bird Club (20), Tazewell
  5. Cumberland Nature Club (10), Wise
  6. Eastern Shore Bird Club (37), Accomac
  7. Fairfax Audubon Society (5300), Vienna
  8. Foothills Bird Club (25), Martinsville
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  11. Margaret H. Watson Bird Club (35) Farmville
  12. Marion Bird Club (15), Marion
  13. Monticello Bird Club (170), Charlottesville
  14. Montpelier Naturalists (25), Gordonsville-Orange County
  15. New River Valley Bird Club (80), Blacksburg
  16. Northern Neck of Virginia Audubon Society (356), Kilmarnock-White Stone
  17. Northern Shenandoah Valley Audubon Society (500)  
Winchester-Strausburg-Front Royal
  18. Northern Virginia Chapter (650), Arlington-Fairfax
  19. Richmond Audubon Society (1350), Richmond
  20. Roanoke Valley Bird Club (150), Roanoke-Salem
  21. Rockbridge Bird Club (30), Lexington
  22. Rockingham Bird Club (100), Harrisonburg
  23. Virginia Beach Audubon Society (650), Virginia Beach
  24. Westmoreland Bird Club (69), Montross
  25. Williamsburg Bird Club (120), Williamsburg
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