



The Raven

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SOOTY TERN AT HAMPTON, VIRGINIA

By Walter Post Smith

The old saying, "It is an ill wind that blows no good," was proven again at Hampton on September 12, 1960. Of course, it really depends on your point of view. It was a good wind for the members of the Hampton Roads Bird Club, but I suspect a certain Sooty Tern took a rather dim view of this same wind, Hurricane Donna, which carried it hundreds of miles from its normal range.

This Tern was picked up on the morning of September 13, 1960, apparently exhausted, on Saunders Road in Hampton, by Hotie Mitchell, the City Game Warden. He brought it to Mrs. Emmy Lou Machen, who, in turn, enthusiastically sounded the news to her fellow Bird Club members, who gathered at her home that night to view this rare visitor.

It was a beautiful adult specimen, which to add to our luck, had been banded. However, during our conjectures on the possibilities of reviving the bird, Nature took its course, and we found to our disappointment it had died.

The specimen was donated to the Norfolk Museum of Natural History. The band was returned to the U.S. Fish and Wildlife Service. We were later informed by them that the tern was banded by members of the Florida Audubon Society on July 15, 1960, in the Dry Tortugas.

For the members of our Club this incident provided that nameless thrill of a birder's "first", and our enthusiasm was not even damped, when upon reporting the record to Fred Scott we were informed that someone from Salisbury, Maryland had observed EIGHTY Sooty Terns during Hurricane Donna!

— 11 Orchard Avenue
Hampton, Virginia

BLACK-HEADED GROSBEAK IN FAIRFAX COUNTY, VIRGINIA

By Elizabeth D. Peacock

At 12:50 on Christmas Eve, as I prepared to decorate the windows in the dinette I was startled to see a large-headed bird of unusual coloration curiously peering at me over the window sill. Using the quietest, but the most ominous voice I could muster, I commanded the boys back of me to freeze. I tried desperately to memorize every feature as I flipped the pages of my memory for some clue to its identity -- dark finch-like bill, blackish crown, gray auriculars, dull rusty eye stripe, collar, throat and breast, with pronounced black and whitish stripes on upper back. I could not see wings, tail or size of body. Transfixed, I stood staring, afraid the apparition would vanish. Finally my reason began to function and I whispered that it must be a Western species. The bird flew into a bush and I saw the beautiful black and white wing markings, but I was surprised that it was so small, only about the size of a Cowbird perched nearby. I had expected a bird as large as a Bobwhite.

The puzzle lessened then and I breathed. Still holding the bird with one eye, I scanned the plates of Peterson's Western Grosbeaks which Daniel had procured for me by crawling the length of the living room floor. There was my bird! A sort of cross between the male and female Black-headed Grosbeak. A telephone call to Dr. John Aldrich assured me that it was the immature male.

For two and one half hours it poked its head in and out of the trap on the feeder, munched seeds nonchalantly, sunned itself in the bush and in so doing displayed the dark, almost square tail, the rusty rump, the yellow belly, but always it managed to avoid being caught. When finally it flew off into the woods at 3:30 I placed a large container of holly branches against the windows to make a screen for our activities.

Sunday and Monday went by with family dinners, church, guests, but always I wondered about The Grosbeak. Then Tuesday at 9:00 it flew into the bush, looked curiously at the Mocker in the trap and flew off. At least it was real and not a product of the magic and mystery inherent in Christmas Eve. All day Wednesday we watched, but no bird. Finally at 3:45 on December 28, Dan saw it perched on a trap and before I could get to the window, it had quietly walked inside. At last I had the lovely creature in my hands and I could see the beautiful lemon yellow under wing coverts.

Of course the first thing I did was to call our V.S.O. members here in the Chapter and Mr. Eike took pictures. The next day we took it down to the National Museum and here is the scientific data as written out for me by Dr. Alexander Wetmore.

"Pheucticus melanocephalus melanocephalus, subspecies certain from large size of bill. Wing 98.0, tail 74.5, culmen from base 20.4, depth of bill at base (approx.) 13.0, width of bill at base 10.8 mm."

While showing it to Dr. Wetmore and others it obligingly ate sunflower seeds from my hand. I examined it for fat deposition and found the axilla mounded, the fulcrum full, but not obscuring the trachea and also some fat in the anal region. The bird was banded with F&W band No. 59-112198 and released from my window at 2:45 on December 29, 1960.

When I retrapped the bird on January 6, it gave its "eek!" Also its distress call, like the squeaky sound of a mechanical toy was different from the robust squall of the Rose-breasted Grosbeak. The next day I released it again after showing it to about seventy-five people, mostly from the Audubon Naturalist Society. This time it was photographed by Ralph Lawrence and Don Sutherland.

Since then I have seen the Black-headed Grosbeak briefly every day, but his colors are so nearly the same as the sun shining on the dead oak leaves among the bare branches that he is hard to spot. However, it will be exciting to watch his plumage brighten as the feather edgings wear off and we are looking forward to being awakened some bright morning soon by a new spring song here on Wood Thrush Hill.

-- 200 Highland Road
Fairfax, Virginia

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(Editor's Note. It is quite interesting to have in one issue of The Raven reports on two new birds for the Virginia list, particularly such visitors from far places as the Sooty Tern and the Black-headed Grosbeak.)

SIGHT RECORD OF A LARK BUNTING IN SOUTHEASTERN VIRGINIA

By Paul W. Sykes, Jr.

On September 5, 1960, H.A. Hespenheide and the writer carefully observed a Lark Bunting (Calamospiza melanocorys) at Sandbridge Beach in Princess Anne County.

The area in which this observation was made is rather open and is characterized by a shrub thicket growing at the leeward extremity and parallel to vegetated ocean dunes. On the landward side of the thicket is an extensive freshwater marsh, which forms the headwaters of Back Bay. The transition between the dunes and the thicket is very abrupt. In the dunes and the shrub thicket the vegetation is not homogeneous. There are small open areas scattered about in each of these habitats in which there is little or no vegetation.

The writer first saw the bird when it flushed from the tall grasses on the dunes. It then alighted on a small branch protruding above the canopy of the shrub thicket. The bird was studied for several minutes from an estimated distance of 25 feet with 7x35 binoculars. During this period of observation the bird moved about several times, but remained in view on the dune side of the thicket. Hespenheide, who at this time was a short distance away, was summoned. Meanwhile, the bird had disappeared from view into the thicket. After a short time, the bird was again sighted as it flew up from the tangle of brush and perched in the top of a dead shrub. This was our final observation, which lasted about one minute. During the course of these observations, there was excellent comparison of size with the numerous Indigo Buntings (Passerina cyanea) present in the shrub thicket. The sun was to our back during the observations.

The bird was a pale brown medium sized finch, larger than P. cyanea and smaller than a Rose-breasted Grosbeak (Pheucticus ludovicianus), with white upper wing coverts and with no distinct markings about the head. In flight, the white coverts of the upper wing surface appeared as a narrow white patch extending from the region of the elbow to the region of the wrist, thus approximately parallel to the antebrachium and at an angle to the axis of the body. Except for the white coverts of the upper wing surface, the remaining feathers of the wing were pale brown as were the upper tail coverts, rump, back, nape, occiput, auriculars, crown, and the sides of the neck. The jugulum, breast, and flanks were white with fine dark streaks. The abdomen was light and unmarked. The tail was also pale brown, except for the outer 2 or 3 rectrices, which had white tips that were visible when the bird was in flight. The tail was slightly rounded at its extremity. The finch-like bill was light gray and the tarsi were dark.

The bird gave a slurred "ho-ee" note several times during the course of the two observations. This note closely resembled one of the notes of the Rufous-sided Towhee (Pipilo erythrophthalmus).

This sight record of C. melanocorys in southeastern Virginia constitutes the second record of this species for the state. J.J. Murray collected a bird in winter plumage on February 11, 1932, near Lexington. This specimen (No. 330128) is in the collection at the U.S. National Museum (Auk, 49: 359, 1932).

-- 1522 Lafayette Blvd.
Norfolk 9, Virginia

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WHISTLING SWAN AT DANVILLE, VIRGINIA

By Royster Lyle, Jr.

The first Whistling Swan (Olor columbianus) to be recorded in the Danville - Pittsylvania area spent three days, February 1, 2, 3 on the Dan River, almost in the center of Danville. The Whistling Swan was observed at close range by a number of people in the area as it appeared most at home, despite the nearby traffic. The nearest record to Danville, to our knowledge, is at Lynchburg.

This section of the Dan River, just west of the Union Street Bridge, has produced some of our best records. In 1951 this body of water afforded the annual V.S. O. field trippers a good look at three Caspian Terns. We have also recorded here, in recent years, an Eastern White Winged Scoter, an Oldsquaw and a pair of Shovelers. The main visitors of the winter of 1960-61 have been Ring-necked Ducks and Mallards.

-- Danville, Virginia

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RED-HEADED WOODPECKER - A NUISANCE?

By Mike and Dorothy Mitchell

What may be commonplace to many other V.S.O. members has delighted and amused some of the Hampton Roads Bird Club members. At the home of Mr. and Mrs. J. Eltringham, 3 Bedford Road, in the old Warwick section of Newport News, a Red-headed Woodpecker is making himself unwelcome.

Besides the common practice of hammering on the gutters, metal covers on chimneys, etc., this bird is storing acorns between the down spouts and the shingle siding of the house, as well as stuffing them under the roof shingles. It is also boring holes where the side shingles meet at the house corner and filling this crevice with acorns. It is peeling many of the acorns before storing them away.

There are in this section of Bedford Road probably a dozen Red-headed Woodpeckers all living in a small Oak Woods in the rear yards of the homes. Many of these trees have fallen due to storms and only about half of the original grove still stands. Although there are still a good many trees, perhaps their natural storage cavities have been depleted and so the woodpeckers are taking the easy way out.

A Pileated Woodpecker inhabits the same Oak grove and we have seen him fighting the Red-headed Woodpeckers.

-- 596 Harpersville Rd.
Newport News, Virginia

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THE 1960-1961 CHRISTMAS BIRD COUNTS IN VIRGINIA

By F. R. Scott

Twenty-three Christmas bird counts were submitted to The Raven this winter, the same number as in the preceding year. Two counts were wholly new, Quinton, in New Kent County, and McDowell, in eastern Highland County. The Lexington count appears to hold the state record for the number of years of operation; it has been published in The Raven every year since January 1930 with the exception of the 1936-1937 count season.

Participation in the counts was very good this year with 172 observers, although 223 names are listed since many observers participated in two or more counts. In general, coverage of most of the larger counts was better this year than ever before, with more parties and more party-hours per count. Extreme southeastern Virginia as usual had the best regional coverage with six closely spaced count areas, although Fort Belvoir again had the best coverage of any one count. They had 10 parties in the field for 77.5 party-hours.

The total species count was 180, one more than the 1959-1960 count total. Five counts again reached or surpassed 100 species, with Back Bay having an all-time state record of 129 species. Seven species have apparently never been recorded on a Virginia Christmas count before. These were the Cattle Egret at Back Bay, the Willet at Chincoteague, the Iceland Gull at Newport News, the Long-eared Owl at Back Bay, the Orchard Oriole at Newport News, the Blue Grosbeak at Little Creek, and the White-winged Crossbill at Mt. Rogers.

The early part of the winter was much colder than usual, with December averaging 6.3° below normal at Norfolk and 6.6° below normal at Roanoke. It might be expected that this would cause many birds with southern affinities to winter less commonly than usual. Many such birds actually were less abundant this year, but the fact that some were more abundant than usual makes one realize that cold weather alone is not necessarily the dominant factor in winter abundance in birds.

Gannets. Only one Gannet was reported this year (at Little Creek), although last winter, following a warm December, they were reported by three out of four coastal counts with a maximum of 421 in Chesapeake Bay.

Heron. In spite of the cold early winter, winter concentrations of herons in the coastal areas were probably the best on record. A total of 63 Common Egrets were reported on five counts with the best count being 39 at Little Creek. Louisiana Herons were found at Chincoteague and Little Creek, with a record winter count of 18 at the former locality. Other interesting heron records, aside from the previously mentioned Cattle Egret at Back Bay, were a Snowy Egret at Chincoteague, a Yellow-crowned Night Heron at Little Creek, and 7 Am. Bitterns at Chincoteague. The Black-crowned Night Heron, which was unrecorded in the 1959-60 counts, was reported by three this winter.

Waterfowl. On the whole waterfowl were in better numbers than last year, especially along the coast and on the bigger rivers. Surprisingly, in spite of heavy freezing of lakes before the count period, numbers of ducks on the inland counts held up very well. An estimate of 14,400 Whistling Swans at Back Bay was perhaps an all-time peak count for Virginia. This might be a good time to point out that in the river bottoms of central and western Virginia (away from the immediate coast) the Mallard is steadily becoming more common than the Black Duck in winter. This trend has been evident for many years. Blue-winged Teal were reported at Chincoteague (9 birds), Norfolk County, and Nansemond River. Apparently this bird can no longer be considered casual in winter in eastern Virginia. Diving ducks, including Redheads and Canvasbacks, showed a slight increase, though virtually all seemed near their lowest recent population levels. Although Brooke has always had good counts of Common Mergansers, their report of 2500 this year appears to be a record.

Birds of Prey. Rough-legged Hawks this year were reported from Chincoteague, Fort Belvoir, and Warren. The Short-eared Owl continued its relatively high population level. Three counts listed it, with three birds at Chincoteague.

Game, Marsh, and Shore Birds. Turkeys were listed on four counts, Brooke (4), Warren, McDowell, and Blacksburg. Sora were seen only at Back Bay, and Common Gallinules were reported at both Back Bay (5) and Chincoteague (15). Both Am. Woodcock and Common Snipe were in good numbers, the former being listed on four eastern counts. The snipe appeared on 10 counts, with a maximum of 42 at Back Bay. The "southern" shorebirds were less common than on the 1959-1960 counts. Of interest, however, were Ruddy Turnstones at Chincoteague and Nansemond River.

Gulls and Terns. Great Black-backed Gulls were a bit off in total numbers this year following an all-time peak last winter. Brooke, however, reported 20 birds, an excellent inland count. Inland counts of Herring Gulls are also increasing in relation to the Ring-billed Gulls. For the first time, this year the count of Herring Gulls surpassed that of the Ring-billed at Fort Belvoir. There were no reports of Common or Royal Terns, the Forster's being the only tern reported. Skimmers were once again seen at Nansemond River.

Woodpeckers, Flycatchers, and Nuthatches. Red-headed Woodpeckers were found on eight counts this year, down considerably from the last two winters. Numbers of individuals reported were down too, but even so the population this winter was probably above an average for recent years. Eastern Phoebe indicated a drastic reduction in numbers, with only four counts reporting one bird each. Last year eight counts reported 20 birds. Red-breasted Nuthatches were quite scarce with only four reports, all from the mountains.

Catbirds, Thrashers, and Thrushes. Curiously, in the eastern Virginia counts Catbirds were lower than last year while Brown Thrashers were distinctly higher. The latter were also reported at Fort Belvoir, Brooke, and Charlottesville (2 each). The Hermit Thrush was much less common this year than last. Particularly striking was the lack of any large counts in southeastern Virginia. The Eastern Bluebird, which has had a severe reduction in abundance in recent years, apparently underwent another. Reported in 19 counts last year, it appeared on only 10 this winter. But it was the actual counts that showed the difference. Last year 554 were counted over-all; this year the figure was 71. A Swainson's Thrush at Back Bay seems to be our fourth record for the Christmas counts.

Vireos and Warblers. A Solitary Vireo on the Norfolk County count was the second consecutive year this bird has been reported here. A Pine Warbler at Lexington was a notable Valley record. Other warblers (except for Myrtles) were down somewhat in numbers.

Blackbirds and Orioles. A Brewer's Blackbird in Norfolk County and a Rusty Blackbird at McDowell were unusual. Newport News had four Baltimore Orioles along with their record Orchard Oriole, the only orioles listed this year.

Finches and Sparrows. This was a poor winter for northern finches with only Purple Finches being even fairly common. Pine Siskins were noted on five counts, while Evening Grosbeaks were seen only at Lexington and Roanoke. Of the rarer winter finches, a Common Redpoll was seen in Norfolk County and 9 Red Crossbills at Big Flat, along with the previously mentioned White-winged Crossbills at Mt. Rogers. Seaside Sparrows are becoming a regular winter bird of the coastal salt marshes now, with 14 reported from Chincoteague and 15 from Little Creek. A count of 72 Sharp-tailed Sparrows at Little Creek was noteworthy. White-crowned Sparrows continued to move farther south and east into Virginia with a record 11 counts reporting them. Blacksburg listed 131, Sweet Briar 92, and Fort Belvoir 14, while 3 were seen even down at Little Creek.

VIRGINIA CHRISTMAS BIRD COUNTS

1960-1961

Chincoteague National Wildlife Refuge, Va. (all points within a 15-mile-diameter circle, center 2 miles north of center of Chincoteague as in previous 6 years; open farmland 8%, insular pine woodland 20%, mainland pine and mixed woodland 12%, low pine and myrtle 4%, fresh-water marshes and impoundments 18%, salt marshes 23%, sheltered bays 7%, dunes 3%, mud and sand flats 1%, ocean beach 4%). -- Dec. 27; 6 a.m. to 6 p.m. Clear; temp. 38° to 45°; wind NNW, 10-15 m.p.h.; ground bare, fresh water and marshes partially frozen. Twenty observers in 7 parties. Total party-hours, 56 (42 on foot, 9 by car, 5 by motorboat); total party-miles, 183 (40 on foot, 124 by car, 19 by boat). Common Loon, 37; Red-throated Loon, 4; Red-necked Grebe, 1; Horned Grebe, 218; Pied-billed Grebe, 38; Great Blue Heron, 57; Little Blue Heron, 6; Common Egret, 7; Snowy Egret, 1; Louisiana Heron, 18; Black-crowned Night Heron, 23; Am. Bittern, 7; Whistling Swan, 179; Canada Goose, 517; Brant, 8800; Snow Goose, 1900; Blue Goose, 3; Mallard, 1240; Black Duck, 4230; Gadwall, 206; Pintail, 945; Green-winged Teal, 64; Blue-winged Teal, 2 (G.M.M., J.W.T., J.S.W., et al.); Am. Widgeon, 1600; Shoveler, 214; Ring-necked Duck, 1; Canvasback, 1350; Greater Scaup, 4; Common Goldeneye, 95; Bufflehead, 133; Oldsquaw, 215; White-winged Scoter, 167; Surf Scoter, 653; Common Scoter, 471; scoter (sp.), 100; Ruddy Duck, 45; Hooded Merganser, 69; Red-breasted Merganser, 13; Turkey Vulture, 106; Sharp-shinned Hawk, 3; Cooper's Hawk, 1; Red-tailed Hawk, 3; Red-shouldered Hawk, 2; Rough-legged Hawk, 1; Bald Eagle, 1; Marsh Hawk, 34; Sparrow Hawk, 22; Bobwhite, 10; Clapper Rail, 12; Virginia Rail, 3; Common Gallinule, 15 (J.W.T., J.S.W.); Am. Coot, 40; Am. Oystercatcher, 5; Killdeer, 12; Black-bellied Plover, 270; Ruddy Turnstone, 3; Am. Woodcock, 2; Common Snipe, 8; Willet, 4 (J.M.A., J.W.T., K.W., J.S.W.); Greater Yellowlegs, 12; Lesser Yellowlegs, 1; Least Sandpiper, 12; Dunlin, 2360; dowitcher (sp.), 3; Semipalmated Sandpiper, 86; Sanderling, 645; Great Black-backed Gull, 64; Herring Gull, 2550; Ring-billed Gull, 392; Laughing Gull, 1; Bonaparte's Gull, 2; Mourning Dove, 138; Barn Owl, 1; Screech Owl, 3; Great Horned Owl, 1; Short-eared Owl, 3; Belted Kingfisher, 14; Yellow-shafted Flicker, 85; Red-bellied Woodpecker, 5; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 1; Downy Woodpecker, 27; Horned Lark, 8; Tree Swallow, 9; Common Crow, 2200; Fish Crow, 640; Carolina Chickadee, 42; Tufted Titmouse, 12; Brown-headed Nuthatch, 41; Brown Creeper, 4; Winter Wren, 6; Carolina Wren, 16; Short-billed Marsh Wren, 2; Mockingbird, 6; Catbird, 8; Brown Thrasher, 2; Robin, 74; Hermit Thrush, 4; Eastern Bluebird, 8; Golden-crowned Kinglet, 32; Cedar Waxwing, 4; Starling, 1375; Myrtle Warbler, 1380; Pine Warbler, 1; Palm Warbler, 1 (Yellow); House Sparrow, 122; Eastern Meadowlark, 427; Redwinged Blackbird, 1108; Rusty Blackbird, 26; Boat-tailed Grackle, 681; Common Grackle, 141; Brown-headed Cowbird, 48; Cardinal, 94; Am. Goldfinch, 38; Rufous-sided Towhee, 51; Savannah Sparrow, 109; Sharp-tailed Sparrow, 27; Seaside Sparrow, 14; Slate-colored Junco, 103; Tree Sparrow, 4; Field Sparrow, 40; White-throated Sparrow, 270; Fox Sparrow, 9; Swamp Sparrow, 70; Song Sparrow, 189. Total, 124 species; about 40,050 individuals. -- J.M. Abbott, P.A. DuMont, F.G. DuMont, L.C. Goldman, O.D. Justice, T.W. Martin, R.M. McClung, G.M. Meade, J.B. Meade, P.B. Pyle, Mr. and Mrs. R.L. Pyle, Peter Rosenbaum, F.R. Scott (compiler), Napier Shelton, J.W. Terborgh, Karl Weber, A.E. Weinrich, J.S. Weske, H.L. Wessells, Jr.

Chesapeake Bay, Va. (a strip census 15 miles long taken from the Little Creek-Kiptopeke Beach ferry just within the mouth of Chesapeake Bay; no closer than 2 miles to land; open water 100%). -- Dec. 28; 1:35 to 2:45 p.m. Partly cloudy; temp. 32°; wind N, 15 m.p.h.; water surface moderate. One observer. Total party-hours, 1.17 (by boat); total party-miles, 15 (by boat). Common Loon, 3; Red-throated Loon, 1; Horned Grebe, 25; Oldsquaw, 1; White-winged Scoter, 100; Surf Scoter, 7100; Common Scoter, 1200; Great Black-backed Gull, 1; Herring Gull, 162; small passerine bird, 1 (flying N 6 miles off Kiptopeke Beach -- Horned Lark?). Total, 10 species; about 7594 individuals. -- F.R. Scott.

Little Creek, Va. (all points within a 15-mile-diameter circle, center $1\frac{1}{2}$ miles NE of Kempsville, including Lynnhaven Inlet, Little Creek, eastern portion of Norfolk City, Stumpy Lake; open farmland 25%, pine woodland 10%, deciduous woodland 45%, salt marsh, sand beach, bay, rivers 10%, suburbs 10%). -- Jan. 2; 5:30 a.m. to 5 p.m. Clear; temp. 34° to 46°; wind NE, 5 to 15 m.p.h.; ground bare, water open. Thirteen observers in 5 parties. Total party-hours, $46\frac{1}{2}$ ($28\frac{3}{4}$ on foot, $15\frac{1}{2}$ by car, 2 by boat); total party-miles, $328\frac{1}{2}$ ($17\frac{1}{2}$ on foot, 310 by car, 1 by boat). Common Loon, 5; Red-throated Loon, 34; Horned Grebe, 109; Pied-billed Grebe, 16; Gannet, 1; Double-crested Cormorant, 2; Great Blue Heron, 19; Common Egret, 39; Louisiana Heron, 1 (H.A.H., P.W.S.); Black-crowned Night Heron, 3; Yellow-crowned Night Heron, 1 (W.F.R.); Snow Goose, 43; Mallard, 15; Black Duck, 46; Gadwall, 2; Pintail, 3; Am. Widgeon, 64; Wood Duck, 32; Redhead, 2; Ring-necked Duck, 324; Canvasback, 56; Greater Scaup, 12; Common Goldeneye, 105; Bufflehead, 42; Oldsquaw, 21; White-winged Scoter, 8; Surf Scoter, 133; Common Scoter, 11; Ruddy Duck, 46; Hooded Merganser, 165; Common Merganser, 8; Red-breasted Merganser, 106; Turkey Vulture, 10; Black Vulture, 2; Sharp-shinned Hawk, 1; Cooper's Hawk, 6; Red-tailed Hawk, 9; Red-shouldered Hawk, 7; Bald Eagle, 1; Marsh Hawk, 4; Pigeon Hawk, 1; Sparrow Hawk, 65; Bobwhite, 57; King Rail, 2; Clapper Rail, 12; Am. Coot, 1; Killdeer, 39; Black-bellied Plover, 11; Common Snipe, 11; Dunlin, 5; Sanderling, 119; Great Black-backed Gull, 25; Herring Gull, 5100; Ring-billed Gull, 4450; Bonaparte's Gull, 69; Forster's Tern, 71; Mourning Dove, 346; Screech Owl, 3; Barred Owl, 1; Belted Kingfisher, 10; Yellow-shafted Flicker, 113; Pileated Woodpecker, 10; Red-bellied Woodpecker, 39; Red-headed Woodpecker, 4; Yellow-bellied Sapsucker, 3; Hairy Woodpecker, 3; Downy Woodpecker, 15; Horned Lark, 81; Blue Jay, 7; Common Crow, 384; Fish Crow, 12; Carolina Chickadee, 106; Tufted Titmouse, 101; Brown-headed Nuthatch, 4; Brown Creeper, 5; House Wren, 1; Winter Wren, 9; Carolina Wren, 94; Long-billed Marsh Wren, 7; Mockingbird, 102; Catbird, 1; Brown Thrasher, 27; Robin, 515; Hermit Thrush, 5; Eastern Bluebird, 6; Golden-crowned Kinglet, 15; Ruby-crowned Kinglet, 10; Water Pipit, 103; Cedar Waxwing, 37; Loggerhead Shrike, 4; Starling, 3800; Myrtle Warbler, 235; Pine Warbler, 5; Palm Warbler, 1; House Sparrow, 400; Eastern Meadowlark, 495; Redwinged Blackbird, 13,400; Rusty Blackbird, 14; Common Grackle, 5200; Brown-headed Cowbird, 354; Cardinal, 167; Blue Grosbeak, 1 (H.A.H., P.W.S.); Purple Finch, 4; Am. Goldfinch, 16; Rufous-sided Towhee, 129; Savannah Sparrow, 146; Sharp-tailed Sparrow, 72; Seaside Sparrow, 15; Slate-colored Junco, 249; Chipping Sparrow, 6; Field Sparrow, 201; White-crowned Sparrow, 3 (F.C.B. et al.); White-throated Sparrow, 427; Fox Sparrow, 45; Swamp Sparrow, 209;

Song Sparrow, 320. Total, 116 species; about 39,649 individuals. (Seen in area count period, but not on count day: Barn Owl, Baltimore Oriole.) -- Dr. W.G. Akers, C.C. Barefield, R.L. Buck, Mrs. Floy C. Burford, Mrs. L. Forest, Miss Gisela Grimm, J.P. Hailman, F.S. Hespenheide, H.A. Hespenheide, Mrs. M.F. Morrisette, F.C. Richardson, W.F. Rountrey, P.W. Sykes, Jr. (compiler).

Back Bay National Wildlife Refuge, Va. (all points within a 15-mile-diameter circle, center $1\frac{1}{2}$ miles east of Back Bay, including much of mainland of Princess Anne County; open farmland 20%, pine woodland 10%, deciduous woodland 20%, open beach 5%, marshes and bay 45%). -- Dec. 31; 4:30 a.m. to 5:30 p.m. Clear; temp. 23° to 50° ; wind NE, 4 to 8 m.p.h.; ground bare, small bodies of water frozen in early a.m. Twenty-one observers in 7 parties. Total party-hours, $70\frac{1}{2}$ (48 on foot, 21 by car, $1\frac{1}{2}$ by plane); total party-miles, 453 (28 on foot, 345 by car, 80 by plane). Red-throated Loon, 11; Horned Grebe, 45; Pied-billed Grebe, 12; Double-crested Cormorant, 2; Great Blue Heron, 6; Cattle Egret, 1 (R.L.B., R.H.P.); Common Egret, 13; Black-crowned Night Heron, 1; Am. Bittern, 4; Whistling Swan, 14,400; Canada Goose, 19,000; Snow Goose, 11,400; Blue Goose, 5; Mallard, 1300; Black Duck, 2800; Gadwall, 75; Pintail, 3800; Green-winged Teal, 530; Am. Widgeon, 2700; Shoveler, 16; Wood Duck, 2; Ring-necked Duck, 63; Canvasback, 38; Lesser Scaup, 30; Bufflehead, 34; Surf Scoter, 143; Common Scoter, 5; Ruddy Duck, 120; Hooded Merganser, 132; Common Merganser, 21; Red-breasted Merganser, 6; Turkey Vulture, 32; Black Vulture, 48; Sharp-shinned Hawk, 2; Cooper's Hawk, 5; Red-tailed Hawk, 2; Red-shouldered Hawk, 18; Bald Eagle, 2; Marsh Hawk, 32; Peregrine Falcon, 1; Pigeon Hawk, 2; Sparrow Hawk, 105; Bobwhite, 30; King Rail, 3; Virginia Rail, 5; Sora, 3; Common Gallinule, 5; Am. Coot, 2000; Killdeer, 10; Am. Woodcock, 4; Common Snipe, 42; Dunlin, 1; Sanderling, 27; Iceland Gull, 1 (E.G.W.); Great Black-backed Gull, 17; Herring Gull, 1000; Ring-billed Gull, 1400; Bonaparte's Gull, 11; Mourning Dove, 692; Screech Owl, 3; Great Horned Owl, 6; Barred Owl, 3; Long-eared Owl, 1 (P.W.S., E.G.W.); Short-eared Owl, 1 (P.W.S.); Belted Kingfisher, 18; Yellow-shafted Flicker, 110; Fileated Woodpecker, 18; Red-bellied Woodpecker, 38; Red-headed Woodpecker, 2; Yellow-bellied Sapsucker, 5; Hairy Woodpecker, 7; Downy Woodpecker, 47; Eastern Phoebe, 1; Horned Lark, 75; Tree Swallow, 2; Blue Jay, 10; Common Crow, 458; Fish Crow, 42; Carolina Chickadee, 213; Tufted Titmouse, 102; White-breasted Nuthatch, 2; Brown-headed Nuthatch, 57; Brown Creeper, 5; House Wren, 6; Winter Wren, 21; Carolina Wren, 77; Long-billed Marsh Wren, 11; Short-billed Marsh Wren, 13; Mockingbird, 81; Catbird, 28; Brown Thrasher, 17; Robin, 281; Hermit Thrush, 8; Swainson's Thrush, 1 (R.H.P.); Eastern Bluebird, 26; Golden-crowned Kinglet, 33; Ruby-crowned Kinglet, 15; Water Pipit, 176; Cedar Waxwing, 7; Loggerhead Shrike, 1; Starling, 2000; Orange-crowned Warbler, 2; Myrtle Warbler, 1283; Pine Warbler, 4; Yellow-throat, 9; Yellow-breasted Chat, 2; House Sparrow, 387; Eastern Meadowlark, 527; Redwinged Blackbird, 47,000; Rusty Blackbird, 1600; Boat-tailed Grackle, 19; Common Grackle, 10,000; Brown-headed Cowbird, 2300; Cardinal, 246; Purple Finch, 3; Pine Siskin, 1; Am. Goldfinch, 106; Rufous-sided Towhee, 154; Savannah Sparrow, 215; Sharp-tailed Sparrow, 2; Slate-colored Junco, 240; Tree Sparrow, 3; Chipping Sparrow, 13; Field Sparrow, 160; White-throated Sparrow, 834; Fox Sparrow, 27; Swamp Sparrow, 793; Song Sparrow, 535; Snow Bunting, 34. Total, 129 species; about 132,742 individuals.

(Seen in area count period, but not on count day: Fulvous Tree Duck, Oldsquaw.) -- Dr. & Mrs. W.G. Akers, J.E. Ames, S.E. Brenieser, R.L. Buck, Mrs. Floy C. Burford, J.M. Escriche, D.S. Gordon, Miss Gisela Grimm, J.P. Hailman, F.S. Hespenheide, T.H. McDaniel, Mrs. M.F. Morrisette, R.H. Peake, Jr., F.C. Richardson, W.F. Rountrey, J.L. Sincock, P.W. Sykes, Jr. (compiler), R. Waterfield, E.G. Webster, Jr., C.S. Yelverton.

Norfolk County, Va. (all points within a 15-mile-diameter circle, center $6\frac{1}{2}$ miles NE of Wallacetown including eastern edge of Dismal Swamp, western part of Northwest River, Great Bridge, Butts Station, Fentress, Deep Creek; open farmland 30%, wooded swampland 24%, mixed woodland 30%, deciduous woodland 5%, pine woodland 10%, marsh 1%). -- Dec. 28; 5:30 a.m. to 5:30 p.m. Clear; temp. 32° to 36° ; wind NE, 11 to 14 m.p.h.; ground bare, small bodies of water frozen. Nine observers in 4 parties. Total party-hours, 39 (29 on foot, 10 by car); total party-miles, 311 (17 on foot, 294 by car). Pied-billed Grebe, 10; Double-crested Cormorant, 1; Great Blue Heron, 1; Common Egret, 1; Am. Bittern, 1; Canada Goose, 21; Mallard, 4; Black Duck, 26; Pintail, 15; Green-winged Teal, 8; Blue-winged Teal, 2; Am. Widgeon, 1; Hooded Merganser, 15; Turkey Vulture, 38; Black Vulture, 46; Cooper's Hawk, 3; Red-tailed Hawk, 5; Red-shouldered Hawk, 14; Marsh Hawk, 20; Pigeon Hawk, 1; Sparrow Hawk, 63; Bobwhite, 92; King Rail, 1; Clapper Rail, 2; Virginia Rail, 1; Killdeer, 24; Am. Woodcock, 1; Common Snipe, 34; Least Sandpiper, 1 (S.D.F., R.H.P.); Herring Gull, 260; Ring-billed Gull, 694; Laughing Gull, 20; Bonaparte's Gull, 2; Mourning Dove, 428; Screech Owl, 3; Great Horned Owl, 2; Barred Owl, 6; Belted Kingfisher, 5; Yellow-shafted Flicker, 107; Pileated Woodpecker, 25; Red-bellied Woodpecker, 53; Red-headed Woodpecker, 1; Yellow-bellied Sapsucker, 7; Hairy Woodpecker, 15; Downy Woodpecker, 53; Blue Jay, 30; Common Crow, 4800; Fish Crow, 800; Carolina Chickadee, 238; Tufted Titmouse, 154; White-breasted Nuthatch, 3; Brown-headed Nuthatch, 3; Brown Creeper, 5; House Wren, 3; Winter Wren, 9; Carolina Wren, 95; Mockingbird, 84; Catbird, 2; Brown Thrasher, 29; Robin, 181; Hermit Thrush, 12; Eastern Bluebird, 3; Golden-crowned Kinglet, 54; Ruby-crowned Kinglet, 27; Water Pipit, 13; Cedar Waxwing, 9; Loggerhead Shrike, 3; Starling, 500,000; Solitary Vireo, 1 (S.D.F., R.H.P.); Myrtle Warbler, 1200; Pine Warbler, 3; Yellowthroat, 2; Yellow-breasted Chat, 1; House Sparrow, 260; Eastern Meadowlark, 497; Redwinged Blackbird, 10,000,000; Rusty Blackbird, 496; Brewer's Blackbird, 1 (J.S.C., H.A.H., P.W.S.); Common Grackle, 5,000,000; Brown-headed Cowbird, 300,000; Cardinal, 222; Purple Finch, 107; Common Redpoll, 1 (R.H.P.); Am. Goldfinch, 315; Rufous-sided Towhee, 247; Savannah Sparrow, 132; Sharp-tailed Sparrow, 1; Slate-colored Junco, 404; Tree Sparrow, 4; Chipping Sparrow, 12; Field Sparrow, 252; White-throated Sparrow, 1551; Fox Sparrow, 151; Lincoln's Sparrow, 1 (R.H.P.); Swamp Sparrow, 279; Sparrow, 273. Total, 96 species; about 15,815,085 individuals. -- Mrs. Floy C. Burford, J.S. Calver, S.D. Fretwell, Miss Gisela Grimm, H.A. Hespenheide, R.H. Peake, Jr., F.C. Richardson, W.F. Rountrey, P.W. Sykes, Jr. (compiler), (members of the Cape Henry Bird Club and guests).

Nansemond River, Va. (all points within a 15-mile-diameter circle, center $1\frac{1}{2}$ miles NE. of Driver, including Craney Island disposal area, Nansemond River, Chuckatuck Creek, Chuckatuck; open farmland 30%, pine woodland 10%, deciduous woodland 20%, marsh, beach, rivers, bay 40%). -- Dec. 26; 6 a.m. to 5:30 p.m. Clear; temp. 33° to 59° ; wind SW, 11 to 13 m.p.h.; ground bare, small bodies of water frozen. Eleven observers in 5 parties. Total party-hours, 45 (33 on foot, 12 by car); total party-miles, 292 (15 by foot, 277 by car). Common Loon, 1; Horned Grebe, 58; Pied-billed Grebe, 10; Double-crested Cormorant, 39; Great Blue Heron, 47; Common Egret, 3; Canada Goose, 800; Mallard, 31; Black Duck, 542; Gadwall, 191; Pintail, 561; Green-winged Teal, 73; Blue-winged Teal, 1; Am. Widgeon, 1360; Shoveler, 34; Redhead, 10; Ring-necked Duck, 172; Canvasback, 3300; Greater Scaup, 28; Lesser Scaup, 11; Common Goldeneye, 88; Bufflehead, 158; Oldsquaw, 24; Common Scoter, 2; Ruddy Duck, 2800; Hooded Merganser, 24; Common Merganser, 1; Red-breasted Merganser, 86; Turkey Vulture, 87; Black Vulture, 20; Sharp-shinned Hawk, 1; Cooper's Hawk, 1; Red-tailed Hawk, 7; Red-shouldered Hawk, 5; Bald Eagle, 3; Marsh Hawk, 2; Sparrow Hawk, 48; Bobwhite, 21; Clapper Rail, 4; Am. Coot, 25; Killdeer, 69; Black-bellied Plover, 78; Ruddy Turnstone, 2 (S.D.F., E.G.W.); Common Snipe, 1; Purple Sandpiper, 7; Dunlin, 33; Semipalmated Sandpiper, 4; Sanderling, 191; Great Black-backed Gull, 54; Herring Gull, 8200; Ring-billed Gull, 2700; Bonaparte's Gull, 172; Forster's Tern, 1; Black Skimmer, 2 (F.C.R., W.F.R.); Mourning Dove, 376; Great Horned Owl, 1; Barred Owl, 1; Belted Kingfisher, 10; Yellow-shafted Flicker, 68; Red-bellied Woodpecker, 26; Yellow-bellied Sapsucker, 2; Hairy Woodpecker, 4; Downy Woodpecker, 13; Blue Jay, 37; Common Crow, 1300; Fish Crow, 2400; Carolina Chickadee, 22; Tufted Titmouse, 16; House Wren, 3; Winter Wren, 1; Carolina Wren, 41; Mockingbird, 53; Catbird, 1; Brown Thrasher, 8; Robin, 199; Golden-crowned Kinglet, 5; Ruby-crowned Kinglet, 3; Water Pipit, 118; Cedar Waxwing, 6; Loggerhead Shrike, 5; Starling, 1550; Myrtle Warbler, 157; Pine Warbler, 1; Palm Warbler, 1; Yellowthroat, 1; House Sparrow, 210; Eastern Meadowlark, 266; Redwinged Blackbird, 2400; Rusty Blackbird, 10; Common Grackle, 2; Brown-headed Cowbird, 350; Cardinal, 91; Purple Finch, 3; Am. Goldfinch, 64; Rufous-sided Towhee, 50; Savannah Sparrow, 59; Slate-colored Junco, 83; Field Sparrow, 100; White-throated Sparrow, 287; Fox Sparrow, 11; Swamp Sparrow, 87; Song Sparrow, 133; Snow Bunting, 60. Total, 103 species; about 32,906 individuals. (Seen in area count period, but not on count day: Red-necked Grebe, Western Sandpiper.) -- J.S. Calver, Mrs. C.W. Darden, J.M. Escriche, S.D. Fretwell, D.S. Gordon, H.A. Hespenheide, F.C. Richardson, W.F. Rountrey, M.E. Stephens, P.W. Sykes, Jr. (compiler), E.G. Webster, Jr. (members of the Cape Henry Bird Club and guests).

Newport News, Va. (all points within a 15-mile-diameter circle, bounded by Chesapeake Bay, Hampton Roads, James River, Grafton; woodland 30%, open fields 30%, freshwater ponds 10%, waterfront 30%). -- Dec. 26; 7 a.m. to 4 p.m. Clear; temp. 34° to 50° ; wind SW, 10-20 m.p.h.; ground bare, water open. Fourteen observers in 6 parties. Total party-hours, 50 (28 on foot, 22 by car); total party-miles, 270 (42 on foot, 228 by car). Common Loon, 1; Horned Grebe, 134; Pied-billed Grebe, 2; Great Blue Heron, 8; Canada Goose, 16; Mallard, 24; Black Duck, 15; Pintail, 3; Green-winged Teal, 28; Am. Widgeon, 937; Ring-necked Duck, 26; Canvasback, 349; Lesser Scaup, 75; Common Goldeneye, 49; Bufflehead, 54; Oldsquaw, 101; Surf

Scoter, 385; Common Scoter, 50; Ruddy Duck, 227; Hooded Merganser, 8; Common Merganser, 9; Red-breasted Merganser, 51; Turkey Vulture, 14; Black Vulture, 7; Cooper's Hawk, 1; Red-tailed Hawk, 2; Red-shouldered Hawk, 2; Bald Eagle, 2; Marsh Hawk, 8; Pigeon Hawk, 1; Sparrow Hawk, 27; Bobwhite, 57; Clapper Rail, 8; Am. Coot, 1; Killdeer, 150; Black-bellied Plover, 6; Am. Woodcock, 1; Common Snipe, 4; Spotted Sandpiper, 1 (J.P.); Dunlin, 280; Semipalmated Sandpiper, 3; Sanderling, 86; Great Black-backed Gull, 23; Herring Gull, 3372; Ring-billed Gull, 581; Laughing Gull, 4; Bonaparte's Gull, 200; Forster's Tern, 1; Mourning Dove, 55; Short-eared Owl, 1; Belted Kingfisher, 6; Yellow-shafted Flicker, 42; Pileated Woodpecker, 4; Red-bellied Woodpecker, 18; Red-headed Woodpecker, 1; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 4; Downy Woodpecker, 17; Eastern Phoebe, 1; Horned Lark, 2; Blue Jay, 27; Common Crow, 355; Fish Crow, 2; Carolina Chickadee, 41; Tufted Titmouse, 65; White-breasted Nuthatch, 4; Brown-headed Nuthatch, 3; Brown Creeper, 2; House Wren, 1; Carolina Wren, 30; Short-billed Marsh Wren, 2; Mockingbird, 88; Brown Thrasher, 5; Robin, 4; Eastern Bluebird, 5; Golden-crowned Kinglet, 3; Ruby-crowned Kinglet, 6; Starling, 2191; Myrtle Warbler, 198; Pine Warbler, 1; Palm Warbler, 1; House Sparrow, 656; Eastern Meadowlark, 305; Redwinged Blackbird, 263; Orchard Oriole, 1 (D.S., W.P.S.); Baltimore Oriole, 4; Common Grackle, 22; Brown-headed Cowbird, 1; Cardinal, 107; Purple Finch, 2; Am. Goldfinch, 25; Rufous-sided Towhee, 35; Savannah Sparrow, 14; Vesper Sparrow, 12; Slate-colored Junco, 242; Field Sparrow, 32; White-throated Sparrow, 306; Fox Sparrow, 27; Song Sparrow, 145; Snow Bunting, 78. Total, 100 species; about 12,857 individuals. -- Frances Cumming, Georgianna Cumming, John Grey, Carl Hacker, Charles Hacker, Emmy Lou Machen, Dorothy Mitchell, Mike Mitchell, John Pond, Doris Smith, W.P. Smith (compiler), W.P. Smith, Jr., Pembroke Thomas, John D. Williams (Hampton Roads Bird Club).

Hopewell, Va. (all points within a 15-mile-diameter circle, center in Curles Neck as in last 6 years; includes Presquile National Wildlife Refuge; open farmland 30%, brushy fields 10%, marshes and river shore 10%, deciduous wooded swamps 15%, woodland 35%). -- Jan. 2; 6:30 a.m. to 5 p.m. Partly cloudy; temp. 24° to 47°; wind NNE, 2-10 m.p.h.; ground bare, lakes partially frozen. Eight observers in 3 parties. Total party-hours, 20½ (14 on foot, 4½ by car, 2 by boat); total party-miles, 172 (7 on foot, 156 by car, 9 by boat). Great Blue Heron, 20; Canada Goose, 8000; Snow Goose, 24; Blue Goose, 67; Mallard, 1500; Black Duck, 1200; Pintail, 400; Wood Duck, 250; Common Merganser, 36; Turkey Vulture, 67; Black Vulture, 4; Red-tailed Hawk, 1; Red-shouldered Hawk, 4; Bald Eagle, 3; Marsh Hawk, 4; Sparrow Hawk, 5; Bobwhite, 5; Killdeer, 14; Herring Gull, 39; Ring-billed Gull, 1570; Mourning Dove, 144; Belted Kingfisher, 3; Yellow-shafted Flicker, 31; Pileated Woodpecker, 5; Red-bellied Woodpecker, 28; Red-headed Woodpecker, 1; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 1; Downy Woodpecker, 29; Horned Lark, 76; Blue Jay, 75; Common Crow, 151; Carolina Chickadee, 41; Tufted Titmouse, 33; White-breasted Nuthatch, 19; Brown Creeper, 5; Winter Wren, 1; Carolina Wren, 9; Mockingbird, 26; Brown Thrasher, 3; Robin, 1; Hermit Thrush, 2; Eastern Bluebird, 3; Golden-crowned Kinglet, 25; Ruby-crowned Kinglet, 1; Cedar Waxwing, 5; Loggerhead Shrike, 7; Starling, 1035; Myrtle Warbler, 5; Pine Warbler, 1; House Sparrow, 173; Eastern Meadowlark, 50; Redwinged Blackbird, 660; Common Grackle, 500; Brown-headed Cowbird, 500; Cardinal, 99; Purple Finch, 2;

Am. Goldfinch, 11; Rufous-sided Towhee, 16; Savannah Sparrow, 2; Slate-colored Junco, 219; Field Sparrow, 9; White-throated Sparrow, 246; Fox Sparrow, 6; Swamp Sparrow, 6; Song Sparrow, 62. Total, 66 species; about 17,541 individuals. -- Cleo Allen, H.L. Frazier, W.C. Good, Mr. and Mrs. G.H. Harrison, J.S. Lovering, Jr., F.R. Scott (compiler), Mary Tompkins.

Quinton, Va. (new area; one mile east of Bottom's Bridge; one-half square mile; mixed woodland edge 50%, honeysuckle hedges and fence rows 10%, pine woods 5%, deciduous woods 20%, pasture 15%). -- Dec. 27; 7:30 a.m. to 4:30 p.m. Clear, temp. 32° to 46°; wind NNE, calm in morning, moderate at lunch, and very gusty in afternoon. One observer. Total party-hours, 9 (on foot); total party-miles, 12 (on foot). Turkey Vulture, 3; Black Vulture, 3; Bobwhite, 21; Mourning Dove, 6; Yellow-shafted Flicker, 6; Pileated Woodpecker, 5; Red-bellied Woodpecker, 16; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 2; Downy Woodpecker, 12; Blue Jay, 28; Common Crow, 111; Carolina Chickadee, 2; Tufted Titmouse, 9; White-breasted Nuthatch, 2; Brown Creeper, 1; Carolina Wren, 2; Mockingbird, 5; Robin, 15; Eastern Bluebird, 6; Ruby-crowned Kinglet, 1; Starling, 99; English Sparrow, 63; Eastern Meadowlark, 35; Redwinged Blackbird, 150; Cardinal, 18; Rufous-sided Towhee, 2; Slate-colored Junco, 184; Field Sparrow, 9; White-throated Sparrow, 90; Song Sparrow, 4. Total, 31 species; about 909 individuals. (Seen in area during count period but not on count day: Marsh Hawk, Peregrine Falcon.) -- Gerald Ellyson.

Fort Belvoir, Va. (all points within a 15-mile-diameter circle, center in Lebanon; same area and habitat percentages as previous years). -- Jan. 2; 5:30 a.m. to 4:30 p.m. Clear; temp. 29° to 40°; wind, none; ground bare, water mostly open. Twenty-nine observers in 10 parties. Total party-hours, 77.5 (59.25 on foot, 18.25 by car); total party-miles, 241 (55 on foot, 186 by car). Horned Grebe, 4; Pied-billed Grebe, 2; Great Blue Heron, 6; Canada Goose, 50; Mallard, 11; Black Duck, 173; Am. Widgeon, 14; Ring-necked Duck, 19; Canvasback, 42; Greater Scaup, 530; Lesser Scaup, 330; scaup (sp.), 120; Common Goldeneye, 14; Bufflehead, 92; Ruddy Duck, 851; Hooded Merganser, 1; Common Merganser, 31; Turkey Vulture, 3; Sharp-shinned Hawk, 1; Cooper's Hawk, 2; Red-tailed Hawk, 23; Red-shouldered Hawk, 11; Rough-legged Hawk, 1; Bald Eagle, 6; Marsh Hawk, 3; Sparrow Hawk, 11; Bobwhite, 135; Killdeer, 4; Herring Gull, 717; Ring-billed Gull, 541; Mourning Dove, 255; Screech Owl, 1; Horned Owl, 7; Barred Owl, 1; Belted Kingfisher, 12; Yellow-shafted Flicker, 55; Pileated Woodpecker, 17; Red-bellied Woodpecker, 78; Red-headed Woodpecker, 1; Yellow-bellied Sapsucker, 5; Hairy Woodpecker, 13; Downy Woodpecker, 123; Horned Lark, 6; Blue Jay, 465; Common Crow, 407; Fish Crow, 26; Black-capped Chickadee, 12; Carolina Chickadee, 235; Tufted Titmouse, 221; White-breasted Nuthatch, 39; Brown Creeper, 30; Winter Wren, 4; Carolina Wren, 58; Long-billed Marsh Wren, 1; Mockingbird, 169; Catbird, 1; Brown Thrasher, 2; Robin, 15; Hermit Thrush, 3; Golden-crowned Kinglet, 125; Ruby-crowned Kinglet, 4; Cedar Waxwing, 59; Starling, 3387; Myrtle Warbler, 137; House Sparrow, 290; Eastern Meadowlark, 38; Redwinged Blackbird, 471; Rusty Blackbird, 28; Common Grackle, 71; Brown-headed Cowbird, 88; Cardinal, 319; Purple Finch, 86; Pine Siskin, 3; Am. Goldfinch, 129; Rufous-sided Towhee, 8; Savannah Sparrow, 3; Slate-colored Junco, 627;

Tree Sparrow, 29; Field Sparrow, 254; White-crowned Sparrow, 14; White-throated Sparrow, 458; Swamp Sparrow, 8; Song Sparrow, 148. Total, 82 species; about 12,794 individuals. (Seen in area count period, but not on count day: Turkey, Snow Bunting.) -- J.M. Abbott (compiler), Dick Banvard, Louise Berry, Ed Bierley, Dr. and Mrs. E.G. Davis, Morgan Gilbert, Helen Goldstick, Ed Hayward, William Houston, Pauline Houston, Lee Johnson, Joe and Peter King, Gordon Merrick, Lois Morgan, Mike Ord, Bob and Peter Pyle, Mr. and Mrs. Gus Rothery, George Sigel, Ruth Strosnider, Harriet Sutton, Mr. and Mrs. Ray Teele, George and Ricky Trawbridge, Carl Trever.

Brooke, Va. (all points within a 15-mile-diameter circle, center on road 3 miles ESE of Brooke, including Potomac River from Widewater to Maryland Point lighthouse, and Virginia upland nearly to Fredericksburg; tidal water 16%, marsh 4%, swamp 4%, fields 17%, hedgerows 6%, mixed forest edge 10%, deciduous woods 33%, pine woods 6%, slash 4%). -- Jan. 2; 6 a.m. to 5 p.m. Clear, some haze in p.m.; temp. 22° to 40°; no wind; old crusted snow widespread, bays largely frozen, much floating ice in Potomac. Thirteen observers in 8 parties. Total party-hours, 63 (60 on foot, 3 by car); total party-miles, 76 (42 on foot, 34 by car). Common Loon, 1; Horned Grebe, 2; Great Blue Heron, 12; Whistling Swan, 30; Canada Goose, 75; Mallard, 25; Black Duck, 280; Pintail, 2; Am. Widgeon, 5; Shoveler, 2; Canvasback, 6; Lesser Scaup, 7; Common Goldeneye, 17; Bufflehead, 70; Ruddy Duck, 240; Hooded Merganser, 2; Common Merganser, 2500; Red-breasted Merganser, 100; Turkey Vulture, 15; Black Vulture, 1; Sharp-shinned Hawk, 1; Red-tailed Hawk, 3; Red-shouldered Hawk, 2; Bald Eagle, 10; Sparrow Hawk, 4; Bobwhite, 115; Turkey, 4; Killdeer, 1; Great Black-backed Gull, 20; Herring Gull, 1500; Ring-billed Gull, 500; Mourning Dove, 65; Great Horned Owl, 1; Barred Owl, 3; Belted Kingfisher, 6; Yellow-shafted Flicker, 53; Pileated Woodpecker, 16; Red-bellied Woodpecker, 70; Red-headed Woodpecker, 1; Yellow-bellied Sapsucker, 6; Hairy Woodpecker, 5; Downy Woodpecker, 70; Horned Lark, 3; Blue Jay, 210; Common Crow, 300; Fish Crow, 3; Carolina Chickadee, 130; Tufted Titmouse, 140; White-breasted Nuthatch, 5; Brown Creeper, 9; Winter Wren, 2; Carolina Wren, 23; Mockingbird, 70; Catbird, 2; Brown Thrasher, 2; Robin, 4; Hermit Thrush, 3; Eastern Bluebird, 9; Golden-crowned Kinglet, 26; Ruby-crowned Kinglet, 5; Water Pipit, 1; Cedar Waxwing, 50; Loggerhead Shrike, 3; Starling, 1100; Myrtle Warbler, 75; House Sparrow, 120; Eastern Meadowlark, 42; Redwinged Blackbird, 700; Rusty Blackbird, 10; Common Grackle, 500; Brown-headed Cowbird, 30; Cardinal, 200; Purple Finch, 35; Am. Goldfinch, 60; Rufous-sided Towhee, 19; Savannah Sparrow, 2; Slate-colored Junco, 230; Tree Sparrow, 15; Field Sparrow, 60; White-throated Sparrow, 350; Swamp Sparrow, 3; Song Sparrow, 160. Total, 82 species; about 10,559 individuals. -- C.A. Anderson, Roy A. Bailey, A.A. Baker, Henry Bell, III, John H. Eric, Warren Hobbs, Luna B. Leopold, Edwin T. McKnight (compiler), Thomas B. Nolan, W.W. Rubey, Robert L. Smith, Amos M. White, Donald R. Wiesnet.

Charlottesville, Va. (about same area and habitats as last year). -- Dec. 29; 7 a.m. to 5 p.m. Cloudy a.m., rain p.m.; temp. 28° to 38°; wind negligible; 1-3 in. snow in most places, ponds mostly or totally frozen over. Seven observers in 5 parties. Total party-hours, 38 (37 on foot, 1 by car); total party-miles, 122 (46 on foot, 76 by car). Canada Goose, 56

(most or all feral); Mallard, 42; Black Duck, 26; Turkey Vulture, 8; Black Vulture, 3; Cooper's Hawk, 3; Red-tailed Hawk, 8; Red-shouldered Hawk, 6; Marsh Hawk, 2; Sparrow Hawk, 8; Bobwhite, 59; Mourning Dove, 678; Belted Kingfisher, 5; Yellow-shafted Flicker, 22; Pileated Woodpecker, 15; Red-bellied Woodpecker, 38; Red-headed Woodpecker, 2; Yellow-bellied Sapsucker, 3; Hairy Woodpecker, 9; Downy Woodpecker, 46; Horned Lark, 106; Blue Jay, 126; Common Crow, 625; Fish Crow, 27; Carolina Chickadee, 152; Tufted Titmouse, 80; White-breasted Nuthatch, 18; Brown Creeper, 24; Winter Wren, 5; Carolina Wren, 19; Mockingbird, 68; Brown Thrasher, 2; Robin, 4; Hermit Thrush, 2; Golden-crowned Kinglet, 134; Ruby-crowned Kinglet, 6; Cedar Waxwing, 5; Loggerhead Shrike, 3; Starling, 14,310; Myrtle Warbler, 20; House Sparrow, 38; Eastern Meadowlark, 103; Redwinged Blackbird, 216; Rusty Blackbird, 50; Common Grackle, 244; Brown-headed Cowbird, 16; Cardinal, 549; Purple Finch, 22; Am. Goldfinch, 21; Rufous-sided Towhee, 2; Slate-colored Junco, 828; Tree Sparrow, 23; Field Sparrow, 249; White-crowned Sparrow, 25; White-throated Sparrow, 470; Fox Sparrow, 11; Swamp Sparrow, 9; Song Sparrow, 293. Total, 58 species; 19,944 individuals. -- Steve Calver, Steve Fretwell, Mrs. C.O. Gregory, Henry Hespenheide, Kenneth Lawless, Robert S. Merkel, Charles E. Stevens (compiler).

Warren, Va. (about same area and habitats as last year). -- Dec. 28; 7 a.m. to 5:45 p.m. Clear; temp. 19° to 33°; wind W, 0-15 m.p.h.; 1-3 in. snow in places. Three observers in 3 parties. Total party-hours, 31 (29 on foot, 2 by car); total party-miles, 113 (51 on foot, 62 by car). Great Blue Heron, 1; Canada Goose, 7 (including one bird of small race - small size and short bill - R.S.M., C.E.S.); Mallard, 141; Black Duck, 19; Green-winged Teal, 41; Bufflehead, 6; Turkey Vulture, 49; Black Vulture, 32; Red-tailed Hawk, 6; Red-shouldered Hawk, 2; Rough-legged Hawk, 2 (K.L.); Marsh Hawk, 5; Sparrow Hawk, 3; Bobwhite, 180; Turkey, 1; Killdeer, 1; Common Snipe, 11; Mourning Dove, 970; Yellow-shafted Flicker, 13; Pileated Woodpecker, 9; Red-bellied Woodpecker, 27; Yellow-bellied Sapsucker, 8; Hairy Woodpecker, 7; Downy Woodpecker, 34; Eastern Phoebe, 1; Horned Lark, 47; Blue Jay, 35; Common Crow, 691; Carolina Chickadee, 40; Tufted Titmouse, 52; White-breasted Nuthatch, 9; Brown Creeper, 7; Winter Wren, 2; Carolina Wren, 10; Mockingbird, 52; Robin, 3; Hermit Thrush, 3; Eastern Bluebird, 2; Golden-crowned Kinglet, 37; Ruby-crowned Kinglet, 3; Loggerhead Shrike, 13; Starling, 1820; Myrtle Warbler, 62; House Sparrow, 54; Eastern Meadowlark, 292; Redwinged Blackbird, 1; Rusty Blackbird, 261; Common Grackle, 365; Brown-headed Cowbird, 163; Cardinal, 293; Purple Finch, 18; Am. Goldfinch, 15; Slate-colored Junco, 643; Tree Sparrow, 58; Field Sparrow, 240; White-crowned Sparrow, 45; White-throated Sparrow, 271; Swamp Sparrow, 8; Song Sparrow, 237; Lapland Longspur, 1 (C.E.S.). Total, 60 species; 7429 individuals. -- Kenneth Lawless, Robert S. Merkel, Charles E. Stevens (compiler).

Big Flat Mountain, Va. (same area and habitats as last year, mostly in southern section of Shenandoah National Park). -- Dec. 27; 6:45 a.m. to 5:15 p.m. Clear; temp. 15° to 42°; wind W, 20-30 m.p.h. in a.m., negligible p.m.; 2-5 in. snow, some bare ground, reservoir mostly frozen over. One observer. Total hours, 10½ (on foot); total miles, 18 (on foot). Black Duck, 3; Turkey Vulture, 3; Red-tailed Hawk, 1; Ruffed Grouse, 17; Belted Kingfisher, 1; Yellow-shafted Flicker, 2;

Pileated Woodpecker, 8; Red-bellied Woodpecker, 6; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 5; Downy Woodpecker, 13; Blue Jay, 4; Common Raven, 1; Common Crow, 7; Carolina Chickadee, 32; Tufted Titmouse, 9; White-breasted Nuthatch, 6; Brown Creeper, 6; Winter Wren, 3; Carolina Wren, 1; Mockingbird, 5; Golden-crowned Kinglet, 19; Starling, 453; Myrtle Warbler, 1; Cardinal, 4; Purple Finch, 14; Pine Siskin, 2; Am. Goldfinch, 10; Red Crossbill, 2 (flock feeding on seeds of Table Mountain Pine); Slate-colored Junco, 110; Tree Sparrow, 1; Field Sparrow, 28; White-throated Sparrow, 25; Song Sparrow, 17. Total, 34 species; 827 individuals. -- Charles E. Stevens.

Rockingham County, Va. (all points within a 15-mile-diameter circle, center at Ottobine, including Silver Lake in Dayton; lawn and shade trees in town 5%, cottonwood-sycamore river bottoms 5%, open farm land and farm woodlots 55%, mixed Appalachian conifers and hardwoods in mountains 35%; elevation 1160 to 3200 feet). -- Dec. 29; 8 a.m. to 5:30 p.m. Very cloudy in morning and hard rain in afternoon; temp. 27° to 36°; wind SW, 5-10 m.p.h.; ground covered with snow. Four observers in 3 parties. Total party-hours, 25½ (20 on foot, 5½ by car); total party-miles, 180 (36 on foot, 144 by car). Pied-billed Grebe, 1; Great Blue Heron, 2; Mallard, 116; Black Duck, 24; Gadwall, 6; Pintail, 6; Am. Widgeon, 56; Shoveller, 1; Redhead, 1; Ring-necked Duck, 9; Am. Goldeneye, 1; Turkey Vulture, 49; Cooper's Hawk, 1; Red-tailed Hawk, 1; Sparrow Hawk, 5; Ruffed Grouse, 7; Bobwhite, 44; Am. Coot, 4; Killdeer, 5; Common Snipe, 1; Mourning Dove, 14; Belted Kingfisher, 1; Pileated Woodpecker, 9; Yellow-shafted Flicker, 1; Red-bellied Woodpecker, 1; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 2; Downy Woodpecker, 6; Blue Jay, 8; Common Raven, 3; Common Crow, 108; Fish Crow, 1; Carolina Chickadee, 13; Tufted Titmouse, 15; White-breasted Nuthatch, 2; Winter Wren, 1; Carolina Wren, 2; Mockingbird, 13; Robin, 1; Golden-crowned Kinglet, 3; Loggerhead Shrike, 1; Starling, 933; House Sparrow, 110; Eastern Meadowlark, 10; Cardinal, 42; Am. Goldfinch, 35; Slate-colored Junco, 103; Tree Sparrow, 22; White-crowned Sparrow, 15; White-throated Sparrow, 3; Song Sparrow, 6. Total, 51 species; 1825 individuals. -- Max Carpenter (compiler), Harry Jopson, Hollen Helbert, Joseph Dietz.

McDowell, Va. (all points within a 15-mile-diameter circle, center near McDowell, Highland Co., including Bullpasture River, Bullpasture Mountain, and Cowpasture River; 1900-2900 ft. altitude; open riverbottom farmland 60%, deciduous woodland 20%, mixed woodland 15%, hemlock groves 5%). -- Jan. 2; 7 a.m. to 5 p.m. Clear; temp. 18° to 28°; wind W, 0-15 m.p.h.; 3-6 in. hard snow, rivers mostly frozen. One observer. Total party-hours, 10 (on foot); total party-miles, 21 (on foot). Cooper's Hawk, 1; Red-tailed Hawk, 2; Red-shouldered Hawk, 1; Sparrow Hawk, 1; Ruffed Grouse, 11 (6 reported by hunter); Bobwhite, 7; Turkey, 1 (reported by hunter); Belted Kingfisher, 2; Pileated Woodpecker, 9; Red-bellied Woodpecker, 2; Hairy Woodpecker, 4; Downy Woodpecker, 16; Horned Lark, 2; Blue Jay, 4; Common Raven, 1; Common Crow, 334; Black-capped Chickadee, 9; Tufted Titmouse, 13; White-breasted Nuthatch, 7; Red-breasted Nuthatch, 1; Brown Creeper, 4; Winter Wren, 2; Carolina Wren, 6; Mockingbird, 1; Golden-crowned Kinglet, 11; Loggerhead Shrike, 2;

Starling, 91; House Sparrow, 12; Rusty Blackbird, 1; Cardinal, 26; Pine Siskin, 1; Am. Goldfinch, 6; Slate-colored Junco, 60; Tree Sparrow, 51; Field Sparrow, 11; White-throated Sparrow, 10; Song Sparrow, 7. Total, 37 species; 730 individuals. -- Charles E. Stevens.

Lexington, Va. (same area as in previous years, with center at Washington and Lee University campus; pasture and open farmland 35%, deciduous 20%, cedar and pine 30%, scrub 10%, town 5%). -- Dec. 27; 7 a.m. to 5 p.m. Clear; temp. 40° to 36°; light NW wind; ground covered with old snow, thawing slightly; ponds and streams frozen. Twelve observers in 3 parties. Total party-hours, 30 (26 on foot, 4 by car); total party-miles, 113 (23 on foot, 90 by car). Mallard, 76; Black Duck, 1; Turkey Vulture, 42; Black Vulture, 4; Red-tailed Hawk, 3; Sparrow Hawk, 5; Ruffed Grouse, 2; Bobwhite, 14; Killdeer, 5; Common Snipe, 4; Mourning Dove, 73; Screech Owl, 2; Belted Kingfisher, 2; Yellow-shafted Flicker, 4; Pileated Woodpecker, 9; Red-bellied Woodpecker, 15; Yellow-bellied Sapsucker, 9; Downy Woodpecker, 22; Eastern Phoebe, 1; Horned Lark, 62 (2 of them definitely identified as alpestris and 10 as praticola, J.J.M.); Blue Jay, 40; Common Raven, 3; Common Crow, 225; Fish Crow, 3; Black-capped Chickadee, 1 (J.J.M.); Carolina Chickadee, 29; Tufted Titmouse, 42; White-breasted Nuthatch, 4; Red-breasted Nuthatch, 1; Brown Creeper, 1; Winter Wren, 2; Carolina Wren, 9; Mockingbird, 56; Robin, 12; Golden-crowned Kinglet, 15; Loggerhead Shrike, 4; Starling, 2146; Myrtle Warbler, 13; Pine Warbler, 1 (R.P.C.); House Sparrow, 272; Eastern Meadowlark, 14; Rusty Blackbird, 13; Cardinal, 176; Evening Grosbeak, 4; Purple Finch, 58; Am. Goldfinch, 2; Slate-colored Junco, 254; Tree Sparrow, 6; Field Sparrow, 17; White-crowned Sparrow, 18; White-throated Sparrow, 64; Fox Sparrow, 3; Song Sparrow, 31. Total, 53 species (with 1 additional race); 3894 individuals. (Seen in area during count period, Blue Goose). -- Cook Anderson, David Beebe, Scott Beebe, R.P. Carroll, R.P. Carroll, Jr., Nell Loving Deaver, Walter Foulke, J.J. Murray (compiler), Mrs. J.J. Murray, Robert Stewart, Cabell Tutwiler, Joshua Womeldorf.

Sweet Briar, Va. (all points with a 3-mile-diameter circle, center in Sweet Briar College campus; open farmland 40%, deciduous woodland 25%, shrubby creek bottoms 15%, lake edges 5%, hedgerows 10%, campus areas 5%). -- Dec. 27; 7 a.m. to 5 p.m. Clear; temp. 30° to 40°; wind, negligible in a.m., slight in p.m.; ground bare, ponds frozen. Three observers on 1 party. Total party-hours, 10 (9½ on foot, ½ by car); total party-miles, 12 (6 on foot, 6 by car). Turkey Vulture, 4; Bobwhite, 28; Mourning Dove, 51; Yellow-shafted Flicker, 4; Pileated Woodpecker, 5; Red-bellied Woodpecker, 7; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 2; Downy Woodpecker, 5; Blue Jay, 29; Common Crow, 200 (est.); Carolina Chickadee, 16; Tufted Titmouse, 17; White-breasted Nuthatch, 3; Brown Creeper, 2; Carolina Wren, 4; Mockingbird, 23; Ruby-crowned Kinglet, 2; Water Pipit, 1; Starling, 4000 (est.); Myrtle Warbler, 25; House Sparrow, 56; Cardinal, 78; Purple Finch, 1; Am. Goldfinch, 2; Rufous-sided Towhee, 1; Slate-colored Junco, 53; Field Sparrow, 6; White-crowned Sparrow, 92; White-throated Sparrow, 60; Song Sparrow, 14. Total, 31 species; about 4792 individuals. (Seen in area count period but not on count day: Great Blue Heron, Sparrow Hawk, Screech Owl, Belted Kingfisher, Eastern Meadowlark, Fox Sparrow.) -- Jeanette Boone, Katherine Macdonald, Gertrude Prior (compiler).

Lynchburg, Va. (all points within a 15-mile-diameter circle, center 0.9 mile south of Lynchburg College, including Old Rivermont Park, Riverside Park, Six Mile Bridge, Preston Glenn Airport, Timber Lake, Wiltshire Farm; deciduous woods 65%, pine woods 5%, fields 10%, pasture 5%, river, 5%, lake 5%, swamps 5%). -- Dec. 21; 7 a.m. to 5 p.m. Overcast a.m., clear p.m.; temp. 28° to 35°; wind variable, 0-5 m.p.h.; ground frozen, lakes and streams partially frozen. Twelve observers in 3 parties. Total party-hours, 27 (23 on foot, 4 by car); total party-miles, 71 (17 on foot, 54 by car). Mallard, 10; Am. Widgeon, 1; Am. Goldeneye, 2; Turkey Vulture, 23; Black Vulture, 1; Red-tailed Hawk, 2; Cooper's Hawk, 1; Marsh Hawk, 1; Pigeon Hawk, 1 (no details - Ed.); Sparrow Hawk, 2; Bobwhite, 40; Common Snipe, 2; Mourning Dove, 142; Belted Kingfisher, 2; Yellow-shafted Flicker, 12; Pileated Woodpecker, 3; Red-bellied Woodpecker, 20; Red-headed Woodpecker, 2; Yellow-bellied Sapsucker, 7; Hairy Woodpecker, 2; Downy Woodpecker, 35; Horned Lark, 24; Blue Jay, 99; Common Crow, 115; Carolina Chickadee, 69; Tufted Titmouse, 35; White-breasted Nuthatch, 25; Brown Creeper, 1; Winter Wren, 8; Carolina Wren, 27; Mockingbird, 39; Robin, 1; Eastern Bluebird, 1; Golden-crowned Kinglet, 9; Ruby-crowned Kinglet, 4; Loggerhead Shrike, 1; Starling, 3808; Myrtle Warbler, 8; House Sparrow, 81; Eastern Meadowlark, 4; Redwinged Blackbird, 203; Rusty Blackbird, 10; Common Grackle, 11; Brown-headed Cowbird, 4; Cardinal, 124; Purple Finch, 17; Pine Siskin, 6; Am. Goldfinch, 28; Rufous-sided Towhee, 12; Slate-colored Junco, 173; Field Sparrow, 39; White-crowned Sparrow, 10; White-throated Sparrow, 177; Fox Sparrow, 5; Swamp Sparrow, 4; Song Sparrow, 44. Total, 56 species; about 5538 individuals. -- J.L. Chamberlain, Larry Farmer, David Freer, Ruskin S. Freer, Kay Macdonald, Myriam P. Moore, Gertrude Prior, Chip Thornhill, M.B. Tillotson, Grace T. Wiltshire (compiler), J.W. Wiltshire, Jr., John Withrow.

Roanoke, Va. (Murray's Pond, Airport, Peter's Creek Road, Mason's Knob area; mountain territory to an elevation of approximately 2800 feet; open field 40%, farmland 20%, creek bottom and pond 20%, deciduous and pine woods 20%). -- Dec. 31; 7:30 a.m. to 3:30 p.m. Clear; temp. 25° to 42°; wind, none; ground bare. Fifteen observers in 2 parties. Total party-hours, 15 (12 on foot, 3 by car); total party-miles, 49 (36 by car, 13 on foot). Mallard, 6; Black Duck, 20; Redhead, 1; Lesser Scaup, 6; Bufflehead, 7; Common Merganser, 15; Turkey Vulture, 65; Black Vulture, 2; Red-tailed Hawk, 1; Sparrow Hawk, 1; Bobwhite, 1; Am. Coot, 13; Mourning Dove, 17; Belted Kingfisher, 2; Yellow-shafted Flicker, 2; Pileated Woodpecker, 4; Red-bellied Woodpecker, 1; Downy Woodpecker, 6; Blue Jay, 10; Common Crow, 14; Carolina Chickadee, 12; Tufted Titmouse, 8; White-breasted Nuthatch, 3; Red-breasted Nuthatch, 1; Winter Wren, 1; Carolina Wren, 1; Mockingbird, 12; Golden-crowned Kinglet, 3; Loggerhead Shrike, 1; Starling, 2500; House Sparrow, 30; Eastern Meadowlark, 6; Redwinged Blackbird, 2; Common Grackle, 3; Brown-headed Cowbird, 4; Cardinal, 20; Evening Grosbeak, 2; Purple Finch, 16; Am. Goldfinch, 8; Rufous-sided Towhee, 1; Slate-colored Junco, 45; Field Sparrow, 2; White-crowned Sparrow, 5; White-throated Sparrow, 22; Song Sparrow, 18. Total, 45 species; about 2920 individuals. -- Mr. and Mrs. Bruce Boardman, Mrs. A.O. English, A.O. English (compiler), Earl Estes, Barbara Lynn Estes, Mrs. Anderson P. Jordan, Jr., Perry F. Kendig, C.H. Lewis, Mr. and Mrs. E.C. Moore, Mrs. Evelyn F. Newcomb, Mr. and Mrs. Grant Simmons, Mrs. David B. Stuart.

Blacksburg, Va. (all points within a 15-mile-diameter circle, center near Linkous Store, as last year; pasture and plowed land 20%, town and suburbs 10%, virgin white oak wood lots 20%, mixed pine and oak woods 20%, river and creek bottom 30%). -- Dec. 27; 6:30 a.m. to 5:30 p.m. Cloudy, clearing about 11 a.m.; temp. 32° to 40°; wind NW, 0-30 m.p.h.; ground bare on warm slopes, snow on cold slopes, ponds frozen, streams partly frozen. Eleven observers in 5 parties. Total party-hours, 42 (38½ on foot, 3½ by car); total party-miles, 123 (39 on foot, 84 by car). Mallard, 102; Black Duck, 7; Pintail, 2; Am. Widgeon, 41; Ring-necked Duck, 16; Canvasback, 2; Lesser Scaup, 111; Common Goldeneye, 20; Bufflehead, 118; Hooded Merganser, 37; Turkey Vulture, 4; Black Vulture, 4; Sharp-shinned Hawk, 2; Coopers Hawk, 3; Red-tailed Hawk, 4; Red-shouldered Hawk, 3; Sparrow Hawk, 5; Ruffed Grouse, 9; Bobwhite, 58; Turkey, 1; Am. Coot, 1; Killdeer, 7; Common Snipe, 6; Mourning Dove, 64; Yellow-shafted Flicker, 4; Pileated Woodpecker, 5; Red-bellied Woodpecker, 19; Yellow-bellied Sapsucker, 4; Hairy Woodpecker, 7; Downy Woodpecker, 46; Horned Lark, 137; Blue Jay, 60; Common Raven, 1; Common Crow, 536; Carolina Chickadee, 37; Tufted Titmouse, 73; White-breasted Nuthatch, 33; Brown Creeper, 6; Winter Wren, 4; Carolina Wren, 9; Mockingbird, 22; Hermit Thrush, 1; Golden-crowned Kinglet, 10; Cedar Waxwing, 4; Starling, 1504; Myrtle Warbler, 4; House Sparrow, 238; Eastern Meadowlark, 28; Brown-headed Cowbird, 50; Cardinal, 147; Purple Finch, 23; Am. Goldfinch, 77; Rufous-sided Towhee, 6; Slate-colored Junco, 319; Tree Sparrow, 10; Field Sparrow, 32; White-crowned Sparrow, 131; White-throated Sparrow, 39; Song Sparrow, 81. Total, 59 species; about 4334 individuals. (Seen in count period, but not on count day: Robin, Ruby-crowned Kinglet, Loggerhead Shrike.) -- Richard V. Dietrich, Maynard G. Hale, C.O. Handley, Charles O. Handley, Jr., Burd S. McGinnes, Henry S. Mosby, John W. Murray (compiler), Curtis W. Roane, Ellison A. Smyth, Mrs. Ellison A. Smyth, Richard C. Thompson.

Glade Spring, Va. (all points within a 15-mile-diameter circle, center at junction of secondary roads 609 and 750; farmland and pasture 40%, deciduous woods 30%, mixed pine and deciduous woods 20%, riverbottoms 8%, marsh and ponds 2%). -- Dec. 26; 7 a.m. to 5 p.m. Light rain; temp. 27° to 38°; wind SW, 0-5 m.p.h.; ground bare, ponds mostly frozen. Three observers in one party. Total party-hours, 10 (4 on foot, 6 by car); total party-miles, 65 (6 on foot, 59 by car). Mallard, 150; Black Duck, 4; Green-winged Teal, 2; Sparrow Hawk, 4; Bobwhite, 15; Am. Coot, 11; Killdeer, 3; Common Snipe, 1; Mourning Dove, 4; Screech Owl, 2; Belted Kingfisher, 2; Yellow-shafted Flicker, 2; Pileated Woodpecker, 1; Yellow-bellied Sapsucker, 1; Downy Woodpecker, 9; Blue Jay, 27; Common Crow, 37; Carolina Chickadee, 12; Tufted Titmouse, 13; White-breasted Nuthatch, 2; Brown Creeper, 3; Winter Wren, 3; Carolina Wren, 5; Mockingbird, 9; Golden-crowned Kinglet, 3; Cedar Waxwing, 40; Starling, 1025; House Sparrow, 114; Eastern Meadowlark, 11; Common Grackle, 300; Brown-headed Cowbird, 20; Cardinal, 23; Am. Goldfinch, 3; Rufous-sided Towhee, 8; Slate-colored Junco, 42; Field Sparrow, 26; White-crowned Sparrow, 23; White-throated Sparrow, 25; Song Sparrow, 40. Total, 39 species; about 2025 individuals. (Seen in area count period but not count day: Redhead, Turkey Vulture, Cooper's Hawk, Peregrine Falcon, Ruffed Grouse, Bewick's Wren, Loggerhead Shrike, Evening Grosbeak.) -- Ben B. Dulaney, Paul S. Dulaney (compiler), Jane D. White.

Mt. Rogers, Va. (Elk Garden Gap to summit of Mt. Rogers; elevation range 4500 to 5719 ft.; deciduous woodland 50%, grassy fields 30%, spruce-fir forest 20%). -- Dec. 31; 8 a.m. to 3 p.m. Clear a.m., cloudy p.m.; temp. 25° to 40°; wind S, 0-15 m.p.h.; ground generally bare in open, snow up to one foot in woods. One observer. Total party-hours, 7; total party-miles, 7 (all on foot). Ruffed Grouse, 1; Hairy Woodpecker, 2; Downy Woodpecker, 3; Blue Jay, 3; Common Crow, 30; Tufted Titmouse, 5; White-breasted Nuthatch, 1; Red-breasted Nuthatch, 4; Starling, 2; Purple Finch, 12; White-winged Crossbill, 35; Slate-colored Junco, 2. Total, 12 species, 100 individuals. -- Paul S. Dulaney.

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A REVIEW

By J. J. Murray

A Gathering of Shore Birds, by Henry Marion Hall, edited by Roland C. Clement, illustrated by John Henry Dick, The Devin-Adair Company, 23 East 26th Street, New York 10, New York, pages xii and 242. 1961. \$10.00.

Well written, beautifully designed and bound, and illustrated with nearly 100 most attractive black and white drawings, this is a successful undertaking. The publishers' preface states that it is an "attempt to bridge the gap between a scientific monograph and a popular presentation." It does bridge that gap, although it is much nearer a popular yet scientific presentation than a monograph in the ordinary sense of that word.

It is a large book, with pages 10x7 inches, designed to show its illustrations well. The type and make-up are attractive, although unfortunately some of the pictures show through the paper, at least in the review copy.

An introductory chapter, written by Clement, treats of the characteristics, distribution, and migration of shore birds. A brief chapter sketches the features distinguishing the various families of the Charadrii. Toward the end of the book is a chapter describing South American shorebirds. American shorebirds recorded in Europe are listed, also European and Siberian shore birds recorded in America. There is an index of common and scientific names.

The larger part of the book is devoted to chapters on each of the 57 species of Jacanas, Oystercatchers, Plovers, Sandpipers, Avocets, Phalaropes, and Thick-knees breeding in North America. The three or four page treatments of the characteristics and habits of each species, while brief, are adequate, interesting, and informative. The author has had wide experience with these birds on their breeding grounds across the United States and up into the North country.

John Henry Dick's bountifully supplied drawings are both varied and charming. This reviewer happens to be one of those who find more artistic pleasure from a good black and white than from color, and almost as much help in identification. Every one of the 57 species is pictures, some of them more than once. There are also group pictures, decorative sketches, and guides to identification. In a number of cases the chicks are also represented. Only a very few of the pictures do not seem to attain full success, particularly one of the Willet with unduly lengthened wings. While nearly all are of very high quality, there are several that make a special appeal. Outstanding is the pathetic drawing of the dead Eskimo Curlew on the beach, symbol of all the fine animals that the greed or ruthlessness of man have destroyed. Others are the flying Black-necked Stilts on the title page, the Oystercatchers standing in the mud, the flock of plovers in flight, the pair of Long-billed Curlews, and the Sanderlings trotting at the edge of a wave.

All in all, this is a lovely book, a book to be enjoyed and treasured.

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NEWS AND NOTES

Baltimore Oriole in Sussex County. On January 28, 1961 I observed a male Baltimore Oriole feeding on a bit of suet in my yard in Waverly. The ground had been covered with snow since January 26. This species is occasionally found along the Coastal Plain in winter. -- C.C. Steirly, Waverly, Virginia.

Help Requested in Investigation of the Bald Eagle. Alarmed by persistent reports of a downward trend in the population of Bald Eagles, the National Audubon Society has launched a study aimed at determining the status of the species. This project is designed to cover at least five years and to gather data from all parts of North America. The study will consist of two parts, first an inventory based on the number of active nests located and second an investigation of various aspects of eagle biology. Information is urgently needed on the location of active eagle nests and also on wintering concentrations of eagles. If you have information on these or any other facets of eagle biology, please communicate with: Alexander Sprunt, IV, Box 231, Tavernier, Florida.

Deadline for Check-List Revisions. The deadline for notes on shorebirds has passed. Deadlines for notes on the remaining species will be as follows:

March 20	--	Through Woodpeckers
March 30	--	Through Nuthatches
April 15	--	Through Vireos
April 30	--	Through Warblers
May 15	--	Through Grosbeaks
May 30	--	For remaining species.

THE 1961 ANNUAL MEETING

Tentative Plans

Place: Abingdon; headquarters at Martha Washington Inn.

Dates: Thursday, June 8, to Saturday, June 10. This meeting, longer than usual, is planned as a combination Annual Meeting and Foray (taking the place this year of the Skyland trip of recent years).

Program Sessions:

Thursday Evening: Films and slides (with Mrs. Colgate Darden, C.H. Lewis, Douglas Patterson, and possibly others as participants).

Friday Afternoon: Reading of Papers (titles should be sent as soon as possible to J.J. Murray, 6 Jordan Street, Lexington, Virginia).

Friday Evening: Annual Dinner, with Dr. James T. Tanner of the University of Tennessee as the speaker. Dr. Tanner is an authority on the Great Smokies and the southern Appalachians.

Field Trips. Trips of much more variety are planned for this year. There will be trips of two types. Optional short trips for small groups will be suggested for Thursday morning, Thursday afternoon, and Friday morning. Probable choices: Holston Mountain and the shoreline of Holston Lake; Feathercamp Branch, near Damascus, with a walk along a section of the Appalachian Trail; Saltville ponds and areas near Abingdon. The all-day Annual Field Trip on Saturday, dividing at the gap between White Top and Rogers into two trips: a strenuous walking trip to the top of Mt. Rogers; and a simpler riding and walking trip to the summit of White Top.

Local Committee:

Mrs. Carleton L. Abbott (Chairman), 737 Alabama Street, Bristol, Tenn.
Mr. and Mrs. Ernest Dickey, 801 Prospect Avenue, Bristol, Va.
Douglas Patterson, Abingdon, Va.
Dr. Jack Brown, Emory and Henry College, Emory, Va.

Fuller details about plans and about lodging places and costs will be supplied in a Newsletter near the end of April or in May.

Points to Keep in Mind on the Field Trips

We are hoping that on the various field trips to be made at the Annual Meeting in Southwest Virginia we may secure some of the badly needed information about that region. We particularly need information on the following species, as to how widely distributed they may be and at what elevations they occur:

1. Birds of the valleys and open country:

Scarlet Tanager
Traill's Flycatcher
Least Flycatcher
Bewick's Wren
White-eyed Vireo
Swainson's Warbler
Sycamore Warbler
Yellow Warbler
Golden-winged Warbler
Worm-eating Warbler
Cerulean Warbler
Kentucky Warbler
Yellow-breasted Chat
Blue Grosbeak
Backman's Sparrow

2. Birds of the high mountains:

Hermit Thrush
Golden-crowned Kinglet
Brown Creeper
Black-capped Chickadee
Magnolia Warbler
Red Crossbill
Purple Finch

V S O TREASURER'S REPORT

General Fund

On hand January 1, 1960	\$ 561.89
Receipts, 1960	<u>863.00</u>
Total	\$ 1424.89

Expenditures, 1960:

Raven Production	\$ 495.15*
Transferred to Publication Fund	200.00
Audubon Society (Hawk Leaflets)	26.14
Audubon Society Dues	15.00
Virginia Wildlife Federation Dues	87.00
Printing and Secretarial Expenses	9.03
Postage (Treasurer)	20.00
File Cabinet for Secretary	33.98
Annual Meeting Expenses	<u>20.54</u>
	\$ 906.84
	\$ 1424.89
	<u>906.84</u>

On hand December 31, 1960	\$ 518.05
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*Includes envelopes, letterheads, postage, etc. for preparation and distribution of The Raven.

Publication Fund

On hand January 1, 1960	\$ 514.39
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Deposited:

Sale of Publications	\$ 17.55
Interest	7.13
Transfer from General Fund	<u>200.00</u>
	\$ 224.68
	\$ 224.68
	<u>514.39</u>

On hand December 31, 1960	\$ 739.07
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C.C. Steirly, Treasurer



The Raven

BULLETIN OF THE VIRGINIA SOCIETY OF ORNITHOLOGY

J. J. MURRAY, EDITOR
LEXINGTON, VA.

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THE CREST OF VIRGINIA

By A. Randolph Shields

The Old Dominion offers many varied habitats from the sea to the mountains, but one of the smallest of the ecological units is found on her highest mountain top -- Mt. Rogers (5720 ft.). Here lies the last vestige, of any extent, of the great glacial front forest that once must have covered most of the state, a spruce-fir island. Geologically one must also include White Top Mountain, as these two highest peaks in Virginia are but one igneous mass, with a saddle eroded between them, separating their tops by about three miles -- as the ravens fly. Floristically the two mountains differ little. White Top has no fir, and the conifer cap is much more extensive on Mt. Rogers. White top spruces have been less disturbed than those on Mt. Rogers. Much of the former stand is still uncut. At the turn of the century, there were about 2,000 acres of spruce-fir forest on the Mt. Rogers prominence, which extends for a mile or so eastward as Pine Mountain.

It took about 15 years to clear the mountain, and leave most of the area barren of tree cover. A small area (about 50 acres) remains undisturbed on the rugged north slope to remind us of what the entire mountain forest once looked like. In the last 40 years the conifers have made a good recovery on the areas protected from fire and grazing. At present most of the area above 5,000 ft. (400 - 500 acres) is pretty well reforested. The firs are coming in rapidly in area recently released from heavy grazing pressure. Most of the forested portion is the property of the U. S. Government Forest Service, and is thereby protected from further devastation.

Mt. Rogers is comparatively inaccessible to the casual visitor. An automobile can be driven to the edge of the conifers on White Top. For this reason, White Top Mountain appears most often in the scientific literature and in visitation reports. Very little published data is available for Mt. Rogers.

I was introduced to Mt. Rogers in 1948 by Stephen M. Russell, and it has been a lasting friendship. Steve and I, along with others, including Douglas Patterson and Gibson P. Vance, Jr., have visited this area under all types of weather conditions, and for several seasons helped in the annual Christmas census of the mountain, sometimes bucking snow up to 30 inches, and wintry gales that would seem to discourage any type of bird, but we always found plenty of the feathery creatures in the conifer refuges.

This isolated island of quite typical Canadian type forest interested me from a general ecological standpoint. In 1954 I began an extensive study of the mountain -- a study that has no real end in sight. As any type of research does, the solution of one problem leads to the uncovering of many more. The first phases of the work, that of cataloging the plant and animal species, is about over and ready for publication. Other biological problems of the area will be good excuses to spend much time with the mountain in future years.

The area of my primary interest lies above 4800 ft. The conifer cap is bordered by a beech-maple forest which quickly breaks into the spruce and fir. The transitional zone is narrow, usually less than 100 feet in altitude. The conifers extend lowest on the north and south slopes. The hardwood forest on the south and east slopes is almost non-existent, as this area was put to grass after cutting, which prevented forest recovery. The spruce (red spruce) makes up about 30% of the forest in the transitional zone, dropping to 22% on the crest. The fir (southern balsam, or Fraser's fir) increases from 8% in the transitional zone to 54% on top. The beech makes up 64% of the bordering hardwood zone, with sugar maple, buckeye and yellow birch following at 14%, 8% and 6%. A few species of trees extend from the deciduous forest to the crest. These are: yellow birch (12% on top), fire cherry (1% on top), and hawthorn (sparce on top).

The shrub layer is most prominent under the hardwoods, tapering to almost non-existent under the virgin conifers. Typical shrubs are: alder-leaved viburnum, skunk currant, alternate-leaved dogwood, hydrangea, elder, mountain holly, tall huckleberries, and Menziesia. The viburnum is the principle shrub of the conifers.

The ground cover (of herbaceous species) follows the same general pattern of the shrubs, being extensive under the hardwoods, and becoming almost non-existent under the densest conifers. A particular feature of the spruce-fir forest is the bryophyte ground cover. In summer the mountain oxalis augments this carpet. Spring in the hardwood forest is a real wild flower garden. Fringed phacelia, spring beauties, trilliums and trout lilies literally cover the forest floor. In summer the larger herbs take over, forming an almost continuous cover. They are white snake root, bug-bane, cone flowers, turks cap lilies, and many others.

We have cataloged 27 species of woody plants, 85 species of flowering herbs, and 80 species of mosses and liverworts in the area described. Nineteen species of mammals make their home here, along with 10 species of salamanders, and at least 25 species of nesting birds. The raven uses the area for daily feeding (nesting on White Top). From the standpoint of nesting northern birds, the spruce fir area is intermediate between Spruce Mountain, West Virginia, and the Great Smoky Mountains. Spruce Mountain 32 species, Mt. Rogers 25 species, Smokies 19 species. (The data other than Rogers from published reports.)

We hope this bit of information is enough to wet the appetites of Virginia bird-lovers for a closer look at this wonderful area. See you on Rogers in June!

Department of Biology
Roanoke College
Salem, Virginia

A STUDY OF TREE SPECIES PREFERENCE OF THE YELLOW-BELLIED SAPSUCKER IN A SOUTHEAST VIRGINIA BOTTOMLAND HARDWOOD FOREST

By C. C. Steirly

For sometime the writer has been quite interested in the ecology of the several woodpecker species found within the Coastal Plain Province of Virginia. Recently while making some post-operational silvicultural observations in a bottomland hardwood area cut-over for veneer logs in 1950 the opportunity presented itself to make a rather simple study of the "working" tree species preference of the Yellow-bellied Sapsucker. The term "working" in this sense is meant to indicate the holes punctured in the bark of the trees as a means of obtaining sap. These holes, usually occurring as rings of holes around a portion of the tree trunk, are quite evident.

Within a limited portion of a bottomland hardwood forest along Spring Branch, a tributary of the Blackwater River, in northern Sussex County, an ecological frequency count was made of all trees over eight inches in diameter at breast height that were within reach of a five foot walking staff as the writer moved along a woodland trail. Two hundred trees were then tallied with the following results (based on a 100 tree frequency):

Red birch (<u>Betula nigra</u>)	32.5
American elm (<u>Ulmus americana</u>)	18.0
Red maple (<u>Acer rubrum</u>)	17.0
Sweet gum (<u>Liquidambar styraciflua</u>)	9.5
White ash (<u>Frazinus americana</u>)	8.5
Sycamore (<u>Platanus occidentalis</u>)	4.5
Yellow poplar (<u>Liriodendron tulipifera</u>)	4.0
Red mulberry (<u>Morus rubra</u>)	2.5
Loblolly pine (<u>Pinus taeda</u>)	2.5
Bald cypress (<u>Taxodium distichum</u>)	1.0

Simultaneously the main stems of these trees were carefully studied and evidence of sapsucker work was recorded by species with the following results:

Species	No. of Trees	Percent of Total Worked Trees	Percent of Total on Frequency Study
White ash	13	44.82	76.47
American elm	6	20.69	16.66
Red maple	6	20.69	17.94
Red birch	3	10.35	4.61
Yellow poplar	1	3.45	12.50

This seems to indicate that the Sapsucker's tree species preference is the bottomland hardwood forest type and the order - the white

ash followed by the red maple and ^{the} American elm. It should be noted that these are relatively smooth-barked trees. The extreme roughness of the bark of the sawtimber-sized red birch no doubt accounts ^{this} for the low frequency of workings on this species, despite the fact that ^{this} was the predominate tree species in the area studied. In the spring cut surfaces of the red birch flow rather copiously and ~~are~~ soon coated with a slime fungus (possibly Fusarium).

Since the Yellow-bellied Sapsucker is a winter visitor in this region and since even then there is no great concentration of them, trees are not injured to the point where death ensues. The writer has not in many years of observation in the several Coastal Plain forest types found any evidence to indicate that sapsuckers have been the cause of death of a tree. They do however, through their work, cause damage to the lumber produced by such tree. The drilling penetrates the bark and cambium to the sapwood of the tree stem. Any injury to the cambium causes a distortion of subsequent wood growth. This distortion known as "bird peck" heavily degrades lumber cut from that portion of the tree. Sometimes the injured cambium causes an unusually distorted growth possibly in the manner in which the various gall insects effect plant growth through certain stimulations of the growing plant cells. In southeastern Virginia this sort of growth distortion is quite apparent in pine trees where the sapsucker has drilled a ring of holes around the tree trunk. These distortions have a somewhat shelf like appearance, projecting out sometimes a foot or more from the normal periphery of the tree. When sawn into lumber such areas cause weak places in the lumber and are a cause of heavy degrade, with attendant economic loss. In the veneer quality hardwoods bird peck outlined distortions of the woody growth attributed to this species cause considerable loss in value.

Three purposes are served by the "working" of the Sapsucker, which as stated above, amounts to the drilling of rows of holes through the bark to the sap wood. These rows of holes are usually arranged in bands around the greater portion of the tree, and quite frequently there are several rows of these groups of holes. The Sapsucker obtains sap from these holes, and it is the elaborated sap or supply of slightly sugared food material for the tree that is consumed. This flow is rather copious in the early spring when as the maple sugar people say the "sap runs". A second purpose, and a year round one, is that in drilling through the bark and bast the cambium is exposed and consumed by the bird. Quite often squarish holes are observed. Here the bird no doubt has been extracting bits of cambium. This is most common locally in the red maple. The third purpose is served in that the flowing sap with its sugar components is rather highly attractive to insects and the Sapsucker is thus able to patiently visit a series of freshly worked holes and reap of considerable harvest of insects. It should be noted that such insects are not necessarily forest pests. Throughout the winter the Yellow-bellied Woodpecker feeds on available insects that it can find around the bark crevices of trees. It also eats certain berries and wild fruits. Thus it is not continually working the trees for sap or cambium while wintering in this region.

In the bottomland in which this study was conducted considerable evidence of Sapsucker work was found on the very smooth-barked supplejack

(Berchemia scandens) vines that are quite common in southern bottomlands. These vines are often up to three inches in diameter.

In recent years the writer has noticed considerable evidence of frilling on painted pine line trees. The many lumber companies have been smoothing the bark of the pines along their boundaries and painting bands around them. The sapsucker seems to "work" these painted bands by drilling a series of holes all the way around the tree. This seems most prevalent where white paint has been used, and it has not been particularly noticeable where red, yellow or blue paint has been used.

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- Bent, A.C., 1939. Life Histories of North American Woodpeckers. U. S. National Museum Bulletin 174, Washington, D. C.
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Virginia Division of Forestry
Waverly, Virginia

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RAISING YELLOW-CROWNED NIGHT HERONS

By Mary Frances Morrisette

On Saturday evening, July 23, 1960, a newspaper reporter called to inquire about someone to care for three young "blue" herons. I volunteered to take the youngsters. While he was coming out from town, I rushed to the nearest sea food establishment for fresh fish. Hearing of the unusual assignment, the proprietor generously contributed several fish. I returned home just as the babies were driven into the yard.

Three badly frightened young birds huddled together, glaring at me with bright yellow eyes from beneath unruly baby down which fell in all directions from the tops of their heads. The feathers on their backs and wings were almost black, tipped with tan, giving a streaked and spotted appearance. Their chests were lighter, the legs greenish yellow, and the very long and powerful bills were black on top and orange beneath. They were yellow-crowned night herons instead of young blues. For several weeks

I had been observing and getting pictures of a number of nesting families of this species. It was quite thrilling to see them so close, but little did I know what a job I was undertaking.

The tree-home activities of these birds on Indian River Road had been watched with much interest by a family across the way. When bull dozers moved in to clear the land for a church, efforts were made to spare that tree with its helpless inhabitants. All day trees crashed around this nesting site and the frustrated parents were not able to approach the nest and feed the youngsters. Finally this last tree was pushed over. The anxious watchers hurried over to see about the young and found the three unharmed. The man of the family wisely took them to the newspaper office upon finding the animal shelter closed at that hour.

The young birds were brought in a small box. Adequate accommodations had to be provided on the spur of the moment. A large cardboard box was placed in the garage. Bricks were put in each corner, then a sheet of wire was fitted across the bricks. Branches were placed on the wire for perching. Herons weakly eject liquid feces and every effort was made to keep the perching area as clean as possible.

These bewildered young herons showed no interest in the chopped fish placed before them on a brown paper plate. Since they had to have sustenance it was necessary to force-feed them. Endeavoring to feed one, the other two jabbed at my face, arms and hands. I came away from every feeding bruised, lacerated and often bloody. In spite of the heat, I soon adopted a cast-off garment with long sleeves as a "pecking jacket". It offered a bit of protection, cushioning the jabs to some extent. Then one occasion almost cost me an eye. One of the birds awaiting its turn to be fed reached up suddenly and fiercely administered a terrific blow just beneath the lower right eyelid. That was when I knew some method had to be devised to separate the bird being fed from the other two. A piece of heavy screen was fitted into the cage to make two compartments at feeding time. One bird was easily managed, and each was fed in turn.

It was difficult enough to get any food down these herons and the least excitement brought about immediate regurgitation. I wondered if they were retaining sufficient nourishment.

On the third day I was able to get a medium sized wire cage on a 16 inch stand. This was placed beneath an apple tree a short distance from the house. In bad weather, an old canvas strip was put on top of the cage.

Food for these infants was quite a problem. I tried every logical known way of preparing raw fish. First it was cut into small pieces. Then I tried grinding it, but they didn't seem to keep that down any better. Rubber gloves had to be worn to protect my hands from the awful fishy odor in preparing the food, but they were impractical at feeding time. Clorox or left over coffee proved good deodorants to freshen the hands.

I discovered, too, that frozen fish were much easier to cut up

than the tender fresh fish. Many jars of fish were prepared at a time and placed in the deep freeze until needed. A jar at a time was thawed, and enough food for the next meal removed from the refrigerator to attain room temperature.

One day an interested friend called to enquire about my young charges. I complained that they were not taking their food as they should.

"Well," she replied, "you aren't giving them the kind of fish their mother would."

"It's fish," I retorted, "What kind would the mother give them?"

"But you can't swallow it and bring it back up," she laughed.

To which I responded, "If I could get it down, I guarantee it would come back up."

Needless to say, I never felt called upon to make that effort.

At the end of the first week, Baby, the youngest of the herons, gave the characteristic "feeding call" when I approached with food. It still refused to pick up the fish, but I knew the urge to gather around the nest-dinner-plate was still there. I was convinced that it was necessary to provide a nest for these yellow-crowns.

The next day a good friend drove up in a truck bringing a huge cage which was placed at one side of the orchard. A forked limb on a dying peach tree was selected and my husband sawed it off. The lower end was fitted into a Christmas tree stand and put in the cage, the forked end resting on a perch. The only yellow-crowned night herons I have observed nesting were using pine trees. But these birds didn't seem to object to the fruit limb, besides, I gathered many small branches and twigs of the more familiar pine and proceeded to make a nest. A 12 inch strip of 1 x 2 inch wire was used to form a platform. Most of my branches and twigs had to be tied into place, nor could I fill in the bottom satisfactorily. A small brown paper plate covered the gaps and made an excellent food dish as well as a more comfortable nest for resting. Fresh paper plates were provided several times a day. These were perforated with an ice pick to allow drainage. I would like to add that I now have the greatest respect for nest-building birds.

From the moment the little herons were released in the big cage they began the dinner-anticipation song and went to the nest, wings fluttering, as I approached with food. From then on, they helped themselves, ate some, but threw much of it around on the bottom of the cage. Since being in my care, they were fed every two to three hours from around seven o'clock in the morning until eleven or twelve at night.

In the large cage the herons could walk around on two three foot perches on either side of the nest, or on a ledge at one end. Another branch reached from the floor of the cage to a perch to encourage them to explore.

Early in the second week of August the oldest heron ventured to the floor of the cage. Then a large shallow pan was placed in the cage with a small amount of water and some of the chopped fish. These babies would have to learn to find their food in shallow water, so the lessons had to begin while in captivity. Yellow-jackets had been a constant problem. They hovered around the fish and many drowned in the water. They were a continuous nuisance, but fortunately, they didn't do any damage though there was constant danger of the birds swallowing these persistent insects.

Before the end of the week the second heron was visiting the floor of the cage. The birds were eating principally from the nest but getting some food from the pan.

Baby, the youngest heron, by this time was getting quite tame. There were no more vicious pecks from it. But the two older birds retained their defiance and never passed up a chance to jab at me if I were within reach.

On August 23, the birds were banded. Baby offered no resistance to being lifted from the nest and having a metal band placed on the right leg. But getting the other two was a different story. In an effort to get them near the door, reeds growing near the marsh were broken off and pushed through the wire mesh to prod the birds. Instead, they became intrigued with the rushes, pulled them into the cage, and Baby particularly enjoyed using them to line the nest. The two older birds were finally caught and banded on the left legs.

A week later the youngest heron joined the other two on the floor of the cage, but always started the "dinner-call" and returned to the nest when I went toward the cage.

On the 28th of August I offered the herons live minnows in the shallow pan. They are such slow, deliberate birds in their watching and waiting feeding habits that I thought they would never notice the tiny swimming fish. Finally, curiosity getting the better of them, the birds approached the pan, craned their long necks out over the water and just looked for a long time. Then one of the older birds jabbed out with lightning speed and caught a minnow. He held the riggling victim for some seconds then dropped it outside of the pan. Several time the heron grabbed the little fish but didn't seem to know what to do with it.

As the herons learned to jab in the pan, the minnows became extremely active leaping wildly, even out of the pan. So a deeper container had to be procured for live food. Often the young herons stepped right into the pan to catch the fishes. Since we live on the water, a minnow trap was set every day. Only the smaller fish were attacked by the immature birds.

Whether they didn't find the minnows as tasty as spots and trout, or were a bit "squeamish" about eating live fish, they seldom ate any of them. Eventually, I had to cut them up and serve them in the nest and some in the water. Yet each day I gave them the freshly caught minnows and nest feedings were spaced much farther apart. It seemed necessary to get them hungry enough to catch and eat some of the food for themselves. Until they learned to do this, I felt it would be disastrous to release them, for

normally, the young of this species return to the nest to be fed several times a day even though they have been taking lengthy flights for a week or ten days.

Though I knew that almost starving them to eating the live fish was for their own welfare, I couldn't rest comfortably knowing they must be hungry. So, in the middle of the night I would trek out to the cage by flash light and give them a nest feed of chopped fish.

For nearly two weeks they were offered fresh minnows and gudgeons of which they ate very little. Then one day I caught Baby and force-fed three small live minnows. This apparently helped. I began finding parts of minnows. They mercifully worked on the heads first.

On Sunday, September 11th, we were getting considerable wind and rain as Donna, the fourth hurricane of the season approached our coast. After much consideration, it was decided that the herons would be safer in the garage in the small cage. So in the wind, rain, and darkness, the three birds were caught with the aid of a flash light and brought into shelter. Though the large cage weathered the storm, the plastic roof over the top wire was ripped off, and the entire experience would have been frightening.

By September 18th all three birds were working on the live food. It was a good day, though occasional clouds blotted the sun, but I was free to stay home and see that the youngsters got off to a good start. They were given minnows and gudgeons around seven in the morning.

A picture record of color slides and movies was taken regularly from the day following the arrival of the herons, and, of course, their release was looked forward to in completing their story.

At 10:20 that morning, the birds were given a nest-feeding of chopped fish. I couldn't let them leave without being well fed, not knowing where their next meal would come from. The cage door was then left open. Baby came to the opening and peered out. The two older herons were pacing back and forth at the wire opposite the exit. Cameras with telephoto lenses were on tripods about thirty feet away, not to disturb the birds. A pine twig was put in the open doorway. Baby immediately pulled and tugged at it, but only succeeded in dragging it into the cage instead of being enticed out by it.

Then my husband retrieved a huge pecan limb from a stack of debris from the recent hurricane. One end was placed on the ground and the other rested on the edge of the nest offering a gradual slope toward freedom. Shortly thereafter, Baby, who by this time was doing everything first, made a slow exploratory descent upon the limb. This was at 11:55. About half-way down and perhaps three feet from the cage, the young bird spread its wings and gracefully lifted itself into the air, over the cage and settled on the fill between the river and the orchard. Meanwhile, the two older herons paced up and down inside the wire opposite the open door trying to push their way through.

Around 1:30 Baby had to be retrieved from a pier across the

narrow channel to the north where a huge cat was stalking the trusting bird. It made no protest when I picked it up and seemed unconcerned over its capture. Returned to the open cage, it soon left again for freedom. Twice after this it was brought back from the pier which seemed to attract it like a magnet, and where the curious cat stalked nearby.

Finally the other two herons had to be poked with reeds to get them toward the opening. One came out on the limb to freedom, stopped momentarily to look around, then flew over the cage and up across the water, high into a giant oak tree at the end of a neighbor's yard, a distance of at least 700 feet. Shortly afterward the third heron came out - with persuasion - hurried a couple of feet out on the limb and took straight off without a moment's hesitation. It flew over the orchard, made a wide circle to the right and headed straight into the same tree and spot chosen by the second bird. It was a long, high flight to be its first, and at least twice the distance covered by the previous bird.

Just before dusk, Baby, who was showing no fear, was picked up and returned to the cage for the night. The next day it was pacing the floor of the cage. After being fed, it was again released. Apparently the solitary confinement was just what was needed to make it wary of being caught again. Though it stayed near the edge of the river among the marsh grasses until late the next afternoon, nothing could get close to it. When I called and talked with the heron, it raised its long neck above the grasses, looked and listened, but never came near. The other two kept out of sight. At four o'clock in the afternoon it rose from the shore with a "kwak" and flew across the river toward the east.

On October 17th seven yellow-crowned night herons flew over our point and the familiar "kwak" floated down. I wondered if my babies had joined others of their kind and paid a visit to the scene of their captivity.

The second week of December brought freezing temperatures. Three days of sub-freezing weather had covered the shores and the river with ice. At 4:30 the afternoon of December 14th I drove into the yard and was aware of cries of alarm by the song birds. A quick glance around showed an immature yellow-crowned night heron on top of a live oak. I dashed into the house for binoculars and out again into the yard. Walking slowly toward the area, two birds of this species flew out of another live oak, straight into the low sunlight and into a tall pine across the channel. In another moment a third bird flew across directly in front of me and it was wearing a band on the left leg. I can't help but feel that the other two were similarly banded, though I didn't get a chance to see.

Unable to forage in this kind of weather, did they remember the bountiful supply of chopped fish and live minnows and return for a handout? I wish I knew!

Anyway, frozen fish was removed from the deep freeze, chopped and placed on top of their cage. Something ate it. I don't know who. But it disappeared by the next day.

Severn Point
Norfolk 5, Virginia

WHAT WE LEARNED ABOUT BIRDS FROM BANDING

By Arthur H. Fast

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In his column The Naturalist appearing each Sunday in the Washington Post, Dr. Irston R. Barnes stated (issue of January 24, 1960): "Arthur H. Fast . . . is a prime example of one of the hazards of bird feeding. He began feeding birds in 1942 for the pleasure of seeing the birds close at hand. He had so many and such unusual birds that he was persuaded to start banding* birds in (late February) 1946". This feeding and banding station is operated on my home grounds (one acre) in Arlington, Virginia. The birds are attracted by food, water and shelter - each of equal importance. Trees, shrubs and bushes, to provide low cover, have been planted. Natural growth, including even brier and honeysuckle (within limits) have been permitted to grow. Potter type traps, having separate cells each with a sliding door, placed on the ground and on the feeding trays, are effective for trapping most finches. Ground traps of other types are more effective for sparrows and other ground feeding birds. A woodpecker trap is used for a short period of time during the breeding season. The Potter traps are baited with sunflower seed and peanut hearts; the ground traps with chick grains; and the woodpecker trap with suet. Feed is also put outside of the traps and in the feeders of various types, to keep the birds in the yard and in the vicinity of the traps.

Among the various species of birds, there is a considerable difference in their proneness to enter the traps. In our experience, the two extremes are probably the white-throated sparrow, which is usually very easily trapped and the robin, which is difficult to trap. Some 2000 robins pass through this yard in the course of a year; we are fortunate to trap 5 of them. It is true that no water-drip traps or nets are used. Other banders seem generally to agree that, with important exceptions, the robin is difficult to catch with any device. It rarely comes to the feeding trays, and usually shuns any artificial feed. Other insect and berry eaters, like the mockingbird, the catbird, the Carolina wren and the bluebird, regularly feed on peanut hearts. Incidentally, beginning in 1953, we have succeeded in bringing bluebirds (up to 15) to the feeding trays with peanut hearts; they have been quite regular, except for the summer months; this past winter and spring there was only one pair present, but they brought in their speckled young in June. The juncos and the northern finches are usually fairly easily trapped. The resident birds are somewhat wary, but most of them are eventually caught. Adult cardinals are usually trapped only two or three times a year. The downy woodpecker is easily caught, but the hairy, the red-bellied and the flicker are especially wary. They are usually trapped only once a year or once in two years. These latter three birds are about the only ones which seem to be kept away by the traps. This is the principal reason that the woodpecker trap is used only during the breeding season.

With respect to some of the birds that are easily trapped, it

*Under a permit issued by the U.S. Fish and Wildlife Service, Dept. of the Interior.

seems reasonable to conclude that they do not mind being trapped. There have been a number of instances in which a bird has been back in the trap within 10 minutes after being released. Squirrels and chipmunks are an almost constant annoyance in using the traps; at times the former can be very destructive when caught in the traps. Several opossums are usually caught each year.

The most active season for this station is March, April and early May; at this season more birds (sometimes twice as many) are banded than the total for the remainder of the year. With some exceptions, this is the season when previous records are broken, and unusual or exciting bird events occur. The spring banding nearly always ends abruptly, coincident with the completion of the main migrations of the white-throated sparrows, about May 10 or 15. During the summer months, a few birds (mostly the young recently out of the nest) are banded. There is a flurry of banding activity in the fall during the southward migrations of the white-throats. This is the only species (of those banded in substantial numbers) in which the number banded in the fall even approximates the number banded in the spring. In the fall of 1959, a total of 290 white-throats were banded - the highest number for any one season. Seventy-five to eighty percent of the bandings of this species are usually within two 3-week periods, one beginning approximately October 20 and the other April 20. These birds are present (about 10 to 20 individuals) throughout the winter, but with occasional exceptions, they are mostly repeats of the birds recently banded or a few returns of birds banded in previous years; these latter might also repeat many times. One bird repeated 69 times during one winter. A few individuals of this species have been trapped up to 6 times in one day.

During the winter months, there is a slowly increasing banding activity as the natural feed becomes scarcer. After most of the white-throats have been banded in the fall, the slate-colored juncos begin entering the traps. These bandings increase in number as successively larger waves pass through (some individuals to stay for a time), until the peak of banding of this species is reached - usually in March; very few are banded after April 10 or 15. In late January, the goldfinches begin entering the traps in numbers, followed by the purple finches and such other northern finches as may be present in the area. The northern finches have always come to this station several months after they have first been reported in the Washington area. On some days, all birds seem to avoid the traps en masse; on other days, they apparently vie with one another in eagerness to enter the traps. In some years, there are a few days of super-peak banding activity - usually between April 1 and 10; at such times, the birds, mostly finches, fill the traps almost immediately after they are set. On these days, tending the traps becomes a full time job.

From late February, 1946 to September 1, 1960, a total of 18,400 individual birds of 85 species have been banded. About 92 percent of these birds have been trapped on this home acre. Beginning in December, 1958, Patricia Beach, a near neighbor, has assisted by trapping 1098 birds (to be banded) on her home grounds, and has rendered substantial assistance in tending the traps here. Birds captured elsewhere than on my home acre include: (1) wood ducks, hand-reared by Mr. and Mrs. William Grayson (See Atlantic Naturalist, Vol. 14, No. 2, Page 86); (2) a few birds banded with

our bands at Ocean City, Maryland, in connection with Operation Recovery; and (3) occasional birds captured in this area and brought in for banding - some at the suggestion of the Fish and Wildlife Service. Our lowest year's total was about 800 birds banded, our highest 1600. About 65 percent of all birds banded belong to 5 species: 3968 white-throated sparrows, 2596 purple finches, 2209 juncos, 2012 goldfinches, and 1207 song sparrows. Seven additional species - cedar waxwings, cardinals, evening grosbeaks, rufous-sided towhees, catbirds, blue jays and cowbirds, in that order - account for another 20 percent of all birds banded. The remaining 73 species account for only about 15 percent, or about 2800, of all birds banded: A number of species are represented by a single individual.

The incentive to begin banding was the arrival of the evening grosbeaks, which first appeared on our feeding trays on January 18, 1946. By mid-February, their numbers had increased to a maximum of 25; they were coming regularly from daylight to about 1:00 p.m. Using a trap and bands furnished by Ralph E. Lawrence (our banding permit was still in the process of being issued), the first 4 birds were banded on February 24. At that time, they were a rare bird in this area; they did not appear on the District of Columbia check lists. Here was a new life bird for many visitors who came to see them. (A neighbor asked if the house were up for sale.) These birds continued to come regularly until late April, when their numbers progressively decreased until 2 females were last observed on the morning of May 13. That spring 51 evening grosbeaks, 42 females and 9 males, were banded. In response to an inquiry made several years later (and before the 1951-52 invasion) the Fish and Wildlife Service stated that a total of only 52 evening grosbeaks had ever been banded in Maryland, Virginia and the District of Columbia; the other bird had been banded by Harvey Brackbill at Baltimore in February, 1946.

There was a much greater invasion of evening grosbeaks in 1951-52. They came, up to 50 at one time, to my feeding and banding station, and those of Mrs. Dorothy Dreese in north Arlington, Virginia, Mrs. Elizabeth Peacock in the Pine Ridge section of Fairfax County, and Mrs. Mary Newlin Borton in Alexandria. The birds maintained their numbers at most feeding stations until late April, after which there was a decided decline in populations, though I had a late surge of birds. During the 3 weeks ending May 7, these birds were very active and came to this station in numbers up to 60. On the night of May 7, a cool north wind changed to a warm south wind, after which I saw and heard only a few of these birds; the last one was a female (presumably the same bird) which was seen and heard at least 5 times up to 4:30 p.m. Daylight time on May 17. During this invasion, Mrs. Dreese banded 92 evening grosbeaks; I had 315; Mrs. Peacock 178; and Mrs. Borton 97, for a total of 682. Except for Mrs. Borton, each of us retrapped birds banded by the others.

After another 6-year interval, during the 1957-58 invasion, the evening grosbeaks came for a third time to my home acre. They arrived here quite late - April 12. At first they stayed high in the trees intermittently for several hours each morning; they were restless and called almost incessantly. They fed on hemlock cones and on the old seeds, such as tulip poplar, and the new buds on the other trees. Later they fed on the ground - principally under the dogwood trees. A few came to the bird bath. A

liberal supply of sunflower seed was scattered on the ground around the bird bath. On April 18, the first one entered a Potter trap on the ground. They gradually became less restless and were more easily trapped on the ground and on the feeding trays. Through May 12, a total of 112 of these birds (43 males and 69 females) were banded. Three birds banded by others were re-trapped and released. On the morning of April 19, a male displayed before a female. He threw his head back, and his breast almost touched the tray; his wings were spread downward and outward, and they vibrated; he moved toward the female and almost touched her.

After a 2-year interval, the evening grosbeaks were back in the area, in the largest numbers ever - the notable invasion of 1959-60. This time the greatest concentration was at the feeding station of Mr. and Mrs. William P. Mull at Dunn Loring, near Vienna, Virginia. Using only the two 4-cell Potter traps (placed on the window sill from which traps the birds were removed from the inside by opening the window) and the bands which I furnished, the Mulls banded 569 evening grosbeaks. I banded 92 birds, and Mrs. Elizabeth Peacock banded 229 - making a total of 890 evening grosbeaks banded in this area during this last invasion. While the reports are not all in, the Fish and Wildlife Service believes this to be the greatest number of evening grosbeaks ever banded in one season in any area south of Pennsylvania and New Jersey.

Nine evening grosbeaks banded in Connecticut (4), Massachusetts (2) and in New York, New Jersey and Pennsylvania (1 each) were re-trapped here up to 5 years and 10 months after being banded. Twenty-two evening grosbeaks banded here were re-trapped or recovered in New Jersey, New York, New England and Quebec and Halifax, Nova Scotia, Canada up to 7 years after being banded; also 1 each of our banded birds was re-trapped in Michigan and North Carolina. The mulls re-trapped 2 birds banded in Michigan and Minnesota. Two of our birds banded in late April, 1958 were re-trapped respectively in Bennington, Vermont and Amsterdam, New York, 15 and 23 days after being banded here. Another bird banded by Dr. Maurice Broun at Kempton, Pennsylvania was re-trapped 9 days later on January 3, 1960 by Mrs. Elizabeth Peacock. With a few exceptions, the Washington area populations seem to be tied in with the New York, New England and eastern Canada populations. Three of our banded birds were recovered in the Northern tip of Maine (1) and in the Province of Quebec, Canada (2) on July 13, July 20 and June 23, respectively - dates that suggest they might have been nesting in those areas.

In 1952, only 33 evening grosbeaks (of the 315 banded here) repeated - 27 once, 5 twice and 1 three times, for a total of 40 repeats. Yet I re-trapped 51 of these birds banded by the 3 ladies who were banding in this area that season. A number were re-trapped 2, 3 and up to 4 months after being banded. Could they have left the area going south, and come back north through here? In 1958, we had 12 repeats, and in 1960, 2. In 1960 there were quite a number of exchanges of banded birds between the Mulls and Mrs. Peacock. We re-trapped 9 birds banded by the Mulls; they re-trapped 2 birds banded here; again up to 3 months elapsed between the dates of banding and the re-trapping. A few of the birds banded by the Mulls were re-trapped by Elting Arnold in Bethesda, Maryland, and Chandler S. Robbins in Laurel, Maryland.

The evening grosbeaks coming to our feeders and traps, with a few exceptions, have been predominantly females; in many instances exclusively or almost exclusively females. This accords with the experience of other banders and observers in this area. Probably the largest flock of evening grosbeaks ever reported in this area was seen by the Mulls and contained 91 birds. Yet all banders in this area have usually banded many times the number of birds observed at any one time. Of all these birds which have come to the feeding trays, I have never seen more than a small percentage of banded birds, even toward the end of the season, as in 1952 when 250 or 300 had recently been banded. Thus there would seem to be no resident flock, but rather a large reservoir of birds which circulate within an area of undetermined size. There would appear to be a number of flocks with a frequent shifting of individuals between the flocks. They can move rather rapidly when leaving for another area, such as their nesting area. No evening grosbeak banded here has returned in succeeding years. It should be noted, however, that before 1960 these birds were present here only at 6-year intervals, in 1946, 1952 and 1958.

On the feeding trays, the evening grosbeaks were usually quite tolerant of each other and of other species. We might have 20 of these birds on a 1 x 4 foot tray at once, or a few of them and a number of other species feeding for a time in substantial harmony. Yet for trapping evening grosbeaks, it was found best to use traps having separate cells. When traps were used in which several birds were confined in the same enclosure, they attacked each other viciously and (with their huge bills) inflicted considerable damage before they could be removed from the traps. These birds seem particularly susceptible to warm weather. After several of them expired in the traps within a short time on a warm April day with the sun shining on the birds, the traps were placed in the shade or watched constantly.

In April, 1960, an unusual evening grosbeak was captured here. In the trap it looked like a cross between a male and a female. The left side of the bird showed the yellow color of the male, while on the right side was the gray of the female. A sharp line of demarkation on the breast extended to the under tail coverts. Even the back showed two colors. Dissection, under the supervision of Dr. John W. Aldrich, revealed the characteristics of both sexes. It is now a skin in the National Museum.

The bills of the grosbeaks are of a uniform bone color in the winter. It has been noted that by late March, the bills have turned a distinct green, which has been described as being "similar to that of the skin of a maturing apple just before the sun tinted it with the first blush of ripeness". (See article by G. Hapgood Parks in Audubon Magazine, March-April, 1948, page 110.)

That the purple finch is an irregular migrant to this area is shown by the numbers banded in the years indicated:

<u>1946</u>	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
82	94	0	4	64	1	25	170	403	143

<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>
372	0	433	134	670

In the pre-banding era, when a variable flock of 10 to 30 purple finches came to the feeding trays, we believed them to be a resident flock which stayed with us for some weeks or months. When the birds were banded, it was soon discovered that appearances were very deceptive. Most of the birds stayed only for a few days, during which they were banded, with a few repeats. A lull usually followed, during which very few birds would be banded. Then a new flock of unbanded birds would move in, which flock would give way to other successive flocks. (The fact of the changing flocks is even more forcefully illustrated than is the case with the evening grosbeaks.) These flocks of purple finches added up to the figures for bandings indicated above. In 1960, not more than 35 birds were observed at any one time, yet the bandings totaled 670. The Mulls had only a few more birds on hand at any one time; yet they banded 1000 purple finches between December 30, 1959 and April 21, 1960.

During a big invasion of these birds, as in 1959-60, there is usually a considerable exchange of birds among banders in this area. Many birds were exchanged between the Mulls and Mrs. Peacock, who live perhaps two miles apart. There were also exchanges with Elting Arnold of Bethesda and Chandler Robbins at Laurel. Patricia Beach or I recaptured 42 of the birds banded by the Mulls; 16 of our banded birds were retrapped by the Mulls. Though the purple finch is an irregular migrant (particularly in the sense that it varies greatly in numbers present from year to year), 61 individual birds banded here returned to the place of banding in subsequent years, some of them several times, up to 6 years after being banded. This tends to indicate that when some of these birds do migrate, they may follow a more or less definite migration route. Twenty-two of those banded here were retrapped or recovered in states north of here (mostly in New England) and in Quebec, Ontario, Prince Edward Island, and New Brunswick, Canada - and one each in South Carolina, Mississippi and Louisiana. Three of these birds were retrapped respectively in 10 days, 18 days, and 22 days after being banded here, in South Londonderry, Vermont, Cumberland Mills, Maine, and Adams, Massachusetts. The respective dates of their recapture were April 21, May 12 and April 30. They appear to have moved rapidly to their nesting grounds. A number of purple finches were banded in the female plumage, and returned in the full male plumage. Many ornithologist appear to believe that the male birds usually acquire their full male plumages on the third molt. At least some of the males show spots or touches of bronze or yellow before that time. On February 19, 1955, a bird was banded in the female plumage; on April 25, 1958, this bird returned showing a distinctly bronzy rump. Without seeing the bird, Dr. Alexander Wetmore suggested that it might be a male which did not get its full male plumage - or it might be an old female which was getting bronzy.

Perhaps our most unusual experience was with the cedar waxwings. March of 1947 came in with low temperatures, blustery winds, and a light fall of snow, which remained on the ground for several days. On these days an early migrating flock of about 50 cedar waxwings made frequent visits to the bird bath. Two quarts of raisins were put out. Apparently driven by

extreme hunger, they forsook their habit of remaining high in the trees, and came down to the ground to eat the raisins. By placing the 12-cell Potter trap on the ground and the 1-cell trap on the feeding tray (and without using any water-drip traps or nets) we succeeded in banding 875 cedar waxwings within a period of about 2 months. Not more than 150 were observed at any one time. As did the evening grosbeaks and the purple finches, the cedar waxwings came in successive flocks. Many repeated in the traps, usually the most recently banded birds. However, about 12 of the repeats persisted from near the beginning until near the end of the period. Only 4 of these banded birds were recovered elsewhere - 2 in North Carolina, 1 in Mississippi and 1 in Louisiana. All other banders in the United States and Canada reported a grand total of 366 cedar waxwings banded for that year. Not even one cedar waxwing has been banded here either before or since the 1947 irruption. In 1960 and after more than 14 years of banding, the 875 cedar waxwings banded in a 2-months period of 1947 is the sixth highest for total birds banded. The Fish and Wildlife Service now advises me that so far as their records are available (part of their records went through a fire and need to be reworked), no other bander in the eastern states has had a similar irruption of this species.

Even though goldfinches are present in the area throughout the year, they do not come to the feeding trays and the traps in any numbers until late January. Apparently they prefer the natural feed. They leave the trays when things begin to grow in April. Within that period all of the 2012 goldfinches were banded. They also come in successive waves - many of them undoubtedly migrants. Of the 1818 goldfinches banded before 1960, a total of 220 or 12 percent have returned here from 1 to 7 years later - some of them several times. In occasional years, the pine siskins come with the goldfinches, intermingling with them freely. From March 1 to May 11, 1953, we banded 221 pine siskins. The yellow basal portions of the wing and tail feathers were often plainly visible in the traps.

Cowbirds are irregular visitants to this yard. A total of 367 of them have been banded - 241 in the spring of 1960. They also come in successive waves, and most of them apparently move on rather rapidly. Some of the few which stayed repeated frequently in the traps. One female was banded on April 9, 1947. She repeated in the traps many, many times (some days several times per day) until July 16, when she left for the season. During this period she was taken to various places, like 12th and Constitution Ave. N. W. in Washington (3 times), Mount Vernon, Virginia, and Silver Spring, Maryland. Each time she came back the same day, or the next or following morning. She returned on April 7, 1948 and resumed repeating in the traps. On April 17 she was taken on a hike along the C. and O. Canal, about 2 air miles distant. She was released at 7:30 a.m. and was back in the trap 2 hours later at 9:30 a.m. Shortly thereafter she disappeared, and was not heard from again.

The blue jay is both a resident and migrant in the Washington area. It is present throughout the year, although in reduced numbers in the winter. Before 1960, a total of 374 have been banded. Of these, 62 or 17 percent have returned to the place of banding in later years, up to 7 years after banding. Nine have been recovered in nearby areas, and 1 each in New Brunswick, Canada, Long Island, New York and New Jersey. The

latter bird was banded here December 15, 1957; it was retrapped at Jamestown, New Jersey on May 3, 1958; it returned here on November 3, 1958 and December 1, 1959.

In some species, a high percentage of the birds present in any nesting season might be the same birds which nested nearby in previous years. During the spring and summer of 1960, 16 adult catbirds were banded; there were 8 returns of these birds banded in previous years. During the same season, 7 adult brown thrashers were banded; 5 banded in 1958 and 1959 returned here. Up to about 1940, killdeer regularly nested on a suitable tract of land about a mile from here. Then this land was "improved" by building about 500 houses. Each summer throughout the years, interested residents in this area have been hearing and seeing the killdeer, which apparently were persisting in their attempts to nest in their ancestral summer home. In at least one instance, they have succeeded: On July 1, 1960, a neighbor boy brought in for banding a week-old killdeer found along a wet gravelly depression in this once suitable habitat.

The cardinal is the only strictly resident species with a high total of birds banded; it is seventh high with 819. No bird of this species banded here has been recovered more than 5 or 6 miles from the place of banding. That accords substantially with the reported experiences of other banders. (Fish and Wildlife suggest that in the earlier years when the bands were made of a less rigid metal, these birds removed some of the bands.) The figures seem to suggest that the cardinal regularly roams over an area 10 or 15 miles in diameter. It is fairly prolific, as indicated by the 15 or 20 immature birds banded in each of many seasons. Contrast the total for the cardinal with the total of 62 for the Carolina wren (present and active throughout the year), which is said to be one of the most sedentary of species. The totals for the Carolina chickadee, the tufted titmouse and the white-breasted nuthatch are respectively 120, 182 and 87.

It is well established that many migrating birds follow more or less definite routes or flyways. Our files, moreover, contain many instances in which the birds return on or near the date of banding. A white-throated sparrow banded November 9, 1955 returned November 11, 1956 and November 7, 1957. A brown thrasher banded on May 8, 1952 returned May 8, 1957 and May 10, 1959. A blue jay banded May 22, 1949 returned May 17, 1950 and May 22, 1956. A catbird banded May 22, 1959 returned May 22, 1960. A towhee banded April 24, 1957 returned April 25, 1958. Also a times birds banded on or about the same dates, apparently remain together for their return migrations. On May 22, 1956, we banded 3 catbirds; one of them returned May 22, 1957; the other two on May 12 and 20, 1957 respectively. Possibly they returned together, but did not enter the traps on the same day. Five catbirds banded between April 24 and May 6, 1959 returned between May 15 and 24, 1960. During the week of January 4 to 10, 1959, 23 birds banded in previous years returned. Some of them had been banded at about the same time in previous years. Many of these returned 4, 5, 6 and up to 7 years after banding. One of them, a white-throat, again returned January 6, 1960, being within 2 days of the date of the January 8, 1959 return; and was then $8\frac{1}{2}$ years old - our oldest bird of that species.

A number of unusual birds have been banded at my station. On

December 13, 1952, we banded a junco with an unusual amount of rusty wash on its sides. Dr. John W. Aldrich and Allen J. Duvall identified it as the Cassiar slate-colored junco (Junco hyemalis cismontanus), which proved to be a new bird for the Virginia list. The normal breeding range of this form is restricted to the Yukon and British Columbia, with migration extending through the Rocky Mountain region and lower California. On January 17, 1948, an immature white-crowned sparrow was banded here. It came to the feeding tray almost daily until February 3. The check list indicates that this area is outside of its normal winter range. On March 29, 1955, we banded a female or immature dickcissel. It was in the trap on our home acre with several house sparrows after sundown, and was almost overlooked. A few of these birds normally arrive in this general area about May 1. On March 13, 1955, we banded a female Baltimore oriole - identification verified by Dr. Aldrich. In the fall and winter of 1954-55, we banded 16 black-capped chickadees; in the fall and winter of 1957-58, we banded 4 more of this species. With respect to 3 of these 20 birds, the identification was verified by Drs. Aldrich and Wetmore. Furthermore, the 3 birds were of the northern sub-species atricapillus and not the Allegheny sub-species practicus. On May 2, 1958, we trapped and banded an adult female purple grackle. The color of the iris was unusual for an adult bird. Dr. Wetmore identified the color of the iris as pallid neutral gray (Ridgway), with a hint of yellow in the right eye. (See Brent's Life Histories of Blackbirds, Orioles, Tanagers, and Allies, page 379, regarding the iris colors of this species.) Dr. Wetmore said that the color of the iris of this bird was a partial retention of the juvenile condition. A Virginia rail was found at 17th and G Sts. N. W., Washington, D. C. by an apartment house janitor. Possibly the pavement seemed to the bird to be a pool of water. Mrs. Harry Hogan of Bethesda obtained the bird, and brought it here for banding. She later released it in a wet wooded area near Bethesda.

An average of about 140 birds previously banded here return here each year, some several years in succession. A junco banded February 1, 1947 returned each winter except one, until it was last trapped on December 11, 1955, at which time it was at least $9\frac{1}{2}$ years old. A cardinal banded as an immature on September 7, 1946, returned to the traps a number of times until March 7, 1959 - when it was $12\frac{1}{2}$ years old. This is our oldest bird of any species. A white-throat banded here on an April 30 was retrapped 6 days later on May 6 in a suburban area northeast of Baltimore. A song sparrow banded here was recovered 19 days later on April 17, 1958 at Winthrop, Maine. On average, we band more song sparrows in March than in any other month.

In 1959, an injured American egret was taken in by Mrs. William Hickman, who operates what might be called a hospital for injured birds, at her home in South Arlington, Virginia. After a time this bird was restored to health; we banded it on October 8, 1959. A few days later, she and some of her friends shipped this bird air express to West Palm Beach, Florida. Upon arrival, the bird was met by a delegation. The bird was the guest of honor in a convoy of boats, headed by the mayor, which took it to an island in Lake Worth, where it was released on October 14. The event received considerable newspaper publicity in that area.

About a week after the publication of an article on our activities

in the Washington Post of January 31, 1955, Mrs. Arthur Radford, wife of the then Chairman of the Joint Chiefs of Staff, sent us two dozen hand-carved bird figurines, which she had brought home from India. She explained that she thought these bird figurines would be more at home in our house than hers. The fact of the gift and the reasons were reported in the Society column of the Washington Post of February 13, 1955. Publicity in the daily press is of assistance in helping to make the public nature-conscious. It is very satisfying to observe (at times as if a curtain were suddenly raised) the awakening in people of all ages of an interest in the living things about them. My feeding and banding station serves as an important aid in teaching conservation and an appreciation of birds and nature in general. I give talks to groups of all ages, such as scouts, school children and garden and other clubs who come here or assemble in other places. As many as 45 such talks have been given each March and April, the peak of the banding season.

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ALCIDAE IN THE NORFOLK AREA IN THE WINTER OF 1960-1961

By Paul W. Sykes, Jr.

During the winter of 1960-1961, a total of nineteen Alcidae were either seen or found dead or disabled in the Norfolk area. Two species were seen, Razorbill (Alca torda) and Dovekie (Plautus alle). In the case of the dead birds, the cause of death was probably from exposure, starvation, or perhaps a combination of these factors, which resulted when the plumage of the birds became oiled.

Oil dumped into the sea by ships has a serious effect on the seabirds. When the plumage of a bird becomes oiled, the feathers stick together, rendering the bird flightless, and the insulation afforded by the feathers on the body is destroyed. If a bird becomes heavily oiled, it is doomed because it is unable to clean the oil from its plumage, and it usually cannot survive long enough in the low temperature of the sea water to allow for molting to eliminate the oiled feathers. It is these helpless birds that come ashore on the beaches in an attempt to preen and clean their feathers (Giles, 1960).

Small amounts of oil waste (several gallons) can cause destruction to a large number of seabirds. This oil waste is dumped into the sea when the tanks, bunkers, et cetera are cleaned aboard ship and the waste material disposed of off the coast. Oil dumped at sea can travel many miles. Just how far the oil will travel depends on the tides, currents, and winds (Giles, 1960).

In the Norfolk area, the Army Engineers reported that there was no noticeable increase in oil pollution above what is considered "normal" during the winter of 1960-1961. However, as is mentioned previously in this article, a small amount of oil is enough to cause the destruction of

many birds. The amount of oil in the coastal waters may be "normal" or may even be a slight decrease over previous years, but even this amount is serious enough to cause some destruction of seabirds wintering along the coast of Virginia.

On December 11, 1960, Lt. R. L. Berg, U. S. Navy, found a live Dovekie on Atlantic Avenue near the south gate of Fort Story at Cape Henry. The bird was not oiled, but the left leg was fractured. Berg took the bird to Mrs. M. F. Morrisette the same day it was found. The bird died the following day and was taken to the Norfolk Museum of Arts and Sciences, where it is now mounted.

L. S. Givens of the Atlantic Office of the U. S. Fish and Wildlife Service and C. S. Yelverton, manager of the Back Bay National Wildlife Refuge, found a live immature Razorbill and a dead oiled Dovekie on the beach about $\frac{1}{2}$ mile north of Little Island Coast Guard Station, just south of Sandbridge, on December 15, 1960. Both birds are now mounted and in the Norfolk Museum.

In late January 1961, Berg carefully noted 9 Dovekies on Willoughby Bay after a strong northeast wind, that had been blowing for several days previous to the observation, had subsided.

During the period, November 1960 through January 1961, Yelverton found 6 additional Dovekies along the beach from Sandbridge to the Virginia-North Carolina line. All of these birds were dead and oiled.

T. H. McDaniel, assistant manager of the Back Bay National Wildlife Refuge, found an immature Razorbill dead and oiled on the beach in the northern part of the refuge on February 13, 1961.

During the winter 1960-1961, 17 Dovekies were recorded in the Norfolk area. Of this number, 7 were dead and oiled when found, 1 was alive and not oiled, but unable to fly, and 9 birds were alive and apparently in good condition. Two immature Razorbills were also found during this period. One bird was alive, but unable to fly, and the other was dead and oiled.

A number of other species have been found during this period along the beaches dead and oiled. Included in this group are the following: Common Loon, Red-throated Loon, Horned Grebe, Oldsquaw, Common Scoter, Red-breasted Merganser, Herring Gull, and Ring-billed Gull. Yelverton found 26 dead loons in one day, including both species, along an eighteen-mile strip of beach from Sandbridge south into North Carolina.

Apparently there are more Alcidae along the coast of Virginia in the winter than we realize. This fact is substantiated by the number of birds that have been found dead or disabled on the beaches. Perhaps with more field work along the coast, much would be learned about the status of these birds in the state.

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CURRENT CONSERVATION LEGISLATION BEFORE CONGRESS

By R. J. Watson

Among the numerous bills now before Congress concerned with some aspect of conservation, the following appear to be of most interest to members of the VSO. Committee hearings have been held on some of these, but none, apparently, as yet been reported out for consideration by either house of Congress.

1. S.543 authorizes the National Park Service to investigate certain shoreline areas for possible acquisition (not including certain specific regions, including Cape Cod, which are covered by other bills). Other area would be surveyed by the Secretary of Agriculture for preservation as national forests. Included in this latter group is Parramore Island, on the Eastern Shore of Virginia. Referred to the Senate Committee on Interior and Insular Affairs (Sen. Clinton P. Anderson, N. M., Chairman). (Note: The VSO Executive Committee has already taken action to urge the Federal Government to preserve Parramore Island).

2. The "Wilderness Bill", to establish a national system of wilderness preservation, which has been considered in committees for several years now, has been reintroduced in a number of versions (S. 174; H.R. 496, H.R. 776, H.R. 1762, H.R. 1925, H.R. 2008). All have been referred to the Committee on Interior and Insular Affairs of the Senate or of the House, as appropriate. (Rep. Wayne N. Aspinall, Colo., is chairman of the House Committee).

3. The "Blatnik Bill" to amend the Federal Water Pollution Control Act of 1956, which was passed by Congress last year but vetoed, has been revived (S. 861; H.R. 4036 and numerous other House versions). It would increase the amount of money for Federal grants to localities for treatment facilities and strengthen procedures for enforcing the law. Referred to the House and Senate Committees on Public Works (Rep. Charles A. Buckley, N.Y., and Sen. Dennis Chavez, N.M.).

4. H.R. 4603 and H.R. 4624, identical bills, would speed up the acquisition of wetlands for duck nesting areas. The fish and Wildlife Service would be authorized to expend up to \$150,000,000 against future

income from Duck Stamp purchases for a "crash" program of acquisition now, while land is still available. Referred to the House Committee on Merchant Marine and Fisheries (Rep. Herbert C. Bonner, N. C., Chairman).

5. H.R. 4668, the "Chemical Pesticides Coordination Act" (favorably reported by committees last year but not passed), requires Federal agencies undertaking any program involving the use of pesticides to consult in advance with the Fish and Wildlife Service and with appropriate State agencies. House Committee on Merchant Marine and Fisheries.

6. H.R. 5756 proposes to extend until July 1, 1963 the deadline for states to apply for anti-billboard "bonuses" in connection with the Federal interstate highway program. The present deadline is July 1, 1961. House Committee on Public Works.

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RECENT ACTIONS OF THE EXECUTIVE COMMITTEE

Meeting in Charlottesville on 18 March 1961, the VSO Executive Committee took the following actions:

1. Approved a report submitted in absentia by the Treasurer, showing balances of \$1,048.53 in the General Fund and \$758.52 in the Publication Fund.

2. Directed the Secretary to write letters to the Secretary of the Interior and the Virginia Department of Conservation and Development urging action to preserve Parramore Island against commercial encroachment.

3. Agreed that it would be desirable to have the Raven printed instead of mimeographed, and authorized the expenditure of up to \$600.00 per year for printing and distributing it. A committee will obtain precise cost figures, based on actual bids, and will make plans looking toward conversion to printing beginning with the 1962 volume.

4. Voted to amend the by-laws to increase dues for Sustaining Members to \$4.00 (instead of \$3.00 as at present). The amendment will be submitted to the membership for final action at the next annual meeting.

5. Approved plans to hold the 1961 annual meeting at Abingdon on June 8, 9, and 10. The meeting (scheduled to last one day longer than usual) will incorporate extended field trips to Mount Rogers and other nearby areas of interest. It will take the place of the usual foray to the Skyline Drive.

Members are asked particularly to note paragraph 4, which was taken in response to the decision to begin printing the Raven (paragraph 3). A printed journal may prove more expensive, particularly at the outset (e. g. if cuts have to be prepared for covers). But any higher costs

will be modest and will be well worth the greatly superior quality of a printed magazine. The present Publication Fund provides an ample cushion from which to meet increased initial expenses if necessary. A small increase in dues for Sustaining Members will provide a margin of safety for replacing any sums "borrowed" from the Publication Fund. If not needed for that purpose, the extra money will enable us to undertake additional projects (such as revised version of the Checklist of Virginia Birds, published by the Society in 1952, now thoroughly out of date). This action appeared preferable to increasing the dues for all classes of membership. After all, no one is obligated to be a Sustaining Member. The Committee sincerely hopes, however, that as many Regular members as possible will see fit to raise their membership to the Sustaining class. The purpose of a Sustaining Membership is as indicated by the title -- to provide a means whereby those willing and able to do so may contribute a little extra, and thus to maintain the Society's activities on a higher level than otherwise possible. Those who pay the small difference between Regular and Sustaining Membership can feel that they are enabling the VSO to operate on more than a bare minimum basis and to move forward more rapidly in its objective of increasing our knowledge of the bird life of the State.

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Review

Penguin Summer, by Eleanor Rice Pettingill, Clarkson N. Potter, Inc., New York, 1960, 197 pages, end map, over 50 illustrations, \$5.00. When Sewall Pettingill went out in 1953 to the Falkland Islands under assignment from Walt Disney to photograph penguins, Eleanor Pettingill went too. She was evidently of considerable help on the expedition. In addition to her husband's film and photographs and bird skins, her part of the spoils consisted of the copious notes which had this book as their happy result.

It is fascinating reading, and not only on account of the bird material. She does tell us much that is interesting about the gentoos, the rockhoppers, the jackass penguins, and other members of that family, about their courtship, nesting, care of the young, feeding, and water activities; also about other water birds -- kelp gulls and kelp geese, mollymawks and other albatrosses, sheath bills and whalebirds and fire-birds. There are not many species of land birds in the island population, but some of them are attractive, Falkland robins, far southern house wrens, and red-breasted troupials. Since the photographs come up to Walt Disney standards, they are naturally excellent.

However, this book is not just an ornithological diary. The bird accounts are interspersed with dramatic bits of adventure and with fine descriptions of the faraway Falklands, accounts of their history, agriculture and economic life, and, most interesting of all, pictures of the social life of the fine, independent people who inhabit this far southern outpost of the British Empire. George Sutton justly characterizes this book as "sound ornithologically" and "full to bursting with human interest."

J. J. Murray

NOTE ON MEMBERSHIP

To The Membership of the V.S.O.:

You are no doubt aware of the fact that a Membership Committee has been appointed by President Dulaney. Necessarily the activities of the two members, namely, Mrs. Mary Frances Morrisette and D. R. Hostetter, who comprise the committee, are much limited, due to the fact that we are much separated and that we can contact only a small number of prospective members.

There is much sentiment in the Executive Committee that the local chapter representatives should also be active in soliciting new members. Accordingly, I have mailed to each representative of the seven local chapters a number of application forms. I am now extending an invitation to all members of the local chapters to contact their friends for membership in the V.S.O.

Furthermore we would encourage all members in the V.S.O. to participate in our efforts to increase our membership. Names of prospective members may be sent to the representatives of the local chapters, or to Mrs. Morrisette, or to me. An application form will be mailed promptly together with an invitation to become a member of the V.S.O.

I believe the V.S.O. will welcome into membership those who have an interest in birds as a hobby; those who have a deeper interest such as research and would like to make a definite contribution to Virginia Ornithology; and those who represent professional or non-professional avocations and would appreciate being in good, congenial company several times per year at our Annual Meetings, Field Trips and Forays.

We encourage all of you to be on the alert for new members.

D. R. Hostetter



The Raven

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J. J. MURRAY, EDITOR
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THE 1961 ANNUAL MEETING
ABINGDON, VIRGINIA

By Robert J. Watson, Secretary

The 1961 meeting of the Virginia Society of Ornithology, held at Abingdon on June 8-10, offered an interesting contrast with the Society's usual practice. The three-day duration of the meeting provided an opportunity to combine it with a foray to nearby areas of southwest Virginia. Activities began with a series of short field trips on the morning and afternoon of June 8 and the morning of June 9.

On Thursday evening, June 8, the Society enjoyed a program of illustrated talks. Mr. C.H. Lewis of Salem showed a series of beautiful slides, depicting the birds, flowers, and mountain scenery of Western Virginia. Mrs. Colgate W. Darden gave a study of nesting Yellow-crowned Night Herons, which presented some original material and which was illustrated with striking moving pictures of a colony near her Norfolk home.

The business meeting, held at the Martha Washington Inn in Abingdon June 9, was called to order at 1:30 P.M. President Dulaney reported several new developments, including the prospect of a printed form for The Raven, which will probably be undertaken at the beginning of 1962. He summarized a report by the Treasurer, Mr. Steirly, listing \$913.39 in the General Fund and \$715.52 in the Publication Fund as of the end of May. Mr. Watson, speaking for the Conservation Committee, described efforts to preserve Parramore Island from commercial encroachment.

Dr. Freer announced that a Virginia chapter of the Nature Conservatory has been formed and is eager to know of endangered areas in Virginia which would be suitable for preservation in a natural state. He reported that the new chapter recently passed a resolution urging the U.S. Forest Service to declare the summit of Mount Rogers a "scenic area" within the national forest which now embraces it. Mr. Eike moved that the Secretary be directed to write to the Forest Service indicating the Society's support of this proposal. Dr. Murray pointed out that the letter should include a specific recommendation against any form of development of the area, which would destroy the unique character of the spruce forest on the summit. The motion was carried.

Mr. Watson moved that By-law No. 4, governing dues of each class of membership, be amended to raise the dues of Sustaining Members to \$4.00 per year instead of \$3.00. This proposal had already been approved by the Executive Committee and printed in The Raven. The motion was passed.

For the program session, President Dulaney called on Mrs. Wiltshire to serve as chairman and to introduce the speakers. The first paper, "The Fulvous Tree Duck in Southeastern Virginia," was read by Charles E. Stevens on behalf of its absent author, Paul W. Sykes. The Fulvous Tree Duck has recently been observed with increasing frequency in North Carolina, which was formerly outside its range. The first recorded occurrence in Virginia was a sight record from Williamsburg on March 30, 1960. Since then a number have been shot in this state.

Mr. A.O. English summarized a number of records of "Gulls at Carvin's Cove." The reservoir at Carvin's Cove, recently completed to serve as Roanoke's water supply, is attracting more and more water birds. Herring, Ring-billed, and Bonaparte's Gulls have been seen in increasing numbers there.

"Hazards in Migration: Analysis of TV Tower Mortality," by Mrs. J.W. Wiltshire, was based on a study of birds found dead at the base of a 600-foot tower in Lynchburg. In a single night, large numbers of birds were killed, principally warblers and vireos, but the cause of death is uncertain. Such cases of high mortality occur at irregular intervals, apparently having no correlation with weather conditions. It has been suggested that the birds may be following magnetic lines of force which converge on TV towers.

In an interval between papers, Mrs. Wiltshire called upon Dr. Freer to present a memorial to Mrs. Joseph Dise of Amherst County, Virginia, who played a key role in establishing the Society. Mrs. Dise died on May 10 at the age of 91.

Mr. A. Randolph Shields described "The Ecology of Mount Rogers," illustrating his talk with a number of slides. The Mount Rogers-Whitetop massif constitutes a large volcanic extrusion, the only one in its area. It contains the only native stand of Fraser's fir in Virginia. The "conifer cap" atop Mount Rogers is surrounded by a northern beech-maple forest, like that which borders the Canadian zone forests farther north.

"Reminiscences and Surprises," by Dr. R.S. Freer, began the second half of the program after a refreshment period. The speaker recorded observations of unusual or altered behavior on the part of common birds. The Pileated Woodpecker, he noted, is now reported much more frequently than twenty-five years ago. Possible reasons for this fact are the large numbers of dead trees killed by the dry years of the 1950's or the increasing numbers of people who observe birds. The speaker described the behavior of mockingbirds moving into a new planting of pyracantha; each bird established and defended its own feeding territory.

"Southward Dispersal into Virginia of the Evening Grosbeak," by J.J. Murray and Robert O. Paxton, was presented by the senior author. In recent years the Evening Grosbeak has extended both its breeding and winter ranges eastward and southward. Following the first Virginia record in March, 1940, the present series of invasions began in February, 1944; since then the bird has occurred in Virginia in all but five of the intervening years. The most phenomenal irruption came in the winter of 1951-52. No significant pattern is discernible in the dates of large-scale invasions, and there is no evidence of a cyclic rise or fall in numbers. In favorable years the distribution of reports coincides closely with the distribution of VSO members.

Four trips to Panama provided Mr. Arthur W. Fast with subject matter for a talk on "A Birdwatcher in Panama." That country is very rich in bird life, with over 800 recorded species. Although many of these are migrants from farther north, over half consist of species or even families which are unfamiliar to those who have never been in the tropics. Bird study in Panama, however, is handicapped by the lack of good books dealing with that country.

A paper by Mr. Thomas D. Burleigh, "Recent Records of Interest in Northern Virginia," was presented by Dr. Alexander Wetmore in Mr. Burleigh's absence. It listed a number of new or unusual species or subspecies collected in Virginia by Mr. Burleigh.

At the evening session following the banquet, Mr. Hacker, chairman of the Nominating Committee, submitted the following slate of nominees:

For President: Mr. Paul S. Dulaney
For Vice-president: Mr. Ed Ames
For Secretary: Mr. R.J. Watson
For Treasurer: Miss Helen Goldstick
For Executive Committee (to serve three-year terms):
 Mr. Jackson M. Abbott
 Mr. Elliot Breneiser
 Mr. Walter P. Smith

Mr. Dulaney turned the chair over to Mr. Eike to preside during the election. There were no nominees from the floor and the slate submitted by the Nominating Committee was elected.

At Mr. Dulaney's request, Dr. Murray introduced the speaker of the evening, Dr. James T. Tanner, of the University of Tennessee, whose subject was "How Mountains Affect Birds." Although the rarity of atmosphere at high elevations apparently has little influence on birds, Dr. Tanner pointed out, the change of temperature is important; as one ascends the mountains, he finds more northerly species of birds and plants replacing the southerly ones, much as if he were traveling northward. Mountain tops, in addition to being cooler than lower areas, also receive more moisture in the form of rain and fog. The combination of different moisture and temperature conditions has a

marked effect on vegetation, but it is not clear whether birds are affected directly by the moisture-temperature combinations or indirectly through the vegetation. The overall effect of mountains is to bring some northern species southward. Mountains also affect nesting dates (the higher the elevation, the later the date). They likewise have a marked effect on migration. Some mountain birds make "vertical" migrations downward into the valleys. Finally, mountains provide migration routes for many species, notably for hawks.

At the close of Dr. Tanner's address, President Dulaney described plans for the principal field trip, to be held the following day. The meeting then adjourned to give members opportunity for a good night's sleep in anticipation of the arduous ascent of Mount Rogers.

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THE 1961 ANNUAL FIELD TRIPS

By Paul S. Dulaney, President

This year the annual meeting of the VSO extended over a period of three days and afforded a total of four field trips. Trips were run in the morning and afternoon of Thursday, June 8, and on Friday morning; the climax was an all day trip to Mt. Rogers and White Top Mountain on Saturday.

Early arrivals, some twenty in number, headed south out of Abingdon early Thursday, crossed Holston Lake, and soon came to a shady ravine on State route 835 which proved conducive to a morning of liesurely exploration. The main attractions here were the numerous singing Kentucky Warblers and Worm-eating Warblers; two nests of the former, with young, were found.

After returning to Abingdon for lunch the group made an afternoon trip to the "knobs" along the Middle Fork of the Holston River near Snodgrass.

With registration running unexpectedly heavy it was decided to operate two trips simultaneously on Friday morning. The trip of the previous morning was repeated for the benefit of those who had come in later. The other group went north out of Abingdon and along the scenic North Fork of the Holston, then to Hayter's Gap on Clinch Mountain, where a ridge-top Forest Service road again afforded some liesurely strolling. With some prodding the group was gotten back into cars (the services of the regular Tripmaster were lacking) and proceeded on to Saltville for a look at the ponds there. Advance scouts had reported little bird life of interest there at this season but several members had expressed an interest in seeing these unusual ponds. In addition to the resident Mallards one drake Blue-winged Teal was present.

Saturday dawned with a hard rainstorm. In the midst of this a group of some fifty bird enthusiasts left Abingdon at 6:45 A.M. bound for Virginia's highest places, Mt. Rogers and White Top. An hour later the motorcade had reached Elk Garden Gap and the rain had stopped. From here 14 people drove on the short distance to White Top; the majority of the group elected to climb Mt. Rogers, White Top; an assault requiring a seven mile round trip on foot. This party was fortunate in having with them Randolph Shields, Roanoke College biologist, who is making a study of the ecology of Mt. Rogers and has camped several summers here. Two and a half miles in from the gate, on the grassy saddle of Briar Ridge, Dr. Murray and Dr. Wetmore were able to identify the precise spot where they had camped together some twenty-five years ago.

The main attraction on this trip was of course the Canadian zone conifer forests which cover the caps of both mountains: the breeding habitat of certain birds which do not nest anywhere else in Virginia. Most of the hoped-for birds were found. There were numerous Golden-crowned Kinglets and Winter Wrens. Scott and Dulaney, who camped overnight, counted eight singing Winter Wrens in the course of a short walk on White Top on Sunday morning.

The usual summer species of Virginia's higher mountains were abundant in and just below the spruce forests: Veeries, Blackburnian and Chestnut-sided Warblers, Juncos, Rose-breasted Grosbeaks, and others. One Raven was seen.

The ornithological feature of the day was a flock of about twenty-five Red Crossbills. These were first seen by the White Top group within minutes of arrival. They reappeared at intervals throughout the day, feeding in the tops of the spruce trees. They came again in the afternoon; thus those who went first to Mt. Rogers and then to White Top had the opportunity of seeing them.

This field trip, the closing event of the 1961 annual meeting, came to an end after a general rendezvous on White Top in the early afternoon. The clouds, which during the morning had at times engulfed us as a dense fog, had dispelled; farewells were said against the backdrop of a spectacular view. The two overnight campers, after seeing the others off, established a bivouac in the field at Elk Garden Gap, where Scott displayed a fierce talent for fending off cattle.

— Glade Spring, Virginia

THE FULVOUS TREE DUCK INVASION INTO SOUTHEASTERN VIRGINIA

By Paul W. Sykes, Jr.

The A.O.U. Check-list of North American Birds, fifth edition, gives the range of the Fulvous Tree Duck (Dendrocygna bicolor) in North America as from central California, southeastern Texas, and southwestern Louisiana south to south-central Mexico. In recent years this species has been observed in the Southeastern United States in scattered localities in Florida and in North and South Carolina, with counts of 65 to 75 at Loxahatchee, Florida, in November 1960, and 32 birds on the Savannah River National Wildlife Refuge, on the South Carolina-Georgia line, between December 1959 and January 1960 (Chamberlain, 1960b, 1961; Stephenson, 1958, 1959; Robertson, 1961). During 1960 and 1961, D. bicolor has occurred in numerous locations on the coast of North Carolina: Orton Plantation at Wilmington, Lake Mattamuskeet in Hyde County, Pea and Bodie Island areas in Dare County, and the Currituck Sound area in Currituck County (Chamberlain, 1960a, 1961, Mellinger, 1960, Sprunt, 1960, and personal contacts.)

In the course of conversation with R.L. Waterfield of the Back Bay National Wildlife Refuge staff on May 7, 1960, the writer was informed that a Fulvous Tree Duck was shot on November 21, 1959, by Albert White in the vicinity of Knotts Island, Currituck County, North Carolina. The bird is in the deep freeze at the refuge headquarters and is to be mounted. Knotts Island is about 6 miles long, and the northern $1\frac{1}{4}$ miles of the island are in Princess Anne County, Virginia.

John L. Sincock, U.S. Fish and Wildlife Service biologist, on a periodic waterfowl inventory over the Bay-Currituck Sound areas of Virginia and North Carolina on October 19, 1960, observed 55 Fulvous Tree Ducks from the air on a marsh pond about $1\frac{1}{2}$ miles northeast of Swan Island in Currituck County. This pond is about 4 or 5 miles south of the Virginia line. D. bicolor was first recorded in North Carolina in July 1886, when a bird was taken near Swan Island (Pearson, 1942). On December 17, 1960, Sincock, on another waterfowl inventory, saw 10 Fulvous Tree Ducks in the marsh on Mossey Island in Currituck Sound. This island is approximately 15 to 16 miles south of the Virginia line.

J.M. Wade, superintendent of the Swan Island Club, Inc., informed the writer that "a number" of Fulvous Tree Ducks had been shot by duck hunters on the property of the club in the 1960-1961 waterfowl hunting season. Wade also mentioned that he had heard of other tree ducks having been shot in other sections of the northern part of Currituck sound during this period.

The wintering population of Fulvous Tree Ducks in the Currituck Sound section of North Carolina was apparently the source from which the birds in the Back Bay section of Virginia came.

To the writer's knowledge, seven Fulvous Tree Ducks have been shot in Virginia. Six of these birds have been mounted. Few of the hunters who shot these birds knew the name of this long-legged goose-like duck that they had in their day's bag. D. bicolor, however, is known by a number of colloquial names most of which are as follows: Fulvous-bellied Tree Duck, Greater Whistling Teal, Brown Tree Duck, Brown Vicissi, Yellow-bellied Fiddler, Rufous Duck, Mexican Duck, Squealer, Mexican Squealer, Spanish Cavalier, Long-legged Duck, Cornfield Duck, Mexican Wood-duck, Summer Duck, Tee-kee, Yankee Duck, Canard Yankee, and Wood Duck (Phillips, 1922, Kortright, 1953, and Meanley, 1959).

Meanley (1959) and Phillips (1922) state that the Fulvous Tree Duck is easily killed as it circles within range of gunners. Phillips (1922) and Bent (1951) mention that this species is comparatively tame. These two facts may be a partial explanation for such a large percentage of kill for the relatively small wintering population in the Back Bay area. Quoting Meanley: "It is fortunate for the tree ducks that most of them migrate southward prior to the opening of the waterfowl hunting season." According to Bent (1951), the migratory movements of this species are not well marked, but occur mostly in April and October.

The first record of Dendrocygna bicolor in Virginia was the observation of a pair by Mrs. A.D. Strong behind her home at Williamsburg, on March 30, 1960 (Grey, 1960). On April 12, Mrs. Leo Keilocker saw a pair of tree ducks at Queens Lake near Williamsburg, and in late April, Andrew Curtis saw a lone bird in the same area (Grey, 1960).

Travis H. McDaniel, assistant manager of the Back Bay National Wildlife Refuge, watched a lone bird alight in the edge of the cultivated field on Long Island on the refuge on October 19, 1960. This was the first known record of D. bicolor in the Norfolk area.

On November 25, 1960, B.B. Gallup shot two birds in the Redhead Bay Section of Back Bay. Both birds were given to Roland O. Halstead, head game warden for the Commonwealth of Virginia at Back Bay. John L. Sincock sexed these two birds, and determined both to be immature females. Sincock gave the writer two color transparencies of one of these birds, showing dorsal and ventral views. Halstead had the birds mounted by Ben Powell in Norfolk. Halstead now has one mounted bird and Powell the other.

Two birds were shot at Big Ball Island, which is located about $\frac{1}{2}$ mile north of the Virginia-North Carolina line in Back Bay, on December 9, 1960. These birds are now mounted and are in the Norfolk Museum of Arts and Sciences. Roger H. Rageot, Curator of Natural History at the Norfolk Museum, sexed the birds and found one to be a male and the other to be a female.

John M. Kesler of Oceana shot a tree duck on Lake Tecomseh, near Dam Neck in Princess Anne County just south of Virginia Beach on December 22, 1960, while duck hunting. F.C. Richardson obtained the head, the wings, and the feet of this bird from Harry A. Bailey, Kesler's father-in-law, and showed them to W.F. Rountrey and the writer on January 2, 1961. The sex of this bird is not known.

On December 26, 1960, A.J. Roche shot two birds in the Muddy Creek section of Back Bay. Rageot mounted one of the birds for Roche. The bird Rageot mounted was a male; the other bird has been mounted, but the sex is unknown.

R.V. Dudley observed 21 Fulvous Tree Ducks off and on for several hours in his yard from the living room window at his home on Holly Lake in the southern part of Virginia Beach on January 1, 1961. The approximate distance from the living room window to the birds in the yard varied from 50 to 60 feet during the course of the observations. Dudley carefully checked the birds in his yard with Plate 12 (in color) of the tree ducks and the text in A Natural History of the Ducks, vol. 1, by John C. Phillips. Dudley used a low power binocular during the observations.

The last known observation of D. bicolor in the Norfolk area this past winter was the sighting of a single bird at False Cape in southern Princess Anne County on January 7, 1961, by C.S. Yelverton, manager of the Back Bay National Wildlife Refuge, and R.L. Waterfield.

Seven birds killed and six sight records, one sight record being a group of 21 birds, constitute the known records of D. bicolor in Virginia to date. The future status of this species in the state may prove very interesting.

The increasing occurrence in the last four years of the Fulvous Tree Duck in the Southeastern United States may well be the beginning of a spread in the range of this species in eastern North America.

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— 1522 Lafayette Blvd.
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IN MEMORIAM
MARY DAMERON DISE

By Ruskin S. Freer

The older members of the Virginia Society of Ornithology will be saddened to learn of the death of Mrs. Mary Dameron Dise which occurred May 10 at the age of 91 years. She was born in Amherst County, Virginia, December 14, 1869, and was buried in that county.

Mrs. Dise was one of those instrumental in starting the Virginia Society of Ornithology. With the late Miss Katherine Stuart of Alexandria, she had sent a list of members of the American Ornithologists' Union and some others who might be interested in starting a State organization. On a visit to Lynchburg Mrs. Dise had learned of my weekly column in the Lynchburg News, and had gone to the News office and seen the column in type. She telephoned me about this visit and urged those of us interested in birds to complete an organization. It was this stimulus which caused Dr. J.J. Murray, the late M.G. Lewis, both of Lexington, and myself to get busy and arrange for the organization meeting, which took place at Lynchburg College on December 7, 1929.

Mrs. Dise had lived in Charleston, South Carolina, and in Glen Rock, Pennsylvania. Her college work was done in a Tennessee institution, where she also had a position in a girls' college. She later took nurse's training and practiced nursing for some time in Florida and in Lynchburg.

In 1918 she was married to George Tannehill of Charleston, who died soon after during the influenza epidemic of that year. In 1921 she was married to Joseph Dise of Glen Rock, Pennsylvania, who was an architect and bank president. In 1947 Mrs. Dise, then a widow again, moved to Lynchburg, where she spent most of her remaining days.

In earlier years Mrs. Dise was an active member of the American Ornithologists' Union and wrote a number of articles for magazines on birds. She had always been an ardent conservationist with regard to birds and was much concerned about needless slaughter of birds.

-- Lynchburg College
Lynchburg, Virginia

GREAT HORNED OWL NESTING IN BALD EAGLE EYRIE

By Paul W. Sykes, Jr.

On a routine check of the nests of the Bald Eagle (Haliaeetus leucocephalus) in the Norfolk area on February 15, 1961, the writer found that the eagle eyrie in a living loblolly pine (Pinus taeda), located in the Camellia Shores section (a residential area) of the City on Lake Whitehurst, was occupied by a Great Horned Owl (Bubo virginianus). At this time only the top of the head and the ear-tufts could be seen from the ground. The same observation was made the following day. This nest was last occupied by the eagles in 1958.

W.F. Rountrey and the writer checked the old eyrie on March 5, by climbing an adjacent loblolly pine with the aid of an extension ladder. As the writer ascended the ladder, an adult owl flew from the nest. The nest contained one young owl. This bird was covered with a dirty-white down, and its ear-tufts were just visible. The young bird was estimated to be 3 or 4 weeks old. Several Ektachrome transparencies were taken of the young owl in the nest.

According to Bent (1938), the incubation period for the Great Horned Owl is about 28 days, and the young remain in the nest for approximately 6 or 7 weeks. This means that the egg from which the young owl hatched was laid sometime between the first to the middle of January. Murray (1952) lists the earliest nesting record of Bubo virginianus for Virginia as the last week in January. Pearson (1942) mentions that a nest containing 3 young was found at Greensboro, North Carolina, on January 19, 1929. These birds apparently hatched from eggs that were laid in December.

The U.S. Weather Bureau at the Norfolk Municipal Airport recorded a low of 12 degrees Fahrenheit during the period, January 1 to February 15. Of the 46 days in this period, 35 days had temperatures at freezing or below. From January 25 through January 30, the temperature did not rise above freezing. January 1961, was the coldest January since 1940 for the Norfolk area. Low temperatures apparently have little advance effect on the nesting success of the Great Horned Owl. There is frequent mention in the literature of this species nesting when snow is on the ground. Both Forbush (1929) and Bent (1938) mention that snow often covers an incubating bird on the nest.

The old eagle eyrie was lined with small sticks, small pieces of assorted plant material, and pine bark. The remains of pellets and excrement were scattered about in the nest. A hind foot and bits of fur of a Cottontail Rabbit (Sylvilagus floridanus) were also found in the nest.

Bubo virginianus usually lays its eggs in the deserted nest of a hawk or crow (Forbush, 1929). Bent (1938) lists the following additional nesting sites: Bald Eagle nests, squirrel nests, hollow trees, rock ledges, and in a few cases there were no nests, the eggs being laid in the deep crotch of trees or on the ground.

F.C. Richardson and the writer flushed an adult Great Horned Owl from an old nest of a Red-shouldered Hawk (Buteo lineatus) in a living pond pine (Pinus serotina) on the North Landing River in Princess Anne County on March 9, 1961. The contents of the nest are not known. What appeared to be down feathers were seen on the edge of the nest from the ground, when the nest was checked on March 11.

There is some mention in the literature of Great Horned Owls nesting in deserted Bald Eagle nests. This is apparently quite frequent in areas where eagles are abundant, such as in Florida and in parts of coastal North Carolina and Virginia. Bent (1938) states that of 14 nests of the Great Horned Owl found by Donald J. Nicholson in Florida, 11 were in old Bald Eagle nests. This may perhaps be some indication of the frequency of nesting in eagle eyries by Bubo virginianus when such are available.

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-- 1522 Lafayette Blvd.
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DESTRUCTION OF BIRDS IN MIGRATION

By A. O. English

In 1952, the Fish and Wildlife Service recognized Ceilometers (light beams for measuring cloud ceiling at airports) as instruments of destruction to birds during migration - especially fall migration. Dr. Frederick C. Lincoln requested the cooperation of observers and a report of any incident of bird destruction due to these powerful beams of light.

On October 3, 1960, I was informed that a quantity of birds had been collected at our local Roanoke airport, Woodrum Field. The collection had evidently been made on the 1st or 2nd. Obviously, the birds had been killed by being attracted to the Ceilometer beam of light and becoming confused, either flew or fell to their destruction on the ground.

The sequence of events covering the collection, storing and disposition is not of importance at the moment.

There was a total of 92 birds in the lot, 81 of which were identified by Mr. Burd S. McGinnes of the Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Blacksburg, Virginia. Six birds were destroyed prior to reaching the Blacksburg office. The list included 22 species and 5 warblers unidentified. The list follows: Eastern Wood Pewee, 2; House Wren, 1; Catbird, 4; Wood Thrush, 10; Olive-backed Thrush, 3; Ruby-crowned Kinglet, 2; Blue-headed Vireo, 3; Warbling Vireo, 3; Black and White Warbler, 2; Nashville Warbler, 6; Magnolia Warbler, 10; Black-throated Blue Warbler, 1; Black-throated Green Warbler, 6; Chestnut-sided Warbler, 1; Bay-breasted Warbler, 1; Yellow-breasted Chat, 3; Ovenbird, 1; Baltimore Oriole, 1; Scarlet Tanager, 9; Rose-breasted Grosbeak, 2; Indigo Bunting, 5; Grasshopper Sparrow, 1.

Occurrences such as the above are now unusual, as the light is cut off when birds are observed near the equipment.

-- Roanoke, Virginia

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ROUGH-WINGED SWALLOW NESTING IN SAWDUST PILE

By C. C. Steirly

Three nest cavities of the Rough-winged Swallow, Stelgidopteryx ruficollis, were found May 9, 1961 in an old sawdust pile near Wakefield (Sussex County). The mill, a pine stave mill, had been out of operation for a number of years and the sawdust had become rather compacted. The pile was about 25 feet high and the holes were dug in a sheer face of the pile some five feet below the top.

Suitable banks or small cliffs of easily worked soil are not too prevalent in this section of Virginia, and the old sawdust pile seemed admirably suited to the purpose.

-- Virginia Division of Forestry
Waverly, Virginia

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Perkins, J.E.	Rt.1, Box 186	Lake Arthur, La.
Perry, Mrs. W.J.	1500 Dogwood Lane	Staunton, Va.
Pettingill, Dr. O.S., Jr.	Laboratory of Ornithology	Cornell Univ.
Pickell, Miss Virginia	221 West Park Dr.	Ithaca, N.Y.
Pointer, Mrs. J.E.	34 Kenwood Dr.	Releigh, N.C.
Pond, John	3827 Sheringham Pl.	Bena, Va.
Poor, H.H.	800 Graydon Ave.	Hampton, Va.
Porter, Mrs. W.A.	451 Southland Dr.	Lynchburg, Va.
Powell, Dr. & Mrs. L.W.	D-42 N.A.B., Little Creek	Norfolk 7, Va.
Prince, Capt. H.R.	Rt.1, Box 77	Danville, Va.
Prior, Miss Gertrude		Norfolk 11, Va.
Pulley, Mrs. Mary G.		Sweet Briar, Va.
		Burke, Va.
Ragsdale, Mrs. B.A.	10 Club Terrace	DeWitt, Va.
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Richardson, F.C.	Box 175	Baldwinsville, N.Y.
Riddick, C.J., Jr.	RFD 1	Driver, Va.
Roane, C.W.	620 South Stewart St.	Blacksburg, Va.
Robinson, Mr. & Mrs. E.F.		Winchester, Va.
Robinson, Mrs. Florence		Barnesville, Va.
Roesler, Mrs. M.S.	June Rd.	Barnesville, Va.

Roller, S.K.	Box 265	Lynchburg, Va.
Rose, Mrs. David	1937 Windsor Rd.	Petersburg, Va.
Ross, H.T.	29 South 2nd St.	Lewisburg, Pa.
Rountrey, W.F.	904 St. Lawrence Ave.	Norfolk 6, Va.
Rudd, Mrs. R.H.	4315 Fauquier Ave.	Richmond, Va.
Rudd, R.H., Jr.	4315 Fauquier Ave.	Richmond, Va.
Rule, Mr. & Mrs. R.H.	203 Highland Rd.	Fairfax, Va.
Rule, Ian A.	203 Highland Rd.	Fairfax, Va.
Russell, S.M.	Science Dept., La. State Univ.	New Orleans, La.
Ryan, Miss Sally C.	3709 Pacific Ave.	Virginia Beach, Va.
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Sandy, Miss T.M.	University Hospital	Baltimore 1, Md.
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Schaeffer, R.F.	1368 E. Ocean View Ave.	Norfolk, Va.
Schmid, J.C.	24 Bowman Dr.	Greenwich, Conn.
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Scott, Mrs. N.C.	812 Gardner St.	Clifton Forge, Va.
Seay, L.P.	8221 Bon View Dr.	Richmond 35, Va.
Sechorn, Miss Ruth M.	8140 Old Ocean View Rd.	Norfolk, Va.
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Sledge, J.B., Jr.	67 Hopkins St.	Warwick, Va.
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Spratley, Mr. & Mrs. J.B.		Ellerson, Va.
Sprunt, Rev. James	Rt. 1	Staunton, Va.
Stahl, John	Park View	Harrisonburg, Va.
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Steirly, C.C.		Waverly, Va.
Stephens, Miss Betsy	1305 Westover Ave.	Norfolk 7, Va.
Stevens, C.E., Jr.	615 Preston Pl.	Charlottesville, Va.
Stevens, R.L.	3518 N. Delaware St.	Arlington 7, Va.
Stinson, Dr. H.W.		Warrenton, Va.
Strong, Mrs. A.D.	129 Indian Springs Rd.	Williamsburg, Va.
Stuart, Mrs. Linden	Brook Rd.	Charlottesville, Va.
Suddith, Mrs. Olive J.		Gladys, Va.
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Swartz, Mrs. Henry	Box 214	Buchanan, Va.
Sydnor, J.R.	3400 Brook Rd.	Richmond 22, Va.
Sykes, P.S.	1522 Lafayette Blvd.	Norfolk, Va.

Talbot, Mrs. J.T.	Apt. 5053C, 4201 Mass. Ave., N.W., Wash., D.C.	
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Terborgh, J.W.	4582 N. 26th St.	Arlington 7, Va.
Thomas, Miss Elizabeth	1305 Westover Ave.	Norfolk 7, Va.
Thomas, P.L.		Jamestown, Va.
Thompson, Mrs. H.D.	1020 North Shore Rd.	Norfolk 5, Va.
Thompson, Mrs. T.P.	Lockhaven	Norfolk 5, Va.
Thomsen, Dr. Lillian C.	Box 119	Staunton, Va.
Thornhill, S.L.	3614 Manton Dr.	Lynchburg, Va.
Tillotson, M.B.	Box 492, Rt. 1	Lynchburg, Va.
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Trittippoe, Miss Malinda	Rt. 4	Leesburg, Va.
Trott, Mrs. L.J.	2740 Burgundy Rd.	Alexandria, Va.
Turnbull, Miss Janet D.		Casanova, Va.
Turrentine, F.R.		Denmark, S.C.
Tutwiler, Cabell	Box 1159	Lexington, Va.
Underwood, Mrs. R.S.	Rt. 5	Winchester, Va.
Valentine, J.M.	SW La. Institute	Lafayette, La.
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Venn, Mrs. Ruth S.	Box 22	Salem, Va.
Vinson, Mrs. P.P.	6323 Ridgeway Rd.	Richmond 26, Va.
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Waid, Mrs. Homer	2330 Sanford Ave., SW	Roanoke, Va.
Walker, R.H.	P.O. Box 1758	Richmond 14, Va.
Wall, Mrs. H.G.	North Shore Pl.	Norfolk 5, Va.
Walton, Miss Lucille	1116 E. Main St.	Danville, Va.
Walton, Miss Margaret	1116 E. Main St.	Danville, Va.
Warfield, B.B.	3223 Volta Pl., NW	Washington 7, D.C.
Watkins, Miss Evelyn	1023 D St.	Harrisonburg, Va.
Watson, Dr. R.J.	1507 N. Hancock St.	Arlington 1, Va.
Weaver, Mr. Richard	Box 64, Parkview	Harrisonburg, Va.
Weber, K.H.	204 Slade Run Dr.	Falls Church, Va.
Webster, E.G., Jr.	Lamda Chi Alpha	Lexington, Va.
Weeks, Mangum	219 No. Royal St.	Alexandria, Va.
Weidenfeld, Miss Henrietta	3720 Brookside Rd.	Richmond 25, Va.
Wells, F.A.	1816 Winston Rd.	Charlottesville, Va.
Wetmore, Dr. Alexander	Smithsonian Institution	Washington 25, D.C.
Wicke, R.J.	225 Pear Ave.	Newport News, Va.
Wigley, Miss Elsie	1023 D St.	Harrisonburg, Va.
Wilcox, Mrs. Sara	406 Mayflower Apt.	Virginia Beach, Va.
Wiley, Mrs. K.B.	Wakefield Forest	Earlysville, Va.
Wilkinson, Mrs. J.G.	2401 Hey Rd.	Richmond 24, Va.
Williams, J.D.	7 Maury Ave.	Newport News, Va.
Wilson, R.C.	Altamont	Covington, Va.
Wiltshire, Mr. & Mrs. J.W., Jr.	201 Woodland Ave.	Lynchburg, Va.
Withrow, John	4415 Boonsboro Rd.	Lynchburg, Va.
Witt, Miss Bobby	Box 307	Bedford, Va.
Womeldorf, J.C.	Rt. 5, Box 25	Lexington, Va.
Wood, Miss Josephine	1016 University Dr.	Alexandria, Va.
Woodhouse, T.L.	P.O. Box 5541	Norfolk 16, Va.
Woodson, Miss Franklin	3304 Carolina Ave.	Richmond 22, Va.

HOLDERS OF BANDING PERMITS IN VIRGINIA

Abbott, Jackson M.	1100 Doter Drive	Alexandria
Aldrich, Dr. John W.	7725 Lakeview Dr.	Falls Church
Atkinson, Earnest R.	P.O. Box 6	Tappahannock
Bailey, Mrs. Laura L.	Route 2	Goshen
Bond, Gorman M.	7412 Fairland St.	Alexandria
Borton, Mrs. Mary N.	403 Masonic View Ave.	Alexandria
Burford, Mrs. Gloy C.	108 Lake Terrace Circle	Norfolk
Church, Mrs. Herbert M., Jr.	Janelia Farms	Ashburn
Davenport, A. Bruce	Route 3	Charlottesville
Ely, Mrs. Gladys P.	Rt. 1, Box 145-B	Herndon
English, Almon O.	2803 Rosalind Ave., S.W.	Roanoke 14
Fast, Arthur H.	4924 Rock Spring Rd.	Arlington
Glover, Dr. Fred A.	2211 Holmes Run Dr.	Falls Church
Harrison Lake Fish Cultural Station		Charles City
Knudson, Ellsworth	3833 30th St., N.	Arlington
Lovering, Joseph S., Jr.	606 Somerset Ave.	Richmond
McCartney, Robert B.	Riverview Plantation	Norge
McDonald, Brian	18 Southern Rd.	Alexandria
Merritt, Robert E.	Second Ave. Extended	Farmville
Mitchell, Sydney	596 Harpersville Rd.	Newport News
Naeser, Charles R.	120 Van Winkle Dr.	Falls Church
Peacock, Mrs. M.B.	Route 2, Box 162	Fairfax
Pickett, Lamar		Erica
Price, Walter E.	P.O. Box 12	Suffolk
Scott, F.R.	115 Kennondale Lane	Richmond 26
Shantx, Gordon W.	Rt. 3	Harrisonburg
Smith, Rev. & Mrs. Geo. M.	116 High St.	Strasburg
Still, Mrs. Lucille N.	Rt. 1, Magarity Rd.	Falls Church
Stone, Arthur O., Jr.	Ocean Ranch Motel	Virginia Beach
Terborgh, John	4582 26th St., N.	Arlington
Thomsen, Dr. Lillian	Mary Baldwin College	Staunton
Trott, L. John, Jr.	2740 Burgundy Rd.	Alexandria
Virginia Coop. Wildlife Res. Unit		Blacksburg
Waegelein, Mrs. Henry P.	4667 S. 34th St.	Arlington 6
Wytheville Fish Cultural Station,	Rt. 4	Wytheville

NEWS AND NOTES

The Golden Eagle Needs Your Help! On June 15, 1961, Senator Ralph Yarborough introduced a bill, co-sponsored by Senator Keating of New York and Senator Clark of Pennsylvania, which will give federal protection to the Golden Eagle. This bill, known as "Senate Joint Resolution 105" is an amendment to the "Bald Eagle Act." It will extend to the Golden Eagle the same protective provisions presently provided the Bald Eagle. The Golden Eagle must be protected not only because it is a majestic bird rapidly becoming rare, but also because many immature Bald Eagles are killed in the belief that they are the very similar appearing Golden Eagles. It will help if you will write your senators and your congressman urging support for this bill in the present session of congress.

Foreign Game Bird Releases in Virginia. Herman J. Tuttle, Virginia Game Commission biologist in charge of the foreign game bird releases in Virginia, reported in March that 7,574 pheasants had been liberated since the first releases in the fall of 1958. He stated that 7,081 of these were Iranian blackneck-ringneck crosses, 204 were Japanese green pheasants, and 106 were Reeves pheasants. These releases were in Charles City, New Kent, James City, Halifax, Campbell, and Charlotte Counties. About 1500 more birds were released in the spring of 1961. In April, 1961, pure strain pheasants of both the eastern and western Iranian varieties were released in Virginia, these being the first releases of the pure strain Iranian birds in America. Some 200 eastern Iranian blackneck pheasants were liberated by Virginia Game Commission personnel along the Rapidan River below Rapidan in Orange County, near the borders of Culpeper and Madison Counties. A total of 175 western Iranian blackneck pheasants were freed on W.D. Taylor's "Upper Waterloo Farm" on the Pamunkey River in New Kent County, near the King William and Hanover County lines. Releases of pure strain birds will be continued for three years in the same areas which will serve as dispersal areas for populating nearby counties. Biologist Tuttle explains that it had taken three years of game farm production, starting with only 7 hens and 11 cocks of the western strain and 4 hens and 4 cocks of the eastern strain to accumulate enough birds for a satisfactory release of pure strain birds. Surplus Iranian cocks were mated with Chinese ringneck hens to produce the 9,000 blackneck-ringneck cross pheasants already stocked. There is no open season on pheasants in Virginia at present except on regulated shooting preserves.

Wild Turkey Kill in 1960-1961. The report of the Virginia Game Commission indicates an exceptionally large kill of Wild Turkeys in the State in the season of 1960-1961. This record kill of 4,5921 turkeys was 25% higher than that of the preceding season and 186% higher than the kill of ten years ago in 1952. Virginia's top turkey county was Bath, where 330 were killed this past season. Other counties reporting over 100 birds killed were: Amelia, 239;

Appomattox, 101; Augusta, 307; Botetourt, 105; Buckingham, 276; Caroline, 133; Chesterfield, 183; Cumberland, 194; Dinwiddie, 174; Highland, 210; Powhatan, 138; Rockbridge, 182; and Sussex, 109. Incidentally, 36,166 deer and 208 bears were killed in Virginia in the same season.

Spring Appearances of Herons. T. Kenneth Ellis reported an American Egret at Hot Springs on April 8; and Professor Robert Stewart reported four American Egrets at Lexington on April 11. Joshua Womeldorf saw a Little Blue Heron, white phase, at a farm pond near Lexington, April 28 and 29.

Cattle Egrets Inland in Virginia. John H. Grey and J.J. Murray saw an adult Cattle Egret in high plumage at Hog Island, James River, April 10, 1961; and C.C. Steirly found one a few miles north of Waverly on April 29.

Ring-billed Gulls in Unusual Numbers. An apparently extensive movement of gulls, coupled with bad weather, has brought the birds down in April and early May in unusual numbers and at many places in western Virginia. A.O. English has reported good numbers at Carvin's Cove, near Roanoke, Joshua Womeldorf, on April 9 at his farm pond near Lexington, counted 48 Ring-billed Gulls, 2 Herring Gulls, and 10 Bonaparte's Gulls. He also saw a Ring-billed Gull and a Bonaparte's Gull there on May 11. Murray saw 5 Ring-billed Gulls, walking in military formation, on the V.M.I. Parade Ground at Lexington on May 6, and on May 7 flushed a Ring-bill from the wet highway at Millboro Springs in Bath County.

Bewick's Wren in Charlotte County. Mrs. Florence H. Robinson reports Bewick's Wrens at Barnesville, Virginia, in Charlotte County, 19 miles north of Clarksville. One or more were present in 1959-1960 from October 11, 1959, to some time in February, 1960. One was seen on October 24, 1960, and two on November 1; and one was heard singing on February 16, 1961. These were the first of the species she has seen in 10 years of residence at Barnesville. Records for this species in the central and south piedmont in recent years have been very few. The only others at hand are birds seen by Stevens in 1952 (August) and Lawless in 1954 (December) in eastern Albemarle; and a singing male found by Murray in Cumberland Courthouse on June 4, 1955. A winter bird was seen on January 1, 1956, at Hopewell, by J.L. DeLime.

Sight Records of Sutton's Warbler. J.B. Sledge, Jr. (69 Hopkins Street, Newport News) writes that he and L.S. Reed have identified two Sutton's Warblers along the Colonial Parkway west of Yorktown: one on May 3, 1959, near Indian Creek Field; the other on April 16, 1961, at a picnic area, eight miles west of Yorktown. The first bird was watched for nearly five minutes at 12 feet distance and under perfect light conditions.

REVIEWS

Binoculars and Scopes and Their Use in Photography, by Robert J. and Elsa Reichert, Chilton Company, Philadelphia (order from Mirakel Optical Company, 14 West 1st Street, Mount Vernon, New York), foreword by Richard H. Pough, 128 pages, many illustrations, 1961, \$1.95 in paper covers, \$2.95 hard cover, postpaid. For the bird student this is a definitive discussion of binoculars and scopes. The title on the cover (that on the title page is simply Binoculars and Scopes) is somewhat misleading, for photography is rather secondary in the book.

This is the outcome of many years of study and experimentation by Reicherts, who maintain the Mirakel Optical Company. Robert Reichert has lectured all over the country on the use of field glasses, has published articles in this field in Audubon Magazine; and has conducted a voluminous correspondence with puzzled users of binoculars. Part 1, about half the book, covers binoculars; Part 2 does the same for scopes; and Part 3 is a study of the use of both in photography.

It is safe to say that a careful reading of this little volume will bring the answer to any problem that comes up in the use of these instruments in bird watching, including the various types of glasses, the mechanical construction and principles on which they are built, advice as to the kind of glasses to purchase for different needs, and instructions for their proper care. No matter how much you may already know about glasses there are important things for you to learn from this book. As a case in point, I learned that it is better not to carry glasses inside one's jacket in cold weather.

-- J.J. Murray

Bird Songs in Your Garden, by Arthur A. Allen and Peter Paul Kellogg, Cornell University Records, Cornell University Press, Ithaca, New York, May 18, 1961, 24 pages, 53 photographs (31 in color), and one high fidelity 33 1/3 rpm phonograph record, \$5.95. Dr. Allen's photographs are splendid, as is always the case with his work. The Cardinal at the nest in a wisteria vine, the Rose-breasted Grosbeak at a nest, the Scarlet Tanager and Baltimore Oriole approaching their hungry young -- these are some of the best. The Kingbird at her eggs is evidence that even color photography is not always as good as the painter's work, for the light makes this black and white bird a dull brown.

The records reproduce the songs of 25 familiar species, some of which would not, of course, be garden birds except in the northeast. Two of these are the Veery and the Purple Finch. On one side of the

record the songs are interspersed with comments; on the other the songs are repeated without interference. The most perfect reproduction is that of the twilight songs of the Screech Owl. Interestingly enough, the less musical sounds, such as those of the Flicker, Cuckoos, and White-breasted Nuthatch, seem to reproduce most satisfactorily. The Cardinal, the Wood Thrush, and the Veery are delightful, while those of the Kingbird and Orchard Oriole seem poorest to this listener. A caution for this, as for other bird song records, is not to play them loudly, for this will bring out an explosive pressure in some notes. This is present occasionally, even when the record is played softly.

This record is well worth having. The beginner can easily learn songs by listening to it; the advanced student will enjoy it as much.

-- J.J. Murray



The Raven

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Copy for The Raven (except Field Trip and Local Club News) should be sent to J.J. Murray, 6 Jordan Street, Lexington, Virginia.

Field Trip Reports and Local Club News should be sent to F.R. Scott, 115 Kennondale Lane, Richmond 26, Virginia.

Requests for change of address or for back issues of The Raven should go to Miss Gertrude Prior, Sweet Briar, Virginia.

All letters relative to dues and membership should be addressed to Miss Helen Goldstick, 4912 So. 28th Street, Arlington 6, Virginia.

EVENING GROSBEAKS IN VIRGINIA
1960-1961

By Arthur H. Fast

As stated by Dr. J.J. Murray in his paper given on June 9, 1961, before the annual meeting of the V.S.O. at Abingdon, 1960-1961 was a low season for Evening Grosbeaks in Virginia. Compared with such peak seasons as 1951-1952, 1957-1958, and 1959-1960, this past season was mostly unexciting.*

The first Evening Grosbeak for the past season was a single bird reported for Virginia on December 26, 1960 in the Christmas Bird Count sponsored by the Audubon Naturalist Society of Washington, D.C. (Alexandria, group led by Jackson M. Abbott, Atlantic Naturalist, Vol.16, No.2, p.115). Four birds were reported in the Christmas Count on December 27, 1960, for Lexington, and two birds on that count on December 31, 1960, for Roanoke (The Raven, Vol. XXXII, Nos. 1 and 2, pp. 20-21). On January 5, 1961, Lee R. Johnson of Vienna saw 2 males and 1 female; they came irregularly in January in numbers up to 15; none in February; to mid-March up to 8; none later. Miss Josephine Wood of Alexandria wrote that her mother, Mrs. Lew Wood, had up to 8 at her feeder in Warrenton. They appeared "sometime prior to March 4 and remained until sometime in April." Only one bird appeared on one day on our home place in Arlington - a female, which was trapped and banded on January 12.

Two reports are of interest in this rather dull season for Evening Grosbeaks:

1. Mrs. William Babcock of Sterling (Leesburg area) kept detailed records of the appearances of these birds, beginning with the first one - a male on January 11 to 14. Two females were seen on January 21 at 11:45 A.M.; 2 males, 2 females on January 24; 5 females, 2 males on January 27. Thereafter for several weeks, there were usually 2 females each day; there were no birds for the period February 27 to March 7. On March 8, she had 4 males, 14 females; on March 13, 6 males, 37 females (highest count). On March 16, at our suggestion and in cooperation with Mrs. Herbert Church (bander) of Leesburg, Mrs. Babcock began trapping and banding these birds. The last birds, 1 or 2 females, appeared on May 7 and 8. Females greatly predominated throughout the period. She states that on the days when snow was falling or there was snow on the ground "the Evening Grosbeaks didn't come to the feeders until 9:00 A.M. to 11:00 A.M.," but that when the weather moderated, they would appear "shortly after full daylight." On snowy days they would remain up to 3:30 P.M. The last one or two birds seen in May remained up to 6:30 P.M. During

*For a summary of the Evening Grosbeaks in Virginia for prior years, by Robert O. Paxton, see The Raven, Vol. XXIII, Nos. 7 and 8, p. 58; Vol. XXIX, Nos. 5 and 6, p. 49; and Vol. XXXI, Nos. 7 and 8, p. 60.

the period "as the weather opened up and we could get into the woods, we found that even though there would be groups of birds on the feeders and in the yard, there would be groups in the large trees all through the woods. It seemed as though they took turns feeding at half hour intervals." The largest numbers usually fed between 10:00 A.M. and 12:30 P.M.

2. Lt. Col. W.A. Houston of suburban Alexandria observed the first of these birds on January 23. There were 12 of them on his feeders on February 13. Until March 29, they came in various numbers up to 25. Thereafter until April 15, only one bird was seen, on April 8. From April 15 to 17, up to 7 birds came daily. The last one was seen on April 18. Females greatly predominated throughout the period. Beginning on March 7, with our cooperation, Col. Houston began banding these birds.

Based on the reports received, only the following Evening Grosbeaks were banded in Virginia during the 1960-1961 season:

<u>Bander</u>	<u>Number banded</u>	
	<u>M</u>	<u>F</u>
Mrs. Babcock	0	23
Col. Houston	5	15
Fast	0	1
	5	39 — Total 44

On March 18, 1961, Mrs. Babcock retrapped an Evening Grosbeak banded in Northampton, Mass. in April, 1956. Also on March 17, 1961, she retrapped a female banded on December 20, 1959, at Dunn Loring (near Vienna), Virginia by Mr. and Mrs. William Mull. This latter bird seems to come the nearest to being a return to the place of trapping of any Evening Grosbeak banded in Virginia. It is well established that all or nearly all species of birds regularly return to the place of trapping. However, with respect to the Evening Grosbeaks, it should be noted (as pointed out in our article "What We Learned About Birds from Banding" - The Raven, Vol. XXXII, Nos. 3 and 4, pp. 39, 43) that prior to 1960 these birds were banded in Virginia only at 6-year intervals in 1946, 1952 and 1958.

In the last of his articles, cited above, in the footnote, Paxton says: "Evening Grosbeaks must now be expected in Virginia each winter, although their numbers will vary widely." May they be with us in increasing numbers! The striking colors of these birds, and their (often) bold approach to our yards and feeding trays, make them fascinating birds, and tend to stimulate interest in the world of nature, even with the public generally, which interest the V.S.O. seeks to promote.

-- 4924 Rock Spring Road
Arlington 7, Virginia

A CLIFF SWALLOW COLONY EAST OF THE BLUE RIDGE

By John M. Irvine, Jr.

In June, 1954, the writer discovered a small colony of nesting Cliff Swallows (Petrochelidon pyrrhonota) while visiting with a friend on a farm near Madison, Virginia. The wife of the owner, a Mrs. Lewis, informed me that in previous years the Cliff Swallows had been more numerous. She was interested in birds and knew them from the Barn Swallows which are numerous in the area. There were at least a dozen pairs of Cliff Swallows nesting in a shed near a barn. One could almost touch the nests by standing on tiptoe. Interestingly, no Barn Swallows nested in the shed or in the barn, although they frequently hunted insects over the barnyard, and could be seen over the farm any time during the day. Apparently they nested on each adjoining farm.

In later conversation with Frederic R. Scott, and still later with J.J. Murray, the writer was informed that the Cliff Swallow was not known to breed east of the Blue Ridge mountains, and that the species seemed to be on the wane in the Shenandoah Valley. This latter remark coincides with observations by the writer over the past twenty years at Churchville and Swoope in Augusta County, where colonies that were abounding with Cliff Swallows in my boyhood are now nonexistent or severely reduced.

In view of this information the writer resolved to continue observation of the Madison county colony when possible. Unfortunately, my only opportunities to observe it have occurred when I have driven out of my way on long trips, when my family was with me. Therefore I have not attempted to enter the premises (ownership of the farm changed in 1955), but have simply stopped by the road and scanned the farm and shed through my telescope. At a quarter of a mile and from that angle I have been unable to count nests.

In late June, 1956, after watching for about ten minutes through binoculars and telescopes, I estimated that there were about sixteen individuals visible flying over the farm. At that time of year the young should have been hatched and both parents would be engaged in catching food. On September 19, 1957, although the Barn Swallows were still present the Cliff Swallows had apparently left for the trip south. I was unable to visit the location again until June 19, 1961. Again watching for about ten minutes through a 20x Bushnell scope, I was able to pick out six Cliff Swallows from a larger flock of Barn Swallows. All the birds were coursing back and forth over a field where hay was being cut. The light was good and the light rumps and square tails were distinctive. Since 1961 had such a cool spring and the nesting season was somewhat delayed, there may have been some birds still brooding eggs. But the previous day in western Pennsylvania, which is a somewhat colder climate, I had observed a Barn Swallow's nest in which all the young were at least a week out of the egg.

It is hardly safe to generalize on the basis of these observations that this colony is decreasing over the years; swallows fly considerable distances while hunting and over the short spans of observation some birds may have been "out to lunch." It is the writer's hope that some observer who lives closer by will keep track of this colony by actual observation of the nests. A trip to this farm would be rewarding to the bird watcher in other ways. The farm sits up over the Robertson River in the shadow of the Blue Ridge, in what is surely one of the most beautiful valleys to be found in Virginia. Each time I have gone there I have been amazed at the density of the bird life in that valley. Other areas which appear just like it nearby will not have half as many birds. The food supply must be plentiful.

To reach the farm proceed north through the town of Madison on Alternate U.S. 29, and turn left just north of the city limits on State Route 231. A little way down this highway one comes upon State Historical Marker JE-4 telling of Hebron Church, the oldest Lutheran church in the South. Turn right just before the marker on county road 638. Proceed $2\frac{1}{4}$ miles and turn left on county road 603, toward the community of Haywood. About 1 and $\frac{3}{4}$ miles down this road, look on the left for a farm marked on the gate as "Torthorwald Farm."

— Apartment 401, Grant Hall
514 West 122nd Street
New York 27, New York

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BALD EAGLE'S NEST OCCUPIED BY GREAT HORNED OWL

By C. C. Steirly

During a tour of inspection of the several nests of the Bald Eagle along the James River the writer found one of them at Hog Island State Waterfowl Refuge in northeast Surry County to be occupied by a nesting Great Horned Owl. This nest, in a loblolly pine along the edge of the cord grass marsh, had been occupied by Bald Eagles during the 1960 breeding season. On March 21, 1961 it was found to have been taken over by the Great Horned Owl. This of course is nothing new, for it is a common practice of this species to occupy the nests of the larger raptors. In fact, the early twentieth century literature of ornithology is full of accounts of this practice.

The occupation is reported here merely as a part of the Bald Eagle nesting survey being currently conducted by the Virginia Society of Ornithology. The writer must take issue with the Florida experts of the National Audubon Society who list as one of the factors in the Bald Eagle population declining the cutting of large pine trees. This certainly does not hold true for the lower James River region of Virginia, for there are thousands of pines larger than the ones that have been found with nests of the Bald Eagle. Indiscriminate shooting of the species is perhaps as an important factor as any, since many rural residents of the area believe that the Bald Eagle catches young pigs.

The writer has refrained from using scientific names in the above not from any lack of erudition on his part but from the assumption that the majority of the readers are thoroughly familiar with accepted common English names of the bird and plant species referred to.

— Virginia Division of Forestry
Waverly, Virginia

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SUCCESSFUL NESTING OF HAIRY WOODPECKERS NEAR HUMAN HABITATION

By Arthur H. Fast

On April 24, 1961, Patricia Beach, a 17-year old neighbor girl, spotted a pair of hairy woodpeckers digging a nesting cavity in the dead trunk of an apple tree, which is 31 feet from the back porch of my house at 4924 Rock Spring Road, Arlington, Virginia. This is a dry upland area and includes 7 one-acre residential lots containing a fair number of native forest trees, and various plantings of trees, shrubs and vines. The entrance hole of the cavity was found to be $12\frac{1}{2}$ feet above the ground, facing west; it measured $1\frac{7}{8}$ inches high and $1\frac{5}{8}$ inches wide; the depth of the cavity, 11 inches. The top of the hole went in straight across the cavity for $3\frac{1}{2}$ inches. On both the inside and the outside, the bottom edge of the hole slanted up $\frac{3}{4}$ inch, while going in 1 inch. At the nest cavity, the trunk of the tree measures 22 inches in circumference.

The birds copulated on April 27. The work on the cavity appeared to be complete by April 29. The egg laying and incubation apparently continued uninterrupted until May 14, on which date a starling entered the cavity; it stayed for about 15 seconds, and came out with an egg impaled on its bill. Though prepared to shoot the starling, it was not seen to return to the vicinity of the cavity. The hairy woodpeckers evidently regained possession of their nesting cavity, for on May 17, they were seen carrying food to the young in the cavity. On May 18 and 20 respectively, Ralph E. Lawrence and

J. Donald Sutherland (top nature photographers in this area) succeeded in taking some excellent colored movies of the parent birds carrying food as they entered and left the cavity. On May 25, the parent birds were feeding the young by inserting only their heads into the hole, thus indicating that the young were able to climb to the entrance hole. On June 1 at least one of the young extended its head out of the entrance hole, where it was fed by the parents. The young was seen to take the food from the partially closed bill, at times inserting its bill for a short distance into the bill of the parent bird. On June 2, no feeding was observed; one of the young left the cavity about 11:00 A.M. and flew about 50 feet on a substantially straight line to a tree. Soon another young protruded its head through the hole. On June 3 another young left for the outside world. Thereafter no activity was observed in the vicinity of the nesting cavity. Only the two young were seen. (See Bent's Life Histories of Woodpeckers, U.S. Nat. Mus. Bull., 174, p. 13.)

— 4924 Rock Spring Road
Arlington 7, Virginia

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SPRING MIGRATION BIRD COUNTS

Newport News, Va. (all points within a 15-mile-diameter circle, bounded by Chesapeake Bay, Hamton Roads, James River, Grafton; woodland 30%, fresh-water ponds 10%, waterfront 30%, open fields 30%). -- May 13; 7 a.m. to 4 p.m. Partly cloudy; temp. 65° to 80°; wind E, 3-10 m.p.h. Eleven observers in 4 parties. Total party-hours, 32 (20 on foot, 12 by car); total party-miles, 160 (22 on foot, 138 by car). Double-crested Cormorant, 2; Green Heron, 3; Snowy Egret, 2; Yellow-crowned Night Heron, 8; Canada Goose, 25 (SM); Mallard, 7; Wood Duck, 2; Red-breasted Merganser, 2; Turkey Vulture, 9; Broad-winged Hawk, 1 (JP, WPS); Osprey, 2; Sparrow Hawk, 1; Bobwhite, 26; Clapper Rail, 5; Semipalmated Plover, 6; Killdeer, 11; Ruddy Turnstone, 15; Spotted Sandpiper, 3; Willet, 6; Greater Yellowlegs, 2; Least Sandpiper, 7; Dunlin, 2; Semipalmated Sandpiper, 80; Sanderling, 107; Herring Gull, 844; Ring-billed Gull, 7; Laughing Gull, 197; Bonaparte's Gull, 5; Forster's Tern, 1; Common Tern, 33; Least Tern, 57; Caspian Tern, 1; Royal Tern, 5; Mourning Dove, 35; Yellow-billed Cuckoo, 1; Black-billed Cuckoo, 1 (JP); Chimney Swift, 32; Ruby-throated Hummingbird, 3; Belted Kingfisher, 1; Yellow-shafted Flicker, 11; Pileated Woodpecker, 3; Red-bellied Woodpecker, 10; Red-headed Woodpecker, 7; Downy Woodpecker, 5; Eastern Kingbird, 21; Great Crested Flycatcher, 23; Eastern Phoebe, 3; Acadian Flycatcher, 14; Eastern Wood Pewee, 18; Horned Lark, 4 (WPS); Tree Swallow, 2; Rough-winged Swallow, 3; Barn Swallow, 232; Purple Martin, 24; Blue Jay 22; Common Crow, 37; Fish Crow, 9; Carolina Chickadee, 19; Tufted Titmouse, 31; House Wren, 2; Carolina Wren, 40; Long-billed Marsh Wren, 17; Mockingbird, 60; Catbird, 23; Brown Thrasher, 34; Robin, 97;

Wood Thrush, 17; Gray-cheeked Thrush, 2 (SM); Veery, 1 (SM); Blue-gray Gnatcatcher, 24; Loggerhead Shrike, 2; Starling, 321; White-eyed Vireo, 19; Yellow-throated Vireo, 1; Red-eyed Vireo, 50; Black-and-white Warbler, 11; Prothonotary Warbler, 3; Parula Warbler, 10; Yellow Warbler, 5; Myrtle Warbler, 7; Black-burnian Warbler, 2 (SM); Yellow-throated Warbler, 26; Blackpoll Warbler, 41; Pine Warbler, 19; Prairie Warbler, 13; Ovenbird, 17; Louisiana Waterthrush, 2; Yellowthroat, 27; Yellow-breasted Chat, 4; Am. Redstart, 2; House Sparrow, 232; Bobolink, 5; Eastern Meadowlark, 21; Redwinged Blackbird, 305; Orchard Oriole, 5; Baltimore Oriole, 2; Boat-tailed Grackle, 2; Common Grackle, 252; Brown-headed Cowbird, 31; Scarlet Tanager, 1 (SM); Summer Tanager, 5; Cardinal, 65; Indigo Bunting, 21; Rufous-sided Towhee, 35; Savannah Sparrow, 1; Seaside Sparrow, 3; Chipping Sparrow, 7; Field Sparrow, 18; White-throated Sparrow, 9; Song Sparrow, 128. Total, 110 species; about 4,102 individuals. -- Georgianna Cumming, Jimmy Kuznicki, Norma Katz, Dorothy Mitchell, Sydney Mitchell, John Pond, Mildred Rawls, Ash Rawls, Polly Saunders, Doris Smith, W.P. Smith (compiler).

Foxes Creek, Gloucester Co., Va. (Stubblefield Farm lying between the branches of Foxes Creek overlooking the York River; 1 mile of sandy beach; area covered by car ran along narrow country roads, bordered by woods and small farms; all points within a triangle, 6 miles on a side, with vertices at Ark, West End, and Capahosio; salt marsh and river shore 10%, open farmland 40%, woodland 48%, deciduous woody swamp 2%). -- May 6; 5:30 a.m. to 5:30 p.m. Rainy; temp. 50° to 65°. Two observers in one party. Total party-hours, 12 (10 on foot, 2 by car); total party-miles, 31 (6 on foot, 25 by car). Great Blue Heron, 1; Green Heron, 5; Common Egret, 3; Yellow-crowned Night Heron, 3; Turkey Vulture, 6; Black Vulture, 4; Red-shouldered Hawk, 1; Osprey, 8; Bobwhite, 20; Virginia Rail, 5; Spotted Sandpiper, 8; Willet, 3; Greater Yellowlegs, 2; Herring Gull, 12; Laughing Gull, 20; Mourning Dove, 50; Yellow-billed Cuckoo, 2; Chuck-will's-widow, 1; Whip-poor-will, 1; Chimney Swift, 20; Ruby-throated Hummingbird, 1; Belted Kingfisher, 2; Yellow-shafted Flicker, 5; Red-bellied Woodpecker, 2; Hairy Woodpecker, 2; Downy Woodpecker, 4; Eastern Kingbird, 2; Great Crested Flycatcher, 1; Eastern Phoebe, 2; Acadian Flycatcher, 2; Least Flycatcher, 1; Eastern Wood Pewee, 3; Tree Swallow, 25; Rough-winged Swallow, 2; Barn Swallow, 100; Purple Martin, 12; Blue Jay, 3; Common Crow, 5; Fish Crow, 3; Carolina Chickadee, 3; Tufted Titmouse, 10; House Wren, 1; Carolina Wren, 10; Mockingbird, 10; Catbird, 4; Brown Thrasher, 25; Robin, 4; Wood Thrush, 2; Eastern Bluebird, 1; Blue-gray Gnatcatcher, 6; Starling, 12; White-eyed Vireo, 2; Yellow-throated Vireo, 2; Red-eyed Vireo, 12; Black-and-white Warbler, 2; Parula Warbler, 6; Yellow Warbler, 1; Myrtle Warbler, 5; Pine Warbler, 12; Prairie Warbler, 48; Ovenbird, 6; Louisiana Water thrush, 2; Kentucky Warbler, 2; Yellowthroat, 6; Yellow-breasted Chat, 25; Am. Redstart, 6; House Sparrow, 52; Eastern Meadowlark, 50; Redwinged Blackbird, 100; Orchard Oriole, 12; Common Grackle, 40; Brown-headed Cowbird, 24; Summer Tanager, 20; Cardinal, 30; Indigo Bunting, 16; Rufous-sided Towhee, 12; Savannah Sparrow, 2; Chipping Sparrow, 20; Field Sparrow, 10; White-throated Sparrow, 25; Swamp Sparrow, 1; Song Sparrow, 26. Total, 82 species; about 1007 individuals. -- Daniel Peacock and Elizabeth D. Peacock (compiler).

Hopewell, Va. (Richmond Battlefield Park, Curles Neck, Hopewell Ferry, Jordan Point, City Point; open farmland 30%, brushy fields 5%, marshes and river shore 10%, deciduous wooded swamp 5%, woodland 50%). -- April 30; 6 a.m. to 1:30 p.m. EDT. Partly cloudy; temp. 31° to 68°; wind NW, 5-20 m.p.h. One observer alone. Total party-hours, 7½ (6½ on foot, 1 by car); total party-miles, 47 (7 on foot, 40 by car). Great Blue Heron, 4; Wood Duck, 4; Turkey Vulture, 9; Black Vulture, 27; Red-shouldered Hawk, 2; Broad-winged Hawk, 1; Osprey, 2; Sparrow Hawk, 1; Bobwhite, 58; Ring-necked Pheasant, 1; Killdeer, 1; Spotted Sandpiper, 5; Greater Yellowlegs, 1; Herring Gull, 30; Ring-billed Gull, 233; Laughing Gull, 1; Caspian Tern, 38; Mourning Dove, 38; Yellow-billed Cuckoo, 4; Chimney Swift, 8; Ruby-throated Hummingbird, 1; Belted Kingfisher, 1; Yellow-shafted Flicker, 11; Pileated Woodpecker, 2; Red-bellied Woodpecker, 18; Red-headed Woodpecker, 3; Hairy Woodpecker, 2; Downy Woodpecker, 7; Eastern Kingbird, 2; Great Crested Flycatcher, 11; Acadian Flycatcher, 3; Eastern Wood Pewee, 9; Horned Lark, 3; Tree Swallow, 270; Bank Swallow, 85; Barn Swallow, 38; Blue Jay, 56; Common Crow, 28; Fish Crow, 29; Carolina Chickadee, 9; Tufted Titmouse, 36; White-breasted Nuthatch, 2; Red-breasted Nuthatch, 1 (very late); Brown-headed Nuthatch, 1; House Wren, 7; Carolina Wren, 21; Mockingbird, 39; Catbird, 1; Brown Thrasher, 12; Robin, 13; Wood Thrush, 30; Swainson's Thrush, 1; Veery, 1; Blue-gray Gnatcatcher, 13; Ruby-crowned Kinglet, 2; Starling, 55; White-eyed Vireo, 6; Yellow-throated Vireo, 8; Red-eyed Vireo, 90; Black-and-white Warbler, 13; Prothonotary Warbler, 3; Blue-winged Warbler, 2; Parula Warbler, 11; Yellow Warbler, 10; Cape May Warbler, 1; Black-throated Blue Warbler, 1; Myrtle Warbler, 146; Black-throated Green Warbler, 2; Yellow-throated Warbler, 5; Chestnut-sided Warbler, 1; Pine Warbler, 34; Prairie Warbler, 22; Ovenbird, 20; Northern Waterthrush, 2; Louisiana Waterthrush, 2; Kentucky Warbler, 2; Yellowthroat, 26; Yellow-breasted Chat, 7; Hooded Warbler, 12; Am. Redstart, 8; House Sparrow, 105; Bobolink, 85; Eastern Meadowlark, 37; Redwinged Blackbird, 133; Orchard Oriole, 6; Common Grackle, 221; Brown-headed Cowbird, 17; Summer Tanager, 13; Cardinal, 78; Blue Grosbeak, 1; Indigo Bunting, 4; Am. Goldfinch, 18; Rufous-sided Towhee, 64; Savannah Sparrow, 10; Grasshopper Sparrow, 1; Chipping Sparrow, 23; Field Sparrow, 13; White-throated Sparrow, 113; Swamp Sparrow, 2; Song Sparrow, 20. Total, 100 species; about 2689 species; about 2689 individuals. -- F.R. Scott.

Pine Ridge, Va. (area in and about Pine Ridge located about 15 miles west of Washington, D.C., just off Route 50, about in the center of a triangle formed by the towns of Fairfax, Annandale, and Falls Church, 5-6 miles from each; area covered extended from Route 235 across Route 50 to fields just across Route 211; woodland 40%, fields 50%, residential area with large trees and shrubs 10%, woodland principally hardwood, including wooded lowland along Accotink Creek; fields about 2/3 in mixed orchard grass, clover, alfalfa, etc., 1/3 uncultivated, being invaded by shrubs and weeds; all fields with borders of brush, trees and vines). May 6, 6 a.m. to 8 p.m. Heavy overcast, occasional light to moderate rain; temp. 40° to 54°; light, variable winds. Twelve observers in one party before lunch, eight observers in two parties after lunch. Total party-hours, 16; total party-miles, 20. Wood Duck, 4; Turkey Vulture, 6; Red-shouldered Hawk, 1;

Broad-winged Hawk, 1; Marsh Hawk, 1; Sparrow Hawk, 1; Bobwhite, 10; Killdeer, 2; Spotted Sandpiper, 1; Solitary Sandpiper, 1; Mourning Dove, 40; Barred Owl, 2; Whip-poor-will, 1; Chimney Swift, 24; Yellow-shafted Flicker, 10; Pileated Woodpecker, 3; Red-bellied Woodpecker, 15; Hairy Woodpecker, 1; Downy Woodpecker, 25; Eastern Kingbird, 4; Great Crested Flycatcher, 1; Eastern Phoebe, 4; Acadian Flycatcher, 15; Eastern Wood Pewee, 1; Horned Lark, 5; Barn Swallow, 15; Blue Jay, 107; Common Crow, 52; Carolina Chickadee, 34; Tufted Titmouse, 45; White-breasted Nuthatch, 3; House Wren, 6; Carolina Wren, 6; Mockingbird, 12; Catbird, 15; Brown Thrasher, 6; Robin, 182; Wood Thrush, 46; Swainson's Thrush, 7; Eastern Bluebird, 2; Blue-gray Gnatcatcher, 15; Ruby-crowned Kinglet, 6; Starling, 75; White-eyed Vireo, 5; Yellow-throated Vireo, 14; Red-eyed Vireo, 40; Black-and-white Warbler, 5; Golden-winged Warbler, 3; Parula Warbler, 50; Yellow Warbler, 1; Myrtle Warbler, 30; Black-throated Green Warbler, 5; Blackburnian Warbler, 2; Chestnut-sided Warbler, 2; Prairie Warbler, 5; Ovenbird, 7; Louisiana Waterthrush, 3; Kentucky Warbler, 5; Yellow-throat, 35; Yellow-breasted Chat, 7; Hooded Warbler, 1; Am. Redstart, 30; House Sparrow, 19; Redwinged Blackbird, 20; Orchard Oriole, 1; Baltimore Oriole, 4; Common Grackle, 110; Brown-headed Cowbird, 40; Scarlet Tanager, 2; Cardinal, 50; Rose-breasted Grosbeak, 2; Indigo Bunting, 6; Am. Goldfinch, 350; Rufous-sided Towhee, 30; Savannah Sparrow, 13; Grasshopper Sparrow, 3; Vesper Sparrow, 2; Chipping Sparrow, 13; Field Sparrow, 30; White-throated Sparrow, 125; Swamp Sparrow, 2; Song Sparrow, 20. Total, 83 species; about 1918 individuals. -- Brantley and Richard Peacock, Helen Goldstick, Donald Tucker, Robert J. Watson, John Nevins, Robert Houghton, Mrs. Claire L. Eike, Mrs. Mary Pulley, Mr. and Mrs. Richard H. Rule and James W. Eike (compilers).

Alexandria - Fort Belvoir, Va. (all points on the Virginia side of the Potomac River within a radius of 7.5 miles of Fort Hunt, including Hunting Creek, Dyke Marsh, Fort Hunt, Mount Vernon, Fort Belvoir, and Virginia Hills; tidal river 20%, deciduous woodland 20%, town suburbs 40%, farm land 10%, fields 5%, cattail marsh 2%, river bottom swamp 2%, pine woods 1%). -- May 6; 5:30 a.m. to 6 p.m. Overcast with almost continuous light drizzle, occasional heavy rain; temp. 70° to 58°; no wind. Eight observers in three parties. Total party-hours, 23 (20 on foot, 3 by car); total party-miles, 61 (11 on foot, 50 by car). Common Loon, 1; Great Blue Heron, 6; Green Heron, 2; Am. Bittern, 1; Least Bittern, 2; Mallard, 1; Black Duck, 7; Wood Duck, 7; Lesser Scaup, 18; Ruddy Duck, 15; Red-tailed Hawk, 1; Rough-legged Hawk, 1 (JMA; dark phase, watched for 5 minutes hovering and soaring over an extensive pasture where it has been seen since November 1960); Bald Eagle, 1; Osprey, 4; Sparrow Hawk, 5; Bobwhite, 28; Sora, 2; Common Gallinule, 1; Semipalmated Plover, 3; Common Snipe, 1; Spotted Sandpiper, 6; Solitary Sandpiper, 4; Greater Yellowlegs, 21; Lesser Yellowlegs, 21; Lesser Yellowlegs, 38; Pectoral Sandpiper, 1; White-rumped Sandpiper, 2 (RLS, DBS); Least Sandpiper, 15; Dunlin, 15; Semipalmated Sandpiper, 13; Herring Gull, 80; Ring-billed Gull, 50; Laughing Gull, 1 (JMA); Bonaparte's Gull, 92 (JMA); Black Tern 21 (JMA); Mourning Dove, 66; Horned Owl, 2; Barred Owl, 1; Chimney Swift, 226;

Belted Kingfisher, 1; Yellow-shafted Flicker, 15; Pileated Woodpecker, 3; Red-bellied Woodpecker, 7; Hairy Woodpecker, 2; Downy Woodpecker, 9; Eastern Kingbird, 2; Great Crested Flycatcher, 10; Eastern Phoebe, 1; Acadian Flycatcher, 1; Horned Lark (prairie), 2; Tree Swallow, 17; Bank Swallow, 76; Rough-winged Swallow, 40; Barn Swallow, 824; Purple Martin, 4; Blue Jay, 71; Common Crow, 37; Fish Crow, 9; Carolina Chickadee, 14; Tufted Titmouse, 18; White-breasted Nuthatch, 1; Carolina Wren, 9; Long-billed Marsh Wren, 3; Mockingbird, 46; Catbird, 23; Brown Thrasher, 12; Robin, 95; Wood Thrush, 39; Eastern Bluebird, 3; Blue-gray Gnatcatcher, 1; Ruby-crowned Kinglet, 1; Cedar Waxwing, 10; Starling, 338; White-eyed Vireo, 7; Yellow-throated Vireo, 2; Red-eyed Vireo, 29; Black-and-white Warbler, 6; Parula Warbler, 13; Yellow Warbler, 4; Myrtle Warbler, 102; Black-throated Green Warbler, 1; Prairie Warbler, 3; Ovenbird, 6; Louisiana Waterthrush, 2; Kentucky Warbler, 1; Yellowthroat, 17; Yellow-breasted Chat, 5; Hooded Warbler, 4; Am. Redstart, 8; House Sparrow, 40; Eastern Meadowlark, 18; Redwinged Blackbird, 1224; Baltimore Oriole, 2; Rusty Blackbird, 2 (JMA); Common Grackle, 507; Brown-headed Cowbird, 40; Scarlet Tanager, 6; Cardinal, 56; Rose-breasted Grosbeak, 2; Indigo Bunting, 8; Am. Goldfinch, 54; Rufous-sided Towhee, 30; Savannah Sparrow, 4; Slate-colored Junco, 2 (JMA); Chipping Sparrow, 12; Field Sparrow, 6; White-crowned Sparrow, 1; White-throated Sparrow, 6; Swamp Sparrow, 2; Song Sparrow, 2; Song Sparrow, 49. Total, 109 species; about 4766 individuals. (Seen in the area during the count period but not on count day: Double-crested Cormorant, Ring-necked Duck, Bufflehead, Turkey Vulture, Black Vulture, Red-shouldered Hawk, Broad-winged Hawk, Killdeer, Caspian Tern, Yellow-billed Cuckoo, Black-billed Cuckoo, Whip-poor-will, Ruby-throated Hummingbird, Red-headed Woodpecker, Traill's Flycatcher, Eastern Wood Pewee, House Wren, Hermit Thrush, Swainson's Thrush, Grey-cheeked Thrush, Veery, Prothonotary Warbler, Nashville Warbler, Magnolia Warbler, Chestnut-sided Warbler, Bay-breasted Warbler, Blackpoll Warbler, Orchard Oriole, Summer Tanager, Dickcissel (JMA), Purple Finch.) -- J.M. Abbott (compiler), Mr. and Mrs. Jean D'Alpuget, Mr. and Mrs. George Sigel, Courtney Sigel, R.L. Smith, D.B. Stewart.

Big Flat Mountain, Va. (mostly in southern section of Shenandoah National Park, same area as Christmas counts; altitude 900-3300 ft.; deciduous woods 75%, abandoned fields 18%, hemlock groves 5%, reservoir 2%). -- May 14; 5:15 a.m. to 4:15 p.m. EDT. Mostly cloudy; temp. 55° to 75°; wind negligible. One observer. Total hours, 11 (almost all on foot); total miles, 24 (16 on foot, 8 by car). Wood Duck, 7 (including 7 young out); Turkey Vulture, 13; Sharp-shinned Hawk, 1; Broad-winged Hawk, 2; Ruffed Grouse, 6; Bobwhite, 4; Turkey, 2; Spotted Sandpiper, 1; Mourning Dove, 1; Whip-poor-will, 24; Ruby-throated Hummingbird, 3; Belted Kingfisher, 1; Yellow-shafted Flicker, 2; Pileated Woodpecker, 1; Hairy Woodpecker, 2; Downy Woodpecker, 6; Eastern Kingbird, 3; Great Crested Flycatcher, 9; Eastern Phoebe, 7; Acadian Flycatcher, 9; Eastern Wood Pewee, 13; Bank Swallow, 1; Rough-winged Swallow, 4; Barn Swallow, 4; Blue Jay, 19; Common Raven, 5; Am. Crow, 7; Carolina Chickadee, 2; Tufted Titmouse, 11;

White-breasted Nuthatch, 1; Bewick's Wren, 3; Mockingbird, 1; Catbird, 37; Brown Thrasher, 21; Wood Thrush, 47; Swainson's Thrush, 6; Blue-gray Gnatcatcher, 3; Ruby-crowned Kinglet, 1; Cedar Waxwing, 8; Starling, 5; White-eyed Vireo, 1; Yellow-throated Vireo, 1; Solitary Vireo, 4; Red-eyed Vireo, 67; Black-and-white Warbler, 23; Worm-eating Warbler, 2; Golden-winged Warbler, 3; Blue-winged Warbler, 1; Brewster's Warbler, 1 (first area record); Parula Warbler, 10; Yellow Warbler, 6; Cape May Warbler, 1; Black-throated Blue Warbler, 21; Myrtle Warbler, 16; Black-throated Green Warbler, 3; Cerulean Warbler, 1; Blackburnian Warbler, 1; Chestnut-sided Warbler, 104; Bay-breasted Warbler, 1; Blackpoll Warbler, 4; Prairie Warbler, 25; Ovenbird, 99; Louisiana Waterthrush, 6; Kentucky Warbler, 1; Mourning Warbler, 1; Yellowthroat, 19; Yellow-breasted Chat, 48; Hooded Warbler, 39; Wilson's Warbler, 1; Canada Warbler, 9; Am. Redstart, 18; House Sparrow, 3; Baltimore Oriole, 1; Common Grackle, 3; Brown-headed Cowbird, 21; Scarlet Tanager, 23; Cardinal, 4; Rose-breasted Grosbeak, 14; Indigo Bunting, 25; Am. Goldfinch, 18; Rufous-sided Towhee, 168; Vesper Sparrow, 1; Slate-colored Junco, 3; Chipping Sparrow, 10; Field Sparrow, 16; White-throated Sparrow, 18; Song Sparrow, 1. Total, 86 species and 1 hybrid; about 1,167 individuals. -- Charles E. Stevens.

Warren, Va. (within same area as Christmas counts). May 6; 5:30 a.m. to 6 p.m. EDT. Cloudy, light rain until noon; temp. 55° to 63°; wind SE, 3-15 m.p.h. Two observers in one party. Total party-hours, 12½ (9½ on foot, 3 by car); total party-miles, 40 (8 on foot, 32 by car). Green Heron, 6; Canada Goose, 5; Blue-winged Teal, 2; Wood Duck, 2; Turkey Vulture, 7; Black Vulture, 2; Red-tailed Hawk, 1; Broad-winged Hawk, 1; Osprey, 1; Bobwhite, 24; Turkey, 2; Killdeer, 2; Common Snipe, 3; Spotted Sandpiper, 22; Solitary Sandpiper, 14; Greater Yellowlegs, 1; Lesser Yellowlegs, 30; Least Sandpiper, 12; Semipalmated Sandpiper, 1; Black Tern, 2; Mourning Dove, 33; Yellow-billed Cuckoo, 1; Barred Owl, 1; Whip-poor-will, 5; Chimney Swift, 35; Yellow-shafted Flicker, 2; Pileated Woodpecker, 2; Red-bellied Woodpecker, 7; Hairy Woodpecker, 2; Downy Woodpecker, 7; Eastern Kingbird, 9; Great Crested Flycatcher, 11; Eastern Phoebe, 5; Acadian Flycatcher, 5; Eastern Wood Pewee, 3; Bank Swallow, 1; Rough-winged Swallow, 26; Barn Swallow, 55; Cliff Swallow, 12; Blue Jay, 13; Common Crow, 22; Carolina Chickadee, 11; Tufted Titmouse, 19; White-breasted Nuthatch, 2; House Wren, 3; Carolina Wren, 4; Mockingbird, 15; Catbird, 17; Brown Thrasher, 15; Robin, 32; Wood Thrush, 52; Swainson's Thrush, 1; Veery, 3; Eastern Bluebird, 3; Blue-gray Gnatcatcher, 16; Loggerhead Shrike, 1; Starling, 55; White-eyed Vireo, 3; Yellow-throated Vireo, 8; Red-eyed Vireo, 23; Black-and-white Warbler, 12; Prothonotary Warbler, 1; Worm-eating Warbler, 5; Parula Warbler, 10; Yellow Warbler, 27; Cape May Warbler, 2; Black-throated Blue Warbler, 2; Myrtle Warbler, 13; Black-throated Green Warbler, 16; Cerulean Warbler, 5; Blackburnian Warbler, 4; Chestnut-sided Warbler, 2; Pine Warbler, 7; Prairie Warbler, 18; Ovenbird, 33; Northern Waterthrush, 3; Louisiana Waterthrush, 2; Yellowthroat, 35; Yellow-breasted Chat, 24; Hooded Warbler, 13; Canada Warbler, 3; Am. Redstart, 8; House Sparrow, 9; Bobolink, 110; Eastern Meadowlark, 21; Redwinged Blackbird, 63;

Orchard Oriole, 2; Baltimore Oriole, 14; Common Grackle, 106; Brown-headed Cowbird, 20; Scarlet Tanager, 6; Summer Tanager, 17; Cardinal, 53; Rose-breasted Grosbeak, 3; Blue Grosbeak, 2; Indigo Bunting, 7; Am. Goldfinch, 55; Rufous-sided Towhee, 54; Savannah Sparrow, 6; Grasshopper Sparrow, 11; Chipping Sparrow, 33; Field Sparrow, 28; White-crowned Sparrow, 3; White-throated Sparrow, 14; Swamp Sparrow, 2; Song Sparrow, 28. Total, 106 species; about 1598 individuals. — Steve Calver, Robert S. Merke, (compiler).

Churchville, Va. (western Augusta County including Churchville, Stover, Moffitt Creed road, Calfpasture River road to Staunton Dam, Ramsey Draft, Buffalo Gap; altitude 1400 to 3000 feet; open farmland 40%, deciduous and mixed woodland 50%, hemlock stands 10%). — May 13; 5:30 a.m. to 2:30 p.m. Partly cloudy; temp. 55° to 75°; wind variable, slight. Two observers together most of time. Total party-hours, 9 (6 on foot, 3 by car); total party-miles, 66 (6 on foot, 60 by car). Turkey Vulture, 8; Broad-winged Hawk, 2; Ruffed Grouse, 1; Bobwhite, 4; Killdeer, 2; Mourning Dove, 5; Barred Owl, ; Chimney Swift, 32; Ruby-throated Hummingbird, 2; Belted Kingfisher, 1; Yellow-shafted Flicker, 10; Pileated Woodpecker, 2; Red-bellied Woodpecker, 3; Hairy Woodpecker, 3; Downy Woodpecker, 9; Eastern Kingbird, 10; Great Crested Flycatcher, 13; Eastern Phoebe, 11; Acadian Flycatcher, 17; Least Flycatcher, 1; Eastern Wood Pewee, 25; Olive-sided Flycatcher, 1 (CES); Rough-winged Swallow, 5; Barn Swallow, 20; Blue Jay, 54; Common Crow, 27; Fish Crow, 1; Black-capped Chickadee, 9; Tufted Titmouse, 16; White-breasted Nuthatch, 4; House Wren, 5; Winter Wren, 1 (very late — Ramsey Draft); Bewick's Wren, 1; Mockingbird, 4; Catbird, 18; Brown Thrasher, 13; Robin, 27; Wood Thrush, 34; Swainson's Thrush, 12; Eastern Bluebird, 5; Blue-gray Gnatcatcher, 15; Ruby-crowned Kinglet, 2; Starling, 44; White-eyed Vireo, 1; Yellow-throated Vireo, 2; Solitary Vireo, 9; Red-eyed Vireo, 78; Black-and-white Warbler, 32; Worm-eating Warbler, 6; Golden-winged Warbler, 4; Parula Warbler, 28; Yellow Warbler, 12; Magnolia Warbler, 2; Black-throated Blue Warbler, 9; Myrtle Warbler, 4; Black-throated Green Warbler, 17; Blackburnian Warbler, 25; Chestnut-sided Warbler, 1; Bay-breasted Warbler, 1; Blackpoll Warbler, 2; Pine Warbler, 2; Prairie Warbler, 14; Ovenbird, 61; Northern Waterthrush, 1; Louisiana Waterthrush, 19; Yellowthroat, 3; Yellow-breasted Chat, 9; Hooded Warbler, 12; Wilson's Warbler, 3; Canada Warbler, 21; Am. Redstart, 16; House Sparrow, 31; Eastern Meadowlark, 48; Redwinged Blackbird, 25; Orchard Oriole, 2; Baltimore Oriole, 3; Common Grackle, 96; Brown-headed Cowbird, 58; Scarlet Tanager, 15; Cardinal, 9; Rose-breasted Grosbeak, 2; Indigo Bunting, 50; Am. Goldfinch, 46; Rufous-sided Towhee, 34; Grasshopper Sparrow, 3; Henslow's Sparrow, 1; Vesper Sparrow, 6; Chipping Sparrow, 46; Field Sparrow, 14; White-throated Sparrow, 3; Song Sparrow, 10. Total, 91 species; about 1376 individuals. — F.R. Scott (compiler), C.E. Stevens.

Glade Spring, Va. (same area as Christmas count; farmland and pastures 40%, deciduous woods 30%, mixed pine and deciduous woods 20%, riverbottoms 8%, marsh and ponds 2%). — May 6; 4:30 a.m. to

7 p.m. Clear; temp. 45° to 70°; wind SE to SW, 3-12 m.p.h. Five observers in 1-2 parties. Total party-hours, 18 (14 on foot, 4 by car); total party-miles, 69 (12 on foot, 57 by car). Green Heron, 5; Mallard, 22; Blue-winged Teal, 1; Wood Duck, 10; Turkey Vulture, 11; Cooper's Hawk, 1; Red-tailed Hawk, 1; Broad-winged Hawk, 1; Sparrow Hawk, 1; Bobwhite, 2; Am. Coot, 1; Semipalmated Plover, 1; Killdeer, 3; Common Snipe, 1; Spotted Sandpiper, 15; Solitary Sandpiper, 8; Lesser Yellowlegs, 6; Least Sandpiper, 15; Forster's Tern, 1; Mourning Dove, 23; Great Horned Owl, 1; Chimney Swift, 32; Ruby-throated Hummingbird, 3; Belted Kingfisher, 2; Yellow-shafted Flicker, 13; Pileated Woodpecker, 8; Red-bellied Woodpecker, 1; Red-headed Woodpecker, 2; Downy Woodpecker, 5; Eastern Kingbird, 5; Great Crested Flycatcher, 13; Eastern Phoebe, 4; Acadian Flycatcher, 2; Eastern Wood Pewee, 10; Rough-winged Swallow, 11; Barn Swallow, 12; Blue Jay, 45; Common Crow, 47; Carolina Chickadee, 12; Tufted Titmouse, 11; White-breasted Nuthatch, 3; House Wren, 5; Bewick's Wren, 1; Carolina Wren, 3; Mockingbird, 5; Catbird, 29; Brown Thrasher, 14; Robin, 30; Wood Thrush, 6; Swainson's Thrush, 1; Gray-cheeked Thrush, 1; Eastern Bluebird, 6; Blue-gray Gnatcatcher, 10; Ruby-crowned Kinglet, 2; Cedar Waxwing, 3; Starling, 93; White-eyed Vireo, 5; Yellow-throated Vireo, 2; Red-eyed Vireo, 6; Warbling Vireo, 2; Black-and-white Warbler, 12; Worm-eating Warbler, 5; Golden-winged Warbler, 6; Nashville Warbler, 2; Parula Warbler, 1; Yellow Warbler, 25; Magnolia Warbler, 2; Cape May Warbler, 1; Black-throated Blue Warbler, 1; Myrtle Warbler, 18; Black-throated Green Warbler, 7; Cerulean Warbler, 10; Blackburnian Warbler, 1; Chestnut-sided Warbler, 6; Bay-breasted Warbler, 1; Prairie Warbler, 5; Palm Warbler, 5; Ovenbird, 6; Kentucky Warbler, 3; Yellowthroat, 18; Yellow-breasted Chat, 14; Hooded Warbler, 14; Canada Warbler, 2; Am. Redstart, 5; House Sparrow, 43; Eastern Meadowlark, 47; Redwinged Blackbird, 63; Orchard Oriole, 7; Baltimore Oriole, 31; Common Grackle, 150; Brown-headed Cowbird, 16; Scarlet Tanager, 8; Cardinal, 27; Rose-breasted Grosbeak, 1; Indigo Bunting, 65; Am. Goldfinch, 71; Rufous-sided Towhee, 22; Savannah Sparrow, 2; Grasshopper Sparrow, 5; Vesper Sparrow, 2; Chipping Sparrow, 10; Field Sparrow, 19; White-crowned Sparrow, 13; White-throated Sparrow, 34; Song Sparrow, 36. Total, 105 species; about 1436 individuals. — Judith Abbott, Ben B. Dulaney, Paul S. Dulaney (compiler), Thelma Kennedy, Jane D. White.

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NEWS AND NOTES

First Records of Fossil Birds in Virginia. Some remarkable fossil discoveries have been made in recent years at a cave site at the famous Natural Chimneys, near Mt. Solon, Augusta County, Virginia. In 1951 in one of the natural tunnels at this place a giant pleistocene beaver tooth was reported by Theodore Ruboff of the American Museum of Natural History. The next year a team of paleontologists from the Carnegie Museum began excavations. Rich deposits were uncovered, reported by the Carnegie Museum to be "the largest known from a single

fossil locality in the entire Appalachian Mountain chain." Shells and bones were found, from snails, millipedes, fish, birds and mammals, totalling some 126 species of prehistoric animals. They date back to the Ice Age, when the climate of this area was greatly affected by the sheet of glacial ice that extended as far south as Pennsylvania. A preliminary report has been made to the owner of Natural Chimneys. Papers will be published later.

Members of the VSO will be particularly interested in the fact that these findings include the first fossil birds to be discovered in Virginia. These bird bones are being studied by Dr. Alexander Wetmore, who will report on them when his work is completed.

Barn Owl in Fairfax, County. Fred M. Packard reports that a Barn Owl was flushed from an old open barn on Sully Plantation on the Dulles International Airport in Fairfax County, April 18, 1961.

Clapper Rail. Brooke Meanley found Clapper Rails common in Mobjack Bay, Matthews and Gloucester Counties, May 23, 1961, and located a nest with 8 eggs.

Blue Grosbeak. James Eike saw three Blue Grosbeaks at Dulles International Airport, July 23, 1961.

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REVIEW

The Bird Watcher's Guide, by Henry Hill Collins, Jr., Golden Press, New York, N.Y., 125 pages, over 50 photographs in color, many in black and white, and drawings, 1961, \$3.95. While this book, attractively printed, illustrated, and bound, is meant particularly for the beginner, it contains useful information for more advanced bird students. It is full of practical suggestions along many lines: the best types of binoculars, field guides, notebooks, and books from which to build a library; first steps in bird watching, identification, and where to look for birds; ways of keeping lists; instructions for Christmas counts, hawk counts, breeding bird censuses; methods of attracting birds to the yard; suggestion about photography, etc. There are useful lists of regional and local bird groups, books, and publications. There are many lovely color photographs of places, such as Bonaventure Island with its Gannets, and also of birds, although unfortunately, as is too often the case in reproductions of color photographs of birds, the colors in some cases are badly off. Examples are two Yellow Warbler pictures, one of them dull orange, the other brownish, a Towhee with sides that are not rusty but deep red, and a queer looking brown warbler on the outside front cover. But on the whole, the color photographs measure up well, and the book is well worth having.

-- J.J. Murray

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The Raven

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LIFE HISTORY OF THE CAROLINA JUNCO

Junco hyemalis carolinensis Brewster

By D. Ralph Hostetter

Adapted and Condensed from a Dissertation
Presented to the Graduate Faculty
of the University of Virginia
in Candidacy of the
Degree of Doctor of Philosophy
August 1, 1938

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PREFACE

Whose heart is not lightened by the first song of spring? Where is the country-bred and reared boy who does not find inspiration and charm in the color and song of birds? Is there anyone too busy with his work to pause for a moment before a nest of eggs or hungry nestlings, or to watch a distressed mother bird hurl epithets at a stray cat, or tenderly care for her brood?

Having been reared on a farm, I keenly remember the reference made in the spring to the first appearance of the bluebird and the northward flight of the wild geese. In my father's cornfield a killdeer's nest would occasionally be found. It was most interesting to me to watch the distress antics of the parent birds as father drove over the nest but always made every effort to leave the nest undisturbed. Many times I have tried to approach the mother bird slowly, cautiously, as she was playing the "broken wing" act. It seemed to me that her broken wing healed very suddenly as I came close upon her.

All too well do I remember the soot that fell into my eyes while looking upward into the chimney leading from a large fireplace. This particular chimney was the home of a pair of Chimney Swifts. We heard them flying and twittering daily. As I opened the doors that closed the entrance to the fireplace, the swifts became alarmed, and leaving their sooty perch, sent varying amounts of the chimney's lining down into my face.

I have had a life-long interest in birds, and for a number of years it has been my chief hobby. This interest was especially stimulated during the two short bird-study courses taken at Lebanon Valley College and Mountain Lake Biological Station. During the latter course I conceived the idea of making a more detailed study of birds. I was encouraged in this by Dr. J.J. Murray, instructor of the latter short course.

INTRODUCTION

A study of the Carolina Junco, Junco hyemalis carolinensis Brewster, was undertaken at the suggestion of Dr. J.J. Murray. This bird is a distinctive southern subspecies on which practically no work has been done. It is typical of the higher mountains of Virginia and breeds in the area of the Mountain Lake Biological Station. The abundance of individuals, together with the facilities offered by the Station, made this species a most desirable subject for study. It should be stated that this is a field study; therefore little if any reference will be made to embryology, physiology, or anatomy.

Very little occurs in ornithological literature on the life and habits of the Carolina Junco. This study is an effort to make a contribution to Virginia ornithology.

The author does not make any claim to completeness or to giving the final word on this life history. Many years of study would be necessary to solve all the problems and to answer all the questions connected with the life of any bird. It is hoped, however, that the information presented here will be valuable and worthy of the name of Science.

The author assumes all responsibility for errors in observation and interpretation.

The data and observations presented in this paper were obtained in the region of the Mountain Lake Biological Station, unless otherwise stated. This Station is located in Giles County, in southwestern Virginia, at an elevation of 3840 feet. The site is on Salt Pond Mountain in the heart of the Allegheny Mountains, which by the road is 20 miles north northwest of Blacksburg.

The period of study extended from June 14, 1936 to August 1, 1938. Detailed study in the field included three summers, June 14 to August 27, 1936, April 1 to August 27, 1937, and June 8 to July 23, 1938, and portions of two winters, December 24, 1936 to January 2, 1937, and December 30, 1937 to January 3, 1938. When not in the field myself, I kept constant contact with certain individuals who lived in the area, and who were making observations for me, and from whom much valuable data were received.

During this study 80 nests containing either eggs or young were under observation, 85 adults and 65 nestlings were banded, and 298 specimens were taken by various field cooperators.

ACKNOWLEDGMENTS

To Dr. I.F. Lewis, Director of the Mountain Lake Biological Station and my advisory professor, I wish to express my gratitude and appreciation for his special interest in this study, and for his kind advice, helpful criticisms, and suggestions. No less grateful am I to Dr. J.J. Murray, Editor of The Raven, the bulletin of the Virginia Society of Ornithology, who so kindly consented to supervise the field study, and whose experience and intimate knowledge of birds was a constant source of encouragement and inspiration; and to Dr. H.C. Oberholser, formerly of the Fish and Wildlife Service, for the method of studying migration, for the identification of specimens, and for the use of the Service files and specimens. The above-mentioned authorities, as well as Dr. Robert Cushman Murphy of the American Museum of Natural History, and Mr. William Vogt, former Editor of Birdlore, have read this paper and have offered valuable criticisms and suggestions which are much appreciated. I am greatly indebted to Prof. R.S. Freer, of Lynchburg College, for his assistance in identifying the plants considered in the ecology of the nest; and to Dr. R.J. Holden of Virginia Polytechnic Institute, for the data on the geology of the Mountain Lake region.

The study on migration and distribution could not have been made without the assistance of field cooperators who sent specimens from various localities to Dr. Oberholser for identification. To this group of 28 I extend my sincere appreciation.

Lastly, I wish to thank the various instructors of the Biological Station and Miller School of Biology, and my fellow students, who have assisted greatly by their interest, suggestions, and various services.

METHODS OF STUDY

Most of us are familiar with the Snowbirds or Slate-colored Juncos, who come to our window lunch counters or to the back porch for crumbs during snowstorms or when the ground is covered with snow. They are so fearless of man, so friendly, and so appreciative of our donations that we naturally include them with the family.

The same may be said of the Mountain Snowbirds or Carolina Juncos. Their fearlessness and friendly disposition made it possible for me to study them in the field and along the roadsides at close range with the unaided eye, at a distance of 6 to 12 feet. An 8X Mirakel Daylux binocular was used for more distant observations.

Finding Nests

The Carolina Junco nests are well concealed and difficult to find. However, after becoming acquainted with their various nesting sites, manner of concealment, and methods of approach, one can usually find their nests quite readily.

Between June 14 and August 28, 1936, I located 30 nests, the majority of which were on the roadside embankment extending for a linear distance of approximately $4\frac{1}{2}$ miles. During the summer of 1937, 42 nests were found in the same area between April 1 and August 25.

Nests may be discovered in several ways. The majority of my nests were located by walking slowly along the roadside and carefully scrutinizing the bank. Frequently, the nest was betrayed by the bulky deposit of dried grass and moss placed on the outside of the nest and often hanging down the bank like a festoon.

Sometimes if I walked too closely to the bank, the bird would fly out in front of me, thus revealing the nest.

Another method was to walk quietly on the road and look for birds. Often I was rewarded; for when I stood still the bird was assured that no harm was meant and continued her work of gathering nesting material or feeding nestlings. By slowly approaching her area of activity, the nest could easily be discovered.

Several very well-concealed nests were found by walking on the overhang and practically kicking the bird off the nest. At least two were found in this way.

The nests on the grassy hillsides were located by walking back and forth looking under the sod clumps, overhangs, and projecting rocks. Those on the bushes were revealed by the bird flying into the bush.

In one instance the nest was betrayed by the feeding cry of the nestlings.

The general area in which a nest is located may often be determined by noting the male who regularly sings from his favorite perch. Soon or later he will fly to the nest, or his mate will leave the nest in response to his songs or call.

Description of Blind

For the study of the nest, incubation, feeding, and domestic activities in general, I erected a blind as close to the nest as practicable. This may have been across the road from the nest, at a distance of 20 feet, or as in the case of nests on the grassy hillsides, at a distance of 4 to 6 feet.

The blind was constructed of four upright galvanized iron pipes, three-fourth inches in diameter, threaded at the upper end, and tapered to a point at the lower. The upper ends were screwed into the roof portion, made by crossing at right angles two pieces of galvanized iron pipes of the same diameter, and $3\frac{1}{2}$ feet long. The tapered ends were driven 6 inches into the ground. Over this frame was thrown a made-to-fit canvas cover, with an entrance on one side, and two observation holes on the opposite side. This gave a water-proof observation blind 30 inches square and $4\frac{1}{2}$ feet high. I found this a very practical and easily moved blind, with ample space for a comfortable seat and small table, where rifle, camera, binocular, and notebooks could be conveniently handled.

In order to make it less conspicuous and less annoying to the birds, I decorated the roof and sides with small branches of hemlock, held in place by twine. The birds either did not recognize the artificial bush or did not care, as they continued their activities as soon as the blind was erected. When bringing food, they frequently perched on the roof before approaching the nest.

Marking Eggs

Eggs were satisfactorily marked with an indelible pencil. The mark remained distinct throughout the entire period of incubation unless there was much rain or wet weather. The wet feathers caused the mark to become indistinct, but never invisible. The indelible mark of purple did not contrast sufficiently with the cinnamon drab markings of the eggs to be objectionable to the birds.

Weighing Eggs and Birds

It was found inconvenient and impracticable to carry a laboratory balance to the field. Instead, a horn pan balance was used. This consisted of a brass beam 200mm. long balanced on a frame supported by a hook. At either end of the beam was suspended a horn pan 80mm. in diameter.

The eggs and young nestlings were weighed by placing them in the left pan and pouring into the right pan clean washed sand until the two pans balanced. The eggs or nestlings were quickly returned to the nest and the sand carefully poured into a clean labeled shell vial. In the laboratory the sand was accurately weighed, in grams, on a balance of the Harvard Trip type. The advantage of saucer-shaped horn pans is that the eggs, nestlings, and sand are not readily spilled.

The older nestlings and adult birds were weighed by placing them in a cloth bag of known weight and hanging this bag on the hook at the left of the beam. Into the right pan sand was poured until the pointer indicated a balance. The proper correction for weight of the bag was then made.

Trapping Birds

Three types of traps were used for winter trapping, and one type for summer trapping. Both the one-celled and the four-celled Standby traps, manufactured by Russel S. Davis, Clayton, Illinois, did very well. The only difficulty I encountered was with the four-celled trap: the jar caused by the door dropping in the cell into which the bird entered was sometimes sufficient to drop one or two of the other doors, thus putting the trap temporarily out of commission.

Very few juncos were caught in the Government Junior Sparrow trap as manufactured by William I. Lyon, Waukegan, Illinois. This trap is excellent for sparrows and starlings, but the juncos do not enter it readily.

My heaviest catches were in a home-made trap, a modification of the three-leaved-clover trap. Juncos entered very freely, sometimes within a few minutes after being released.

For summer trapping I used the Standby traps referred to above. The one-celled trap was especially useful for trapping adults whose nest was in a roadside bank.

In winter the traps were placed on the ground which had been swept clean of snow and baited with cracked corn, millet, and hemp seeds. Sometimes bread was added; this was more conspicuous and attracted attention.

The summer bait consisted of bread only. Summer trapping on the whole was not very successful because food was everywhere abundant. There was no need to walk into a trap for it.

Summer trapping was very successful, however, when young were in the nest. In no case did the adults refuse to walk into the unbaited trap when it was placed over the nest. When the nest was on a gentle slope, the trap was placed in such a position that the entrance was over the nest. While the adults could see and hear the young, they could not get to them without entering the trap. In some cases they were a little shy and hesitant, but in the majority of cases, they hopped boldly into the trap with food in their mouths.

When the nest was built in the roadside embankment, I suspended the one-celled trap from a limb or a stake driven into the bank. This was again so arranged that the nearest approach to the nest was by the way of the open trap door. In many cases no bait was used at all.

With few exceptions all the adults banded during the summer were caught while carrying food to their young. The exceptions were caught by flashlight and net. As soon as it was sufficiently dark, the female could easily be caught on the nest by blinding her with a strong flashlight and suddenly throwing a net over her. This net was made of strong netting cloth sewed to a wire loop 20 inches in diameter and fastened to a pole 5 feet long. This method did very well for females but could not be used for males. It is well to notice several other disadvantages of this flashlight and net method. In the first place, it required two persons; second, there was danger of damaging the nest, although I had no loss from this source; third, unless the slope was fairly even, the bird would escape from under the net as happened in several cases; fourth, there is a possibility that a female flushed after dark may not return to her nest before the next morning. If this should happen, the entire clutch of eggs may be lost. However, I had no loss from the failure of any female to return.

This method was abandoned as soon as I discovered that both adults enter the trap readily when young are in the nest.

Marking Birds

This was quite a problem at first. Through correspondence I learned that aluminum bands, colored celluloid bands, and colored feathers were used by students in the Laboratory of Ornithology, Cornell University. I was familiar with the aluminum bands issued by the Fish and Wildlife Service. These bands can be recognized at a distance, but the number cannot, and a band without its number is valueless.

The use of colored celluloid bands is limited by the fact that there are comparatively few bands of distinct colors. Nice (32) found that the best colors for Song Sparrows are red, blue, green, black, and yellow. It is true that various combinations can be made, and if used in connection with the aluminum bands the number may be greatly increased (23, 32). The success of my study depended upon my banding many birds to increase the chances of two marked birds establishing a nest as a pair. Since the length of the junco's foot (distance between ankle joint and toes) measures approximately 17mm. comparatively few combinations could be used. It was thought advisable not to use the colored bands.

The use of colored feathers would necessitate the use of a dye insoluble in water. After a little experimenting I soon discovered that the alcohol soluble dyes were very unsatisfactory for dyeing feathers. They were practically transparent and left an inconspicuous mark on the feathers. A suggestion from the manufacturers of "Diamond" Tints and Dyes (47) was tried and found worthy of a field trial.

The "paint" was made by rubbing zinc oxide to a smooth paste with white shellac solution in a mortar. Sufficient zinc oxide was used to make a fairly fluid but rather opaque paint. This gave a white color which could be applied to the right wing, left wing, crown of head, or middle portion of tail. To this white base, colored pigment could be added. These colored pigments were obtained in the form of "Diamond" Wood Dyes in all colors, which dissolved very readily in the alcohol-shellac solution. I was able to get very brilliant colors of red, orange, yellow, green, and blue, which stood out conspicuously on the slate-colored background of the junco.

Shellac is recommended for a base because it dries so rapidly. Zinc oxide is a relatively harmless pigment; white lead as well as certain types of pigments might exert a poisonous action and should be avoided. There is always the possibility that the birds will pick off some of the paint and swallow it.

The paint is easy to make and apply. It dries very quickly and is fast to sunlight and rain. The chief disadvantage is the birds will not leave it on. They will continually pass their bill through the feathers, like a comb, until they have removed all but a trace. A month after application it is very difficult to see any paint, unless it was applied to the crown of the head or on the chin. This paint method was used for about a month, when it was discontinued in favor of the nest-trapping method, and the birds were marked with Fish and Wildlife Service bands.

Nestlings under 8 days old were marked with colored threads tied around the foot above the toes. With older nestlings aluminum bands could safely be used.

Temperature Readings

The temperature was taken in Fahrenheit degrees by means of a clinical thermometer similar in form to that used by physicians. All readings were made from living birds. The bulb of the thermometer, about one-half inch long, was thrust down the throat or esophagus until it was completely out of sight. This placed the bulb well within the body instead of in the upper portion of the gullet. The thermometer was held in place for a minute or longer.

In the case of very young nestlings, the thermometer could not be inserted quite so far. Because of this, an error may be introduced into the temperature readings.

Migration

To obtain worthwhile data on migration, it was found necessary to collect specimens from various localities within the breeding range, as well as from localities in the lower elevations adjacent to the breeding territory. The assistance of 20 field men was secured, who shot specimens during the months of November, December, January, February, and March, and sent them to the Fish and Wildlife Service for identification. A careful distinction had to be made between the Carolina form and the common Slate-colored. Through the cooperation of these field men, a fairly accurate idea of the migration and winter distribution of the Carolina Junco was obtained.

DISTRIBUTION AND MIGRATION

Breeding Range

The Slate-colored Junco has a breeding distribution that extends through the transcontinental boreal forests from Alaska east to Labrador and south to northern British Columbia and the northern tier of the United States from Minnesota east to Connecticut. It also extends south along the Appalachian Mountains to northern Georgia (12). The Carolina form is considered to be the breeding race of the Southern Appalachians north through West Virginia and western Maryland (7, 10, 12, 29, 42, 43).

In Virginia the Carolina Junco is a breeding bird only in the mountains from the Blue Ridge westward and usually only above 3000 feet, though summer birds have been found as low as 2500 feet (18, 29, 30, 49).

Winter Range

Winter specimens of the Carolina Junco in the Fish and Wildlife Service collection are as follows:

<u>State</u>	<u>Locality</u>	<u>Date</u>	<u>Collector</u>	<u>No. of Specimens</u>
Md.	Seat Pleasant	Mar. 18, 1933	Allen J. Duvall	
D.C.	Benning	Mar. 14, 1922	C.H.M. Barrett	
N.C.	Pisgah National Forest	Mar. 19, 1930	T.D. Burleigh	
Tenn.	Watauga Valley	Nov. 6, 1904	Piper and Ellis	1 ad. M
Ala.	Auburn	Mar. 4, 1912	A.H. Howell	

The National Museum has these additional specimens.

<u>State</u>	<u>Locality</u>	<u>Date</u>	<u>Collector</u>	<u>No. of Specimens</u>
Va.	Lexington	Dec. 11, 1933	J.J. Murray	1 ad. M
N.C.	Buncombe Co.	Dec. 23, 1885	Batchelder	1 ad. M
	Jackson Co.	Jan. 4, 1886	Batchelder	1 ad. F
	Highlands	Feb. 8, 1896	Wm. Brewster	2 ad. M

During the winter of 1936-37 a corps of field cooperators were called upon to assist in this study of migration. Each was authorized to take specimens of juncos in his locality and requested to send them to Dr. H.C. Oberholser for identification. By this method we were able to get much valuable data on migration and winter distribution.

Juncos were collected from the following places:

<u>State</u>	<u>Locality</u>	<u>Elevation</u> <u>Feet</u>	<u>Collector</u>	<u>No. of</u> <u>Specimens</u>
Va.	Amelia	340	J.B. Lewis	15
	Apple Orchard	4200	W.R. Branch	1
	Baskerville	2000	W.S. Crute	16
	Charlottesville	580	J.B. Calhoun	11
	Charlottesville	580	D.R. Hostetter	5
	Chatham	850	A.L. Yeatts	13
	Harrisonburg	1350	H.A. Mumaw	18
	Lexington	1000	J.J. Murray	17
	Lynchburg	800	R.S. Freer	15
	Mountain Lake	3800	D.C. Tawney	30
	Mountain Lake	3800	D.R. Hostetter	5
	Old Town	2485	J.M. Reeves	2
	Roanoke	900	A.O. English	9
N.C.	Hendersonville	2153	B.H. Stevenson	8
	New Holland	----	H.C. Lawrence	3
	Raleigh	355	John Grey	15
Tenn.	Cross Plains	800	J.A. Covington	14
	Redboiling Spring	768	W.A. Jordan	13
S.C.	Clemson College	756	W.B. McFall	14
	McClellanville	13	J.B. Shuler	3
Ga.	Athens	700	J.F. Denton	13
	Augusta	129	Dan Henderson	10
	Emory University	1048	Norman Giles	3
	Marietta	1128	F.S. Barkelow, Jr.	3
	Waynesboro	261	B.H. Stevenson	2
Ala.	8 miles south of Gordon	160 at Gordon	H.S. Peters	1
	Prattville	192	L.S. Golson	15
	Tuscaloosa	146	F.V. Lloyd	14

During the winter of 1937-38 several additional specimens were collected:

Va.	Fentress	24	A.D. Wenger, Jr.	1
	Mountain Lake	3800	D.R. Hostetter	5
	Old Town	2485	J.M. Reeves	2
	Roanoke	900	A.O. English	2

Total

298

Of the specimens reported above, the following were identified as Carolina Juncos:

<u>State</u>	<u>Locality</u>	<u>Date</u>	<u>Collector</u>	<u>No. of Specimens</u>
Va.	Amelia	Jan. 21, 1937	J.B. Lewis	1
		Feb. 10, 1937	J.B. Lewis	1
	Apple Orchard	Dec. 9, 1936	W.R. Branch	1
	Charlottesville	Jan. 3, 1937	D.R. Hostetter	1
	Chatham	Nov. 30, 1936	A.L. Yeatts	1
		Feb. 11, 1937	A.L. Yeatts	1
		Feb. 15, 1937	A.L. Yeatts	1
	Harrisonburg	Mar. 2, 1937	H.A. Mumaw	1
	Lexington	Feb. 15, 1937	J.J. Murray	2
	Lynchburg	Mar. 18, 1937	R.S. Freer	1
	Mountain Lake	Dec. 24-27, 1935	D.C. Tawney	3
		Feb. 5-Mar. 5, 1936	D.C. Tawney	9
		Oct. 12-Dec. 31, 1936	D.C. Tawney	7
		Jan. 3, 1937	D.R. Hostetter	5
		Jan. 5-Feb. 22, 1937	D.C. Tawney	10
		Jan. 3, 1938	D.R. Hostetter	5
S.C.	Clemson College	Feb. 6-26, 1937	W.F. McFall	5
	McClellanville	Jan. 30, 1937	J.B. Shuler	1
Ga.	Athens	Feb. 24, 1937	J.F. Denton	1
		Mar. 6, 1937	J.F. Denton	1
Ala.	8 miles south	Jan. 21, 1937	H.S. Peters	1
	Gordon			
	Prattville	Jan. 13, 1937	L.S. Golson	1
		Feb. 2, 1937	L.S. Golson	1
<u>Total</u>				61

This winter range may be somewhat extended by quoting from personal correspondence with reliable field ornithologists.

Mr. Alexander Sprunt, Jr. (41), National Audubon Society, Charleston, S.C., writes of the Carolina Junco: "The normal winter range is in the Piedmont sections, among the foothills and valleys, but it occasionally strays to the coast. Wayne took a few locally some years ago, a typical date being Feb. 4, 1922. It certainly winters every season about Greenville, Spartanburg, and other sections of the Piedmont. I have observed it in the Charleston area (coastal) on Dec. 4, 1928; Dec. 19, 1929; and Jan. 14, 1930. I do not know when it arrives locally but certainly not until the first cold weather, that is after Thanksgiving. It appears in the Piedmont in late September and early October."

Mr. C.S. Brimley (4), late Asst. Entomologist of North Carolina Department of Agriculture, writes as follows concerning winter status: "We have no data as to their winter distribution, but they do not occur here at Raleigh."

The following quotations from published articles are interesting and instructive.

Mr. Bruce P. Ryler (45) states: "Leaving the high mountains, where it breeds from 4000 feet above sea level and upwards, it descends to the mountain base and the adjacent river valleys to spend the winter. At Johnson City it arrives about November first and departs about April first, depending on variations in winter conditions to a limited extent."

Alexander Sprunt, Jr. (38) writes: "Little is known about the time when this most characteristic bird of the higher mountains leaves for lower levels on the coming of fall.... It is reasonable to suppose that no movement toward lower levels is undertaken until the first frosts, but that when such occur, the birds begin drifting downward from the higher ranges almost at once."

Migration

From the foregoing data and discussion it is evident that the Carolina Junco is a migratory bird. While it is found during the winter at lower altitudes and in areas in which it does not breed, it must nevertheless be acknowledged that the migration is rather limited in extent.

This migration is probably largely dependent upon winter conditions. I believe that these birds will remain on the summits of the highest mountains throughout the entire winter unless the snow and cold drive them down to seek food.

Mr. T.D. Burleigh (9) has seen Carolina Juncos on Mount Mitchell, at an elevation of 6684 feet, on January 24, 1930, with three inches of snow on the ground, and the temperature well below freezing. On December 23, 1930, on the same mountain he saw six individuals. The ground was covered with one foot of snow, and the temperature at noon was 9°F.

On the other hand, Mr. Alexander Sprunt, Jr. (41) has several records for the Charleston coastal area. His record of January 14, 1930 is more significant when compared with Mr. Burleigh's record of January 24 of the same year. Here we have juncos spending the winter in areas which differ in altitude by over 6000 feet.

The juncos are on the Biological Station grounds and about the Hotel at Mountain Lake throughout the entire winter. The people who reside there throughout the winter tell me that it is never too cold to find juncos on the mountain. I have spent portions of two Christmas vacations at Mountain Lake and have always seen an abundance of birds.

My observation leads me to believe that they remain on the summit as long as the weather is not too severe and the ground is exposed so that food may be obtained. After a snowfall the birds may be seen along the roadside under the overhang of the bank looking for food in the exposed ground.

If the snowfall is heavy and continues for some time, or the wind is very strong and cold, they drop into the ravines and sheltered places, the degree of descent depending upon the severity of the weather above. As soon as conditions are more favorable on the summit, the birds return. I would consider this a local or purely "weather condition" migration.

The caretaker of the Mountain Lake Hotel reports that Snowbirds in flocks of 40 to 60 come to feed on his garbage during snow storms. This is at an elevation of about 4000 feet. The caretaker of the Biological Station informed me that Carolina Juncos were fairly plentiful on the Station grounds and abundant along the roadsides during January and February 1938 (elevation, 3800-3840 feet). At White Pine Lodge, 3150 feet, the birds come in large flocks into the open feed house during storms. I found juncos in flocks of 18 to 25 during January 1938 in the more sheltered places at 3700 feet. Here they are resting, feeding, and twittering among the brush heaps and thick growth of Rhododendron and hemlock. It is probable that if food were available at all times there would be very few birds leaving the summits during the winter.

It is the opinion of some ornithologists that there is a southward and coastward migration during the winter. This suggestion was made by Dr. J.J. Murray (28) in an article from which I will quote several portions. "Apparently little is known about the winter status of the Carolina Junco (Junco h. carolinensis) which is usually states as 'the lowlands adjacent' to its breeding range. I took a Junco near Lexington, Va., on Jan. 22, 1932, which was identified as carolinensis by Dr. Herbert Friedmann of the U.S. National Museum."

This was the first winter specimens reported north of North Carolina up to that date. Dr. Murray, after making investigation and inquiries among the larger eastern Museums, learned that there were no midwinter specimens of this form in the United States National Museum, the Carnegie Museum, or in the collection of the Philadelphia Academy of Science. The specimens in the Museum of Comparative Zoology and in the American Museum of Natural History were from North Carolina.

This very interesting fact, together with Mr. Sprunt's observations on the South Carolina coast, led Dr. Murray to conclude his article as follows: "In the light of almost complete absence of records from Virginia and farther north on one hand and the occurrence on the South Carolina coast on the other, I would suggest the probability that there is a general migration on the part of the Carolina Junco, with a resultant scarcity in winter in the northern part of the range, a concentration in the uplands of the Carolinas, and an advance beyond the southern limits of the breeding range eastward and southward on the part of many individuals. Possibly it might also be found in central Georgia and northern Alabama."

This view is supported by the data presented above. A coastward migration would account for the Carolina form appearing at Amelia, Charlottesville, and Chatham, Virginia; and at Clemson College and McClellanville, South Carolina.

To get sufficient data for a southward migration, it would be necessary to have banding stations in operation throughout the breeding range from Maryland to Georgia. The more difficult task would be to have the same stations trap during the winter to determine whether there are individuals wearing bands from a more northern station. The specimens from Prattville, Alabama, and Athens, Georgia, certainly indicate a southward movement.

It is difficult to determine from present data whether this migration is general and of several months duration, or whether it is temporary and similar to my observations at Mountain Lake. It is not unlikely that some individuals may become associated with a flock of Slate-colored Juncos and thus go farther from the summer range than the race as a whole. During the field trip of the Virginia Society of Ornithology to Timberlake on February 22, 1936, near Lynchburg, Dr. Wetmore was able to recognize several Carolina Juncos in a flock of Slate-colored Juncos. This may or may not be a common occurrence.

Specimens retaken at Mountain Lake were banded as follows:

<u>Sex</u>	<u>Date Banded</u>	<u>Date Retrapped</u>
F	July 1, 1936 (Nestl.)	Feb. 28, 1938
F	Dec. 25, 1936	Feb. 18, 1937
M	Dec. 25, 1936	Feb. 22, 1937
M	Dec. 31, 1936	June 4, 1937
M	Dec. 31, 1936	July 10, 1937
F	July 13, 1937 (Nestl.)	Jan. 1, 1938
M	May 27, 1937	Jan. 1, 1938
F	May 27, 1937	Jan. 1, 1938
M	Feb. 14, 1937	Jan. 16, 1938
M	Feb. 11, 1937	Jan. 28, 1938
M	Feb. 14, 1937	Jan. 28, 1938

From these meager data we may conclude that migration is not a universal phenomenon, as six out of the above group are apparently permanent residents. That is, they were either banded in winter and retrapped in summer, or vice versa. The data, however, are insufficient to accept this as a general conclusion.

THE NESTING SEASON

Extent

In early April the flock-formation so characteristic of the Carolina Juncos during the winter is still in evidence. Not one bird or a pair, but a group of 8 to 18 or more may be seen feeding by the roadside or in the more sheltered places where food is available. These flocks include adults of both sexes and immature.

On April 4, 1937 one male from a small flock decided to tune up and gave what I considered the first song of the spring. It was rather weak and uncertain, but nevertheless the junco song. Whether there was any singing before April 1, I do not know.

On April 7, a few more songs were heard; these were rather short and not delivered with much enthusiasm. There was some singing almost daily but very infrequently and limited to only a few individuals.

The first sign of spring activity was seen near the club house at the lower end of the Lake on April 12. Two male juncos dashed toward each other face to face, breast to breast, a dispute over a female, or more likely over territory (25). She showed no signs of interest. After the short clash they separated and each went on his way.

Whether this is a case of one male fighting off of his territory (21), or of following a female into rival territory, or a fight to establish boundary lines is difficult to determine. At this time of year the territorial boundary lines are being established, and "males which happen to get too close to each other fight until one of the combatants has retreated to the required distance." (25)

Some authorities (25, 31) are of the opinion that males do not fight for the possession of females; they fight for territory.

By April 13 I noticed the juncos singing more frequently and more naturally; they were traveling about in smaller groups of two and four. During the second and third weeks in April there is a marked departure from the flock formation and a noticeable increase in the number of individuals or pairs found along the roadside banks. This indicates the return to a definite nesting area.

On April 17 a pair of birds were observed along the roadside whose actions indicated that they were looking for a nesting site. After careful watching and searching I found the foundation of a new junco nest, but the birds did not go to the nest any time while I was in sight. More material was slowly added to the nest for several days, but it was finally abandoned.

A new nest was begun on April 24 in the bank 70 feet beyond the above nest. This was the first nest completed and used. It is my opinion, although not proved, that this nest was built by the same birds that abandoned the nest referred to above. (The first egg was laid in this nest on April 30.)

After April 30 the birds are in full song, in courtship, and at nest-building. The latest hatching date of which I have record is August 9, 1936. On August 16 the nestlings at the age of 7 days disappeared from the nest. Allowing about two more weeks for this last brood for normal development, I conclude from my observations at Mountain Lake that the nesting season extends from the middle of April to the latter part of August.

Song

The song of the male Carolina Junco is distinctive. In its simplest form it may best be described in words as a series of metallic, silvery syllables of "ching" repeated from 3 to 12 times in rapid succession. During delivery of the song the head is thrown backward so that the bill is directed upward. The head is brought into its normal position as soon as the last syllable is sung. The performance is very similar to that of the Chipping and Song Sparrows.

There are a number of variations to the above procedure. During courtship the typical song is often embellished with pretty little warbles, trills, and whistles, and the head may be directed toward the female instead of toward the zenith. Bodily demonstrations usually accompany this courtship song, which will be described under courtship.

Vocal expressions of various kinds are given by both sexes. One is the soft twitter so characteristic of the juncos when feeding in flocks. To me it is an expression of satisfaction and contentment. A similar twitter, but slightly louder and harsher, is uttered while flying about in flocks; this is especially true during the winter months. I interpret this to be a group note, that is, a call or signal to keep the flock together.

A very pretty and affectionate warble is given on several special occasions. It is impossible to put it in words, but it is very suggestive of "doi, doi, doi, doi, doi," each syllable repeated rapidly. I have heard it during the nesting season when the female was brooding as she left the nest at the approach of the male with food. As the two met and passed each other, the above phrase was given. Also when both were hopping along the roadside looking for food and happened to meet, the same phrase was given. It appears to be used on such occasions as we would refer to as "tete-a-tete."

During the winter it may frequently be heard. When a flock of juncos is feeding and an individual flies into the group, the phrase may be given by the one or two individuals nearest to the new comer -- a kind of greeting or welcome. So far as I could learn it is given by both sexes.

I have no evidence that daily changes in temperature have any influence upon song or singer. The songs are rendered as naturally and as enthusiastically on chilly mornings as on the warmer mornings.

During a heavy fog or rain there is practically no singing. One or two bold individuals may sing softly during a light shower or toward the close of a heavy thunder-shower. This is especially true if the sun shines through a rift in the clouds.

In general it may be said that juncos do most of their singing in the forenoon between 7 and 11 o'clock and in the afternoon between 3 and 6 o'clock. During midday they are inclined to be more quiet, although there are striking exceptions to this statement.

One interesting fact to notice here is that some songs are ended abruptly. A junco may sing heartily for several minutes, and often this is the case. But a song may also be stopped in the middle of a phrase, and on several occasions I should say, he stopped in the middle of the syllable "ching." A sudden notion to preen, to give attention to his external parasites, to chase after a supposed rival, to dart at a chipmunk, to fly to another portion of his territory, or to follow the female who has left the nest -- these are some of the reasons for abrupt breaks in the song. In some instances the cause is not evident; it may be physiological or temperamental.

Call and Alarm Notes

The warning or alarm note may be described as a short "tsip." This is heard as one approaches a nest. It is also the call note; at least to me it is indistinguishable from the note given by the female while the male is being banded, and vice versa. At such times the one remains near the trap on a tree and calls "tsip" until the other is released; then they fly away together.

In times of real danger and distress, as when the investigator or a predatory animal disturbs the nest, especially if the nestlings cry out, the "tsip" is changed to a very emphatic "tsip." If the danger is prolonged the "tsip" may suddenly be changed into a very high-pitched and less distinct "tsip." I have heard this note given only under times of continued distress. One may think that the change from an emphatic "tsip" to a feeble "tsip" is due to exhaustion on the part of the adults, but I am certain it is a distinct distress note.

Another note is sometimes given when the adults approach the nest with food but hesitate to enter because the observer is too near, or because the nest has just been disturbed. The note is a faint, almost inaudible "tsip" uttered with the mouth filled with food or practically closed. It appears to be a kind of alarm or warning note.

The mechanical sound produced by the snapping of the beak, which is so characteristic of the Slate-colored Junco, I have heard on several occasions, and it is very noticeable when they are chasing chipmunks.

Song Perch

I have never heard a song delivered from the ground. The singer is usually conspicuously perched on top of a small tree, on a brush heap, on a dead limb, on a telephone wire, or on the top of a dead chestnut tree. Apparently he likes to have a commanding view of his territory.

The song is not given while looking for food as is the case of the warblers and vireos.

Selection of Territory

The word "territory" has been widely and vaguely used by various writers. In this paper "territory" refers to the area included by the activities of the parents during the breeding season. Nice (31) states that the territory should refer to the area "to which the parents confine themselves during the breeding season."

Beginning about the middle of April the flock of juncos are no longer in evidence. Scattered individual males are perched here and there on bushes and trees singing the full typical song. The number of sincere increases toward the latter part of the month. It is possible to walk from the Biological Station to the lake on a nice April morning, a distance of one mile, and locate seven singing males along the roadside.

These males are alone at first, with no other members of the species in sight. This may continue for several or even five days. At the end of this period, say five days, there will be a female with him, or he will no longer be singing from his perch. I do not wish to imply that a male must sing for five days in order to interest a female; that I should say is the maximum time. If a suitable female does not present herself after a reasonable period of singing, he leaves that territory and flies to another place. He may be more successful there.

Since these singing males may be separated by a distance of almost a thousand feet or more and persist in singing from the same perch, at intervals, for several days, I assume that they are choosing their nesting territory (and are ready to defend it) as well as inviting a female. The song thus probably serves two purposes, a challenging or warning to other males and a serenade to some passing female.

Defense of Territory

Evidence for the first point lies in the fact that I have seen a singing male suddenly leave his perch and dart after another male, and return to his perch only after he had chased the possible rival for some distance. In one case I distinctly recall, it was not so much a chase as a combat on the roadside bank. Bills snapped as the two clashed headlong; after a round or two, one -- apparently the intruder -- flew away and left the first occupant in possession of the territory. A song of triumph may follow.

On another occasion apparently the boundary line between two nests was not definitely settled. These two nests were only 200 feet apart. As I was observing I suddenly became aware of the fact that the two males were in conflict. The female to each male was near during the battle; one of the combatants lost a feather. The dispute continued for several seconds. Finally an agreement was reached, and both pairs returned to their former business, one to feeding, the other to nest, building (21).

I have seen pairs of juncos fly over another's territory without a sign of hostilities so long as they did not stop or invade the territory. This places the aerial region above the nesting territory in the "neutral zone." This zone is comparable to the "high seas" of international law, which are available to all but cannot be claimed by any nation. In like manner the area above the bushes and trees is a highway for all birds, and no clash will occur unless those passing over drop too low or come too close to the nest site. My observations with the Carolina Junco would indicate that this tolerated proximity to the nest by a stranger is dependent upon the disposition of the owner of the nest.

I am not certain as to the method of winning a female. On several occasions I have seen a female come close to the male, who apparently took no notice of her. Whether there is some courtship singing or display of feathers prior to pairing, I do not know. I do know, however, that usually after a few days of enthusiastic song, a female appears with the male. No evidence is available for believing that very many or serious clashes occur between neighboring males, such as is common with our noisy English Sparrows.

This singing usually continues during the period of nest building and incubation, but becomes gradually less and is very infrequently heard after the duty of feeding nestlings devolves upon the male.

The size of the nesting territories may be partly determined by the distance between nests occupied at the same time. The following table records the distance between nests and the contents of the nests.

<u>Distance Between</u> <u>Nests, feet</u>	<u>Contents of</u> <u>Nest No. 1</u>	<u>Contents of</u> <u>Nest No. 2</u>
1911	young	young
1750	young	eggs
1584	eggs	eggs
1323	young	eggs
1218	eggs	eggs
1000	eggs	young
854	eggs	eggs
300	eggs	eggs
259	eggs	eggs
73	young	eggs

The shortest distance between any two occupied nests was 73 feet. Whether the boundary line is midway between the two nests in all cases, I do not know.

Again, only one nest may be occupied on an entire hillside or on a mountain top, as on top of Big Mountain near Castle Rock. The distance between nests or the size of territories does not seem to be dependent upon season, but apparently upon the individual tastes of the birds, or the number of pairs within a certain area or locality.

Courtship

My reason for discussing courtship at this point is that I believe the behavior that I recognize as courtship plays a more prominent part in the life of the birds after pairing than before pairing. As stated before, I am not certain just how or when the female is won, but the courtship behavior described below was observed, in my opinion, after the birds were paired. If it precedes pairing, it certainly is continued throughout nest building. By pairing "we mean that they seek food together, and are in constant touch with one another" (21). I have no indisputable evidence that feather display on the part of the male is essential to winning a mate.

Courtship display on the part of the male begins shortly after the song is in its prime. My first observation was made on April 19, 1937. The male flew about repeatedly from limb to limb on a small tree. He uttered a series of short whistles, "chee-eps," and "tsips," sometimes followed by a short trill. This series of whistles, etc., was continued for about five minutes. The female on the ground seemed to pay no attention to him whatever. During this vocal demonstration the male was about six feet above the ground and the female almost directly beneath him. There was no spreading of wings and tail feathers. Finally he flew into the brush and was lost, followed by the female.

On other occasions there is a pretty feather display accompanying the song. This display, apparently, is a token of affection given in behalf of his chosen one, rather than for the purpose of choosing a mate. Usually this performance, observed first on April 24, is as follows. The male perches on a small limb above the female who may be feeding or even carrying nesting materials. He sings softly the simple junco phrase or enriches it with various whistles and trills, lowers his wings, and spreads his tail so that the white marginal feathers show beautifully. His head may be thrown back slightly with bill pointed upward, or he may watch the female.

During all this he is nervously changing his position on the limb or changing limbs. The lowering of the wings and the spreading of the tail is one act of short duration, but is frequently repeated. If the female disappears under the overhang of the bank or into the bushes and is not seen from his perch, he assumes the nondisplay posture. As soon as she reappears under him, the wings are lowered and the tail spread.

There may or may not be an audible vocal note in every case. As the wings are dropped from their dorsolateral position, they are slightly turned out away from the body, and sometimes spread open, just a little, like a fan.

Such demonstrations as the above may continue for 10 to 15 minutes, the display occurring at intervals during the time.

I have seen this feather display frequently and more often after the birds were paired. It is a common observation during incubation at times when the female leaves the nest in search of food and during the first several days after the young are hatched. It is less conspicuous or may be absent during the second brood.

Sexual Relations

It is not fully determined whether more than one copulation is necessary to fertilize the four eggs of a clutch, nor when copulation normally occurs. In only one case have I seen a marked pair copulate. This was on the day following the completion of the nest and the day prior to the laying of the first egg. This occurred on a limb, six feet above the ground, and about 800 feet from the nest. The procedure in copulation was essentially as follows. The female assumed a partially squatting position with outstretched fluttering wings. The male flew beside her, mounted, and stood on her rump almost erect, constantly flapping his wings to maintain his equilibrium during cloacal contact. This position was maintained for about two seconds, after which he dismounted, flew to a nearby tree, and sang softly with spread tail and drooping opened wings. The female remained on the limb, shook her ruffled feathers, and began preening. After a minute she flew in the direction of the nest, followed by the male.

In his study of the Ovenbird, Hann (19) found that "copulation takes place ordinarily during the nest-building and egg-laying periods, though there was evidence of it occurring in exceptional cases, both earlier and later." He also records examples of very irregular sex acts, such as I have not observed in the Carolina Junco.

Choice of Nesting Sites

From my observations I conclude that the male chooses the nesting territory over which he is lord and then by his song attracts a female into his territory. After they have agreed to accept each other, it is the female who chooses the site for the nest. Probably he has some way of directing her choice so as to keep it within the limits of his territory. My evidence is indirect rather than direct. So far as I know, the female alone constructs the nest. I have also seen the female scratch out a cavity for a nest in the slope of a roadside bank. Carrying this back one step farther, she may choose the site for the nest.

This is difficult to prove, as both adults may frequently be seen hopping along the roadside bank and looking under the overhang. Furthermore, there is no way of determining at which moment the decision is made. I never knew from their behavior the exact spot where a nest would be placed. The first foundation material was my first clue.

Several cases in which the nest was abandoned when one-third or one-half completed came under my observation. In one case the presence near the nest of a large Pilot Blacksnake may have been the cause. In the other cases I do not know what factors may have been involved.

As a rule juncos do not return to their former nesting site nor into the immediate vicinity year after year as is so characteristic of some Robins, wrens, and Song Sparrows. A roadside embankment one and one-half miles in length may contain six nests during the same period of time one summer and none the next summer. Birds banded as fledglings may be found nesting the following summer a mile or more from their birth place.

Types of Nesting Sites

Their first preference seems to be a gently sloping bank with an overhang of vegetation or a projecting rock. The grassy hillsides containing scattered hummocks of ferns, mosses, and grasses should have second place. Less frequently are the nests placed in the cavities or ledges of vertical sandstone cliffs, on bushes or trees about five feet high, and on level ground where I found them in several instances. Nests built on the grassy hillsides are usually placed under a projecting hummock of sod but may be located at the base of a small tree or bush.

The bushes and trees used at Mountain Lake include Red Cedar, Black Oak, *Crateagus*, *Rhododendron*, and *Deerberry*. When placed in a bush or tree, the nest is so situated as to give the female an open view. In West Virginia Brooks (6) has found the nest in *Viburnum*, small spruce trees, and a tangle of blackberry briers.

An unusual behavior which may be called an irregularity in the choice of nesting sites was noted during the summer of 1936. In this instance the same nest was used twice. On June 19 the nest contained one egg. As the following eggs were laid, they were removed for artificial incubation, thus preventing further activity about the nest. On August 1 this same nest contained two eggs. All went well until August 16, when the nestlings were destroyed at the age of seven days. It is not known whether the same female laid the two sets of eggs or whether the nest was reconstructed. But to use the same nest cavity twice during the same summer is very unusual, at least for the Mountain Lake birds.

Unusual Nesting Sites

The unusual commands our attention. Some nests are placed in such unusual situations that a question is raised regarding their ownership. Probably the most outstanding nest of this kind at Mountain Lake is the one on a beam under the porch roof of a cottage at White Pine Lodge. When Mr. Laing, the owner, called my attention to the nest and suggested the possibility of its belonging to a junco, I reminded him of the fact that these birds do not build in such places and that it very likely belonged to a Phoebe. One glance at the nest convinced me of my error, and as the adult bird flew to the nest I admitted the correctness of Mr. Laing's supposition.

The nest was built on the beam in the corner above the outside edge of the porch. It was seven feet above the porch floor and ten feet above the ground. The adults were fearless of the family who spent the evenings on the porch and who frequently sat on the porch swing almost directly under the nest. Four fledglings left the nest on July 15.

Mr. F.M. Jones (22, page 138) makes this statement in connection with a certain field trip: "Climbed up a soaking wet spruce tree 74 feet to a Carolina Junco's nest which is strictly a ground-nesting bird." The exact date and place of this nest is not given. The article closes with his name and address as Independence, Virginia.

Mr. T.D. Burleigh (8, page 71) describes this unusual nest: "A third nest found July 16, that held three well-incubated eggs, was to me remarkably interesting for it differed radically from any of this species (*hyemalis*) or any of its subspecies, that I had ever seen. It was fully eight feet from the ground in a red maple sapling and partially concealed by a grape vine.... I later realized that this method of nesting was seemingly by no means uncommon here for two other nests were found during the summer in situations very similar to this."

Dr. Chapman (11) gives fallen tree-tops and upturned roots as possible nesting sites for the Slate-colored Junco. I have not found the Carolina Junco's nest in either of these places at Mountain Lake. But Mr. Maurice Brooks (6) gives several instances of nests found in the roots of overturned spruce and hemlock trees. He further states that this is "a favorite spot for the birds in West Virginia." Since I have not found nests in the roots of upturned trees, I am inclined to consider this as an unusual site, at least for Mountain Lake.

Mr. Alexander Sprunt, Jr., of Charleston, South Carolina, mentions several unusual nests. One was in an old tin can under a small White Pine tree, on the edge of a tennis court. The birds did not mind the players at all (36). Others were found in garages and outhouses where they made use of the rafters and beams for their nests just as Phoebe's do (37).

Another unusual nest found and described by Mr. Sprunt is unique in that the junco chose a man-made "bank" instead of a natural one (37, page 568). "This was built in a fern basket on the porch of a large house, a porch much frequented by the family and visitors. The basket was not of the swinging type but stood upon an iron stand immediately to one side of the doorway to the living room. The stand was literally less than a foot from it. The plants in it were luxurious and the bird could only be seen on the nest by looking closely. The nest was sunk into the earth of the basket and contained four eggs when the writer examined it.... Some of the material was the thread of a porch mat!" (nest at Blowing Rock, North Carolina, July, 1930; elevation 4100 feet).

T.D. Burleigh (9) records an unusual location for a nest which he saw on Grandfather Mountain, June 18, 1930, "The other, with newly hatched young, was in an unusual situation, being in the middle of the road itself, and sunken flush with the ground, well concealed in rather deep grass in a small clearing in the woods."

Most juncos prefer to have an open and commanding view from their nests. I found two cases in which the nest was literally built "around the corner"; the female could see very little of the road when incubating or brooding. One was built in a cavity to the left in a large opening in the bank. The only evidence of a nest consisted in the few rootlets dangling down on the outside.

Dr. J.J. Murray gave me the facts concerning an unusual nest at Blowing Rock, North Carolina: "Bird incubating and eggs evidently about ready to hatch -- 10 to 12 feet up on a stone ledge under shelter of a church porch, where people were passing in and out."

On June 27, 1937, Prof. R.S. Freer (16) saw a new type of nesting site on Apple Orchard, Virginia. The nest was built three feet above the ground, in a log outbuilding between the logs and the back of the door-facing. This was at an elevation of 3500 feet.

Several nests were found by Dr. I.F. Lewis on the foundation logs of the cottages on the Mountain Lake Hotel grounds.

Before closing this discussion on unusual nesting sites I should like to call attention to another irregularity in nest-building. I refer to the practice of leaving the nest when partially completed. Two such nests have come to my attention, both on roadside banks. In the one case I thought the presence of a blacksnake may have interfered with the normal process of construction, but in the other case, I can offer no explanation.

It may be that the above nests are what Mr. Sprunt (40, page 531) calls "dummy" nests. I quote from his article: "An unusual feature in the latter case is the fact that a series of 'dummy' nests were constructed before the final one in which the eggs were laid. There were five in number, each placed about two feet from the other along the length of the beam. None was completed and they ranged from only a foundation to a partially complete nest. The final structure held three eggs on Aug. 1, 1934."

Welter (48) in discussing the dummy nests of the Long-billed Marsh Wren states that "Five nests is a fairly good average for a single male bird, during the rearing of the first brood, while several, of course, build as many as ten different nests." Allen (1) believes that the building of dummy nests by nearly all species of wrens is a common practice "but is apparently rather part of a courtship performance, for they are never used by the female." I have no information as to which sex builds the dummy nests belonging to the juncos; presumably they are built by the female. If this is correct, it could hardly be a part of courtship but rather an irregularity occurring in the normal sequence of events in the reproductive cycle.

In his study of the Reed-bunting, Howard (21) found that "on the same day, in the same hour, even within a few minutes she may lay the beginnings of four nests. And so in this uncertain fashion, she seems to find satisfaction. But as the eggs develop, her activities gather strength. She returns to one of the loosely ordered structures, works with renewed energy and what appears great haste, and fashions it into a nest."

Probably the low intensity of the urge to build may account for the incomplete or dummy nest. "When the female carries nesting material from place to place and weaves it into definite structures, even though she abandons one structure after another, it is an indication that she has yielded or is about to yield to her mate.... For just as she is not in a condition to fully respond to her mate, so she is not in a condition to make use of the dead vegetation which she picks up. Thus, while seeking food on the ground, she comes to the root of a tree where the soil has slipped away leaving the fibrous roots uncovered. Pecking at them she seizes some in her beak and tears them away; then remains mouthing them, utterly at a loss what to do, and so lets them drop" (21).

In view of the above nesting sites the Carolina Junco can no longer be called a strictly ground-nesting bird. There also seems to be a tendency on its part to desire human companionship and to take advantage of sites provided by man, such as garages, foundation logs, porches, and porch furnishings.

THE NEST

Nests are begun at Mountain Lake about a month before the trees are in full leaf. The earliest attempt at nest building of which I have record is April 20, 1937. The nest cavity is either a natural depression on the bank due to weathering, or it may be enlarged by the female. Females less than one year old pair and rear young. A female banded August 3, 1937 was the mother to the nest containing five eggs found June 13, 1938. She located her nest approximately one and one-fourth miles from her birth place. The following is a description of the process for building a roadside bank nest.

Building Procedure

After a cavity is selected, the leaf fragments, loose earth, and other debris are removed. If the cavity is too small, the female will enlarge it by scratching with her feet. The loose earth is scratched out over the edge of the cavity, forming a bank, thus enlarging the area upon which to lay the foundation of the nest. She may increase the size of the cavity in diameter as well as in depth, although the floor upon which the nest is built is usually a shallow depression.

In practically all junco nests three distinct parts can be recognized. These I have designated as the foundation, cup, and lining.

The first step in nest building is to lay the foundation. This usually begins by placing a mass of coarse rootlets, dried leaves, and bark at the entrance. This seems to eliminate all possibility of the nest's slipping off the bank. The coarse foundation material is then placed farther into the cavity until it covers the entire floor, although it may be very thin on the inside.

In building the foundation the female makes many trips, carrying large pieces of material such as strips of bark, dried leaves, and rootlets. Many of the rootlets are torn loose by taking a free end in the bill and tugging at them from the ground, while others are broken off by short, jerky flights. Sometimes she is unable to break off the piece she wants; and sometimes the piece is not suitable or cannot be made to fit. This is immediately brought out again and dropped.

There is not such careful arrangement of the material in the foundation as in the cup or lining. However, as she enters the nest, she places the material on the rim and shapes it with her body. She may enter the nest with material from six to nine times in five minutes. Much of this is gathered within six to eight feet of the nest.

Two or more days may be spent upon the foundation depending upon the time of year. The birds work much more slowly and spend more time in building in May than they do on the later nests. In three days a nest will be completed in June and July, whereas five to six days may be spent on the very early nests.

The next step is the construction of the cup. This differs from the foundation construction in that the material is finer and lighter and requires more careful arrangement. To get the finer rootlets and grass stems, she may have to go farther from the nest and thus make fewer trips in any given time. This is especially true of nests built along the roadside.

As she enters the nest, the material is placed and fastened to that already present by movements of her feet and bill. These movements and method of intertwining are very difficult to follow, even at close range, as so much is concealed by the bird. To shape the cup, she settles in the nest, draws in her head, fluffs her breast, and slightly vibrates her body. She may stand up, change her position, and repeat the process. This body vibration, with the aid of the beak, seems to play a large part in the interweaving of the rootlets and stems -- a sort of shaking together. The beak is used to tuck in the loose ends. Ordinarily one day is given to the building of the cup.

The lining of the nest consists of the finest grass stems, hairs, or moss setae. The procedure is similar to that in the building of the cup, except that there is more time spent in interweaving the grasses or hairs and in shaping the nest. She may remain in the nest from one and one-half to two minutes during the final stages of nest building. More time may also be required to get the fine materials for the lining. The majority of nests during June and July are completed on the third day.

It should be mentioned that only the females build the nests. The activities of the males will be stated later. As is the case with most birds, nest building is begun early in the morning and continues until about 9:30 or 10 a.m., depending upon the day. Building may begin as early as 5:20 a.m., but there are frequent recesses ranging from 15 to 30 minutes. After the ground becomes warmed, the grasses, etc., are no longer pliable and cannot be used for nest-building. On damp foggy mornings they may work longer. I have no record that they build in the evening, nor during a rain, but they do right after a shower. At no time in which I observed the building operations was there a day or two of rain. I do not know what would result in such a case.

Reaction During Nest-building

The female is not easily disturbed during nest-building. I can approach within 12 feet of the nest, and she will continue her work. Some females will tolerate a little more curiosity on my part. If one approaches too closely, she will likely cry "tsip" and suspend all operations, but meanwhile look for material. The wise observer will soon

retreat and allow her to continue her work; otherwise she may fly away. In no case was there an outcry or an alarm when I investigated a nest under construction. During the nest-building the birds are relatively indifferent.

Materials

The foundation of the nest consists of coarse material -- twigs, large rootlets, weed stems, dead leaves, and strips of bark. If the nest is placed in the grass on a hillside, there is loss of the bark and coarse rootlets but more weed and grass stems.

The cup is composed of finer rootlets, fern rhizomes, grass stems, and fragments of leaves. The lining consists of very fine grasses, hair and moss setae.

The grasses in the nest linings consisted principally of Poa compressa with a few Danthonia compressa. A little Agrostis alba was also represented. Stems of Potentilla canadensis and Hypericum sp. were abundant in the foundations.

In selecting nest materials, the juncos are sufficiently versatile to make use of materials at hand. Coarse roots, rootlets, coarse grass, fine grass, grass stems, and moss are widely used. In place of or in addition to coarse rootlets, fern rhizomes may be used. Animal hair, fine grass, or moss setae may be used for lining. The lining of a certain nest two miles from the nearest pasture was composed of hair and Polytrichum setae. The lining of another nest, also some distance from a pasture, contained very few hairs.

Size of Nests

The following table gives the sizes of 30 representative nests; measurements are expressed in inches.

<u>Nest No.</u>	<u>Depth of Nest Cavity</u>	<u>Outside Diameter</u>	<u>Inside Diameter</u>	<u>Depth of Nest</u>
1	4.5	4.5	2.5	2.0
2	4.0	4.0	2.75	1.75
3	---	4.5	2.5	1.87
4	4.0	4.0	2.0	1.5
5	3.5	3.5	2.0	1.5
6	3.5	3.5	2.0	2.0
7	6.0	3.25	2.25	2.0
8	---	4.25	3.5	1.75
9	4.5	4.5	2.25	2.0
10	3.5	3.5	2.25	2.0
11	4.5	4.5	2.0	1.75
12	4.5	4.0	2.25	1.75

<u>Nest No.</u>	<u>Depth of Nest Cavity</u>	<u>Outside Diameter</u>	<u>Inside Diameter</u>	<u>Depth of Nest</u>
13	4.0	5.0	2.5	1.75
14	4.0	4.0	2.5	1.5
15	3.5	4.0	3.0	1.5
16	4.5	3.75	2.5	1.5
17	4.0	4.0	3.0	1.5
18	4.0	4.0	3.0	2.0
19	4.5	4.5	2.5	1.75
20	4.5	4.5	2.0	1.75
21	4.5	4.5	2.5	1.5
22	4.5	4.5	3.0	2.0
23	3.5	3.5	2.75	1.25
24	5.0	4.5	2.5	1.5
25	4.0	4.0	2.0	2.0
26	5.0	4.5	2.0	1.5
27	4.0	4.0	2.5	2.0
28	4.75	4.75	2.75	1.25
29	5.0	5.0	2.25	1.5
30	5.25	5.25	2.5	1.25
Average	4.32	4.20	2.46	1.69

Nest cavity refers to the excavation in the bank in which the nest is built. The depth is determined by measuring the horizontal distance between the interior wall of the cavity and a perpendicular line at entrance of cavity.

The average measurements (in inches) for the 30 nests are as follows: depth of nest cavity, 4.32; outside diameter of nest, 4.20; inside diameter of nest, 2.46; depth of nest, 1.69. Using the above average for outside and inside diameter, we find the nest wall to average 1.76 inches in thickness. These measurements compare favorably with those given by Eifrig (13) for Garrett County, Maryland, which follow: outside diameter, 5.00; inside diameter, 2.75; depth of nest, 1.5 inches. Sprunt (36) gives these measurements for nests in North Carolina: outside diameter, 4.50; inside diameter, 2.50; depth of nest, 1.80 inches.

It should be mentioned, however, that many nests located in roadside bank, and under tussocks in grassy hillsides, do not have a uniformly thick nest wall. The outside wall, where the bird perches when entering the nest, is usually thicker and heavier; the sides are somewhat thinner, but usually uniform; the innermost wall of nest may be very thin. There may be a difference of three-fourths inch in thickness of outer and innermost wall.

The average-sized nest is as common as the average-sized bird. In other words, the size of nests varies with the size and taste of the birds. Individual differences are almost as marked in birds as in people.

Activity of the Male During Nest-building

Under date of May 14 I made the following note. "At 7:35 a.m. the nest building began. The female did all the work; the male was perched on a limb and spent his time singing a few phrases. He spread his tail as she approached close to the limb on which he sat. She gave no evidence of paying any attention to him. At other times he was on the ground near her uttering short, soft twitters, then in a second he was out of sight."

A note, dated May 16, is as follows: "Female busy building 7:00-7:40 a.m. The male sometimes enters the nest with her but never carries material. He encourages her with the work by singing short phrases, twittering to her on the ground, or flying about her as she gathers material, which is obtained within six to eight feet of the nest."

On the following day the same female was seen continuing her nest-building. She entered the nest less frequently than yesterday, as more time was required to choose the material, which was now obtained about 100 feet from the nest. The male accompanied her on practically all her trips in gathering material. Sometimes he picked up leaves, twigs, etc., but soon dropped them.

Another male was observed following or chasing his female as she was gathering material. Whether this was to encourage, or to hurry her along in the work, I could not determine.

One male came very close to helping in the work. He spent much time following the female, singing softly, and displaying. On one trip he helped gather material and carried a mouthful to the nest. However, nest-building was not in his line; he did not know what to do with the stuff. He paused for a few moments, looked around, then carried the material out and dropped it and went on with his singing. This is the only male I saw carrying material into the nest.

Some males during nest-building are seldom seen about the nests; others guard and scold when danger threatens. Still others behave in the manner described above.

EGG-LAYING

During the early part of the season from three to five days may elapse between the completion of the nest and the laying of the first egg. In the height of the breeding season, usually only one day intervenes.

In all cases observed, the eggs were laid early in the morning, usually between 6 and 9 a.m. I have no record of eggs being laid after 10 a.m.

The male may spend his time feeding, singing, or guarding while the female is on the nest. As soon as the female leaves the nest, both fly away and may not be seen during the remainder of the day. In a number of instances, I came upon a nest containing one or two eggs and found no bird to claim ownership or to dispute my right to investigate.

Number of Eggs

The full set for the early nests consists of four eggs. Nests containing five eggs are very rare but may occasionally be found. Prof. Maurice Brooks (6) of Morgantown, West Virginia, and Mr. Bruce P. Tyler (46) of Nashville, Tennessee, have found nests with five eggs. During the summer of 1938, on June 13 I found a nest containing five eggs and on June 17 a nest with five four-day-old nestlings, both within one-half mile of the Hotel.

Practically all nests begun after July 1, and which are unquestionably of the second brood, contain only three eggs. I have only one record of a nest begun after July 1 which contained four eggs. It appears to be generally true that the May and June nests contain four eggs, rarely five; and the later nests, three eggs. There possibly are some exceptions.

The eggs have a whitish ground color, slightly washed with very pale greenish or bluish, and finely and evenly speckled with cinnamon brown to fawn color except at the larger end, where there may be heavier pigmentation. This heavier deposition of pigment may be in the form of large blotches or a mass of fine speckles. Frequently the pigment is deposited in the form of a wreath which may be complete or incomplete. It may have a large or a small center. There is a wide range of variation in the deposition of the cinnamon brown. One clutch may contain four eggs very unlike in the pattern of the larger end.

The largest eggs were found on July 27, 1937, and June 17, 1938. The former measured 23.7 x 16.3mm., the latter 26.3 x 14.5mm. The smallest egg, measuring 18.0 x 13.5mm. was found August 2, 1937. All three were sterile.

The majority of eggs measured from 20.0 to 21.8mm. x 15.0 to 16.0mm.

Forbush (15) gives 0.80 x 0.60 inches (20.3 x 15.2mm.) as the size of the Slate-colored Junco egg. Chapman's (11) figures are slightly lower, 0.76 x 0.58 inches (19.3 x 14.7mm.). Whether these figures represent an average or the measurements of only a few eggs is not stated. Apparently, the Caroline Junco egg is slightly larger than that of the Slate-colored.

INCUBATION

Behavior of Female

In most cases the female begins incubating after the third egg is laid. During the first and second days of egg-laying, she is not on the nest at all except to deposit her egg. On the third day she does not incubate continuously but is on the nest more or less throughout the day. This varies much with the individual. On the fourth day, after laying the fourth egg, she sits continuously on the nest.

My records show that only the female incubates. During the early part of the incubation period she leaves the nest frequently to feed and probably to exercise. On a number of occasions she left the nest in response to a call from the male or in answer to his song.

On the whole she sits very quietly and tightly during the first seven to nine days of incubation. After the ninth day there is more restlessness and activity on her part. She turns her eggs much more frequently "so that they will be heated evenly and so that the membranes will not adhere to the shell and prevent the free passage of air to the interior" (1). She leaves her nest more often and for longer periods of time; this is undoubtedly for the purpose of cooling the eggs, which are now becoming greatly warmed by the developing embryo. She may also change her position on the nest without leaving the nest. As the hatching day approaches, the above activities become more pronounced.

Only one temperature reading was taken of an incubating bird; this registered 104.6°F. The breast of the female differs from that of the male in that her featherless area is much reddened by the many small capillaries lying close to the surface of the skin.

Behavior of Male

I have never observed any male Carolina Junco incubating. One sat on the nest for two minutes, 10:22 to 10:24 a.m. on June 17, 1937, during the eighth day of incubation. This short period can hardly be called incubation. He is usually in a nearby bush or on a lookout perch while the female is on the nest. His duties are varied. He sings apparently for the joy of singing and to maintain his territory. He warns with mild "tsip" when danger threatens; and if the intruder or investigator does not heed, the mild "tsip" may be changed into a vehement "tsip".

His police duties consist in keeping members of his own and other avian species from coming within a certain fixed distance of the incubating female; and in driving away the ubiquitous chipmunks.

Much time is spent in sunning and preening his feathers. Preening is accomplished by passing the beak through the feathers as we do a comb through our hair. Frequently some of the feathers, as those of the breast, are passed through the partially opened beak. At intervals the beak is brought into contact with the uropygial glands.

Advantage is also taken of every opportunity to accompany the female on all her feeding trips. While the male cannot be seen at all times, I do believe that he is never very far from the nest and probably has his eyes on the nest most of the time. Frequently I would approach an incubating female, and only after the female left the nest did the male come out of the bushes. I am certain that he was observing all the while.

Daily Activity

Probably the activity of both birds can be best appreciated by following them throughout the day. I take the following from my diary.

6th Day of Incubation

June 15th, 1937

6:00 a.m.	Arrived at blind, female incubating.
6:21	Male sings one phrase softly, female leaves nest, flies to opposite side of road to join male.
6:38	Female returns to nest unaccompanied by male. She rests one-half minute on limb above nest before entering.
6:45	Left blind, female incubating.
9:30	Returned to blind, female incubating.
9:50	Male sings and appears within 50 feet of nest.
9:53	Male within 20 feet of nest.
9:55	Male flies into bushes back of nest.
10:04	Female leaves nest, flies back to branch 6 feet from nest. The sound of her fluttering wings attracted the attention of male on other side of road. He immediately begins to sing; she answers with a series of "chips" and flies across road to join him.
10:05	Both are on limb close to nest, but soon disappear into bushes.
10:15	Female enters nest during heavy shower of rain. Male accompanied her to within 2 feet of nest, remained there one minute, then flew into bushes.
10:30	Left blind, female incubating.
1:00 p.m.	Returned to blind, female incubating.
1:10	Male twitters in bushes 50 feet from nest.
1:15	Male utters several twitters and flies 25 feet above nest over to opposite side of road.
1:30	Female leaves nest, joins male to feed on opposite side of road.
1:45	Female returns to nest escorted by male who remains perches above nest on limb for one minute.
1:49	Male chases chipmunk across road. He flew hard against the chipmunk (at least it appeared so) and snapped his beak.

2:25 p.m. Male sits on limb of tree across road, preening feathers and watching nest.
2:31 Female leaves nest, flies across road to join male. No call or song notes from either one.
2:37 Female returns to nest unaccompanied by male.
3:50 Female leaves nest, flies across road to male on opposite side.
3:51 Male sings three phrases.
3:55 Male sings ten phrases.
3:57 Male sings five phrases.
3:58 Both are twittering and chipping in bushes 40 feet from nest.
4:00 Female enters nest, escorted by male. On approaching nest, the female follows a definite route. She invariably lights on a certain branch, flies to another branch nearer nest, and finally flies into nest. Male remained on limb above nest until frightened off by passing truck at 4:05.
4:30 Female leaves nest, flies into bushes. Male follows her from other side of road.
4:36 Female returns to nest escorted by male.
4:38 Male sings three phrases.
4:53 Female leaves nest.
4:55 Female enters nest. She was close to the nest all the time, so was the male who was spreading his tail almost continuously. Male remained on his perch near nest until 4:58. Male is within 40-50 feet of nest, on some lookout perch practically all the time.
5:27 Male sings five phrases.
5:36 Female leaves nest. She was seen by male who immediately sang one phrase and joined her, and followed her about with spread tail.
5:44 Female returns to nest.
5:45 Male sings six phrases and disappears into bushes.
6:00 Left blind, female incubating.

8th Day of IncubationJune 17, 1937

5:30 a.m. Arrived at blind, female incubating.
5:53 Female leaves nest, flies across road over blind; male not in sight.
6:04 Female returns to nest escorted by male, who remains on branch above nest, watching, preening, delousing, etc.
6:10 Male flies from his lookout perch into nearby tree.
6:49 Male sings six phrases very softly.
6:50 Female appears on rim of nest, pauses for several seconds, then flies to branch above nest. Chips and delouses, then flies into bushes to join male.
6:51 Both return to limb above nest.
6:53 Male enters nest, looks things over, remains one minute, comes out and both fly into bushes.
6:58 Female returns to nest.

7:17 a.m.	Female leaves nest and perches on limb above nest. Male begins to call on opposite side of road; she flies to him.
7:23	Male darts after a chipmunk who came too near the nest.
7:28	Female returns to nest unescorted.
7:30	Left blind.
9:00	Returned to blind, female off nest.
9:10	Female returns to nest escorted by male.
9:38	Female leaves nest and flies to branch above nest. Male apparently sees her and twitters, she flies to him across road.
9:45	Female returns escorted by male, who remains on lookout perch above nest.
9:46	Male flies to tree across road.
10:22	Female leaves nest at approach and twitter of male. Male immediately enters nest, looks about and finally settles on eggs, much to displeasure of female who flies about and scolds.
10:24	Male leaves nest and goes to female.
10:35	Female enters nest unescorted.
11:00	Female leaves nest.
11:10	Female returns to nest.
11:25	Female leaves nest.
11:32	Female returns to nest.
11:41	Female leaves nest, flies to other side of road.
11:46	Female returns, escorted by male with spread tail.
12:00	Left blind.

The female is off the nest on an average of 23 minutes per hour during the eleventh day of incubation, as compared with 8 to 15 minutes per hour during the sixth day of incubation. More cooling of the eggs is necessary as the embryos become more fully developed, since their bodies are constantly generating more heat.

Throughout the incubation period the male continues his singing and displaying of tail feathers.

Irregularities

It occurred to me to experiment with several females to determine whether they could or would recognize foreign eggs. In several cases the one fresh egg was removed and replaced by a marked sterile egg. The next day the second fresh egg was removed and replaced by another sterile egg. This was continued until the third egg or full set was laid. I have no evidence that the birds recognized the strange eggs, at least they were not removed from the nest. It is generally accepted that birds show no recognition of their eggs except in association with a particular site.

In another case I replaced a fresh egg by a blown egg. This was removed from the nest the following day. Apparently this egg with a hole looked too unfamiliar and could not be tolerated in the nest.

This behavior raised another question which was thought worthy of further investigation. To determine whether it was the hole in the shell or the light weight of the egg that caused the adult to discard it, the following experiment was performed.

In several nests an egg was taken two or three days before hatching and punctured with a needle. This made a hole but did not change the weight, as the contents were not removed. These punctured eggs were removed from the nest by the adults as quickly as the blown eggs -- within one-half hour. Evidently the hole was a more important factor than the weight.

At another time I replaced a full set of eggs with sterile eggs shortly after incubation had begun. My object was to learn whether the female would sit longer than the days normally required to hatch the eggs. All went well until the day of hatching, when the nest was attacked and the female was driven away. I do not know how much longer she would have incubated had her nest not been disturbed.

The above experiment was repeated during the summer of 1938. The eggs of several nests were made sterile either by immersing them in boiling water or by closing the pores of the shell with an alcohol-soluble dye. In two cases the females incubated six days beyond the time of hatching, in the third case, two days. All three nests were empty at the close of incubation. Whether the eggs were removed by the adult birds or by some predatory animal, and whether she would have incubated longer were the latter true, is not known. This experiment, however, does show the strength of each phase of the reproductive cycle.

This peculiar and interesting behavior on the part of the birds toward their eggs suggested another experiment designed to test both their perception of color and what might be considered reaction to foreign eggs. The eggs to several nests were colored red, yellow, blue, and green with the commercial food colors, and black with India ink. The eggs were first made spotted and streaked, and a day or two later were painted a solid color. An uncolored egg was always left in the nest as a control. In no case were any of the eggs removed, nor did the female hesitate to sit on the eggs at her first return. The eggs were colored after the birds had incubated for from 2 to 4 days.

From this we may not conclude that the birds are color blind but rather that this is another illustration of the blind nature of their emotional activities. "For example, a 'broody' bird, that is, one in the incubating part of the cycle, may be induced to sit upon a wide variety of objects other than eggs. Among the long list of such substitutes, some of them experimentally supplied, others adopted by birds of their own 'volition', are golf balls, potatoes, bricks, stones, and small bottles" (17). To this list we may now add artificially colored eggs.

Reaction to Disturbances

During the entire incubation period the female sits persistently on the nest. She does not appear to be disturbed by the approach of other birds or chipmunks; she has confidence that the male will protect her.

I can walk within two feet of an incubating female without flushing her. In several cases I have stepped within one foot of the nest before she flew off. If I approach the nest in an unconcerned manner, I can usually place my hand within ten inches of her before she will leave. She leaves very suddenly and quietly. In a flash she is off the nest and running with dropped wings down the slope of the bank and along the roadside, without uttering a sound.

In drooping the wings and running away the bird, intentionally or unintentionally, is usually successful in luring intruders away from her nest. It is difficult to believe that the injury display or feigning, which is so characteristic of the killdeer (2), the woodcock (34) and the junco, is the result of instinct; much less so of intelligence. It is more likely that Friedmann (17) has given the most satisfactory explanation. "Injury feigning is a compromise between fear and reproductive emotions. Fear impels the bird to leave its nest; the bond to the nest and eggs or young prevents the bird from doing so; the result is a crippled departure." This "crippled departure" may manifest itself in various ways; the bird either half runs, half flutters, half flies, or droops one or both wings as though broken. The Carolina Junco usually droops both wings and may flutter them as if broken.

In case I pass by and do not stop to look at the nest, she will usually fly up on the bank and quietly return to her nest. Should I pause at the nest, she will most likely begin to scold "tsip" and may even attract the male by her scolding. In this latter event, a longer interval of time elapses before she returns to her nest.

During the last day of incubation and the first two days with young the females, when flushed, usually return to the nest within five to eight minutes.

In no case have the birds made any effort to defend their nest or to fly at me when only eggs were in the nest.

If one approaches a nest containing eggs, from which the female has gone to feed, the behavior is somewhat different. The adults usually call "tsip" and may fly about or remain on a favorite perch. If the observer retraces his steps, the birds act very cautiously. They may fly over the nest several times to various bushes. They often fly toward the nest, then swerve about and nervously fly back toward the nest again, over the nest, beyond the nest, and finally get closer. They may make a dash for the nest or fly away again. Depending upon the nervous make-up of the bird, how well the observer is concealed, and the distance from the nest, this nervous flying about may continue for 10, 15, 20, 30, or more minutes. Finally the female enters the nest if there is no unusual move on the part of the observer. I have observed that there is more nervousness and concern on the part of the female as the time of hatching approaches.

On July 23, 1937, a nest containing three eggs was found on top of Potts Mountain near Castle Rock. This nest was built in the grass in the roadway just inside the wheel track. The V.P.I. Conservation Truck, driven by Mr. L.S. Givens, passed over this nest on six trips; i.e., the truck passed over the nest 12 times during the period of incubation. Each time the female flew off just before the truck passed over the nest. Each time she returned and remained faithful to the day of hatching. Just before hatching her nest was attacked by some animal; while only one egg was destroyed, she never returned to the nest.

Incubating and brooding females are remarkably indifferent to the photographer and his equipment. The bird usually leaves while the camera is being set up four feet from the nest. After all is in readiness and the observer withdraws, the female returns to the nest without the slightest hesitation. The strange object before the nest does not disturb her. I have frequently quietly walked up to the camera and released the shutter without flushing her.

However, if the camera is set up while the adults are feeding, the male will usually bring in food while I am standing by the camera ready to take his picture. No female has fed her young while I was standing by the camera four feet from the nest.

In general, what was said concerning the first nest of a season applies equally well to the second setting. However, there is less displaying of the tail feathers. Since three eggs comprise the second set, incubation may begin after the second egg is laid.

Hatching

The eggs hatch during the night following the eleventh day of incubation or on the twelfth day. In other words, if incubation begins after the third egg is laid, the young are hatched on the twelfth day after incubation has begun or on the fourteenth day after the first egg is laid. This is so uniform that I have accurately predicted the hatching date of from 25 to 30 nests.

The hatching of the egg, as seen in the incubator, is as follows. The first evidence is a little peck or crack in the shell. This enlarges into a small hole, and finally the shell is cut by the egg tooth and pecked away in a line running at right angles to the long axis of the egg. The line is not in the center of the long axis but from one-third to one-half the distance between the center and large end of the egg. This line or crack gradually widens and lengthens until it almost encircles the egg. During this time the chick exhibits various head, leg, and body movements until finally the shell breaks in two, and the chick leaves the egg. The young are hatched blind, helpless, and practically naked.

THE NESTLING STAGE

Activity During the Hatching Day

The male is more conspicuous about the nest after the young are hatched, and immediately he bears his share of the responsibility in feeding the young. These activities are probably best presented by recording portions of my diary.

12th Day IncubationMay 20, 1937

- 5:15 a.m. Arrived at blind, female incubating.
7:10 Movement in nest as if turning eggs, also a change in position.
7:15 Female changes her position.
7:20 Male flies by nest uttering two "tsips," which attracted her attention.
7:32 Another change in position, even standing up in nest and working with her head under her body.
7:35 Female very restless; something under her body seems to demand her attention.

7:40 Female leaves nest at singing of male. Upon investigation I found two young and two unhatched eggs. These young were evidently hatched during the early morning hours.
7:43 Female returns and feeds young. Leaves again in search of food.
7:44 Female returns to brood, with a continual readjustment and re-sitting.

7:58 Female leaves nest.
8:05 Female returns and feeds young with what appears to be a larva; broods.
8:13 Female leaves nest.
8:16 Female returns with food; broods.
8:24 Female stands up in nest, reaches under her body and pulls out half an egg shell, which she immediately proceeds to eat. The second half was also pulled out and eaten as she stood in the middle of the nest. In this way she disposed of the shell of the egg which hatched during the last few minutes.
8:47 Female leaves nest at call of male. Upon investigation, I found one unhatched egg in nest, and one more mouth to feed.
8:49 Female returns with food; leaves again.
8:55 Female returns with food; broods.
9:15 Female leaves nest.
9:26 Female returns and broods; does not feed young.

10:13 a.m. Female leaves nest.
10:15 Female returns with food; leaves again.
10:25 Female returns with food and broods. Since young are in nest, the male is more conspicuous than formerly.
10:50 Female leaves nest.
10:53 Female returns with larva, which is mashed and torn to bits while feeding; leaves.
10:56 Female returns with food; broods.
11:01 Female leaves nest.
11:16 Female returns with food; broods.
11:34 Female leaves nest at singing of male.
11:36 Female returns with food; broods.
12:00 m. Left blind, female brooding.
1:10 p.m. Returned to blind, female on nest.
1:12 Male brings female food which he places in her open beak. He ~~remains~~ on edge of nest for one-half minute, feeding her and conversing.
1:30 Female leaves nest. Investigation reveals that the fourth egg has not yet hatched.
1:36 Female returns with food; broods.
1:41 Male brings food to female.
2:25 Female leaves nest.
2:30 Female returns. She reaches under her body and pulls out half an egg shell which she eats while standing in the nest. With the second half in her beak she flies to a limb above the nest and eats it, even dropping to ground to eat a piece she had let fall. Apparently this fourth egg was hatched during the preceding minute or minutes.
2:35 Female leaves nest.
2:50 Female returns.
3:10 Male brings food to female, who in turn gives it to young. When she raises her body to feed young, male also feeds one.
3:20 Female leaves nest.
3:26 Female returns with food; broods.
3:34 Male brings food which female gives to young.
3:42 Female leaves nest.
3:49 Female returns with food; broods.
4:15 Female leaves nest.
4:20 Female returns with food; broods.
4:24 Male brings food and feeds female and young.
4:26 Female leaves nest.
4:29 Male feeds young in absence of female.
4:40 Female and male return with food. Female feeds young and remains to brood. Male gives his to female and young.
Left blind.

An interval of about six hours occurred between the hatching of the third and fourth egg. I do not know when the first two eggs hatched; two young were in the nest at 7:40 a.m. and probably an hour or two before. The hatching period extended over a period of at least nine and one-half hours, as no shells were eaten by the female between 5:15 and 7:40 a.m.

The male did not feed the young before the middle of the afternoon. I saw no evidence of excretory sacs; they possibly could have been eaten without my notice.

12th Day of IncubationJune 12, 1937

4:30 a.m.	Arrived at blind; female on nest.
4:53	Female leaves nest.
4:55	Female returns to nest.
5:00	Female leaves nest. An unusual restlessness on her part aroused my curiosity. Upon investigation, I found that three eggs were already hatched. This occurred either during the night or very early in the morning.
5:02	Both bring food; perch on edge of nest.
5:03	Male leaves; female broods.
5:11	Female leaves.
5:11½	Male feeds light-colored larva.
5:12	Female returns without food; enters nest to male.
5:13	Male leaves.
5:22	Female leaves nest at call of male.
5:24	Male brings food and remains on nest until 5:26.
5:29	Female returns; no evidence of food.
5:35	Male feeds; remains standing on edge of nest for several minutes.
5:58	Female leaves nest at approach of male with food.
6:00	Male brings food, looks over the young, seems much interested, but does not brood.
6:01	Female returns without food but does not brood.
6:15	Left blind; one egg still unhatched.
8:50	Returned to blind; fourth egg hatched.
8:55	Female leaves nest.
8:57	Male brings food.
9:04	Female returns and broods.
9:11	Female leaves nest.
9:15	Female returns.
9:17	Female leaves nest.
9:24	Male brings food.
9:25	Female brings food and broods.
9:35	Female leaves nest at approach of male with food.
9:37	Female brings small moth; broods.
9:50	Female leaves nest.
9:59	Female returns and broods.
10:15	Female leaves nest.
10:18	Female returns with food; broods.
10:34	Female leaves nest.
10:39	Female returns with food, eats excretory sac, and leaves.

10:42 a.m.	Female returns with food; leaves.
10:43	Male brings food.
10:44	Female returns with food; broods.
10:52	Male brings food, feeds female by placing his bill alongside of her bill; there is a sidewise transfer of food. Female then feeds young.
10:58	Female leaves nest.
11:06	Female returns with food; broods.
11:24	Female leaves nest.
11:26	Female returns with food; broods.
11:28	Female flies to perch and takes a sun bath.
11:29	Female leaves perch.
11:32	Male brings food.
11:33	Female returns with food; broods.
11:45	Left blind; female brooding.
1:45 p.m.	Arrived at blind; female brooding.
1:50	Female chased off nest by passing car.
1:57	Female returns with green larva.
2:03	Female leaves at approach of male with food.
2:15	Female returns; broods.
2:49	Female leaves as male brings food; eats excretory sac.
2:50	Female returns with food; broods.
3:08	Female leaves as male brings food.
3:15	Female returns with food; broods.
3:29	Male brings food. Female rises to back portion of nest to allow male to feed young.
4:03	Female leaves nest.
4:07	Female returns; broods.
4:25	Female leaves nest.
4:31	Female returns with food, eats excretory sac, and broods.
4:44	Female leaves nest.
4:47	Female returns with food; broods.
4:51	Female leaves nest at approach of male with food.
4:58	Female returns with food; broods.
5:05	Female leaves nest.
5:09	Female returns with food, eats excretory sac, and leaves.
5:15	Female returns with food; broods.
5:32	Female leaves nest.
5:38	Male brings food and eats excretory sac.
5:43	Male brings food.
5:45	Female returns with food; broods.
6:00	Left blind.

I have seen no hatching during this observation. The male brooded for a very short time, only two minutes. This is very unusual, but it can be said that the male bird does brood. Murray (26) records a similar observation.

In each case after bringing food the parent carefully looks over the nest for feces or surplus food, both of which are promptly removed.

Under date of July 3, 1937, I made the following observation:

2:15 p.m.	One egg hatched in nest near hemlock tree.
3:15	Second egg hatched.
3:45	Third egg hatched.
7:15	Fourth egg hatched.

This observation is valuable in that it gives the range of time required for the hatching of a full set. There is a period of five hours between the hatching of the first and fourth eggs. The longest interval, three and one-half hours, occurs between the hatching of the third and fourth eggs. Whether or not the last egg to hatch was the last one laid is not known. This late hatching of the fourth egg may account for the fact that many nests contain a weakling or runt. The egg may be slow in hatching because of a weak chick; this in turn produces a late and weak nestling.

The eating of the shells by the female may serve two purposes. First, it is a source of calcium carbonate, a necessary food ingredient for egg-shell formation; secondly, this disposition lessens the possibility of attracting enemies to the nest.

Contrary to the poultryman's practice of not feeding chicks during the first 24 hours, the female junco feeds her young during the first hour.

The first food is probably a semiliquid, an insect pulp of some kind. The young are fed by regurgitation, the mother placing her bill in the large throats of the young. From two to three hours after hatching the food is more solid and in the form of small larva and moths. Most of the feeding is done by the female during the first day.

12th Day of Incubation

July 23, 1937

5:30 a.m.	Arrived at nest; female incubating.
5:40	Egg No. 2 hatches. Female eats shell.
6:30	Female leaves nest at call of male.
6:40	Female returns to nest; broods.
6:55	Female leaves nest at call of male.
7:00	Female returns with food, a small moth, which she, by all appearances, feeds to nestling. Broods.
7:20	Female leaves at approaching of male. Both leave.
7:30	Both return with food. Male enters nest first but is unable to dispose of his mouthful; apparently he does not know how to feed when the food response is so weak. Female enters nest and feeds young; then she takes the male's contribution from his bill and eats it. She broods; he leaves.
8:00	Female leaves nest.
8:16	Female returns and broods.
8:45	Female leaves nest.
9:00	Female returns with food; broods.
10:00	Male brings food; female goes to side of nest to allow male to feed young.
10:15	Female leaves. Egg No. 3 hatches, four and one-half hours after No. 2 hatched.

10:27 Female returns to find second nestling and two portions of egg shell. To my surprise she seizes and carries the larger portion across road into the bushes. I was not prepared for this move on her part and was not located where I could see her. Whether the shell was dropped or eaten, I do not know. In one-half minute, sufficient time to eat the shell, she returns, enters the nest, and eats the remaining portion. Broods.

10:30 Left blind.

This is the only nest in which I marked the eggs, No. 1, 2, and 3, in the order in which they were laid. My object was to determine whether there is any relation between the order of egg-laying and the order of hatching. As this was a July nest, only three eggs were laid, and unfortunately the first one was sterile. Eggs Nos. 2 and 3 hatched in the order in which they were laid. While this is what one would expect, my data are insufficient to draw any conclusions.

I have found a number of nests containing both young and one unhatched egg. It is my belief that the sterile or unhatched eggs are not removed from the nest by the adults. In two instances I have found a sterile egg remaining in the nest after the young had flown.

Both parents are more watchful and more solicitous for the nest after it contains young. This attachment for the young increases daily, and reaches its maximum just before the young leave the nest. Both adults are usually close by the nest, and in case one approaches even at a distance of 10 or 12 feet, the alarm note of "tsip" is given. There is a degree of nervousness expressed by flying about and above the nest and scolding. A closer approach to the nest usually results in louder scolding and more concern on the part of the parent birds.

Activity of Adults During Nestling Life

Under normal conditions, the young leave the nest on the eleventh or twelfth day after hatching. Some broods will leave on the tenth day should they be disturbed by a snake or the investigator. So far as I know these fare as well as the older broods, provided there are no unusual factors entering in, as heavy rains or cold nights.

Both parents are kept very busy during the 10 to 12 days of nestling life. Their duties include bringing food, removing the excretory sacs, shielding the young from direct rays of midday sun, and defending the nest against enemies.

Feeding usually begins in the morning as soon as it is light enough to find food and continues into the evening until it is too dark to locate food. Earliest feeding observed 4:44 a.m., June 28; latest, 8:00 p.m., June 26.

The adults usually obtain the food along the roadside and in the bushes near the nest and seldom go beyond a radius of 300 feet.

Entries from my diary showing the activities about the nest follow:

<u>2nd Day</u>	<u>June 29, 1937</u>	<u>Four Nestlings</u>
10:15 a.m.		Entered blind; female off.
10:28		Female feeds moth; leaves.
10:42		Female returns with food; leaves.
10:51		Female returns to brood.
11:05		Female leaves nest.
11:10		Female brings food, eats excretory sac, broods.
11:15		Female leaves nest.
11:25		Female returns with food; broods.
11:35		Female leaves nest at twitter call of male.
11:45		Female returns with moth too large for young to swallow. It was withdrawn from throat three times and torn into finer bits before it finally disappeared. Eats excretory sac; broods.
11:54		Female leaves nest at singing of male.
12:01 p.m.		Female brings food; broods.
12:05		Female leaves nest.
12:12		Female brings moth, divides it among all; broods.
12:13		Female leaves nest at twitter of male.
12:16		Female returns with larva, eats excretory sac, broods.
12:28		Female leaves nest.
12:31		Male sings.
12:33		Female brings larva which is torn into bits. Eats excretory sac.
12:40		Female feeds larva; broods.
12:47		Female leaves nest.
1:04		Female brings moth, eats excretory sac, broods.
1:12		Female leaves nest.
1:15		Left blind.
1:40		Re-entered blind; female off nest.
1:48		Female returns with food; eats excretory sac.
1:55		Female leaves nest.
2:03		Female brings food, eats excretory sac, broods.
2:11		Female leaves nest.
2:20		Female brings moth, eats excretory sac, broods.
2:25		Female leaves nest.
2:34		Female brings moth, eats excretory sac, broods. It required an effort on her part, even weak chipping, to get a feeding response from nestlings.
2:41		Female leaves nest as male sings.
2:50		Female returns with grasshopper; broods.
3:00		Female leaves nest.
3:11		Female brings grasshopper; broods.
3:16		Female leaves nest at twitter of male.
3:27		Female brings and feeds grasshopper; it had to be re-taken, recrushed, and refed 12 times before young were able to swallow it. Broods.

3:42 p.m.	Female leaves nest.
3:50	Female returns with food; broods.
3:59	Female leaves nest.
4:10	Female brings moth, eats excretory sac, broods.
4:12	Left blind.

During the five and one-half hours of observation, the female fed the nestling 20 times and ate 10 excretory sacs. The male contributed song only.

Further observations on this nest on June 30 and July 1 showed that this male took very little part in feeding the young at this early age, which is rather unusual.

At another nest on May 24, 1937, on the fifth day after hatching the female brought food 23 times and the male 24 times, a total of 47 trips, all in 4 hours and 50 minutes. The male, in this instance, was doing his share of the feeding.

By this time the excretory sacs are no longer eaten by the parents but are carried to a tree about 20 to 30 feet from the nest and placed on a limb. Sometimes they are dropped from the tree, but I never saw them dropped by birds while flying. The excrement is enveloped in a sticky gelatinous sac, which is easily picked up and carried by the adult. The sticky nature of the sac causes it to adhere to the limb of trees. I have seen as many as three sacs on a short limb 18 inches in length. Usually several trees are used as depositories for these sacs. The adults are very careful to clean their beaks after depositing the sac; this is accomplished by alternately wiping both sides of the beak on a small limb.

The sacs may be eaten from hatching time on up to the fourth or fifth day. This varies with the different individuals; on the fourth day some will eat about half of the sacs, and carry away the remainder.

Other individuals will continue to eat some of the sacs up to the sixth day. I have no record that any sacs are eaten after the sixth day.

Just what determines whether a sac should be eaten or carried away, I do not know. Some, as Herrick (20) would explain it on the basis of digestion. Digestion is very rapid and very incomplete in the very young birds; consequently the excreta contains some food nutriment. This is utilized by the adult birds. As the nestlings become older their digestive process becomes more efficient, and digestion is more complete. The adults now carry the sacs away instead of eating them.

On the following day, May 25, these same adults made 50 trips with food to the nest during a period of three and one-quarter hours. The male made 31 trips, the female 19 trips. This nest was destroyed May 27.

<u>8th Day</u>	<u>June 26, 1937</u>	<u>Four Nestlings</u>
4:55 a.m.	Arrived at blind; no adults in sight.	
5:00	Male brings food.	
5:03	Female brings food.	
5:05	Male brings food.	
5:10	Male brings food; carries away excretory sac.	
5:11	Female brings food.	
5:16	Female brings food.	
5:20	Female brings food.	
5:23	Female brings food.	
5:27	Female brings food.	
5:29	Female brings food; carries away excretory sac.	
5:36	Female brings large moth.	
5:38	Male brings food.	
5:43	Male brings food.	
5:46	Male brings food.	
5:48	Female brings food.	
5:50	Female brings food.	
5:52	Male feeds larva.	
5:58	Both bring food.	
6:06	Female brings food.	
6:08	Female brings grasshopper.	
6:18	Both feed; male brings green larva.	
6:25	Female brings food.	
6:32	Female brings food.	
6:40	Male brings food.	
6:55	Male brings food.	
7:00	Female brings food.	
7:01-7:15	Both resting on limb near nest trying to remove paint and bands.	
7:25	Male brings food.	
7:31	Female brings food.	
7:40	Male brings food; removes excretory sac.	
7:42	Female brings food.	
7:50	Female brings food.	
7:55	Male brings food; removes excretory sac.	
8:00	Female brings food.	
8:10	Male brings food.	
8:11	Female brings food.	
8:15	Male brings food.	
8:21	Female brings larva.	
8:23	Male brings food.	
8:26	Female brings food, adjusts nest, broods.	
8:31	Female leaves at approach of male with food; male removes excretory sac.	
8:35	Male brings food.	
8:36	Female brings food.	
8:40	Female brings food.	
8:45	Female brings food.	
8:50	Male brings food.	
8:58	Male brings moth.	

9:00 a.m.	Left blind.
9:45	Returned to blind.
9:55	Male brings food.
9:56	Female brings food; removes excretory sac.
10:02	Female brings food.
10:07	Female brings food; removes excretory sac.
10:08	Male brings food.
10:11	Female brings food.
10:15	Left blind.
3:00 p.m.	Returned to blind.
3:10	Male brings food.
3:14	Female brings moth.
3:15	Male brings food.
3:16	Female brings food.
3:31	Male brings food. It appears as though he sometimes thrusts his empty bill into the open mouths of the nestlings just to satisfy their swallowing instinct.
3:37	Female brings larva and beetle.
3:45	Male brings food.
3:46	Female brings food.
3:48	Male brings grasshopper; removes excretory sac.
3:52	Female brings food.
3:56	Male brings grasshopper; removes excretory sac.
3:57	Female brings food; remains to shield young from direct rays of sun.
4:04	Female leaves nest at approach of male with food.
4:09	Female brings food; remains to shield young.
4:12	Female leaves nest at twitter of male, who comes with food.
4:26	Female brings larva; remains to shield young.
4:31	Male brings food.
4:45	Male brings moth.
4:47	Female brings food.
4:54	Female brings food; removes excretory sac.
5:02	Male brings food.
5:15	Left blind.
6:45	Returned to blind.
6:55	Female brings food; removes excretory sac.
7:03	Female brings food.
7:08	Female brings food.
7:16	Male brings food; removes excretory sac.
7:20	Female brings food.
7:27	Female brings food.
7:33	Female brings food; removes excretory sac.
7:37	Female brings food.
7:37½	Male brings food.
7:44	Female brings large moth.
7:59	Female brings food; removes excretory sac.
8:00	Female brings food; remains to brood. Male not seen since 7:37½ p.m.
8:30	Left blind; all quiet.

At this age there is very little brooding, only once in the period referred to above. However, during the night the female is always on the nest so long as there are young in the nest. Regardless of age, the female usually broods during a heavy rain.

Eighty-eight trips with food were made during the nine and one-quarter hours of observation, 35 by the male and 55 by the female. Since there was no feeding after 8:00 p.m., this gives an average of almost 10 trips per hour, or one trip every six minutes.

In feeding, the adults usually approach the nest in a different but uniform manner. The female approaches more cautiously than the male. She seldom flies directly to the nest, but to a bush or limb near it, and may circle about several times before entering. If she flies to the roadside bank, she usually hops and sidles back and forth, up and down, until she finally reaches the nest.

The male is more inclined to fly directly to the nest. However, at such times when the observer is near he may hop and sidle to the nest like the female.

Both adults, when annoyed by the presence of the observer, may give frequent flirts of the tail which involve a slight spreading of the feathers, showing the outer white ones plainly.

If the nest is so located as to have two openings for entrance, frequently the male uses one and the female the other.

Shielding is accomplished by standing in the nest or on the rim of the nest and raising one wing, spread open like a fan, over the nest. This throws a shadow over the nestlings.

From other observations these additional facts are obtained. I have a record of 110 trips with food to a nest of four ninth-day nestlings during a period of seven hours. This is an average of 15 trips per hour, or one trip every four minutes. It may be interesting to know that in this case the female did all the feeding, as the male had met with an accident and did very little toward supporting the family. During this same period she removed 24 excretory sacs.

On the tenth day the feeding is still heavier, and as many as 17 to 19 trips are made per hour. This same average holds for the eleventh day. The highest record is held by the above nest with 20 trips per hour during two different hours. This is an average of one trip for every three minutes.

One unusual fact is that both adults may not only come to the nest together but also feed the nestlings at the same time. This was done several times by the same parents. I have only this one record for this dual feeding.

Growth and Weight

Record of Growth of Nestlings 1937

The following table includes the observations on five nests. The first date given is the hatching day -- the first day of the bird's existence. The length refers to the extreme length of the body.

<u>Date</u>	<u>Age</u>	<u>Length</u> <u>mm.</u>	<u>Weight</u> <u>grams</u>	<u>Average</u> <u>grams</u>
May 20	1st day	32	2.1	---
21	2nd	45	4.1	---
22	3rd	50	5.5	---
23	4th	57	8.5	---
24	5th	63	10.0	---
25	6th	70	13.1	---
26	7th	75	15.5	---
27	Nest empty	---	---	---

Nest of Four Nestlings

June 7	---	---	8.2 (4 eggs)	2.05
8	1st day	34	9.05	2.26
9	2nd	43	12.0	3.00
10	3rd	52	19.1	4.77
11	4th	54	27.4	6.85
12	5th	64	37.3	9.32
13	6th	73	44.7	11.17
14	7th	76	54.4	13.6
15	8th	80	---	15.0
16	9th	87	---	19.7
17	10th	87	---	19.0
18	11th	89	---	18.0
19	12th	90	---	18.0 Left nest

Nest of Four Nestlings

7	1st	34	8.4	2.1
8	2nd	43	11.1	2.77
9	3rd	48	14.3	3.57
10	4th	53	22.8	5.70
11	5th	57	27.1	6.77
12	6th	58	28.6	7.15
13	7th	67	36.5	9.12
14	8th	73	46.5	11.62
15	9th	76	---	13.0
16	10th	81	---	16.9
17	11th	83	---	18.2
18	12th	Left nest	---	---

<u>Date</u>	<u>Age</u>	<u>Length</u> <u>mm.</u>	<u>Weight</u> <u>grams</u>	<u>Average</u> <u>grams</u>
June 5	Several hours after hatching	35	8.5	2.12
6	2nd day	40	9.0	2.25
7	3rd	48	16.5	4.12
8	Nest empty			

Nest of Four Nestlings

June 28	Several hours	37	9.5	2.37
29	2nd day	42	12.8	3.2
30	3rd	51	17.5	4.37
July 1	4th	58	23.6	5.9
2	5th	62	28.6	7.15
3	6th	68	—	8.2
4	7th	68	—	8.6
5	Died of cold and exposure			

The table shows a daily increase in weight throughout the period of weighing except in the case of one nest. In this case the weight dropped slightly after the tenth day; this was possibly due to more exercise on the part of the nestling, greater energy demands which accompany growth and feather development or to less food. In general, it will be noted that the greatest increase in weight occurs after the third day. In no instance have I found a doubling in weight from one day to the next, although the nestling of May 21 and 22 lacked only one-tenth gram of doing this.

The greatest increase in weight within a period of 24 hours is 4.7 grams; the least 0.13 gram. This variation in daily increase in weight may be due to several factors, namely, health and appetite of nestling, kind of food, frequency of feeding, and presence or absence of parasites.

The greatest increase in body length occurs between the first and third days.

The disappearance of egg tooth and the hardening of the beak should be mentioned under the subject of growth. The egg tooth is distinctly visible from the time of hatching up to the fifth day, when it becomes barely discernible. By the sixth day it has entirely disappeared, having been included in the developing horn of the beak.

At the time of hatching the beak is soft and bright-yellow in color except the extreme tip, which is slightly darkened. Thick fleshy yellow lips extend from the base of the beak to the angle of the mouth. By the third day the beak has become considerably darker, especially on the upper surface, and by the fourth day this darkening has extended over the entire upper portion.

The beak on the fifth day is considerably harder. The lower portion is also becoming dark colored. The lips are still very fleshy and bright-yellow. From the sixth to the tenth day there is little change in the beak except that it is gradually becoming darker and harder. By the sixteenth day the beak is very hard and of a dark horn color. The lips are still very light in color but no so fleshy. Several immature specimens taken during the latter part of August and the forepart of September during the molting period show only a trace of the yellow fleshy lips in the angle of the mouth, as the horny beak has extended into a large portion of the area previously occupied by the lips.

Weight of Nestlings

Daily Increase in Weight of Individuals of Same Nest

<u>Date</u> <u>1936</u>	<u>Age</u>	<u>1</u>	<u>Nestling Number</u> <u>2</u>	<u>3</u>
Aug. 7	Hatched	2.8 gr.	2.0 gr.	2.0 gr.
8	2nd day	4.15	3.1	3.55
9	3rd	5.9	4.5	5.2
10	4th	8.5	6.65	7.0
11	5th	10.2	8.9	8.9
12	6th	12.9	11.7	11.7
13	7th	15.4	13.5	14.0
14	8th	15.6	14.0	15.0
15	9th	Nest empty		

It is well to notice that nestling No. 1, who was the heaviest at the first weighing, kept his place ahead of the other two throughout the period of observation. It is likely that he was the first one hatched, though this cannot be proved. In every nest there is one nestling more precocious than his fellows; this one usually receives the most food. The more food he receives, the heavier and stronger he becomes. This is manifest in a longer stretch of the neck and in louder cries. Thus he gets more food, and the cycle continues.

The check in the decided increase in weight after the seventh day may be due to the general unsheathing of the feathers which occurs during this period. In fact there may be a slight loss in weight due to the extra energy demands made upon the body.

Record of Several Nestlings from Hatching
to 23 Days of Age, 1937

<u>Date</u>	<u>Age</u>	<u>Weight</u> <u>grams</u>	<u>Body Length</u> <u>mm.</u>	<u>W. Feather</u> <u>mm.</u>	<u>Length</u> <u>T. Feather</u> <u>mm.</u>
July 3	6.5 hrs.	1.83	34	---	---
4	2nd day	2.83	39	---	---
5	3rd	4.00	48	---	---
6	4th	6.25	57	0.5	---
7	5th	8.35	62	2.0	---
8	6th	11.3	70	7.0	---
9	7th	13.15	75	11.0	2.0
10	8th	15.5	78	15.0	4.0
11	9th	16.5	81	21.0	7.0
12	10th	16.8	81	30.0	11.0
13	11th	16.2	82	32.0	14.0
14	12th	18.0	82	35.0	20.0
15	13th	18.4	82	37.0	21.0
16	14th	18.7	82	43.0	23.0
17	15th	18.7	82	43.0	25.0
18	16th	19.0	82	46.0	30.0
Aug. 2	17th	18.1	82	50.0	30.0
3	18th	18.8	82	50.0	32.0
4	19th	17.6	82	52.0	34.0
5	20th	17.0	82	53.0	36.0
6	21st	16.5	82	54.0	38.0
7	22nd	15.9	82	56.0	40.0
8	23rd	16.0	82	56.0	40.0
June 30	12th	17.1	81	39.0	19.0
July 1	13th	17.1	84	40.0	22.0
2	14th	17.7	84	40.0	22.0
3	15th	20.0	86	43.0	24.0
4	16th	---	86	44.0	26.0

The above figures represent data from three nests. The fledgling used in each case either escaped or was eaten by some enemy, thus bringing the observation to a close.

In order to get data for growth after the twelfth day, it was necessary to keep the fledgling in an open cage. The adults had free access to the fledgling, but the fledgling was kept in the cage by a cord tied to one foot.

The length of the wing feather was determined by measuring the longest primary feather from its tip to the skin of the wing at the base of the feather. The length of the tail feather was determined in a similar way.

The greatest increase in length of wing feather, 9mm., occurred between the ninth and tenth days; of tail feather, 6mm., between the eleventh and twelfth days.

Nest Sanitation

The nests are kept scrupulously clean of food particles and fecal matter. There is a thorough inspection after each feeding. Any particle of food that falls to the bottom of the nest is quickly picked up by the adult and swallowed or given to the young.

Both adults usually pause a few seconds after each feeding for excretory sacs. While the nestlings are very young, the sacs are deposited on the bottom of the nest. As they become stronger, the posterior portion of the abdomen is raised, and this movement is a signal to the adult, who immediately lowers her head and seizes the sac as it is discharged from the cloaca. It does not come into contact with the nest.

After the ninth day the nestlings usually back up to the edge of the nest, and in case no adult is present, the fecal sac will be deposited on the rim of the nest. In no case have I seen a sac voluntarily dropped into the nest. Sometimes the sac is ejected with such force as to go beyond the rim of the nest. These are not left there but are removed by the adult bird on her next trip to the nest.

In all the nests studied and collected, not one showed a trace of excreta.

Dead nestlings are removed from the nest within 4 to 12 hours after death occurs. Apparently after the adults get no response from the dead nestling, and it is tramped to the bottom of the nest, it is regarded as an object to be carried out.

Foreign Objects

Foreign objects, such as bits of twigs and small pebbles from the overhanging bank, are not tolerated in the nest but are removed immediately. Even the nestlings may be sacrificed in order that the nest be kept clean. Twice I rescued nestlings who were being discarded by their parents.

On June 25, 1937, at 12:30 p.m., I banded four six-day old nestlings. After the banding I left to look for other nests. At 2:00 p.m. I returned, entered the blind, and so far as I know domestic life was going on as usual. At 2:16 the female brought food, and as she left she seemed to be pulling at one of the nestlings. I looked more closely and discovered that she was trying to lift the nestling by the band on its leg. She succeeded in lifting it, and in carrying it about three feet from the nest, when it dropped from her bill. I rushed out, found the nestling and placed it in the nest; but discovered that only one remained. By careful searching I located another nestling, but the fourth I could not find. I removed the bands and all was well.

In the other case I saw the female carry the first one from the nest, band in beak. This one was dropped some distance in the brush and was lost. The bands were removed from the other three, which remained in the nest until full grown.

Since the bird's mental processes are confined largely to the corpora striata, one cannot expect much evidence of intelligence. The activities of birds are controlled largely by instinct, which in the above reactions was very blind. Apparently the bright band was objectionable; whether she was ignorant of the fact that the nestling was carried along, I do not know.

This behavior on the part of the juncos was most extraordinary and of sufficient interest to warrant further study. Was it the presence of the band or the bright shining metallic surface that was objectionable? An attempt was made to answer this question by substituting variously colored cords and bands for the standard Fish and Wildlife Service aluminum bands.

White wrapping cord was dyed red, orange, yellow, green, and blue with various aniline dyes. India ink was used to make the black cord. These seven colors, including white, were used in the experiment. Nestlings ranging from two to five days old were banded by wrapping the colored cord twice around the foot so as to make it comparable in size to the aluminum and more conspicuous. One unbanded nestling was always left in the nest as a control or test of the bird's vision. In no case were the nestlings removed with these colored lusterless bands around their feet.

Colored metal bands were made by cutting sheet aluminum the size of the bands and painting them with zinc oxide-shellac paint tinted with aniline dyes. Black bands were made by using India ink. The same colors were used as with the cord. The experiment was conducted in a manner similar to the one above, but the results were strikingly different. These colored metal bands were removed immediately. Three nestlings were carried out with the bands, two of which were rescued. Finally it occurred to me to place the band loosely about the foot, so that the nestling would slip out of the band when it was lifted out by the adults. This proved to be very successful; the bands were removed, but the young remained in the nest.

Celluloid bands were not used, as they are very similar to the colored aluminum bands.

To test the visual and kinaesthetic sense of the juncos further short pieces of colored cord were placed in the nest and its rim. The materials used in nest construction include brown and gray leaves and bark, black and gray hairs, green moss, red setae of moss, and gray lichens. Would the adults recognize the pieces of cord from the nesting materials? The white, orange, and red cords were removed; the others were not disturbed. Since this experiment was not continued for any period of time, the data are too meager to draw conclusions.

From the above experiment with the colored bands it appears that the presence of the metallic surface is objectionable regardless of color. The colored cords may have been tolerated because they were not metallic and blended more or less with the nesting materials. The experiment of placing colored cord in the nest partly supports the above supposition, but more work is necessary to establish this fully. Whether the cords on the nestlings' feet were actually seen by the adults is not known.

There is a difference of opinion among ornithologists concerning color perception by birds. Marples (24) from his studies of the Ringed Plover, suggests that the adults may be color-blind, probably seeing only a world of gray tones or tones of one color. According to Finn (19) the bird's vision for color is practically the same as our own. My experiments seem to indicate that the reactions were based more upon the nature of the material than upon color.

This reaction to bands introduced a problem in my banding of nestlings. If I banded before the sixth or seventh days of age, there was a possibility that the adults would carry away the bands and the nestlings. Just how widespread this practice is among the Carolina Juncos, I do not know. I at once changed my banding age to the eighth and ninth day. Here, too, I met with the problem of fear. At the ninth and tenth days the instinct of fear may be so well developed in some nestlings that they refuse to be replaced in the nest. The element of chance enters in; there are three possible results, namely, carried out of the nest by the adults, scattered through fear, or remain in the nest. While several nests were scattered by banding on the ninth day, and several lost by banding on the fifth and sixth days after hatching, I found it the safest to band when seven or eight days old.

Practically every adult will attempt to remove the band from his own legs. During the first and second days after banding much time is spent in pecking and pulling at the bands. After several days or a week, the band is no longer an annoyance.

Leaving the Nest

As stated before, the majority of nestlings leave the nest on the twelfth day after hatching.

I had the privilege of seeing several broods leave the nest. The procedure is very similar in all cases. Usually there is one bold fellow who takes the lead. He is followed by two others, leaving at the same time, or very close together. There is usually a runt or weakling which leaves an hour or so after the others have flown.

As soon as the first fledgling has left the nest, the adults devote all their attention to it. They do not carry food to those remaining in the nest. Evidently this is their method of luring them from the nest. It is advantageous to have the entire brood leave at practically the same time to keep the flock together for convenient feeding.

There is no return to the nest after they leave. The members of one nest usually keep in a group and are fed by the parents for two weeks or more after leaving the nest and make known their wants by a harsh guttural cry. The fledglings hop as soon as they leave the nest, if undisturbed. If pursued, they will run with spread and flapping wings, like a barnyard chick. After the twelfth day they seldom squat or "freeze" but hop and attempt to fly, if chased.

Not all nestlings remain in the nest until the twelfth day. I have tried to band nestlings on the ninth and tenth days, only to learn that I was too late. The instinct of fear was too well developed to permit my taking them from the nest. Either the entire nest-full scattered as I removed one, or they failed to stay in the nest after being replaced. The presence of a snake or other enemy as well as my too close investigation may cause them to scatter on the tenth and eleventh days. Here, again, there is much variation, for I have successfully banded 10-day nestlings. If the fledglings are scattered before the twelfth day, the adults in most cases are able to cope with the situation and raise them successfully.

Irregularities

It occurred to me that possibly I could have a female feed and raise her brood beyond the twelfth day, probably up to the twentieth or twenty-fourth day, during which daily weights and measurements could be obtained. To do this I decided to capture a female on her nest and bring nest and all closer to the Station, and place it in a trap.

One evening after dark, with flashlight and net, I proceeded to get my bird, which I was successful in capturing on the nest. The nest, which contained four three-day nestlings, was then carefully removed from the bank and carried to the Station. Both nest and adult were placed in a trap on the laboratory floor. The female tried to escape from the trap, but I hoped she would calm down and brood as soon as the lights were turned off.

In the morning I found her flying about in the trap. The nest was trampled down flat; the nestlings were scattered, cold and almost lifeless. Uppermost in her mind was the hope of escape; the nestlings were to her as so many pebbles. I realized that my experiment was a failure, and at once made preparations to retrace my steps.

The young were taken to the cottage and revived above an electric hotplate. The nest was remodeled and the nestlings put in. The nest and adult were taken out to the roadside bank, the nest replaced in its former cavity, and the adult released. Soon the male appeared on the scene, and in a very short time the young were being fed and brooded as though nothing had happened. They left the nest on the twelfth day.

The maternal instinct reaches its highest expression during the time that young are in the nest. Although this is very strong, the above experiment proves that this may temporarily be overshadowed by another instinct, namely, that of escape. After this temporary interference, the maternal instinct again asserts itself.

FOOD

The nature and kinds of food brought to the nestlings cannot be determined by observation. Stomach analysis is the only scientific basis for obtaining food data.

Stomach Analyses

Twenty-five gizzards (including the glandular stomach) from adults, immature, and nestlings, representative of the different months of the year, were sent to the United States Fish and Wildlife Service for analysis. Mr. Clarence Cottam, in charge of Food Habits, submitted the report. All the gizzards were from Mountain Lake specimens, at an elevation of 3800 feet, except one which was taken at Harrisonburg, at an elevation of 1350 feet.

A study of the analyses of adult gizzards shows that the Carolina Juncos feed largely upon seeds, with a few insects included as an appetizer or relish. A specimen collected on October 26, 1936, was very unusual in that his diet for that particular day, at least, consisted almost entirely of insect larva. Out of the 16 adult stomachs, 13 contained 90% or more of vegetable matter, 11 being rated at 100%. From November to May animal matter forms a very small portion of the diet.

Another interesting fact brought out in the analyses is the amount of gravel or sand grains in the gizzard. This varies from none to 66%.

One would expect to find more gravel in the gizzard when the diet consists largely of seeds than when it consists largely of insects. Analyses do not support this view. The specimen collected on October 26, 1936, rated 100% animal matter but contained 50% sand or gravel; a specimen taken on May 30, 1937, rated 100% vegetable matter and contained only a trace of gravel. This variation apparently is dependent upon some factors other than composition of diet and availability of gravel.

As in the case of the adults, vegetable matter comprises the bulk of the food of juvenals as the insects become scarcer toward fall and winter.

The food of the nestling birds consists entirely of animal matter, with an exceptional seed entering probably unintentionally with the other food rather than intentionally. It is also very evident that the parent birds carry gravel or grit to the nestlings.

From an economic point of view the Carolina Junco is a most valuable bird. Its food included at least 26 categories of insects, among which are such pests as Aphids, Leaf-hoppers, Leaf-eating Beetles, Round-headed Borers, Snout Beetles, and Bill-bugs.

Among the 25 species of plants are included such weeds as Fox-tail Grass, Sheep Sorrel, Knot-weed, Vervain, Golden-rod, and Ragweed.

NUMBER OF BROODS

The Carolina Junco normally has two broods each season. Direct evidence is obtained from banded females. For instance, one female was trapped and banded while feeding the nestlings to her first nest on June 7 and retrapped while feeding the nestlings to her second nest on July 21.

Indirect evidence is based on the lull in nesting activity between June 15 and July 1. While it is possible to find nests with eggs and young throughout the entire summer, the above period appears to contain fewer nests and represents the interval between the first and second brood. In general, April 20 to May 15 represents the period of singing, courtship, mating, nest-building, and egg-laying; May 15 to June 15 a period of incubation, hatching, feeding young, and nest-leaving. A slack period of one week or 10 days is followed by a decided increase in activity.

Some observers maintain that some seasons three broods are raised. I do not know whether their evidence for this is direct or indirect. Bruce P. Tyler (45) states, "The Carolina Junco raises two or more broods each year."

Alexander Sprunt, Jr. (41), writes, "They raise two and three broods a season, certainly three some seasons." Following is a quotation from his article describing the finding of a late nest (39, page 122). "During this past summer I found a nest on the slopes of Grandfather Mountain on August 11. It was situated in a wind-fall, among the upturned roots, and held two perfectly fresh eggs. Not only is this much the latest record of their nesting, but the eggs are very different from any that I have seen, being considerably smaller, and having but few faint markings. This must be the third brood."

Other observers doubt very much that three normal broods are ever produced in a summer. We must keep in mind that ground-nesting birds have a high nest mortality record. As soon as a nest is destroyed, another is begun. If this one is destroyed, a third is begun. This attempt on the part of the birds to accomplish that which nature decrees they shall do -- namely, reproduce -- gives rise to late nests. It appears that reproduction includes rearing the brood to adulthood. These late nests resulting from interferences may be mistaken for third-brood nests.

Although there is no direct proof for three normal broods, I do have evidence for three broods, but in this case the first two broods were destroyed.

On May 26, 1937, a pair of adults were banded while feeding seven-day old nestlings. This nest was destroyed during the following night.

On June 24, 1937, while walking along the road leading from the top of the first hill to the Fox Ranch, my attention was attracted to a nest by the cries of two adults. I killed the garter snake which had just begun an attack on the nest. In the evening I was successful in trapping the female, who bore the band placed on her on May 26. I could not trap the male; and the young, about seven days old, disappeared from the nest during the night. This nest was 400 feet from her first nest.

On July 27, 1937, I found a nest with two young and one unhatched egg along the road to the Fox Ranch. I was successful in trapping both adults, and both wore the bands placed on their legs on May 26. The young were about 11 days old and were successfully raised. This nest was 225 feet from her second nest and about 375 feet from her first nest.

In this case the female built three nests and laid two sets of four eggs and one set of three eggs. Her first egg was laid on May 5 and her last probably on July 5.

Indirect evidence lies in the fact that the breeding season is sufficiently long to permit the raising of three broods. If we allow five days for nest-building, four days for egg-laying, 10 days more for incubation (12 days after the third egg is laid), 12 days for nestling life, and about 7 to 10 days for feeding the fledglings after leaving the nest, we have a total of 41 days for the raising of one brood. On this basis a maximum period of 124 days will be required for raising three broods.

The earliest attempt at nest-building of which I have record is April 20, although the first nest to contain eggs was begun April 26. My latest nest was destroyed on August 16, when the nestlings were seven days old. Barring all accidents, these nestlings would probably have left the nest in the normal manner on August 21. Between April 26 and August 21 is a period of 118 days, which probably is ample time for raising three broods, because, except for the very early nests, the period of nest-building is less than 10 days, and the period of feeding the fledglings after leaving the nest may not be 10 days. Both conditions would tend to reduce the number of days required to raise a brood.

The following observation was made by Earle A. Brooks (5, page 237): "On August 15, somewhat nearer the summit of one of the higher points in the Yew Mountains (West Virginia) another nest was found in the top of a small black spruce (sic) about three and one-half feet from the ground. . . . It contained three fresh eggs." Allowing the usual number of days for incubation, the hatching date would be around August 26. This is the latest hatching date known to me.

So far as I know, there is no record of banded or marked specimens raising three normal or undisturbed broods.

My observations on the three nests built by the same female, incidentally, throw light on the male-female relationship during successive broods.

The female had the same male during the first and third broods. Since the male was not trapped at the second nest, it is not determined whether he was the same one who helped her with the first and third broods.

My evidence for believing that the same male was involved in the second and third nests is circumstantial. Shortly after the destruction of the second nest, a banded male junco was singing from a perch near the location of the third nest. Furthermore, the three nests were placed in the same area, not in a line, but so as to form a triangle. In another case where I could definitely follow the female through two broods, the second nest was built near the first nest.

In the absence of definite proof, however, we can hardly assume that the male was the same one with all three broods, as interlopers are not uncommon among our passerine birds.

MORTALITY OF NESTS

The high nest mortality of ground-nesting birds is due to a number of causes. Parasites of some kind are nearly always present and may be considered a part of the birds' environment. In this sense they comprise a normal or regular factor.

The loss of nests through weather conditions, reptiles, birds, and mammals will be considered in this paper as irregular and not necessarily a part of the birds' normal experiences.

Parasites

Parasites annoy and irritate birds, and if very plentiful may even cause the death of nestlings. The energy required to pick and scratch parasites is an unnecessary drain upon the bird's vitality, which could be utilized for other and more constructive work. Low vitality and poor health may invite disease.

The behavior of adult juncos at certain times suggests the presence of external parasites. The male, during the interval between song phrases or while perched on his observation limb, will scratch his head with his toes or pick and scratch under his wings and on his back with his beak. The same is true of the female when she comes off her nest, and between feeding periods if nestlings are in the nest.

Most adults exhibit such a behavior at some time or other. Parasites, however, are not found on all adults. In fact, based on the number of individuals examined I should say that parasites are comparatively rare. The external parasites obtained were sent to the United States National Museum for identification. Their report follows:

External Parasites on Adult Juncos

Ornithomyia avicularia L.
Adult flea of genus Ceratophyllus
Eggs of species of Mallophaga

External Parasites on Immature (after leaving nest)

Ornithoica confluenta Say
Melanophthalma cavicollis Mannerheim
Protocalliphora sp.
Troctes divinatorius Mull.

Parasites from Nest

Adult female of genus Ragidia, a predaceous mite
 Nymph of the mite of the family Parasitidae
 A species of Bdellidae
 A species of Eupodidae
 Adult and larva of a flea of the genus Ceratophyllis

Mr. Harold S. Peters (33), in his study of external parasites, lists nine species as occurring on the Slate-colored Junco. Only two in his list appear in the above list, namely, Ornithoica confluenta Say and the genus Ornithomyia. His species of the latter genus differs from the above. The Carolina Junco was not included in his study.

Miss Leona E. Anderson (3), in her study of the ectoparasites of birds, has found the following on the adult Carolina Junco:

Mites of the family Parasitidae
 Eggs of lice attached to the feathers
Degeeriella vulgata, Biting lice

Internal parasites consisted of tapeworms only. Of the large number of specimens examined, one adult and three immatures were infected. The worms were sent to the United States National Museum and were identified as Anonchotaenia sp., probably A. globata Linstow.

As many as 8 or 10 worms may occur in one intestinal tract. It is doubtful whether these were any annoyance to the birds.

In addition to the truly avian parasites, centipedes, fly larvae, and small beetles were also in the nest, chiefly in the bottom near the moist ground. The centipedes and beetles especially may be a source of irritation at times.

Irregularities

Under this subdivision are included all agencies other than parasites which may be responsible for the loss of eggs and nestlings.

Mortality by Months with Percentage

<u>Month</u>	<u>Nests</u>	<u>Loss</u>	<u>Percent</u>	<u>Eggs</u>	<u>Loss</u>	<u>Percent</u>	<u>Nestl.</u>	<u>Loss</u>	<u>Percent</u>
April	1	0	0.0	4	0	0.0	4	0	0.0
May	21	10	47.6	84	6	7.1	76	32	42.1
June	16	8	50.0	64	4	6.2	54	23	42.5
July	4	1	25.0	12	1	8.3	6	0	0.0
Total	42	19	45.2	164	11	6.7	140	55	39.2

Percent total loss of 164 eggs, 40.2

Since we have direct evidence that three June nests were destroyed by snakes, we may be inclined to ascribe the high percentage of loss of June nests to these animals. Snakes come out of hibernation in the first warm weather. This may be in late March or early April or later, depending upon the latitude or altitude of the place in question. It may be that the snakes of the Mountain Lake region are very late in leaving their places of hibernation and in wandering over the mountain. Consequently, they may encounter the nests of the first brood. However, authorities on reptiles do not think that the difference in percentage of loss of nests in May, June, and July can be explained on a snake predation basis. Other animals, as skunk, rats, and squirrels, are becoming more active too, and may be responsible for many losses, but because of their nocturnal habits or cleverness, may not be so readily caught in the act. It is a well-known fact that cats and other animals follow the paths made by bird students (27, 44).

The height of nest building and egg-laying is in May. A goodly number of nests are begun in June, but this month is essentially one of domestic activity. The adults are busy carrying food to their young in the nest or by the roadsides.

It is interesting to compare the nest egg and nestling mortality of the Carolina Junco to that of another ground-nesting bird. Gayle Pickwell (35), in his study of 24 Prairie Horned Lark nests, records the following figures:

Percent of loss in eggs	20.7
Percent of loss in nestlings	40.0
Percent of total loss of 82 eggs ...	52.4

SUMMARY

The Carolina Junco (Junco hyemalis carolinensis Brewster) is a distinctive southern subspecies or geographical race which probably originated from the more widely known northern form, the Slate-colored Junco (Junco hyemalis hyemalis Linnaeus). It was first described and given subspecific recognition by William Brewster in 1886. The Carolina Junco is found on practically all the high summits of the Appalachian mountains and is a characteristic bird of the Alleghanian and Canadian life zones. In color it is similar to J.h. hyemalis in having the upper parts of the body and breast slate-colored and the belly, sides, and the three outer tail feathers white.

In the field it is difficult to distinguish between these two forms. However, there are several characteristic and constant differences. The coloration of carolinensis is more uniform and of a slightly lighter slate color; length of wing, tail and bill slightly exceeds that of hyemalis. Average figures for hyemalis are: wing, 76.70mm.; tail, 67.56mm.; bill, 10.28mm.; for carolinensis: wing, 79.8mm.; tail, 68.1mm.; bill, 10.9mm. The latter is also slightly larger and heavier, and the color of the bill is bluish horn rather than light or flesh-colored slate above, with the typical sparrow-like speckled breast. This plumage is retained until the first autumnal molt.

The breeding range of the Carolina Junco includes the high Southern Appalachians north to Maryland and West Virginia. It may be found nesting from an elevation of 2000 feet in West Virginia to the tops of the highest peaks in North Carolina at 6684 feet.

During the winter there is a limited coastward and southward migration. Specimens have been taken at Charleston, South Carolina, and at Prattville, Alabama. However, carolinensis can always be found on the mountain tops even in the most severe winter weather, provided food can be obtained. It appears that the availability of food is one factor that largely determines whether they remain on the mountain top, drop into the more sheltered ravines along the mountain sides, or descend into the valleys below. Evidence at hand seems to indicate that migration is local rather than general.

In the Mountain Lake region the nesting season with its usual accompanying activities, such as selection of territory, song, courtship, and nest-building, begins in the middle or latter part of April and reaches a climax about the middle of May. Except in unusual cases the season may be considered at an end by August 15. The male selects the territory and then engages in singing. His song may be a challenge to other males as well as an invitation to some passing female.

The well-concealed nest is built by the female and is usually placed in a cavity under the overhang of a roadside bank or in a grass field under a small hummock of sod, and, less frequently, in bushes or on rock ledges. The nesting site must provide proper concealment and a wide range of view. The nest is constructed of coarse rootlets, grass stems, and fine rootlets and is lined with fine grass or hair.

Ecologically, the Carolina Juncos do not seem to have many preferences. They can utilize to their advantage various types of banks and vegetation and apparently are helped by coming into contact with man. Animals as an ecological factor must be considered important. Many nests containing either eggs or young are destroyed, a total of 45 percent for the summer of 1937. Various species of snakes (blacksnake, garter, copperhead, and rattlesnake) are responsible for some of this loss, while the carnivorous night-prowling mammals (weasels, skunks, and stray cats) probably contribute their share.

Nests may be completed and contain eggs by the latter part of April (April 30 for Mountain Lake). Four eggs, rarely five, comprise a clutch for the first brood, and three eggs for the second. The eggs are whitish, slightly washed with bluish or greenish, and speckled with cinnamon drab; the pigmentation is usually heavier at the larger end. The average size for the eggs is 20.9 x 15.5mm.

Incubation by the female only is begun after the third egg is laid. On the twelfth day of incubation the eggs are hatched. Both parents feed and care for the young, which require much food and grow rapidly, the greatest daily increase in weight occurring after the third day. The nestlings are fully fledged and leave the nest normally on the twelfth day.

The food of the adults, as revealed by stomach analyses, consists principally of grain and seeds, including some obnoxious weeds. The food of the immature is similar, whereas the nestlings are fed almost entirely upon spiders and insects, including aphids, borers, and leaf-eating beetles.

There are normally two broods each season for the Mountain Lake region. Three broods are reported from some sections, but there is a possibility that the third brood may represent an interrupted nesting behavior.

The body temperature of the adult Carolina Junco in summer varies between 104.6 and 110.1°F and in winter between 104 and 106.0°F. The temperature is lower for the nestlings.

Several species of bird-flies and biting lice are parasitic upon the immature and adults. One species of tapeworm was found in the intestinal tract of several specimens. So far as I know, there is no record of death from parasites.

Molting in the adults begins soon after the close of the nesting season. The majority of individuals are in the molt during the latter part of August and the fore part of September. Every feather is replaced in the autumnal molt. At no time is the bird deprived of flight, as the wing feathers are replaced gradually and symmetrically. By October 15 the majority of adults have their new feathers. The change of color in the spring is not due to a molt but rather to the wearing off of the outer brownish tips of the winter plumage.

The wing and tail feathers of the immature are not replaced in the first fall molt. The speckled sparrow-like plumage like that of the rest of the body is replaced by the typical junco plumage of the adult, except for a more pronounced brownish wash over the upper parts of the body. Probably all the immature have molted by November 1.

After the molting season the adults and young gather into flocks of various sizes for feeding and roosting. This flock formation is very marked throughout the winter; as many as 15 to 25 individuals may be seen feeding by the roadside or flying into the night roost. This may be a dense growth or catbrier, a brush heap, or a thick cluster of Rhododendron or hemlock. Here they are protected from the snow and wind.

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Beginning with 1962, The Raven will appear in printed form. There will be four issues annually, dated March, June, September, and December.

OCCURRENCE OF SWAINSON'S WARBLER IN ALBEMARLE COUNTY

By Robert S. Merkel

From late June through August 6, 1961, a singing Swainson's Warbler (*Lymnotherapia Swainsonii*) was present two miles south of Charlottesville, Virginia. As the bird is poorly known and also an example of discontinuous distribution, details of this individual's stay in Albemarle may be of general interest. The possibilities are suggested of distributional differences in song and of range extension.

Occurrences of this warbler in Virginia, as recorded by Murray (A Check-List of the Birds of Virginia, 1952, 88), include several from the Dismal Swamp, a nest in Warwick County, and a September record of two birds from Tangier Island (migrants from Pokomoke Swamp?). In addition, a nest was found near Bristol, Virginia in 1932; this being in the upland breeding area described by Bent. The only other record, and the only one from the Virginia Piedmont, was of one seen near Pamplin, Appomattox County, September 16, 1945.

Nesting sites of the lowland swamp Swainson's Warblers usually have been in or near growths of cane; in wet, tangled, and wooded habitat. Judging from descriptions of upland nest sites by Bent and Pettingill (A Guide to Bird Finding East of the Mississippi, 1951, 580), the preferred habitat would be in dense growths of rhododendron and mountain laurel near heavily-wooded streams. The common denominators between the two habitats would appear to be presence of water, heavy undergrowth, and tree cover.

The writer's residence is in Sherwood Farms subdivision, about two miles southwest of Charlottesville and perhaps one-fourth mile south-east of U.S. Route 29. The house, at elevation about 600 feet, is located perhaps 40 feet above and 100 feet away from a small creek. It is on a low ridge which is part of a system of ridges lying between Dudley Mountain and Charlottesville. Although areas near the house and road have been cleared, the ridges and stream valleys are covered with mixed second-growth hardwoods. Dominant trees are tulip poplar, oaks, hickories, black locust, and dogwood, with some Virginia pine. A heavy undergrowth of shrubs and small trees is choked, near the stream, with honeysuckle vines and blackberry. A portion of the ridge on the side of the stream opposite the house, and about one-fourth mile upstream, has a growth of mountain laurel.

The unusual warbler song first was heard during the latter part of June and was thought to be, perhaps, an aberrant Hooded Warbler. The bird certainly was present by June 24, 1961. On one day in the last week of June, the writer saw momentarily two birds which looked like Red-eyed Vireos, which chased each other from a tree from which the warbler song just had been heard. Finally, on July 3, the singer was seen at close range and recognized as a Swainson's Warbler. In subsequent days through July 7, during which the bird sang frequently, it was heard by almost all

visitors but seen only by C.E. Stevens, Jr., who concurred in the identification, and the writer. On the writer's return after several days' absence, the bird was heard on July 16 through 18, with frequent singing. The bird was heard almost daily from July 20 through August 6. During this latter period, however, singing was not frequent. During the days after July 16, only one additional person, Steve Calver, managed to see the bird. He reported he might have seen two birds, but couldn't be sure. Thus it is not known whether the bird had a mate or whether nesting occurred.

At various times, this Swainson's Warbler was heard singing from approximately one-half mile upstream from the house to directly below the house and at various spots slightly uphill from the house on both sides. Most of the times the bird was sighted, it was singing from small branches near the trunks of trees. Once it was seen near the ground on a fallen trunk and once about 25 feet up in the leafy crown of a tree. Most usually, songs appeared to come from the understory of trees, between 6 and 20 feet up. Singing was most frequent early in the morning but occurred at intervals during the day. As the bird never was under observation for extended periods of time, little else can be added regarding behavior.

The song of this particular Swainson's Warbler consisted of loud, whistled notes. There was little variation in individual utterances; the typical sequence being four short, unaccented, high notes; a longer descending slur (starting higher than the initial notes); a short note at the pitch of the end of the slur (or slightly higher); and a final slur starting near the pitch of the short note and ending low. The total time interval for a song was about two seconds, with the first four notes occupying about one second and the descending phrase an equal time. After the bird was identified, the writer listened to the Swainson's Warbler song on the Peterson bird record (probably a coastal bird) and to the songs of four West Virginia Swainson's Warblers recorded by the Canadian Wildlife Federation. In addition, five written descriptions. There is some suggestion of a possibility that coastal birds may sing only two or three long preliminary notes while upland birds may sing three or four short preliminary notes. If this be the case, the bird found in Albemarle County this summer would belong to the upland population.

Speculation. As a matter of conjecture, it is interesting to recall that the coastal population habitat of Swainson's Warbler is wet, with heavy underbrush and cane and the upland population habitat is wet, with heavy underbrush and rhodendron. Is it possible that Swainson's Warbler could adapt to a habitat which would be wet, with heavy underbrush and honeysuckle? This particular man-made habitat has become all too widespread. If Swainson's Warbler should accept it, a large increase in the species might occur in coming years.

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LEAST TERN IN THE VALLEY OF VIRGINIA

By J. J. Murray

On August 10, 1961, Joshua Womeldorf reported a strange tern at his farm pond near Lexington, Virginia. On investigating, I found that it was a Least Tern, Sterna albifrons antillarum, in high plumage. We observed the bird for some time, both at rest and in flight, with 7x glasses at less than forty feet range, easily noting the small size, yellow bill, white forehead, and short tail. Except for a few occurrences on the Potomac near Alexandria this mountain occurrence seems to be the only Virginia record away from the lower coastal plain. So far as I have been able to discover, there is no similar record in the Atlantic states from Maryland south.

-- 6 Jordan Street
Lexington, Virginia

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FULVOUS TREE DUCK IN SURRY COUNTY

By C. C. Steirly

On November 4, 1961, while observing a mixed flock of waterfowl on a pond at Hog Island State Waterfowl Refuge in north east Surry County, I saw a flock of forty Fulvous Tree Duck (Dendrocygna bicolor). This flock kept to itself as a rather tight little group while the other waterfowl were dispersed about the pond. On a closer approach the other waterfowl flew off while the Fulvous Tree Ducks permitted a much closer approach. When at last the flock took to wing the individuals remained together in a compact flock.

This observation was made in a marshy pond fairly close to a cultivated field. The marsh grasses were not dense, and save for a few islands the pond was rather open. Associated species included Pintail, Blackduck, Mallard, Green-winged Teal, Baldpate and Canada Goose. Field marks of the ducks were carefully noted through a 30X telescope both on the water and in flight.

-- Waverley, Virginia

WILSON'S PHALAROPE AT HAMPTON, VIRGINIA

By John A. Pond

A Wilson's Phalarope was studied for a long time on August 26, 1961, at Grandview, Hampton, Virginia. For some time we were puzzled by the bird, comparing the marks noted with those indicated by Peterson and checking them against the marks of various sandpipers -- Spotted, White-rumped, and Stilt. For size it was compared with a flock of Lesser Yellowlegs, among which it came to rest.

The bird was white on the shoulders, the sides of neck and face, and underparts. In flight it showed white tail coverts, but no wing stripes on the dark wings. It was running about in the edge of the water with some 'peeps'. The tip of the tail was often held higher than the head as it rushed about with wings outstretched or probed in the water. Clearly it was a Wilson's Phalarope.

The observations were made in a large marsh pond in the Bay section of Hampton known as Grandview. This is just east and north of the old community of Fox Hill. The phalarope was first observed at a distance of about 30 yards. Later, as we followed, it very boldly continued to rush about in its feeding as we moved to within 15 or 20 feet.

On the next Saturday, September 2, two Wilson's Phalaropes were observed feeding in open water at the same pond with a flock of Blue-winged Teal. On this trip Walter Post Smith and Carl Hacker accompanied the writer.

— Hampton, Virginia

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STILT SANDPIPER AT HAMPTON, VIRGINIA

By John A. Pond

We were walking back to the cars after a hike through Grandview Marsh and along the beach of Chesapeake Bay. We moved along a road leading inland from the beach to the spot where we parked our cars on the edge of Grandview Shores residential area. The road skirted the northern and western marshy edges of an open pond.

We saw a flock of large shorebirds feeding up shore from us, probably yellowlegs, but as they were feeding in an interesting manner we stopped to watch. The birds, some 15 to 20 of them, were going after their dinners with much concentration. Standing in water that reached their bellies, the waders were plunging their heads under water and for several seconds at a time proceeding to feed even while their heads were totally submerged.

The birds were about 30 yards upshore from us, and we moved into the marsh as we tried to maneuver to the west so that the afternoon sun wouldn't continue to make the viewing unsatisfactory. First identified was a single dozing greater yellowlegs who stood on one leg on a mud bar around which the waders were feeding. The rest of the flock seemed to be lesser yellowlegs. But one of these was different. He was feeding in the same fashion, with head submerged, but he was noticeably smaller, an inch or more so, and shorter legged than the lesser yellowlegs.

He was so much shorter in the legs that we couldn't see his legs as he waded the deep water. We could see the yellowlegs of the flock feeding with him. He was working so earnestly at his feeding that we had difficulty making out any features of his head and bill. Then we were able to see a light gray head with light strips above the eye and light cheek. His bill was heavier and longer than the bill of the yellowlegs, showing a definite droop towards the tip.

His wings and back were dark; they were not marked with the white spots of the yellowlegs. When he flew he showed the same dark and light pattern as the yellowlegs. We recognized that we had made a fall record of the Stilt Sandpiper.

The following week, on September 23, a single Stilt Sandpiper was seen at Grandview by the writer and five other members of the Hampton Roads Bird Club.

-- Hampton, Virginia

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A SUCCESSFUL YEAR FOR WARBLERS IN ALBEMARLE COUNTY

By Robert S. Merkel

Prior to the spring of 1961, 35 species of warblers had been recorded at least several times in Albemarle County, Virginia and there were two reports, one doubtful, of Orange-crowned Warblers (Vermivora celata). C.E. Stevens may have seen one in sumac at Big Flat Mountain, October 10, 1954, and Ken Lawless found an Orange-crowned Warbler near the Fluvanna County border on May 10, 1958. Among the other 35 species, those of least frequent occurrence have been (with number of records through 1959) Prothonotary Warbler (10), Golden-winged Warbler (20), Blue-winged Warbler (8), Connecticut Warbler (10), and Mourning Warbler (6).

During 1961, thirty-seven species of warblers were seen in the county including all those mentioned specifically above and two newcomers to the county list. A Brewster's Warbler was found by Stevens at Big Flat Mountain on May 14 and was seen also by Steve Calver. From late June through early August a Swainson's Warbler was present at the writer's

residence two miles south of Charlottesville. Other birds seen at the same locality south of Charlottesville included a Golden-winged Warbler on April 24 (early date for the county) and again on April 28; a Blue-winged Warbler on April 29; Orange-crowned Warbler April 30 (watched one-half hour while singing in an oak tree); Mourning Warbler May 9. Both Golden-winged and Blue-winged Warblers were seen by several persons at various places in the county this spring. Prothonotary Warbler was found along the James River, where it has been regular for the last 10 years. Both Stevens and the writer found Connecticut Warblers (Sept. 30?, Oct. 1) in widely different spots. To my knowledge, only Wilson's Warbler, of all those known from Albemarle, was not seen in 1961.

One nesting record for 1961 deserves mention. The writer's house, at about 600 feet elevation, appears to be at the lower edge of Cerulean Warbler breeding territory in the immediate area (see Stevens, The Raven, 29, 1958, 119). On July 3, a pair of Cerulean Warblers were observed making frequent trips to a nest high in the crown of a large hickory tree (about 50 feet tall with 2-foot trunk diameter) overhanging the house. Apparent feeding of young still was going on July 9 but the nest had been vacated before July 16 when the writer returned from a trip. As it was located in a "Y"-shaped crotch in a small branch of the tree, there was no chance for close examination of the nest.

-- R.F.D. 3, Box 33C
Charlottesville, Virginia

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VSO WACHAPREAGUE FIELD TRIP

AUGUST 1961

By C. W. Hacker

Twenty-nine members of the VSO met on the third floor balcony of the Wachapreague Hotel the evening of August 25 to enjoy an almost total eclipse of the moon. Two months earlier the group was sitting on top of Mount Rogers listening to the Winter Wren; now it was on the shores of the Atlantic, the nesting site of the Black Skimmer.

Early Saturday morning the party cruised through the inlets in three chartered boats. As it proceeded to Club Point, Whimbrels and herons interrupted their feeding to watch cautiously as the group passed. On landing at the Point, the group headed immediately to the heronry, always a highlight on this trip. Last year, the trip was a week earlier, and numerous nestlings of the Snowy Egret, Louisiana Heron, and Green Heron were found. This year the group felt fortunate to find two or three young fledglings of these birds, since September was only a few days off. Two Barn Owls were flushed from the old water tower.

The next landing point was Cedar Island, which is on the ocean front. Here the group was divided into several small parties, each going its own way and at its own gait. Because of a strong southeast wind, the ocean front was not especially rewarding, showing a mere handful of birds. The mud flats about a mile north of the southern end of the island were probably the best part of the island because of the large number of shore birds feeding there. After a long return hike to the boats, lunch was a welcome break.

The group returned to Club Point after lunch for another view of the herons. These birds were the most interesting feature of the day. The trip back to the hotel was made slowly, giving the party a chance to see Black-bellied Plovers, some in spring plumage, others in fall plumage, Dowitchers, and Clapper Rails darting between mudflats and marsh grass.

Saturday night was spent discussing the day's events and viewing the latest additions to Mrs. Darden's excellent films on the Yellow-crowned Night Herons.

On Sunday about half of the group spent the morning exploring Chincoteague Island and its marshes. Several times, the long distance views across the marsh offered opportunities for some good birdsmanship. However, there was one bird watched from only fifteen feet that is still to be identified. The group had hoped to add the Cattle Egret to checklist while here. But, even with Mrs. Guthrie's piloting over all grades of back roads to within a stone's throw from a mixed herd of cattle, goats, and ponies, no egrets were seen.

A checklist for the weekend follows: Great Blue Heron, Common Egret, Snowy Egret, Louisiana Heron, Little Blue Heron, Green Heron, Black-crowned Night Heron, Glossy Ibis, Turkey Vulture, Red-tailed Hawk, Bobwhite, Clapper Rail, American Oystercatcher, Semipalmated Plover, Black-bellied Plover, Ruddy Turnstone, Whimbrel, Spotted Sandpiper, Solitary Sandpiper, Willet, Greater Yellowlegs, Lesser Yellowlegs, Least Sandpiper, Short-billed Dowitcher, Semipalmated Sandpiper, Sanderling, Great Black-backed Gull, Herring Gull, Ring-bill Gull, Laughing Gull, Gull-billed Tern, Forster's Tern, Common Tern, Least Tern, Royal Tern, Black Skimmer, Mourning Dove, Barred Owl, Belted Kingfisher, Chimney Swift, Tree Swallow, Barn Swallow, Fish Crow, Brown Thrasher, Starling, Yellowthroat, Eastern Meadowlark, Redwinged Blackbird, Boat-tailed Grackle, Sharp-tailed Sparrow, Seaside Sparrow, Field Sparrow, Song Sparrow.

SOME EVENING GROSBEAK BANDING RECORDS FOR VIRGINIA

We have the following mass of reports on Evening Grosbeaks banded in Virginia and retrapped or recovered elsewhere, and of birds banded elsewhere and retrapped or recovered in Virginia.

Table 1. Banded by Arthur H. Fast, at 4924 Rock Spring Road, Arlington, Virginia, and retrapped or recovered as indicated.

<u>Band No.</u>	<u>Sex</u>	<u>Date Banded</u>	<u>By Whom and Place Retrapped</u>	<u>Date Retrapped</u>
1. 41-206221	F	March 26, 1946	B.M. Shaub Northampton, Mass.	April 24, 1949
2. 50-122779	F	Feb. 11, 1952	Mr. Jean Dugay Charlevoix County, Quebec	July 20, 1953
3. 50-178013	F	Feb. 23, 1952	B.M. Shaub Northampton, Mass.	April 20, 1956
4. 50-178111	F	March 8, 1952	Ernest E. Wanek Ramsey, N.J.	April 29, 1956
5. 50-178231	M	March 15, 1952	Mrs. Margaret Fitzgerald Amsterdam, N.Y.	May 9, 1955
6. 50-178254	F	March 20, 1952	W.J. Mills, Halifax Nova Scotia	March 6, 1955
7. 50-178258	M	March 21, 1952	Mrs. Ernest P. Cook Berlin, N.H.	April 17, 1953
8. 50-178350	M	April 19, 1952	Mark A. Wolf Midland, Mich.	Jan. 30, 1958
9. 50-178430	M	April 26, 1952	Edouard Lamouthe Cheneville, Quebec	Feb. 15, 1953 (killed by cat)
10. 50-178431	M	April 27, 1952	Mrs. Ernest P. Cook Berlin, N.H.	Feb. 8, 1953
11. 50-178432	M	April 27, 1952	Mrs. James Hill Skowhegan, Maine	April 13, 1953
12. 50-178436	F	April 27, 1952	Mr. Lynn Lampi Fitchburg, Mass.	April 7, 1959 (found dead)
13. 50-178437	M	April 28, 1952	Mrs. Ernest P. Cook Berlin, N.H.	Feb. 11, 1953
14. 50-178467	M	May 3, 1952	Mrs. Margaret Fitz- gerald, Amsterdam, N.Y.	May 9, 1955
15. 50-178479	F	May 4, 1952	T.L. Quay, N.C. State Coll., Raleigh, N.C.	March 10, 1956 "Collected"
16. 50-178480	F	May 4, 1952	John W. Stewart Burlington, Mass.	April 5, 1953
17. 55-182146	M	Apr. 18, 1958	Frank A. Clinah Watertown, N.Y.	Apr. 12, 1959
18. 55-182169	F	Apr. 24, 1958	Thomas H. Foster Bennington, Vt.	May 9, 1958
19. 55-182185	F	Apr. 28, 1958	Mrs. Margaret Fitz- gerald, Amsterdam, N.Y.	May 21, 1958

Table 1 - Continued

<u>Band No.</u>	<u>Sex</u>	<u>Date Banded</u>	<u>By Whom and Place Retrapped</u>	<u>Date Retrapped</u>
20. 55-182212	M	Apr. 29, 1958	Ralph G. Carpenter Wolfeboro, N.H.	March 19, 1959
21. 55-182242	F	May 5, 1958	Mrs. Dominick D'Esepe Rocky Hill, Conn.	March 9, 1959 (found dead)
22. 58-175722	F	March 19, 1960*	Miss Frances Brierly Adams, Mass.	May 2, 1960
23. 58-175724	F	March 19, 1960*	Roger Ouellette Sinclair, Maine	July 13, 1960 (killed by car)
24. 58-175771	M	Apr. 14, 1960	Thomas Brousseau St. Leon le Grand, Quebec	June 23, 1960

*These birds were banded on nearby Old Dominion Drive, Arlington, by Miss Patricia Beach, assisting Arthur H. Fast.

Table 2. Banded as indicated and were retrapped and released by Arthur H. Fast at 4924 Spring Road, Arlington, Virginia.

<u>Band No.</u>	<u>Sex</u>	<u>Date Banded</u>	<u>By Whom and Place Retrapped</u>	<u>Date Retrapped</u>
1. 45-200148	F	Apr. 20, 1946	G. Hapgood Parks Hartford, Conn.	Feb. 17, 1952
2. 42-233352	F	Feb. 25, 1950	Lydia Getell Berlin, Conn.	March 12, 1952
3. 50-101563	F	April 15, 1950	G. Hapgood Parks Hartford, Conn.	March 20, 1952
4. 50-101036	M	March 17, 1950	B.M. Shaub Northampton, Mass.	April 24, 1952
5. 48-202555	F	Feb. 23, 1950	Samuel Cabat, Jr. Beverly Farms, Mass.	April 27, 1952
6. 50-113172	F	Feb. 21, 1955	Mrs. Eleanor Dater Ramsey, N.J.	May 8, 1958
7. 53-134619	F	Jan. 19, 1956	Mrs. Margaret Fitzgerald, Amsterdam, N.Y.	May 4, 1958
8. 53-178769	F	Feb. 21, 1960	John V. Dennis Ashburn, Va.	March 1, 1960
9. 56-118964		Jan. 29, 1959*	Franklin McCamey Storrs, Conn.	March 18, 1960*
10. 56-185851	F	Dec. 26, 1959*	Maurice Broun Kempton, Pa.	April 21, 1960*

*These birds were retrapped on nearby Old Dominion Drive, Arlington, by Miss Patricia Beach, assisting Arthur H. Fast.

Table 3. Banded by Mrs. Dorothy Dreese, at 4136 N. 41st Street, Arlington, Virginia, and retrapped as indicated.

<u>Band No.</u>	<u>Sex</u>	<u>Date Banded</u>	<u>By Whom and Place Retrapped</u>	<u>Date Retrapped</u>
1. 50-122751	M	Dec. 16, 1951	R.G. Carpenter Wolfeboro, N.H.	May 6, 1953
2. 50-122756	F	Dec. 24, 1951	G. Hapgood Parks Hartford, Conn.	March 15, 1953
3. 50-122767	M	Jan. 3, 1952	G. Hapgood Parks Hartford, Conn.	March 5, 1953
4. 50-122830	F	Jan. 21, 1952	T.J. Courtney Halifax, Nova Scotia	Feb. 14, 1953
5. 50-122831	F	Jan. 21, 1952	Mrs. Margaret Fitz- gerald, Amsterdam, N.Y.	Jan. 14, 1956

Table 4. Banded by John Terborgh, 4582 N. 26th Street, Arlington, Virginia.

50-178017 Old	F	March 1, 1952	Parker C. Reed	Jan. 24, 1953
52-136031 New			Lexington, Mass.	

Table 5. Banded by Mr. and Mrs. William P. Mull* at Dunn Loring (near Vienna) Virginia, and retrapped or recovered as indicated.

<u>Band No.</u>	<u>Sex</u>	<u>Date Banded</u>	<u>By Whom and Place Retrapped</u>	<u>Date Retrapped</u>
1. 58-175418	F	Dec. 20, 1959	Mrs. Louise Babcock*	March 17, 1961
2. 58-175471	F	Dec. 27, 1959	Sterling, Va.	
3. 58-175533	F	Jan. 14, 1960	Olan W. Dillon, Jr. Statesville Springs, N.Y.	April 15, 1961
4. 58-175553	M	Jan. 17, 1960	John Shaw Stockholm, Me.	Nov. 30, 1960 (killed by car)
5. 59-129088	F	March 14, 1960	Thomas Brousseau St. Leon Le Grand, Quebec	June 24, 1960
6. 59-139208	M	March 17, 196	Thomas Brousseau St. Leon Le Grand, Quebec	July 26, 1960
7. 59-139273	M	April 1, 1960	Mr. Broan Colford Blackville, New Brunswick	Summer 1960 (struck by car)
8. 59-139350	M	May 1, 1960	Thomas Brousseau St. Leon Le Grand, Quebec	June 6, 1960
9. 58-175603	F	Jan. 27, 1960	Walter Schneider Magnetawan, Ontario	Feb. 1, 1961 (hit by car)
10. 58-175662	M	Feb. 8, 1960	C.S. Robbins Laurel, Md.	April 28, 1960
			Elting Arnold Chevy Chase, Md.	April 15, 1960

Table 5. - Continued

<u>Band No.</u>	<u>Sex</u>	<u>Date Banded</u>	<u>By Whom and Place Retrapped</u>	<u>Date Retrapped</u>
11. 58-175696	F	Feb. 18, 1960	C.S. Robbins Laurel, Md.	April 20, 1960
12. 59-129090	F	March 14, 1960	Elting Arnold Chevy Chase, Md.	April 17, 1960
13. 59-139300	F	April 14, 1960	C.S. Robbins Laurel, Md.	April 24, 1960

*This bird returned to within a few miles of the place of banding. This is the nearest to a return of any Evening Grosbeak banded in this area.

Table 6. Banded as indicated and were retrapped and released by Mr. and Mrs. William Mull at Dun Loring (near Vienna) Virginia.

<u>Band No.</u>	<u>Sex</u>	<u>Date Banded</u>	<u>By Whom and Place Retrapped</u>	<u>Date Retrapped</u>
1. 52-276682		April 4, 1955	Paul A. Becker Walker, Minn.	Dec. 28, 1959
2. 56-135917	F	May 11, 1958	Mrs. James R. Downs South Londonderry, Vt.	Dec. 24, 1959

Table 7. Banded by Mrs. Elizabeth D. Peacock in Fairfax County and retrapped as indicated.

<u>Band No.</u>	<u>Sex</u>	<u>Date Banded</u>	<u>Retrapped</u>	<u>Retrapped by</u>
56-107721	M	Dec. 28, 1959	May 2, 1960 Adams, Mass.	F. Brierley
56-107822	F	Jan. 4, 1960	Apr. 15, 1960 Chevy Chase, Md.	E. Arnold
56-107991	F	Mar. 8, 1960	Feb. 28, 1961 Whiteman, Mass.	(killed by cat)

Table 8. Banded as indicated and retrapped by Mrs. Elizabeth D. Peacock.

<u>Band No.</u>	<u>Sex</u>	<u>Date</u>	<u>Location</u>	<u>Bander</u>	<u>Retrapped</u>
46-131089	M	4/14/47	Northampton, Mass.	?	3/3/52 Pine Ridge
46-213042	F	3/5/47	Hartford, Conn.	S.H. Parks	3/8/52 Pine Ridge
50-225024	F	3/29/51	Charlesbourg, Quebec	R. Cayouette	3/17/52 Pine Ridge
57-173703	F	1/18/59	Wolfeboro, N.H.	R.G. Carpenter	12/28/59 Pine Ridge
56-185851	F	12/25/59	Kempton, Pa.	M. Broun	1/3.60 Wakefield For. (9 days)

Table 9. Banded by F.R. Scott at Richmond, and retrapped as indicated.

<u>Date Banded</u>	<u>Retrapped or Recovered</u>	<u>Date Retrapped</u>
Feb. 23, 1958	A.C. Black, Jr. Saxton's River, Vt.	Mar. 29, 1961
Feb. 25, 1958	Thomas Brousseau, Rimouski Co., Quebec	July 24, 1959
Apr. 22, 1958	V.R. Perkins, Bethel, Vt.	Feb. 8, 1959
Apr. 15, 1960	Mrs. J.R. Downs, So. Londonderry, Vt.	Jan. 14, 1961

Table 10. Banded by F.E. Smith at Strondsburg, Pennsylvania and retrapped as indicated.

<u>Date Banded</u>	<u>Retrapped</u>	<u>Date Retrapped</u>
March 13, 1959	F.R. Scott, Richmond Va.	April 13, 1960

Table 11. Retrapped by Rev. George M. Smith, Strasburg, Virginia, and banded as indicated.

<u>Band No.</u>	<u>Sex</u>	<u>Date Retrapped</u>	<u>By Whom and Place Banded</u>	<u>Date Banded</u>
59-101131	F	Feb. 20, 1961	Mrs. Southgate Hoyt Thompkins Co., N.Y.	April 14, 1960
	M	Mar. 5, 1960	Cumberland Hills, Maine	April 22, 1959

(Compiled by the Editor)

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ACTIONS OF THE EXECUTIVE COMMITTEE October 14, 1961

The Committee met on the above date in Charlottesville and transacted business as follows:

1. Approved a report by the Treasurer (Miss Goldstick) showing balances of \$730.04 in the general fund and \$769.88 in the publication fund.
2. Voted to enclose a combined membership application form and information leaflet in each issue of The Raven to assist in recruiting new members.

3. Voted to amend Article II, Section 2, of the Constitution, which requires the Executive Committee to approve all new applications, a requirement which has never been followed. The following revision of the first sentence of Article II, Section 2, was approved in order to eliminate a useless formality while enabling the Society to retain some control over its membership:

"Any person of good character who is interested in bird study may apply for membership and may be admitted upon payment of dues to the Treasurer, subject to review by the Executive Committee."

This amendment will go before the Society for its next meeting for final action.

4. Heard a report by Dr. Murray and Mr. W.O. Lewis concerning final plans for printing The Raven, starting with the 1962 volume. The low bid was submitted by the Michie Company of Charlottesville.

5. Accepted an invitation from the Hampton Roads Bird Club for the 1962 VSO meeting, and designated the weekend of April 27-28 for the date.

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BACK BAY, 1961

By C. W. Hacker

The 1961 Back Bay trip of the VSO held December 2 and 3 was attended with the usual pleasant weather. In the interest of brevity, the customary birds were seen in the usual numbers, unless otherwise noted.

Gannets were close in and common, scoters scarce, Great Black-backed Gulls common. An unusually large flock of Forster's Terns were feeding in the surf. A Parasitic Jaeger was sighted, and, as usual, it was only a fleeting glimpse.

In the marsh Virginia Rails and a single Louisiana Heron were noteworthy. Again this year, the Blue-gray Gnatcatcher was seen on Long Island. At Refuge Headquarters an Oregon Slate-colored Junco hybrid was seen at close range by ten of the group.

The ducks, geese, and swans were a picture of contrasts. The Whistling Swans were in view in large numbers throughout the day and in all areas. The total was estimated at 10,000-12,000. Canada Geese, likewise, were numerous, only slightly fewer than the swans. No more than 100 Snow Geese were seen, for they had recently moved further down

the coast. The duck situation was pathetic. The large rafts of former years are gone; now, a flock of 25 is considered a good sighting. No Redheads were reported, and no more than a dozen Canvasbacks. Blacks, Mallards, and Pintails were common by today's standards.

On Sunday a trip was made to the Craney Island Disposal Area in Hampton Roads. Here the noteworthy sightings were numerous Forster's Terns, a large flock of Dunlin, and a few Purple Sandpipers. The ducks were present in a good variety, the expected species. Our inland members were pleased with the close-in, well-lighted sightings.

— Hampton, Virginia

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NEWS OF THE LOCAL CHAPTERS

Cape Henry Bird Club

This chapter, with a present membership of 92, holds meetings the second Friday of each month in the Science Building of the Norfolk Division of William and Mary College. Field trips sponsored by the Club average two a month, with emphasis on the wintering water birds and the spring migration.

The Club sponsors the series of five Audubon Screen Tours, which are held at Northside Junior High School at 8:15 p.m. The next speakers will be Howard L. Orians on January 15, Charles T. Hotchkiss on February 23, Robert C. Hermes on March 19, and Karl H. Maslowski on April 14. The Club has recently been active in a number of local conservation projects and provides speakers for scout, church, and civic groups. They have also sponsored student attendance at the Virginia Nature Camp.

Currently a special project of the Club is the assembling and duplication of a series of slides of five wilderness or scenic areas about Norfolk. These are Stumpy Lake, Dismal Swamp, Seashore State Park, Back Bay National Wildlife Refuge, and the Norfolk Azalea Gardens. These are to be incorporated into a conservation program with narration accompanying the pictures and will be available to civic organizations, garden clubs, and the like with the objective of interesting a larger proportion of local residents in the preservation of these areas.

Current officers of the Cape Henry Bird Club are as follows:

President: Mrs. Gerald Akers
Vice President: Mrs. Dodson Morrisette
Recording Secretary: Miss Margaret Watts
Corresponding Secretary: Mrs. Leamon Forrest
Treasurer: Mr. A.F. Schaffert

The Advisory Board consists of the following persons:

Mrs. D.S. Derby	Mrs. Colgate W. Darden
Mrs. L.E. Burford	Miss Gisela Grimm
Cdr. Donald Gordon	Mr. W.F. Rountrey

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NEWS AND NOTES

The Raven to Be Printed. The most important piece of news in the VSO at this time is the decision of the Executive Committee to print The Raven, beginning with 1962. There will be four issues of 16 pages each (occasionally running to 20 pages), dated in March, June, September, and December. The printing contract has been given to the low bidder, The Michie Company, Charlottesville, Virginia, a firm of lawbook publishers, of which William O. Lewis of the VSO is president. There will have to be some sacrifice in quantity of material, although we estimate that the loss will not be more than one-fifth. We shall gain greatly in the attractiveness of the journal. Also the fact of printing will give our new material a status that is not enjoyed by mimeographed journals.

Mount Rogers Scenic Area. At the Annual Meeting in Abingdon the VSO went on record as favoring the setting aside of the summit of Mt. Rogers, the highest mountain in Virginia, containing what is possibly the only untouched spruce area in the State, as a Scenic Area. We are now informed by W.C. Curnutt, Supervisor of the Jefferson National Forest, that this scenic area has been established. This means protection and permanent preservation of this region as an outdoor laboratory for nature study and a scenic area for enjoyment. The territory is described by the Forest Service as follows: "The area, as established by the order, comprises approximately 1300 acres and is bounded on the north, east, and south by U.S. property lines, and on the west by an unimproved road, U.S. property lines, and Grassy Branch. The entire summit of Mount Rogers supporting spruce and fir and the northern hardwood forest on the northern slopes are within the area." This is one example of the way in which such unique areas in Virginia, as found in our mountains, on the Eastern Shore, in the Dismal Swamp, etc., should be preserved.

Bufflehead Migration Study. The following request for help in a study of the migration of the Bufflehead has been received from the Department of Northern Affairs and National Resources of the Canadian Wildlife Service:

REQUEST FOR INFORMATION - MIGRATION OF BUFFLEHEADS

A study of the Bufflehead is under way, and information on the migration of that species is needed. Data required include first arrival dates, peak date of migration and peak numbers, and departure dates. Only birds actually believed to be migrants should be listed, but, where pertinent, other data on wintering or summering numbers should be included. If only infrequent visits are made to areas frequented by Bufflehead, the statement "present by (date)" is preferable to "arrival (date)", and "last seen (date)" to "departure (date)". Information is solicited particularly for the spring migration of 1962, but it is hoped that interested observers will report any data they may have obtained in the past; requests for fall migration data will be made later. It is planned to colour-mark some Buffleheads in Maryland, New York, and Oregon during the winter of 1961-62, and observers should take particular note of any Buffleheads bearing bright patches of red, yellow, or orange. Please send information on the Bufflehead to:

A.J. Erskine
Canadian Wildlife Service
P.O. Box 180
Sackville, New Brunswick
Canada

Whistling Swan at Danville: a Correction. In The Raven, January-February, 1961, page 6, a record is published for a Whistling Swan (Olor columbianus) at Danville, Virginia. However, a kodachrome taken of the bird by Dr. Leon W. Powell, Jr., has been identified by Dr. Herbert G. Deignan, of the U.S. National Museum, as a Mute Swan (Cygnus olor). There are very few records for the State for the Mute Swan.

Golden Plover at Hampton. John A. Pond watched a Golden Plover in full plumage at Grandview Beach, Hampton, for 20 minutes on October 14, 1961. It was alone, moving independently of the Semipalmated Plovers and Dunlins that were around it.

Cape May Warbler at Sea off Cape Henry. Lt. G.W. Gibbins of the U.S. Navy writes as follows: "On 31 August, 1961, while our submarine was lying-to on the surface, we were visited by a mature female Cape May Warbler. At the time the ship was approximately 80 miles due east of Cape Henry, Virginia. The weather was mild and sunny with a slight haze. The wind was from the west at five knots. The bird alighted in the vicinity of the periscope and was easily captured by hand. It was brought

below to me. After I had examined the bird, I took it topside and released it. It appeared very tired and fluttered feebly to the deck. I am afraid that after we submerged a short time later the bird may have drowned."

Connecticut Warblers at Fairfax, Virginia. Mrs. Elizabeth D. Peacock writes that on May 24, 1961, she captured and banded her first spring Connecticut Warbler at her home, Wood Thrush Hill, 200 Highland Road, Fairfax. Before this time she had banded seven in fall, and during the fall of 1961 banded three more.

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