

The Raven

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

Activities undertaken by the Society include the following:

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

In addition, some local chapters of the Society conduct their own programs of meetings, field trips and other projects.

Those wishing to participate in any of the above activities, or to cooperate in advancing the objectives of the Society, are cordially invited to join and should contact the Membership Secretary. Annual dues are \$20.00 for active members, \$35.00 for sustaining members, \$60.00 or more for contributing members, \$500.00 for life members, and \$25.00 for family members.

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

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Editor
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VIRGINIA CHRISTMAS BIRD COUNTS: 2012-2013 SEASON

TETA KAIN

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The Virginia Christmas Bird Counts have a remarkable history of consistency in the 21st century. Of the 48 counts held in 2000, all are still conducted every year and four more have been added since 2006, bringing the total to 52. Of that number, only a handful have missed a year here and there, mostly because of severe weather conditions, but this record of longevity is certainly something Virginians can be proud of.

Of the 52 counts held, results of four were not submitted to National Audubon for inclusion in that database. They are Chesapeake Bay, Darlington Heights, Peaks of Otter, and Giles County. The Bristol count falls into a different category. Although its circle center is located in Virginia, that count is included in the Tennessee section of the Audubon database, but it is included each year in the Raven Christmas count summary because the larger part of the circle is in this state. For the previous three years, the Chatham count was submitted only to *The Raven*, but this year, results were also sent to Audubon for inclusion in that database.

There were a few changes in the compiler line-up this year. Gerald Tracy took over the duties of the Chincoteague count from Dick Roberts, who stepped down due to illness in his family. Nancy Gruttman-Tyler became the new compiler at Newport News. Don McKelvey headed up the Mathews County effort. Mike Boatwright was back at the helm at Lake Anna after a year's absence. Buzz VanSantvoord assumed the duties of the Gordonsville count. And Jayd Raines became compiler at Breaks Interstate Park.

This year's weather was generally much kinder to birds and birders alike. There were no major snowstorms and not much serious freezing of lakes and rivers. Temperatures, although somewhat cooler than usual, were reasonably tolerable around the state. If anything was troublesome, it was the wind. Counts in the eastern half of the state that were held on 30 December were battered all day with winds gusting up to 40 mph. Cape Charles, Mathews County, Walkerton, Fort Belvoir, Chancellorsville, Lake Anna, and Gordonsville felt the effects most of all. In fact, this was the first time in the history of the Cape Charles count that the boat trip to the barrier islands was cancelled. Consequently, birds found along the bays and inlets and on the lower barrier islands could not be surveyed.

Weather was not the only thing that affected the surveys. Dismal Swamp NWR experienced major forest fires over a large area for the last two years. Compiler Don

Schwab attributes the appearance of three new species - Peregrine Falcon (*Falco peregrinus*), Short-eared Owl (*Asio flammeus*), and Marsh Wren (*Cistothorus palustris*) - to the drastic alteration of habitat due to the fires.

There was also another factor that changed things to some degree. Compilers that usually hold their counts on the first Sunday in January had to change to a different date because the specified count season extended only through 5 January and did not include that first Sunday, which fell on January 6. Consequently, birders who were committed to other counts could not attend on the altered dates and several compilers struggled to find adequate coverage of their circles.

Nevertheless, birders all around the state came up with noteworthy discoveries. No one thought the first-ever Brewer's Sparrow (*Spizella breweri*) found at Fort Belvoir last year would be topped very soon, but this year birders came up with a first-ever Swallow-tailed Kite (*Elanoides forficatus*) flying over Mattawoman Creek in the Maryland sector of that count, so this cannot be counted as a Virginia sighting. If that was not excitement enough, another party on that same count enjoyed an extended observation of a Louisiana Waterthrush (*Parkesia motacilla*) catching a minnow as it bobbed along a small creek on the Mt. Vernon estate. And a birder with much seabird experience spotted two Manx Shearwaters (*Puffinus puffinus*) off the shore at Back Bay, a first for that count. These reports will be submitted to VARCOM for verification. In addition to these surprises, there were plenty of interesting trends and exciting finds on other counts all around the state, as evidenced below.

The only Greater White-fronted Goose (*Anser albifrons*) found was an individual at Fort Belvoir. An unexpected Ross's Goose (*Chen rossii*) turned up at Glade Spring, the second sighting for that count. The most Brant (*Branta bernicla hrota*) in seven years were seen at Chincoteague and it was the best statewide showing in six years. Good numbers also appeared at Cape Charles, and Bristol had its very first record of this species. Cackling Goose (*Branta hutchinsii*) was a new species for Wachapreague, Newport News, Central Loudoun County, and Chancellorsville. In all, 13 were counted around the state.

Mute Swan (*Cygnus olor*) numbers were the lowest in 14 years. Surprisingly, Brooke observers, where this species has been recorded on every count there for the last 20 years, found none, but the 12 at Rockingham County were their all-time high. The only Trumpeter Swan (*Cygnus*

buccinator) in the state was a Calmes Neck's first record of the species. The bird's tag number (J53) indicates it was from the Ontario release program. No Trumpeters were found at The Plains this year, the circle where it most often appears. Mathews County birders found only 68 Tundra Swans (*C. columbianus*), the first year since 1972 that they have dropped below triple digits. In years past, Dismal Swamp has produced 5000 Tundras or more, but for the last six or seven years their numbers have been very low, with only nine found this year. Hopewell missed them entirely and Williamsburg numbers were very low for the second year in a row. Warren produced two birds, their first in 13 years.

Six Wood Ducks (*Aix sponsa*) were a first for Mount Rogers-Whitetop. All-time high counts of Gadwall (*Anas strepera*) were at Newport News, Hopewell, Nokesville, and Tazewell. Chesapeake Bay recorded its first American Wigeon. Tazewell and Darlington Heights had high counts of American Black Duck (*Anas rubripes*), while at the same time, Lynchburg and Northern Shenandoah Valley realized very low numbers.

No Eurasian Wigeons (*A. penelope*) were found anywhere, the first miss in five years. Blue-winged Teal (*A. discors*) were first-timers for Washington's Birthplace and Fincastle, while Tazewell chalked up three birds, their first since 1989. Record numbers for American Green-winged Teal (*A. crecca carolinensis*) were set at Manassas-Bull Run, Lynchburg, and Tazewell. This is a species whose numbers tend to fluctuate significantly from year to year, ranging between 500 in 1983 to the 6,500 recorded last year. Tazewell had an all-time high count of Northern Shovelers (*A. clypeata*). This year's state total was 1,954. Northern Pintail (*A. acuta*) numbers were normal, although Back Bay had a very low count while Nansemond River had an all-time high tally.

Canvasbacks (*Aythya valisineria*) were reported from only three counts, and what was even more surprising was that Williamsburg reported none at all, their first miss ever in that count's 36-year history. Back in the late 1970s and 80s, both Williamsburg and Newport News regularly reported great rafts of this species wintering on the James River. The Redhead (*A. americana*) count was the lowest in six years and the 2nd lowest since 1990.

Both Chincoteague and Lynchburg registered lows for Ring-necked Duck (*A. collaris*), but Nassawadox and Augusta County had all-time high counts. The overall state count was about average. Bristol recorded a Greater Scaup (*A. marila*) during count week. Record high counts of Lesser Scaup (*A. affinis*) were chalked up at The Plains and Chancellorsville, and Tazewell birders found one individual, the first for that count in nine years. One King Eider (*Somateria spectabilis*) at Chesapeake Bay was the first in four years.

For seven years Black Scoter (*Melanitta americana*) numbers have been in the triple digits, but this year 2,018 were counted on seven counts, with especially high numbers (1,003) at Chincoteague. White-winged Scoter (*M. fusca*) numbers remain abysmally low. Only 22 were recorded on the seven coastal counts. Long-tailed Duck (*Clangula hyemalis*) numbers were also very low this year, only 95 state-wide, the lowest count in 11 years. Even though overall Bufflehead (*Bucephala albeola*) numbers were quite a bit lower than average, four censuses - Hopewell, Brooke, Central Loudoun, and Nokesville - all managed to find record numbers. Danville birders found one Common Goldeneye (*B. clangula*), a first since 1985. Common Mergansers (*M. merganser*) were low for the second year in a row, but Giles County recorded its first sighting in 12 years. Warren recorded a Red-breasted Merganser (*Mergus serrator*), only the second record for there (the previous was in 1976). Tazewell had its first Ruddy Ducks (*Oxyura jamaicensis*) (3) in 13 years. Tazewell, by the way, had a banner year in the waterbird department, with seven unusual species.

Ruffed Grouse (*Bonasa umbellus*) populations seem to be going the same way as those of the Northern Bobwhite (*Colinus virginianus*). This year's 11 grouse topped last year's state total by only two. Those numbers were preceded by the alarmingly low totals of four in 2009 and five in 2010. One unusual sighting was an individual counted at Lynchburg, the first there since 1997. Compare those scant totals with the Wild Turkey (*Meleagris gallopavo*) whose numbers have ranged from 500 to almost 1000 since 1996. State tallies of this species ranged from zero to 50 in the early 1950s to the mid-1970s, then started to slowly climb upward. It would appear that the state's turkey restoration program has been quite successful. Sadly, the Northern Bobwhite numbers display a completely opposite picture. Since 2004, numbers have plummeted to double digits, as opposed to quadruple digits statewide before 1990. This year's 80 birds is the second lowest since 1947 when only 16 counts were conducted.

Washington's Birthplace birders recorded one Red-throated Loon (*Gavia stellata*), the only record there since 2005. Bristol had a count-week bird, their only record since 1984. Common Loons (*G. immer*) were unusual for Tazewell, Big Flat Mountain (a first for that count), Lynchburg and Waynesboro. A Pied-billed Grebe (*Podilymbus podiceps*) was a first for Mount Rogers-Whitetop. After being absent on last year's count, Williamsburg recorded an all-time high of 151 Horned Grebes (*Podiceps auritus*). An Eared Grebe (*P. nigricollis*) was present at Bristol this year; and the Western Grebes (*Aechmophorus occidentalis*) were a first for Lake Anna, and the only Virginia Xmas count record since 2003.

Wachapreague recorded its 3rd record of a Brown Pelican (*Pelecanus occidentalis*). The winter distribution of this species tends to be heavily concentrated on the lower

reaches of Eastern Shore, the southern coastal counts, the mouth of the James River, and the shores of Mathews County. There are only a smattering of records on Eastern Shore north of Cape Charles.

Since 1985, Double-crested Cormorants (*Phalacrocorax auritus*) sightings have been on the increase on the Coastal Plain of Virginia, but in the last few years, their occurrence has expanded to include areas in the Piedmont and Mountains and Valley region. Along with count-week birds at Lynchburg and Bristol, Wise County recorded its first-ever cormorant on a Xmas count. On the other hand, Great Cormorant (*P. carbo*) numbers have plummeted in the last few years with just 21 birds on 3 counts in 2012. In the 1990s, it was not uncommon to rack up a combined total of well over 100 at Cape Charles, Chesapeake Bay, Little Creek and Back Bay. After a three-year absence, an Anhinga (*Anhinga anhinga*) was at Little Creek. Seven American Bitterns (*Botaurus lentiginosus*) were seen on five counts, with individuals spotted at Matthews and Williamsburg being somewhat unusual. The five Green Herons (*Botaurus lentiginosus*) at Newport News were only the second time that many have been found on one Virginia count. The previous record was at Chincoteague in 1955.

Twelve counts recorded all-time highs of Bald Eagles (*Haliaeetus leucocephalus*). This is the second count season that their numbers have exceeded 1000 birds. Northern Harrier (*Circus cyaneus*) numbers were also significant, with seven counts tallying record highs. Overall, Sharp-shinned Hawk (*Accipiter striatus*) counts were the lowest (174) in 25 years. Back Bay and Calmes Neck recorded all-time highs of Cooper's Hawk (*A. cooperii*) and Buchanan County's sighting of this species was its first. Waynesboro chalked up its first Northern Goshawk (*A. gentilis*). Red-shouldered Hawks (*Buteo lineatus*) were everywhere with record highs recorded on eight counts, creating a statewide all-time high of 760 individuals. Red-tailed Hawks (*B. jamaicensis*) were also prevalent with record-breaking numbers on five counts.

American Coot (*Fulica americana*) registered the lowest state-wide count since 2003. One Sandhill Crane (*Grus canadensis*) was found at Bristol during count week. Only six Semipalmated Plovers (*Charadrius semipalmatus*) were found on three counts. The one seen at Newport News was the first there since 1990. American Avocets (*Recurvirostra americana*) showed up at Nansemond River for the second year in a row. An American Oystercatcher (*Haematopus palliatus*) at Mathews County was only the sixth record for there. The only Spotted Sandpipers (*Actitis macularia*) were two at Nassawaddox.

Dunlin (*Calidris alpina*) showed up on 10 counts with the highest total (29,752) in 40 years. Both Wachapreague and Newport News posted record highs, and Cape Charles and Mathews County also chalked up significant totals.

Three Wilson's Snipes (*Gallinago delicata*) at Warren were somewhat unusual, the first sighting there in nine years.

Hopewell recorded an all-time high count of Laughing Gulls (*Leucophaeus atricilla*), and Bonaparte's Gull (*Chroicocephalus philadelphia*) arrived in record numbers at Banister River WMAs. Ring-billed Gull (*Larus delawarensis*) numbers were up slightly from the lows of the last two years, but they still remain scanty. Lynchburg, The Plains, Brooke, Hopewell and Newport News are sites where numbers were low. There was also a very low overall count of Herring Gulls (*L. argentatus*). Birders posted triple digits numbers of Lesser Black-backed Gulls (*L. fuscus graellsii*) for the sixth time in 11 years. The 113 birds at Little Creek were notable, easily surpassing the previous high of 89 birds set last year. A Glaucous Gull (*L. hyperboreus*) was new for The Plains. High counts of Great Black-backed Gull (*L. marinus*) were set at Washington's Birthplace and The Plains.

Caspian Tern (*Hydroprogne caspia*) was new for Mathews County and Forster's Tern (*Sterna forsteri*) was a first at Walkerton. Another unusual tern sighting was that of two Royals (*Thalasseus maximus*) at Nansemond River, that count's second record. Razorbills (*Alca torda*) attained unprecedented numbers. Thirty-seven individuals were counted on four different CBCs, 27 of those on the Chesapeake Bay count.

Eighteen Eurasian Collared-Doves (*Streptopelia decaocto*) were found on four counts. They are now showing up regularly at Blacksburg and are beginning to appear frequently on the Giles County count.

A total of 20 Barn Owls (*Tyto alba*) were reported, with Blackford finding its first, and Blacksburg, Shenandoah-Luray and Darlington Heights birders locating one bird each after an absence from the counts for four or five years. In the early years of the Tazewell count, birders recorded Great Horned Owls (*Bubo virginianus*) almost every year, then they simply weren't found again until this year, when one was present for the first time since 1991. On the other hand, Washington's Birthplace participants tallied an all-time high of 19 birds. Even though Barred Owl (*Strix varia*) numbers were down state-wide, Manassas-Bull Run, Calmes Neck and Waynesboro had record highs. Central Loudoun County and Waynesboro had the only Long-eared Owls (*Asio otus*). Northern Saw-whets (*Aegolius acadicus*) were at Chincoteague, Cape Charles and Fort Belvoir.

A total of nine hummingbirds were spotted around the state, five positively identified as Rufous (*Selasphorus rufus*), and three more as *Selasphorus* sp. This is the 10th year in a row that hummingbirds have been seen on at least one Virginia count.

Red-headed Woodpeckers (*Melanerpes erythrocephalus*) were found on 34 counts. The previous state high was 279 in 1989. From that year through 1999 numbers sagged as low as 95, with an average of 160 birds/year, so this year's

record-breaking total of 301 was a significant jump. For the past 25 years Red-bellied Woodpecker (*Melanerpes carolinus*) numbers have been on the rise and this year topped them all, with a total of 4,204 found on all counts except Chesapeake Bay. Eleven of those counts were record highs. With the exception of 2009, this is the 12th year in a row that Red-bellied numbers have exceeded 3,000. Pileated Woodpecker (*Dryocopus pileatus*) numbers of 1,259 were very close to the state's record of 1,274 set in 1994.

Hopewell had its first Ash-throated Flycatcher (*Myiarchus cinerascens*), the only one seen in the state since 2009. After a 5-year absence, Western Kingbirds (*Tyrannus verticalis*) showed up, one was a first for Waynesboro, and one at Mathews County was its second record. Loggerhead Shrikes (*Lanius ludovicianus*) are desperately hanging on, 11 state-wide. One at Wise County was its first in eight years.

The 12,684 Blue Jays (*Cyanocitta cristata*) were the second highest state total since the record (13,023) was set in 1988. Nassawaddox, The Plains, Manassas-Bull Run, Charlottesville, and Chatham all chalked up record highs. Only Mathews reported low numbers (67) where totals have been noticeably lower for the past two years. Fish Crows (*Corvus ossifragus*) rebounded at both Augusta County and Northern Shenandoah Valley, where they have been scarce for the past three or four years.

Tufted Titmice (*Baeolophus bicolor*) seemed to be in abundance everywhere, with the second highest count ever of 7,568 birds. Eight sites topped previous records. Although the 697 Red-breasted Nuthatches (*Sitta canadensis*) were the highest in 27 years, that number does not begin to approach the astonishing records set in the late 1970s and early 80s, when over 1000 birds a year were sometimes seen. White-breasted Nuthatch (*Sitta carolinensis*) numbers were the highest ever (3,215), with records set on six counts. Numbers of this species in the Northern Virginia area seem to have exploded in the past several years. Winter Wren (*Troglodytes hiemalis*) numbers rebounded from a 5-year low with 455 individuals sighted, about average for this species. Williamsburg enjoyed the first sighting of a Sedge Wren (*Cistothorus platensis*) and Dismal Swamp birders found that count's first Marsh Wren (*Cistothorus palustris*), one of the species that moved into altered habitat due to recent fires in the swamp.

Eastern Bluebirds (*Sialia sialis*) are slowly increasing. This beloved species suffered significant losses when so much of its preferred habitat was severely damaged by Hurricane Isabel in 2003. Numbers are again approaching the previous highs of nearly 10,000 each year.

American Pipit (*Anthus rubescens*) numbers were the third highest ever, with 2,420 found on 23 counts around the state. Giles County had its first sighting of this species in 11 years and Chancellorsville birders spotted a record 90 birds. Walkerton, Central Loudoun County, Darlington

Heights, and Banister River WMAs also posted record numbers.

There was a fair number of unexpected warblers. The most unusual was a well-described Louisiana Waterthrush (*Parkesia motacilla*) at Fort Belvoir. First time occurrences on various counts were a Tennessee Warbler (*Oreothlypis peregrina*) at Hopewell; a Palm Warbler (*Setophaga hypochrysea*) at Washington's Birthplace and one at Darlington Heights. Five Common Yellowthroats (*Geothlypis trichas*) appeared at Newport News. On that same count a Yellow-breasted Chat (*Icteria virens*) was the first recorded there since 1967. A Wilson's Warbler (*Cardellina pusilla*) posing on a sidewalk at Fort Belvoir, created a great photographic opportunity for birders at Huntley Meadows Park.

A Western Tanager (*Piranga ludoviciana*) (photographed) visiting a feeder at the compiler's house at Williamsburg was the second time that species has been found a Virginia Xmas count. The other record is of one bird at Back Bay in 1972.

Even though the 62 American Tree Sparrows (*Spizella arborea*) found on seven counts doubled last year's state total, their numbers have stayed depressingly low for the past nine years. In contrast Chipping Sparrows (*S. passerina*) seem to be on the increase everywhere with 4-digit state totals realized for the past seven years. This year's record total of 2,189 easily surpassed last year's record high of 1,843 and seven counts posted their own all-time high tallies. This year's only Clay-colored Sparrow (*S. pallida*) was in the Maryland sector of the Chincoteague count. After three years of rather low counts, Nelson's Sparrow (*Ammodramus nelsoni*) bounced back with 28 total individuals. Twelve of those birds were found at Nassawaddox, a record for there.

This was a great year for the Seaside Sparrow (*Ammodramus maritimus*). Fifty-two were counted on five counts. Twenty at Nassawaddox and 18 at Nansemond River significantly augmented the total. In fact, that total was, by far, the most found since 88 were spotted in 1993. The only Lincoln's Sparrow (*Melospiza lincolnii*) recorded this year was at Washington's Birthplace, that count's second record.

Nassawaddox, Walkerton, Augusta County, and Lexington posted record high counts of Swamp Sparrows (*M. georgiana*). The 24,246 White-throated Sparrows (*Zonotrichia albicollis*) were Virginia's 3rd highest total ever, with both Williamsburg and Blackford recording all-time highs. Blackford also had a record number (212) of White-crowned Sparrows (*Z. leucophrys*). Central Loudoun and Calmes Neck posted all-time highs of Dark-eyed Juncos (*Junco hyemalis*). The 21 Lapland Longspurs (*Calcarius lapponicus*) were the highest state total in 20 years, with 17 of those birds found at Central Loudoun. The other four were at Blacksburg.

A Painted Bunting (*Passerina ciris*) was back for the first time in three years, this time showing up at Nansemond River for that count's second sighting. A Dickcissel (*Spiza americana*) was Cape Charles's first record in nine years. Red-winged Blackbird (*Agelaius phoeniceus*) numbers were the lowest (36,255 state-wide) in 18 years. Common Grackle (*Quiscalus quiscula*) and Boat-tailed Grackle (*Q. major*) numbers were also rather low. Both Chincoteague and Manassas-Bull Run recorded unusually high numbers of Rusty Blackbirds (*Euphagus carolinus*), 423 and 250 respectively, to bring the state total to 961 individuals, the highest in six years. Washington's Birthplace recorded an all-time high of 15. The only Brewer's Blackbirds (*E. cyanocephalus*) this year were four at Nokesville. Just one Baltimore Oriole (*Icterus galbula*) was present, that at Williamsburg. The average state total for that species in the previous seven years has been 10 individuals, mostly on the Coastal Plain, rarely occurring in the Piedmont or Mountains and Valleys regions.

Purple Finches (*Haemorhous purpureus*) rebounded a bit with 348 counted in 35 circles, but the total is somewhat lower than was expected. Red Crossbills (*Loxia curvirostra*) were at Fort Belvoir, Big Flat Mountain, and Roanoke, but the nice surprise was White-winged Crossbills (*L. leucoptera*) showing up at Manassas-Bull Run and Calmes Neck, a species new for both counts. Though both species had been present on Eastern Shore during the winter, they appeared only as count week birds at Cape Charles. Central Loudoun County had its third Common Redpoll (*Acanthis flammea*) sighting. Pine Siskins (*Spinus pinus*) were much more plentiful and wide-spread this year as compared to the past three years, but it was a paltry state total compared to nearly 3000 found in 2008. For the first time in eight years, Evening Grosbeaks (*Coccothraustes vespertinus*) were recorded on VA CBCs, one at Hopewell, four at Manassas-Bull Run, and three at Nokesville.

Count data are presented as two Tables on the following pages. In both, the counts ("Count Circles") are numbered in order from 1 to 52, beginning with the Eastern Shore (counts 1-5) and proceeding in a roughly east-to-west and north-to-south configuration: Coastal Plain (counts 6-17), Piedmont (counts 18-31), and Mountains and Valleys (counts 32-52). Table 1 lists the number of individuals of each species seen and Table 2 the field conditions, collection data, count compilers and circle locations.

Abbreviations used in the tables are as follows:

Blvd = Boulevard
CLD = Cloudy
CALM = Calm
CLR = Clear
Cmdr = Commander
Co = County
CW = Count week
Dec = December
E = East
FOG = Foggy
HVR = Heavy rain
Jan = January
Jct = Junction
LGR = Light rain
LSN = Light snow
mi = Mile(s)
mph = Miles per hour
Mt = Mountain
MWO = Moving water open
N = North
NR or nr = Not recorded
NRV = New River Valley
NW = Northwest
NWR = National Wildlife Refuge
PCD = Partly cloudy
PCR = Partly clear
Rd = Road
Rt(s) = Route(s)
S = South
SE = Southeast
Sp = species
SPF = Still water partly frozen
SW = Southwest
TN = Tennessee
U or UNK = Unknown
V or VAR = Variable
VA = Virginia
W = West
WMA = Wildlife Management Area
WNW = West northwest
WOP = Water open

Table 1. Species Counts (p. 1 of 20)

Species Count Circle	Greater White- fronted Goose	Snow Goose (white form)	Snow Goose (blue form)	Ross's Goose	Brant	Cackling Goose	Canada Goose	Mute Swan	Trum peter Swan	Tundra Swan	Wood Duck	Gad- wall	American Wigeon
1. Chincoteague	...	9,029	21	...	952	...	1,988	...	...	305	...	942	253
2. Wachapreague	...	18,705	...	...	637	1	3,690	...	...	5	6	...	...
3. Nassawaddox	...	162	...	...	2,022	...	630	...	...	16	1	...	...
4. Cape Charles	...	5,000	20	2	1,973	2	250	2	...	22	2	328	128
5. Chesapeake Bay	1	...	...	...	...	...	...	...	2
6. Little Creek	65	...	584	...	...	62	38	73	22
7. Back Bay	...	845	4	...	...	...	407	...	...	684	...	265	179
8. Nansemond River	...	27	...	...	...	...	3,412	...	...	584	19	71	63
9. Dismal Swamp	30	...	...	9	63	17	10
10. Newport News	37	1	1,090	...	...	...	5	159	120
11. Mathews County	17	...	1,041	...	...	68	...	...	...
12. Williamsburg	1,245	8	...	14	22	27	14
13. Hopewell	...	220	2,300	...	...	2	8,933	...	...	...	55	328	37
14. Walkerton	...	10	1	...	...	1	5,829	...	...	35	49	93	7
15. Washingtons Birthplace	1	8,943	1	...	101	2	88	5
16. Brooke	1,767	...	...	429	11	3,028	6
17. Fort Belvoir	1	20	...	...	...	...	11,418	2	...	506	59	1,734	46
18. Central Loudoun County	...	1	...	...	...	1	6,719	...	...	230	3	46	12
19. The Plains	CW	...	...	...	...	CW	3,772	2	...	9	7	89	55
20. Manassas-Bull Run	2,386	...	...	...	1	9	...
21. Nokesville	1,445	...	...	...	...	11	...
22. Chancellorsville	1	965	7	...	30	...	...	5
23. Lake Anna	206	...	...	2	...	6	...
24. Gordonsville	253	1	...	...	2	...	...
25. Charlottesville	928	...	...	...	4	...	...
26. Warren	1,478	...	...	2	6	10	...
27. Darlington Heights	283	...	...	...	...	...	...
28. Banister River	279	...	...	...	2	3	...
29. Lynchburg	796	...	...	...	4	8	...
30. Chatham	93	...	...	...	...	...	...
31. Danville	78	...	...	...	1	...	...
32. Calmes Neck	6,632	...	1	1	2	...	...
33. N. Shenandoah Valley	884	...	...	...	...	10	11
34. Shenandoah NP-Luray	233	...	...	1	1	3	...
35. Big Flat Mountain	15	...	...	...	...	...	...
36. Rockingham County	CW	...	...	164	12	...	...	9	...	...
37. Augusta County	674	...	...	...	...	20	1
38. Waynesboro	3	858	...	...	...	...	...	1
39. Lexington	330	...	...	...	...	10	...
40. Peaks of Otter
41. Fincastle	290	...	...	...	3	28	...
42. Roanoke	147	...	...	...	6	36	...
43. Blacksburg	464	...	...	...	...	25	6
44. Giles County	267	...	...	...	5	8	...
45. Tazewell	265	...	...	...	...	14	...
46. Mount Rogers-Whitetop	24	...	...	...	6	...	...
47. Glade Spring	1	...	...	345	...	...	...	...	26	2
48. Blackford	210	...	...	...	1	...	...
49. Bristol	1	...	741	...	...	...	1	13	22
50. Buchanan County
51. Breaks Interstate Park
52. Wise County
Totals	1	34,019	2,346	3	5,705	13	83,481	35	1	3,115	396	7,528	1,007

Table 1. Species Counts (p. 2 of 20)

Species Count Circle	American Black Duck	Black Duck/ Mallard (hybrid)	Mallard	Black Duck or Mallard	Blue- winged Teal	Northern Shoveler	Northern Pintail	American Green- winged Teal	Canvas- back	Red- head	Ring- necked Duck	Greater Scaup
1. Chincoteague	924	...	532	6	...	569	710	463	...	...	1	6
2. Wachapreague	324	...	88	...	...	...	...	...	...	...	...	...
3. Nassawaddox	281	...	121	...	...	...	...	14	...	...	35	...
4. Cape Charles	229	1	314	...	...	37	3	85	...	1	117	3
5. Chesapeake Bay	...	...	...	...	...	...	...	...	...	...	...	2
6. Little Creek	29	...	435	...	...	123	5	9	...	...	162	...
7. Back Bay	231	...	518	...	...	15	20	40	...	...	19	...
8. Nansemond River	70	...	145	...	...	680	41	151	591	2	218	...
9. Dismal Swamp	6	...	72	...	...	...	...	4	...	...	25	...
10. Newport News	59	...	650	...	...	...	...	4	...	...	157	5
11. Mathews County	17	...	54	...	...	...	...	...	...	...	...	66
12. Williamsburg	39	...	353	...	1	10	...	57	...	...	354	...
13. Hopewell	410	...	1,042	...	...	36	28	725	...	...	373	...
14. Walkerton	60	...	296	...	...	8	928	...	...	1	635	...
15. Washingtons Birthplace	49	...	752	...	3	...	...	4	...	...	22	...
16. Brooke	84	...	424	...	...	...	2	4	...	1	560	2
17. Fort Belvoir	1,015	...	4,634	...	1	249	318	147	438	58	1,560	4
18. Central Loudoun County	53	...	483	...	1	19	7	8	...	...	126	...
19. The Plains	40	...	223	...	...	CW	1	69	...	...	623	2
20. Manassas-Bull Run	...	...	256	...	...	4	6	14	...	...	4	...
21. Nokesville	36	...	550	...	...	14	...	12	...	...	58	...
22. Chancellorsville	2	...	62	...	...	...	...	...	...	...	34	...
23. Lake Anna	...	...	119	...	...	...	...	...	...	...	41	...
24. Gordonsville	3	...	...	...	...	...	...	...	...	...	8	...
25. Charlottesville	...	...	88	...	...	...	...	22	...	...	...	...
26. Warren	5	...	136	...	...	...	...	20	...	...	1	...
27. Darlington Heights	7	...	17	...	...	...	...	...	...	...	...	...
28. Banister River	12	...	12	...	...	...	...	...	...	...	...	...
29. Lynchburg	1	...	215	...	...	...	...	13	...	...	15	...
30. Chatham	...	...	2	...	...	...	...	...	...	...	...	...
31. Danville	...	...	58	...	...	...	...	...	...	...	1	...
32. Calmes Neck	52	...	215	...	...	2	2	...	...	...	154	...
33. N. Shenandoah Valley	13	...	260	...	...	...	...	10	...	...	34	...
34. Shenandoah NP-Luray	2	...	339	...	...	...	1	3	...	...	...	...
35. Big Flat Mountain	...	...	...	...	...	...	...	...	...	...	...	...
36. Rockingham County	...	...	367	...	...	2	...	15	...	...	...	...
37. Augusta County	6	...	250	...	...	9	...	...	...	1	6	...
38. Waynesboro	...	...	135	...	...	...	...	30	...	1	...	...
39. Lexington	7	...	52	...	...	...	...	...	...	...	...	...
40. Peaks of Otter	...	...	...	...	...	...	...	...	...	...	...	...
41. Fincastle	2	...	52	...	1	...	...	5	1	...	74	...
42. Roanoke	1	...	41	...	...	...	...	3	...	...	5	...
43. Blacksburg	17	...	350	...	CW	...	3	8	...	...	...	...
44. Giles County	7	...	159	...	...	...	...	...	...	...	...	...
45. Tazewell	5	...	85	...	3	5	...	14	...	...	...	...
46. Mount Rogers-Whitetop	...	...	47	...	...	...	...	...	...	...	...	...
47. Glade Spring	1	...	208	...	...	...	...	...	...	...	1	...
48. Blackford	5	...	138	...	...	...	2	CW	...	...	...	...
49. Bristol	7	...	621	...	...	1	CW	1	...	CW	65	CW
50. Buchanan County	...	...	3	...	...	...	...	...	...	...	...	...
51. Breaks Interstate Park	...	...	5	...	...	...	...	...	...	...	...	...
52. Wise County	2	...	11	...	...	...	...	...	...	...	...	...
Totals	4,113	1	15,989	6	10	1,783	2,077	1,954	1,030	65	5,488	90

Table 1. Species Counts (p. 3 of 20)

Species Count Circle	Lesser Scaup	scaup sp.	King Eider	Com- mon Eider	Harle- quin Duck	Surf Scoter	White- winged Scoter	Black Scoter	scoter sp.	Long- tailed Duck	Buffle- head	Common Golden- eye	Hooded Merg- anser	Common Merg- anser
1. Chincoteague	5	2	...	1	...	46	3	1,003	560	...	658	17	106	28
2. Wachapreague	7	...	...	...	...	376	4	...	...	22	...	1	159	...
3. Nassawaddox	...	5	...	...	...	2	...	...	...	...	395	...	113	...
4. Cape Charles	6	...	...	CW	...	961	3	659	300	12	1,054	7	358	...
5. Chesapeake Bay	1	6	1	3	2	770	2	180	200	15	2	...	...	...
6. Little Creek	...	...	...	...	...	46	4	51	...	3	330	1	308	...
7. Back Bay	138	...	...	...	...	64	...	65	131	...	23	...	86	...
8. Nansemond River	64	...	...	...	...	30	...	...	...	...	329	2	195	2
9. Dismal Swamp	...	...	...	...	...	...	...	...	...	...	...	...	4	...
10. Newport News	38	...	...	...	...	144	4	12	...	40	1,067	31	250	10
11. Mathews County	...	...	...	...	...	112	2	48	...	1	963	...	70	...
12. Williamsburg	20	...	...	...	...	...	...	...	...	...	102	...	154	...
13. Hopewell	10	...	...	...	...	...	...	...	...	...	195	...	106	...
14. Walkerton	27	...	...	...	...	...	...	...	...	...	97	2	54	...
15. Washingtons Birthplace	85	...	...	...	...	13	...	...	...	2	342	40	71	8
16. Brooke	126	...	...	...	...	...	...	...	...	...	289	...	332	1
17. Fort Belvoir	9,713	354	...	...	...	...	...	...	...	CW	405	4	260	127
18. Central Loudoun County	29	...	...	...	...	...	...	...	...	...	131	...	60	75
19. The Plains	8	...	...	...	...	...	...	...	...	...	87	CW	133	4
20. Manassas-Bull Run	...	...	...	...	...	...	...	...	...	...	...	...	41	3
21. Nokesville	1	...	...	...	...	...	...	...	...	...	6	...	6	...
22. Chancellorsville	126	...	...	...	...	...	...	...	...	...	43	...	34	...
23. Lake Anna	...	...	...	...	...	...	...	...	...	...	30	...	22	...
24. Gordonsville	...	...	...	...	...	...	...	...	...	...	...	...	85	...
25. Charlottesville	...	...	...	...	...	...	...	...	...	...	...	...	7	...
26. Warren	...	...	...	...	...	...	...	...	...	...	2	...	42	...
27. Darlington Heights	...	...	...	...	...	...	...	...	...	...	...	...	20	...
28. Banister River	...	...	...	...	...	...	...	...	...	...	13	...	5	...
29. Lynchburg	...	...	...	...	...	...	...	...	...	...	2	...	26	...
30. Chatham	...	...	...	...	...	...	...	...	...	...	...	...	1	...
31. Danville	...	...	...	...	...	...	...	...	...	...	...	1	6	...
32. Calmes Neck	...	...	...	...	...	...	...	...	...	...	1	...	3	95
33. N. Shenandoah Valley	...	...	...	...	...	...	...	...	...	...	4	...	35	32
34. Shenandoah NP-Luray	...	...	...	...	...	...	...	...	...	...	...	...	2	...
35. Big Flat Mountain	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36. Rockingham County	CW	...	...	...	...	...	...	...	...	...	...	...	1	...
37. Augusta County	...	...	...	...	...	...	...	...	...	...	...	...	...	...
38. Waynesboro	...	...	...	...	...	...	...	...	...	...	1	...	5	...
39. Lexington	1	...	...	...	...	...	...	...	...	...	...	...	64	7
40. Peaks of Otter	...	...	...	...	...	...	...	...	...	...	...	...	...	...
41. Fincastle	...	...	...	...	...	...	...	...	...	...	1	...	16	...
42. Roanoke	...	...	...	...	...	...	...	...	...	...	6	...	7	...
43. Blacksburg	...	...	...	...	...	...	...	...	...	...	28	...	78	...
44. Giles County	...	...	...	...	...	...	...	...	...	...	1	...	30	6
45. Tazewell	1	...	...	...	...	...	...	...	...	...	1	...	1	...
46. Mount Rogers-Whitetop	...	...	...	...	...	...	...	...	...	...	...	...	...	...
47. Glade Spring	...	...	...	...	...	...	...	...	...	...	...	...	20	...
48. Blackford	...	...	...	...	...	...	...	...	...	...	...	...	...	...
49. Bristol	CW	...	...	...	...	...	...	...	...	...	141	...	186	...
50. Buchanan County	...	...	...	...	...	...	...	...	...	...	...	...	...	...
51. Breaks Interstate Park	...	...	...	...	...	...	...	...	...	...	...	...	...	...
52. Wise County	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	10,406	367	1	4	2	2,564	22	2,018	1,191	95	6,749	106	3,562	398

Table 1. Species Counts (p. 4 of 20)

Species Count Circle	Red- breasted Merganser	Ruddy Duck	duck sp.	Ruffed Grouse	Wild Turkey	Northern Bobwhite	Red- throated Loon	Common Loon	loon sp.	Pied- billed Grebe	Horned Grebe	Red- necked Grebe	Eared Grebe
1. Chincoteague	85	124	...	...	12	1	3	50	...	6	28	2	...
2. Wachapreague	28	69	...	...	24	10	72	76	1	1	26	...	...
3. Nassawaddox	7	203	...	...	17	...	1	15	...	5	...	...	...
4. Cape Charles	162	263	...	...	CW	13	25	122	...	47	8	...	...
5. Chesapeake Bay	65	...	...	...	...	...	130	75	...	...	7	...	...
6. Little Creek	556	70	...	...	...	...	408	71	...	64	14	1	...
7. Back Bay	877	23	...	...	...	...	2,686	94	...	104	2	...	...
8. Nansemond River	50	4,638	28	...	11	...	37	8	...	49	84	...	...
9. Dismal Swamp	...	...	120	...	...	...	...	...	...	...	...	...	...
10. Newport News	49	205	...	...	...	...	48	75	...	33	232	2	...
11. Mathews County	75	45	...	...	25	...	15	43	...	1	3	...	...
12. Williamsburg	35	8,091	...	...	CW	...	18	15	...	45	151	...	...
13. Hopewell	1	248	...	...	...	...	...	2	...	10	...	...	...
14. Walkerton	...	11	...	...	31	20	...	...	...	24	...	...	...
15. Washingtons Birthplace	19	494	...	...	42	26	1	13	...	...	4	...	...
16. Brooke	...	205	...	...	6	...	...	...	...	56	7	...	...
17. Fort Belvoir	33	1,825	...	...	48	...	...	1	...	29	1	...	...
18. Central Loudoun County	1	43	...	...	20	...	...	...	...	3	...	...	...
19. The Plains	...	81	...	...	24	...	...	1	...	17	...	...	...
20. Manassas-Bull Run	...	...	7	...	31	8	...	...	...	12	...	...	...
21. Nokesville	...	127	...	...	6	...	...	1	...	12	...	...	...
22. Chancellorsville	...	16	...	...	...	...	...	...	...	12	...	...	...
23. Lake Anna	...	15	...	...	...	1	...	17	...	24	3	...	...
24. Gordonsville	...	...	...	...	...	1	...	...	...	...	...	...	...
25. Charlottesville	...	...	...	...	87	...	...	...	...	21	...	...	...
26. Warren	1	...	...	...	18	...	...	...	...	27	...	...	...
27. Darlington Heights	...	...	...	...	1	...	...	...	...	10	...	...	...
28. Banister River	...	...	14	...	8	...	...	...	...	2	...	...	...
29. Lynchburg	...	4	...	1	68	...	...	1	...	34	...	...	...
30. Chatham	...	...	...	...	3	...	...	...	...	...	...	...	...
31. Danville	...	...	...	...	...	...	...	...	...	10	...	...	...
32. Calmes Neck	...	1	...	1	8	...	...	...	...	...	...	...	...
33. N. Shenandoah Valley	...	...	...	...	2	...	...	...	...	8	...	...	...
34. Shenandoah NP-Luray	...	7	...	1	19	...	...	...	...	...	...	...	...
35. Big Flat Mountain	...	...	...	4	...	...	...	2	...	...	...	...	...
36. Rockingham County	...	...	...	...	10	...	...	...	...	4	...	...	...
37. Augusta County	...	...	...	...	...	...	...	...	...	5	...	...	...
38. Waynesboro	...	4	...	...	37	...	...	1	...	1	...	...	...
39. Lexington	...	...	...	...	8	...	...	...	...	6	...	...	...
40. Peaks of Otter	...	...	...	...	...	...	...	...	...	...	...	...	...
41. Fincastle	...	...	...	...	62	...	...	...	...	2	...	...	...
42. Roanoke	...	...	...	...	...	...	...	...	...	2	...	...	...
43. Blacksburg	...	...	...	...	27	...	...	...	...	8	...	...	...
44. Giles County	...	...	...	1	18	...	...	...	...	2	...	...	...
45. Tazewell	...	3	...	...	4	...	...	1	...	9	...	...	...
46. Mount Rogers-Whitetop	...	...	...	...	...	...	...	...	...	3	...	...	...
47. Glade Spring	...	...	...	...	5	...	...	...	...	3	...	...	...
48. Blackford	...	...	...	...	16	...	...	...	...	...	...	...	...
49. Bristol	...	8	...	...	38	...	CW	4	...	38	15	CW	1
50. Buchanan County	...	...	...	CW	12	...	...	...	...	...	...	...	...
51. Breaks Interstate Park	2	...	...	1	6	...	...	...	...	...	...	...	...
52. Wise County	...	...	...	2	4	...	...	...	...	10	...	...	...
Totals	2,046	16,823	169	11	758	80	3,444	688	1	759	585	5	1

Table 1. Species Counts (p. 5 of 20)

Species Count Circle	West- ern Grebe	Manx Shear- water	Northern Gannet	Ameri- can White Pelican	Brown Peli- can	Double- crested Cormor- ant	Great Cormor- ant	An- ginga	Ameri- can Bittern	Great Blue Heron (blue form)	Great Egret	Snowy Egret	Little Blue Heron	Tri- colored Heron
1. Chincoteague	5	...	...	6	...	...	1	63	71	2	1	8
2. Wachapreague	1	...	1	2	...	...	...	41	1	...	...	...
3. Nassawaddox	8	...	...	...	35	3	...	...	...
4. Cape Charles	252	...	38	137	4	...	1	65	1	...	1	2
5. Chesapeake Bay	650	...	20	80	16	...	...	CW	...	...	...	...
6. Little Creek	380	...	120	2,200	1	1	...	94	159	3	...	...
7. Back Bay	...	2	767	7	57	222	...	...	3	45	53	2	1	7
8. Nansemond River	10	...	20	981	...	...	...	54	17	...	...	...
9. Dismal Swamp	6	...	...	...	7	...	...	...	...
10. Newport News	2	...	175	666	...	...	...	83	36	...	...	...
11. Mathews County	31	...	162	2	...	...	1	71	...	...	...	...
12. Williamsburg	34	2,549	...	...	1	102	...	...	...	...
13. Hopewell	1,252	...	...	...	68	1	...	...	...
14. Walkerton	5	...	...	...	56	...	...	...	...
15. Washingtons Birthplace	9	...	...	399	...	...	...	21	...	...	...	...
16. Brooke	115	...	...	...	72	...	...	...	...
17. Fort Belvoir	122	...	...	...	244	1	...	...	...
18. Central Loudoun County	41	...	...	...	...
19. The Plains	20	...	...	...	...
20. Manassas-Bull Run	1	...	...	...	25	...	...	...	...
21. Nokesville	2	...	...	...	16	...	...	...	...
22. Chancellorsville	2	...	...	...	...
23. Lake Anna	2	...	...	...	...	1	...	...	...	23	...	...	...	...
24. Gordonsville	2	...	...	...	...
25. Charlottesville	25	...	...	...	...
26. Warren	7	...	...	...	...
27. Darlington Heights	2	...	...	...	...
28. Banister River	26	...	...	...	...
29. Lynchburg	CW	...	...	...	23	...	...	...	...
30. Chatham	2	...	...	...	...
31. Danville	3	...	...	...	...
32. Calmes Neck	39	...	...	...	...
33. N. Shenandoah Valley	40	...	...	...	...
34. Shenandoah NP-Luray	18	...	...	...	...
35. Big Flat Mountain
36. Rockingham County	14	...	...	...	...
37. Augusta County	22	...	...	...	...
38. Waynesboro	14	...	...	...	...
39. Lexington	16	...	...	...	...
40. Peaks of Otter
41. Fincastle	8	...	...	...	...
42. Roanoke	9	...	...	...	...
43. Blacksburg	27	...	...	...	...
44. Giles County	4	...	...	...	...
45. Tazewell	9	...	...	...	...
46. Mount Rogers-Whitetop	3	...	...	...	...
47. Glade Spring	36	...	...	...	...
48. Blackford	15	...	...	...	...
49. Bristol	CW	...	...	...	21	...	...	...	...
50. Buchanan County	2	...	...	...	...
51. Breaks Interstate Park	1	...	...	...	...
52. Wise County	1	...	...	...	2	...	...	...	...
Totals	2	2	2,107	7	627	8,757	21	1	7	1,638	343	7	3	17

Table 1. Species Counts (p. 6 of 20)

Species Count Circle	Green Heron	Black- crowned Night- Heron	White Ibis	Glossy Ibis	Black Vulture	Turkey Vulture	Os- prey	Swal- low- tailed Kite	Bald Eagle	North- ern Harrier	Sharp- shinned Hawk	Coop- er's Hawk	North- ern Gos- hawk	Accip- iter sp.
1. Chincoteague	10	146	...	...	19	16	...	3	...	1
2. Wachapreague	95	304	...	...	40	8	9	7	...	...
3. Nassawaddox	24	126	...	...	15	25	10	8	...	...
4. Cape Charles	...	5	...	...	145	325	...	...	50	29	9	4	...	1
5. Chesapeake Bay
6. Little Creek	...	3	...	...	7	21	6	...	7	5	3	5	...	...
7. Back Bay	155	2	25	86	1	...	8	20	8	13	...	...
8. Nansemond River	28	113	1	...	23	9	5	3	...	...
9. Dismal Swamp	14	...	...	5	...	2	...	...	...
10. Newport News	5	1	...	...	9	29	3	...	24	17	6	9	...	...
11. Mathews County	...	1	...	...	66	229	...	...	54	4	6	3	...	...
12. Williamsburg	132	221	CW	...	58	3	4	4	...	...
13. Hopewell	161	131	1	...	80	8	5	6	...	...
14. Walkerton	256	328	...	...	45	7	3	3	...	...
15. Washingtons Birthplace	83	119	...	...	105	20	...	...	...	...
16. Brooke	187	81	...	...	135	2	3	1	...	...
17. Fort Belvoir	228	223	...	1	160	6	10	14	...	1
18. Central Loudoun County	270	585	...	...	30	7	6	13	...	3
19. The Plains	101	252	...	...	16	12	6	6	...	...
20. Manassas-Bull Run	170	146	...	...	14	3	3	9	...	1
21. Nokesville	57	95	...	...	39	9	1	5	...	2
22. Chancellorsville	24	215	...	...	5	2	3	1	...	2
23. Lake Anna	143	201	...	...	6	...	2	CW	...	...
24. Gordonsville	18	133	...	...	5	5	1	2	...	...
25. Charlottesville	180	137	...	...	8	2	6	4	...	...
26. Warren	154	191	...	...	2	11	3	4	...	...
27. Darlington Heights	24	203	...	...	2	2	1	1	...	...
28. Banister River	12	68	...	...	4	7	1	...	...	...
29. Lynchburg	227	411	...	...	CW	2	7	6	...	...
30. Chatham	3	2	...	...	...	...	...	...	...	...
31. Danville	23	72	...	...	2	...	...	...	...	...
32. Calmes Neck	229	359	...	...	23	11	7	14	...	2
33. N. Shenandoah Valley	130	191	...	...	9	9	11	16	...	...
34. Shenandoah NP-Luray	...	CW	...	...	6	10	...	...	12	5	3	4	...	...
35. Big Flat Mountain	5	19	...	...	...	...	1	...	...	...
36. Rockingham County	17	212	...	...	5	3	3	9	...	1
37. Augusta County	138	593	...	...	4	5	4	8	...	...
38. Waynesboro	...	2	...	...	96	145	...	...	1	8	4	4	1	...
39. Lexington	34	235	...	...	5	4	2	3	...	1
40. Peaks of Otter	2	23	...	...	...	...	...	...	...	...
41. Fincastle	71	12	...	...	3	...	2	3	...	...
42. Roanoke	99	159	...	...	1	...	2	6	...	...
43. Blacksburg	497	103	...	...	...	1	3	5	CW	1
44. Giles County	11	8	...	...	3	...	...	2	...	...
45. Tazewell	2	2	...	...	2	...	...	...	...	...
46. Mount Rogers-Whitetop	4	23	...	...	...	...	...	1	...	...
47. Glade Spring	59	57	...	...	1	1	3	3	...	...
48. Blackford	10	...	...	...	...	1	2	5	...	...
49. Bristol	66	100	...	...	3	...	1	3	...	...
50. Buchanan County	2	...	...	...	...	2	1	...	...
51. Breaks Interstate Park	1	...	...	...	...	1	...	...	...	...
52. Wise County	1	...	...	...	...	1	2	...	...
Totals	5	12	155	2	4,339	7,461	12	1	1,033	290	174	223	1	16

Table 1. Species Counts (p. 7 of 20)

Species Count Circle	Red-shouldered Hawk	Red-tailed Hawk	Rough-legged Hawk	Buteo sp.	Golden Eagle	large hawk sp.	American Kestrel	Merlin	Peregrine Falcon	large falcon sp.	Clapper Rail	King Rail	Virginia Rail	Sora
1. Chincoteague	3	10	...	...	...	...	8	3	1	...	...	...	...	...
2. Wachapreague	6	20	...	1	...	...	30	4	5	...	2	...	...	...
3. Nassawadox	6	32	...	...	...	...	16	1	4	...	20	...	4	2
4. Cape Charles	2	32	...	...	...	...	14	2	5	1	14	...	2	...
5. Chesapeake Bay	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6. Little Creek	2	6	...	...	...	...	3	1	3	...	9	...	...	...
7. Back Bay	7	8	...	...	...	...	14	1	...	...	...	12	8	3
8. Nansemond River	9	27	...	...	...	...	7	2	1	...	16	2	1	...
9. Dismal Swamp	8	5	...	...	...	...	3	...	1	...	...	...	1	...
10. Newport News	7	39	...	...	...	...	8	...	...	...	14	...	...	...
11. Mathews County	6	9	...	...	...	...	1	...	...	...	8	...	...	...
12. Williamsburg	20	27	...	...	...	...	6	...	...	...	7	...	...	2
13. Hopewell	19	32	...	...	...	...	9	1	...	...	...	1	...	...
14. Walkerton	13	21	...	...	...	...	12	...	...	...	...	...	...	...
15. Washingtons Birthplace	11	17	...	...	...	...	6	...	...	...	...	...	2	...
16. Brooke	32	9	...	1	...	...	2	1	...	...	...	...	...	...
17. Fort Belvoir	45	61	CW	...	...	...	3	CW	...	...	...	...	...	...
18. Central Loudoun County	141	141	1	...	...	...	24	...	...	...	...	...	3	...
19. The Plains	75	81	...	...	...	...	11	1	...	...	...	...	...	...
20. Manassas-Bull Run	51	31	...	...	...	...	2	1	...	...	...	...	...	...
21. Nokesville	30	29	1	...	...	...	8	...	...	...	...	...	...	...
22. Chancellorsville	7	7	...	...	...	1	1	...	...	...	...	...	...	...
23. Lake Anna	8	15	...	...	...	...	5	...	...	...	...	...	...	...
24. Gordonsville	11	25	...	5	...	...	8	...	...	...	...	...	...	...
25. Charlottesville	29	28	...	...	...	...	3	3	...	...	...	...	...	...
26. Warren	7	44	1	...	...	...	14	...	...	...	...	...	...	...
27. Darlington Heights	12	27	...	...	...	...	13	...	...	...	...	...	...	...
28. Banister River	5	7	...	...	...	...	3	...	...	...	...	...	...	...
29. Lynchburg	6	41	...	...	...	...	2	...	...	...	...	...	...	...
30. Chatham	1	1	...	...	...	...	2	...	...	...	...	...	...	...
31. Danville	2	4	1	...	...	...	3	...	...	...	...	...	...	...
32. Calmes Neck	68	113	1	...	1	...	32	...	...	...	...	...	...	...
33. N. Shenandoah Valley	41	85	...	...	...	...	22	3	...	...	...	...	...	...
34. Shenandoah NP-Luray	7	35	1	...	...	...	22	1	1	...	...	...	...	...
35. Big Flat Mountain	2	4	...	...	...	...	...	...	...	...	...	...	...	...
36. Rockingham County	1	73	...	1	...	...	47	...	1	...	...	...	...	...
37. Augusta County	15	113	...	...	...	...	69	1	1	...	...	...	...	...
38. Waynesboro	7	61	1	...	1	...	25	...	CW	...	...	...	...	...
39. Lexington	10	19	...	...	...	...	6	...	...	...	...	...	...	...
40. Peaks of Otter	1	6	...	...	...	...	1	...	...	...	...	...	...	...
41. Fincastle	6	31	...	...	...	...	17	...	...	...	...	...	...	...
42. Roanoke	1	12	...	...	...	...	1	...	...	...	...	...	...	...
43. Blacksburg	2	33	...	...	...	...	13	...	...	...	...	...	...	...
44. Giles County	1	7	...	...	...	...	4	...	...	...	...	...	...	...
45. Tazewell	2	13	...	...	...	...	15	...	...	...	...	...	...	...
46. Mount Rogers-Whitetop	2	12	...	...	...	...	4	...	...	...	...	...	...	...
47. Glade Spring	...	29	...	...	1	...	18	...	...	...	...	...	6	...
48. Blackford	6	13	...	...	7	...	3	...	...	...	...	...	...	...
49. Bristol	1	36	...	...	...	...	25	1	...	...	...	...	...	...
50. Buchanan County	1	6	...	...	...	...	1	...	...	...	...	...	...	...
51. Breaks Interstate Park	...	1	...	...	...	...	2	...	...	...	...	...	...	...
52. Wise County	5	7	...	...	...	...	5	...	...	...	...	...	...	...
Totals	760	1,545	7	8	10	1	573	27	23	1	90	15	27	7

Table 1. Species Counts (p. 8 of 20)

Species Count Circle	Amer- ican Coot	Sand- hill Crane	Black- bellied Plover	Semipal- mated Plover	Killdeer	Amer- ican Oyst- er- catch- er	Amer- ican Avocet	Spotted Sand- piper	Great er Yellow legs	Willet	Lesser Yellow- legs	yellow- legs sp.	Marbled Godwit
1. Chincoteague	...	...	13	...	9	20	...	...	34	376	16	...	24
2. Wachapreague	...	...	202	2	5	292	...	...	58	24	...	...	4
3. Nassawaddox	...	...	10	...	11	151	...	2	62	97	1	...	251
4. Cape Charles	124	...	726	3	4	62	...	...	126	114	3	12	CW
5. Chesapeake Bay	...	...	...	...	...	...	...	...	...	...	...	...	...
6. Little Creek	24	...	...	...	11	5	...	...	...	...	...	...	...
7. Back Bay	320	...	...	...	4	...	...	...	1	...	...	...	...
8. Nansemond River	2	...	...	...	25	...	5	...	...	...	6	...	...
9. Dismal Swamp	...	...	...	...	4	...	...	...	...	...	...	...	...
10. Newport News	28	...	28	1	139	...	...	...	3	...	...	...	...
11. Mathews County	1	...	5	...	49	1	...	...	34	9	...	...	1
12. Williamsburg	32	...	...	...	70	...	...	...	2	...	...	...	...
13. Hopewell	154	...	...	...	45	...	...	...	...	...	...	...	...
14. Walkerton	7	...	...	...	212	...	...	...	13	...	10	...	...
15. Washingtons Birthplace	...	...	...	...	5	...	...	...	...	...	...	...	...
16. Brooke	1,201	...	...	...	16	...	...	...	...	...	...	...	...
17. Fort Belvoir	1,390	...	...	...	56	...	...	...	12	...	...	...	...
18. Central Loudoun County	1	...	...	...	27	...	...	...	...	...	...	...	...
19. The Plains	12	...	...	...	2	...	...	...	...	...	...	...	...
20. Manassas-Bull Run	...	...	...	...	6	...	...	...	...	...	1	...	...
21. Nokesville	...	...	...	...	11	...	...	...	...	...	...	...	...
22. Chancellorsville	...	...	...	...	...	...	...	...	...	...	...	...	...
23. Lake Anna	11	...	...	...	1	...	...	...	...	...	...	...	...
24. Gordonsville	...	...	...	...	...	...	...	...	...	...	...	...	...
25. Charlottesville	...	...	...	...	1	...	...	...	...	...	...	...	...
26. Warren	...	...	...	...	40	...	...	...	...	...	...	...	...
27. Darlington Heights	...	...	...	...	49	...	...	...	...	...	...	...	...
28. Banister River	...	...	...	...	220	...	...	...	...	...	...	...	...
29. Lynchburg	3	...	...	...	21	...	...	...	...	...	...	...	...
30. Chatham	...	...	...	...	...	...	...	...	...	...	...	...	...
31. Danville	...	...	...	...	17	...	...	...	...	...	...	...	...
32. Calmes Neck	1	...	...	...	20	...	...	...	...	...	...	...	...
33. N. Shenandoah Valley	CW	...	...	...	39	...	...	...	...	...	...	...	...
34. Shenandoah NP-Luray	...	...	...	...	...	...	...	...	...	...	...	...	...
35. Big Flat Mountain	...	...	...	...	...	...	...	...	...	...	...	...	...
36. Rockingham County	3	...	...	...	96	...	...	...	...	...	...	...	...
37. Augusta County	...	...	...	...	45	...	...	...	...	...	...	...	...
38. Waynesboro	5	...	...	...	16	...	...	...	...	...	...	...	...
39. Lexington	...	...	...	...	6	...	...	...	...	...	...	...	...
40. Peaks of Otter	...	...	...	...	...	...	...	...	...	...	...	...	...
41. Fincastle	2	...	...	...	...	...	...	...	...	...	...	...	...
42. Roanoke	...	...	...	...	3	...	...	...	...	...	...	...	...
43. Blacksburg	1	...	...	...	11	...	...	...	...	...	...	...	...
44. Giles County	...	...	...	...	...	...	...	...	...	...	...	...	...
45. Tazewell	6	...	...	...	3	...	...	...	...	...	...	...	...
46. Mount Rogers-Whitetop	...	...	...	...	4	...	...	...	...	...	...	...	...
47. Glade Spring	3	...	...	...	47	...	...	...	...	...	...	...	...
48. Blackford	...	...	...	...	79	...	...	...	...	...	...	...	...
49. Bristol	4	CW	...	...	9	...	...	...	...	...	...	...	...
50. Buchanan County	...	...	...	...	...	...	...	...	...	...	...	...	...
51. Breaks Interstate Park	...	...	...	...	...	...	...	...	...	...	...	...	...
52. Wise County	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	3,335	CW	984	6	1,438	531	5	2	345	620	37	12	280

Table 1. Species Counts (p. 9 of 20)

Species Count Circle	Ruddy Turn- stone	Red Knot	Sander- -ling	Western Sand- -piper	Least Sand- -piper	Purple Sand- -piper	Dunlin	peep sp.	sand- -piper sp.	Short- billed Dowit- cher	dowit- cher sp.	Wilson's Snipe	Amer- ican Wood- cock
1. Chincoteague	1	...	108	...	...	...	1,559	70	...	348	...	...	6
2. Wachapreague	11	9	93	97	...	...	6,380	55	...	4	...	...	...
3. Nassawaddox	65	...	...	1	...	...	289	...	...	29	...	9	...
4. Cape Charles	11	2	141	180	...	1	18,856	...	800	11	...	1	22
5. Chesapeake Bay	11	...	7	...	...	28	...	...	...	...	...	...	...
6. Little Creek	7	...	160	...	...	3	37	...	...	...	...	...	...
7. Back Bay	91	...	...	...	19	...	...	...	...	32	...
8. Nansemond River	14	...	5	...	201	300	...	...	...	2	12
9. Dismal Swamp
10. Newport News	4	1	114	101	14	...	1,481	...	...	5	...	3	...
11. Mathews County	2	...	119	...	...	...	921	...	...	...	1	...	...
12. Williamsburg	9	...	...	...	...	31	...
13. Hopewell	1
14. Walkerton	1	...	...	40	15	22
15. Washingtons Birthplace	3	14
16. Brooke	1	...
17. Fort Belvoir	100	...	...	...	7	15
18. Central Loudoun County	6	1
19. The Plains	6	...
20. Manassas-Bull Run
21. Nokesville	6	...
22. Chancellorsville	2	...
23. Lake Anna
24. Gordonsville
25. Charlottesville	7	2
26. Warren	3	...
27. Darlington Heights	8
28. Banister River	56	3
29. Lynchburg
30. Chatham	CW
31. Danville
32. Calmes Neck	3	1
33. N. Shenandoah Valley	1	1
34. Shenandoah NP-Luray	4	1
35. Big Flat Mountain
36. Rockingham County	4	...
37. Augusta County
38. Waynesboro	2	...
39. Lexington
40. Peaks of Otter
41. Fincastle	5	...
42. Roanoke
43. Blacksburg	1	...
44. Giles County
45. Tazewell
46. Mount Rogers-Whitetop
47. Glade Spring	1	...
48. Blackford	8	...
49. Bristol	3	2
50. Buchanan County
51. Breaks Interstate Park
52. Wise County
Totals	112	12	847	379	19	32	29,752	526	800	397	41	222	111

Table 1. Species Counts (p. 10 of 20)

Species Count Circle	Laugh- ing Gull	Bona- parte's Gull	Ring- billed Gull	Herr- ing Gull	Lesser Black- backed Gull	Glau- cous Gull	Great Black- backed Gull	gull sp.	Caspian Tern	Forster's Tern	Royal Tern	tern sp.	Black Skimmer
1. Chincoteague	12	4	1,234	275	9	...	179	7	...	36	...	1	...
2. Wachapreague	322	609	...	...	55	197	...	112	...	...	...
3. Nassawaddox	176	182	...	...	2	12	...	...	...	...	...
4. Cape Charles	...	12	386	463	...	...	740	270	...	8	...	...	CW
5. Chesapeake Bay	...	30	25	50	...	...	75	...	...	1	...	...	...
6. Little Creek	...	255	2,590	738	113	...	440	...	...	195	...	...	...
7. Back Bay	2	166	763	121	25	...	90	...	...	251	...	...	...
8. Nansemond River	5	5	14,786	2,051	2	...	71	...	...	...	2	...	...
9. Dismal Swamp	40	...	...	...	...	...	...	...	...	...	...
10. Newport News	1	17	884	247	2	...	105	...	...	9	...	...	...
11. Mathews County	...	53	1,216	401	1	...	66	50	1	24	...	...	...
12. Williamsburg	CW	73	255	28	1	...	17	...	...	50	...	...	...
13. Hopewell	4,491	26	4,802	942	...	...	34	...	...	8	...	...	...
14. Walkerton	...	1	160	19	...	...	...	2	...	1	...	...	...
15. Washingtons Birthplace	2,594	37	...	...	82	...	...	1	...	...	...
16. Brooke	379	...	2,120	203	...	...	18	...	...	...	...	...	...
17. Fort Belvoir	...	2	6,518	339	CW	...	80	281	...	...	...	...	...
18. Central Loudoun County	877	32	1	...	...	7	...	...	...	...	...
19. The Plains	760	227	...	1	85	...	...	...	...	...	...
20. Manassas-Bull Run	488	19	...	...	...	13	...	...	...	...	...
21. Nokesville	24	...	1,057	373	...	...	7	...	...	...	...	...	...
22. Chancellorsville	244	21	...	...	...	...	...	...	...	...	...
23. Lake Anna	...	4	1,556	173	...	...	112	...	...	...	...	...	...
24. Gordonsville
25. Charlottesvile
26. Warren
27. Darlington Heights	1	...	...	...	...	...	...	...	...	...	...
28. Banister River	...	256	617	...	...	...	...	...	...	...	...	...	...
29. Lynchburg	13	...	...	...	...	...	...	...	...	...	...
30. Chatham
31. Danville	6	...	...	...	...	...	...	...	...	...	...
32. Calmes Neck	1	...	...	...	...	...	...	...	...	...	...
33. N. Shenandoah Valley	2	...	...	...	...	...	...	...	...	...	...
34. Shenandoah NP-Luray
35. Big Flat Mountain
36. Rockingham County
37. Augusta County
38. Waynesboro
39. Lexington
40. Peaks of Otter
41. Fincastle
42. Roanoke	...	1	7	...	...	...	...	...	...	...	...	...	...
43. Blacksburg	1,236	...	...	...	...	...	...	...	...	...	...
44. Giles County	1	...	...	...	...	...	...	...	...	...	...
45. Tazewell	3	...	...	...	...	...	...	...	...	...	...
46. Mount Rogers-Whitetop
47. Glade Spring
48. Blackford
49. Bristol	...	1	259	CW	...	...	...	...	...	...	...	...	...
50. Buchanan County
51. Breaks Interstate Park
52. Wise County
Totals	4,914	906	45,999	7,550	154	1	2,258	839	1	696	2	1	CW

Table 1. Species Counts (p. 11 of 20)

Species Count Circle	Razorbill	Rock Pigeon	Eurasian Collared- Dove	Mourning Dove	Barn Owl	Eastern Screech -Owl	Great Horned Owl	Barred Owl	Long- eared Owl	Short- eared Owl	Northern Saw-whet Owl
1. Chincoteague	2	1,010	...	275	...	9	3	...	...	...	1
2. Wachapreague	...	97	...	336	...	...	...	...	...	...	...
3. Nassawaddox	...	73	...	300	...	3	4	...	...	...	...
4. Cape Charles	CW	139	10	224	...	7	3	...	...	...	1
5. Chesapeake Bay	27	3	...	...	...	...	...	...	...	...	...
6. Little Creek	5	546	...	56	...	14	1	1	...	...	...
7. Back Bay	3	162	1	287	...	1	1	1	...	...	...
8. Nansemond River	...	386	...	393	2	6	6	...	...	...	...
9. Dismal Swamp	32	...	8	2	2	...	1	...
10. Newport News	...	372	...	415	...	...	5	...	...	...	...
11. Mathews County	...	7	...	213	...	1	5	...	...	...	...
12. Williamsburg	...	99	...	208	...	1	5	3	...	...	...
13. Hopewell	...	141	...	591	1	...	4	3	...	...	...
14. Walkerton	...	7	...	303	...	9	13	6	...	...	...
15. Washingtons Birthplace	511	...	2	19	...	...	...	...
16. Brooke	...	36	...	284	...	...	...	2	...	...	...
17. Fort Belvoir	...	351	...	334	...	6	4	6	...	...	1
18. Central Loudoun County	...	283	...	356	1	4	10	13	1	...	...
19. The Plains	...	204	...	589	...	14	20	8	...	4	...
20. Manassas-Bull Run	...	362	...	477	...	...	3	8	...	...	...
21. Nokesville	...	79	...	187	...	2	1	6	...	...	...
22. Chancellorsville	...	9	...	49	...	2	...	...	...	...	...
23. Lake Anna	...	8	...	52	...	3	2	...	...	...	...
24. Gordonsville	...	30	...	128	...	...	...	...	...	...	...
25. Charlottesville	...	125	...	218	...	3	3	...	...	...	...
26. Warren	...	44	...	214	1	2	1	1	...	...	...
27. Darlington Heights	...	91	...	433	4	...	3	3	...	...	...
28. Banister River	...	13	...	306	...	...	1	2	...	...	...
29. Lynchburg	...	64	...	290	...	17	7	1	...	...	...
30. Chatham	61	...	...	2	...	...	...	...
31. Danville	...	113	...	108	...	...	...	...	...	...	...
32. Calmes Neck	...	449	...	435	1	13	7	13	...	...	...
33. N. Shenandoah Valley	...	352	...	2,310	1	21	5	...	...	...	...
34. Shenandoah NP-Luray	...	531	...	445	2	3	2	1	...	...	...
35. Big Flat Mountain	4	...	4	2	...	...	...	...
36. Rockingham County	...	1,151	...	724	...	2	3	...	...	...	...
37. Augusta County	...	740	...	1,226	2	1	5	...	...	1	...
38. Waynesboro	...	190	...	303	3	9	2	4	1	...	...
39. Lexington	...	124	...	105	...	11	2	1	...	...	...
40. Peaks of Otter	4	...	2	...	...	...	...	...
41. Fincastle	...	129	...	381	...	2	...	...	...	...	...
42. Roanoke	...	349	...	160	...	2	...	...	...	...	...
43. Blacksburg	...	397	7	434	1	16	7	1	...	...	...
44. Giles County	...	2	...	40	...	5	...	1	...	...	...
45. Tazewell	...	121	...	168	...	2	1	...	...	...	...
46. Mount Rogers-Whitetop	...	8	...	11	...	...	...	...	...	...	...
47. Glade Spring	...	555	CW	213	CW	22	...	...	...	...	...
48. Blackford	...	30	...	176	1	2	...	...	...	...	...
49. Bristol	...	374	...	383	...	11	8	1	...	...	...
50. Buchanan County	5	...	1	...	...	...	...	...
51. Breaks Interstate Park	...	12	...	50	...	...	...	1	...	...	...
52. Wise County	...	156	...	70	...	1	...	...	...	...	...
Totals	37	10,524	18	15,877	20	244	172	89	2	6	3

Table 1. Species Counts (p. 12 of 20)

Species Count Circle	Rufous Hum- mingbird	Selas- phorus sp.	Belted King- fisher	Red- headed Wood- pecker	Red- bellied Wood- pecker	Yellow- bellied Sap- sucker	Downy Wood- pecker	Hairy Wood- pecker	Northern (Yellow- shafted) Flicker	Pileated Wood- pecker	Eastern Phoebe	Ash- throated Fly- catcher
1. Chincoteague	19	1	32	3	14	8	67	3	3	...
2. Wachapreague	23	1	26	7	12	5	72	13	8	...
3. Nassawaddox	28	1	55	5	18	6	88	14	1	...
4. Cape Charles	20	2	59	8	10	1	102	3	5	...
5. Chesapeake Bay
6. Little Creek	...	2	21	1	54	12	33	6	38	11	3	...
7. Back Bay	22	...	33	5	15	2	38	4	1	...
8. Nansemond River	1	...	29	...	98	27	38	8	57	13	10	...
9. Dismal Swamp	4	4	51	14	73	16	60	72	4	...
10. Newport News	54	...	97	34	63	4	53	8	2	...
11. Mathews County	42	...	74	14	21	5	62	11	5	...
12. Williamsburg	...	1	43	32	205	79	87	19	114	52	24	...
13. Hopewell	1	...	24	27	102	44	63	13	135	44	22	1
14. Walkerton	19	3	93	16	51	16	110	24	30	...
15. Washingtons Birthplace	12	1	60	16	54	6	61	16	8	...
16. Brooke	29	27	117	15	63	16	96	39	1	...
17. Fort Belvoir	31	11	430	29	267	52	256	47	7	...
18. Central Loudoun County	18	31	372	91	227	31	230	69	7	...
19. The Plains	11	6	215	29	138	14	149	43	4	...
20. Manassas-Bull Run	6	7	322	23	217	38	192	45	5	...
21. Nokesville	2	4	55	7	42	5	48	13	1	...
22. Chancellorsville	1	1	45	2	16	2	18	5	2	...
23. Lake Anna	9	8	37	3	22	2	26	7	1	...
24. Gordonsville	2	3	16	1	7	2	12	6	...	...
25. Charlottesville	1	...	25	7	178	54	108	17	166	75	9	...
26. Warren	9	8	87	15	53	3	74	27	12	...
27. Darlington Heights	4	10	40	10	18	1	40	28	11	...
28. Banister River	2	11	38	17	14	5	42	11	5	...
29. Lynchburg	1	...	24	4	110	32	109	15	44	57	17	...
30. Chatham	3	3	2	2	1	8	2	2	...
31. Danville	1	1	21	6	20	2	27	5	6	...
32. Calmes Neck	19	47	232	69	148	29	104	70	7	...
33. N. Shenandoah Valley	36	20	113	47	81	22	72	46	1	...
34. Shenandoah NP-Luray	13	...	58	11	97	16	32	33	3	...
35. Big Flat Mountain	2	...	19	5	22	16	7	17	...	...
36. Rockingham County	20	3	60	3	49	5	18	18	4	...
37. Augusta County	13	2	90	1	99	10	26	22	3	...
38. Waynesboro	9	2	85	15	69	4	42	41	13	...
39. Lexington	18	...	64	12	48	11	15	40	7	...
40. Peaks of Otter	2	...	21	3	14	3	4	18	2	...
41. Fincastle	...	1	9	...	38	10	34	7	29	17	7	...
42. Roanoke	8	...	44	16	46	7	13	14	4	...
43. Blacksburg	1	...	23	7	113	28	123	26	51	48	6	...
44. Giles County	13	...	8	2	17	10	7	15	6	...
45. Tazewell	5	1	15	2	27	2	4	6	1	...
46. Mount Rogers-Whitetop	2	...	6	...	9	1	5	4	2	...
47. Glade Spring	19	4	29	4	34	1	7	9	5	...
48. Blackford	9	...	13	3	24	3	11	4	5	...
49. Bristol	15	...	46	9	43	10	29	22	19	...
50. Buchanan County	6	...	8	...	18	1	5	18	1	...
51. Breaks Interstate Park	11	...	7	...	8	2	4	11	3	...
52. Wise County	4	...	10	2	25	7	9	19	12	...
Totals	5	4	790	301	4,204	862	2,910	514	2,979	1,259	327	1

Table 1. Species Counts (p. 13 of 20)

Species Count Circle	West- ern King- bird	fly- catcher sp.	Logger- head Shrike	White- eyed Vireo	Blue- headed Vireo	Blue Jay	American Crow	Fish Crow	crow sp.	Com- mon Raven	Horned Lark	Tree Swallow	Carolina Chicka- dee
1. Chincoteague	86	888	3	2	...	21	2	88
2. Wachapreague	149	806	57	...	...	3	...	119
3. Nassawaddox	101	897	15	111	...	20	...	93
4. Cape Charles	96	399	5	62	...	3	24	91
5. Chesapeake Bay
6. Little Creek	1	49	414	854	48	...	...	4	100
7. Back Bay	46	245	3	...	...	...	180	62
8. Nansemond River	136	163	271	464	...	6	...	192
9. Dismal Swamp	6	14	18	9	...	...	...	...	26	123
10. Newport News	1	213	256	25	...	...	...	...	269
11. Mathews County	1	...	...	...	...	67	385	1	...	...	...	...	120
12. Williamsburg	233	380	1	31	...	...	1	395
13. Hopewell	76	137	3	...	...	21	...	204
14. Walkerton	44	593	6	24	...	96	...	99
15. Washingtons Birthplace	113	235	...	...	...	38	...	67
16. Brooke	...	1	...	...	...	472	393	19	...	...	...	...	270
17. Fort Belvoir	508	1,994	596	1,411	...	...	...	1,003
18. Central Loudoun County	2	...	...	865	1,278	789	200	16	330	...	555
19. The Plains	824	683	127	56	10	...	...	440
20. Manassas-Bull Run	1,124	681	810	407	5	...	...	661
21. Nokesville	376	225	356	81	2	32	...	137
22. Chancellorsville	119	274	...	...	...	...	...	62
23. Lake Anna	363	880	...	...	...	12	...	46
24. Gordonsville	88	395	...	...	...	...	...	30
25. Charlottesville	938	1,035	31	...	9	...	...	319
26. Warren	256	1,090	1	...	10	12	...	106
27. Darlington Heights	193	486	...	...	2	6	...	68
28. Banister River	103	266	...	...	2	...	...	22
29. Lynchburg	371	671	...	...	11	5	...	306
30. Chatham	58	96	...	...	...	...	...	6
31. Danville	62	66	...	...	...	...	...	48
32. Calmes Neck	520	1,001	1	8	37	9	...	452
33. N. Shenandoah Valley	2	...	...	900	1,747	140	...	6	1	...	335
34. Shenandoah NP-Luray	271	793	5	...	85	20	...	277
35. Big Flat Mountain	13	10	...	...	8	...	...	108
36. Rockingham County	134	291	7	21	17	419	...	96
37. Augusta County	606	1,517	433	...	12	44	...	267
38. Waynesboro	1	...	...	...	...	239	848	7	...	11	460	...	225
39. Lexington	258	719	8	...	21	1	...	115
40. Peaks of Otter	15	49	...	...	7	...	...	44
41. Fincastle	207	296	1	...	6	...	...	54
42. Roanoke	108	172	1	...	4	...	...	117
43. Blacksburg	323	765	...	...	12	200	...	280
44. Giles County	...	CW	...	...	...	54	84	...	...	6	...	...	48
45. Tazewell	101	332	...	...	14	...	...	48
46. Mount Rogers-Whitetop	68	342	...	...	6	33	...	28
47. Glade Spring	3	...	...	155	335	...	...	5	26	...	134
48. Blackford	2	...	...	133	2,155	...	...	11	...	...	65
49. Bristol	1	...	...	268	621	...	...	5	...	...	153
50. Buchanan County	52	205	...	...	...	...	...	57
51. Breaks Interstate Park	24	78	...	...	3	4	...	49
52. Wise County	1	...	...	88	1,782	...	...	29	1	...	118
Totals	2	1	11	6	16	12,684	30,462	4,576	2,926	372	1,823	237	9,171

Table 1. Species Counts (p. 14 of 20)

Species Count Circle	Black- capped Chicka- dee	chicka- dee sp.	Tufted Tit- mouse	Red- breast- ed Nut- hatch	White- breast- ed Nut- hatch	Brown- headed Nut- hatch	Brown Creeper	Carolina Wren	House Wren	Winter Wren	Sedge Wren	Marsh Wren
1. Chincoteague	...	...	26	20	4	15	2	84	...	13	...	...
2. Wachapreague	...	...	30	33	1	31	7	51	...	1	...	...
3. Nassawaddox	...	...	44	29	6	52	5	93	...	10	4	5
4. Cape Charles	...	...	39	20	2	13	12	112	7	10	7	2
5. Chesapeake Bay	...	...	...	...	...	...	...	...	...	...	...	...
6. Little Creek	...	...	17	24	15	24	14	89	1	9	3	...
7. Back Bay	...	...	20	8	...	8	2	84	...	3	15	14
8. Nansemond River	...	...	63	16	9	8	4	116	2	14	2	5
9. Dismal Swamp	...	...	24	6	37	3	17	61	...	15	...	1
10. Newport News	...	...	139	50	28	24	22	139	1	7	1	6
11. Mathews County	...	...	79	58	5	28	10	100	...	...	...	...
12. Williamsburg	...	...	369	51	134	29	17	283	2	22	1	4
13. Hopewell	...	...	123	10	25	...	29	200	8	45	...	1
14. Walkerton	...	...	120	5	33	...	17	98	...	30	...	...
15. Washingtons Birthplace	...	...	49	6	11	...	5	80	...	7	...	...
16. Brooke	...	...	243	6	64	...	11	148	...	5	...	...
17. Fort Belvoir	...	...	872	21	312	...	28	400	...	38	...	2
18. Central Loudoun County	...	...	439	17	278	...	51	304	...	20	...	...
19. The Plains	...	...	301	12	149	...	8	279	...	3	...	...
20. Manassas-Bull Run	...	...	503	38	300	...	12	392	...	10	...	...
21. Nokesville	...	...	78	18	60	...	4	65	...	4	...	...
22. Chancellorsville	...	...	67	8	37	...	2	21	...	1	...	...
23. Lake Anna	...	...	95	6	27	...	4	20	...	...	...	...
24. Gordonsville	...	...	19	...	9	...	...	5	...	1	...	...
25. Charlottesville	...	...	319	20	129	...	12	357	...	33	...	...
26. Warren	...	...	131	3	50	...	3	93	...	6	...	...
27. Darlington Heights	...	...	49	9	29	...	3	47	...	6	...	...
28. Banister River	...	...	27	16	12	7	3	44	...	5	...	...
29. Lynchburg	...	...	339	17	88	...	9	264	...	7	...	...
30. Chatham	...	...	6	1	1	CW	CW	5	...	...	...	...
31. Danville	...	...	66	2	18	7	1	29	...	...	...	...
32. Calmes Neck	11	11	374	14	200	...	40	197	...	11	...	...
33. N. Shenandoah Valley	23	...	218	6	136	...	23	153	...	7	...	...
34. Shenandoah NP-Luray	19	...	216	21	101	...	14	95	...	4	...	...
35. Big Flat Mountain	...	...	84	4	42	...	9	35	...	23	...	...
36. Rockingham County	6	4	70	8	47	...	7	72	...	7	...	...
37. Augusta County	1	...	236	14	92	...	6	116	...	6	...	...
38. Waynesboro	2	...	259	9	103	...	4	113	1	10	...	...
39. Lexington	22	33	192	7	58	...	9	103	...	3	...	...
40. Peaks of Otter	...	...	38	3	19	3	...	22	...	1	...	...
41. Fincastle	...	1	58	1	26	...	1	79	...	3	...	...
42. Roanoke	1	...	83	5	48	3	3	86	...	2	...	...
43. Blacksburg	1	4	302	19	153	5	26	202	...	7	...	...
44. Giles County	2	15	108	8	36	...	5	49	...	13	...	...
45. Tazewell	...	...	66	8	38	...	2	35	...	...	...	...
46. Mount Rogers-Whitetop	...	...	39	1	21	...	...	22	...	...	...	...
47. Glade Spring	...	...	121	6	56	...	3	102	...	3	...	...
48. Blackford	...	...	92	...	18	...	1	31	...	2	...	...
49. Bristol	...	...	136	...	62	...	2	132	...	13	...	...
50. Buchanan County	...	...	38	2	24	...	1	49	...	3	...	...
51. Breaks Interstate Park	...	...	46	1	14	...	...	29	...	10	...	...
52. Wise County	...	...	96	27	48	...	3	66	...	2	...	...
Totals	88	68	7,568	694	3,215	260	473	5,851	22	455	33	40

Table 1. Species Counts (p. 15 of 20)

Species Count Circle	Golden- crowned Kinglet	Ruby- crowned Kinglet	Blue- gray Gnat- catcher	Eastern Bluebird	Hermit Thrush	Amer- ican Robin	Gray Cat- bird	Northern Mocking- bird	Brown Thrash- er	European Starling	Ameri- can Pipit	Cedar Wax- wing
1. Chincoteague	26	4	...	33	16	222	3	48	10	4,333	20	23
2. Wachapreague	8	...	...	254	1	478	9	67	1	1,335	...	32
3. Nassawaddox	30	13	...	184	21	504	8	86	4	607	47	22
4. Cape Charles	33	9	1	203	12	531	7	50	5	892	64	80
5. Chesapeake Bay	...	...	...	...	...	...	...	...	...	...	...	...
6. Little Creek	52	7	...	45	29	774	3	51	14	2,540	1	129
7. Back Bay	25	4	...	63	1	396	15	43	5	1,630	106	32
8. Nansemond River	65	16	...	110	15	1,383	6	112	19	2,852	56	557
9. Dismal Swamp	95	56	1	40	92	2,260	90	5	7	8	...	14
10. Newport News	71	14	...	94	6	1,134	3	170	21	1,781	...	301
11. Mathews County	4	14	1	522	14	622	4	74	12	705	...	260
12. Williamsburg	74	43	...	386	57	943	7	102	25	1,501	...	460
13. Hopewell	148	139	...	185	37	433	5	62	9	1,500	206	475
14. Walkerton	85	27	...	271	36	335	3	42	11	821	365	195
15. Washingtons Birthplace	25	11	...	127	14	483	...	49	8	104	111	394
16. Brooke	34	7	...	177	6	370	...	57	4	1,732	...	90
17. Fort Belvoir	84	46	...	478	110	1,568	1	141	8	3,256	...	155
18. Central Loudoun County	116	18	...	682	24	977	...	349	1	4,592	214	380
19. The Plains	37	11	...	295	16	538	...	153	1	3,591	62	95
20. Manassas-Bull Run	55	2	...	429	11	2,040	1	150	CW	3,169	...	341
21. Nokesville	37	4	...	189	17	364	...	91	...	2,328	...	89
22. Chancellorsville	5	3	...	104	3	276	...	23	...	706	90	36
23. Lake Anna	32	8	...	191	5	595	...	50	...	1,471	...	13
24. Gordonsville	4	...	...	38	1	310	1	28	...	722	...	139
25. Charlottesville	108	28	...	332	42	798	...	146	2	2,593	75	144
26. Warren	46	5	...	191	9	490	1	49	1	1,139	21	256
27. Darlington Heights	37	7	...	202	6	116	...	66	...	284	570	170
28. Banister River	9	5	...	111	5	78	...	35	3	207	200	147
29. Lynchburg	88	15	...	206	14	409	1	126	2	3,165	...	36
30. Chatham	2	...	...	30	1	...	...	5	1	63	14	...
31. Danville	5	2	...	93	3	91	...	47	3	292	...	65
32. Calmes Neck	80	12	...	538	13	104	...	166	1	3,464	16	12
33. N. Shenandoah Valley	39	10	...	467	14	1,017	...	162	...	4,038	30	126
34. Shenandoah NP-Luray	84	8	...	229	6	188	...	78	...	2,595	50	13
35. Big Flat Mountain	134	4	...	32	5	5	...	...	...	...	...	...
36. Rockingham County	39	2	...	214	2	147	...	85	...	5,794	39	...
37. Augusta County	71	2	...	248	...	175	...	...	...	6,541	...	25
38. Waynesboro	27	7	...	236	10	111	...	130	1	1,506	62	22
39. Lexington	54	6	...	98	5	112	...	54	...	476	...	...
40. Peaks of Otter	8	...	...	22	...	...	...	6	...	...	...	...
41. Fincastle	11	2	...	150	2	149	...	96	...	919	...	...
42. Roanoke	13	1	...	116	2	1,345	...	57	...	...	...	10
43. Blacksburg	101	10	...	217	9	154	1	138	...	1,717	...	34
44. Giles County	47	2	...	124	...	19	...	34	CW	78	1	...
45. Tazewell	9	...	...	14	...	3	...	13	1	1,280	...	12
46. Mount Rogers-Whitetop	9	...	...	49	1	1	...	15	...	178	...	...
47. Glade Spring	49	2	...	102	...	...	...	82	...	1,703	...	...
48. Blackford	9	1	...	64	1	4	...	38	...	740	...	...
49. Bristol	28	4	...	144	11	19	...	145	...	2,299	...	...
50. Buchanan County	28	2	...	12	...	14	...	...	...	201	...	...
51. Breaks Interstate Park	13	1	...	5	...	5	...	2	1	325	...	...
52. Wise County	7	...	...	44	...	30	...	20	6	517	...	1
Totals	2,300	594	3	9,390	705	23,120	169	3,798	187	84,290	2,420	5,385

Table 1. Species Counts (p. 16 of 20)

Species Count Circle	Tenne- see Warbler	Orange- crowned Warbler	Nashville Warbler	Black- throated Blue Warbler	Yellow- rumped (Myrtle) Warbler	Pine Warbler	Palm Warbler	Black- and- white Warbler	Louisi- ana Water- thrush-	Com- mon Yellow- throat	Wilson's Warbler	warbler sp.
1. Chincoteague	1,514	2	1	...	...	1	...	...
2. Wachapreague	...	1	...	...	643	...	...	...	...	...	...	...
3. Nassawaddox	...	1	...	1	757	...	...	...	...	...	...	...
4. Cape Charles	...	2	CW	...	935	7	12	...	...	...	...	...
5. Chesapeake Bay
6. Little Creek	...	1	...	...	179	6	...	1	...	...	...	...
7. Back Bay	305	5	3	...	...	3	...	...
8. Nansemond River	447	3	4	...	...	...	...	...
9. Dismal Swamp	...	5	...	...	80	3	...	...	...	1	...	...
10. Newport News	379	1	1	...	...	6	...	...
11. Mathews County	813	5	...	...	...	...	...	...
12. Williamsburg	898	2	...	...	...	...	...	...
13. Hopewell	1	3	...	...	96	1	1	...	...	...	...	...
14. Walkerton	67	...	...	...	...	...	...	...
15. Washingtons Birthplace	66	...	1	...	...	...	...	...
16. Brooke	109	...	...	...	...	...	...	...
17. Fort Belvoir	46	1	1	...	1	...	1	...
18. Central Loudoun County	159	...	...	...	...	...	...	...
19. The Plains	56	...	...	...	...	1	...	...
20. Manassas-Bull Run	110	1	...	...	...	...	...	...
21. Nokesville	73	...	...	...	...	...	...	...
22. Chancellorsville	10	...	...	...	...	...	...	...
23. Lake Anna	26	1	...	...	...	...	...	...
24. Gordonsville	7	...	...	3	...	...	...	...
25. Charlottesville	234	1	...	...	...	...	...	...
26. Warren	68	1	...	...	...	...	...	...
27. Darlington Heights	2	...	1	...	...	...	...	...
28. Banister River	14	CW	...	...	...	...	...	...
29. Lynchburg	65	...	2	...	...	...	...	...
30. Chatham	2	...	...	...	...	...	...	...
31. Danville	6	...	...	...	...	...	...	...
32. Calmes Neck	100	...	...	...	...	...	...	...
33. N. Shenandoah Valley	115	...	...	...	...	...	...	...
34. Shenandoah NP-Luray	29	2	...	...	...	...	...	...
35. Big Flat Mountain
36. Rockingham County	8	...	CW	...	...	...	...	1
37. Augusta County	31	...	...	...	...	...	...	...
38. Waynesboro	14	2	...	...	...	...	...	...
39. Lexington	77	...	...	...	...	...	...	...
40. Peaks of Otter
41. Fincastle	7	...	...	...	...	...	...	...
42. Roanoke	7	...	...	...	...	...	...	...
43. Blacksburg	34	...	...	...	...	...	...	...
44. Giles County	25	...	...	...	...	...	...	...
45. Tazewell
46. Mount Rogers-Whitetop
47. Glade Spring	9	...	...	...	...	...	...	...
48. Blackford	4	...	...	...	...	...	...	...
49. Bristol	14	...	...	...	...	...	...	...
50. Buchanan County	4	...	...	...	...	...	...	...
51. Breaks Interstate Park	3	...	...	...	...	...	...	...
52. Wise County	2	...	...	...	...	...	...	...
Totals	1	13	CW	1	8,649	44	27	4	1	12	1	1

Table 1. Species Counts (p. 17 of 20)

Species Count Circle	Yellow- breasted Chat	Western Tanager	Eastern Towhee	America n Tree Sparrow	Chipping Sparrow	Clay- colored Sparrow	Field Sparrow	Savannah Sparrow	Savannah (Ipswich) Sparrow	Nelson's Sparrow	Salt- marsh Sparrow
1. Chincoteague	28	...	232	1	203	172	...	...	...
2. Wachapreague	3	2	158	...	8	1	18	2	1
3. Nassawaddox	20	...	92	...	25	20	...	12	5
4. Cape Charles	12	...	359	...	19	101	...	8	2
5. Chesapeake Bay
6. Little Creek	22	...	1	...	...	1	...	...	...
7. Back Bay	12	...	320	...	15	79	2	...	...
8. Nansemond River	45	...	169	...	28	28	...	6	8
9. Dismal Swamp	31	...	...	...	3	...	...	...	...
10. Newport News	1	...	37	...	45	...	6	48	5	1	...
11. Mathews County	26	...	83	...	6	5	...	...	...
12. Williamsburg	...	1	93	...	263	...	49	48	...	...	...
13. Hopewell	31	...	8	...	71	145	...	...	...
14. Walkerton	11	1	50	...	17	72	...	...	...
15. Washingtons Birthplace	16	...	10	...	47	72	...	...	...
16. Brooke	19	...	11	...	8	...	...	...	...
17. Fort Belvoir	58	9	11	...	77	7	...	...	...
18. Central Loudoun County	32	27	2	...	90	48	...	...	...
19. The Plains	32	4	2	...	170	20	...	...	...
20. Manassas-Bull Run	55	...	69	...	162	8	...	...	...
21. Nokesville	18	2	...	...	48	8	...	...	...
22. Chancellorsville	1	...	...	...	...	...	...	...	...
23. Lake Anna	21	...	1	...	10	5	...	...	...
24. Gordonsville	41	...	9	...	...	...	...
25. Charlottesville	34	...	59	...	81	1	...	...	...
26. Warren	19	...	10	...	...	47	...	...	...
27. Darlington Heights	15	...	...	...	32	8	...	...	...
28. Banister River	21	...	78	...	6	6	...	...	...
29. Lynchburg	51	...	10	...	62	1	...	...	...
30. Chatham	4	...	1	...	8	9	...	...	...
31. Danville	4	...	20	...	1	14	...	...	...
32. Calmes Neck	9	15	...	...	56	1	...	...	...
33. N. Shenandoah Valley	3	...	2	...	43	1	...	...	...
34. Shenandoah NP-Luray	3	...	8	...	35	...	...	...	...
35. Big Flat Mountain	8	...	...	...	...	...	...	...	...
36. Rockingham County	1	...	2	...	8	2	...	...	...
37. Augusta County	2	...	...	...	37	6	...	...	...
38. Waynesboro	10	...	7	...	83	11	...	...	...
39. Lexington	2	...	14	...	69	15	...	...	...
40. Peaks of Otter	1	...	...	...	2	...	...	...	...
41. Fincastle	21	1	12	...	45	3	...	...	...
42. Roanoke	10	...	2	...	45	...	...	...	...
43. Blacksburg	36	...	2	...	18	2	...	...	...
44. Giles County	8	...	...	...	33	...	...	...	...
45. Tazewell	6	...	1	...	13	...	...	...	...
46. Mount Rogers-Whitetop	5	...	...	...	63	...	...	...	...
47. Glade Spring	22	1	8	...	28	1	...	...	...
48. Blackford	21	...	1	...	16	...	...	...	...
49. Bristol	24	...	22	...	29	4	...	...	...
50. Buchanan County	8	...	...	...	6	...	...	...	...
51. Breaks Interstate Park	5	...	3	...	1	...	...	...	...
52. Wise County	7	...	...	...	20	...	...	...	...
Totals	1	1	983	62	2,189	1	1,911	1,020	25	29	16

Table 1. Species Counts (p. 18 of 20)

Species Count Circle	sharp- tailed sparrow sp.	Seaside Sparrow	Fox Sparrow	Song Sparrow	Lincoln's Sparrow	Swamp Sparrow	White- throated Sparrow	White- crowned Sparrow	sparrow sp.	Dark- eyed (Slate- colored) Junco	Lapland Longspur
1. Chincoteague	...	12	10	556	...	401	818	...	...	280	...
2. Wachapreague	7	1	6	123	...	3	324	1	...	417	...
3. Nassawaddox	...	20	26	320	...	360	461	...	...	168	...
4. Cape Charles	12	...	26	202	...	38	580	10	1	161	CW
5. Chesapeake Bay	1	...	...	...	...
6. Little Creek	...	1	4	49	...	17	301	...	...	122	...
7. Back Bay	1	133	...	85	260	CW	...	58	...
8. Nansemond River	8	18	31	289	...	92	574	...	...	244	...
9. Dismal Swamp	2	79	...	328	469	1	...	39	...
10. Newport News	8	232	...	36	486	...	...	344	...
11. Mathews County	6	126	...	12	559	...	...	1,003	...
12. Williamsburg	29	298	...	69	1,386	...	...	988	...
13. Hopewell	18	745	...	251	1,563	10	...	510	...
14. Walkerton	14	348	...	119	1,270	1	...	718	...
15. Washingtons Birthplace	2	291	1	50	655	10	...	387	...
16. Brooke	202	...	20	961	1	...	890	...
17. Fort Belvoir	32	655	...	106	2,219	9	...	1,982	...
18. Central Loudoun County	10	394	...	42	1,566	42	...	2,444	17
19. The Plains	3	491	...	42	930	77	...	1,620	...
20. Manassas-Bull Run	4	342	...	9	747	1	...	2,016	...
21. Nokesville	4	247	...	71	409	17	...	810	...
22. Chancellorsville	17	...	...	118	20	...	222	...
23. Lake Anna	4	26	...	1	114	3	...	697	...
24. Gordonsville	1	70	...	6	57	28	...	206	...
25. Charlottesville	9	506	...	25	1,354	56	...	1,050	...
26. Warren	3	132	...	7	668	94	...	866	...
27. Darlington Heights	101	...	6	293	18	...	575	...
28. Banister River	164	...	26	117	6	...	200	...
29. Lynchburg	1	150	...	4	512	9	...	659	...
30. Chatham	1	7	...	...	42	2	...	41	...
31. Danville	11	...	2	106	...	...	144	...
32. Calmes Neck	3	326	...	9	520	227	...	1,148	...
33. N. Shenandoah Valley	190	...	3	734	53	...	811	...
34. Shenandoah NP-Luray	113	...	1	305	108	...	693	...
35. Big Flat Mountain	5	18	...	...	174	...	...	303	...
36. Rockingham County	107	...	2	206	185	...	253	...
37. Augusta County	4	154	...	19	501	161	...	867	...
38. Waynesboro	2	160	...	11	252	245	...	838	...
39. Lexington	2	91	...	11	369	82	...	347	...
40. Peaks of Otter	1	8	...	...	16	...	...	97	...
41. Fincastle	2	107	...	2	126	87	...	244	...
42. Roanoke	52	...	5	99	...	...	146	...
43. Blacksburg	11	292	...	7	347	95	...	352	4
44. Giles County	4	...	...	...	165	6	...	247	...
45. Tazewell	5	78	...	...	25	10	...	102	...
46. Mount Rogers-Whitetop	59	...	...	17	2	...	221	...
47. Glade Spring	195	...	...	97	139	...	85	...
48. Blackford	3	101	...	3	107	212	...	72	...
49. Bristol	4	199	...	9	203	54	...	227	...
50. Buchanan County	27	...	...	27	...	...	68	...
51. Breaks Interstate Park	18	...	2	19	10	...	18	...
52. Wise County	1	86	...	10	17	...	...	119	...
Totals	27	52	302	9,687	1	2,322	24,246	2,092	1	27,119	21

Table 1. Species Counts (p. 19 of 20)

Species Count Circle	Snow Bunting	Northern Cardinal	Painted Bunting	Dick- cissel	Red- winged Black- bird	Eastern Meadow -lark	Rusty Black- bird	Brewer's Black- bird	Com- mon Grackle	Boat- tailed Grackle	Brown- headed Cowbird	blackbird sp.
1. Chincoteague	...	200	...	...	3,149	105	423	...	3,487	101	41	35,000
2. Wachapreague	...	91	...	...	461	19	...	...	18	186	29	400
3. Nassawaddox	...	214	...	...	555	10	...	...	53	...	24	100
4. Cape Charles	...	139	...	1	1,040	125	2	...	50	16	59	...
5. Chesapeake Bay
6. Little Creek	30	95	...	...	1,060	...	...	...	1,480	43	300	...
7. Back Bay	...	140	...	...	9,220	22	2	...	1,595	90	627	...
8. Nansemond River	...	189	1	...	4,703	212	15	...	1,421	60	490	...
9. Dismal Swamp	...	61	...	...	231	...	6	...	1	...	3	2
10. Newport News	...	181	...	...	1,077	45	80	...	1,466	98	4	...
11. Mathews County	...	218	...	...	1,198	119	...	...	80	20	41	...
12. Williamsburg	...	442	...	...	1,568	56	59	...	39	...	501	...
13. Hopewell	...	196	...	...	1,682	103	...	...	9	...	10	...
14. Walkerton	...	216	...	...	2,069	18	...	...	45,000	...	1	200
15. Washingtons Birthplace	...	130	...	...	1,437	85	15	...	1,160	...	108	...
16. Brooke	...	298	...	...	238	5	6	...	...	...	2	...
17. Fort Belvoir	...	886	...	...	1,768	12	48	...	391	...	68	819
18. Central Loudoun County	1	898	...	...	2,349	10	1	...	24	...	1,460	252
19. The Plains	...	471	...	...	118	14	...	...	3	...	60	...
20. Manassas-Bull Run	...	777	...	...	22	20	250	...	172	...	1	...
21. Nokesville	...	166	...	...	807	12	17	4	815	...	6	30
22. Chancellorsville	...	79	...	...	50	14	...	...	...	...	...	...
23. Lake Anna	...	71	...	...	100	...	...	...	7	...	...	...
24. Gordonsville	...	64	...	...	...	38	...	...	...	...	15	...
25. Charlottesville	...	479	...	...	5	11	4	...	2	...	...	...
26. Warren	...	172	...	...	16	69	2	...	...	...	...	...
27. Darlington Heights	...	103	...	...	52	79	...	...	34	...	280	...
28. Banister River	...	66	...	...	37	13	...	...	...	...	...	...
29. Lynchburg	...	307	...	...	22	18	...	...	3	...	...	...
30. Chatham	...	14	...	...	53	12	...	...	...	...	...	...
31. Danville	...	112	...	...	75	7	...	...	...	...	...	...
32. Calmes Neck	...	522	...	...	237	2	1	...	133	...	621	30
33. N. Shenandoah Valley	...	415	...	...	552	2	6	...	21	...	30	...
34. Shenandoah NP-Luray	...	207	...	...	253	9	...	...	1	...	1	...
35. Big Flat Mountain	...	57	...	...	...	...	...	...	...	...	...	...
36. Rockingham County	...	188	...	...	6	15	...	...	CW	...	16	40
37. Augusta County	...	339	...	...	8	22	...	...	20	...	...	...
38. Waynesboro	...	210	...	...	8	8	...	...	...	...	...	...
39. Lexington	...	182	...	...	...	3	...	...	30	...	...	...
40. Peaks of Otter	...	18	...	...	...	...	...	...	...	...	...	...
41. Fincastle	...	181	...	...	...	16	...	...	...	...	...	...
42. Roanoke	...	126	...	...	...	...	...	...	...	...	...	...
43. Blacksburg	...	263	...	...	...	28	22	...	1	...	...	...
44. Giles County	...	132	...	...	...	...	...	...	...	...	...	...
45. Tazewell	...	97	...	...	...	...	...	...	...	...	...	...
46. Mount Rogers-Whitetop	...	53	...	...	...	4	...	...	...	...	...	...
47. Glade Spring	...	140	...	...	23	12	2	...	6	...	...	...
48. Blackford	...	186	...	...	5	...	...	...	...	...	...	...
49. Bristol	...	280	...	...	...	13	...	...	...	...	...	...
50. Buchanan County	...	66	...	...	...	...	...	...	...	...	...	...
51. Breaks Interstate Park	...	31	...	...	1	...	...	...	...	...	...	...
52. Wise County	...	74	...	...	...	2	...	...	9	...	...	...
Totals	31	11,242	1	1	36,255	1,389	961	4	57,531	614	4,798	36,873

Table 1. Species Counts (p. 20 of 20)

Species Count Circle	Baltimore Oriole	Purple Finch	House Finch	Red Crossbill	White-winged Crossbill	Common Redpoll	Pine Siskin	American Goldfinch	Evening Grosbeak	House Sparrow	Total individuals	Total individuals
1. Chincoteague	...	12	93	...	...	CW	4	38	...	53	134	78,538
2. Wachapreague	30	...	...	...	13	106	...	35	114	40,620
3. Nassawaddox	...	1	116	...	...	...	121	136	...	1	113	12,960
4. Cape Charles	...	8	98	CW	CW	...	39	178	CW	10	150	44,375
5. Chesapeake Bay	30	2,488
6. Little Creek	...	3	54	...	...	...	7	81	...	18	127	21,142
7. Back Bay	...	3	16	...	...	...	1	30	...	2	126	27,557
8. Nansemond River	65	...	...	...	...	182	...	12	129	47,504
9. Dismal Swamp	3	71	...	...	80	5,246
10. Newport News	90	...	...	...	31	390	...	133	127	19,961
11. Mathews County	...	5	142	...	...	...	5	136	...	31	109	14,460
12. Williamsburg	1	5	211	...	...	...	1	397	...	37	111	28,477
13. Hopewell	...	6	63	...	...	...	9	173	1	37	109	38,379
14. Walkerton	...	3	83	...	...	...	...	117	CW	10	101	63,932
15. Washingtons Birthplace	1	...	...	...	1	129	...	4	99	22,040
16. Brooke	46	...	...	...	...	97	...	25	87	19,691
17. Fort Belvoir	...	7	260	1	...	...	139	245	...	416	117	70,068
18. Central Loudoun County	...	23	192	...	...	1	24	225	...	203	106	35,065
19. The Plains	...	8	162	...	...	...	12	258	...	108	97	20,722
20. Manassas-Bull Run	151	...	8	...	6	248	4	172	86	21,967
21. Nokesville	...	4	59	...	...	...	...	58	3	47	89	12,801
22. Chancellorsville	...	10	15	...	...	...	3	35	...	22	70	4,479
23. Lake Anna	...	1	12	...	...	...	...	60	...	10	77	7,917
24. Gordonsville	7	...	...	...	...	12	...	4	58	3,133
25. Charlottesville	...	11	226	...	...	...	8	293	...	43	78	14,543
26. Warren	...	27	32	...	...	...	30	224	...	2	84	9,238
27. Darlington Heights	...	4	25	...	...	...	...	45	...	21	72	5,429
28. Banister River	...	1	98	...	...	...	...	55	...	5	74	4,322
29. Lynchburg	...	13	117	...	...	...	12	162	...	46	83	11,118
30. Chatham	44	...	...	...	...	17	...	...	49	742
31. Danville	...	19	77	...	...	...	...	41	...	...	61	2,137
32. Calmes Neck	...	10	100	...	1	...	6	198	...	180	93	21,485
33. N. Shenandoah Valley	...	40	159	...	...	...	7	254	...	59	85	18,130
34. Shenandoah NP-Luray	...	1	40	...	...	...	...	125	...	40	82	9,135
35. Big Flat Mountain	...	1	8	1	...	...	2	32	...	...	44	1,275
36. Rockingham County	134	...	...	...	22	113	...	247	75	12,218
37. Augusta County	...	32	180	...	...	...	...	200	...	281	74	17,507
38. Waynesboro	...	16	98	...	...	...	4	190	...	118	90	8,953
39. Lexington	...	29	14	...	...	...	2	144	...	1	72	5,122
40. Peaks of Otter	...	3	...	...	...	...	...	3	...	...	37	492
41. Fincastle	...	7	28	...	...	...	...	45	...	17	72	4,374
42. Roanoke	70	2	...	...	2	33	...	17	67	4,011
43. Blacksburg	...	6	103	...	...	...	4	230	...	116	84	10,890
44. Giles County	...	4	10	...	...	...	2	67	...	2	63	2,109
45. Tazewell	...	7	6	...	...	...	...	34	...	204	66	3,387
46. Mount Rogers-Whitetop	6	...	...	...	...	36	...	...	46	1,460
47. Glade Spring	...	CW	27	...	...	...	CW	100	...	77	71	5,638
48. Blackford	...	6	19	...	...	...	...	64	...	38	62	5,027
49. Bristol	16	...	...	...	3	119	...	49	81	8,721
50. Buchanan County	...	2	4	...	...	...	CW	109	...	3	43	1,105
51. Breaks Interstate Park	3	...	...	...	...	44	...	14	50	911
52. Wise County	...	10	13	...	...	...	11	78	...	16	59	3,729
Totals	1	348	3,623	4	9	1	534	6,457	8	2,986	222	856,730

Table 2. Field Data (page 1 of 4)

Count Circle	Count Date	No. Observers	Min. No. Parties	Max. No. Parties	Hours on Foot	Hours by Car	Hours by Motor Boat	Hours by non-motor Boat	Total Party Hours	Miles on Foot	Miles by Car
1. Chincoteague	Dec 29	24	13	13	32.50	62.50	...	...	95.00	23.50	226.50
2. Wachapreague	Dec 15	27	4	14	72.00	48.00	...	...	120.00	31.00	314.00
3. Nassawaddox	Dec 16	31	31	10	35.00	32.00	...	...	67.00	20.00	156.00
4. Cape Charles	Dec 30	37	9	15	78.00	28.00	...	...	106.00	36.00	181.00
5. Chesapeake Bay	Dec 26	3	1	1	6.00	2.00	...	...	8.00	1.00	2.00
6. Little Creek	Dec 31	25	9	15	76.00	12.00	...	...	88.00	28.00	183.00
7. Back Bay	Dec 29	24	13	17	97.00	15.00	...	...	112.00	44.00	393.00
8. Nansemond River	Jan 02	30	12	14	60.00	34.00	...	...	94.00	30.00	281.00
9. Dismal Swamp	Dec 15	11	6	6	12.50	30.00	...	4.00	46.50	16.00	37.00
10. Newport News	Dec 15	42	14	15	84.75	36.75	...	...	121.50	47.75	352.75
11. Mathews County	Dec 30	47	18	18	53.00	67.00	...	...	120.00	41.00	459.00
12. Williamsburg	Dec 16	61	16	16	92.25	32.50	0.50	...	125.25	72.00	274.00
13. Hopewell	Dec 16	29	16	16	66.00	34.75	2.25	...	103.00	42.00	136.00
14. Walkerton	Dec 30	26	1	8	32.75	37.25	...	...	70.00	17.50	338.00
15. Washingtons Birthplace	Dec 16	16	4	9	40.50	17.50	...	...	58.00	24.50	167.00
16. Brooke	Dec 17	23	10	12	58.50	36.00	...	...	94.50	24.50	195.50
17. Fort Belvoir	Dec 30	156	58	61	265.50	49.00	...	...	314.50	191.75	263.00
18. Central Loudoun County	Dec 28	118	25	33	111.75	69.00	...	...	180.75	86.00	604.00
19. The Plains	Dec 16	42	5	42	85.75	59.50	...	...	145.25	37.75	368.00
20. Manassas-Bull Run	Dec 16	108	33	33	132.25	29.50	...	...	161.75	105.00	343.50
21. Nokesville	Dec 23	40	10	12	38.00	30.00	...	...	68.00	20.00	245.00
22. Chancellorsville	Dec 30	19	6	6	28.00	20.50	...	...	48.50	20.50	284.00
23. Lake Anna	Dec 30	24	6	6	19.00	26.00	...	...	45.00	10.25	450.50
24. Gordonsville	Dec 30	16	5	5	13.00	21.50	...	...	34.50	5.00	237.00
25. Charlottesville	Dec 16	51	20	21	116.00	23.00	...	4.00	143.00	76.00	234.00
26. Warren	Dec 30	18	9	10	48.00	25.75	...	...	73.75	46.75	157.00
27. Darlington Heights	Jan 06	18	4	4	16.50	21.50	...	...	38.00	7.50	246.00
28. Banister River	Dec 16	6	4	4	21.50	7.25	...	...	28.75	11.50	104.00
29. Lynchburg	Dec 15	41	13	13	58.50	37.50	...	...	96.00	48.00	287.50
30. Chatham	Dec 16	5	3	3	6.00	7.00	...	...	13.00	2.00	93.00
31. Danville	Dec 29	12	5	5	19.00	18.00	...	...	37.00	16.50	179.00
32. Calmes Neck	Jan 05	67	15	28	71.50	86.25	...	...	157.75	55.25	586.50
33. N. Shenandoah Valley	Dec 15	49	1	49	50.00	69.00	...	...	119.00	44.50	671.00
34. Shenandoah NP-Luray	Dec 16	27	9	12	51.75	36.75	...	...	88.50	42.25	297.50
35. Big Flat Mountain	Dec 23	4	4	4	29.00	4.00	...	...	33.00	41.00	40.00
36. Rockingham County	Dec 15	30	2	10	7.75	51.50	...	...	59.25	7.00	381.75
37. Augusta County	Dec 16	25	8	8	5.50	55.00	...	...	60.50	10.00	510.00
38. Waynesboro	Jan 05	33	12	12	27.75	49.00	...	...	76.75	27.75	401.00
39. Lexington	Dec 26	25	2	17	34.00	18.50	...	...	52.50	27.75	127.00
40. Peaks of Otter	Dec 18	11	4	4	14.00	8.00	...	...	22.00	6.00	21.00
41. Fincastle	Dec 16	29	11	11	33.00	24.00	...	...	57.00	12.00	185.00
42. Roanoke	Dec 15	30	2	9	22.00	29.00	...	...	51.00	19.00	155.00
43. Blacksburg	Dec 15	43	17	19	76.50	23.00	...	...	99.50	65.00	250.50
44. Giles County	Jan 02	12	12	12	8.00	43.00	...	...	51.00	15.00	86.00
45. Tazewell	Dec 28	8	5	5	5.00	40.00	...	...	45.00	8.00	240.00
46. Mount Rogers-Whitetop	Dec 22	7	1	3	3.50	16.50	...	...	20.00	3.00	162.00
47. Glade Spring	Dec 15	22	8	8	24.25	15.50	...	...	39.75	15.50	352.50
48. Blackford	Dec 29	13	5	5	2.00	33.75	...	...	35.75	4.50	285.00
49. Bristol	Dec 30	26	6	6	32.00	25.25	...	...	57.25	12.50	461.00
50. Buchanan County	Dec 16	7	4	4	1.50	29.50	...	...	31.00	0.75	245.00
51. Breaks Interstate Park	Dec 15	5	5	5	15.00	4.00	...	...	19.00	2.00	143.00
52. Wise County	Dec 15	17	9	9	20.00	34.75	...	...	54.75	17.00	259.00
Totals	...	1,620	525	697	2,403.50	1,664.50	2.75	8.00	4,078.75	1,618.00	13,651.00

Table 2. Field Data (page 2 of 4)

Count Circle	Miles by Motor Boat	Miles by non-motor Boat	Total Party Miles	No. Feeder Observers	Hours at Feeders	Hours Owling	Miles Owling	Time Count Started	Time Count Ended	Low Temp. (°F)	High Temp. (°F)
1. Chincoteague	250.00	...	...	2.00	3.00	0600	1715	37	45
2. Wachapreague	345.00	2	2.00	...	...	0600	1900	32	55
3. Nassawaddox	176.00	...	...	...	...	0700	1715	45	61
4. Cape Charles	217.00	...	...	5.00	18.00	0600	1900	35	45
5. Chesapeake Bay	3.00	...	...	...	...	0700	1500	41	56
6. Little Creek	211.00	...	...	2.00	7.00	0500	1730	25	46
7. Back Bay	437.00	...	...	4.50	20.00	0600	1700	40	47
8. Nansemond River	311.00	1	1.50	4.50	7.50	0530	1730	40	43
9. Dismal Swamp	...	7.00	60.00	...	...	...	...	0700	1600	29	56
10. Newport News	400.50	3	4.00	0.25	0.25	0700	1700	38	51
11. Mathews County	500.00	1	1.00	3.00	11.00	0530	1730	39	47
12. Williamsburg	4.00	...	350.00	21	28.50	2.50	7.00	0530	1700	46	55
13. Hopewell	8.00	...	186.00	1	3.00	3.00	7.00	0545	1715	44	57
14. Walkerton	355.50	...	...	9.75	46.50	0400	1745	38	45
15. Washingtons Birthplace	191.50	...	...	3.00	16.00	0545	1730	46	56
16. Brooke	220.00	...	...	...	...	0645	1645	50	54
17. Fort Belvoir	454.75	2	6.00	18.50	42.75	0400	1900	30	41
18. Central Loudoun County	690.00	4	16.00	7.00	21.00	0530	1730	28	41
19. The Plains	405.75	...	...	5.50	40.00	0200	1730	31	35
20. Manassas-Bull Run	448.50	1	3.00	2.00	0.25	0700	1700	43	48
21. Nokesville	265.00	...	...	0.50	0.25	0630	1830	19	50
22. Chancellorsville	304.50	3	12.00	1.25	6.00	0500	1700	23	42
23. Lake Anna	460.75	1	5.00	1.50	15.00	0500	1700	31	46
24. Gordonsville	242.00	...	...	...	...	0715	1630	34	48
25. Charlottesville	...	4.00	314.00	1	8.00	...	...	0600	1700	42	50
26. Warren	203.75	...	...	...	...	0630	1800	30	45
27. Darlington Heights	253.50	...	...	2.00	27.00	0700	1900	33	52
28. Banister River	115.50	2	14.00	3.00	22.25	0700	1730	45	55
29. Lynchburg	335.50	6	3.75	...	...	0645	1730	31	56
30. Chatham	95.00	1	1.00	1.00	0.00	0645	1715	43	54
31. Danville	195.50	6	6.50	...	...	0600	1800	32	51
32. Calmes Neck	641.75	3	11.00	15.00	56.50	0400	1700	27	45
33. N. Shenandoah Valley	175.50	2	5.00	12.00	11.00	0500	1730	26	53
34. Shenandoah NP-Luray	339.75	4	17.00	2.25	10.50	0600	1800	34	51
35. Big Flat Mountain	81.00	...	...	0.75	3.00	0600	1730	30	50
36. Rockingham County	388.75	5	...	2.75	6.00	0445	1715	29	47
37. Augusta County	520.00	3	4.00	27.00	51.00	0500	1700	27	51
38. Waynesboro	428.00	9	21.00	3.00	18.00	0530	2200	22	54
39. Lexington	75.00	5	5.00	4.00	15.00	0500	1800	33	45
40. Peaks of Otter	154.75	...	...	0.50	1.00	0630	1430	36	44
41. Fincastle	27.00	...	...	...	...	0545	1800	38	45
42. Roanoke	197.00	...	...	...	...	0500	1500	30	50
43. Blacksburg	174.00	11	20.00	7.50	34.00	0530	1730	28	53
44. Giles County	101.00	2	4.00	2.00	0.25	0700	1600	41	55
45. Tazewell	248.00	1	5.00	...	...	0700	1730	23	46
46. Mount Rogers-Whitetop	165.00	...	0.50	0.25	0.25	0900	1800	18	30
47. Glade Spring	368.00	2	3.25	4.50	51.00	0615	1700	32	62
48. Blackford	289.50	...	0.00	2.50	30.00	0500	1800	23	35
49. Bristol	473.50	...	...	4.75	36.00	0700	1800	57	36
50. Buchanan County	248.75	2	1.00	1.00	5.00	0700	1700	38	52
51. Breaks Interstate Park	145.00	...	0.50	2.00	0.25	0800	1700	38	55
52. Wise County	276.00	...	...	...	...	0800	1700	36	59
Totals	12.00	11.00	15,294.00	105.00	212.50	173.50	646.50	...	...	...	...

Table 2. Field Data (page 3 of 4)

Count Circle	Wind Direction	Wind Speed (mph)	Water Conditions	A.M. Skies	P.M. Skies	Circle Center Description (Co. = County)
1. Chincoteague	NW	15-20	WOP	CLD, LGR	CLD, HVR	2 miles north of center of Chincoteague in Accomack Co.
2. Wachapreague	CALM	...	WOP	FOG	PCR	Jct. of Rts. 789 & 715 in Accomack Co.
3. Nassawaddox	S	0-10	WOP	CLD	CLD	Rt. 13 half way between Nassawaddox & Birdsnest, Northampton Co.
4. Cape Charles	NW	20-40	WOP	CLR	CLR	1.5 miles southeast of Capeville Post Office in Northampton Co.
5. Chesapeake Bay	NE	40	WOP	LGR	HVR	Northern 3 bridge-tunnel islands & adjacent waters out to 1 mile.
6. Little Creek	SW	10-15	SPF, MWO	CLR	CLD	3.8 miles northeast of Kempsville in Virginia Beach.
7. Back Bay	V	10-15	WOP	CLD, HVR	PCD	1.5 miles east of Back Bay.
8. Nansemond River	NW	3-15	WOP	CLD, LGR	CLD	Jct. of Rts. 17 & 626 in Pughsville, Suffolk.
9. Dismal Swamp	V	0-11	WOP	CLR	CLR	Intersection of Middle & Jericho ditches in Dismal Swamp NWR.
10. Newport News	NW	1-3	WOP	PCD	PCR	Northern corner of Magruder & Cmdr. Shepard blvds. in Hampton.
11. Mathews County	NW	10-35	WOP	PCD	CLR	0.5 mile east of Beaverlett Post Office in Mathews Co.
12. Williamsburg	CALM	...	WOP	FOG, LGR	CLD	Colonial Williamsburg Information Center in Williamsburg.
13. Hopewell	S	2-6	WOP	CLD, HVR	PCD, LGR	Curles Neck in Henrico Co.
14. Walkerton	NW	0-30	WOP	PCD	PCD	1.5 miles southwest of Walkerton Bridge, just west of Whitebank.
15. Washingtons Birthplace	CALM	0-3	WOP	FOG	CLD	Horners in Westmoreland Co.
16. Brooke	NW	0-5	WOP	CLD	CLD	Center Road, 3 miles east southeast of Brooke in Stafford Co.
17. Fort Belvoir	NW	15-49	WOP	CLD	PCD	Pohick Episcopal Church, Fort Belvoir, in eastern Fairfax Co.
18. Central Loudoun County	NW	0-20	WOP	PCD	PCR	Near Jct. of Rts. 704 & 769 in Loudoun Co.
19. The Plains	UNK	...	WOP	PCD, LGR	PCD, LGR	7 miles NW of Warrenton on west side of Watery Mt. in Fauquier Co.
20. Manassas-Bull Run	S	4-16	WOP	CLD	CLD	Centreville in western Fairfax Co.
21. Nokesville	SW	2-10	SPO, MWO	CLR	CLR	Fleetwood Dr. (Rt. 611) at Cedar Run in Prince William Co.
22. Chancellorsville	W	7-18	WOP	CLD	CLD	Chancellorsville Battlefield, 10 miles west of Fredericksburg.
23. Lake Anna	NW	10-20	WOP	PCD	CLR	Center of bridge over Lake Anna on Rt. 208.
24. Gordonsville	W	5-20	WOP	CLR	CLR	Jct. of Rts. 15 and 33 north of the town of Gordonsville in Orange Co.
25. Charlottesville	S	5	WOP	CLD	CLD	Near Ivy in Albemarle Co.
26. Warren	NW	0-15	WOP	PCD	PCD	Keene in Albemarle Co.
27. Darlington Heights	WSW	0-10	WOP	CLR	CLR	Jct. of Rts. 665 & 660 in Darlington Heights in Price Edward Co.
28. Banister River	SW	0-5	WOP	CLD, LGR	CLD, LGR	Banister River Wildlife Management Areas in Halifax Co.
29. Lynchburg	SW	3	WOP	CLD	PCR	Lynchburg College in Lynchburg.
30. Chatham	W	5-12	WOP	PCD	CLD, LGR	At front of the courthouse in Chatham Courthouse, Pittsylvania Co.
31. Danville	UNK	14-25	WOP	PCD, LGR	PCD, LGR	Ballou Park in Danville.
32. Calmes Neck	NW	5-15	SPF, MWO	CLR	PCD	Castlemans Ferry Bridge on Rt. 7 over Shenandoah River in Clarke Co.
33. N. Shenandoah Valley	SW	0-7	WOP	CLR	PCR	Jct. of Crooked Run & Rt. 606 in Frederick Co.
34. Shenandoah NP-Luray	SW	0-15	WOP	PCD, LGR	PCD, LGR	Hershberger Hill near Stanley in Page Co.
35. Big Flat Mountain	SW	0-15	WOP	PCR	CLR	On Pasture Fence Mountain in Albemarle Co.
36. Rockingham County	UNK	0-5	WOP	PCD	CLD	Ottobine in Rockingham Co.
37. Augusta County	S	1-3	WOP	CLD, LGR	PCD	Jct. of Rts. 780 & 781 in Augusta Co.
38. Waynesboro	UNK	0-18	SPF, MWO	PCD	PCD	Sherando at Jct. of Rts. 610 & 664 in Augusta Co.
39. Lexington	UNK	...	WOP	CLD, LSN	PCD	Big Spring Pond in Rockbridge Co.
40. Peaks of Otter	SW	2-14	SPO, MWO	PCD	CLR	Peaks of Otter Visitor Center in Bedford Co.
41. Fincastle	CALM	...	WOP	CLD	CLD, LGR	North of Fincastle near Jct. of Rts. 220 & 679 in Botetourt Co.
42. Roanoke	UNK	0-10	WOP	PCD	PCD	Oakland Blvd. & Williamson Rd. in Roanoke.
43. Blacksburg	SE	3-8	WOP	CLR	CLD	Jct. Rt. 657 & Rt. 685 in Montgomery Co.
44. Giles County	CALM	...	WOP	CLR	CLD	Pembroke in Giles Co.
45. Tazewell	NE	5-8	MWO, SPF	CLD	CLD	Fourway in Tazewell Co.
46. Mount Rogers-Whitetop	NW	5-20	SPF, MWO	CLD, LSN	CLR	Jct. of Rts. 600 & 603 in Smyth Co.
47. Glade Spring	S	0-5	SPF, MWO	CLD	PCD	Jct. of Rts. 750 & 609 in Glade Spring.
48. Blackford	CALM	1	WOP	CLD	CLD, LSN	Confluence of the Clinch & Little rivers in Russell Co.
49. Bristol	W	0-6	WOP	CLD, LSN	PCR	Jct. of Rts. 647 & 654, east of Bristol TN in Washington Co, VA.
50. Buchanan County	V	5-10	WOP	CLD	CLD	Jct. of Rts. 680 & 638 at Pilgrims Knob in Buchanan Co.
51. Breaks Interstate Park	UNK	...	WOP	CLD	PCD, LSN	4.5 miles northeast of Haysi in Buchanan Co.
52. Wise County	CALM	...	WOP	PCD	CLD	Dorchester in Norton City.
Totals	...	...	...	...	...	...

Table 2. Field Data (page 1 of 4)

Count Circle	GPS Coordinates	compiler	Primary Compiler's Email Address	Secondary Compiler	Sponsor Organization
1. Chincoteague	37°58'N 75°22'W	Gerald Tracy	gerald.tracy@verizon.net	Richard Roberts	...
2. Wachapreague	37°40'N 75°42'W	Marilyn Ailes	imailes@verizon.net	Irvin Ailes	...
3. Nassawaddox	37°43'N 75°86'W	Henry Armistead	harryarmistead@hotmail.com	...	Coastal Virginia Wildlife Observatory
4. Cape Charles	37°12'N 75°56'W	Henry Armistead	harryarmistead@hotmail.com	...	
5. Chesapeake Bay	37°05'N 76°08'W	Ned Brinkley	phoebetria@aol.com	...	...
6. Little Creek	36°51'N 76°06'W	Paul sykes	paul_sykes@usgs.gov	Steve Holzman	Cape Henry Audubon Society
7. Back Bay	36°39'N 76°00'W	Paul sykes	paul_sykes@usgs.gov		
8. Nansemond River	36°52'N 76°26'W	Robert Ake	ake@cox.net	...	...
9. Dismal Swamp	36°40'N 76°29'W	Donald Schwab	vacanebrake@yahoo.com	...	Gr. Dismal Swamp Coalition
10. Newport News	37°05'N 76°25'W	Nancy Gruttan-Tyler	gruttmantyler@gmail.com	...	Hampton Roads Bird Club
11. Mathews County	37°25'N 76°18'W	Don Mckelvey	donaldmckelvey@yahoo.com	Cindy Kane	...
12. Williamsburg	37°17'N 76°42'W	Bill Williams	billwilliams154@gmail.com	...	Williamsburg Bird Club
13. Hopewell	37°23'N 77°17'W	Arun Bose	arun1bose@gmail.com	...	Richmond Audubon Society
14. Walkerton	37°46'N 77°02'W	Frederick Atwood	fredatwood@yahoo.com	...	...
15. Washingtons Birthplace	37°46'N 77°02'W	William Portlock	portlock@bealenet.com	...	...
16. Brooke	38°22'N 77°20'W	Odette James	o.b.james@verizon.net	...	...
17. Fort Belvoir	38°41'N 77°12'W	Kurt Gaskill	kurtcapt87@verizon.net	...	One Good Tern
18. Central Loudoun County	39°06'N 77°38'W	Joseph Coleman	joecoleman@rstartmail.com	...	Loudoun Wildlife Conserv.
19. The Plains	38°48'N 77°52'W	Todd Day	blkvulture@aol.com	Perri Borowiecki	...
20. Manassas-Bull Run	38°50'N 77°26'W	Robert Shipman	ships333@yahoo.com	...	Audubon Soc. N. Virginia
21. Nokesville	38°37'N 77°33'W	Kim Hosen	khosen@pwconserve.org	...	Prc. Wm. Conserv. Alliance
22. Chancellorsville	38°16'N 77°40'W	Beverly Smith	catbirds@verizon.net	...	Fredericksburg Bird Club
23. Lake Anna	38°05'N 77°49'W	Michael Boatwright	mboat@att.net	Mike Boatwright	...
24. Gordonsville	38°09'N 78°12'W	Buzz Van Santvoord	vansantvoord@verizon.net	Donald Ober	...
25. Charlottesville	38°04'N 78°34'W	Jennifer Gaden	jengaden@gmail.com	...	Monticello Bird Club
26. Warren	37°51'N 78°33'W	Allen Hale	super@buteobooks.com	...	
27. Darlington Heights	37°12'N 78°36'W	Carolyn Wells	cwells@kinex.net	...	...
28. Banister River	36°43'N 78°48'W	Jeffrey C. Blalock	jcbabirder@gconline.com	...	...
29. Lynchburg	37°24'N 79°11'W	Rexanne Bruno	bruno@lynchburg.edu	...	Lynchburg Bird Club
30. Chatham	36°49'N 79°23'W	Mary Foster	chathambirds08@hotmail.com	...	Southside Bird Club
31. Danville	36°34'N 79°25'W	Laura Meder	laura.meder@averett.edu	...	...
32. Calmes Neck	39°07'N 77°54'W	Margaret Wester	margaretwester@hotmail.com	...	Shenandoah Audubon
33. N. Shenandoah Valley	39°03'N 78°10'W	Rob Simpson	annrobsimpson@snphotos.com	...	Lord Fairfax Comm. College
34. Shenandoah NP-Luray	38°35'N 78°28'W	Alan Williams	j0u0n0k@embarqmail.com	...	...
35. Big Flat Mountain	38°11'N 78°43'W	Tom Wieboldt	awieboldt@gmail.com	...	...
36. Rockingham County	38°26'N 79°02'W	William Benish	wcbenish@comcast.net	...	Rockingham Co. Bird Club
37. Augusta County	38°12'N 78°59'W	Allen Lerner	larnersky@mindspring.com	...	Augusta Bird Club
38. Waynesboro	37°59'N 78°57'W	Crista Cabe	ccabe@mbc.edu	...	
39. Lexington	37°59'N 78°57'W	Dick Rowe	rowera@vmi.edu	...	...
40. Peaks of Otter	37°27'N 79°36'W	Barry Kinzie	peckerridge@ntelos.net	...	Woodpecker Nature Nature and Walley Bird Club
41. Fincastle	37°31'N 79°52'W	Barry Kinzie	peckerridge@ntelos.net	...	
42. Roanoke	37°18'N 79°56'W	William Hunley	wjhunley@gmail.com	...	...
43. Blacksburg	37°12'N 80°28'W	Patricia Polentz	polentz@va.net	Bruce Grimes	New River Valley Bird Club
44. Giles County	37°19'N 80°38'W	Bill Opengari	gramby@pemt.net	...	...
45. Tazewell	37°08'N 81°30'W	Sarah Cromer	cromersml@gmail.com	...	...
46. Mount Rogers-Whitetop	36°39'N 81°35'W	Allen Boynton	allenboynton@hughes.net	...	Blue Ridge Birders
47. Glade Spring	36°47'N 81°47'W	Ronald Harrington	roneharrin@bvunet.net	...	Bristol Bird Club
48. Blackford	37°00'N 81°55'W	Robert Riggs	bob26@insight.rr.com	...	...
49. Bristol	36°35'N 82°06'W	Richard Lewis	mountainbirds@gmail.com	...	...
50. Buchanan County	37°15'N 82°13'W	Tom Hunter	opiehunter@yahoo.com	...	Buchanan Co. Bird Club
51. Breaks Interstate Park	37°15'N 82°13'W	Jayd Raines	jraines@breaksark.com	...	...
52. Wise County	36°57'N 82°39'W	Randy Stanley	randy_stanley@comcast.net	...	...
Totals	...	...	...	...	...

THE 2012-2013 IRRUPTION OF FINCHES (FRINGILLIDAE) AS MONITORED AT KIPTOPEKE STATE PARK, NORTHAMPTON COUNTY, VIRGINIA

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ABSTRACT

From 30 September 2012 through 10 January 2013, the authors, along with many co-observers, counted and audio-recorded migrant finches (Fringillidae) of eight species from the raptor observation platform at Kiptopeke State Park, Northampton County, Virginia. The magnitude of the passage for many of these species was either unprecedented or had not occurred since the early to middle 1970s (Bock and Lepthien 1976). In addition to unprecedented counts of Pine Siskin (*Spinus pinus*) and White-winged Crossbill (*Loxia leucoptera*), and very high counts of Evening Grosbeak (*Coccothraustes vespertinus*) for recent decades, the authors and other observers documented record-high counts of Red Crossbill (*L. curvirostra*), principally of Type 3 but with a minority of Type 10 and one apparent Type 4. The only Types of Red Crossbill previously verified in the state are the two that nest in the state's mountains, Type 1 and Type 2.

This paper analyzes the timing and composition of the eight finch species' occurrences during the irruptions and offers audiospectrographic documentation for the single Type of Evening Grosbeak and three Types of Red Crossbill reported herein. For these species, and for White-winged Crossbill and Pine Siskin, historical records are discussed to provide context for the 2012-2013 irruptions. This paper is also intended as a demonstration of the value of project-oriented birding, particularly stationary counts, for understanding the status and distribution of irruptive species.

BACKGROUND

Kiptopeke State Park lies just north of the southern tip of the Delmarva Peninsula, called Wise Point, in Northampton County. The Park's southernmost point is ca. 4.25 km from Wise Point, and its northern edge is ca. 6.34 km from Wise Point. For 50 years, the area has been the locus of regular study of fall migrant passerines and raptors. In 1994-1995, a raised platform was erected to facilitate study of raptor migration, and a full-time raptor count was formalized in fall 1995. Hawkwatch compilers ("counters") have regularly made notes on other species of birds, bats, and insects that pass the platform, and the cumulative list of bird species 1979-2012 stands at 282 (Taber 2008, and unpubl. data). The platform is elevated 2.8 m above the ground in a bare field, with a view of Chesapeake Bay, some 0.75 km distant to the west-northwest. The view to the north is occluded by mature Loblolly Pines (*Pinus taeda*) in the Park campground 0.8 km

distant, as is the view due south and due west, but the view to the east and southeast remains relatively open as of 2013, with most pines only 6 m or less in height.

Kolbe began as hawkwatch compiler at the site on 1 September 2012, hired by the Coastal Virginia Wildlife Observatory (CVWO) to work through 30 November 2012. He also kept notes on other species of birds, although only the most notable were carefully counted. He remained on site through 4 December.

By mid-October, it was clear to Kolbe that in addition to a record-breaking flight of Red-breasted Nuthatches (*Sitta canadensis*; e.g., one-day count of 341 on 17 October), a substantial flight of finches (Fringillidae) was underway, mostly Pine Siskins (*Spinus pinus*) and American Goldfinches (*S. americanus*) but also Purple Finches (*Haemorhous purpureus*). He began to keep counts and notes on the finch flocks when they were close enough to identify; many at this time appeared to be following the Bay shore and were too distant to identify to species and/or seen too briefly to count. House Finches (*H. mexicanus*) were also often counted, as this species was also frequently a component of the daily finch flight at Kiptopeke, even though small numbers are established locally as nesters, mostly in the incorporated towns (Brinkley 2000).

By late October, larger finch species, including Evening Grosbeak (*Coccothraustes vespertinus*), White-winged Crossbill (*Loxia leucoptera*), and Red Crossbill (*L. curvirostra*), were observed moving southward down the coast of the middle Atlantic states (as documented via eBird, www.ebird.org), and the first representatives of these species reached Kiptopeke on 4, 4, and 8 November, respectively. As raptor migration diminished through November, many days having fewer than 10 individual raptors counted, the irruption of finches intensified, and we began keeping more rigorous tallies of each finch species. On 14 November, the first Common Redpoll (*Carduelis flammula*) was noted. Aware that a co-irruption of all of the northern Fringillids had not occurred in Virginia since the early 1970s, we reached out to the birding community via listserves for help in monitoring the flight at Kiptopeke.

Audio-recording of grosbeaks and Red Crossbills permitted us to identify many of them to Type (or Call Type); thus, during November and December, a concerted effort was made to record as many Red Crossbills as possible, to see if Type could be determined.

Because the counting of finches was an evolving effort at Kiptopeke, the Methods and Results sections below by no means indicate a consistent, dedicated survey; rather they represent an opportunistic effort to record as much as conditions and other duties permitted. Nevertheless, both counting and identification were conducted in a conservative manner, so the totals reported in the Results section are offered with confidence as minimum counts, particularly for the larger species. Moreover, many seasoned observers were on hand during the period, to help spot and identify finches, and their photographs, videographs, and other documentation were very helpful to us on many days. The finch flight was typically heaviest in the early morning hours, but days with exceptional movement featured finches throughout.

METHODS

From 30 September through 4 December, observers typically occupied the raptor platform from sunrise to late afternoon; after 4 December, Brinkley counted only during the early morning hours, with 10 January the last count day. Weather conditions (fog, rain, wind, snow, or some combination of them) did not permit counting at all on 19 days in that period and hindered counting on three other days. Informal checks of the Park later in January through February, mostly in the morning, revealed no evidence of a finch flight, with only small groups of southbound goldfinches and single siskins recorded on a few dates.

Observers typically stood near the middle of the platform, faced northward, and listened for calling finches, almost all of which (>99.5%) were recorded in southbound flight. Audio/video equipment was kept powered on and ready and was deployed for recordings mostly when grosbeaks and crossbills passed, but authors also attempted to audio-record redpolls. Kolbe used a Panasonic HDC-TM90 camcorder with a Sennheiser ME 66 shotgun microphone. Later in the count period, Brinkley used an iPhone5 equipped with recording software (FiRE2), along with the same Sennheiser microphone. Finch numbers were recorded as exact counts, as they passed by in small flocks, but large flocks required estimation. Unidentified or unidentifiable finches were not recorded; all identified finches were tallied through the day on a data sheet or in a notebook. Finches that were heard, but that were not seen (a fairly common experience on cloudless days, at least for grosbeaks and Red Crossbills), were entered into notes without estimates (as "x"). On many days, the large flocks of siskins and goldfinches simply could not be counted, because we were concentrating on raptors or other species; in those cases, a check mark (✓) was entered to indicate presence. Thus, the totals for both of these species presented here represent only a fraction of their actual passage in fall/winter 2012-2013.

Because both Pine Siskin and American Goldfinch attended the park's feeding station, we were mindful that

duplication in the counts of these species was a possibility. However, these feeder birds were not tallied unless they were observed taking flight and passing strongly to the south. On many occasions, southbound flocks of *Spinus* would take note of the feeding stations, alight and feed, and then continue southward; such recruitment was also observed at three feeding stations in Cape Charles by Brinkley in this season and also in autumn 2001.

The environment of the raptor observation platform was a challenging one for listening, as there were regular high-decibel interruptions from motor vehicles, mowers, generators, watercraft (outboard engines often cleaned of salt in the campground), helicopters (the site 0.8 km distant, over the harbor, is frequently used by the U. S. Navy for training pilots in hovering), as well as regular Park activities in the nearby campground, picnic shelters, and playground. Casual conversation on the platform itself was also surprisingly disruptive of monitoring efforts, as many of the finch calls (particularly Purple Finches and Type 3 Red Crossbills) are subtle and easily missed, particularly in the case of more distant birds. We suspect that hundreds, even thousands, of finches were not detected because of ambient noise.

Weather also had an impact on collection of data and probably on movement of the finches. The passage of Hurricane *Sandy* made it impossible to count at the site on 28, 29, or 30 October; extremely high winds of 18-30 m/sec (35-60 knots) on 21, 22, 26, and 30 December also prevented counting. Very heavy fog at the site on 15, 16, 17, and 27 December made counting impossible, while heavy rains prevented counting on 13 November (northeast gale), 8, 26, and 29 December, and 1, 2, and 6 January. A combination of fog and rain prevented counting 11, 12, 13, and 14 January. No counters were available for 15 and 25 December or for 8 January. It is likely that few passerines were actually migrating during the periods of adverse weather.

For the finch flight of 2012-2013, data collection was privileged for the larger taxa (Evening Grosbeak, White-winged and Red Crossbills) and particularly for Red Crossbill Types, treated in detail below. Careful counts of the two rosy-finches (Purple and House Finches) and of the two *Spinus* species were made only when other duties permitted, and so the season totals of these species are less informative and less precise. So few Common Redpolls were detected that the count is accurate, although it is very probable that more passed undetected among large flocks of siskins and goldfinches.

Under favorable meteorological conditions, we were able to detect passing flocks about 120 m to the east and west of the platform and perhaps as high as 200 m overhead; however, occasionally we saw flocks of finches much higher than this, often noted only because we were scrutinizing passing flocks of larger species, such as American Robins (*Turdus migratorius*) or blackbirds (Icteridae). Some of these

flocks were clearly higher than 1 km or more. In a few cases, such birds could be identified, but most could not be identified and were not recorded.

No attempt was made during the count period to ascertain whether flights of finches observed from other nearby locations, or indeed any locations on the Delmarva Peninsula, were comparable to those documented at Kiptopeke. Because many species of migrant birds at this latitude on the peninsula are known to migrate across a relatively broad front, it may be assumed that many more finches moved southward through the peninsula than were recorded in the 0.33-km-wide study site at Kiptopeke. The peninsula at the latitude of the site is 4.11 km wide.

A bird feeding station stocked with thistle seed and black oil sunflower seed 63 m north of the observation platform attracted the four smaller finches, with goldfinches being the most consistent patron, but a single redpoll was seen on two dates (14 and 18 November). On rare occasions, crossbills alit briefly in the pines near the feeders but were never seen to take seed or grit in the area. The presence of feeders did appear to attract migrants for some time; however, daily tallies of finches include chiefly flocks passing to the south of the platform, with the exception of some counts of House and Purple Finches, which may include birds that stopped over at the feeding station but were not observed continuing southward movements.

During the count period, we analyzed our recordings of finches by rendering the calls as audiospectrographs using Raven Lite 1.0 software from the Cornell Lab of Ornithology. These recordings were compared to the latest data available on Fringillid vocalizations, including the ten described Types of Red Crossbill (Young 2012). During the period of the count, we kept in frequent communication with observers at Cape May, New Jersey, and with Matthew Young at the Cornell Lab of Ornithology, whose knowledge of finch vocalizations is extensive and who was monitoring the Red Crossbill irruption daily on a continental scale.

RESULTS

Over some 636.08 hours of observation, 28,266 finches were identified and recorded by us and by Brian Taber, Robert L. Ake, Robert L. Anderson, Jeff Byrd, and others (Table 1, see pp. 43-44). This total includes 12,728 Pine Siskins, 12,229 American Goldfinches, 12 Common Redpolls, 498 Purple Finches, 225 House Finches, 158 White-winged Crossbills, 2334 Red Crossbills (or 2975 birds, if one adds estimates for heard-only birds; see below), and 82 Evening Grosbeaks. Much smaller numbers of all eight species were also detected at Cape Charles (about 12 km north) by Brinkley during this period, but the only other Red Crossbill detected on the entire Virginia coast otherwise was an unseen individual or small flock at Sunset Beach (about 4 km south of the study site) on 11 October (Brinkley and Robert L. Ake), possibly

of Type 3. For each species, the patterns of occurrence and significance of count results are considered below.

DISCUSSION

• Purple Finch

The first 3 Purple Finches of the season were heard flying over on 5 October, and small numbers were detected sporadically until mid-November, when larger numbers began to be detected at the count site. The count of 498 is the largest seasonal total ever for any part of the state's coastal plain. Reports to eBird indicate that the flight was well above average in the state's piedmont and mountains as well. Overall, most long-time observers comment that counts of Purple Finches have declined in Virginia since the 1980s, and this appears to be true throughout the eastern range of the species, where declines of 50-67% in breeding populations are estimated (Wootton 1996). In the context of recent decades then, as with Evening Grosbeak, the flight of 2012-2013 was anomalous, recalling the high counts of the early 1970s, such as the 420 recorded on the Little Creek CBC 31 December 1974 (Rottenborn and Brinkley 2007).

As was true of both crossbill species and of Evening Grosbeaks, Purple Finches were normally heard before they were seen, and many that were recorded were not seen at all. We attribute this difficulty in sound localization to the frequency of these species' flight calls, which makes the vocalizations seem almost ventriloquial. The flight call of Purple Finch is also very unobtrusive, and it is likely that numbers of Purple Finches passed undetected on days with ambient noise or higher wind velocities. For the heard-only Purple Finches (logged as "x"), we have converted all records to single birds rather than unseen flocks, so the total number would surely have been higher, had we been able to see all of them.

• House Finch

The season's total of 225 House Finches represents a small portion of the actual passage of this species at the count site. The counting of this species was not prioritized, although in hindsight, we should have paid more attention to this species, as the phenology of its movements here and elsewhere is poorly known.

Flocks of House Finches have been observed annually in southbound autumn movements at Kiptopeke and at Sunset Beach since at least the early 1990s (Brinkley, unpubl. data). These morning flights are indistinguishable in most characteristics—height of flight, flocking behavior, direction of flight, frequency of vocalization—from flights of migrating/irrupting finches of other species. Unlike movements of other finch species in southern Northampton County, the southward passage of House Finches here is a regular occurrence, mostly in October and early November (Rottenborn and Brinkley 2007). Such flights of House Finches are also observed annually at Cape May. The most current and most exhaustive publication on the life history of the species

(Badyaev et al. 2012) describes dispersal of juveniles from natal areas but makes no mention of irruptive or migratory movements in the East or elsewhere. Observations in 2012 included many adult males, not just females and/or juveniles, suggesting that something other than dispersal of juveniles is occurring. It is plausible that regular migratory movements (as opposed to sporadic irruptions) occur in the East, where the species is introduced; the subject requires study.

• Red Crossbill

The final total of Red Crossbills was 2334 individuals. The species was detected on 29 days during the count period (Figure 1; Table 2, see pp. 45-46). In addition, we recorded 50 unseen flocks (logged as "x") in southbound flight. Average flock size among the 2334 birds that were seen and counted was 12.8 birds (total seen birds divided by 182 flocks, including singles). Thus we estimate that the total of birds was probably closer to 2975. The vast majority of Red Crossbills, like Evening Grosbeaks, were first detected aurally, and the arrival of Red Crossbills provided the impetus for recording the Fringillids generally. The first Red Crossbill detected from the platform passed on 8 November, nearly a month after the 11 October record from Sunset Beach; the twelve observed 9 January were the last detected of the species.

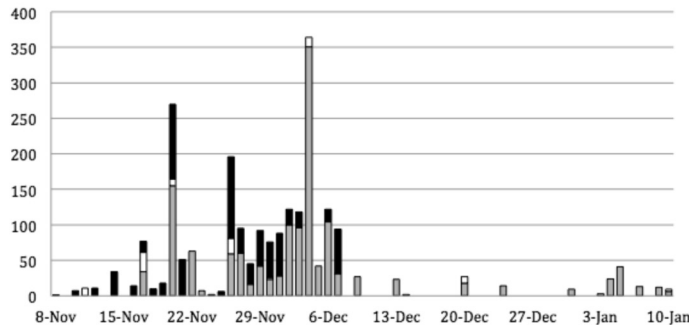


Figure 1. Occurrence of seen Red Crossbills (n=2334) at Kiptopeke State Park, 8 November 2012 through 10 January 2013. Type 3 (n=1403) is signified by gray bars, Type 10 is signified by white (n=100), and Red Crossbills for which Type was not determined (n=831) are signified by black bars. Figures 1, 5, 6, and 7 do not depict Red Crossbills that were heard but not seen, even those that were audio-recorded and identified to Type, as they could not be counted.

From mid-November through mid-December, Red Crossbills were recorded nearly every day (Table 2). The highest daily counts were of 270 on 20 November, 192 on 26 November, and 364 on 4 December. On several days, the diel timing of their movement was starkly different from that of other finch species. On days with slow or average numbers of finches moving, Red Crossbills normally went undetected after late morning, as was the case with the other finch species. However, on days of heaviest passage, such as 20 November and 4 December, the passage of Red

Crossbills spanned almost the entire daylight period, with flocks recorded well into the late afternoon. In such cases, Red Crossbill was the dominant or indeed the only species of finch moving, and flocks would seem to materialize "out of nowhere."

Recording and analysis of these calls by Kolbe indicate that they pertain to Type 3, Type 10, and Type 4 (Figures 2-4, p. 41), none of which have been reported or documented previously in Virginia. The Kiptopeke audio-recordings revealed that most Red Crossbills detected were of Type 3, which has been recorded from Alaska to New England but whose core range is apparently in the Pacific Northwest (Benkman 2007; Figure 2). At minimum, we identified 1403 seen individuals as Type 3; in addition, at least 10 of the 50 unseen flocks were identified as Type 3, so the actual total of Type 3 was probably closer to 1538, representing about half of the Red Crossbills detected over the course of the count period. Occurrence of this Type is represented graphically in Figure 5, which shows two peaks of passage, in the third week of November and the first week of December.

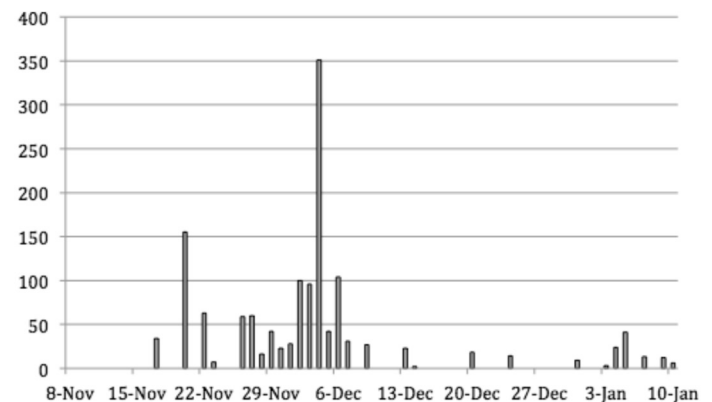


Figure 5. Occurrence of Type 3 Red Crossbills (n=1403) at Kiptopeke State Park, 8 November 2012 through 10 January 2013.

Type 10 Red Crossbills, which are also predominantly found in the Pacific Northwest but known to occur widely in the northeastern United States and adjacent areas of Canada as well (Irwin 2010, Young 2011, 2012), were likewise detected at Kiptopeke (Figure 4). Audio-recordings confirm at least 81 individuals of this Type in pure flocks. In addition, approximately 19 Type 10 Red Crossbills were present in four flocks that held both Type 3 and Type 10 individuals (documented mixed flocks totaled 92 individuals). Most of the Type 10 Red Crossbills were detected in mid- to late November (Figure 6), with only comparatively small numbers recorded in early December during the surge of Type 3 (Figure 7).

One individual identified as Type 4 was audio-recorded on 30 November (Figure 3). This Type is also from the Pacific Northwest, but irruptive activity to the Atlantic coast has not often been documented (Benkman 2007). There were widespread reports of Type 4, as far south as Maryland, during the 1997-1998 irruption of Red Crossbills (Iliff 1998b). Review of recordings from that irruption has revealed that the alleged Type 4 birds were in fact the similar Type 10 (Matthew Young, pers. comm.), a Type that was formally described in 2010 (Irwin 2010).

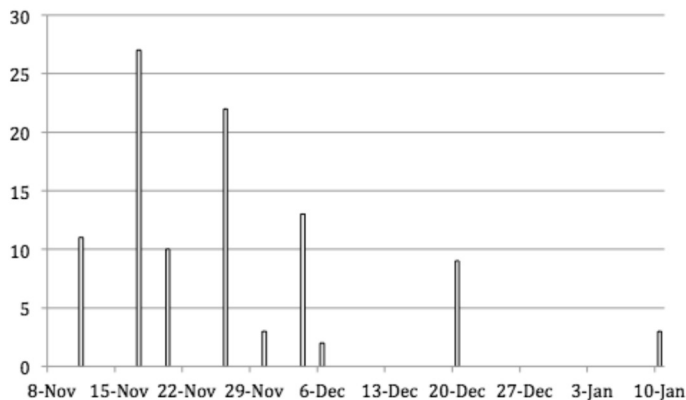


Figure 6. Occurrence of Type 10 Red Crossbills (n=100) at Kiptopeke State Park, 8 November 2012 through 10 January 2013.

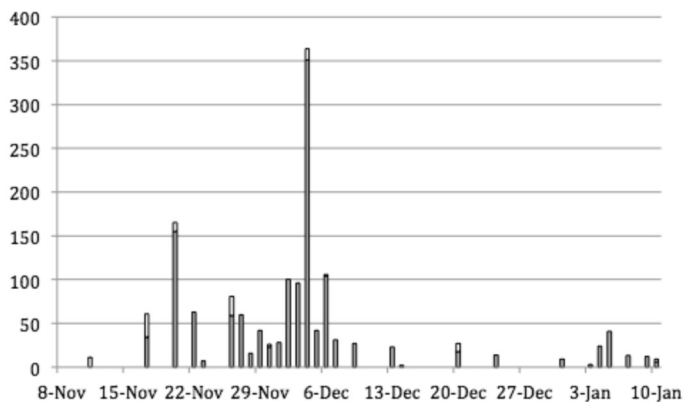


Figure 7. Co-occurrence of Type 10 and Type 3 Red Crossbills at Kiptopeke State Park, 8 November 2012 through 10 January 2013.

The Red Crossbill irruption as documented at Kiptopeke in 2012-2013 was relatively similar to the irruption documented at Cape May, although small numbers of Type 1 and Type 2 were recorded at Cape May in 2012, in addition to Type 3 and Type 10; Type 4 was not recorded there (Tom Reed, Michael O'Brien, pers. comm.). The irruptions of 1997-1998, recently re-analyzed by Matthew Young (pers. comm.), held both Type 3 and Type 10, but Type 10 was far more prevalent in that season, Type 3 much scarcer.

The many Red Crossbill flocks observed at Kiptopeke were only rarely seen perched. This behavior differed from that recorded at Cape May, where observers had frequent opportunities to study the crossbills perched and feeding. A possible explanation for this difference is that the Virginia Eastern Shore contains little suitable food for these particular Red Crossbill Types. Kiptopeke State Park's forested areas are dominated by Loblolly Pines along with a few Virginia Pines (*P. virginiana*). Loblolly Pines have rather large, tough cones, and they did not appear to be a suitable food source for the rather small-billed Type 3 and Type 10 Red Crossbills. Those Red Crossbills that did (briefly) land seemed to prefer the smaller Virginia Pines found in the park, but none of the Virginia Pines at the site appeared to have fresh cones. (The only observation of foraging by the species on the Eastern Shore is of 6 large-billed Red Crossbills feeding on Virginia Pine seeds, 27 December 1981, at Latimer Siding by Brinkley, Grayson Pearce, and others.) In southern New Jersey, Shortleaf Pine (*P. echinata*), Pitch Pine (*P. rigida*), and Japanese Black Pine (*P. thunbergii*) may have had fresh cones that were usable by some of the Red Crossbills.

At Cape May, southbound flocks of Red Crossbills were observed striking out in flight across Delaware Bay (Tom Reed, Sam Galick, pers. comm.). Only one comparable observation was made by Kolbe from Kiptopeke State Park on 3 December. A group of 9 southbound Red Crossbills passed the platform but then doubled back, briefly landing in a Loblolly Pine. After taking off, the flock headed west-southwestward out over the Bay and did not change trajectory while in binocular range. Although no similar records were obtained over Chesapeake Bay this season, it is our belief, based on their height of flight, speed, and direction, that many southbound flocks of Red Crossbills continued across the Bay. The few northbound flocks observed tended to have lower height of flight, lower speed, and in some cases appeared to be investigating potential places to land. For these reasons, we are of the opinion that the total of 2334 birds includes negligible or no duplication of individuals (with the potential exception of 11/12 November; Table 2). The only record of a Red Crossbill in flight over the Chesapeake Bay is of a single male coming in at Fort Story, Virginia Beach on 18 November 1978 (Brinkley, David L. Hughes et al.), but relatively few observers have been active at this season in such areas.

Historically, most of the Red Crossbills recorded on the Virginia coast have been in the context of the Cape Charles CBC, which has detected a total of 320 individuals on 17 counts; the species went unrecorded on that CBC 30 December 2012, owing to high winds, but was detected the next morning at Kiptopeke (Wes Teets, Brinkley). Most of the CBC-documented birds (257) were recorded in the irruptions of 1970-1976, but 15 were counted in 1969 and 19 in 1991, the most recent year with a substantial count. Two Red Crossbills seen at the Devil's Ditch (now a Natural Area

Preserve) in southern Northampton County 21 December 1999 (Brinkley et al.) were probably the same birds detected the day before on the CBC. South of the Bay, Red Crossbills are far less frequently recorded, and the species is considered quite rare in northeastern North Carolina. Directly south of Kiptopeke, the Little Creek CBC detected the species mostly in the 1970s (64 birds total in 1970, 1973, 1975, and 1976) but once in the 1980s (2 birds in 1986). Similarly, the Back Bay CBC still farther south has registered the species mostly in the 1970s (23 birds total in 1970, 1975, 1977, and 1978), with just one record from the 1980s (one bird in 1984). To the north, Red Crossbill has been recorded only in eight years on the Chincoteague CBC: 20 in 1964, 281 in the 1970s (1970, 1973, 1974, 1976, 1977), plus 2 birds each in 2000 and 2003. Many of these individuals were in the Maryland section of the Count Circle. Red Crossbills are more frequently encountered in tidewater Maryland than in coastal Virginia. Part of the reason for this disparity may be the superior birding coverage in Maryland, but the presence of Eastern White Pine (*P. strobus*) in Maryland has been suggested as another reason for the disparity (Ilf 1998b).

Since the institution of a regular September through November raptor count at Kiptopeke in 1995, records of migrating Red Crossbills have accumulated slowly. In 1999, Susan Cameron (pers. comm.) recorded the species in very small numbers almost daily from 22 October through late November, with a peak count of 22 on 3 November (Ilf 2000; the date and location given in Rottenborn and Brinkley [2007] are incorrect). In subsequent years, counters at Kiptopeke reported one bird on 14 October and 5 birds on 24 October 2000 (Brian L. Sullivan; Ilf 2001); one on 31 October 2001 (Calvin Brennan); and 3 on 30 October and one on 12 November 2005 (Sam Stuart; eBird). There are also two summer-season reports of Red Crossbill in eastern Virginia, from Fisherman Island 31 July 2000 (Brennan) and Kiptopeke 31 August 1985 (Bill Williams; Armistead 1986). None of these birds were audio-recorded or identified to Type, and no other records are known from Northampton County. Thus all records known for the Virginia coast pre-2012 combined were surpassed by just a few days' worth of counts at Kiptopeke in 2012.

• White-winged Crossbill

White-winged Crossbills were detected on 21 days during the count period, and 158 were tallied in total. The first White-winged Crossbills were 6 counted on 4 November, and the final flocks were detected on 7 January. The largest groups of White-winged Crossbills were seen moving through in early January, with a peak flight of 46 on 5 January. No specific effort was made to audio-record White-winged Crossbills, as this species is now considered monotypic. A few records of this species were obtained at Kiptopeke only because Kolbe was photographing fast-moving flocks of Red Crossbills and later noted White-winged Crossbills in the images (Figure 8).



Figure 8. Adult male White-winged Crossbill in flight with Red Crossbills at Kiptopeke State Park 20 November 2012. This White-winged Crossbill was detected only when the photograph was examined. Photograph by Stephen R. Kolbe.

Prior to 2012, Virginia's outer coastal plain had just ten records (total = 34 birds) of this species, and so the season total of 158 at Kiptopeke was notable, though not unexpected in light of the southward passage of hundreds of White-winged Crossbills at Cape May in October through December 2012, where such counts were also without precedent (Tom Reed, pers. comm.).

Recent Northampton County records of this species prior to 2012 come from Kiptopeke, with 1 on 28 November 1997 (Brian L. Sullivan; Ilf 1998a) and 3 on 23 November 2001 (Calvin Brennan), and from nearby Eastern Shore of Virginia National Wildlife Refuge, 5 on 18 November 1999 (Sullivan). One attended a feeder in Belle Haven, Accomack County 13 November 1997 (Wanda Isdell; Ilf 1998a). In the early 1970s, a few were noted in the context of the Cape Charles CBC, which recorded 2 per year in 1971, 1972, and 1973 and 4 birds in 1974 (and none since that time). The species went unrecorded on that CBC 30 December 2012, owing to very high winds, but was observed at Kiptopeke the next morning (Wes Teets, Brinkley). The only individuals recorded in the Northampton County away from Kiptopeke in 2012 were one at Cape Charles Central Park 4 November (Brinkley) and an injured female brought to a wildlife rehabilitator near Exmore 25 December (Figure 9, see p. 38). Other 2012 records included one bird at a feeder near Stumpy Lake, Virginia Beach 18-22 November 2012 (Jean Broughton), 2 along Jericho Ditch in the Great Dismal Swamp National Wildlife Refuge, Suffolk 22 November (Donald Schwab, Elisa Enders, Nick Flanders), and 8 birds at a feeder in Chesapeake in late November (Keith and Karen Roberts, *vide* Brian Taber).



Figure 9. Female White-winged Crossbill with broken right wing, in rehabilitation facility, 25 December 2012. This bird furnishes the only verified record for Accomack County and one of few for the coastal plain of Virginia. Photograph by Gay Frazee.

In Virginia's coastal areas otherwise, recent records are very few and include 2 males attending a feeder in Portsmouth 18 December 1999 through 9 March 2000 (Rottenborn and Brinkley 2007) and 12 at Chincoteague National Wildlife Refuge 25 November 2001 (Iliiff 2002). Cape Charles CBC is the only coastal count to have recorded the species, with the exception of the Nansemond River CBC, which recorded the Portsmouth birds in January 2000. Thus the 2012-2013 irruption well eclipsed all previous coastal Virginia records combined.

• Common Redpoll

Common Redpoll is a very scarce species in eastern and especially southeastern Virginia; for only one finch species, White-winged Crossbill, are there fewer records in this region. Although the autumn/winter season of 2012-2013 was an auspicious one for irruptions of both Common and Hoary (*C. hornemanni*) Redpolls in the Northeast, records of Common Redpoll in Virginia were few. At Kiptopeke, only 12 were counted in 2012-2013; one detection was ascertained only because audio-recording of crossbills happened to capture its distinctive flight call (Figure 10, see p. 42). In addition, Brinkley photographed the species in Cape Charles 14-15 November (one; at feeders) and 19 November (3 birds; along the town's main street) as well as at Mockhorn Island Wildlife Management Area 23 December (one bird, with siskins).

• Pine Siskin

Pine Siskins, which do not breed locally, were first detected 30 September, a typical arrival date at this site during irruptions. Substantial numbers arrived three weeks later, with over 150 counted on 23 October. From this date

through early November, large numbers of Pine Siskins moved through nearly every day, with 12,728 totaled by the end of the count period.

While the total counts of the two *Spinus* species at Kiptopeke during the 2012-2013 fall/winter season were very similar, the timings of their arrivals and their abundance levels over the four and a half months of the count were dissimilar. In the early portion of the count period, very few American Goldfinches were detected; most flocks of *Spinus* appeared to be purely Pine Siskins. Then, in early November, American Goldfinches showed up in force, and by the second week of November, the majority of migrating *Spinus* flocks included both siskins and goldfinches. In just a few days' time, however, there was a noticeable decline in numbers of siskins, with goldfinches outnumbering siskins 100:1 or more; most *Spinus* flocks during this period appeared to contain only goldfinches. After a week and a half, another wave of siskins arrived, and both species were again seen in excellent numbers through early January, sometimes in mixed flocks.

Both *Spinus* species have been previously recorded as migrants on the Chesapeake Bay Bridge-Tunnel facility, but siskin records are very few there. Robert L. Ake and Henry T. Armistead conducted a count from the northernmost island of the Chesapeake Bay Bridge-Tunnel on 10 November 2012 and counted 200 *Spinus* (roughly an even mixture of the two species) moving southward across the Bay, some of which alit in the limited grassy strips and attempted to forage. Because this location lies 10 km from the nearest point of land, at Fisherman Island, passerines observed there are also most certainly attempting to cross the mouth of the Bay. For instance, Ake and Armistead also recorded 2 House Sparrows (*Passer domesticus*) on that date, the very first record of this species for this heavily birded site and a likely indication of dispersal from the Eastern Shore, where the species nests sparingly in the limited urban areas (and is a rare nester on farms; Brinkley 2000). There are very few records of House Sparrows observed in southbound flight in Northampton County, but two such records were made in 2012 at Kiptopeke: a single bird on 27 November and 2 birds on 3 December.

The only comparable flights of Pine Siskins on the Eastern Shore of Virginia apparently occurred in fall 1969, 1970, 1987, and 1990 (although no totals are available), and in fall 2001 (Iliiff 2002), when hundreds were recorded; in many such irruptions, hundreds are still present in late December for the Christmas Bird Count (CBC) season. However, constant-effort, site-based surveys began only in 1995 at Kiptopeke, and prior to that year, most bird observations extended only through mid-October or so, with November and December receiving very little attention, and so the significance of the total of 12,728 siskins is difficult to gauge.

Kiptopeke's season total of siskins pales in comparison to a single-day flight of 20,275 siskins observed at Robert

Moses State Park, on Fire Island, New York 21 October 2012 (Shaibal S. Mitra, pers. comm.) or the three-day total of 18,380 from Cape May on 1-3 November 2012 (Tom Reed, pers. comm.). One must wonder whether thousands of these birds might have passed undetected through the latitude of Kiptopeke and, if so, where they might have passed. Reed reports that many birds observed from the Cape May hawkwatch platform were already out over the Delaware Bay, heading southward. We suspect, based on these reports from farther north and from the Chesapeake Bay Bridge-Tunnel observations, that southbound siskins continued across Chesapeake Bay in most cases, rather than reversing course at Wise Point and heading back northward, as so many Neotropical migrants do. Very few siskins were observed in northbound flight at Kiptopeke.

• American Goldfinch

American Goldfinches were detected in southbound flight at the site from 1 September until the end of the count period (and even sporadically well into mid-February 2013) but were scarce until late fall. This pattern is not unusual in the lower Eastern Shore of Virginia, as the species nests sparingly on the Delmarva Peninsula, and early-season goldfinches are likely to be local/regional nesters. Even though many goldfinches passed the site uncounted in 2012-2013, the total of 12,229 goldfinches is the highest seasonal count on record since counting of raptors and other birds began in an organized fashion at Kiptopeke in 1995 (Brinkley, unpubl. data). Nevertheless, the count may not be unusually high, and indeed the counting of goldfinches and other small finches was essentially collateral to data collection on crossbills and Evening Grosbeaks.

• Evening Grosbeak

The final count of Evening Grosbeaks for the season was 82, with the species detected on 17 days. The first grosbeak was heard on 4 November; the final detection occurred 13 December. Most Evening Grosbeaks were seen in early to mid-November, with a peak flight of 26 on 6 November.

As was true of most Red Crossbills and Purple Finches—but not true of *Spinus* finches—Evening Grosbeaks were typically detected first by their flight calls and not visually. Recording and analysis of these calls show the expected Type 3 (Figure 11, see p. 42), the nominate subspecies (*vespertinus*), the most widespread of the four Types/subspecies, nesting across the expanse of the boreal forest, into New England and northern New York (Sewall et al. 2004). Identifying and counting these colorful hawfinches in flight was not difficult, and many of the birds were photographed in addition to being audio-recorded. We estimate that no less than one third of the birds seen were adult males.

Of all the finches detected at Kiptopeke, Evening Grosbeak showed the strongest tendency to migrate very early in the morning. Only one detection occurred after mid-day, with all others being counted in the first three hours

after sunrise. For Evening Grosbeaks that were logged as “x” (not seen), we have entered these as single birds rather than flocks of unknown size, so the actual total would likely have been higher if we had been able to see all birds that passed.

Three other individuals were recorded on the Virginia coast in the 2012-2013 season, one at Sunset Beach 10 November (Todd Day, James Fox), an adult male photographed at Cape Charles 19 December (Brinkley), and an unseen calling bird at Arlington, Northampton County 2 January (Brinkley).

The total count of Evening Grosbeak would have been unremarkable in the period 1966-1977, when flocks of the species were irregularly encountered on Virginia's coastal plain (Rottenborn and Brinkley 2007). However, the only reports of the species in this region in the twenty-first century are from Kiptopeke, 2 birds on 2 November 2001 and 3 on 13 November 2001 (Calvin Brennan), plus a second-hand report of a single bird at Exmore, Northampton County in late September 2007 (Brinkley 2008). The only previous report from Kiptopeke in the context of the hawkwatch came 12 October 1985 (Bill Williams; Armistead 1986).

Christmas Bird Count records reflect well the abundance of the species from the late 1960s into the early 1980s. The Cape Charles CBC has recorded the species on 21 counts, for a total of 1608 birds, but the most recent record was from 1994 (10 birds); remarkably, just two counts, in 1969 and 1972, account for 1010 birds of the 1608. The Chincoteague CBC has also recorded the species 21 times, for a total of 815 birds (none since 1988). Abundance of the species was notably lower south of the Bay in that period: the Little Creek CBC has registered the species 15 times, a total of 383 individuals (none since 1994), and the Back Bay CBC has registered the species 14 times, with 259 individuals in total (none since 1986).

SUMMARY

Our observations of these eight finch species, restricted as they were to one site, represent just the tip of the iceberg. Moreover, coverage of late fall and winter seasons here has been very light, as most birders and research projects in the county have focused on September and October; only recently has coverage of the area extended into late November. Nonetheless, there are very few records of Red Crossbills in Virginia's outer coastal plain, no previous records from eastern Virginia of any Red Crossbills identified to Type—and none from *any* location in Virginia identified as Type 3, Type 4, or Type 10. Virginia's specimen record does contain Red Crossbills believed to be neither of Type 1 nor of Type 2 (Rottenborn and Brinkley 2007), but identification of a Red Crossbill to Type based solely on specimen material is not currently known to be possible.

We are unaware of any observations of eight finch species in a single day from any locations in the state; on

both 19 and 20 November, Kolbe registered all eight species at Kiptopeke, and Brinkley also recorded all eight species on 19 November, though some were noted only in the town of Cape Charles. Because the irruptions of finches to the north of Virginia were characterized as well above average in many areas, we suspect that the Kiptopeke observations were also historically noteworthy, especially for Red Crossbills. The so-called "super-flight" of finches in 1997-1998 (Berger 1998, Wells 1998) did not reach Virginia; the only comparable co-irruption documented in Virginia occurred in the early/mid-1970s (Bock and Lepthien 1976).

In truth, however, we have very little understanding of the significance of the 2012-2013 observations. Weather conditions, for instance, might have played a decisive part in the number of birds recorded. It is possible that the relatively stable weather of October and November (excluding the late hurricane), with long rain-free periods with moderate northerly winds, were propitious for observing the passage of finches at the site. In particular, the period of 13-20 November was characterized by mostly moderate northeasterly winds. Mid-November winds at the site are typically northwesterly, and comparative migration monitoring efforts on the seaside (Atlantic coast) and Bay side (at Kiptopeke) appear to indicate that concentration of diurnal migrant raptors is greater on the Bay side on days with easterly and northeasterly winds of >5 m/sec (~10 knots), presumably owing both to wind drift and to the concentrating effect of the Bay coastline (CVWO, unpubl. data). It is possible that migrating finches follow a similar path, and that light easterly winds would make the observation platform at Kiptopeke an ideal place to see the maximum number of finches under such conditions.

While making observations of finches and other birds at Kiptopeke through the late autumn and into midwinter, we became increasingly aware of how many data-deficient species we observed over the course of this season, not just scarce migrants such as Lapland Longspur (*Calcarius lapponicus*) but more common ones whose status and/or distribution have changed in recent decades, such as Red-bellied Woodpecker (*Melanerpes carolinus*), American Crow (*Corvus brachyrhynchos*), and Rusty Blackbird (*Euphagus carolinensis*). Indeed, even the movements of familiar species such as American Goldfinch and House Finch are little studied or understood in the region.

Regular monitoring of passerines and near-passerines using various technologies (sound recordings, radar, stationary surveys) would make challenging, worthwhile projects at this dynamic location. We encourage all birders to tender their observations to Project eBird, and in particular we encourage constant-effort, site-based surveys, which provide the most useful data in citizen-science contexts such as the Kiptopeke "finch count."

ACKNOWLEDGMENTS

The authors express their gratitude to all co-observers of finches but especially to those who helped in obtaining recordings, photographs, videotapes, and accurate counts of the rarer finches in 2012-2013: Robert L. Ake, Robert L. Anderson, Jeff Byrd, Brian Taber (President, CVWO), and Wes Teets. Coastal Virginia Wildlife Observatory's enthusiasm for this impromptu "piggy-backed" project of counting finches is also very much appreciated. For information on finch flights to the north of Virginia, we thank Tom Reed, Samuel Galick, Michael O'Brien, and Shaibal S. Mitra. For help in rendering and interpreting audiospectrographs, we thank Matt Young and Michael O'Brien; for their careful reading of early drafts of this manuscript and helpful revisions, we thank Matt Young, Perri Borowiecki, David Shoch, Brian Taber, Robert L. Anderson, and Michael O'Brien.

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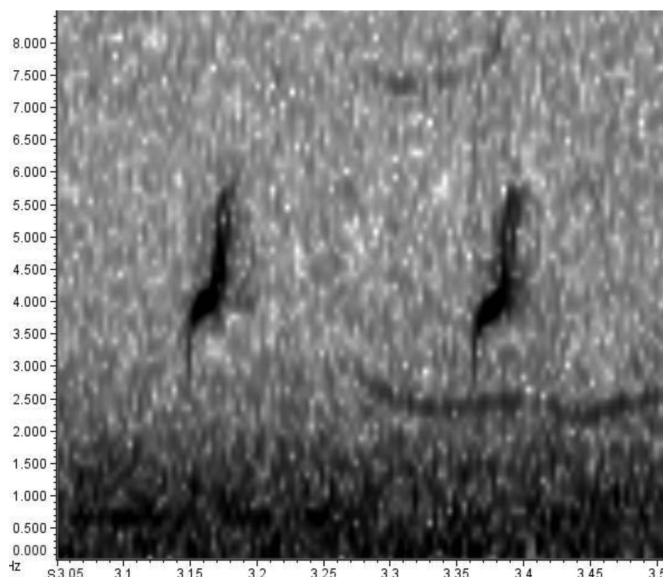


Figure 3. Typical flight calls of Type 10 Red Crossbill, recorded 20 November 2012 at Kiptopeke State Park. Recording and audiospectrograph by Stephen R. Kolbe.

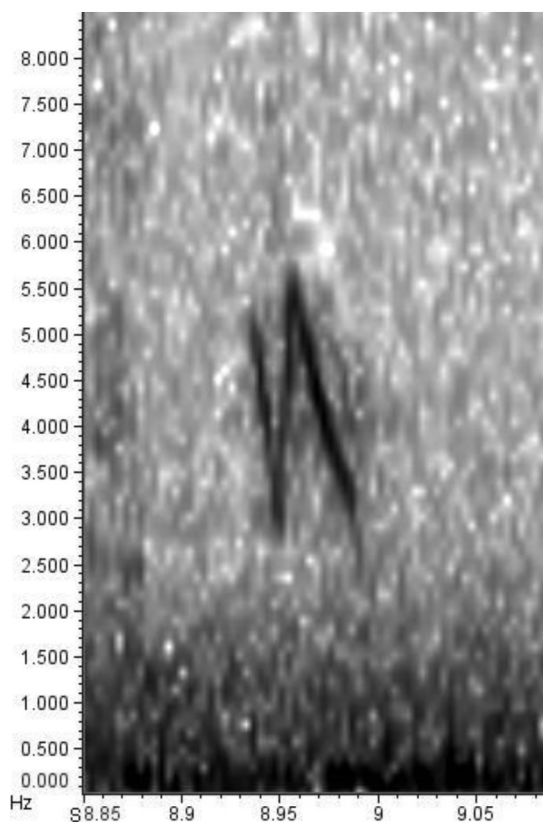


Figure 2. Typical flight call of Type 3 Red Crossbill, recorded 1 December 2012 at Kiptopeke State Park. Recording and audiospectrograph by Stephen R. Kolbe.

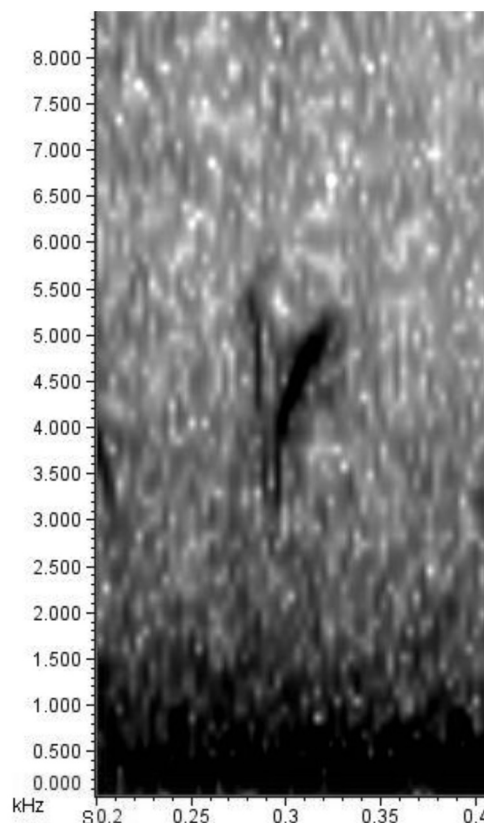


Figure 4. Flight call of apparent Type 4 Red Crossbill, recorded 30 November 2012 at Kiptopeke State Park. Recording and audiospectrograph by Stephen R. Kolbe.

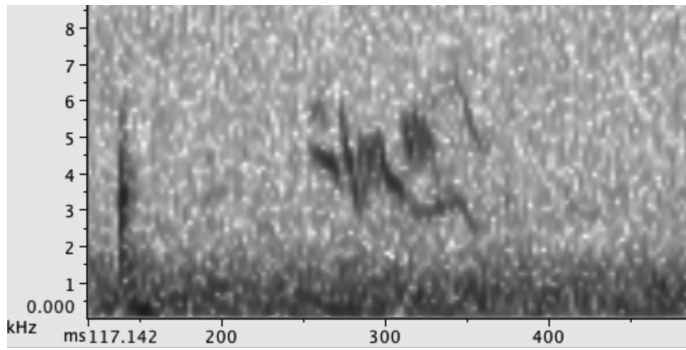


Figure 10. Typical flight call of Common Redpoll, recorded at Kiptopeke State Park 20 December 2012. This bird was recorded only while attempting to record Red Crossbills. Recording by Edward S. Brinkley, audiospectrograph by Michael O'Brien.

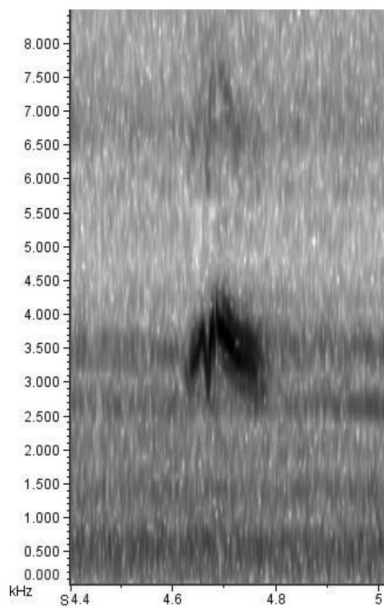


Figure 11. Typical flight call of Type 3 Evening Grosbeak, recorded at Kiptopeke State Park 10 November 2012. Recording and audiospectrograph by Stephen R. Kolbe.

Table 1. Counts of Fringillid finches at Kiptopeke State Park, Virginia, September 2012 through January 2013 (85 dates). Counts or estimates are provided except in the case of the more numerous species, for which counts were not made on all days. A check mark (✓) indicates presence of a species on a given date, but no count or estimate.

Date	Hours	Purple Finch	House Finch	Red Crossbill		White-winged Crossbill	Common Redpoll	Pine Siskin	American Goldfinch	Evening Grosbeak
				Number seen	flocks heard					
30-Sep	12	0	1	0	0	0	0	2	1	0
1-Oct	9.75	0	0	0	0	0	0	0	✓	0
2-Oct	11.5	0	0	0	0	0	0	0	✓	0
3-Oct	11.75	0	0	0	0	0	0	0	1	0
4-Oct	11.75	0	3	0	0	0	0	3	✓	0
5-Oct	11.75	3	1	0	0	0	0	174	1	0
6-Oct	11.5	0	0	0	0	0	0	3	1	0
7-Oct	10.5	0	0	0	0	0	0	12	✓	0
8-Oct	8	0	0	0	0	0	0	32	2	0
9-Oct	11	0	0	0	0	0	0	✓	✓	0
10-Oct	11.5	0	0	0	0	0	0	14	1	0
11-Oct	11.5	0	75	0	1	0	0	51	2	0
12-Oct	11.25	0	4	0	0	0	0	100	✓	0
13-Oct	11	8	3	0	0	0	0	70	✓	0
14-Oct	11	1	0	0	0	0	0	111	✓	0
15-Oct	10	0	0	0	0	0	0	28	✓	0
16-Oct	10.5	2	0	0	0	0	0	81	25	0
17-Oct	11	25	18	0	0	0	0	380	120	0
18-Oct	11	1	0	0	0	0	0	50	✓	0
19-Oct	11	0	0	0	0	0	0	19	✓	0
20-Oct	11.25	1	5	0	0	0	0	56	4	0
21-Oct	10.5	4	0	0	0	0	0	46	10	0
22-Oct	11	1	0	0	0	0	0	61	✓	0
23-Oct	11	0	0	0	0	0	0	150	✓	0
24-Oct	10.75	0	2	0	0	0	0	250	✓	0
25-Oct	10.75	0	0	0	0	0	0	✓	✓	0
26-Oct	10.25	0	0	0	0	0	0	✓	✓	0
27-Oct	8.25	0	1	0	0	0	0	45	✓	0
31-Oct	9.25	0	0	0	0	0	0	720	✓	0
1-Nov	10.25	2	1	0	0	0	0	680	✓	0
2-Nov	9.5	0	0	0	0	0	0	500	✓	0
3-Nov	9.5	0	0	0	0	0	0	✓	✓	0
4-Nov	10.25	0	0	0	0	6	0	260	300	1
5-Nov	10.5	0	0	0	0	0	0	✓	✓	22
6-Nov	9.5	0	0	0	0	1	0	✓	✓	26
7-Nov	6.5	0	0	0	0	0	0	✓	✓	0
8-Nov	9.25	1	1	1	0	0	0	✓	✓	1
9-Nov	10	4	4	0	0	0	0	✓	100	4
10-Nov	10.25	5	3	7	0	2	0	500	800	1
11-Nov	9.5	80	31	11	0	2	0	830	1200	0
12-Nov	9.5	16	0	11	0	0	0	150	350	0

Table 1, continued

Date	Hours	Purple Finch	House Finch	Red Crossbill		White-winged Crossbill	Common Redpoll	Pine Siskin	American Goldfinch	Evening Grosbeak
				Number seen	flocks heard					
14-Nov	9.25		5	34	0	0	1	100	380	5
15-Nov	9.25	1	1	0	0	0	1	✓	✓	2
16-Nov	9.25	6	1	14	0	0	0	25	150	0
17-Nov	9.25	18	2	77	3	1	0	120	300	1
18-Nov	8	0	0	10	0	3	2	15	50	0
19-Nov	8	2	4	20	2	2	1	6	200	2
20-Nov	8	45	5	270	2	4	1	50	300	8
21-Nov	8	55	1	56	5	0	1	70	190	1
22-Nov	2	39	17	63	2	1	0	65	240	0
23-Nov	7	0	0	8	1	1	0	✓	✓	0
24-Nov	8	0	0	2	1	0	0	✓	✓	0
25-Nov	8	5	4	6	0	0	0	50	30	0
26-Nov	9	0	5	192	6	0	0	150	300	0
27-Nov	8	40	2	95	1	0	0	300	500	1
28-Nov	8	✓	0	45	1	0	0	✓	✓	0
29-Nov	8	✓	0	92	2	2	0	✓	✓	0
30-Nov	8.75	✓	0	73	2	0	0	✓	✓	0
1-Dec	3	40	12	88	0	0	0	900	500	2
2-Dec	3	0	0	122	3	0	0	25	25	0
3-Dec	5	1	2	118	2	0	0	560	330	1
4-Dec	4.25	41	1	364	8	0	1	1550	1230	0
5-Dec	2	1	0	42	3	0	0	85	60	0
6-Dec	3	2	0	122	0	1	0	35	600	3
7-Dec	3	1	0	94	0	0	0	25	25	0
9-Dec	4.5	3	2	27	0	0	0	110	150	0
10-Dec	2	0	0	9	0	0	0	45	50	0
11-Dec	4	1	0	0	0	0	0	0	38	0
12-Dec	3	1	0	93	0	15	0	240	189	0
13-Dec	3	8	0	23	1	1	0	389	578	1
14-Dec	2	6	2	2	2	1	0	270	350	0
18-Dec	2	0	0	0	0	0	0	7	71	0
19-Dec	2.33	0	2	0	1	0	0	55	110	0
20-Dec	3	1	2	27	0	0	1	640	770	0
23-Dec	2	0	0	0	0	0	0	32	121	0
24-Dec	2	1	1	14	1	0	0	18	104	0
28-Dec	2	1	0	0	0	0	0	23	45	0
30-Dec	1	4	0	0	0	0	0	3	9	0
31-Dec	3	6	0	9	0	22	0	1125	890	0
3-Jan	2	8	1	3	0	20	2	95	120	0
4-Jan	2	3	0	24	0	8	1	58	79	0
5-Jan	4	1	0	41	0	46	0	45	60	0
7-Jan	2.5	2	0	13	0	19	0	45	120	0
9-Jan	2	1	0	12	1	0	0	13	44	0
10-Jan	2	0	0	0	0	0	0	6	3	0
TOTALS	636.08	498	225	2334	51	158	12	12728	12229	82

Table 2. Detection of Red Crossbill Types at Kiptopeke State Park, Virginia, October 2012 through January 2013 (45 dates).

Because many Red Crossbills were heard but not seen, counters gathered data on unseen (column 4) as well as seen flocks. Flock sizes were recorded in the case of Type 3, Type 10, and Unknown Types (columns 8, 9, 10); flock counts are separated by commas. Flock counts followed by [m] were those judged to be a mixture of Types 3 and 10 (columns 8, 9), based on audio-recordings.

Date	Hours	Total seen, all Types	Total Unseen flocks	Type 3	Type 10	Unknown Type	Flock sizes, Type 3	Flock sizes, Type 10	Flock sizes, silent/unknown Type	Notes
11-Oct	0.1	0	[1]	[1]	0	0				First of season, at Sunset Beach
8-Nov	9.25		0	0	0	1			1	First of season from platform
9-Nov	10	0	0	0	0	0				
10-Nov	10.25	7	0	0	0	7			1,6	
11-Nov	9.5	11	0	0	11	0		11		First audiorecording. First Type 10.
12-Nov	9.5	11	0	0	0	11			11	Possible duplication of previous day?
14-Nov	9.25	34	0	0	0	34			22,12	
15-Nov	9.25	0	0	0	0	0				
16-Nov	9.25	14	0	0	0	14			14	
17-Nov	9.25	77	3	34	27	16	40 [m]	21, 40 [m]	9,7	One unseen flock was first audiorecorded Type 3.
18-Nov	8	10	0	0	0	10			10	
19-Nov	8	20	2	0	0	18			18	
20-Nov	8	270	2	155	10	105	16, 26, 7 [m], 15 [m], 21, 34, 30 [m], 7, 9	7 [m], 15 [m], 30 [m]	2, 2, 50, 40, 11	
21-Nov	8	51	5	0	0	51			12, 5, 16, 9, 9	One unseen flock = Type 3 audiorecorded.
22-Nov	2	63	2	63	0	0	11, 8, 15, 19, 9, 10			Unseen flocks = Type 3
23-Nov	7	7	1	7	0	0	7			Flock of 7 seen multiple times
24-Nov	8	2	1	0	0	2			2	
25-Nov	8	6	0	0	0	6			6	
26-Nov	9	196	6	59	22	115	9, 20, 30	18, 4	27, 17, 2, 13, 9, 13, 16, 4, 14	One (large) unseen flock = Type 3 audiorecorded.
27-Nov	8	95	1	60	0	35	3, 11, 19, 27		35	
28-Nov	8	45	1	16	0	29	16		10, 18, 1	
29-Nov	8	92	2	42	0	50	20, 18, 4		9, 9, 3, 15, 14	One unseen flock = Type 3
30-Nov	8.75	73	2	23	3	50	9, 2, 12	3	2, 8, 5, 15, 8, 9	One of Unknown Types apparently Type 4.

Table 2, continued.

Date	Hours	Total seen, all Types	Total Unseen flocks	Type 3	Type 10	Unknown Type	Flock sizes, Type 3	Flock sizes, Type 10	Flock sizes, silent/ unknown Type	Notes
1-Dec	3	88	0	28	0	60	5, 3, 14, 1, 1, 3, 1		19, 1, 22, 7, 11	
2-Dec	3	122	3	100	0	22	24, 3, 10, 22, 3, 6, 2, 14, 12, 4		9, 12, 1	
3-Dec	5	118	2	96	0	22	16, 11, 5, 3, 21, 17, 5, 18		2, 8, 9, 3	
4-Dec	4.25	364	8	351	13	0	13, 35, 12, 17, 8, 13, 27, 12, 56, 28, 24, 30, 12, 20, 27, 13, 17	13		Unseen flocks = Types 3 (5 birds) and 10 (one)
5-Dec	2	42	3	42	0	0	20, 6, 16			Unseen flocks = Types 3, 10, and Unknown
6-Dec	3	122	0	104	2	16	21, 1, 27, 24, 18, 2, 11	2	3, 13	Flock of 3 birds giving very loud, harsh calls, unfamiliar, possibly Type 2?
7-Dec	2.5	94	0	31	0	63	14, 4, 4, 9		3, 4, 18, 38,	
9-Dec	6	27	0	27	0	0	13, 14			
10-Dec	1.75	9	0	0	0	0				
12-Dec	2	93	0	0	0	0				
13-Dec	3	23	1	23	0	0	8, 15			Unseen flock = Type 3
14-Dec	2	2	2	2	0	0	2			Unseen flocks = Type 3
19-Dec	3	0	1	0	0	0				Unseen flock = Type 3
20-Dec	3	27	0	18	9	0	18	9		
23-Dec	2	0	0	0	0	0				
24-Dec	2	14	1	14	0	0	9, 2, 3			Unseen flock = Type 3
31-Dec	3	9	0	9	0	0	7, 2			
3-Jan	2	3	0	3	0	0	3			
4-Jan	2	24	0	24	0	0	19, 5			
5-Jan	4	41	0	41	0	0	18, 20, 2, 1			Unseen bird / flock = Type 3
7-Jan	2.5	13	0	13	0	0	4, 6, 3			
9-Jan	2	12	1	12	0	0	12			

ANNUAL REPORT OF THE VIRGINIA AVIAN RECORDS COMMITTEE

WENDY EALDING, VARCOM SECRETARY

1384 Palmore Road, Powhatan, VA 23139

The 2012 Virginia Avian Records Committee (VARCOM) included Robert Ake (Chair), Alan Schreck, Bill Williams, Arun Bose, John Spahr, Andrew Baldelli, Nick Flanders and Dick Rowe.

During 2012, the Committee made a major revision of the Review List, which included a much simpler layout and the division of the Coastal Plain region into two subregions, Eastern and Western Coastal Plain.

These changes were posted on the revamped version of the VARCOM web site (now available at http://www.virginiabirds.net/varcom_reviewlist.html)

We are indebted to Arun Bose for his work on the new VARCOM web site (see <http://www.virginiabirds.net/varcom.html>), which includes an updated version of the Virginia Official List and a list of recent changes.

Chair Ake has initiated a senior class project with ODU Computer Science students to develop an online data entry and records management system for VARCOM. This is known as DOVES (Database for Ornithological Verification and Submission).

The following decisions were made by the Virginia Avian Records Committee during calendar year 2012. Accepted records fall into one of the following Categories, as specified in VSO bylaws:

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

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

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

Category 4. Records that are judged to be acceptable by historical standards but that may not meet current standards of acceptance, including extinct species that once occurred in Virginia, for which there is no clear written or physical evidence. In this Category, VARCOM currently includes Trumpeter Swan, Eskimo Curlew, Carolina Parakeet and Bachman's Warbler. No status or Category is given to Labrador Duck, Greater Prairie-Chicken, Whooping Crane, Great Auk, or Ivory-billed Woodpecker, which may have occurred in Virginia in centuries past but for which no extant conclusive documentation is known.

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

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

The Committee disposed of 74 records during 2012; of these 72 were accepted and two were not accepted.

First Virginia records were accepted for three species: Eurasian Green-winged Teal, Black-tailed Godwit, and Brewer's Sparrow. Details of these and of other records and actions are listed below.

The following codes are used in the accounts:

† = written documentation

ph. = photograph

vr. = voice recording

vt. = videotape

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

Accepted Records

BLACK-BELLIED WHISTLING DUCK (*Dendrocygna autumnalis*) One individual, Richmond City [Bose and Freeman] May 19-25, 2009, Category 1 (ph., †); third Piedmont record

BLACK-BELLIED WHISTLING DUCK (*Dendrocygna autumnalis*) Seven individuals, Prince William County [T. Day] June 29, 2011; Category 2 (†); fourth Piedmont record

BLACK-BELLIED WHISTLING DUCK (*Dendrocygna autumnalis*) one individual, Chincoteague [Eder, Bruno, Elmer] July 16-August 6, 2011; Category 1 (ph., †); fifth Coastal Plain record since 2002

GREATER WHITE-FRONTED GOOSE (*Anser albifrons*) One individual, Loudoun County, [Taylor, Noe] December 28, 2011; Category 1 (ph., †); second Piedmont record since 2011

GREATER WHITE-FRONTED GOOSE (*Anser albifrons*) One adult, Clarke County [Fox] February 9, 2012; Category 1 (ph., †); eighth Mountains and Valleys record, and fifth since 2001

GREATER WHITE-FRONTED GOOSE (*Anser albifrons*) 13 individuals, Augusta County, [Larner, Warren, Carwile] February 23- March 6, 2012; Category 1 (ph., †); ninth Mountains and Valleys record, and sixth since 2001

GREATER WHITE-FRONTED GOOSE (*Anser albifrons*) Two individuals, Fauquier County [T. Day] February 24, one individual, March 5, 2012; Category 1 (ph., †); third Piedmont record since 2011

GREATER WHITE-FRONTED GOOSE (*Anser albifrons*) One adult, Fauquier County [Koppel and Koeneke] March 4, 2012; Category 2 (†); fourth Piedmont record since 2011

ACKLING GOOSE (*Branta hutchinsii*) One adult, Fauquier County [Koppel and Koeneke] March 4, 2012; Category 2 (†); second Piedmont record since 2004 split from Canada Goose

EURASIAN GREEN-WINGED TEAL (*Anas crecca crecca*) One adult male, Chincoteague NWR, Accomack County [Armistead], February 13, 2012; Category 1 (ph., †); first photographic state and Coastal Plain record (currently recognized only as subspecies by AOU)

PACIFIC LOON (*Gavia pacifica*) One adult, Kerr Reservoir, Mecklenburg County [D'Onofrio, Glass] April 1, 2012; Category 2 (†); 14th state and eighth Piedmont record

HORNED GREBE (*Podiceps auritus*) one individual, Northumberland County [Saunders and Saunders] July 3, 2011; Category 2 (†); third summer record

EARED GREBE (*Podiceps nigricollis*) One individual, Augusta County [Larner, Carwile, Mapel] November 16, 2011; Category 1 (ph., †); third Mountains and Valleys record since 2004

ANHINGA (*Anhinga anhinga*) One individual, Hanover County, [Houston, Koppel] July 22 through August 19, 2012; Category 1 (ph., †); fourth Western Coastal Plain record north of I-64

BROWN PELICAN (*Pelecanus occidentalis*) One juvenile, Kerr Reservoir, Mecklenburg County, [D'Onofrio, Glass] February 2-4, 2012; Category 1 (ph., †); first Piedmont record since 1987

GREAT EGRET (*Ardea alba melanorhynchos*) 1 individual, Accomack County, June 27, 2009, [Glenn Koppel, Mary Alice Koeneke]; Category 1 (ph., †) as *A. alba* only

SNOWY EGRET (*Egretta thula*) One adult, Halifax County [D'Onofrio] August 7, 2012; Category 1 (ph., †); second Piedmont record since 2007

WHITE IBIS (*Eudocimus albus*) One juvenile, Loudoun County [Good, Hamilton] July 16-24, 2011; Category 1 (ph., †); ninth Piedmont record since 2005

WHITE IBIS (*Eudocimus alba*) One individual, Augusta County, [Larner, Warren] July 14, 2012; Category 1 (ph., †); sixth Mountains and Valleys record since 2007

WHITE IBIS (*Eudocimus alba*) One juvenile, Loudoun County, [Keyes and Mies-Keyes] August 4, 2012; Category 1 (ph., †); tenth Piedmont record since 2005

GLOSSY IBIS (*Plegadis falcinellus*) One individual, Rockingham County [Leigh] April 29, 2012; Category 1 (ph., †); first Mountains and Valleys record

GLOSSY IBIS (*Plegadis falcinellus*) One individual, Augusta County [Larner, Mapel and Mapel] June 1, 2012; Category 1 (ph., †); second Mountains and Valleys record

WHITE-FACED IBIS (*Plegadis chihi*) One adult, Chincoteague NWR, Accomack County [Ake, Houghton] June 11, 2012; Category 1 (ph., †); eighth Coastal Plain record

SWALLOW-TAILED KITE (*Elanoides forficatus*) One individual, Louisa County [Fairman] August 6, 2012; Category 2 (†); fifth Piedmont record since 2002

SWALLOW-TAILED KITE (*Elanoides forficatus*) One individual, Pulaski County [Bentley] August 7, 2012; Category 2 (†); first Mountains and Valleys record reviewed by VARCOM; Gold Book indicates four prior records

SWALLOW-TAILED KITE (*Elanoides forficatus*) Two individuals, Rockbridge County [Rowe] August 10 - September 8, 2012; Category 1 (ph., +); second Mountains and Valleys record reviewed by VARCOM; Gold Book indicates four prior records

MISSISSIPPI KITE (*Ictinia mississippiensis*) One individual, Rockfish Gap Hawkwatch – Augusta, Nelson and Albemarle Counties [Tekin] August 29, 2009; Category 1 (ph., +); 11th Mountains and Valleys record, fourth since 2005

MISSISSIPPI KITE (*Ictinia mississippiensis*) One juvenile, Rockbridge County [Laubach, Nebel] August 19, 2012; Category 1 (ph., +); 13th Mountains and Valleys record, sixth since 2005

SANDHILL CRANE (*Grus canadensis*) One individual, Rockbridge County [Rowe] September 5, 2012; Category 1 (ph., +); 13th Mountains and Valleys record, eighth in past 10 years

AMERICAN GOLDEN-PLOVER (*Pluvialis dominica*) One adult, Halifax County [Glass, D'Onofrio,] September 3, 2012; Category 1 (ph., +); this is the first record for the Piedmont south of I-64 to be reviewed by VARCOM

AMERICAN AVOCET (*Recurvirostra americana*) One individual, Rockingham County [Leigh] December 3, 2011; Category 1 (ph., +); third record, and first winter record, for the Mountains and Valleys

AMERICAN AVOCET (*Recurvirostra americana*) Four individuals, Rockingham County [Leigh] May 1, 2012; Category 1 (ph., +); fourth Mountains and Valleys record

AMERICAN AVOCET (*Recurvirostra americana*) One individual, Huntley Meadows Park, Alexandria, [Hawkins, Bowen, Patton] July 14, 2012; Category 2 (+): sixth Western Coastal Plain record since 2005

AMERICAN AVOCET (*Recurvirostra americana*) One individual, Rockbridge County [Rowe] September 12-22, 2012; Category 1 (ph., +); fifth Mountains and Valleys record

WESTERN WILLET (*Tringa semipalmata inornata*) One adult, Highland County [Spahr] May 2, 2012; Category 2 (+); first Mountains and Valleys record for the subspecies (currently only recognized as subspecies by AOU)

BLACK-TAILED GODWIT (*Limosa limosa*) One individual, Chincoteague NWR [Dudek, Gutberlet] August 8-11, 2012 and October 6-26, 2012 [Baranoff, Leigh, Orcutt]; Category 1 (ph., +); first state and Coastal Plain record

MARBLED GODWIT (*Limosa fedoa*) One individual, Mecklenburg County, [D'Onofrio, F. Day] August 12-28, 2011, 2012-010; Category 1 (ph., +); second Piedmont record

RUDDY TURNSTONE (*Arenaria interpres*) One juvenile, Halifax County [Glass, D'Onofrio,] September 3 and 9, 2012; Category 1 (ph., +); seventh Piedmont record, second since 2002

SANDERLING (*Calidris alba*) Two juveniles, Halifax County [D'Onofrio, Glass, F. Day] September 3, 2012; Category 2 (+); this is the first Piedmont record to be reviewed by VARCOM although the Gold Book indicates about 17 fall records

BAIRD'S SANDPIPER (*Calidris bairdii*) Four juveniles, Halifax County [D'Onofrio, Glass, F. Day] September 3, 2012; Category 2 (+); second Piedmont record since 2001

BUFF-BREASTED SANDPIPER (*Tryngites subruficollis*) 16 individuals, Halifax County [D'Onofrio, Glass, F. Day] September 3, 2012; Category 1 (ph., +); seventh Piedmont record, third since 2002

RUFF (*Philomachus pugnax*) One Reeve, Chincoteague NWR, Accomack County [Ake, Brennan] May 7-27, 2012; Category 2 (+); third Coastal Plain record since 2005

RUFF (*Philomachus pugnax*) One juvenile, Chincoteague NWR, Accomack County [Hohenstein] August 30, 2012; Category 1 (ph., +); fourth Coastal Plain record since 2004

RED PHALAROPE (*Phalaropus fulicarius*) One individual, Craney Island [Williams et al] July 28 – August 4, 2011; Category 1 (ph., +); first Coastal Plain onshore record since 2003

RED PHALAROPE (*Phalaropus fulicarius*) Four individuals, Craney Island [Williams, Richardson, Beck, Minarik, Taber] October 6, 2011; Category 1 (ph., +); second Coastal Plain onshore record since 2003

SOOTY TERN (*Onychoprion fuscatus*) Two individuals, Prince Edward County [Spears, Spears, Stinson and Stinson] August 27, 2011; Category 2 (+); first Piedmont record since 1996

SANDWICH TERN (*Thalasseus sandvicensis*) One adult, Northumberland County [Flanders, Saunders] July 24, 2011; Category 2 (+)

PARASITIC JAEGER (*Stercorarius parasiticus*) One individual, Fairfax County [Newberry and Newberry] August 28, 2011; Category 2 as *Stercorarius sp.* (+)

CALLIOPE HUMMINGBIRD (*Selasphorus calliope*) One female, Prince William County [Meade, Peterjohn] December 1, 2011 – April 14, 2012; Category 1 (ph., +); third state and second Piedmont record

SELASPHORUS SP. (*Selasphorus sp.*) One female or immature male, Augusta County [Collins] November 11-13, 2011; Category 1 as *Selasphorus sp.* (ph., +)

WHITE-WINGED DOVE (*Zenaida asiatica*) One individual, Chincoteague NWR, Accomack County [Mapel] February 24, 2012; Category 1 (ph., +); tenth Coastal Plain record, seventh since 2001 and first record for February

WESTERN WOOD-PEWEE (*Contopus sordidulus*) One individual, Northampton County [Brennan] October 21, 2011; Category 1 (ph., +); second state and Coastal Plain record

ALDER FLYCATCHER (*Empidonax alnorum*) One adult, Loudoun County [Hoogeweg, Quinn] June 10-16, 2012; Category 1 (vt., vr., †); sixth Piedmont record, first since 2003

SAY'S PHOEBE (*Sayornis saya*) One adult, Northampton County [Bazuin] October 7, 2011; Category 1 (ph., †); fifth state and third Coastal Plain record, first since 1989

SCISSOR-TAILED FLYCATCHER (*Tyrannus forficatus*) One adult, Chesterfield County, [Brown] May 7, 2012; Category 1 (ph., †); fourth Coastal Plain record since 2003

SCISSOR-TAILED FLYCATCHER (*Tyrannus forficatus*) One adult, Loudoun County [Enders] June 13, 2012; Category 2 (†); eighth Piedmont record and fourth since 2008

LOGGERHEAD SHRIKE (*Lanius ludovicianus*) One adult, Virginia Beach [Enders] November 19, 2011 through January 29, 2012; Category 1 (ph., †); second Coastal Plain record since 1978

LOGGERHEAD SHRIKE (*Lanius ludovicianus*) One individual, Occoquan NWR, Prince William County, [Hohenstein] September 16, 2012; Category 1 (ph., †); third Coastal Plain record since 1978

CAVE SWALLOW (*Petrochelidon fulva*) Three individuals, James City County [Williams] November 17, 2008; Category 2 (†); eighth Coastal Plain record since 2004

CAVE SWALLOW (*Petrochelidon fulva*) Ten individuals, Craney Island [Williams, Taber, Beck and Minarik] November 18, 2010; Category 2 (†); ninth Coastal Plain record since 2004

TOWNSEND'S SOLITAIRE (*Myadestes townsendi*) One individual, Fauquier County [T. Day, Marmet] December 19, 2010; Category 2 (†); fourth state and first Piedmont record

BICKNELL'S THRUSH (*Catharus bicknelli*) One individual (heard only), Arlington [Schreck and Fields] May 12, 2012; Category 2 (†); first Piedmont record reviewed by VARCOM although the Gold Book indicates two prior well-documented records

MACGILLIVRAY'S WARBLER (*Oporornis tolmiei*) One immature, Hopewell [Bose, Bryan] November 20, 2011; Category 1(ph., †); second state and Coastal Plain record

BLACK-THROATED GRAY WARBLER (*Setophaga nigrescens*) One individual, Appomattox County [Bruno, Elder, Lyons] October 8, 2011; Category 2 (†); second state and first Piedmont record

CLAY-COLORED SPARROW (*Spizella pallida*) One individual, Franklin County [Davis, Smith] December 3, 2011; Category 2 (†); fourth Piedmont record

BREWER'S SPARROW (*Spizella breweri*) One individual, Prince William County [Chittum, Ribaud, Taylor]

December 30, 2011 through January 31, 2012; Category 1 (ph., †); first state and Coastal Plain record

LARK SPARROW (*Chondestes grammacus*) One adult, Norfolk [Kreitzer] November 2, 2011; Category 2 (†)

LARK SPARROW (*Chondestes grammacus*) One individual, Augusta County [Mapel et al] January 2, 2012 through March 11, 2012; Category 1 (ph., †); second Mountains and Valleys record since 2010

LARK SPARROW (*Chondestes grammacus*) One juvenile/first winter, Warren County [Koppel and Koeneke] March 4, 2012; Category 2 (†); third Mountains and Valleys record since 2010

LARK SPARROW (*Chondestes grammacus*) One individual, Dutch Gap Conservation Area, Chesterfield County [Bedell, Ealding, Weinberger] September 27, 2012; Category 1 (ph., †); first record for the Western Coastal Plain to be reviewed by VARCOM

WESTERN TANAGER (*Piranga ludoviciana*) One adult male, James City County [Mestayer, Williams] January 15, 2010; Category 1(ph., †); fifth Coastal Plain record since 2004

WESTERN TANAGER (*Piranga ludoviciana*) One adult male, James City County [Williams] December 2, 2011 through March 14, 2012; Category 1(ph., †); sixth Coastal Plain record since 2004

Submissions Not Accepted

EARED GREBE (*Podiceps nigricollis*) One individual, King George County, August 19, 2011

ASH-THROATED FLYCATCHER (*Myiarchus cinerascens*) One individual, Amelia County, November 24, 2011

ABSTRACTS OF PAPERS PRESENTED VSO ANNUAL MEETING, SCIENTIFIC PAPER SESSION

Saturday, 27 April 2013; Leesberg, VA
An asterisk (*) denotes the presenting author.

Modeling Migratory Flight Routes of Golden Eagles in Variable Meteorological and Topographic Landscapes

Andrew J. Dennhardt^{*1}, Todd Katzner¹, Adam Duerr¹, George Merovich¹, David Brandes². ¹*Division of Forestry and Natural Resources, West Virginia University; 322 Percival Hall Evansdale Dr, Morgantown, WV 26505;* ²*Department of Civil and Environmental Engineering, 320 Acopian Engineering Center, Lafayette College, Easton, PA 18042.*

Understanding animal movement is fundamental to ecology and conservation. Although movements of migratory raptor populations are broadly known, the underlying details of how and where raptors move through a region are less well understood. Despite the challenges associated with predicting migratory pathways, such work is important to conservation planning as wind energy development and other threats present themselves to raptors. Work to date in this area has synthesized knowledge about raptor flight patterns, weather-induced updrafts, and a principal axis of migration to predict the flight routes of raptors. However, little is known about the importance of how migrant raptors navigate both used and unused areas, especially as it relates to migratory corridors that are useful for monitoring groups and industry alike.

To predict potential flight routes, I modeled golden eagle (*Aquila chrysaetos canadensis*) migration behavior in eastern North America (Figure 1). This model incorporates inputs on eagle flight patterns, local terrain characteristics, relevant weather conditions (e.g., wind speed/direction), estimates of weather-induced updrafts, and a principal axis of migration. I simulated southbound (autumn) eagle flight routes, performed spatial analyses on those simulations, and compared those simulations with flight routes from existing telemetry data in the region for model verification. Fall migration was most strongly influenced by the axis of flight direction on which birds are traveling. In addition, local topography influenced eagle flight by promoting use of orographic lift over steep slopes and ridges. The impacts of topography and updraft strength on eagle flights suggest avenues for future study on the influence of principal migration axes. This research provides a framework for predicting raptor flights that will lead to improving single-species monitoring for avian management and conservation. Hawk-counts worldwide collect data on raptor movements and this work provides a cost-effective framework with which we can better understand the movement ecology of secretive, low-density species of raptors.

Virginia Working Landscapes Progress Report

Amy Johnson^{*}, M.Sc., Program Coordinator for Virginia Working Landscapes. Smithsonian Conservation Biology Institute, 1500 Remount Rd, Front Royal, VA 22716

The native diversity of plants, birds, and insects is declining in eastern U.S. grasslands due, in part, to intensive land management and invasive plant species. In an effort to raise awareness on this issue locally, Virginia Working Landscapes (VWL) was formed in 2009 in collaboration with the Smithsonian Conservation Biology Institute, Piedmont Environmental Council, Blandy Experimental Farm, the Virginia Native Plant Society, the American Bird Conservancy, Virginia Outdoors Foundation, USDA, Environmental Studies on the Piedmont, Shenandoah National Park and several local service providers and landowners. One of the primary goals of VWL is to advance the science of land management and develop best practices relevant both to working farms and conservation lands. We are presently researching the relationship between native and imported grasses, and the associated bird and pollinator species, in order to understand the interaction between grassland plant communities and the associated wildlife. Through the participation of local citizen scientists, this multi-year program has surveyed approximately 25 public and private fields each year giving us valuable data on the relationship between field management practices and our biodiversity metrics. This presentation will emphasize the organization of our citizen science program and also highlight how our 2012 grassland bird survey relates to both differences in land management and our other biodiversity measures.

Breeding Pair Response to Intraspecific Territorial Intrusion by Bald Eagles in the Chesapeake Bay

Courtney Turrin^{*} and Bryan Watts. Center for Conservation Biology, College of William and Mary, 205 Ironbound Rd, Williamsburg, VA 23188.

Bald Eagle (*Haliaeetus leucocephalus*) populations suffered severe declines throughout most of the species' range until the banning of the pesticide DDT in 1972. Since then, the population of resident eagles in the Chesapeake Bay has

been growing exponentially. As the population approaches carrying capacity, the proportion of floaters, or non-breeders, is increasing relative to the number of breeders. I quantified intraspecific intrusions by floaters onto breeding territories and documented subsequent behavioral responses of breeders at 12 nest sites along the James River during the 2012 breeding season. The frequency of intrusions that were close to the nest was higher than expected by random chance, indicating that intruders were drawn to the nest sites. Breeding pairs mounted a strong response to intrusion significantly more often when both, rather than one, breeding adults were present. Both adults guarded the nest together more often than either sex guarded alone, and guarding rates were significantly higher in the post-hatching stage when chicks are most vulnerable to attack by intruders. Territorial intrusions by floaters may impact time budgeting of male breeders by altering the tradeoff between nest defense and provisioning of offspring. Since males perform the majority of provisioning duties, increasing floater-to-breeder ratios may affect productivity of breeding adults if males must allot more time for nest defense at the expense of foraging. Intraspecific territorial interactions may therefore function as a mechanism stabilizing population growth rate.

Depuration of and recovery from methylmercury in European Starlings

Margaret Whitney*. *Biology Department, College of William and Mary, P.O. Box 8795, Williamsburg, VA 23187-8795.*

Mercury is a global pollutant known to negatively impact the immune function and behavior of a wide variety of animals including birds. Little is known about whether negative effects persist or how quickly mercury is eliminated from body tissues. We examined whether European starlings (*Sturnus vulgaris*) can recover from chronic mercury exposure after the source of exposure is removed. Starlings were fed a diet containing 0ppm, 0.75ppm, or 1.5ppm mercury for 14 months, at which point half of the birds in each group were sacrificed. Flight performance and immune function were measured in the remaining birds before they were switched to an uncontaminated diet. Blood was sampled weekly to monitor depuration of mercury from the blood. After 5 months, when blood mercury levels had returned to baseline levels, flight performance and immune function were re-measured. The remaining birds were then sacrificed. Flight muscle, brains, livers, and kidneys were sampled from all birds. For the birds fed a 0.75ppm diet, average mercury levels dropped 98.5% in the brain, 99.7% in the muscle, 99.5% in the kidney, and 99.8% in the liver. In the birds fed a 1.5ppm diet, average mercury levels dropped 95.4% in the brain, 99.1% in the muscle, and 98.0% in the kidney, remaining elevated only in the liver, where mercury

dropped 83.5%. Previously contaminated birds showed little improvement in immune function or flight performance, but based on the rapid elimination of mercury from blood, it appears some deleterious effects of mercury poisoning may decrease over time.

Comparative stress indicators in Tufted Titmouse (*Baeolophus bicolor*)

Andrew S. Dolby*, Deborah A. O'Dell, Michael A. Carlo, and Abigail A. Kimmitt. *Department of Biological Sciences, 327 Jepson Sciences Center, University of Mary Washington, Fredericksburg, VA 22401.*

Unexpected challenges such as adverse weather, food restriction, and attacks by pathogens and predators activate a protective physiological stress response. This response includes release of stress hormones such as corticosterone (CORT), increases in inflammation-associated leukocytes such as heterophils, and intracellular production of heat shock proteins (HSPs). While adaptive in the short term, prolonged activation of the stress response diverts biological resources toward critical survival processes and away from growth and reproduction. Although HSP and H/L are assumed to be more resistant than CORT to acute distress caused by subject handling during research, this assumption has not been systematically examined in free-ranging birds. We compared CORT, HSP60, and H/L in Tufted Titmouse (*B. bicolor*) blood samples taken at different time intervals after subjects were captured. The average time elapsed between capture and blood collections was approximately 14 min (range = 4-31min). CORT was positively and significantly correlated with handling time for samples taken within 15 min. For samples obtained longer than 15min after capture, CORT was not correlated with time, and variability increased. Neither HSP60 nor H/L were correlated with handling time. None of these three indicators were correlated with each other within subjects, and none were correlated with body condition. Our data suggest that HSP60 and H/L may be more appropriate indicators of chronic stress than CORT when handling time is difficult to control.

Minutes of VSO Annual Meeting May 18 & 19, 2012, in Johnson City, TN

Friday Night Meeting

Welcome

Andrew Dolby called the meeting to order at 5:35 p.m. Since this year we had a joint Annual Meeting with the Tennessee Ornithological Society, our business meeting was abbreviated. Dolby introduced Wallace Coffey of the TOS.

Reports

Treasurer - Thelma Dalmas reported for Sue Thrasher that at the beginning of the year we had approximately \$42,000 in the general fund, ending the year with approximately \$43,000. Our restricted fund was approximately \$137,000 at the beginning of the year, and at year's end was approximately \$140,000. Our total balance at the end of 2011 was \$182,660.

Nominating Committee - the proposed nominees for officers and board members for 2013 are:

President – Andrew Dolby
 Past President – Rexanne Bruno
 Vice President – Joe Coleman
 Secretary – Alyce Quinn
 Treasurer – Sue Thrasher
 Membership Secretary – Thelma Dalmas
 Newsletter Editors – Linda Fields and Alan Schreck
 Raven Editor – Wes Brown
 Class of 2015 Board Members:
 Russell Taylor of Vienna,
 Keith Carson of Blue Grass
 Joelle Buffa of Greenbackville

Wes Brown moved to adopt the selection, Susan Brown seconded, motion passed. Dolby announced that Mike Lott, manager of Crow's Nest Natural Area Preserve, will be replacing Tiffany Corsello who is moving out of the area.

Changes to By-Laws - Dolby covered the following proposed changes to the By-Laws:

- 1) Elimination of honorary membership, replacing it with Byrd Award
- 2) List of six classes of membership
- 3) President to appoint replacement Board Members, with approval of the Board
- 4) Update of language on "communication" to include electronic methods

Susan Brown moved to approve the changes, Thelma Dalmas seconded, motion passed.

Upcoming Field Trips - Piney Grove on June 2, Front Royal June 15-17, Foray in Loudon County June 9-17.

Program

Who Keeps Changing My Field Guide? by Dr. Andrew Jones, Director of Science, William A. and Nancy R. Klamm Endowed Chair of Ornithology, and Head of the Department of Ornithology, Cleveland Museum of Natural History.

The meeting adjourned at 5:53.

Saturday Meeting

Saturday morning participants were offered a variety of field trips in the area.

Saturday afternoon the following topics were covered in the Paper Session:

- "Birding at a random spot on the side of the road." C. Michael Stinson, Southside Virginia Community College.
- "Stimulus color influences neophobic behavior in house sparrows (*Passer domesticus*).\" Laken Cooper and Jason Davis, Radford University.
- "Corticosterone and parental behavior in eastern bluebirds (*Sialia sialis*).\" Justin Bower, Daniel Rabago, Erin Dudley, Jason Prater, Judy Guinan and J.E. Davis, Radford University.
- "Conspecific aggression in relation to neighbor distribution in urban and rural populations of Song Sparrows (*Melospiza melodia*).\" Brenton T. Laing*, Allen E. Ross, Sarah L. Foltz, Ignacio T. Moore, Virginia Polytechnic Institute and State University.
- "Effect of handling time on corticosterone and heat shock protein 60 levels in Tufted Titmouse (*Baeolophus bicolor*).\" Andrew S. Dolby, Deborah A. O'Dell, Katherine R. Morris, and Ellen R. Bikowski, University of Mary Washington.

Banquet

Dolby thanked the Bristol Bird Club for their participation in the joint meeting, and Teta Kain for suggesting it.

Jackson M. Abbott Conservation Award

The award was presented to Stephen Eccles for his service on the Conservation Committee.

James Eike Service Award

The award was presented to Wes Brown for his hard work getting the Raven up to date.

JJ Murray Research Award

Winners of this year's awards:

- Courtney Turrin for her project entitled, "Negative Feedback Effects of Population Saturation in Bald Eagles in the Chesapeake Bay". Courtney is a Master of Science student at the College of William and Mary, and is working under the guidance of Dr. Bryan D. Watts.

- Dustin Reichard for his project entitled, "Investigating the Production and Function of Low-Amplitude Songs Using Microphone-Transmitters". Dustin is a Ph.D. candidate at Indiana University, and is working under the guidance of Dr. Ellen Ketterson, studying vocal behavior of Dark-eyed Juncos at Mountain Lake Biological Station.

Speaker

Fred J. Alsop III, Professor of Biology at East Tennessee State University, presented a program entitled *"Treking with a Birder."*

Sunday

Several field trips were offered on Sunday morning.

Submitted by Alyce Quinn, Secretary

**In Praise of Alyce Quinn:
VSO Secretary, July 1, 2007 -- June 30, 2013**

On June 30 Alyce Quinn stepped down as the VSO Secretary, a position she held from 2007 to 2013. During those six years Alyce diligently attended and recorded the proceedings at VSO Board of Director meetings, summarized those in drafts of the minutes, sent them to board members for comments and corrections, circulated the revised minutes to the VSO board before its next meeting, submitted them for approval by the board at that next meeting, and maintained the permanent record of board meeting minutes. However, her contributions to the VSO went far beyond her exemplary service as a recording secretary. She was an effective monitor of board activities, sending timely and considerate reminders to board members who had agreed to do something for an upcoming meeting to ensure that it was done. Her attentiveness to detail as Secretary, aided by her excellent memory, enabled Alyce to remind the board of the history associated with items on the meeting agenda.

In addition to all of this, in 2009 Alyce assumed the responsibility for organizing and publishing the annual VSO Speaker's Directory. VSO chapters (and many other organizations throughout the state) use this booklet as a resource for their meeting programs. Alyce also converted this Speaker's Directory to an online resource, which reaches an even wider audience and is more easily accessible.

Alyce is also very active in her local bird club, the Roanoke Valley Bird Club (RVBC). She served as president of the RVBC for six years and has continued as a Director at Large for the past eight years. She edited the RVBC newsletter for eight years and chaired the RVBC Seed Sale for thirteen years. She has been active on the RVBC Bluebird Trail committee, has hosted the Bluebird Luau for fifteen years, and is currently the RVBC Bluebird Trail committee chair. She also leads field trips for the club.

Thank you Alyce for your contributions of time, talent, and effort to the RVBC and the VSO, and for a job well done as VSO Secretary.

Rexanne Bruno and Wes Brown, on behalf of the VSO

INFORMATION FOR CONTRIBUTORS

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

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

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



The Raven

JOURNAL OF THE VIRGINIA SOCIETY OF ORNITHOLOGY

Volume 84

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2013



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

Activities undertaken by the Society include the following:

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

In addition, some local chapters of the Society conduct their own programs of meetings, field trips and other projects.

Those wishing to participate in any of the above activities, or to cooperate in advancing the objectives of the Society, are cordially invited to join and should contact the Membership Secretary. Annual dues are \$20.00 for active members, \$35.00 for sustaining members, \$60.00 or more for contributing members, \$500.00 for life members, and \$25.00 for family members.

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

Queries and comments about *The Raven* or the VSO Newsletter should be directed to the respective editors.

OFFICERS OF THE VSO IN 2013

President: Andrew Dolby, 1411 Franklin Street, Fredericksburg, VA 22401 (7/01/11 - 6/30/13)
Joe Coleman, 19499 Yellow Schoolhouse Rd., Round Hill, VA 20141 (7/01/13 - 6/30/14)

Vice President: Joe Coleman, 19499 Yellow Schoolhouse Rd., Round Hill, VA 20141 (7/01/11 - 6/30/13)
Jeff Trollinger, 3728 Old Parrish Trace Gum Spring, VA. 23065 (7/01/13 - 6/30/14)

Past President: Rexanne Bruno, 1012 Harrods Court, Lynchburg, VA 24503 (7/01/11 - 6/30/13)
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THE ROCKBRIDGE COUNTY FORAY OF JUNE 2013

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INTRODUCTION

The 2013 foray in Rockbridge County, conducted by the Virginia Society of Ornithology (VSO) and the Rockbridge Bird Club, was completed over the period of June 8th to June 16th. Rockbridge County is located in the mountains of Virginia, northeast of Roanoke and south of Staunton, with Lexington being the county seat. Rockbridge County was named for the distinctive geological landmark, Natural Bridge, located in the southern portion. The county is bounded on the west by the Allegheny Mountains and on the east by the crest of the Blue Ridge. It is surrounded by the counties of Augusta, Nelson, Amherst, Bedford, Botetourt, Alleghany, and Bath, and it lies at the headwaters of the James and Maury Rivers. Interstates I-81 and I-64 pass through Rockbridge County. Rocky Mountain, at 1241 meters, is the highest altitude in Rockbridge County and is located on the eastern county border with Amherst County. The lowest altitude within the county seems to be 225 meters in the town of Glasgow.

Mountains are predominant on the eastern and western county boundaries with pastureland being common in the county's interior. The forests of the county are mostly deciduous, with various oak and hickory species being the most common. But the forests also contain conifers, mainly what appears to be Virginia Pine (*Pinus virginiana*). Starting at the northern part of Rockbridge County, the central valley contains few hills and is fairly open. However, once south of Lexington and Buena Vista, hills such as Brushy Hills and Short Hills become more frequent in the valley. Both George Washington and Jefferson National Forests contain land within the county borders. Unfortunately, little access to the gated forest service roads of these national forests was granted. Even so, some of these areas were able to be covered on foot. One area that was not visited was the new Short Hills Wildlife Management Area (WMA) in the southern part of the county. Access to this place is difficult without use of an all-wheel drive, high-clearance vehicle. This is one location in the county that, about 20 years ago, had reports of Golden-winged Warblers (Kinzie and Rowe, personal communication).

While there have been no prior group efforts to document the breeding birds of Rockbridge County, the sightings of many local individuals has been compiled by Richard Rowe and made available online (Rowe, website). Murray (1957) wrote in his publication that, "Unfortunately the writer has had to be responsible for most of the data, which accounts for the meagerness of the information at

certain points, since no man can properly cover a county." However, Murray acknowledges the assistance of several other individuals as well.

The first two days of the foray period were dry. Temperatures ranged from approximately 18 to 29 degrees Celsius, with little wind. Starting on the 10th, weather conditions became variable. Isolated rain, sometimes heavy, occurred throughout the county. Temperatures remained in the range of 17 to 29 degrees Celsius over the course of a day, with little wind on most days. On some days the rain was heavy enough to prevent any surveys for birds, but by June 13th the precipitation had become minimal.

Trees and plants identified during the foray included: Eastern White Pine (*Pinus strobus*), Striped Maple (*Acer pensylvanicum*), Sassafras (*Sassafras albidum*), Tulip-Poplar (*Liriodendron tulipifera*), Tree of heaven (*Ailanthus altissima*), Chestnut Oak (*Quercus prinus*), Bear Oak (*Quercus ilicifolia*), New Jersey Tea (*Ceanothus americanus*), Goat's Rue (*Galega officinalis*), Spicebush (*Lindera* sp.), Turkey beard (*Xerophyllum asphodeloides*), and Witch-hazel (*Hamamelis* sp.)

Eastern Tiger Swallowtail (*Papilio glaucus*), Great Spangled Fritillary (*Speyeria cybele*), Hackberry Emperor (*Asterocampa celtis*), Little Wood-Satyr (*Megisto cymela*), Mourning Cloak (*Nymphalis antiopa*), Eastern Tailed-Blue (*Everses comyntas*), azure sp. (*Celastrina* sp.), and anglewings (*Polygonia* sp.) were butterfly species observed during the foray.

The knowledge and help provided by members of the Rockbridge Bird Club was instrumental in completion of the foray. The goal of the VSO forays is to survey the bird species and populations in the county as thoroughly as possible. Ideally, counting every individual of every species within the county boundaries would be done. Realistically, that is impossible, due to inaccessible areas and availability of volunteers to count birds. Also, because birds move around, there is always the risk of double counting individuals. But, presumably, because the forays are completed in the breeding season, birds are on territory and unlikely to move.

With early morning starts, foray planning, and occasional heavy rain, there was no dedicated effort to search for birds at night. However, several participants heard owls in their backyards and found a few owls and nightjars early in the morning and during daylight hours.

METHODS

The methods used to count birds were similar to those used in Christmas Bird Counts and many of the previous VSO forays. For this foray, the county was split into nine sectors divided by major highways or by rivers in order to ensure coverage of the county and minimize duplicate efforts. Foray participants were assigned sectors or portions of sectors and tracked route or area covered, mileage, time, and total individuals for each species. One hundred and fifteen species were observed during the course of the foray, with five unexpected species found (Northern Harrier, Black-billed Cuckoo, Red-breasted Nuthatch, Savannah Sparrow, and Pine Siskin). Thirty-three participants split into 23 different parties (some individuals were in different parties on different days) over the course of foray period. Over 300 kilometers were traveled during the foray, both walking and driving. From totaling the time spent in the field by all parties, over 180 hours was spent counting birds during the foray. The individual checklists are available on eBird under the username "VSOforay2013" (password provided upon request).

RESULTS AND DISCUSSION

Listed below by species order in the American Ornithologists' Union checklist are the bird species observed during the foray, with a discussion of their presence in Rockbridge County during the foray and their historical county presence. Richard Rowe's website (Rowe, website) was used to determine the historical population of each species. Also, the results of VSO forays in Highland (Spahr 2003), Bath (Spahr 2003), and Alleghany (Brown 2011) counties are compared with the results of this foray. For the 2003 foray, the Highland County portion lasted 4.5 days and had 49 observers. For the 2003 foray, the Bath County portion lasted 4.5 days and had 21 observers. Less time was spent surveying each of these counties in comparison to the current foray of Rockbridge County, but Highland County had more observers and Bath County had fewer observers. Even with these differences, the efforts for the forays in these counties were fairly comparable to this year's foray efforts. Alleghany County had 31 observers over the 9 days of the foray, which is comparable to this foray. When the discussion refers to adjacent counties, Alleghany, Highland, and Bath Counties are the counties included. No county-wide forays have been performed in Augusta, Nelson, Amherst, Bedford, or Botetourt Counties by the VSO. See Table 1, (pp. 13-15) for numerical totals of all individuals of each species observed during this and three prior forays of adjacent counties.

Canada Geese were found locally throughout the county away from water, but mainly near bodies of water. Willow Lake, Chessie Trail, and Lake Robertson were places where this species was found (about fifteen different locations). They are considered abundant in the county and are residents (Rowe, website). When compared to VSO

forays in Highland, Bath, and Alleghany Counties, numbers of Canada Geese found in Rockbridge were much higher than Highland and Alleghany, but similar to Bath.

Wood Ducks were seen on six different foray routes. Two of the sightings came from the northeast section of the county, three were from the northwest section, and the other report came from the southwest part of the county. This is an interesting distribution of reports, but may be inaccurate. Rowe notes that this species can be found across the county in general. This species is noted as uncommon, with most records from March to November (Rowe, website). Numbers of Wood Duck were comparable to the numbers found on forays of adjacent counties.

Mallards were observed on six different foray routes, all from the northern section of the county, with most from the northeast part. They are considered a common resident of the county, with an increasing population (Rowe, website). Numbers of Mallard were comparable, although slightly higher, to the numbers found on forays of adjacent counties.

Ruffed Grouse was only reported by Spahr, Biersack, Besal, and Ake from one location, a single bird along the Guys Run Access Road, in Goshen-Little Mountain WMA, which is one of the areas within Rockbridge County where they are more frequently observed (Rowe, website). Grouse are typically elusive and require a great deal of time and effort to see, but are considered common in Rockbridge County. Forays of adjacent counties reported higher numbers of Ruffed Grouse. Indeed, Highland County, in 2003, had 13 grouse during the foray period (Brown 2011). Breeding bird survey data indicate that this species is declining across the state of Virginia (Rottenborn and Brinkley 2007).

Wild Turkeys were reported from eleven different locations across the county. Most reports were of small groups (fewer than five birds), but there were several observations of eleven individuals in a flock. The population of Wild Turkeys in Rockbridge County is faring well. Turkeys were rarely reported on Christmas Bird Counts (CBCs) before the mid-1970's, but are now common residents of Rockbridge County (Rowe, website). Observations of turkeys were about three times the numbers found during forays of adjacent counties. This observation contrasts with a recent article published in Audubon Magazine (Nickens 2013) that reports a decrease in southeastern portions of the turkey population.

Great Blue Herons were found singly at seven different locations adjacent to the Maury and James Rivers. Great Blue Herons are common residents of the county (Rowe, website) and were more common on this foray than during forays of adjacent counties.

Green Herons were found at seven different locations, most adjacent to the Maury and James Rivers, and were found as frequently as Great Blue Herons. They are a common summer resident of Rockbridge County, seen from April to October (Rowe, website).

Black Vultures were seen across the county in good numbers. Downy young were seen in an old house (a known breeding pair) on Laura Neale's property, near Fairfield, VA. Several double-digit observations of Black Vultures were made by Teri Holland, just southeast of Lexington. Rowe (2009) notes the presence of several large flocks near Lexington and Glasgow and considers the population stable. Observed numbers were many times above the numbers observed during forays of adjacent counties.

Turkey Vultures were common across the county. Like Black Vultures, these vultures were mostly observed soaring over urban and rural areas and were seen in comparable numbers to that observed during forays of adjacent counties. Their population is large and stable as well (Rowe, website).

Osprey was reported twice in the county. One was observed at Willow Lake, one of the larger water bodies in Rockbridge County. Another was seen over the Maury River, near Goshen Wildlife Management Area. Osprey are expected in the county from April to May and September to October, but there has been a summer record (July 30, 2009) from the Maury River (Rowe, website) and, in the mountains of Virginia, this species is considered a rare summer visitor (Rottenborn and Brinkley 2007). Perhaps the observed birds were unsuccessful breeders or wandering birds that never were part of a breeding pair. Forays of Highland and Bath Counties also had observations of several Ospreys, while the foray of Alleghany County did not report any.

One **Northern Harrier** was observed during the foray (observed by Warren, Richards, and Holsinger). It was observed in the southwest part of the county and is unexpected for this time of year. This species is a winter resident and migrant in Rockbridge County, and is not expected after March and before September of each year (Rowe, website).

A single **Sharp-shinned Hawk** was observed during the foray. This bird was observed on the southeastern section of the county by Dolby and Lott. This species is a county resident, although it is not numerous (Rowe, website). In recent years, across Virginia, Sharp-shinned Hawks have become less common while their larger cousin, the Cooper's Hawk, has become more common. Consistent with these findings are single digit reports of Sharp-shinned Hawks during forays of adjacent counties. During the Virginia Breeding Bird Atlas project in the latter part of the 1980's, a breeding confirmation of Sharp-shinned Hawk was made in adjacent Alleghany County (Rottenborn and Brinkley 2007), and there were only two breeding confirmations of this hawk, in the state, during the atlas project.

Cooper's Hawks were reported by four different parties. One was reported along Highway 11, in the northeastern part of the county (seen by the Browns). Another was reported by Enders from just southwest of Lexington. A third bird was reported by Rowe from the

Willow Lake area. The fourth bird was reported by Holland from the Maury Park area. This species is similar to the Sharp-shinned Hawk in being a resident of the county, but not numerous (Rowe, website). Also, forays of adjacent counties have reported almost exactly the same numbers of Cooper's Hawks.

Bald Eagles were only observed at a nesting location along the Chessie Trail (Rowe, website). A first-year bird was observed by Holland, southeast of Lexington. Perhaps this individual was this year's offspring from the Chessie Trail breeding pair. One to two breeding pairs are probably in the county, and Bald Eagles are considered uncommon in the county (Rowe, website). Forays of adjacent counties resulted in finding higher numbers of Bald Eagles than this year's foray.

Nine **Red-shouldered Hawks** were seen during the foray from eight different foray routes. Four of the hawks were seen in the northeastern part of the county, east of I-81. One was observed along the scenic drive that travels along the western boundary of Rockbridge County. Another was seen in the southwestern part of the county, along the Bluegrass Trail. The other observations were from the northwestern part of the county. Numbers of observations from forays of adjacent counties were similar to this foray.

Broad-winged Hawks were observed at seven different locations throughout the county. In the southern part of the county, singles were seen in the southwest corner of the county, one was heard at Gunter Ridge, and another was observed at Natural Bridge. In the northern part of the county, a Broad-winged Hawk was observed at Old Farm Road Pond, one was found at House Mountain, one was observed southeast of Lexington and another was heard along the Whetstone Ridge Trail. Fewer Broad-winged Hawks were observed on this foray than during forays of adjacent counties.

Red-tailed Hawks were found in good numbers across the county, and, as expected, they were the most common raptor. Forays in Bath and Alleghany counties had lower numbers of this species while the foray in Highland County had about an equal number of Red-tailed Hawks to this foray.

Killdeer were seen in low numbers across Rockbridge County and were seen in similar numbers to those seen during forays of Highland, Bath, and Alleghany counties. Killdeer are a common year-round resident and are more common in the spring and summer (Rowe, website).

Rock Pigeons (Feral Pigeons) were seen throughout the county in fair numbers. This species is doing well in the county and needs no encouragement. In fact, the number observed well exceeded numbers observed in Highland, Bath, and Alleghany counties during forays in those counties.

Mourning Doves were abundant across the county. This is a species with a healthy population, and Mourning Doves were seen in greater numbers than during forays in adjacent counties.

Yellow-billed Cuckoos were found throughout the county during the foray. They were not found on every route covered during the foray, although they were regularly found, if a large enough area was covered. The most interesting finding about the distribution of this species during the foray was that it was found only once in the Natural Bridge area. Yellow-billed Cuckoos are a common summer breeder in Rockbridge County (Rowe, website) and the number of individuals found was generally similar to the numbers found during forays of adjacent counties.

One **Black-billed Cuckoo** was found, by George Tolley, during the foray. This individual was located about six miles north of Lexington on private property. This species is considered a summer resident, but recent nesting has been difficult to confirm due to the secretive and unpredictable behavior of this species. There are recent summer records, but no recent confirmed breeding (Rowe, website). A few Black-billed Cuckoos have been found during the forays of adjacent counties. Bath and Highland Counties have a higher than average elevation compared to Rockbridge County. Higher elevations hold a better chance for finding this species (Rowe, website).

A single **Barn Owl** was found by George Tolley during the foray period. This bird was located about six miles north of Lexington on private property. After completion of the foray, Laura Neale reported that a nest of owlets was taken in by the Wildlife Center of Virginia. The nest was discovered in a silo on a farm near Walkers Creek on June 8th, and the six owlets had to be removed due to silo usage for farm operations. However, after care at the Wildlife Center of Virginia, all six owlets were released in Albemarle County (Leighann Cline, personal communication, October, 2013). While J. J. Murray considered Barn Owls common in 1957, they have become scarcer in the county and are not expected to be seen regularly (Rowe, website). Forays of adjacent counties failed to find Barn Owls.

Extensive time was not dedicated to owling, so the overall numbers of owls was low. Other forays of the adjacent counties typically do not find numbers of owls. This is due in part to the secretive behavior of owls, but also because searches for them have to be completed during non-typical hours (late night or early morning). In fact, no Great Horned Owls were found during this foray, and they are considered an uncommon resident of Rockbridge County (Rowe, website).

With this in mind, there were three observations of **Eastern Screech-Owl** during the foray. All were from the northern part of Rockbridge County. This species is common in the county and, when sought out, can be found frequently (Rowe, website).

Barred Owls were observed four times during the foray. One was at the property of Roberta Wiener and James Arnold (south-central Rockbridge County), while another was heard on the property of Wendy and Steve Richards (southwest Rockbridge County). The other two reports came from the northwest part of Rockbridge County. Barred Owls are unusual permanent residents of the county (Rowe, website).

Like owls, nighttime searches for nightjars were not extensively performed. However, there were four observations of **Whip-poor-wills** during the foray. One was heard in the northwest portion of the county, at John Pancake's house. Another was heard at the residence of Laura Neale and Chris Wise, near Fairfield. A third was heard by Mike Lott and Andrew Dolby, at the overlook off the Blue Ridge Parkway, adjacent to Highway 60. A family (an adult with two young) of Whip-poor-wills was observed by Elisa Enders and Laura Neale along a trail from the Blue Ridge Parkway to Jordan Road. This species is an uncommon summer resident in the county, but recently is more likely to be found in forested areas, mainly near North Mountain and Goshen Pass (Rowe, website). Single digits of this species were found during forays of Highland and Augusta Counties, but nineteen were found during the Alleghany County foray.

Chimney Swifts were frequently found across the county during the foray. With this species nesting preference and dependence in many areas on human-made structures, it is not surprising that most of the swifts were seen over or adjacent to towns. Good numbers were seen in Lexington. This is a common summer resident in Rockbridge County (Rowe, website), and was commonly found during forays of adjacent counties.

Ruby-throated Hummingbirds were seen in low numbers across Rockbridge County, although the foray distribution favored the northern half of the county. In fact, there was only a single bird reported from the county's southwest corner. This species can be difficult to observe, due to its small size, quick flight, and quiet disposition. According to Rowe, Ruby-throats are a common summer resident throughout the county. The total of this species found was greater than the number found during past forays of adjacent counties.

While only nine **Belted Kingfishers** were found during this foray, the reports came from across the county. With this species requiring water to be nearby (streams, creeks, and ponds), this finding is not unexpected. In the proper habitat, they will be found in Rockbridge County and are common (Rowe, website). More Belted Kingfishers were found during forays of the adjacent counties.

Red-bellied Woodpeckers were found across the county in very good numbers, and, based upon the findings of forays completed in adjacent counties, are more common

in Rockbridge County than Highland, Bath, and Alleghany counties. They are abundant county residents (Rowe, website).

Downy Woodpeckers were found in very good numbers across the county. They are abundant in the county (Rowe, website) and were one of the more commonly observed woodpeckers during the foray. Similar numbers were found during forays of adjacent counties. Interesting is the finding that, during this foray, Downy and Hairy Woodpeckers were found separately (not in the company of the other species) about four times as often as being found nearby one another.

Hairy Woodpeckers were common during the foray, agreeing with past findings (Rowe, website), but were less common than Downy Woodpeckers. This also agrees with the numbers found during forays of adjacent counties.

Northern Flickers were very frequently found across the county during the foray. This finding matches the historically observed distribution (Rowe, website) and numbers found during forays of adjacent counties.

Pileated Woodpeckers were the most common woodpecker found during this foray and were distributed across the county. They are common residents of the county (Rowe, website). While the number of Pileated Woodpeckers found on this foray was lower than the number found during the Alleghany County foray, the total number was greater than the totals of the Bath or Highland County forays.

American Kestrels were observed on ten different foray routes across the county. One pair was observed chasing a pair of Red-tailed Hawks. Kestrels are common and are normally expected to be seen (Rowe, website). This species was observed in similar numbers to those seen during forays of adjacent counties.

Eastern Wood-Pewees were found in good numbers across the county and were the second most common flycatcher encountered, although searching forested areas at higher elevations has more reports of this species. The frequency of sightings agrees with the historically observed distribution as well as the totals found during forays of adjacent counties.

Acadian Flycatchers were found across the county, but in low numbers, with a preference for moist forested areas. They are common and expected in forested areas adjacent to streams (Rowe, website). When comparing foray results, this species is far less common in Rockbridge County than in Highland, Bath, or Alleghany Counties.

Willow Flycatcher was the least frequently found flycatcher found during the foray. This species was only found in the north-central part of the county, at Willow Lake. This is an unusual species for the county, but was found in similar numbers during past forays of adjacent counties.

Eastern Phoebes were the most common flycatcher found during the foray and were found across the county. It is a common summer resident (Rowe, website). The total number observed during this foray was much higher than the totals observed during forays of Bath and Highland Counties and was also greater than the number seen in Alleghany County.

While not the most common flycatcher during the foray, **Great-crested Flycatchers** were seen in very good numbers across the county. The total number was lower than the total found during forays of Bath and Highland Counties, but comparable to the total found during the foray of Alleghany County. This is a common and expected species in Rockbridge County (Rowe, website).

Eastern Kingbirds were also seen in good numbers across the county and were more common on this foray than forays of adjacent counties. This is not an unexpected finding; as this species is considered to be a common summer resident of Rockbridge County (Rowe, website).

White-eyed Vireos were found in low numbers during the foray and were the most uncommonly found vireo. About half of the White-eyed Vireos were observed in the northwest part of the county (Walker's Creek, Little North Mountain, and Goshen Pass areas). Several reports came from southwest of Lexington and one White-eyed Vireo was found along the Natural Bridge Hayride Trail (found by Wes Teets). The foray distribution agrees with the historical distribution (Rowe, website). While the total number of White-eyed Vireos found during this forays exceeded the total found during past forays of Highland and Alleghany Counties, it was much lower than the total found during the Bath County foray.

Yellow-throated Vireos were seen in good numbers across the county, but were infrequently found in the northeast part of the county. This differs slightly from the historical distribution, which lists them as most often being found along the Blue Ridge Parkway, north of milepost 45 (Rowe, website). During this foray, Yellow-throated Vireos were found in comparable numbers to that found during forays of adjacent counties.

Blue-headed Vireos were seen during the foray in good numbers, but were not encountered throughout the county in an even distribution. This species was most frequently found at high elevation forests, such as the Blue Ridge Parkway and Goshen Pass and Goshen-Little Mountain WMA. So, with the higher elevations occurring on the eastern and western edges of the county, this is where Blue-headed Vireos were found. Not surprisingly, more Blue-headed Vireos were found on the Highland County foray, but comparable numbers were seen during forays of Bath and Alleghany Counties.

Warbling Vireos were found across the county, but were localized to rivers and streams, frequently in sycamore

trees. The historical distribution matches this finding. Also, comparing foray results, Warbling Vireos are more common in Rockbridge County than in Bath, Highland, or Alleghany Counties.

Red-eyed Vireo was by far the most abundant vireo during the foray. As is expected for this species, it was found across the county. Surprising is the discovery that, while on the same order of magnitude, greater total numbers were seen during forays of adjacent counties.

Blue Jays were another abundant species, occurring widely across the county. The numbers found are comparable to historical expectations and adjacent county forays.

While Blue Jays were abundantly seen during the foray, about twice as many **American Crows** were found. American Crows were found in a fairly even distribution across the county in numbers comparable to forays of adjacent counties.

Fish Crows were found in low numbers during the foray. A few solitary individuals were seen in the north-central part of the county (Dick Rowe), and single birds were seen in the Natural Bridge area (Wes Teets), along the James River (Barry Kinzie), and near Fairfield, VA. But, most of the birds were seen in two groups, one in downtown Lexington and one along Poor House Road (northwest county boundary). This species is uncommon in Rockbridge County (Rowe, website). During forays of adjacent counties, only one Fish Crow was found in Bath County.

Common Ravens were encountered as often as Fish Crows, but were found at higher elevations across the county, such as House Mountain and Whetstone Ridge Trail. This species is common in the county and has been seen, in the past, over Lexington (Rowe, website). During this foray, total number of ravens seen was lower than during forays of adjacent counties.

Northern Rough-winged Swallows were found across the county, but were typically seen at water bodies, such as the James River and Willow Lake. It is common in the county (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Purple Martins were found only at three locations. There is currently only one known colony in the county, in the Fairfield area. Dick Rowe found that these birds were still nesting this year and saw two Purple Martins nearby at Willow Lake. Another report was of a heard only Purple Martin, flying high overhead, by Elisa Enders, from southwest of Lexington. Purple Martins seem to be a recent addition to the bird life of Rockbridge County and are a very local breeder (Rowe, website). Forays of adjacent counties did not find martins.

Tree Swallows were seen in good numbers, distributed across the county. This species has undergone a distribution change. Murray, in 1957, considered it a transient, but now

is a common breeder (Rowe, website). Perhaps addition of bluebird boxes has most helped bring Tree Swallows to Rockbridge County. This species frequently uses them as nesting holes. Forays of adjacent counties found comparable total numbers of this species.

Barn Swallows were the most abundant swallow species, occurring across the county. Walker's Creek and Maury Park held some of the larger colonies, but this species was found at many streams and other water bodies across Rockbridge County. Forays of adjacent counties found comparable total numbers of this species.

Cliff Swallows were found at only a few locations during the foray. They are a very localized breeder, nesting under high bridges over rivers or streams. Walker Creek, Turkey Hill, and the James River, near Natural Bridge, were where this species was found during the foray. Except for Alleghany County, forays of adjacent counties found comparable total numbers of this species.

Carolina Chickadees were found across the county, typically at lower elevations than where Black-capped Chickadees were found, but can be found at high and low elevations. They are a common species in the county (Rowe, website), much more common than Black-capped Chickadees.

Black-capped Chickadees were found mainly on the northwestern county boundary at high elevations, but several reports came from the south-central part of the county. This species can be hard to distinguish from the Carolina Chickadee. The song of these species is typically used to separate them, but hybridization occurs between the species, and is more frequent in this part of the state. In fact, during forays in the region, these two species are lumped together because of the difficulty in distinguishing between them.

Tufted Titmouse was an abundant species during this foray, across the county. This was not unexpected and totals were comparable to forays of adjacent counties.

A pair of **Red-breasted Nuthatches** was found along the Whetstone Ridge Trail, at one location, in a large stand of Virginia Pine at about 760 meters in elevation, south of Adams Peak. This species is not expected in the summer in Rockbridge County, but has been found nesting in the state of Virginia at high elevation (~1200 meters) coniferous forests in counties like Grayson, Rockingham, and Highland. However, there are breeding records from the 1970's and 1980's in Augusta County, at lower elevations (Fenton Day, personal communication in August, 2013 and Stevens 1975). In 2011, a Red-breasted Nuthatch was found at a similar elevation during the Alleghany County foray. As previously mentioned, Highland County regularly has summering Red-breasted Nuthatches and eight were found during the foray of that county. Rowe lists the status of this species as an unusual winter resident and migrant.

White-breasted Nuthatches were found across Rockbridge County in good numbers. This is a species that prefers deciduous over coniferous woods. Rockbridge County has a good amount of oak woods, some mixed with pines. This species has a common historical distribution and is a county resident (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

House Wrens were found in very low numbers across the county, but mostly in the northern parts of the county. This differs from historical numbers, and this species is considered a common summer resident (Rowe, website). Forays of adjacent counties found higher totals of this species.

Carolina Wrens were abundantly found across the county during the foray, agreeing with historical findings. Forays of adjacent counties had lower totals for this species.

Blue-gray Gnatcatchers were found in good numbers across the county. This species is a common summer resident (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Eastern Bluebirds were very common across the county. This species is a common summer resident (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Veeries were reported from two areas during the foray. The northern section of the Blue Ridge Parkway held a few and the Thunder Ridge area (southeast Rockbridge County) was the other area where they were found. This is a high elevation species, being a locally common bird at elevations about 1000 meters (Rowe, website). Bath and Highland Counties, during forays, had higher numbers of this species.

Wood Thrush was fairly common during the foray and could be found across the county in well wooded areas. The Blue Ridge Parkway is a good area to find this species, which is considered common in the county (Rowe, website). Except for Highland County, forays of adjacent counties have found slightly more Wood Thrush.

American Robins were abundant, seeming to be found in any kind of habitat. Forays of adjacent counties found comparable total numbers of this species.

Gray Catbird was found across the county in fair numbers. Lexington was a reliable spot for finding them, but they were reported in rural areas as well. They are historically considered a common summer resident throughout the county at all elevations (Rowe, website). Forays of adjacent counties had higher totals for this species.

Brown Thrashers were found in fair numbers and are considered a common resident (Rowe, website). Forays of adjacent counties had similar totals for this species, except for Bath, which had a higher total number.

Northern Mockingbird was very common across the county, and by far, the most common mimid. Typically, they

are more common at lower elevations in open areas (Rowe, website). Forays of adjacent counties had lower totals for this species.

European Starlings were abundant during the foray, matching historical findings and forays of adjacent counties.

Cedar Waxwings were seen in very good numbers across the county, usually in pairs, but single birds and small flocks were observed as well. Numbers were comparable to historical records and forays of adjacent counties.

Ovenbird was the most common warbler species found during the foray. This species is considered an abundant summer resident of the higher elevations (Rowe, website). Forays of adjacent counties found fairly comparable total numbers of this species (Alleghany County had more).

Worm-eating Warbler was the second most frequently encountered warbler during the foray. Wooded slopes near creeks seemed a preferred habitat, with the Blue Ridge Parkway area being an excellent place to find this species. This species is considered a common summer resident (Rowe, website). Forays of adjacent counties found fairly comparable total numbers of this species (Alleghany County had more).

Louisiana Waterthrush was an uncommon species during the foray, found along creeks and streams at lower elevations. This species is considered a common summer resident (Rowe, website). Forays of adjacent counties found fairly comparable total numbers of this species.

Four **Blue-winged Warblers** were found at the Natural Bridge Hayride Trail by Wes Teets. Historically, this species is considered a possible breeder in the county (Rowe, website), but there are few summer records. This species was reported in the spring from this same location. Forays of adjacent counties found comparable total numbers of this species.

Black-and-white Warblers were one of the more commonly found warblers. High elevation deciduous woods seemed to be the most used habitat by this species. They were found along the Blue Ridge Parkway and Goshen-Little Mountain WMA, among other places. This species is considered a common summer resident (Rowe, website). Forays of adjacent counties found fairly comparable total numbers of this species.

Kentucky Warbler, one of the more infrequently found warblers, was only located at two places: Natural Bridge Hayride Trail (Wes Teets found three) and Moores Creek State Forest (a singing individual). This species is considered a migrant and possible breeder (Rowe, website). Forays of adjacent counties found fairly comparable total numbers of this species.

Common Yellowthroats were not very common during the foray. One was found along Route 601 to North Mountain (by Pancake, Kinzie, and Opengari), three were

found near Walker's Creek (by Pancake, Kinzie, and Opengari), and two along Irish Creek (by the Browns). This species is considered a common summer resident (Rowe, website). Forays of adjacent counties found larger total numbers of this species.

Hooded Warbler was one of the more commonly found warblers. Mid-elevation deciduous woods seemed to be the most used habitat by this species. They were found along the Blue Ridge Parkway, Moores Creek State Forest, Natural Bridge area, and Goshen-Little Mountain WMA, among other places. This species is considered a common summer resident (Rowe, website). Forays of adjacent counties found fairly comparable total numbers of this species.

American Redstart was another commonly found warbler. Deciduous woods seemed to be the most used habitat by this species. They were found in the Natural Bridge area, at House Mountain, along the Blue Ridge Parkway and in Goshen-Little Mountain WMA, among other places. This species is considered an abundant summer resident (Rowe, website). Forays of adjacent counties found fairly comparable (Bath County had about three times more) total numbers of this species.

Cerulean Warblers were found at Thunder Ridge, House Mountain, Forest Service Road 164 (near the Punchbowl Shelter), and the northern section of the Blue Ridge Parkway. This species is considered a common breeder in the proper habitat, with a loss of habitat at lower elevations (Rowe, website). Forays of adjacent counties found comparable total numbers of this species, but Bath County's foray found about three times as many.

Northern Parula was found at only a few locations (Chessie Trail, Natural Bridge Hayride Trail, near Irish Creek, and south-central Rockbridge County). While low numbers were observed during the foray, this species is considered a common summer resident (Rowe, website) near rivers and streams. Forays of adjacent counties had higher totals (much higher in Bath and Highland Counties) for this species.

Blackburnian Warblers were only recorded twice during the foray. Both were heard on the northern section of the Blue Ridge Parkway. This typically high elevation species is locally common in the Yankee Horse Ridge area (Rowe, website). Forays of adjacent counties had higher totals for this species.

Yellow Warbler was found at only a few locations (Walker's Creek, Fairfield area, Irish Creek, and southwest Rockbridge County) near streams. While low numbers were observed during the foray, this species is considered a locally common summer resident (Rowe, website) near rivers and streams. Forays of Bath and Highland Counties had much higher numbers, but Alleghany only had a single bird.

Chestnut-sided Warbler was found localized in high elevations during the foray. Brattons Run, Thunder Ridge, and the Blue Ridge Parkway were the reporting locations. This species is expected to be found at elevations over 1000 meters (Rowe, website). As expected, adjacent counties (Bath and Highland) with higher elevations reported higher numbers of Chestnut-sided Warblers during their forays.

Black-throated Blue Warblers were reported from only two areas during the foray: Thunder Ridge and the northern section of the Blue Ridge Parkway. This is considered a common species in the county at elevations over 600 meters (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Pine Warblers were one of the more commonly found warblers during the foray. Most reports came from the Blue Ridge Parkway and Goshen-Little Mountain WMA areas, but several were reported in the Natural Bridge area as well. Sixteen were found along the Whetstone Ridge Trail, in stands of Virginia Pines. This species is considered a common summer resident (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Yellow-throated Warblers were found at three locations during the foray. Single birds were found along the James River, in the Natural Bridge area, by Wes Teets. Elisa Enders found two birds east of Lexington, along the Maury River. All locations have had this species recorded in the past few years, but the reports come from the spring and fall. This species has historically been a migrant in the county (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Prairie Warblers were found in low numbers, across the county. Natural Bridge Hayride Trail, Guys Run, Laurel Run, and Possum Hollow are locations where this species was found. This species is considered a common summer resident (Rowe, website). Forays of adjacent counties found slightly lower total numbers of this species.

Black-throated Green Warblers were uncommon during the foray. This species was found on the mountain ridges on the eastern and western county boundaries. Goshen-Little Mountain WMA, Whetstone Ridge, the Scenic Drive on the west county line, Moores Creek State Forest, Natural Bridge area, and the Blue Ridge Parkway are a few of the places where this species was found. This species is considered a common summer resident (Rowe, website). Forays of adjacent counties had higher totals (much higher in Bath and Highland Counties) for this species.

Canada Warblers were found at only two locations: Thunder Ridge (by Kinzie) and the northern section of the Blue Ridge Parkway (by Rowe). This species is considered a locally common summer resident (Rowe, website). Forays of adjacent counties found fairly comparable total numbers of this species (Highland County had more).

Yellow-breasted Chat was found in low numbers across the county. Their preferred habitat is typically brushy areas and very young, scrubby woods. This species is considered an uncommon summer resident (Rowe, website). Forays of adjacent counties found fairly comparable total numbers of this species.

Eastern Towhee was an abundant species during the foray. They are found throughout the county and at all elevations (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Chipping Sparrow was another abundant species during the foray. They are found in open areas throughout the county and at all elevations (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Field Sparrow was almost as common as Chipping Sparrow during the foray. They are found throughout the county and at all elevations (Rowe, website). Forays of adjacent counties found slightly lower total numbers of this species.

Savannah Sparrow was reported from one location near Fairfield. This bird was observed on the gravel farm road to Laura Neale's property. This is unexpected as there are few summer records from the county, and this species is considered an uncommon transient through the area (Rowe, website). However, there are summer records in Augusta County, and Laura Neale saw two Savannah Sparrows at her property in July of 2012. This species was recorded during forays of Highland and Bath Counties as well.

Grasshopper Sparrow was found in low numbers during the foray. Given the amount of pastureland in the central areas of Rockbridge County, this species was expected to be more common. This species is considered common in the county, within grassy areas and pastureland (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Song Sparrow was very common during the foray and seen across the county. They are an abundant species in the county (Rowe, website). Forays of adjacent counties found slightly lower total numbers of this species.

Dark-eyed Junco was reported from only a few locations: Guys Run Access Road in Goshen-Little Mountain WMA, Scenic Drive on the western county boundary, the north section of the Blue Ridge Parkway, and Thunder Ridge. This species is considered a common breeder at about 1000 meters (Rowe, website). Forays of adjacent counties found higher total numbers of this species, probably due to the lower average elevation in Rockbridge County.

Scarlet Tanagers were very common during the foray across the county. They are a common summer species in the county (Rowe, website). Forays of adjacent counties found slightly higher, but comparable total numbers of this species.

Northern Cardinal was abundant during the foray and seen across the county. They are an abundant species in the county (Rowe, website). Forays of adjacent counties found slightly lower total numbers of this species.

Rose-breasted Grosbeak was localized in low numbers during the foray. The northern section of the Blue Ridge Parkway, House Mountain, Guys Run Access Road in Goshen-Little Mountain, Thunder Ridge, and Brushy Hills were the reporting locations. This species is common in the county at higher elevations. Forays of adjacent counties found higher total numbers of this species, probably due to the lower average elevation in Rockbridge County.

Blue Grosbeak was found across the county, but in very low numbers. This species is uncommon in Rockbridge County, but can be found in shrubby growth in open areas (Rowe, website). The total number of Blue Grosbeaks was very low in comparison to total number of Indigo Buntings. Also, forays of adjacent counties found slightly lower total numbers of this species.

Indigo Bunting was abundant throughout the county in open areas and wood edges during the foray. This is not unexpected, as historically this has been an abundant species in the county (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Red-winged Blackbird was abundant during the foray. This species is common in the county in wet areas at lower elevations (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Eastern Meadowlark was common in grassy areas and pasturelands across the county. This species is common in the county (Rowe, website). With Eastern Meadowlarks being common in the county, other species with similar habitat preferences were expected to be more common than they were during the foray. Forays of adjacent counties found comparable total numbers of this species.

Common Grackle was abundant during the foray. This species is abundant in the county (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Brown-headed Cowbird was uncommon during the foray. This is an adaptable species and a fledgling was observed along Whetstone Ridge, being fed by a pair of Blue-headed Vireos. This species is common and can be expected at any elevation (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Orchard Orioles were common during the foray in wooded edges, typically adjacent to water. This species is considered locally common in the summer (Rowe, website). Surprising is that this species was encountered more frequently during the foray than Baltimore Oriole, which is considered common in this county. Forays of adjacent counties found lower total numbers of this species.

Baltimore Oriole was found in low numbers along waterways during the foray. This is considered a common species in the county (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

House Finch was uncommon during the foray. This species was found across the county, but mainly in open and developed areas at low elevations. This is considered an abundant species in the county (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Reports of **Pine Siskin** during the foray consisted of three single birds at three different locations. Wes Teets found one along the Natural Bridge Hayride Trail. Another bird was found by Wendy Richards at her property in the south west part of the county. The third bird was observed in the Jacobs Ladder area by Kieran Kilday. No other published records of Pine Siskin, during the month of June in Rockbridge County, were found. This species comes south, in large numbers, in the winter during eruptive years, but is not a regular wintering species. However, there was a large presence of this species in Virginia the winter before this foray. Bath County had one report of a Pine Siskin during the foray of that county.

American Goldfinch was abundant during the foray. This species was found across the county. This is considered an abundant species in the county (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

House Sparrow was common in localized populations during the foray. This species can be found in developed areas and is considered an abundant resident of the county (Rowe, website). Forays of adjacent counties found comparable total numbers of this species.

Species missed that have been recorded in Rockbridge County during the summer months included: Northern Bobwhite, Pied-billed Grebe, Great Egret, Golden Eagle, Great Horned Owl, Least Flycatcher, Horned Lark, Golden-winged Warbler, Mourning Warbler, and Dickcissel.

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TABLE 1: FORAY RESULTS FOR ROCKBRIDGE AND THREE ADJACENT COUNTIES

SPECIES	HIGHLAND, 2003	BATH, 2003	ALLEGHENY, 2011	ROCKBRIDGE, 2013
Canada Goose	16	300	42	268
Wood Duck	7	9	5	15
Mallard	6	~20	6	27
Northern Shoveler	1			
Lesser Scaup		2		
Hooded Merganser		3		
Ruffed Grouse	13	5	2	1
Wild Turkey	~20	~20	28	68
Northern Bobwhite		2		
Great Blue Heron		4		11
Green Heron	4	13		10
Black Vulture	10	8	15	130
Turkey Vulture	~200	~200	116	223
Osprey	2	3		2
Northern Harrier				1
Sharp-shinned Hawk	6	1	1	1
Cooper's Hawk	3	3	3	4
Bald Eagle	~10	~8	5	3
Red-shouldered Hawk	14	10	4	10
Broad-winged Hawk	11	13	9	8
Red-tailed Hawk	28	13	12	34
Killdeer	16	10	7	19
Spotted Sandpiper			2	
Ring-billed Gull	1	1		
Forster's Tern			1	
Rock Pigeon	43	6	32	78
Mourning Dove	~100	~100	111	377
Yellow-billed Cuckoo	~30	~40	73	40
Black-billed Cuckoo	5	8	3	1
Barn Owl				1
Eastern Screech-Owl	2		1	3
Great Horned Owl		1		
Barred Owl	7	3	3	5
Northern Saw-whet Owl	~1			
Eastern Whip-poor-will	2	7	19	6
Chimney Swift	common	common	41	146
Ruby-throated Hummingbird	~10	~20	20	36
Belted Kingfisher	~30	~10	7	10
Red-bellied Woodpecker	24	~40	57	76
Yellow-bellied Sapsucker	34			
Downy Woodpecker	~30	~30	57	67
Hairy Woodpecker	~20	~7	25	22
Northern Flicker	~75	~75	30	54
Pileated Woodpecker	~50	~50	119	85
American Kestrel	14	5	2	15
Eastern Wood-Pewee	60	90	79	93
Acadian Flycatcher	65	100	70	36
Willow Flycatcher	4	9	4	3
Least Flycatcher	51	30	2	
Eastern Phoebe	~19	~22	83	141
Great Crested Flycatcher	~90	~90	46	54
Eastern Kingbird	~30	~30	8	63

TABLE 1 (continued): FORAY RESULTS FOR ROCKBRIDGE AND THREE ADJACENT COUNTIES

SPECIES	HIGHLAND, 2003	BATH, 2003	ALLEGHENY, 2011	ROCKBRIDGE, 2013
Loggerhead Shrike	3	1		
White-eyed Vireo	3	38	9	12
Yellow-throated Vireo	16	34	28	33
Blue-headed Vireo	80	45	34	45
Warbling Vireo		9	1	30
Red-eyed Vireo	~500	~500	799	432
Blue Jay	~100	~100	114	233
American Crow	~300	~300	266	488
Fish Crow		1		24
Common Raven	~66	~33	52	24
Horned Lark	4			
No. Rough-winged Swallow				70
Purple Martin				21
Tree Swallow	common	common	121	224
Barn Swallow	~300	~300	128	525
Cliff Swallow	40	21		33
Chickadee species	~100	~100	148	
Carolina Chickadee	summed as chickadee species			161
Black-capped Chickadee	summed as chickadee species			22
Tufted Titmouse	71	182	210	289
Red-breasted Nuthatch	8	1	1	2
White-breasted Nuthatch	40	~50	101	72
Brown Creeper	8	5		
House Wren	56	17	6	14
Carolina Wren	~30	~80	91	300
Blue-gray Gnatcatcher	47	141	143	95
Golden-crowned Kinglet	40			
Eastern Bluebird	common	common	82	221
Veery	68	17		7
Hermit Thrush	24	5	2	
Wood Thrush	~60	~120	123	103
American Robin	abundant	abundant	326	333
Gray Catbird	common	common	60	46
Brown Thrasher	66	112	47	70
Northern Mockingbird	~15	46	54	175
European Starling	abundant	abundant	246	834
Cedar Waxwing	~250	~250	54	126
Ovenbird	89	~180	304	227
Worm-eating Warbler	23	~160	236	112
Louisiana Waterthrush	~20	~40	43	26
Blue-winged Warbler	hybrid	3	2	4
Golden-winged Warbler	6	10		
Black-and-white Warbler	~35	~100	79	51
Kentucky Warbler		2	3	4
Mourning Warbler	~5	~5		
Common Yellowthroat	~35	~50	3	6
Hooded Warbler	5	~70	43	47
American Redstart	~50	~150	46	46
Cerulean Warbler	4	~40	11	11
Northern Parula	49	122	24	14
Blackburnian Warbler	~30		31	2
Yellow Warbler	80	43	1	11

TABLE 1 (continued): FORAY RESULTS FOR ROCKBRIDGE AND THREE ADJACENT COUNTIES

SPECIES	HIGHLAND, 2003	BATH, 2003	ALLEGHENY, 2011	ROCKBRIDGE, 2013
Chestnut-sided Warbler	68	50	13	18
Magnolia Warbler	~100	2		
Black-throated Blue Warbler	~7	~6	1	3
Pine Warbler	3	37	38	45
Yellow-rumped Warbler	16			
Yellow-throated Warbler	~4	~10	1	4
Prairie Warbler	7	9	12	18
Black-throated Green Warbler	~140	~50	37	21
Canada Warbler	~18	few	1	5
Yellow-breasted Chat	5	~16	6	24
Eastern Towhee	~250	~250	248	265
Chipping Sparrow	~300	~300	257	265
Field Sparrow	~100	~100	36	217
Vesper Sparrow	14			
Savannah Sparrow	16	4		1
Grasshopper Sparrow	4	18	1	23
Song Sparrow	135	87	114	167
Dark-eyed Junco	195	~77	13	14
Scarlet Tanager	144	~300	327	196
Northern Cardinal	51	132	159	362
Rose-breasted Grosbeak	49	26	32	17
Blue Grosbeak		6	6	21
Indigo Bunting	very common	very common	389	476
Dickcissel	2			
Bobolink	~70			
Red-winged Blackbird	abundant	common	110	500
Eastern Meadowlark	abundant	common	20	187
Common Grackle	~300	~150	216	479
Brown-headed Cowbird	common	common	54	80
Orchard Oriole	20	40	14	105
Baltimore Oriole	59	47	22	46
Purple Finch	9			
House Finch	51	8	29	57
Pine Siskin		1		3
American Goldfinch	very common	common	141	293
House Sparrow	common	common	42	61
Total Number of Species	123	124	108	115
Total Number of Birds	~7000	~8000	7537	11845

AN ORNITHOLOGICAL BIOBLITZ AT BELMEAD IN POWHATAN COUNTY

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INTRODUCTION

Belmead, and its sister property, St. Francis, has considerable historic significance, and consists of 1052 hectares of land located on the south bank of the James in Powhatan County, about 45 km west of Richmond. It is owned by the Sisters of the Blessed Sacrament, who have established a non-profit corporation, FrancisEmma Inc., to promote and preserve the historic and environmental value of the property. Details of the history and current status of the property can be found at the FrancisEmma web site. The property has 4 km of riverfront and includes 404 hectares of riparian lowlands under conservation easement. The property also includes an equestrian facility with associated pastures and hay meadows, upland pine forest which is harvested periodically to provide income, and agricultural fields leased to a local farmer to grow cash crops.

Powhatan County is located in the Central Piedmont, which is an underbirded region of the state. The easternmost portion of the Central Piedmont Important Bird Area (IBA) is located to the west in neighboring Cumberland County. A survey of the state owned land in the Central Piedmont IBA was conducted in May 2010 (Bryan, 2010).

The only portion of Powhatan County to be included in a VSO Foray is 633 hectares of nearby state owned land which is now Powhatan State Park (Dolby, 2008) and there is no Audubon Christmas Bird Count coverage. It is unclear whether the property was surveyed as part of the 1985-1989 Virginia Breeding Bird Atlas Project (Trollinger and Reay, 2001, Jeff Trollinger, pers. comm.). Other than a brief survey conducted by the Richmond Audubon Society in April 1997, which identified 50 species, there had been no systematic ornithological inventory of the property. In late 2009, the lead author was contacted by Sister Jean Ryan inquiring about the possibility of developing a bird list for the property. An ongoing survey was started in December 2009, and both authors have continued the survey from April 2010 to the present. As of the end of April 2013, 127 species had been detected on the property. The data is archived in Virginia eBird under the Belmead, Belmead2 and St. Francis hotspots.

In 2011, the James River Master Naturalists (JRMN) Chapter was formed; this chapter is centered on Powhatan and Goochland Counties and uses Belmead as its headquarters for many of its activities. The JRMN has conducted a Great Backyard Bird Count on the property in February 2012 and 2013. In May 2013, FrancisEmma, with the assistance of JRMN, carried out a BioBlitz involving

a number of biological disciplines. This report details the findings of the ornithological portion of the BioBlitz.

METHODS

The ornithological survey used a protocol developed for the 2009 VSO Foray (Ealding, 2009). This involves the use of checklists set up in Microsoft Excel® in a format so that the data can be uploaded into eBird. Participants were asked to keep track of the time that they entered and exited their survey area, and the distance that they covered, as well as entries and counts of species recorded. Evidence of confirmed breeding was also recorded using criteria first used for the Virginia Breeding Bird Atlas (Trollinger and Reay, 2001) and more recently modified for use in the 2012 Loudoun County VSO Foray (Enders, 2012). Only confirmed breeding was recorded because the timing of the BioBlitz was such that migrants were still present and could have been displaying possible or probable breeding behavior without actually staying to breed. The position of nests was recorded using GPS where practical, or a brief description of the location. Emphasis was placed on minimizing disturbance during this activity, following the VSO Principles of Birding Ethics (VSO, 2009)

The property was divided into 25 zones by one of the members of JRMN, based on a number of criteria including predominant habitat type, and accessibility. The zones were not equal in area for practical reasons. The zones are shown in Figure 1 and descriptions of the habitat types found in each zone are presented in Table 1.

The participants were divided into seven teams, each with an experienced leader and at least one recorder who was responsible for collecting the data on to the checklists. In some instances, there was also a co-leader. Because of the limited number of teams, it was necessary for a team to cover more than one zone. Participants were also asked to report their location, the time and the observed direction of flight of Great Blue Herons, Bald Eagles and Red-tailed Hawks, to minimize multiple counting of the same individuals of these wide-ranging species which can often be seen over a considerable area.

In addition, participants surveying from a boundary between zones, such as a road, were asked to only count the bird in the zone where it was first seen, if it crossed into another zone. Participants were also asked to report any incidental sightings if they were traveling through a zone where they were not surveying, with the time of observation.



Figure 1. Aerial Photograph of BioBlitz Area, Showing Zones

Table 1: BioBlitz Zone Habitat Descriptions	
Zone	Habitat
A	Mixed deciduous forest, Lick Creek (tributary of Deep Creek), about 15% planted in wheat (presumed cash crop) in northwest portion
B	Mixed pine and deciduous forest, small mowed area (ca. 10%) around St. Francis School
C	Mostly pine forest, some shrub habitat, about 25% planted in wheat (presumed cash crop) in easternmost portion adjacent to road
D	Mixed deciduous forest bounded to west by Deep Creek (Conservation Easement), about 10% planted in wheat (presumed cash crop) in easternmost portion adjacent to road
E	Mixed deciduous forest bounded to east by Deep Creek; part of Conservation Easement
F	Winter wheat cover crop recently treated with herbicide (ca. 50%); mowed area with large Red Cedars around Belmead Cemetery (ca. 25%); shrub habitat (ca. 25%)
G	Pasture and horse boarding area (ca. 50%); mixed forest (ca.50%)
H	>90% recently planted in corn, riparian area along the river (part of Conservation Easement)
I	>90% recently planted in corn, riparian area along the river (part of Conservation Easement)
J	Mixed bottomland forest with wetland, riparian area along the river in Conservation Easement
K	Pasture and hay field, mowed area around the Mansion, ca. 10% mixed forest
L	Mixed forest, shrub land, small pond
M	Winter wheat cover crop recently treated with herbicide
N	Mixed upland forest
O	Pine forest recently logged, some hardwood
P	Mixed pine and deciduous forest with underbrush, wetlands
Q	Mostly pine forest
R	Mixed pine and deciduous forest with natural spring-fed creek
S	Winter wheat cover crop recently treated with herbicide (ca.40%), pasture and horse facility (ca. 20%), mixed forest (ca. 40%)

During the week prior to the BioBlitz, the authors and some of the team leaders visited the property in order to familiarize themselves with their assigned zones, and to test the data collection protocol. In addition, during the following week, a follow-up visit was conducted to reconfirm some of the distances covered, and to reconfirm the presence of the types of crops growing in the agricultural areas.

A dedicated account was created in eBird under the pseudonym BioBlitz 2013 and all the data from the checklists was entered into the predefined format of a Microsoft Excel® spreadsheet and uploaded into this account.

The BioBlitz was conducted during a 24-hour period on May 18, 2013. The temperature during the event was relatively mild with a low of 15°C and a high of 20°C. There was a period of heavy rain and thunderstorms during the early hours of the morning (2.00 – 8.00 AM) which delayed the start of observations, and a second period of heavy rain around noon, which continued into the early afternoon.

Details of the various sightings are reported in the Results section. Observers are identified by last name. The following team designations were used where relevant: Barnett (Lewis Barnett, Diane Butzin, Judy Caspari); Cook (Kim Cook, Julie Kacmarcik, Paula Spevak); Duke (Ben Duke, Liza Kate Walter); Ealding (Wendy Ealding, Bonnie Campbell, Bill Pawelski); Elton (Patty Elton, Suz Frost); McCullough (Kristina McCullough, Kaity McCullough, Rita Shultz, Risa Shultz); Sherrill (Ursula Sherrill, Marianne McKee, Mary Anna Wilcox); incidental observations provided by John Hayden and the Botany Team (Joanne Anderton, Alycia Crawl and Emily Gianfortoni), David Hopler (Fisheries Biologist), Sister Jean Ryan and Mick Knight.

RESULTS

Twenty participants, divided among seven teams, spent a combined total of 34 hours and covered approximately 39 km on foot and by car, during the event. A total of 98 species and one other taxon, not identified as to species, was recorded. A summary, with total counts, is presented in Table 2. Breeding evidence was found for Chuck-will's-widow, Blue-gray Gnatcatcher, Pine Warbler and Chipping Sparrow (details in the following section). A table of all counts by zone is presented as an Appendix.

The highest species count (72) was recorded for Red-eyed Vireo; the most widely distributed species was Indigo Bunting, recorded on 20 out of 25 checklists. The highest number of species (48) was reported from Zone G; the lowest number (3) was reported from Zone E. The latter finding was rather surprising given the nature of the habitat, where good diversity would be expected. It is likely explained by the limited effort given to this location, consisting solely of what could be detected by car from the road, and the fact that this portion of the survey was conducted around 11:30 AM, which is not optimal.

Table 2: Number of Individuals of Each Species in BioBlitz Area

Species	total # recorded
Canada Goose	19
Wood Duck	6
Wild Turkey	2
Northern Bobwhite	7
Double-crested Cormorant	12
Great Blue Heron	7
Green Heron	2
Turkey Vulture	2
Osprey	1
Mississippi Kite	3
Bald Eagle	2
Cooper's Hawk	1
Red-tailed Hawk	3
Killdeer	2
Rock Pigeon	1
Mourning Dove	24
Yellow-billed Cuckoo	26
Black-billed Cuckoo	1
Eastern Screech-Owl	1
Barred Owl	1
Common Nighthawk	1
Chuck-will's-widow	1
Chimney Swift	32
Ruby-throated Hummingbird	9
Belted Kingfisher	1
Red-headed Woodpecker	2
Red-bellied Woodpecker	16
Downy Woodpecker	8
Hairy Woodpecker	1
Northern Flicker	2
Pileated Woodpecker	8
Olive-sided Flycatcher	2
Eastern Wood-Pewee	29
Acadian Flycatcher	16
Empidonax sp.	1
Eastern Phoebe	11
Great Crested Flycatcher	3
Eastern Kingbird	1
White-eyed Vireo	12
Yellow-throated Vireo	9
Red-eyed Vireo	72
Blue Jay	13
American Crow	22
Fish Crow	2
Common Raven	4
Tree Swallow	8
Northern Rough-winged Swallow	2
Barn Swallow	7

Table 2: Number of Individuals of Each Species in BioBlitz Area

Species	total # recorded
Carolina Chickadee	23
Tufted Titmouse	45
White-breasted Nuthatch	6
Carolina Wren	41
Blue-gray Gnatcatcher	66
Eastern Bluebird	19
Swainson's Thrush	1
Hermit Thrush	1
Wood Thrush	23
American Robin	1
Gray Catbird	3
Northern Mockingbird	3
European Starling	1
Brown Thrasher	2
Cedar Waxwing	16
Ovenbird	22
Worm-eating Warbler	4
Louisiana Waterthrush	1
Black-and-white Warbler	8
Prothonotary Warbler	9
Kentucky Warbler	1
Common Yellowthroat	24
Hooded Warbler	5
American Redstart	2
Northern Parula	21
Yellow Warbler	3
Blackpoll Warbler	2
Black-throated Blue Warbler	1
Pine Warbler	21
Yellow-throated Warbler	5
Prairie Warbler	8
Yellow-breasted Chat	2
Eastern Towhee	7
Chipping Sparrow	38
Field Sparrow	1
Grasshopper Sparrow	6
Song Sparrow	1
Summer Tanager	21
Scarlet Tanager	14
Northern Cardinal	46
Blue Grosbeak	4
Indigo Bunting	66
Red-winged Blackbird	17
Eastern Meadowlark	15
Common Grackle	4
Brown-headed Cowbird	49
Orchard Oriole	6
Baltimore Oriole	1
House Finch	6
American Goldfinch	34
House Sparrow	5

Noteworthy reports are presented in more detail below under Selected Species Accounts; the team leader is identified in parentheses.

Selected Species Accounts:

Northern Bobwhite: Six individuals were recorded in Zones A and B on the St. Francis property (Sherrill), and one was heard calling in Zone J on the Belmead property (Ryan). This is a species which has declined precipitately throughout the state since the mid-1970's (Rottenborn and Brinkley, 2007), and has been identified by the National Audubon Society as the #1 Common Bird in Decline (National Audubon Society, 2007). The ongoing survey has prior reports from the Belmead property in 2012 and on the St. Francis property since 2010. However, Northern Bobwhites have been recorded as far back as 2007 on the Powhatan State Park property which is about 8 km downstream (Dolby, 2008) and more recently since the park opened in July 2013 (Ealding, Elton, Ames and Sherrill, 2013).

Osprey: One individual was seen along the river in Zone J (Barnett). This species is expanding its range and has been reported in the county since 2006 in every month except February (Ealding and Elton 2006-2013). Once rare due to the harmful effects of DDT and other organochlorine pesticides, the species has recovered since the use of DDT was banned in the US and is now breeding on the James upstream of Richmond as far as Goochland and Powhatan (Rottenborn and Brinkley, 2007).

Mississippi Kite: Three individuals first reported in Zone N, close to the boundary of Zone M, around noon (Duke) and subsequently seen by many observers and photographed (Barnett, 2013). It is likely that these birds put down in the midday storm centered just north across the river in Goochland County. They stayed around much of the afternoon, perched in trees and one was seen catching and eating dragonflies in flight. They were not present during a follow-up visit on May 22 (Ealding). There were other reports of this species in the area around this time, with two being reported on May 19 soaring in a northwesterly direction over a yard in Dinwiddie County, 64 km southeast (D'Onofrio, 2013), and as many as seven being reported from a suburban location about 32 km east in Short Pump, Henrico County, June 5-9 (Harding, 2013; Ake, 2013). The species is a first for the property, and may be a county record (Fenton Day, pers. comm.).

Bald Eagle: Two separately identifiable individuals were reported, an immature seen around 9:30 AM flying southeast from Zone G (Cook) and an adult seen around 5:30 PM flying southeast from Zone J (Cook). A pair attempted to nest on the property earlier in the year but the attempt failed when the nest was blown down three times in storms (Ryan, pers. comm.).

Black-billed Cuckoo: One heard calling in Zone N (Ealding) was a first for the property. This is an uncommon migrant in the Piedmont, and may be a county record (Fenton Day, pers. comm.).

Eastern Screech-Owl: A gray morph individual was photographed in Zone L by Cook and Kacmarcik as they were leaving the property after participating in the nocturnal moth survey. Although considered common throughout the state, this was a first for the property.

Common Nighthawk: One was seen flying over the Mansion parking lot in Zone K by Rita Schultz and Mick Knight at 7:30 PM. This is a first for the property.

Chuck-will's-widow: An individual on a nest was found in Zone O by Dr. John Hayden and the Botany team, who showed it to the McCullough team. This is a first for the property.

Olive-sided Flycatcher: Two were found in Zone B on the St. Francis property (Sherrill). This is a rare migrant in the Piedmont and is a likely county record (Fenton Day, pers. comm.) as well as being a first for the property.

Common Raven: Three were seen in Zone P at 10:20 AM (McCullough) and one was heard calling (Ealding) at 10:45 AM at some distance from the boundary of Zones N and M. The call was heard from the direction of the river west of the Mansion, which would be consistent with the location in Zone P which was approximately 600 meters in a straight line from the observation point at Zone N. On the day before the BioBlitz, the McCullough family found a family party of six Ravens at a very similar location around 4 PM. One of them may have been raiding a nest as it was driven off by "two very angry little brown birds". Common Raven is a species that has expanded its range south and east in recent years from its historical range in the mountains, and is a year round resident just across the river in Goochland County, where they are known to nest at the Luck Stone Quarry about 18 km due northeast.

Blue-gray Gnatcatcher: individuals were observed on nests in Zones B and K.

Swainson's Thrush: One was reported in Zone P (McCullough). Although it is a common spring migrant in the Piedmont, it was a first for the property.

Hermit Thrush: One was found in Zone N (Duke). Although this is a common wintering species on the property, its presence this late in the season is unusual (Rottenborn and Brinkley, 2007; Dalmás et al, 2010).

Cedar Waxwing: A total of 16 was reported: one in Zone A (Sherrill), 12 in Zone G (Cook), two in Zone M (Ealding) and one in Zone N (Duke). The species occurs year round in the county and may well breed in the area. It is known to be a confirmed breeder to the southwest in Charlotte and Prince Edward counties (Dalmás et al, 2010)

Worm-eating Warbler: Four were reported from Zone G (Cook); this is an uncommon migrant in this part of the Piedmont.

Kentucky Warbler: One was heard singing in Zone A in the deep woods on the east side of the entrance road to the St. Francis property (Sherrill); this may well be the same

individual heard at this same location during a scouting trip on May 15 (Elton, 2013). There is no confirmed breeding evidence for this uncommon species on the property although it is known to breed about 26 km southwest at Bear Creek Lake State Park in Cumberland County (Evan Spears, pers. comm.)

Black-throated Blue Warbler: Although a common spring migrant in this part of the state, one found in Zone G (Cook) was a first for the property.

Pine Warbler: An individual carrying food was seen in Zone O.

Chipping Sparrow: An individual carrying food was seen in Zone S.

Field Sparrow: Only one individual was reported, in Zone G (Cook). This was rather surprising as the ongoing survey indicates that the species is present throughout much of the year. This is ranked #9 on the National Audubon list of 20 common North American Birds with the greatest population declines since 1967 (National Audubon Society, 2007)

Grasshopper Sparrow: Six individuals were reported, one in Zone F (Barnett), four in Zone G (Cook) and one in Zone K (Barnett). There are prior records for the property from 2011 and 2012. Recent surveys in July 2013 have found a similar number present within a small, well-defined area at nearby Powhatan State Park. This species is ranked #10 on the National Audubon list of 20 common North American Birds with the greatest population declines since 1967 (National Audubon Society, 2007).

Eastern Meadowlark: Fifteen individuals were reported: two in Zone A (Sherrill), one in Zone F (Sherrill), eight in Zone G (Cook), two in Zone K (Elton) and two in Zone M (Ealding). The ongoing survey has recorded the species as a year round resident on the property. This is encouraging as the species has undergone a significant statewide decline since the 1960's (Rottenborn and Brinkley, 2007) and is #6 on the list of Common Birds in Decline (National Audubon Society, 2007).

DISCUSSION

The intensive effort characteristic of a BioBlitz contributed significantly to the knowledge about the avifauna of the property. Eight species were added to the property list as indicated in the Results section, bringing the property total to 135 species. Despite the fact that the BioBlitz was conducted at a time that is traditionally considered to be past the peak of spring migration, the fact that 98 species were recorded is impressive. In part this may be related to the cold weather earlier in the spring season which led to a delayed spring migration. A Spring Bird Count conducted in Williamsburg on May 7 noted fewer species than expected due to these conditions (Cristol, 2013); in the case of the BioBlitz, this delay proved beneficial in terms of the numbers of species recorded. In addition, it is likely that some of the specific weather conditions immediately before

and during the BioBlitz caused migrants to put down on the property; the inclement weather of the early hours of May 18 may well have caused the migrating Black-billed Cuckoo and Olive-sided Flycatchers to seek brief refuge. Certainly it seems very likely that the midday storm caused the Mississippi Kites, a soaring species, to put down when they ran into the storm centered immediately to the north. On the other hand, the weather conditions were unfavorable for other soaring resident species such as Black Vulture and Red-shouldered Hawk, which are known to be present on the property. The absence of Purple Martins was also surprising, since they occur on the property, although other members of the swallow family were present as expected.

The finding of Common Nighthawk and the confirmation of nesting Chuck-will's-widow was particularly welcome, as a dedicated effort by the authors in June 2012 had failed to locate any nightjar species. Both species have shown significant declines in their populations in recent years, for a number of possible reasons, including a loss of flying insect populations due to pesticide use (Hess, 2013; Musher, 2013). It is noteworthy that the BioBlitz moth team reported what they regarded as good numbers of potential prey species in the form of nocturnal lepidopterans, particularly given the unfavorable rainy conditions (James Reilly, pers.comm.).

The number of confirmed breeding species appears low at around 4%, (4 out of total species count of 98). This may be in part because the timing of the BioBlitz did not coincide with the peak season for detecting confirmation. Breeding bird studies such as the USGS North American Breeding Bird Survey and the VSO Forays are typically conducted about a month later, in mid-June, when all likely migrants have passed through and evidence of confirmed breeding is easier to detect. For instance, during the June 2009 VSO Foray, which was conducted in Greensville and Sussex Counties, 26% of the 99 species detected had confirmed breeding evidence (Ealding, 2009). A more relevant comparison, both in terms of timing and location, can be made with the May 2010 Central Piedmont IBA Survey (Bryan, 2010). This survey, conducted on state owned land in a nine-county area just to the west of Powhatan County, recorded 7 species with evidence of confirmed breeding out of a total of 112 species detected, giving a confirmation rate of around 6%.

The high total species count is a reflection of the high environmental diversity of the property. The Sisters are to be commended for their efforts in maintaining this habitat diversity along an important portion of the James River. The property includes habitat types which are important for species such as Grasshopper Sparrow, a grassland-dependent species which has suffered a significant decline since 1966, and Yellow-breasted Chat, a shrubland-dependent species (Askins, 2002). Maintenance of these specific habitat types by appropriate mowing schedules and preservation of hedgerows (Bakermans and Rodewald, 2002) along with other good management practices (Wolter, Capel, Pashley and Heath, 2008) would be of great benefit.

While the study was impressive in terms of the numbers of species recorded, it by no means represents full coverage of such a large property. One of the limitations of the study was the limited availability of experienced birders to act as team leaders, due to scheduling conflicts with other volunteer ornithological events and personal events such as graduations. This meant that a limited number of teams had to cover multiple zones and were not able to provide maximum coverage. In addition, the area is not perceived as a birding destination, which makes it difficult to recruit leaders from outside the immediate area.

Another limitation of the study was that its timing was not optimal for the detection of confirmed breeding species. There were tantalizing reports of the presence of species such as Cedar Waxwing and Kentucky Warbler, with no evidence of confirmed breeding. With the recent opening of Powhatan State Park (opened July 2013) approximately 8 km downstream, a more detailed investigation of breeding species on the Belmead property and at the park would be a worthwhile service project for the JRMN. Both locations also merit inclusion in any future VSO Breeding Bird Atlas Project.

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Appendix: Species Counts By Zone:

Zone	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Canada Goose							6		6	5						2			
Wood Duck							4			2									
Wild Turkey										2									
Northern Bobwhite	3	3								1									
Double-crested Cormorant							12												
Great Blue Heron			1				2			1				2					1
Green Heron										2									
Turkey Vulture															2				
Osprey										1									
Mississippi Kite														3					
Bald Eagle							1			1									
Cooper's Hawk														1					
Red-tailed Hawk	1												2						
Killdeer							2												
Rock Pigeon (Feral Pigeon)							1												
Mourning Dove	4	1		1			7	2		1	4			2			1		1
Yellow-billed Cuckoo	3			1			4		2	9					1		3	2	1
Black-billed Cuckoo														1					
Eastern Screech-Owl													1						
Barred Owl	1																		
Common Nighthawk											1								
Chuck-will's-widow																1			
Chimney Swift	3						12	9	4	1	3								

Zone	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Ruby-throated Hummingbird	3									3						1			2
Belted Kingfisher							1												
Red-headed Woodpecker		1																1	
Red-bellied Woodpecker	2	1		3			3	2	1	2	1								1
Downy Woodpecker	2							2		1							2		1
Hairy Woodpecker														1					
Northern Flicker										1				1					
Pileated Woodpecker	1									4				1		1	1		
Olive-sided Flycatcher		2																	
Eastern Wood-Pewee	5			3	1		2	3	2	3	2	1		1		4			2
Acadian Flycatcher	2			4			2		1		1			1		4	1		
Eastern Phoebe							4		1										
Great Crested Flycatcher	1			1			2		1		3			1		1		1	
Eastern Kingbird								1			1					1			
Empidonax sp.														1					
White-eyed Vireo	2	4				1				1	1			2				1	
Yellow-throated Vireo	2			1			1	1		1				1		2			
Red-eyed Vireo	5	3		4			9	6	2	14	3	2	1	5	2	4	5	2	5
Blue Jay							1			6				1		4	1		
American Crow	3		3	1			3	2	1	2	2		1	2		1			1
Fish Crow								1						1					
Common Raven														1		3			
Barn Swallow						6						1							
Carolina Chickadee	2	2					5	2		3	2			3			3		1
Tufted Titmouse	2			5			3	2	3	7	1	1		6	2	3	4	3	3
White-breasted Nuthatch	2			3										1					
Carolina Wren	4	1	4	2			5	3		6	5	1		3	1	2		1	3
Blue-gray Gnatcatcher	8	2		4			11	5		10	5		1	8	2	5		2	3
Eastern Bluebird						1	11	4			1								2
Swainson's Thrush																1			
Hermit Thrush														1					
Wood Thrush	5	1		3						2				8		1		1	2
American Robin												1							
Gray Catbird				2															1

Appendix (cont'd): Species Counts By Zone:

Zone	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Northern Mockingbird				1			1				1								
Brown Thrasher														1					
European Starling		2																	
Cedar Waxwing	1						12						2	1					
Ovenbird	2			1			5	2		2				2	2	3	1	2	
Worm-eating Warbler							4												
Louisiana Waterthrush														1					
Black-and-white Warbler								1								1	3	3	
Prothonotary Warbler		1		2			2		3	1									
Kentucky Warbler	1																		
Common Yellowthroat	1				1	2	3	4		9		1		1		2			
Hooded Warbler	2															2		1	
American Redstart	1			1															
Northern Parula	1			2			3			8	1			5					1
Yellow Warbler								2											1
Blackpoll Warbler														1				1	
Black-throated Blue Warbler							1												
Pine Warbler	1		1	1												4	2	9	3
Yellow-throated Warbler	1		1						2					1					
Prairie Warbler						2							1	3		1			1
Yellow-breasted Chat												1	1						
Eastern Towhee	2						1									2		2	
Chipping Sparrow	4		3	2				9	2	2		2	2	2					10
Field Sparrow								1											
Grasshopper Sparrow							1	4				1							
Song Sparrow								1											
Summer Tanager	1			2			2	2			2			4		2	1	3	2
Scarlet Tanager	2	1		2			1	1	1					3		1		1	1
Northern Cardinal	5	1	2				5	1	2	6	5	1	4	7				1	6
Blue Grosbeak	1		1						2										
Indigo Bunting	9	2	5		1	3	11	7	2	4	3	2	2	3	1	5	2		4
Red-winged Blackbird									9	7		1							
Eastern Meadowlark	2						1	8			2	2							

[illegible]

MINUTES OF VSO ANNUAL MEETING

April 26, 2013; Leesburg, VA

Alyce Quinn, VSO Secretary

Friday Night Meeting

Welcome: Andrew Dolby called the meeting to order at 7:05 p.m. and thanked the Loudon Wildlife Conservancy for hosting.

Reports:

Secretary – Jerry Hogansen moved to approve the minutes from the 2012 Annual Meeting, Wes Brown seconded, motion passed.

Treasurer – Our beginning balance was approximately \$43,000 in the general fund and \$139,000 in the restricted fund. Our ending balance was \$42,710.57 in the general fund and \$140,811.04 in the restricted fund.

Nominating Committee – the proposed nominees for officers and board members for 2014 are:

- President – Joe Coleman
- Past President – Andrew Dolby
- Vice President – Jeff Trollinger
- Secretary – Judith Wiegand
- Treasurer – Sue Thrasher
- Membership Secretary – Shirley Devan
- Newsletter Editors – Linda Fields and Alan Schreck
- Raven Editor – Wes Brown
- Board of Directors – Class of 2016: Bill Williams of Williamsburg, Lenny Benkester of Arlington, and Daniel Bieker of North Garden. Bruce Johnson of Lovettsville will step in to fill a vacancy in the Class of 2014.

Jerry Hogansen moved to adopt the selection, Betty Mooney seconded, motion passed.

Program

Identifying Warblers, the Jewels of the Eastern Forest, presented by Mike Bowen, Linda Friedland and Jim Nelson of Maryland's Montgomery County Bird Club.

The meeting adjourned at 7:13.

Saturday Meeting

Saturday morning participants were offered a variety of field trips in the area.

Saturday afternoon the following topics were covered in the Papers Session:

- *Modeling migratory flight routes of Golden Eagles in variable meteorological and topographic landscapes.* Andrew Dennhardt, Division of Forestry and Natural Resources, West Virginia University.
- *Virginia Working Landscapes: a citizen science effort to determine the effects of grassland management practices on bird diversity.* Amy Johnson, Smithsonian Conservation Biology Institute.

- *Breeding pair response to intraspecific territorial intrusion by Bald Eagles in the Chesapeake Bay.* Courtney Turrin, Biology Department and Center for Conservation Biology, College of William and Mary.
- *Depuration of and recovery from methylmercury in European Starlings.* Mary Whitney, Biology Department, College of William and Mary.
- *Comparative analysis of physiological stress indicators in Tufted Titmouse.* Andrew Dolby, Department of Biological Sciences, University of Mary Washington.

Banquet

Joe Coleman thanked Donna Quinn, the original chair of the event up until a year ago when that position was passed on to him, and everyone involved in planning the meeting. Lauren Neal talked about the upcoming Breeding Bird Foray in Rockbridge County. Andrew Dolby announced the award winners listed below. Dolby thanked Shirley Devan for taking over as Membership Secretary and Alyce Quinn for her five years as secretary; he also acknowledged Thelma Dalmas and several past presidents in attendance.

Jackson M. Abbott Conservation Award

The recipient of this year's award is Larry Cartwright, for his work as an educator, survey participant and coordinator, record reporter, and field trip leader.

JJ Murray Research Award

This year's awards went to Vitek Jinirec, M.S. candidate at the College of William and Mary, for "*Wood Thrush habitat selection at the home range scale: implications for local distribution*" and Anna Tucker, M.S. student at Virginia Commonwealth University, for "*Fitness costs and benefits of conspecific brood parasitism in a cavity-nesting warbler*," focusing on the Prothonotary Warbler.

Mitchel A. Byrd Award

Dr. James Fraser, Professor of Wildlife Sciences at Virginia Polytechnic and State University (Virginia Tech) received this year's award in recognition of his outstanding scientific record and the far-reaching effects of his work on Virginia's birds.

Speaker

The Bluebird Effect: Uncommon Bonds with Common Birds. Guest speaker Julie Zickefoose delighted the crowd with anecdotes about her work both in the field and as a wild bird rehabilitator.

Sunday

A few field trips were again offered on Sunday morning.

Review of "BIRDS OF VIRGINIA: A FALCON FIELD GUIDE" by Todd Telander
list price \$9.95; FalconGuides, Globe Pequot Press; 2012; 104 pages

The slim volume reviewed here is one in a series currently produced by FalconGuides, an imprint of Globe Pequot Press. The book does not deliver what the title promises, and is a disappointment for several reasons. It does not cover all the birds known to occur in Virginia, or even a majority of them, but claims to focus on 180 of the state's most common species. Unfortunately the guide shows remarkable confusion about which birds are truly common in Virginia. Black Rail is included in the guide's 180 "common" species, for example, while several that are distinctly more common are missing or treated only briefly. Chuck-will's Widow is included; Whip-poor-will is never mentioned. Golden-winged Warbler is included, but Blue-winged Warbler is not. Swainson's Thrush and Veery are omitted. Hairy Woodpecker is only briefly mentioned in the entry for Downy Woodpecker, with no illustration is given for Hairy Woodpecker, and the information provided on the species is imprecise (how much larger is it, and how long is its "longer bill?"). Perhaps most remarkably, both White-throated and White-crowned sparrows are excluded, though Saltmarsh and Seaside are included.

The book's compact size would make it convenient to carry, but it doesn't meet a need that would lead a birder to take it into the field. While it is labeled as a field guide by its publisher, it fails to meet the expectations today's active birders, or even those who might be casually interested in birds, have for field guides. This applies to the book's illustrations as well as to the species included. Accuracy is a minimal expectation for field guide images, and ideally such images can also showcase the individual style of an artist. David Sibley's illustrations are an example of this, as were Roger Tory Peterson's before him. I was inclined to enjoy Todd Telander's work in this guide based on the first few pictures I saw, but a careful review of the book's illustrations reveals numerous frustrating inaccuracies, especially in the colors of birds shown. Some, such as the bright, nearly lime green of the Acadian Flycatcher's back and its excessively white breast and belly, might be the result of poor color reproduction in the printing process. But too many of the illustrations seem awry: a bright Chimney Swift, the remarkably pale gray back of the Red-shouldered Hawk, a drab American Woodcock, and the excessively orange belly of the Great Crested Flycatcher are other examples, at least in the copies of the book that I examined. No matter whether the artist, the production staff, or both are to blame for this, it is unfortunate.

The volume has other problems as well. Range information for numerous species is brief to the point of confusion. The entry for the Golden-winged Warbler states that it is found "in western Virginia" in summer and as a "spring and fall migrant elsewhere." King Rails are not illustrated, but in the entry for Virginia Rail they are mentioned and said to "summer in eastern Virginia." Such oversimplification can be more misleading than helpful. The short habitat statements given for each species are often too general to be useful as well. Only one plumage is shown for many of the species; for several, the male is shown in profile but only the female's head is illustrated, but even this approach is inconsistent. The orioles show female head profiles; the Brown-headed Cowbird, on the facing page, does not. Only adult males of American Kestrel, Purple Martin, Summer Tanager, and House Finch are shown. Only adults of Double-crested Cormorant, both Night-Herons, and all hawks and gulls are illustrated. More examples could be listed, and I could cite nomenclatural errors as well. Not all of the book's errors are strictly ornithological. In its brief Introduction the guide names the "Peidmont Plateau" [*sic*] as one of Virginia's "three distinct geographic zones." In the next sentence, the Coastal Plain is described as lying "west beyond the Fall Line...."

Given the preceding comments, my greatest concern about a book like this is that it might be given to someone who is just beginning to become interested in birding or ornithology, and that they will be frustrated and misled rather than encouraged. It is not intended to be a comprehensive field guide, so I do not think that experienced birders would use and be misguided by the book, but its many faults could do beginners a disservice. FalconGuides publishes some excellent guides for birding, hiking, climbing, and other activities, so it is disappointing to see this book and similar volumes enter their catalog. This guide is one of a series by the same author on birds of various states; others include *Birds of Colorado*, *Birds of North Carolina*, *Birds of Texas*, and more. I wouldn't recommend *Birds of Virginia* as a guide to the birds of Virginia, nor would I recommend these other volumes, assuming they follow the model of the Virginia guide reviewed here.

C. MICHAEL STINSON
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Kingsville, VA

**Review of "THE WORLD'S RAREST BIRDS" by Erik Hirschfeld, Andy Swash, and Robert Still
(2013; Princeton University Press; 360 pp.; list price \$45.00)**

"The World's Rarest Birds" contains a wealth of information about rare and threatened birds in general, their status as of 2013, and the threats they (and other wildlife) face. The book is lavishly illustrated with hundreds of excellent photographs, including those of each of 515 of the world's most endangered species, plus illustrations of another 75 species for which no photographs exist. Its size and shape suggest "coffee table book" and, although it could easily serve as one, it is much more than that. You could certainly pick it up when you were in the mood to be wowed by lovely pictures of gorgeous birds. However, it's also a reference work, containing lists of the world's extinct, currently threatened and endangered bird species, estimates of their population sizes and details of their locations, habitat preferences and behaviors. It could easily serve as a wish-list and travel planner for birders who enjoy the challenge of looking for rare birds or who, with several thousand birds on their life list, are filling in the blanks that remain. In one sense, the book could even be used as a field guide, since it contains images and information about unphotographed species and species whose photographs have not been previously published. You wouldn't want to carry this book in the field (heavy!), but relevant sections could be perused prior to a trip, or at your lodging.

The book's main purpose appears to be to increase the birding public's awareness of bird conservation issues. It contains information about general threats faced by all birds, and also about the specific threats to each currently-endangered species. The major section of the book (278 pages) is devoted to the 515 critically-endangered species. Four species are listed per page, with a photograph, a range map, and an informative paragraph devoted to each. The authors have divided the globe into seven regions, each with a corresponding division of this section of the book:

- Europe and the Middle east
- Africa and Madagascar
- Asia
- Australasia
- Oceanic Islands
- The Caribbean, North and Central America
- South America

Each division begins with a brief regional description, followed by a general discussion of the conservation challenges in it, and ends with the information and photographs of the critically-endangered species within it. A "quick response" (QR) code, if available, is provided for the species (you can scan the QR code with a smartphone and get the species fact sheet on the BirdLife International website <<http://www.birdlife.org>>). The species within each global division are presented in standard taxonomic order, and Appendix 2 lists all of the globally threatened species by bird family. For conservation-oriented readers interested in a historical perspective, there is some information in the individual species accounts, and Appendix 1 lists the former region and year last recorded for all extinct species.

Finally, there is an 8th division, "Data Deficient Species", that lists "Sixty species so poorly known that it is not possible to assess their threat status." Only 21 have accompanying photographs, and the information available is so sparse that often only distribution and a one-line accompanying note are listed. International birders would do well to read this division carefully; a reported sighting of any of these birds, especially if accompanied by notes on time seen, habitat, position, behavior, photographs, etc. would be a significant addition to our knowledge.

SUSAN S. BROWN & WESLEY M. BROWN

*Professors Emeritus, Univ. of Michigan Ann Arbor
VSO members & Virginia Master Naturalists
Parksley VA*

Review of "THE WARBLER GUIDE" by Tom Stephenson and Scott Whittle (2013; Princeton University Press; 548 pp.; list price \$29.95) and the "SONG AND CALL COMPANION GUIDE" (The Cornell Lab of Ornithology Macauley Library; list price \$5.99)

I am sure by now that if you are an active birder and subscribe to bird list serves and/or organizations, you have seen *The Warbler Guide* by Tom Stephenson and Scott Whittle announced and advertised with accompanying reviews. So, what can I add to these reviews and the authors' own description of their guide located at <http://www.thewarblerguide.com>?

I think I can add the comments of someone who has actually used the guide for the last several months. I was particularly interested to see if the design of *The Warbler Guide* helped me "be as efficient as possible in identifying a warbler" as the authors state in their online introduction.

For my first warbler identification, the features of *The Warbler Guide* that I used were a Quick Finder and the Distinctive View section of a Species Account. The look that I had of this warbler was from the underside only. It then, quickly disappeared into the tree leaves. I used the Underview Quick Finder at the front of *The Warbler Guide* because that is the view of the bird I saw. There I found a photo that exactly matched! The tail, undertail coverts, breast and throat were just as I had seen them.

I next went to the Species Account for this warbler and quickly confirmed that it was a magnolia warbler. What is exceptional about the magnolia's Species Account is that there is a section for brightly colored magnolias (19 photos) and a separate section for drab ones (18 photos). My bird was a poorly marked magnolia and this section showed other looks for drab magnolias.

The Distinctive Views area located in same Species Account showed an enlarged photo of its unique tail pattern that I had clearly seen. The Comparison Species area easily helped eliminate any possible look-alikes (8 photos).

Did *The Warbler Guide* help me be more efficient at identifying this warbler? I used one step to identify the warbler using the specific photo in the Underview Quick Finder. I then confirmed my identification using two other photos located in the Species Account for drab magnolia warblers. The answer is yes! What's more important, I was confident that the bird I had seen for a few seconds was in fact, a magnolia warbler.

The authors also include; "bright/ drab" sections for ten other species, including: chestnut-sided and Blackburnian. Which brings me to the second time I used *The Warbler Guide*. Again, I had a very quick look. The bird darted out from a clump of leaves and darted right back. The view would be best described as oblique. Having seen the throat of this bird and the upper side, I knew what it was. Still,

I used the 45° View Quick Finder to see if my view of the bird was there. I found the bird! It was a Blackburnian warbler with its brightly colored throat.

The "Quick Finders" are unique features of *The Warbler Guide*. There are Finders for whatever view of a warbler you may see: face, side, 45°, underview and undertails. There is a "Quick Finder" by geography (East, West) and season (Spring, Fall). Both have full body views. If one can't find a warbler in any of the Quick Finders, I don't think you have seen a warbler! And there is a section in *The Warbler Guide* for just that, the Similar Non-warbler Species section. This section includes vireos, kinglets, verdins, and others.

In each individual warbler's Species Account are included photos of Comparison Species. Since the similar species are shown with the specific warbler being identified, there is no leafing through pages to find them: a feature that is an improvement over field guides.

Individual Species Accounts are in alphabetical order. How nice not to have to worry that taxonomic ordering will relocate a bird in the guide!

Finally, the section "What to Notice on a Warbler" introduces basic field marks such as contrast and color, cheek patches, hooding, eye-rings and eye-arcs, body shape, bill shape and many other identifiable characteristics. By using various photos of warblers with similar field marks, the authors have organized a very good review of diagnostic field marks that could be used to refresh skills prior to warbler migration periods. For novice birders, this section will be invaluable for learning what and where to find field marks on quickly moving tiny warblers.

The Warbler Guide also comes with a *Song and Call Companion* available at the MacAuley Library online store at The Cornell Lab of Ornithology for a separate price. It comes with a short pdf document that includes instructions for using and downloading the Companion audio vocalizations. The Companion must be downloaded on to a computer and then can be synced with a mobile device, such as an iPod or cell phone.

The 1966 field guide by Robbins, Bruun & Zim (Robbins, C. S., B. Bruun & H. S. Zim. 1966. *Birds of North America, A Guide to Field Identification*. Western Publ. Co., Wisconsin. 340 pp.) introduced sonograms as a visual means for identifying a bird's song. But *The Warbler Guide's* section "How to Listen to Warbler Songs" (21 pp), spells out how a sonogram illustrates song structure by breaking the song into elements, phrases, and sections. It is a marvelous tutorial!

Every vocalization that is covered by *The Warbler Guide* is in the *Companion* which exactly follows *The Guide's* page-by-page order. It is not hard to find a specific vocalization because the page number and identifying number/letter of the song are the title of the vocalization in the playlist on your computer.

Again, the authors have provided alternate songs sung by the same bird as well as similar sounding songs from different species, whether warbler or not! Think trills from pine warblers, worm-eating warblers, and chipping sparrows.

The section on "Learning Chip and Flight Calls" is a challenge to all birders to learn these small, quick vocalizations for our resident and migrating warblers. The authors have organized warbler calls into six different groups. Listening to these calls while viewing the sonogram and trying to hear the pitch rising or falling will help train your ear to identify the slight differences. Possibly, those birders with musical training will find this an easier task than others.

Finally, there is a quiz section in the back of *The Warbler Guide*. Take it if you dare!

The one drawback to *The Warbler Guide* is its size and weight. This is not a field guide! It will not fit into a pocket or fanny pack. If you carry a book bag in your car when birding, this would definitely be in it.

For all birders, *The Warbler Guide* is excellent for identifying all North American warblers. The Species Accounts are rich with easily understood information including icons, range maps, comparison species and excellent photos of actual birds in the field. For the quickly seen and/or confusing fall warblers, this will become a go-to reference. In spring, the *Companion* audio list for warbler songs and calls will develop and strengthen any birder's song identification skills, whatever your skill level.

JOANNE LASKOWSKI

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Review of

"ALEXANDER WILSON: THE SCOT WHO FOUNDED AMERICAN ORNITHOLOGY"

by Edward H. Burt, Jr. and William E. Davis, Jr.; 2013;

Harvard University Press, 444 pp.; \$35.00 (hardcover)

Authors: Burt is a Professor of Zoology at Ohio Wesleyan University; in 1991 he was the North American author for *A Photographic Guide to Birds of the World*, which was revised in 2005. He is former president of the Association of Field Ornithology, the former editor of its journal, and is currently president of the American Ornithologists' Union. Davis is Professor Emeritus of Natural Sciences and Mathematics at Boston University.

This well researched volume succeeds in giving the reader an appreciation for Alexander Wilson, rather than John James Audubon, as the Father of American Ornithology. It is organized by the themes in Wilson's life, a history of his life, extensive information about each of his remaining illustrations that were used in *American Ornithology*, his pioneering work in the field of ornithology, and his legacy.

Wilson's nine volumes of *American Ornithology* were published from 1808 to 1814, well before Audubon's *The Birds of America* was published from 1827 to 1838. Wilson was the first American to describe and classify the birds of North America within the Linnaean system. By so doing, he resolved misconceptions on many North American species. The authors propose that Audubon may have actually gotten the idea for publishing *The Birds of America* after meeting Wilson in 1810 and seeing the first two volumes of *American Ornithology*.

Wilson made numerous contributions to the study of birds and the knowledge of birds in America. He was the first to try to write about all the species in America. Others had written more regionalized accounts of species, e.g., Mark Catesby's *Natural History of Carolina, Florida, and the Bahama Islands*. In *American Ornithology*, Wilson ultimately described almost eighty percent of the birds that were present in the United States in 1812. This percentage may have been higher if he hadn't died while working on *American Ornithology*. (A friend and fellow ornithologist, George Ord, undertook finishing the work on Volume 9 of *American Ornithology* and publishing it posthumously.) Wilson described 26 of the 96 new North American bird species that were discovered from 1808 to 1813; he discovered more new species than any other single person during this period.

Unlike earlier chroniclers of North American birds, Wilson lived and traveled extensively in the United States. Instead of just studying preserved specimens, as was common practice, he observed live birds in their native habitat. While doing so, he kept meticulous notes. He also captured some live birds to further study them. Throughout

his travels and correspondence, Wilson welcomed and recognized others' observations of birds and the birds' behavior. Thus, he was the first to acknowledge the importance of citizen science.

Despite the lack of formal education, Wilson did something remarkable and revolutionary. Based on his observations, he formed hypotheses about species and then tested them. Despite the thinking at the time that all hawks must consume mammals, or at least birds, to maintain their power and strength, Wilson, upon seeing Mississippi Kites sweeping like swallows in trees full of locusts, hypothesized that the kites were catching the insects on the wing and that they might be their primary source of food. He then tested his theory by shooting and dissecting several kites and proved his theory, writing, "those large beetles ... were the only substances found in their stomachs." He was the first ornithologist to thus quantify his observations and introduce a scientific method. His approach of observing live birds was new and uniquely American. He attempted to thoroughly study each species he encountered, e.g., its anatomy, flight, diet, nest, clutch size, eggs, habitat, migration, thus expanding ornithology beyond the mere description of a bird's appearance.

There are few references to Virginia in this volume. When Wilson first arrived in America, he "settled briefly in Sheppardstown on the Virginia frontier". Thomas Jefferson published *Notes on the State of Virginia* which included a list of birds in the state; this was the first known state bird list. Wilson probably saw this as he began corresponding with Jefferson about birds in 1805. Their correspondence continued and Jefferson bought a subscription to *American Ornithology*. In 1808 Wilson delivered the first volume of *American Ornithology* to Jefferson at the White House. Jefferson gave him letters of introduction to several of his cabinet members and the Governor of Virginia. Wilson remained in Virginia, traveling to Georgetown, Alexandria, and Richmond selling subscriptions and observing birds. The only birds of Virginia that are mentioned are a "Sora, as the Virginians call it" and "the lower parts of Virginia, North and South Carolina, and Georgia are the winter residences of these flocks [of grackles]."

This book is as much a compendium of Wilson's illustrations as a biography. About half of the book is the chapter titled, 'Illustrating *American Ornithology*.' This chapter includes all of the known sketches, drawings, and paintings used for the plates in *American Ornithology*. Extensive comments are included with each about what species is depicted, background information on where

the original was drawn, the circumstances, where the researchers found the painting, the accuracy of the rendering, how lifelike the pose was (or was not), the depicted surroundings, etc.

A minor flaw in this book is the redundancy. Rather than being arranged chronologically, it is organized by: Wilson's illustrations, his ornithology, his legacy, etc., thus many events in Wilson's life are mentioned repeatedly. For example, Wilson and Audubon's meeting in 1810 and Wilson's correspondence with Thomas Jefferson are each described in at least three different places. Despite this redundancy, the book is very informative about Wilson, his contributions to the study of birds, and his nine volumes of *American Ornithology*.

REXANNE BRUNO
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LOCAL CHAPTERS OF THE VIRGINIA SOCIETY OF ORNITHOLOGY

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Back Bay Birding Club	Atlantic Wildfowl Heritage Museum	1113 Atlantic Ave.	Virginia Beach	VA	23451-3503	
Bath-Highland Co. Bird Club		P.O. Box 234	Warm Springs	VA	24484-0234	pareum@gmail.com
Blue Ridge Birders	c/o Elaine Driggers	P. O. Box 885	Independence	VA	24348-0885	
Blue Ridge Young Birders Club	c/o Gabriel Mapel	P. O. Box 18	New Hope	VA	24469	info@blueridgeyoungbirders.org
Bristol Bird Club	c/o Lois Cox,	PO Box 385	Bluff City	TN	37618-0385	
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Hampton Roads Bird Club	c/o David Youker	110 Stone Lake Court	Yorktown	VA	23693-3714	Youkerd@aol.com
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Margaret H. Watson Bird Club		188 Farmville Lake Rd.	Farmville	VA	23901-2390	dcfehrer@yahoo.com
Middle Peninsula Bird Club	Main Library	PO Box 2380	Gloucester	VA	23061-2380	jericon7@cox.net
Monticello Bird Club	c/o Doug Rogers	P.O. Box 4362	Charlottesville	VA	22905-4362	mbcnews@embarqmail.com
New River Valley Bird Club		P.O. Box 361	Blacksburg	VA	24063-0361	
Northern Neck of Virginia	Audubon Society	P.O. Box 991	Kilmarnock	VA	22482-0991	paula.boundy@va.metrocast.net
Northern Shenandoah Valley	Audubon Society	P. O. Box 2693	Winchester	VA	22604-1893	shenandoahaudubon@yahoo.com
Northern Virginia Bird Club		P.O. Box 5812	Arlington	VA	22205-0812	nvabc@verizon.net
Richmond Audubon Society		P.O. Box 26648	Richmond	VA	23261-6648	treasurer@richmondaudubon.org
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INFORMATION FOR CONTRIBUTORS

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

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

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

