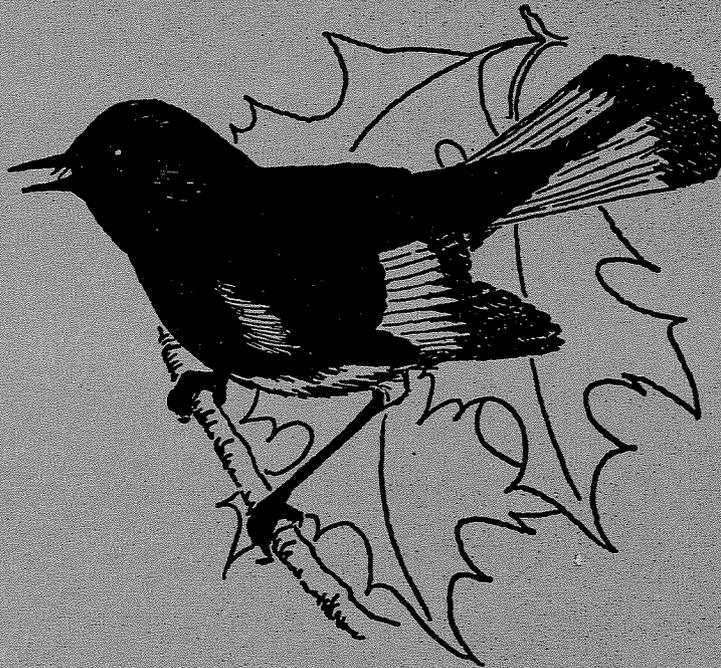


The REDSTART

Volume 33—Number 3

July, 1966



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STUDY OF A ROW OF MULTIFLORA ROSE PLANTINGS

Introduction

About 1960, George Breiding, who was then resident naturalist at Oglebay Park, mentioned to the Ohio Valley Naturalists that an area on the former Bruner property was being considered for development for Park facilities. This development would mean destruction of about 2000 feet of multiflora rose fence approximately ten years old. It was agreed that the club assemble all the information that it could relative to the plants, birds, mammals, insects etc. inhabiting the rose hedge before it was destroyed. The multiflora planting was measured, staked and numerals placed at thirty foot intervals. The total length was checked at 1800 feet.

The first winter (1960) all old bird nests were removed so that the nests present the following winter could be counted. When the removal was repeated in 1961 approximately seventy seven nests were taken from the fence but attempts at identification left much to be desired.

It was then decided to conduct a summer breeding bird census of the area during 1962. Although some members had experience with singing male census studies at Brooks Bird Club Forays, none had ever conducted such a study over an entire summer with the attendant problems of repeat nesting. Later (1964) it was decided to make a comparison with a similar area (control—containing no multiflora hedge) by making a winter count and a four-day singing male study on both plots; and then to complete a summer-long study on the control area such as was made on the rose hedge plot in 1962. No plans were made for a second summer-long count on the multiflora plot for the simple reason that not enough spare time was available to study both plots in one summer.

A control plot was selected in the adjoining ravine. Climatic conditions and exposure were identical; direction of drainage, plant cover, elevation, and size were quite similar. One additional advantage was also gained. Since the plots were so close together, they could be worked by the same person on the same day during the winter count. This made for better comparison by reducing the human error.

Summary of Results

The winter studies showed 33 residents (169.88 per 100 acres) in the rose hedge plot and 29.6 residents (140.45 per 100 acres) in the control area. Thus approximately twenty percent more birds wintered on the plot with the multiflora planting. The winter comparison is complicated by the short stay of large flocks of ROBINS. These birds stayed only about three weeks but the flock was large enough to cause them to be the most common bird on the rose hedge plot and fourth on the control area. Although flocks of robins are sometimes seen in the vicinity in winter, one does not usually think of them as bona fide winter residents.

A comparison by the short term singing male census showed 48 territorial males (248.2 per 100 acres) of 21 species on the hedge row plot and 29.5 territorial males (141 per 100 acres) of 20 species on the control area. Fifteen of these species were common to both plots. This comparison showed about 75 percent heavier population in the plot containing the multiflora.

The third comparison (seasonal study) was more difficult for the writer. Time permitted only an average of one visit per week and this was not enough to ascertain the date each brood of young was hatched and left the nest. Research showed a wide variation in number of broods per species per season, so an average number was selected for each species based on reading and observations on the plots. For comparison the same figure was used for each species on each of the study plots.

The comparison on this basis is even more striking, showing 112 nesting attempts on the multiflora hedge plot for a total of 400 males per 100 acres as compared to 51 on the control area or 170 per 100 acres—greater than 100 percent difference. An interesting side light here is the finding of 101 nests on the multiflora rose plot in the fall following the study.

OVERGROWN RAVINE—CONTROL

LOCATION: This control study plot is in a recently acquired section of Oglebay Park formerly known as the Jo-Betty Farm, on a branch of Pogue's Run about six miles N. E. of downtown Wheeling, Ohio County, West Virginia.

SIZE: 20.9 acres, almost semicircular, estimated from measurements of radii.

TOPOGRAPHY: One of the gentler of the sloping ravines typical of the erosion-formed hills and valleys of West Virginia's northern panhandle. The study plot is located at the extreme upper end of the wash where the ravine becomes a steep field. The ravine is almost straight, nearly North and South in direction and heads to the North. Elevation about 1180 feet average with approximately 200 feet variation. About 100 yards south of the boundary is a small farm pond fed from the drainage of the plot under study.

DESCRIPTION: Trees averaging 50-55 feet in height and 12-18 inches DBH. cover the ravine banks (about 4-5% of the total area). Half of the remainder is hayfield not yet mowed when the spring study was made. The remainder is an old meadow and pasture which has not been mowed for at least three years. Trees in the wooded section include: Hackberry (*Celtis occidentalis*), Black Cherry (*Prunus serotina*), Common Locust (*Robinia pseudo-acacia*), and American Elm (*Ulmus americana*). Box Elder (*Acer negundo*), Raspberries and Blackberries (*Rubus* spp.) and Common Elder (*Sambucus canadensis*) are common along the edge of this wooded section. The hayfield is primarily Orchard Grass (*Dactylis glomerata*), Alfalfa (*Medicago sativa*), and Panic Grasses (*Panicum* spp.). In the abandoned meadow are: Raspberries and Blackberries (*Rubus* spp.), Indian Hemp (*Apocynum cannabinum*), Milkweeds (*Asclepias* spp.), Red Clover (*Trifolium pratense*), Poison Ivy (*Rhus radicans*), Goldenrod (*Solidago* spp.), Ironweed (*Veronia altissima*), Common Elder (*Sambucus canadensis*), Wild Parsnip (*Pastinaca sativa*), Cinquefoil (*Potentilla* spp.), Asters (*Aster* spp.) and Common Thistle (*Cirsium vulgare*).

EDGE: Abandoned hayfield surrounds most of the plot with the trees of the ravine continuing downstream to the pond. This tree border constitutes only 1 or 2% of the perimeter.

Winter Study

COVERAGE: Thirteen trips were made to the plot between December 1st, 1964 and March 6th, 1965. This averages just under one trip per week. Total party hours: eleven.

REMARKS: This census was made as part of a study to evaluate the influence of a multiflora rose fence upon the fauna of a given area and is reported in conjunction with that of a similar plot containing 1800 feet of rose fence. The period covered by this portion of the study was considered a mild winter without heavy accumulations of snow but on ten of the thirteen trips to the area snow was falling or was already on the ground. December 1964 had 4.61 inches precipitation of which .05 was melted snow. January 1965 brought 2.92 inches total precipitation of which .41 was melted snow. During February we received 3.10 inches with .19 inches of melted snow. Highest temperature was 68 degrees and lowest 5 degrees below zero. Tracks of Red Fox, Cottontail Rabbit and White-tail Deer were often found on the plot.

CENSUS:	Species	Avg. No. seen per trip	No. per 100 acres
	Common Crow	6.9	33
	Tree Sparrow	5.8	27.9
	Starling	4.4	21.0
	Robin	3.7	17.6
	Downy Woodpecker	2.2	10.3
	Chickadee	2.2	10.3
	Tufted Titmouse	1.1	5.1
	Cardinal	.9	3.3
	American Goldfinch	.6	3.0
	Song Sparrow	.5	2.2
	White-throated Sparrow	.4	1.8
	Ring-necked Pheasant	.3	1.5
	Ruffed Grouse	.2	1.1
	Cedar Waxwing	.2	1.1
	Junco	.2	.7
	Eastern Bluebird	.2	.7

TOTALS: 29.6 Average winter residents of 16 species (140.5 per 100 acres).

CENSUS WORKERS: The Ohio Valley Naturalists—Mrs. Edward Vossler, Carl Slater, Jaunita Filcaske, Mr. and Mrs. William Noonan, Mike and Billy Noonan, Mary Catherine Becker, Mr. and Mrs. Fred Temple, Chuck Conrad, Carl Bruhn, Robert Dyer, Mrs. Gerald Devaul, Dorothy Broemsen, Edward Bachman, A. R. Dunnell and Glen Phillips - compiler.

Four-day Spring Study

COVERAGE: Ten trips, June 4-6th, 1965, varying from 5:55 A.M. to 7:10 P.M. concentrated in early morning and late evening. Party hours: nine.

CENSUS:	Species	Territorial Males	Males per 100 Acres
	Redwinged Blackbird	5	24
	Song Sparrow	3.5	17
	Yellowthroat	2.5	12
	Eastern Meadowlark	2.5	12
	Catbird	2.0	9.6
	Field Sparrow	2.0	9.6
	House Wren	1.5	7.2
	Grasshopper Sparrow	1.5	7.2
	Ring-necked Pheasant	1.0	4.8
	Downy Woodpecker	1.0	4.8
	Robin	1.0	4.8
	Rufous-sided Towhee	1.0	4.8
	Tufted Titmouse	1.0	4.8
	Yellow-breasted Chat	1.0	4.8
	Henslow's Sparrow	1.0	4.8
	Indigo Bunting	1.0	4.8
	Carolina Chickadee	1.0	4.8
	Common Crow	+	+
	American Goldfinch	+	+
	Starling	+	+
	TOTALS: 20 Species	29.5	141

VISITORS: Warbling Vireo, Brown Thrasher, Yellow-shafted Flicker, Eastern Bluebird, Baltimore Oriole and Barn Swallow.

CENSUS WORKERS: Field work for this segment was done by Mrs. Edward Vossler, Mrs. Gerald Devaul, Dorothy Broemsen and Glen Phillips, compiler.

Control Plot Seasonal Study

COVERAGE: Twenty trips between June 4th and July 31st, 1965, varying from 5:30 A.M. to 7:30 P.M. E.S.T. concentrated in early morning and late evening. Total party hours 19.

CENSUS:

Species	Terr. Males	Est. Avg. Broods Per Season	Est. Total Broods on Plot	Males per 100 Acres
Redwinged Blackbird	5	2	6	24
Yellowthroat	4	2	6.5	19
Song Sparrow	3.5	2	7	17
Grasshopper Sparrow	3	2	4.5	14.3
Eastern Meadowlark	2.5	1	2.5	12
Catbird	2	2	4	9.6
Field Sparrow	2	2	4	9.6
American Goldfinch	2	1	2	9.6
House Wren	1.5	2	3	7.2
Carolina Chickadee	1	1	1	4.8
Ring-necked Pheasant	1	1	1	4.8
Downy Woodpecker	1	1	1	4.8
Robin	1	1	1	4.8
Rufous-sided Towhee	1	1	1	4.8
Tufted Titmouse	1	1	1	4.8
Yellow-breasted Chat	1	1	1	4.8
Henslow's Sparrow	1	2	2	4.8
Indigo Bunting	1	2	2	4.8
Cardinal	1	2	1	4.8
Common Crow	+	1	+	+
Starling	+	1	+	+
TOTALS: 21 species	35.5		51.5	170.3

VISITORS: Warbling Vireo, Brown Thrasher, Yellow-shafted Flicker, Eastern Kingbird, Baltimore Oriole, Chipping Sparrow, Hairy Woodpecker, Mourning Dove, Eastern Wood Pewee, Red-eyed Vireo, White-breasted nuthatch, Black-billed Cuckoo, Barn Swallow, Chimney Swift, Eastern Bluebird, Broad-winged Hawk and Eastern Phoebe.

REMARKS: The redwing males each appeared to have one nest for the first brood, however, only one bird occupied a territory for a later brood. Consequently, the nest was easily found. During July there were four yellowthroats singing on the plot as compared to two and a half during early June. Grasshopper sparrows also seemed more numerous later in the season (3 males compared to 1.5 in the early part of the summer).

CENSUS TAKERS: Field work for this study was done by : Mrs. Edward Vossler, Mrs. Gerald Devaul, Dorothy Broemsen and Glen Phillips, compiler.

OVERGROWN RAVINE—MULTIFLORA ROSE HEDGE

LOCATION: The Rose Hedge study plot is situated in Oglebay Park, Ohio County, West Virginia on a branch of Pogue's Run. It is about six miles N.E. of downtown Wheeling on what was formerly the Bruner property.

SIZE: 19.4 acres, roughly semicircular (area estimated from radii measurements).

TOPOGRAPHY: The study plot is typical of many ravines resulting from erosion in this hill and valley sector and is located at the head of the ravine where the steep hillside first becomes divided by a small wash running about ten degrees east of north. This wash forks once to about 50 degrees east about 100 yards from the base or diameter of the semicircle. Elevation 1160 feet with almost 250 feet variation.

DESCRIPTION: Until 1950 this was a hillside hayfield and pasture. At that time, a row of Multiflora Rose (*Rosa multiflora*) 1800 feet long was planted on the contour just above the terminations of the washes. The row of multiflora has now grown to 15 to 20 feet in width and 10 to 15 feet in height forming a hedge impenetrable to livestock. Until 1962, the area above and below the hedge was kept mowed and pastured but it has now been abandoned partly because of the rapid spread of the multiflora. The hedge row is located 165 feet inside the outer perimeter of the study plot. In the washes and along the property boundary that forms the base of the semicircle, and at one place in the hedge row, is a fringe of trees averaging 40 feet in height with measurements of 8 to 20 inches DBH. This line of trees is dominated by Common Locust (*Robinia pseudo-acacia*) and Black Cherry (*Prunus serotina*) but contains White Ash (*Fraxinus americana*), Black Willow (*Salix nigra*), Sugar Maple (*Acer saccharum*), Bitternut Hickory (*Carya cordiformis*), and Staghorn Sumach (*Rhus typhina*). Among the plants found in this abandoned field are seedlings of the multiflora and the trees of the ravine. Others common are: Orchard Grass (*Dactylis glomerata*), Panic Grasses (*Panicum* spp.), Raspberries and Blackberries (*Rubus* spp.), Milkweeds (*Asclepias* spp.), Poison Ivy (*Rhus radicans*), Goldenrods (*Solidago* spp.), Ironweed (*Vernonia altissima*), Common Elder (*Sambucus canadensis*), Asters (*Aster* spp.), Common Thistle (*Cirsium vulgare*), Cinquefoil (*Potentilla* spp.), and Wild Parsnip (*Pastinaca sativa*).

EDGE: The perimeter of the study plot is bordered by a continuation of the abandoned field. Across the line of trees forming the base of the semicircle are the well-kept grounds of the home of the Sisters of Saint Joseph and on the opposite hillside is a hayfield mowed last season.

Winter Study

COVERAGE: Fifteen trips between Dec. 2, 1964 and March 6, 1965. Average, a little more than one trip per week. Total party-hours 16 3/4.

REMARKS: This census was conducted as part of a broader study to determine the influence of multiflora rose plantings upon the fauna of a given area and is reported in conjunction with that of a similar plot without the multiflora. The period covered by the study was considered a mild winter without heavy accumulations of snow but on thirteen of the fifteen trips snow was falling or on the ground. 10.63 inches of precipitation fell during the period with a high temperature of 68 degrees and a low of minus 5. Red Fox, White-tail Deer and Cotton-tail Rabbit were seen during the trips along with tracks of Raccoon.

CENSUS TAKERS: Ohio Valley Naturalists participating were: Mrs. Edward Vossler, Carl Slater, Jaunita Filcaske, Mr. and Mrs. William Noonan, Mike and Billy Noonan, Mary Catherine Becker, Charles Conrad, Mr. and Mrs. Fred Temple, Robert Dyer, Carl Bruhn, Dorothy Broemsen, Mrs. Gerald Devaul, James

Denham, Sylvia DiTosto, Edward Bachman, and Glen Phillips - compiler.

CENSUS:	Species	Avg. No. seen per trip	No. per 100 acres
	Robin	14.5	74.7
	Starling	4.5	23.0
	Common Crow	3.9	19.9
	Chickadee	2.0	10.3
	Tufted Titmouse	1.7	8.9
	Cedar Waxwing	1.2	6.2
	Song Sparrow .....	.9	4.8
	Ring-necked Pheasant .....	.8	4.1
	Mockingbird .....	.7	3.8
	Downy Woodpecker .....	.7	3.5
	Cardinal .....	.7	3.5
	Meadowlark .....	.5	2.4
	American Goldfinch .....	.4	2.1
	Tree Sparrow .....	.2	1.0
	White-breasted Nuthatch .....	.1	.4
	Bluebird .....	.1	.4
	White-crowned Sparrow .....	.1	.4
	Cooper's Hawk .....	.1	.4
	Red-tailed Hawk .....	.1	.4

TOTALS: 33 average winter residents of 19 species (170.) per 100 acres.

Four-day Spring Study

COVERAGE: Ten trips from May 28 to 31, 1965. Hours varied from 5:30 A.M. to 6:55 P.M. concentrated in morning and evening. Total party hours 7.5.

CENSUS:	Species	Territorial males	Males per 100 acres
	Redwinged Blackbird	7.5	38.6
	Song Sparrow	7.0	36
	Brown Thrasher	5.5	28.3
	Trail's Flycatcher	5.0	25.8
	Yellowthroat	4.0	20.6
	Eastern Meadowlark	3.0	15.5
	Catbird	3.0	15.5
	Yellow-breasted Chat	2.5	12.9
	Field Sparrow	2.0	10.3
	Cardinal	2.0	10.3
	Tufted Titmouse	1.0	5.2
	Yellow-shafted Flicker	1.0	5.2
	Ring-necked Pheasant	1.0	5.2
	Grasshopper Sparrow	1.0	5.2
	Yellow-billed Cuckoo .....	.5	2.6
	Indigo Bunting .....	.5	2.6
	Blue-gray Gnatcatcher .....	.5	2.6
	Blue-winged Warbler .....	.5	2.6
	Henslow's Sparrow .....	.5	2.6
	Common Crow	+	+
	American Goldfinch	+	+

TOTALS: 21 Species 48 248

VISITORS: Rufous-sided Towhee, Barn Swallow, Starling, Chimney Swift, and Baltimore Oriole.

CENSUS TAKERS: Field work for this part was done by Mrs. Edward Vossler, Robert Dyer and Glen Phillips - compiler.

Seasonal Study

COVERAGE: Twenty two trips between April 1 and August 19th. 1962. from 6:00 A.M. to 7:10 P.M. but most trips were made in the early morning. Total party hours 19.5.

CENSUS:	Territorial Males	Est. Avg. Broods per season	Est. Total Broods on plot	Males per 100 Acres
Song Sparrow	8	2	16	41.2
Yellowthroat	8	2	16	41.2
Catbird	8	2	16	41.2
Brown Thrasher	5	2	10	25.8
Traill's Flycatcher	5	1	5	25.8
Indigo Bunting	4	2	6	20.6
Redwinged Blackbird	3	2	5	15.5
Grasshopper Sparrow	3	2	6	15.5
Field Sparrow	3	2	6	15.5
Eastern Meadowlark	3	1	3	15.5
Cardinal	3	2	6	15.5
American Goldfinch	2	1	2	10.3
Rufous-sided Towhee	2	2	4	10.3
Yellow-breasted Chat	2	1	2	10.3
Mockingbird	1	2	2	5.2
House Wren	1	2	2	5.2
Ring-necked Pheasant	1	1	1	5.2
Tufted Titmouse	1	1	1	5.2
Carolina Chickadee	1	1	1	5.2
Yellow Warbler	1	1	1	5.2
Yellow-shafted Flicker	1	1	1	5.2
Brown-headed Cowbird	+			
White-breasted Nuthatch	+			
Downy Woodpecker	+			
Common Crow	+			
Cooper's Hawk	+			
TOTALS: 26 Species	66		112	400

VISITORS: Chipping Sparrow, Wood Thrush, Vesper Sparrow, Yellow-billed Cuckoo, Blue-winged Warbler, House Sparrow, Slate-colored Junco, Scarlet Tanager, Orchard Oriole, Barn Swallow, Chimney Swift, Purple Martin, Blue-gray Gnatcatcher, Eastern Bluebird, Great Crested Flycatcher and Carolina Wren.

REMARKS: Although the nest was not found, four young Mockingbirds were present on the area and sightings of four to six birds were reported near the end of the study. Occasional Traill's Flycatchers are found in this county near a farm pond or in some other special habitat but their occurrence in abundance except near water was unknown to the writer. Also, the flycatchers in this hedge row sang the "fitz bew" notes said by Peterson to be characteristic of the species in Ohio. The Yellowthroats continued to sing persistently until the first of August.

CENSUS TAKERS: The Ohio Valley Naturalists - A. R. Dunnell, Mr. and Mrs. Tom Ford, John Worley, Mr. and Mrs. William Noonan, Mrs. Philip Maxwell,

Marie Kruse, Dorothy Broemsen, Mrs. Edward Vossler, Nancy Mathews, Richard Pyles, Carl Bruhn, Mrs. Gerald Devaul, James Denham, George Breiding, and Glen Phillips - compiler.

Discussion

Some of the data seems to indicate that we were following the correct line of investigation while some other things defy explanation. Song sparrow territorial males on the rose hedge plot numbered eight (seasonal study) in 1962 and seven in 1965 (singing male spring study). There were also five Traill's flycatchers present both in 1962 and in 1965. Some other species did not check so closely. Seven and one half Redwings were found on territory in 1965 on the same plot that supported three pairs in 1962. Yellowthroat and catbird populations were less in 1965. Yellowthroats occupied eight territories in 1962 and only four in 1965. Catbirds also numbered eight in 1962 as against three in 1965.

One of the most interesting aspects of the entire study concerned the mockingbirds. For some years mockingbirds have been located occasionally in multiflora plantings in Ohio County. In 1962 a pair of them nested in the multiflora hedge row and, in the opinion of the writer, raised two broods. They were not seen during the four-day spring study of 1965 although one bird was observed on seventy three percent of the trips during the winter count.

A black-billed cuckoo was seen feeding young on the control plot July 5, 1965 and identity was definitely established by competent observers.

Most of the plants on the two plots have been identified and recorded but no extensive study has as yet been made on either plot's inhabitants other than birds. However, evidence has been found of the following mammals: whitetail deer, red fox, woodchuck, cotton-tail rabbit, opossum, eastern mole, striped skunk, raccoon and eastern chipmunk. Little data was accumulated to compare mammal populations, but the deer and red fox were seen more frequently in the rose hedge plot.

This study would not be worthwhile if we had not learned from some of the errors committed. The greatest mistake, of course, was not being able to conduct a season-long count on both plots simultaneously. There is evidence that more birds inhabited the rose hedge plot in 1962 than in 1965 as witness the number of yellowthroat and catbird residents referred to above. The increased number of redwings present in 1965 partially balances the numbers, but only simultaneous studies would be accurate.

Conclusions

Another disadvantage that has a bearing on the accuracy of the study was the inability to spend enough time on the plots to record the exact number of broods or nesting attempts of each territorial male. As mentioned above, for the comparison the same number of broods for a given species was estimated for each plot.

"One rose does not a summer make" and one study does not necessarily establish a fact, but it would appear from this study that the row of multiflora rose furnished conditions that attracted 20 to 100 percent more birds to the area. Unfortunately the rapid spread of the multiflora into adjoining fields is discouraging some landowners from increased plantings and causing others to remove plantings already established.

Acknowledgment

The series of studies was carried out by the Ohio Valley Naturalists, most of whom are also members of the Brooks Bird Club.

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FOOD HABITS OF A BARN OWL

Tom D. Igou

This study on the food habits of the Barn Owl (*Tyto alba*) began as a planned research project in 1961. When I first observed this owl, which was the only species of owl observed in the immediate area, I was interested in finding out just what it ate in relation to the mammal and bird population found in Cabell County. I also wished to learn if the species is an economic aid or a detriment. An indication of the bird's diet was obtained solely from the collection and dissection of the oblong pellets regurgitated (fur and bones that are undigested) by the owl. The collection period was from January 1961 to March 1962 and some fifteen trips were taken to the study area during this time.

The Study Area

The area in which this owl roosted was found 16.1 miles north northeast of Huntington on Route 2 near Green Bottom, West Virginia. The area is on the west side of the road about twenty yards from the roadway and is situated in a stand of Norway Spruce (*Picea abies*) and Red Cedar (*Juniperus virginiana*). On the three remaining sides of this site are cultivated and fallow fields. About one-half of a mile distant, across the roadway, are sparse deciduous woods. This environment appeared to be an ideal situation in which this bird roosted and possibly nested (no observations have been made of nesting, but on March 15, 1962, two Barn Owls were observed in the area). This area is to be "reclaimed" by the State Road Commission for the purpose of straightening route 2 between Huntington and Point Pleasant.

Discussion

There were limited observations of the feeding periods of this species and only a rough, but documented, account can be given. In the summer of 1961 two trips were taken before 7 A.M. and then continuing throughout the entire day. These trips gave evidence that the pellets collected were very fresh and indicated that the bird had apparently eaten eleven to thirteen hours earlier. This assumption was based on ingestion, digestion and regurgitation which takes from ten to twelve hours (Grimm and Whitehouse) and an hour or so that the pellets lay on the ground before examination. On a single winter trip, taken in January 1962, the time element of the feeding period might possibly be the same, as in summer, but a shorter period

should also be considered. This was due to the fact that more than twice the number of pellets were found during the same time period as with that of summer. According to Guerin (1928, from Craighead, 1956), the Barn Owl makes two daily ejections of pellets in the winter. Another owl in the area was eliminated by the observation of the study owl only, later in the morning, and by the position of the pellets (under the same side of the tree as the rest of the pellets collected). There were also twelve crania (out of nineteen collected that winter day) that had undigested matter in them, which could also account for quick digestion and regurgitation.

A listing of species and the per centages of mammals and birds caught are as follows:

ANIMALS CAUGHT	CRANIA	PER CENT
Meadow vole, <i>Microtus pennsylvanicus</i>	281	81.2
Short-tailed shrew, <i>Blarina brevicauda</i>	28	8.1
Prairie vole, <i>Pedomys ochrogaster</i>	11	3.1
House mouse, <i>Mus musculus</i>	9	2.5
Norway rat, <i>Rattus norvegicus</i>	4	1.2
White-footed mouse, <i>Peromyscus sp.</i>	2	.6
Lemming vole, <i>Synaptomys cooperi</i>	1	.3
Harvest mouse, <i>Reithrodontomys humulus</i>	1	.3
Sparrows and Finches, <i>Fringillidae</i>	4	1.2
Unidentified birds, <i>Aves</i>	3	.9
Blackbirds, <i>Icteridae</i>	2	.6
Total	346	100.0

The 346 crania were obtained from 206 pellets. The per centages given are normal averages, but the absence of frogs, which these owls are reported frequently to eat, are worth noting. Wallace (1948) stated, "In ordinary times close to eighty per cent of the Barn Owl's diet consists of *Microtus* . . . and may rise to ninety per cent or more or drop during periods of low availability." As to whether this sample is ordinary or not, it is rather difficult to say. A study over a longer period of time could tell if the abundance of *Microtus* is ordinary or not. Also worth noting are absences of Least and Smoky shrews, Pine voles and Lemming mice, all of which are present in this general area. This owl probably fed in the fields a majority of the time and to some degree in the "fringe" area of the deciduous woods. This is based on the number of field animals caught in relation to those caught in the woods. The deciduous woods were probably used mostly in winter; that is when all the birds and White-footed mice were collected. The number of catches nearly doubled when the adjoining fields were cut between August and September of 1961, thus affording the owl a greater area potential for catches with the reduced protective cover for the prey animals. A similar situation was also noted by Tinbergen (1954) in which there was an increase in the number of voles caught after a field of corn was cut.

The economic value of Barn Owls merits comment. The birds taken by this owl are only 2.7 per cent of the total catch, indicating that the Barn Owl is not a song bird predator and should not be persecuted on the basis of these birds taken. Hausman (1948) states that out of forty-two pellets collected, at New Brunswick, New Jersey, no bird remains were found, despite the abundance of House Sparrows and Starlings. However, according to Townsend (1926), out of fifty-six pellets taken near Charleston, South Carolina, twenty-two crania (out of ninety-one) were birds. The availability of rodents appears to be the key as to whether the Barn Owl could be called a song bird predator or not. Even if this owl were called a bird predator, its harm would still be overshadowed by the good done. If it were not for owls and

other predatory mammals than a population explosion, such as occurs in the Lemmings and, as witnessed closer to home, the Blackbird family, could very easily happen in many other undesirable species. With its constant attack upon the vermin and pests of the farmer and with the dispatchment of birds, in time of necessity, the Barn Owl helps keep the population of these animals within reason, and thus is an economic benefit to man.

Summary

In this study of the food habits of a Barn Owl, near Green Bottom, West Virginia, 206 pellets were collected and dissected yielding 346 crania of eight species of mammals, two families of birds and three unidentified birds. Of the animals eaten, 97.3% of the total catch were undesirable, showing that the Barn Owl is an economic aid and not a hindrance.

Acknowledgments

I am indebted to Mr. Gene Frum, Instructor of Zoology at Marshall University for his identification and classification of the crania collected, and for his frequent discussions concerning this paper. I thank Dr. R. M. Edeburn, Professor of Zoology at Marshall University for his comments of this paper. And I am grateful to many friends who aided me in the collection of pellets and for their criticism of this paper.

Note: Concerning Black Carrion Beetles (*Necrophorus marginatus*).

On one trip taken in June 1961, I collected a meager four pellets for study, which is an unusually low number. On returning home I took them to the lab and began to examine them one by one as usual. To my great surprise one pellet was partially destroyed. Possibly it was my clumsiness or maybe something had eaten this pellet. Almost eagerly, therefore, I searched my brown paper "pellet poke" for the hopeful culprit. Careful inspection of the "poke" and contents showed five Black Carrion Beetles and two larvae of the same gnawing on another pellet. This could be one reason why less pellets were found in the warmer months.

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LOTS of WHITE-CROWNS

The WHITE-CROWNED SPARROW (*Zonotrichia leucophrys*) is my favorite sparrow. I watch for it especially each May and October as it passes through northern Ohio in migrations.

I did not see any in the spring of 1965 until May 6. But, at Nela Park, in East Cleveland, on that day I saw the largest number of this species that I have ever seen. Along the drive bordering the ravine in which Nine Mile Creek flows, the lawn was dotted with over 100 of the feeding White-crowned Sparrows. In another tree-shaded lawn area, this one near Noble Road, at least 150 more of these fine birds were on the ground or perched in the lower branches of the trees. Every so often I heard its plaintive, buzzy song. Among the flock were a few tardy WHITE-THROATED SPARROWS.

Nela Park is located high above, but in sight of Lake Erie. One explanation for the bird concentration may have been that the birds arrived over Cleveland in the early morning, possibly before daylight, and decided to rest and feed before continuing over the lake. At this point, Lake Erie would be about sixty miles across.

Although I have observed bird migration at Nela Park for over 25 years, the above mentioned flocks of White-crowned Sparrows, which must have exceeded 300 birds, surpassed all my previous sightings! Some ten miles to the east, where I live in the Chagrin River valley, I found no White-crowned Sparrows at all on May 6.

Merit B. Skaggs

NOTES ON A TANAGER

Nevada Laitsch

A wooded section along Beaver Creek, about five miles northeast of East Liverpool, Ohio, has long been a favorite placeto look for migrating warblers. On April 29, 1965 while at this location, a brilliantly colored bird was sighted about fifty yards ahead of us. The bird was feeding and moving unhurriedly along the branches and we were able to approach it to a good vantage point. The bird obviously was a tanager but I could not identify it as either a Scarlet Tanager or a Summer Tanager. Aware that either of these can play tricks on the observer, as I have seen many aberrant forms, I began to check for unmistakable telltale field marks.

The bird under observation in good light showed a bright yellow body, black wings with well defined wing bars, black back and black tail which were clearly separated by yellow, and a red face. The colors were all clear and well defined as one would expect in a bird in breeding plumage.

We observed this bird at leisure for almost an hour as it made itself at home feeding in tanager fashion along the branches of larger trees. Occasionally it sang a song not unlike the song of the Scarlet Tanager except not nearly as harsh and burry and several times it uttered soft call notes which in no way resembled those of the Scarlet tanager yet lacked the definite clatter of those of the Summer Tanager.

Before reluctantly leaving the bird I was convinced that we had seen a male WESTERN TANAGER in breeding plumage. On our return the following day we were unable to find a trace of the bird. However, I note with interest that the Audubon Field Notes Volume 19, No. 5 carried a sight record of a male Western Tanager on June 11, 1965 near Cleveland, Ohio.

MC 21, East Liverpool, Ohio

THE GATHERING CAGE
Constance Katholi, Editor
930 Woodland Ave., South Charleston, W. Va.

Spring migration 1966 passed over the top of the nets in South Charleston. I had hoped to set a high net a-la-Clark-Miller, but never mustered the manpower to rig it. However, the spectacle overhead was consolation enough—observation by binoculars was substituted for examination in the hand. An interesting consideration to me is that many species of warblers which use the "high road" in the spring will work lower in the fall and then be more liable to run afoul of the nets. Only a trickle of warblers will be entered on my schedules for spring; this includes a MAGNOLIA taken on the late date of May 25th, and a surprise capture, a WESTERN PALM WARBLER on May 5. This is a species hard to locate here in spring (never before in my yard), but it is plentiful in fall when it frequents the edges of the golf course in company with Pines and Myrtles.

I have another theory, that spring is the best season for station returns of the greatest variety of species. In fact, the contributions to the column seem to bear me out, and will set the theme. Further, it appears that certain days stand out in the Field Book as heavily weighted with a high percentage of returns and repeats. Is this a circumstance of time and weather, or accident pure and simple? Surely a bander's other commitments insert too many variables to draw any conclusions. The return of summer residents is always a source of satisfaction, and I welcomed back among others, 1 RED-HEADED WOODPECKER (1965), 3 BROWN THRASHERS (1 from 1963), and 3 SUMMER TANAGERS (1 from 1963 and 2 from October 5 and 9, 1965—these latter I had considered transients at the time of banding). Five new tanagers, 7 thrashers and 6 woodpeckers indicate a good population.

Even more fascinating is checking in true transients like the YELLOW-BELLIED SAPSUCKER which passed this way 4-7-65 and on 4-2-66, and the CHIPPING SPARROW which stopped on 4-16-65 and again on 4-2-66. A final meaningful return was a KENTUCKY WARBLER, banded 6-12-64, returned on 5-7-65, and killed by a picture window one block away on 5-10-66. Returns like these which are timed within a week are rather frightening. It is one's own home version of the swallows of Capistrano, or the millions of Slender-billed Shearwaters, all of which arrive within 3 days, from ranging the whole of the North Pacific Ocean, to two tiny islands between Tasmania and Australia. One senses the mysterious forces at work.

Paradoxically as northbound travellers streamed overhead on May 2 and 3 I banded 25 PINE SISKINS and 5 EVENING GROSBILLS. (My first "E. G.'s"—as they are affectionately called by those who handle them in numbers.) These lingering stragglers seemed not to know that they should be up and away. (Two Pine Siskins, in fact, remained until the 25th of May.) One final word re winter finches: the PURPLE FINCH which I recovered on my terrace in February (Redstart 33:2-56) was banded by Robert Yunick at Schenectady, N. Y. last October!—my first foreign recovery and it was banded by a personal friend and former neighbor! I can only quote from the remark of another friend who said, "One gets the impression that every coincidence will happen to a bander eventually."

MAXINE KIFF will vouch for this. She writes, "MOCKINGBIRD, #612-27063, was banded by me at McClintic Wildlife Refuge during Ballentine's Operation Recovery, September 12, 1964, and repeated in the afternoon of the same day. It was taken in my window-trap, baited with peanut butter, at Ona, W. Va., 40 miles south of the Refuge, on May 22, 1966." Editor's Note: Recovering your OWN bird is even more startling! Another instance was the case of the aforementioned Bob Yu-

nick who banded a CARDINAL at McClintic and recovered the bird at his own station in South Charleston, nearly 60 miles from the Refuge several months later. We accused him of transporting the bird home in his car!

Maxine continues, "A male PINE WARBLER with a very bright yellow breast appeared at our feeder March 24, 1965. He was banded three days later and recaptured once in the following month. On March 23, 1966 a dull PINE WARBLER appeared wearing a band. When it was trapped on April 5, 1966, it proved to be the "bright" bird of the preceding year. Although it remained in the vicinity until April 22, it never regained the colorful dress of the year before."

"On June 3rd, 1966, I left a net up by the feeder until dark hoping to catch some late visitor. My last check revealed two occupants, a SONG SPARROW and a young flying squirrel. The Song Sparrow was wearing a band. To help it orient itself I turned on all the lights around the house and returned to the darkness at the end of the net. I placed the bird on my palm, thinking it would immediately fly away. Instead a strange thing happened. Standing free on my hand, seemingly unperturbed and unafraid, it tilted its head, stretched its neck and gazed at the patch of white sky above. For a minute or more it studied the sky and the silhouettes of the surrounding trees. Then, it abruptly flew straight as an arrow over the top of the house to the front lawn. Its history revealed it had been banded Sept. 30, 1964 in an orchard in front of the house and in the intervening time had been captured six times, near the same area." (CRK)

MABEL EDGERTON of BARNESVILLE, OHIO, had her first foreign recovery—a TREE SPARROW, banded in Hamburg, N. Y. (near Buffalo) on March 10, 1965 was among the White-Crowned Sparrows in her traps one day in mid February, 1966. Mabel writes, "Apparently in coming south from Canada this past winter, this sparrow wandered some 250 bird-miles southwest of where it had been previously. In a letter I received from the original bander she stated that this is the only record to date of her wintering Tree Sparrows going elsewhere. Her fine collection of records indicates that these sparrows return year after year to the same wintering grounds. One bird's record spans 7 seasons." Mabel herself is doing what amounts to a very special project on WHITE-CROWNED SPARROWS; they winter in one small pocket of her area, and she will in due time publish her findings. She currently writes a weekly bird column for the BARNESVILLE ENTERPRISE which makes this Editor sit up and take notice!

RUTH BALLENTINE of CHARLESTON writes, "George and I had a very exciting recovery this month. A TUFTED TITMOUSE, banded July 4, 1960, (and recovered in '61, '62, and '63) checked in again on June 17, 1966,—still hale and hearty although over six years old. We hope he continues to "grow old gracefully" in our backyard, so we can keep a record of his progress. Our second item concerns two BLUE JAYS, apparently mated, which were banded together at our station on April 20, 1965. They were retaken together again on June 17, 1966. The larger of the two had a very large brood patch and the smaller had none. We would be interested in Blue Jay statistics from other banders."

ANNE SHREVE of St. Albans describes a simple way of capturing birds—if you can do it! She writes, "The noise made by a brood of BLUE-WINGED WARBLERS just out of the nest, made me wonder how they possibly survive the vulnerable hours when they are first fledged. I was able to locate and catch BY HAND four young birds in our orchard on June 5. Their coloring and tail-less, unbirdlike shapes provided perfect camouflage, but their incessant food cries gave away their locations. At close range the buzzy calls had a ventriloquial quality which may give them some protection. The next morning I saw one of the banded young begging in the char-

acteristic crouching position, but making no sound."

(Editor's note: In our Martin Operation last summer Charley Handley demonstrated to us the art of plucking sleeping birds off roosting branches by hand—with the aid of a jacklight. We were not too successful at this, but I have on several occasions captured young cardinals and robins with a butterfly net. This can also be a useful technique with hole-nesters!)

JACK LINEHAN reports from NEWARK, DELAWARE, "I am trying to follow bird-life in a woodlot at the University fairly closely as it is being well studied ecologically otherwise. I have found, as so often before, that mist netting usually brings out 3 to 6 species that are missed on the regular survey. Since I have done very little general banding or netting in the spring before, I am having problems with the sexing of several species. I am hoping that weights and measurements will help with some species, but it takes more than that. We have 25 to 35 WOOD THRUSH nests each year,—or 70 to 100 counting the unsuccessful ones,—so I am anxious to recognize sex in these birds."

HAROLD BURTT continues his analysis of his Icterid data: "Last time I alluded to some data on 2800 odd blackbird repeats at our decoy trap. We have now analyzed the data in some detail. One point of interest is the comparative tendency of the different species to repeat. The data cover a six month period. The number banded in this period is presumably proportional to the population in the area (Lincoln Index) and thus indicates the comparative population of the species involved. So we take the repeats as a ratio to the number banded for a given species. First let's take just the number of individual birds repeating (we term them "repeaters"). The ratios are: GRACKLES 17%, COWBIRDS 13%, REDWINGS 7%, STARLINGS 3%. Again, taking the total number of entries into the trap after the initial banding (we term "repeats") the ratios are: GRACKLES 79%, COWBIRDS 27%, REDWINGS 11%, STARLINGS 3%. The difference between repeaters and repeats for GRACKLES reflects the tendency toward multiple repeating. One individual GRACKLE repeated 30 times. The next step is some explanatory hypotheses. Personality differences may be involved. Recently I banded my first SHORT-EARED OWL. This was a "Local", i.e. a youngster out of the nest and walking around in the alfalfa field."

RALPH BELL summarizes briefly the high-lights of his Bluebird Nesting Project at CLARKSVILLE, PENNA. He writes, "This is the second year of operation involving more than a dozen boxes and the results are quite encouraging. To eliminate any possibility of duplication of nesting pairs, this report covers a base period of those boxes checked between May 2-19, 1966 only.

Boxes containing Bluebirds	55 (40%)
Boxes containing House Sparrows	25 (19%)
Boxes containing House Wrens	1
Boxes containing Carolina Chickadees	1
Boxes empty (usually containing wasp nests)	56 (40%)

Of the 55 boxes containing BLUEBIRDS, 37 boxes contained a total of 170 young for an average of 4.6 per box. 15 boxes contained 56 eggs for an average of 4.7 eggs per box. The other 3 boxes contained only partially completed Bluebird nests. The most productive area for Bluebirds was along a country road about a mile southwest of Khedive. A trial box was put there last year and 3 more boxes added this spring. These 4 boxes produced 21 young in less than a mile of roadside distance."

SLEEPING YELLOW-BELLIED SAPSUCKER

Norris Gluck

Where do birds sleep at night? Does a particular bird return to the same place each night? How long does it sleep? This subject has always intrigued me and I have never been able to find much information on the subject. I have read that some birds sleep in tree cavities at night and I have observed that flocks of PURPLE MARTINS, STARLINGS, ROBINS and COMMON GRACKLE roost on the limbs of trees. I once found a CATBIRD asleep on a country dirt road and a friend of mine told me of having seen a WHITE-BREASTED NUTHATCH sleeping, upside down, against a tree trunk on two different occasions. Recently I had an interesting observation from my second floor apartment window.

About 4:20 P.M. on November 13, 1965 as I looked out my window, I noticed a YELLOW-BELLIED SAPSUCKER working up the trunk of a locust tree, approximately 20 feet away. I got my binoculars and watched it closely as it pecked away in the bark crevices looking for food. I observed it for about ten minutes, noting the ease with which it moved up the trunk, how firmly it clasped its vice-like toes to the bark, its red throat and beautiful overall plumage. When I took my eyes off it for a couple of minutes it had disappeared, but on closer inspection, I found it asleep, in a protected spot behind a limb, clinging to the trunk in an upright position. Its body was flattened, motionless against the bark, with its head and bill pointed upward toward the trunk. It was on the southeastern side of the tree, approximately 35 feet from the ground, protected from the westerly winds. The time was now about 4:32 P.M., a thin ray of sun still warmed its roosting spot, but within five minutes the sun was gone and it was in the afternoon shadows.

The next day was cloudy and cold and my bird had departed when I checked at 7:30 A.M. However, when I checked again at 4:20 P.M. it was sound asleep. I was now confident that I had found its roost and had hopes of having it with me all winter. The next afternoon, November 15 was dark, cloudy and warm and I began watching for it at 4:00 P.M. At 4:25 it flew in to the north side of the tree, about 18 inches below the roosting spot, pecked around the bark for food, and then moved around the tree toward the roost, pecking all the way to this spot. At 4:44 P.M. it assumed the usual position and was asleep immediately.

It returned each afternoon for five days, missed one day, and was back for another three days before its final departure. Each afternoon it followed the same routine as described above and was usually asleep in the same spot between 4:05 and 4:45 P.M. Usually it became absolutely motionless as soon as moved into the roosting spot. On four mornings I watched it as it awoke and observed it until it left the tree. At daybreak it would be motionless and in the same position as the previous evening. It would awaken between 6:55 and 7:00 A.M. However, on November 22, the day of its departure it did not awaken until 7:17 A.M., a light rain had fallen the day before and the morning was cloudy and foggy. The first thing it would do upon awakening was stretch its wings by extending them as far as possible. Then it would spend a few minutes preening and occasionally fluff its feathers and scratch itself with its foot. This was done before it left the roosting spot, then it would move around the tree trunk, do a little pecking and fly away. This routine took about 7-10 minutes. It usually slept about 15 hours. I still do not know whether or not this behavior of the bird outside my window, was typical. I have also wondered if it were killed. I live in a residential section of the city, about five blocks from the down-town business section, and if it spent the day in the city, it was exposed to great danger.

Time Table—Yellow-bellied Sapsucker

Date	Arrival	Next Morning			Remarks
		*Sleep	#Awoke	Left	
Nov.	P.M.	P.M.	A.M.	A.M.	
13	4:20	4:32			*Clear—Sun shining
14		4:20			#Cloudy and Cold
15	4:25	4:44			*Dark and Cloudy, #Cloudy, Warm, 63
16		4:05	6:57	7:08	*Cloudy, cold weather on way, #Cold, windy, 33
17		4:08	7:00	7:07	*Dark, cloudy, snow flurries, #Cold, snow flurries
18					Bird did not return *Clear and Cold
19		4:00	6:55	7:02	*Clear, Cold, #Clear, Foggy. 28. Bird asleep when I ar- rived.
20	4:00	4:45			*Drizzling and cloudy. Bird moved to roost at 4:05
21	3:55	4:15	7:17	7:27	*Drizzled all day, #Cloudy, Foggy
22	Last day I saw bird.				

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FIELD NOTES

Mrs. Nevada Laitsch, Editor
MC 21, East Liverpool, Ohio

Contributions Due

Fall Season (Sept. 1-Nov. 30) . . . Dec. 15
Winter Season (Dec. 1-Feb. 28) . . Mar. 15
Spring Season (Mar. 1-May. 31) . . June 15
Summer Season (June 1-Aug. 31) . Sept. 15

Early March was quite warm and many resident migrants began to arrive in numbers. The good weather ended abruptly mid-month with a hard freeze and snow. No doubt there was some mortality among the early arrivals.

Most of April was cold and wet and not conducive to much movement of birds or bird watchers. There was a break in the weather toward the end of the month and a Charleston, W. Va. observer commented that the southern part of the region was in full summer by the first of May. However, it was a short summer since the 91 degree temperature of May 8 skidded to 27 degrees the following day. The southern region suffered more damage from this hard freeze than did the northern part where foliage was not as far advanced and the freeze was accompanied by rain or snow. The adverse weather conditions had little apparent effect on migration which was now in full swing. Most observers commented on numbers of birds and many non birders made inquiries about birds they had never noticed before. Banders had good results as the birds were forced to feed near the ground. For the most part few migrants lingered in the region after the middle of May. However a group of BBC members found several very late migrants in Kanawha State Forest just south of Charleston, W. Va. on the long Memorial Day week-end.

With a few minor exceptions it was a good migration. The waterfowl movement was considered the best in a dozen years. The report of Cattle Egrets in Harrison County, Ohio was the second sighting for the county.

Loons and Grebes—COMMON LOONS appeared in greater than usual numbers in the Charleston, W. Va. area (CK-NG); 10 were seen on a pond at Franklin, W. Va. April 13 (JS); the earliest date was March 3 at Seneca Lake near Barnesville, Ohio (C&E) and although there were fewer than usual at Morgantown, W. Va. one remained on Cheat Lake until May 8 (GAH). A RED-NECKED GREBE was recorded at Pymatuning Lake, Pa. April 15 (MS). HORNED GREBES were mentioned sparingly between March 26 and April 15 and the PIED-BILLED Grebe migration appeared about normal with the exception of Morgantown, W. Va. where "there was nothing like the usual large numbers" (GAH).

Cormorants, Herons and Egrets—A DOUBLE-CRESTED CORMORANT was seen at Seneca Lake, Ohio on May 21-23 (C&E). The GREAT BLUE HERON rookery near Seneca Lake, Ohio which contains more than 70 nests is active again this year (C&E) and a new rookery was discovered near the Clendenning Reservoir in Harrison County, Ohio (TMF). A flock of 8 was seen flying northwest over Brockway, Pa. (Jefferson County) on April 11 (TVS). A COMMON EGRET was

found on a pond in Coonskin Park at Charleston, W. Va. April 4 (NG); listed at Kyger Creek power station near Gallipolis, Ohio April 16 (GFH) and at Beverly, W. Va. May 4 (WLW). 6 CATTLE EGRETS were seen near Scio, Harrison County, Ohio on May 16 by Mr. and Mrs. John Worley fide (TMF). An unpublished record of an adult Cattle Egret in breeding plumage seen at Tappan Lake same county on April 30, 1964 by Mr. Worley and Tom Ford. GREEN HERONS appeared plentiful over most of the region. A BLACK-CROWNED NIGHT HERON was flushed from a small marsh at Upper Tract, Pendleton County, W. Va. April 9 (JS) and one was recorded at McClintic Wildlife Station near Point Pleasant, W. Va. on the same date (TE). A sub-adult YELLOW-CROWNED NIGHT HERON was seen at the McClintic Wildlife station April 16 (GFH). The only record of AMERICAN BITTERN was of one seen in the Canaan Valley near Davis, W. Va. on May 11 (NG).

Waterfowl—The waterfowl flight was considered the best spring flight in many years by most reporters. It began in mid March and lasted well into May. 5 WHISTLING SWANS were on Lake of the Woods, Preston County, W. Va. March 20 and a very large flock was seen there May 13 by Henry Thomas fide (GAH). CANADA GEESE appeared to have moved through in good numbers. A tremendous flight moving northwest over Brockway, Pa. was reported April 9-11 (TVS) and a flock of 150 was seen in Preston County, W. Va. on May 13 fide (GAH). 2 SNOW GEESE were recorded at Pymatuning Lake, Pa. April 1 (NL). Several species of ducks which are usually a rarity in migration appeared in good numbers and in localities where they are not ordinarily found. GADWALLS were not uncommon and PINTAILS staged a good flight. While TEAL were mentioned by most reporters no one indicated unusual numbers of either species. AMERICAN WIDGEON were unusually common. SHOVELERS were listed at Pymatuning Lake, Pa. April 1 (NL); at McClintic Wildlife Station and Kyger Creek power station near Gallipolis, Ohio April 16 (GFH); at Charleston, W. Va. April 17 (NG); Seneca Lake, Ohio April 3 (C&E); at Franklin, W. Va. April 25 (JS) and Preston County, W. Va. April 3 and one at Morgantown, W. Va. as late as May 13 (GAH). WOOD DUCKS were considered plentiful. REDHEADS were considered an abundant species by several reporters and RING-NECKED DUCKS were reported in great rafts. CANVASBACKS were considered more plentiful than in years and were well distributed over the region. LESSER SCAUPS were reported by the hundreds and GOLDENEYES and BUFFLEHEADS appeared in better than usual numbers. 3 male and 1 female OLDSQUAWS were found on Kanawha river at Charleston, W. Va. April 13 (GFH). A COMMON MERGANSER was listed on March 13 in Preston County, West Virginia where they do not usually occur (GAH) and 15 RED-BREASTED MERGANSERS at Charleston, W. Va. April 13 was unusual for that locality (GFH).

Vultures, Hawks and Eagles—Bill Wylie commented that he had been seeing plenty of vultures and hawks in his travels around West Virginia which agrees with some of the other reports. TURKEY VULTURES arrived about on time. A BLACK VULTURE was listed at Kanawha State Forest near Charleston April 9 (GFH) and 1 at Anthony, Greenbrier County, W. Va. on April 3. More than the usual numbers of hawks were recorded at Barnesville, Ohio during the period (C&E) as were in Columbiana County, Ohio (NL). A good variety was reported at Brockway, Pa. (TVS); Pendleton County, W. Va. (JS) and the Charleston area (NG). A GOSHAWK was recorded near Charleston, W. Va. April 23 (GFH) and one was seen regularly from April 8 to the end of the period at Brockway, Pa. (TVS). A number of ROUGH-LEGGED HAWKS were observed at Pymatuning Lake, Pa. March 31 (NL) and were reported in the Brockway, Pa. vicinity March 27 and

April 10 (TVS). An immature BALDEAGLE was seen at Seneca Lake, Ohio May 1 (C&E) and one was seen at Clendenen Reservoir, Harrison County, Ohio May 15 (TMF). MARSH HAWKS figured in several reports and OSPREYS were reported at McClintic Wildlife Station, Kyger Creek power station, Seneca Lake, Ohio and Pendleton County, W. Va. A PIGEON HAWK was seen near Barnesville, Ohio April 9 (C&E) and one was observed at Martha, Cabell County, W. Va. April 20 (TI). A good migration of SPARROW HAWKS was noted in the Lisbon, Ohio area on March 20 (NL).

Gallinaceous—RUFFED GROUSE appeared in better than normal numbers. One was found at McClintic Wildlife Station April 16 (GFH) where they are uncommon. BOBWHITES were in good populations in the eastern panhandle of West Virginia and Charleston, W. Va. area but were virtually absent in the Morgantown, W. Va. area. A flock of 5 TURKEY was flushed near Alvon, Greenbrier County, W. Va. April 3 (GFH) and one was found in Kanawha State Forest May 30 (BG).

Rails, Gallinules and Coots—4 VIRGINIA RAILS were found in a small marsh at Ft. Sybert, Pendleton County, W. Va. April 16 (JS); one at Proctorville, Ohio April 18 (TI) and were found in the Altona marsh in eastern panhandle of West Virginia May 24 (BBC). A SORA was at the McClintic Wildlife Station April 16 (GFH). COMMON GALLINULES were found at the Leetown, W. Va. fish hatchery May 24 (BBC). Several COOTS were at the McClintic Wildlife Station on March 19 and 40 were seen there April 16 (GFH). Reported in Pendleton County, W. Va. April 13 and 17 (JS).

Shorebirds—KILLDEER had arrived in several localities the first week in March and their numbers were satisfactory. WOODCOCK were found at St. Albans March 3 (GFH) and Mentor, Ohio March 4 (MS). A nest containing 4 young was found near Alum Creek (Kanawha County) on April 16 (BG). A family of 5 was observed at Coonskin Park, Charleston, W. Va. May 25 (NG). COMMON SNIPE were listed at Seneca Lake, Ohio March 27 (C&E); Coonskin Park, Charleston March 29 (NG); 6 were flushed at Upper Tract, Pendleton County, W. Va. April 9 (JS) and several were seen near South Charleston, W. Va. April 14 (CK). UPLAND PLOVERS were listed at Seneca Lake, Ohio April 16 (C&E) and at Clarksville, Pa. April 19 (RKB). A flock of 12 WILLETS was seen near Barnesville, Ohio at a fish hatchery on April 30 (C&E).

Gulls and Terns—Flocks of foraging gulls, both HERRING and RING-BILLED appeared in many places equally at home in fields or water. A flock of some 300 BONAPARTE'S GULLS were on the Kanawha river at Charleston, W. Va. April 13 and about 50 Bonaparte's were among the large flocks of gulls at Franklin, W. Va. April 13 (JS). It was unusual that no terns were listed at Seneca Lake Ohio during the period (C&E). 5 COMMON TERNS, 2 CASPIAN TERNS and a BLACK TERN were found at the Kyger Creek ponds near Gallipolis, Ohio May 30 (TI). 2 CASPIAN TERNS were seen at South Charleston, W. Va. April 24 by Julian Tinsley fide (GFH).

Cuckoos and Owls—Both species of CUCKOOS were considered deplorably scarce by all reporters. 2 BARN OWLS were listed at Clarksville, Pa. March 11 (RKB). A GREAT HORNED OWL was seen being chased by crows at Beaver Creek State Forest near East Liverpool, Ohio March 12 (ERC). 2 families of BARRED OWLS were found by the BBC members at Kanawha State Forest May 29-30. Heard frequently in Pendleton County, W. Va. (JS).

Whip-poor-wills, Nighthawks and Swifts—WHIP-POOR-WILLS were first heard near Petersburg, W. Va. April 24 and shortly thereafter at Upper Tract (JS). They were found to be very common in Kanawha State Forest by the BBC members May 29-30. and were heard regularly at Brockway after May 3 (TVS). The earli-

est date for COMMON Nighthawks was April 23 at Charleston (GFH). CHIMNEY SWIFTS were seen at Franklin, W. Va. April 9 (JS) and at Clarksville, Pa. April 11 (RKB) but were not reported at Charleston, W. Va. before April 13.

Hummingbirds and Kingfishers—The first date for RUBY-THROATED HUMMINGBIRD was April 14 at Huntington, W. Va. (TI). Several observers commented on the scarcity of this species. BELTED KINGFISHERS were listed at five different locations in Pendleton County, W. Va. on April 9 (JS); found at Brockway, Pa. April 14 (TVS) and were considered very scarce in the Morgantown, W. Va. area (GAH).

Woodpeckers—Reports on Woodpeckers indicated better than normal populations of all species. FLICKERS were a little late but there was no scarcity involved. RED-BELLIED WOODPECKERS seemed to be on the increase in several localities and RED-HEADED WOODPECKERS received favorable mention in almost every report. YELLOW-BELLIED SAPSUCKERS were scarce at Barnesville and East Liverpool, Ohio and Morgantown, W. Va. but were found in better than average numbers at Charleston, W. Va.

Flycatchers and Swallows—EASTERN KINGBIRDS were first listed at Charleston, W. Va. April 20 (NG) with arrivals noted in other localities soon afterward. CRESTED FLYCATCHERS were at Charleston April 25 (NG) and at Barnesville, Ohio April 30 (C&E) but arrived late in both East Liverpool, Ohio and Morgantown, W. Va. and were scarce in both localities. An early PHOEBE was found at East Liverpool, Ohio March 8 (NL) and was listed at Brockway, Pa. March 26 (TVS). While the early population seemed normal in most areas, no doubt there were casualties due to the extreme cold. A YELLOW-BELLIED FLYCATCHER was seen at Barnesville, Ohio May 21 (C&E). ACADIAN FLYCATCHERS had arrived in good numbers by the end of the first week of May. May 7 was an early date for TRAILL'S FLYCATCHER at Brockway, Pa. (TVS). Not listed in other localities until after mid-May. First arrival date for LEAST FLYCATCHER came from Barnesville, Ohio May 3 (C&E); considered plentiful and remained late in some localities. TREE SWALLOWS had arrived at Seneca Lake, Ohio March 26 (C&E) and were seen at Pymatuning Lake, Pa. April 1 (NL). BANK SWALLOWS were noted at Barnesville, Ohio April 24 (C&E) and at Triadelphia, W. Va. May 1 (GP). ROUGH-WINGED SWALLOWS were at Seneca Lake, Ohio April 16. The earliest date for BARN SWALLOWS was March 26 at Seneca Lake, Ohio (C&E) and appeared about on time in other places. There were reports of some casualties during the cold spell. CLIFF SWALLOWS were noted at Seneca Lake, Ohio April 24 and were found nesting in two localities in Pendleton County, W. Va. May 7 (JS). PURPLE MARTINS were recorded at Clarksville, Pa. as early as March 18 (RKB); at McClintic Wildlife Station March 19 (GFH); Pymatuning Lake, Pa. April 1 (NL); Fairmont, W. Va. April 4 (APD) and Beverly, W. Va. April 7 (WLW). It is reasonable to assume that most of these early arrivals perished.

Corvids—A RAVEN was observed at East Liverpool, Ohio on March 11 and seen again on March 17 (NL).

Titmice and Wrens—BLACK-CAPPED CHICKADEES were in Charleston, W. Va. in good numbers until first of May (CK) and a migratory movement was noted at East Liverpool, Ohio the first week in May. A good migration of RED-BREASTED NUTHATCHES occurred at Charleston, W. Va. April 24-26 (CK). A late one was seen at East Liverpool, Ohio on May 8 (NL-ERC). Hall considered the breeding population at Gaudineer low on May 30. A pair of BROWN CREEPERS was seen and heard singing at East Liverpool, Ohio on May 18 (NL). Their numbers were thought normal at Gaudineer at the end of May (GAH). HOUSE WRENS were considered early at Fairmont, W. Va. when they appeared April 6 (APD). They

were about on time otherwise and in good numbers. WINTER WRENS were considered fairly common in Greenbrier County, W. Va. April 2-3 (GFH). A BEWICK'S WREN was observed near Petersburg, W. Va. on March 27 (JS) and was also found at Dorcas, Grant County, W. Va. and in Pendleton County, W. Va. A SHORT-BILLED MARSH WREN was found in a dew wet meadow on the hilltop of the University farm at Morgantown, W. Va. on May 15 (GAH).

Mimics—CATBIRDS were considered abundant by most observers. They arrived at Charleston April 19 (NG); were seen at East Liverpool, Ohio April 20 (NL) but not listed at Morgantown, until May 4. Earliest date for BROWN THRASHER was April 9 at Barnesville, Ohio (C&E).

Thrushes—ROBINS migrated in large flocks throughout the region and appeared practically unaffected by the cold weather. WOOD THRUSH were first seen at Charleston, W. Va. April 13 (NG) and had arrived in the northern localities within ten days. Most observers commented on the scarcity of HERMITS and SWAINSON'S THRUSH. Hall considered 3 VEERY banded at Morgantown, W. Va. unusual as he seldom lists this species in the Spring.

Gnatcatchers, Kinglets, Pipits, Waxwings and Shrikes—BLUE-GRAY GNATCATCHERS arrival dates averaged about April 20 and numbers were good. Recorded at Brockway, Pa. May 7 (TVS). Both KINGLETS migrated through Charleston, W. Va. in good numbers (CK-NG) and East Liverpool, Ohio (NL). More RUBY-CROWNED than usual were seen at Morgantown, W. Va. and GOLDEN-CROWNED were plentiful in the Cheat Mountains of W. Va. in late May (GAH). A flock of 50 WATER PIPITS was observed at the West Virginia University animal farm March 20 (GAH) and a late one was recorded at Seneca Lake, Ohio on May 9 (C&E). CEDAR WAXWINGS offered a puzzle. A flock of more than 100 was seen at Charleston, W. Va. March 19 (NG) but they were noted as unaccountably scarce at Barnesville, and East Liverpool, Ohio, Morgantown, W. Va. and were not seen at Brockway, Pa. until May 21. LOGGERHEAD SHRIKES were recorded in Greenbrier County, W. Va. April 2 (GFH), Pendleton County, W. Va. in April and May (JS) and at least 4 were observed at Clarksville, Pa. during the period (RKB). A NORTHERN SHRIKE was seen at Brockway, Pa. March 27 (TVS).

Vireos—WHITE-EYED VIREOS were listed at Charleston, W. Va. April 19 followed by Triadelphia, W. Va. April 23 (GP). Increasing at Morgantown, W. Va., East Liverpool, Ohio and Clarksville, Pa. Recorded at Brockway, Pa. May 7 (TVS). YELLOW-THROATED VIREO numbers appeared down. Few SOLITARY VIREOS were reported during migration. Noted at Kanawha State Forest near Charleston, W. Va. April 9 (GFH) and were found there May 29-30 by BBC members working that locality. A PHILADELPHIA VIREO was banded at Clarksville, Pa. on May 15 (RKB) for the second ever banded there.

Warblers—To most observers in our region the warbler migration serves as a yardstick to determine the success of the season. For many of us it was a very good spring. Several people commented that they had seen all the warbler species that they could expect to see. Charleston and Huntington people reported heavy warbler migration before the first of May when summer conditions prevailed in that area. The peak was noted at East Liverpool, Ohio and Morgantown, W. Va. May 7-8 with few migrants remaining in either area beyond the following week. Wylie and Phillips reported numbers of warblers in the Blackwater Falls, W. Va. region during the Wildflower Pilgrimage May 12-15. BBC members working Kanawha State Forest near Charleston on May 27-30 were surprised to find small groups of very late migrants such as BLACK-THROATED BLUES, BLACK-THROATED GREENS, BLACKBURNIANS, BLACKPOLLS and WILSON'S. Some noteworthy records include 2 PROTHONOTARY WARBLERS on May 15 at the mouth

of Brushy Fork Creek, Harrison County, Ohio which is a probable first county record (TMF). An ORANGE-CROWNED WARBLER was banded at Clarksville, Pa. on May 7 (RKB) the first he had ever seen there. 2 were seen at Huntington, W. Va. on May 13 (TI). A YELLOW-THROATED was seen at McClintic Wildlife Station on April 16 (GFH). A nest of this species was found at Blue Ridge Acres in Jefferson County, W. Va. by BBC members on May 24. A CONNECTICUT WARBLER was listed at Barnesville, Ohio on May 10 (C&E). A KIRTLAND'S WARBLER stayed in Greenlawn cemetery at Columbus, Ohio from May 8 to 12 (HEB).

Blackbirds, Orioles and Tanagers—BOBOLINKS appeared plentiful and well distributed. The DICKCISSEL that wintered at Charleston, W. Va. was last seen on March 22 (GFH). RED-WINGED BLACK BIRDS were in the Ohio Valley in large flocks the first week of March. GRACKLES continued their explosive expansion and BROWN-HEADED COWBIRDS were more numerous than usual. RUSTY BLACKBIRDS were seen at Barnesville, Ohio on March 6 (C&E) and at Redhouse, Md. on March 13 (GAH). ORCHARD ORIOLES had arrived in their range in good numbers by first week of May and many immature males were noted in the Barnesville, Ohio area (C&E). BALTIMORE ORIOLES appeared very numerous and arrived about on time. Both SCARLET and SUMMER TANAGERS were considered plentiful in their respective ranges.

Grosbeaks and Finches—ROSE-BREADED GROSBEAKS were considered decidedly numerous. INDIGO BUNTINGS appeared abundant and arrived pretty much on schedule. EVENING GROSBEAKS appeared at Charleston, W. Va. in good numbers in early April and could be seen and heard throughout the month. Small flocks were reported in other localities. Last date submitted was May 15 at Morgantown, W. Va. (LS). PURPLE FINCHES were in Charleston in large numbers during late winter and were seen there as late as May 7 (CK). PINE SISKINS were present in flocks at Huntington, W. Va. May 13 (TI), Barnesville, Ohio May 14 (C&E) East Liverpool, Ohio May 18 (NL) and 2 were seen at Charleston, W. Va. May 25 (CK). GOLDFINCHES appeared to be abundant most everywhere. A flock of 30 WHITE-WINGED CROSSBILLS was seen at East Liverpool, Ohio on April 10 (NL).

Sparrows—TOWHEES had arrived in good numbers by the end of March. March 7 was the earliest date for SAVANNAH SPARROWS at Willoughby, Ohio (MS); one was banded at Clarksville, Pa. March 23 (RKB) and their numbers were normal at Morgantown, W. Va. (GAH). HENSLOW'S SPARROWS were found in Jefferson County, Pa. May 15 (TVS), heard near Berkeley Springs, Morgan County, W. Va. May 24 (NL) but were considered scarce at Willoughby, Ohio (MS). VESPER SPARROWS returned in good numbers. LARK SPARROWS were found at Valley Chapel, Lewis County, W. Va. April 17 (NG) and in Pendleton County, W. Va. May 7 (JS). The flight of WHITE-CROWNED and WHITE-THROATED SPARROWS was unspectacular and was scarcely noted after mid May. FOX SPARROWS received little mention. More records of LINCOLN'S SPARROW were submitted than usual—all by banders and ranged from May 6 to May 10. Are the binocular birders overlooking this species? A SNOW BUNTING was seen at Brockway, Pa. on March 26 and 27 (TVS).

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DATA. The actual results of the investigation along with the methods used for collecting the data.

CONCLUSIONS. Interpretation of the data.

FUTURE WORK. As a result of the investigation, what work remains to be done.

SUMMARY. For longer articles it is desirable to present a brief summary of the work.

BIBLIOGRAPHY.

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