

26th Winter Bird-Population Study

*Edited by Ronald A. Ryder**

List of Studies

<i>Habitat</i>	<i>State or Province</i>	<i>Hec- tares</i>	<i>Birds per sq. km.</i>	<i>Hrs. Obs.</i>	<i>Spe- cies</i>	<i>Yrs of Study</i>
A. Forest Habitats						
1. Coniferous Parkland and Mixed Hemlock— Hardwoods Forest	Massachusetts	16.1	488	21.5	28	3
2. Upland Beech—Maple Forest	Connecticut	8.1	136	9.0	12	2
3. Upland Oak—Maple Forest	Connecticut	8.1	235	8.9	13	3
4. Upland Oak Forest	New York	11.8	57	17.0	8	2
5. Black Spruce—Tamarack Bog	New York	4.6	1106	20.8	11	2
6. Upland Stream Bottom Deciduous Woods	Pennsylvania	20.3	1130	20.0	27	2
7. Forest Developing After Cultivation	Maryland	8.1	173	12.0	13	5
8. Mature Deciduous Floodplain Forest	Maryland	17.8	818	42	28	21
9. Hickory—Oak—Ash Floodplain Forest	Maryland	18.4	587	26.4	36	2
10. Upland Tulip-tree—Maple—Oak Forest	Maryland	12.0	275	19.1	27	2
11. Mixed Hardwood Forest	Maryland	11.3	229	23.5	29	15
12. Mature Hardwood Forest	West Virginia	12.2	165	16.0	20	1
13. Upland Oak—Hickory Hardwood Forest	Virginia	11.0	191	41.0	25	3
14. Upland Mixed Hardwood Forest	Virginia	9.9	272	12.8	18	1
15. Old Growth Beech—Tulip-tree— Black Gum Forest	Indiana	10.1	963	20.0	25	2
16. Oak—Maple Forest and Forest Edge	Illinois	22.3	49	15.0	10	38
17. Bottomland Oak—Gum—Cypress Forest	Mississippi	11.4	1074	25.0	36	3
18. Mature Bottomland Hardwood Forest	Louisiana	8.1	1606	18.0	32	1
19. Mixed Pine—Deciduous Forest	Louisiana	8.9	1078	12.0	31	3
20. Slash Pine Plantation	Louisiana	16.2	309	17.4	20	1
21. Mature Poplar Forest	Alberta	10.0	60	13.2	7	1
22. Isolated Ponderosa Pine Forest	Colorado	8.1	507	13.5	20	2 ^a
23. Lower Foothills, Ponderosa Pine Forest	Colorado	8.1	420	7.5	16	8
24. Lodgepole Pine Forest with Aspen	Colorado	13.4	195	18.0	13	4
B. Forest Mixed with Other Habitats						
25. Floodplain Forest and Cultivated Bottomland	New York	51.8	336	20.5	28	3
26. Upland Oak—Wild Grape Woods	Pennsylvania	16.2	945	14.0	25	2
27. Mixed Upland Habitat	District of Columbia	14.2	748	26.0	32	14
28. Southern Mixed Hardwood Forest	Georgia	10.0	1542	22.0	27	10
29. Mixed Habitat—Disturbed Bottomland	Oklahoma	40.5	334	64.0	46	1
30. Floodplain Cottonwood Forest	Colorado	9.7	82	10.0	10	2
C. Brush, Grassland and Desert						
31. Mixed Prairie Park	Nebraska	16.0	1201	19.5	37	3
32. Sandhill Prairie	Kansas	32.3	222	7.8	21	1
33. Shrub Desert	Texas	89.0	447	8.3	22	1
34. Mesquite—Juniper Canyon Bottomland	Texas	12.6	1722	30.4	58	2
35. Live Oak—Mesquite Brushland	Texas	12.1	527	9.5	34	7
36. Shortgrass Prairie	Colorado	40.5	37	7.5	3	1
37. High-Plains Grassland	Colorado	(2700)	14	8.0	18	2
38. Foothills Cottonwood Creekbottom and Brushland	Colorado	6.1	1433	6.0	18	1

<i>Habitat</i>	<i>State or Province</i>	<i>Hectares</i>	<i>Birds per sq. km.</i>	<i>Hrs Obs.</i>	<i>Species</i>	<i>Yrs of Study</i>
39. Deciduous Oak Woodland	California	3.2	2471	25.9	39	4
40. Riparian Oak Woodland	California	13.0	3158	25.0	51	?
41. Riparian Woodland—Open Fields	California	34.4	773	20.0	55	1
D. Habitats Including Open Water						
42. Exposed Peninsula and Adjacent Ocean	Newfoundland	293.4	192	22.0	14	1
43. Exposed Cove and Adjacent Ocean	Maine	43.7	400	12.0	13	4
44. Lagoon	Virginia	23.5	788	11.4	18	4
45. Reservoir	Tennessee	40.5	7	4.0	7	3
E. Croplands						
46. Partially Abandoned Hayfields and Pastures	Connecticut	7.7	351	28.5	39	2
47. Abandoned Orchard—Old Fields—Tree Rows	New York	15.5	251	14.0	26	1
48. Abandoned Field	Maryland	6.1	461	20.0	13	1
49. Abandoned Strip Mine	Virginia	25.9	270	8.2	30	4
50. Corn Field	North Carolina	40.5	455	18.0	21	10
51. Cultivated Field	North Carolina	25.5	176	18.0	13	15
52. Irrigated Pastureland—Weed Areas—Tree Rows	Oregon	19.4	1261	9.3	28	3
F. Urban Habitats						
53. Urban Park	South Carolina	8.1	2112	10.8	39	3
54. Suburban School Park	Florida	8.0	537	13.7	15	5
55. Urban Park	Ontario	21.9	1789	15.0	22	2
56. Urban Residential Area	Ontario	ca. 97	256	3.8	10	1
57. City Park	Ohio	29.3	478	15.0	16	4
58. City Park	Iowa	13.4	142	8.3	12	19
59. Downtown Business District—Residential Area	Colorado	15.4	254	16.3	10	5
G. Too Late to Classify						
60. Hardwood—Softwood Forest	North Carolina	15.0	86	15.0	34	20
61. White Birch—Red Maple—Ash Woodlot	Maine	6.9	69	10.0	8	1
62. Deciduous Wooded Stream Valley and Meadow	Maryland	35.6	461	30.0	33	1
63. Upland Woods and Fields	Connecticut	18.2	516	?	26	1

1. CONIFEROUS PARKLAND AND MIXED HEMLOCK-HARDWOODS FOREST—Location:

At Arnold Arboretum, Jamaica Plain, Boston, Massachusetts. **Continuity:** Established 1971. Hemlock Hill and areas to the north dominated by conifers; 42°17'45" N, 71°7'45" W, Newton Quadrangle, USGS. **Size:** 16.6 ha = 41.0 acres (irregular; taken from a 1949 map of the arboretum). **Description of Area:** See *AB* 25 642-643 (1971) also *AB* 26: 961-962 (1972) for a more detailed description of the Coniferous Parkland habitat. Several trees (mostly hemlocks) were cut down this winter. **Weather:** December colder and cloudier than normal. January and February with mild and cold spells alternating; very little snow fell, 2 in. being the maximum fall from a single storm. **Food:** An abundant crop of cones on most conifers (except for white pines and certain firs); acorn crop poor; birch seeds good. **Coverage:** Dec. 2, 9, 23, 25, 29; Jan. 1, 3, 17, 19, 27. Total, 10 trips, all between 0922 and 1300 EST; total hours about 21½. **Count:** Am. Goldfinch, 17 (102, 41); Dark-eyed Junco, 15 (90, 37); Black-capped Chick-

adee, 12 (72, 29); White-throated Sparrow, 10 (60, 24); Red-breasted Nuthatch, 7 (42, 17); Fox Sparrow, 6 (36, 15); Com. Crow, 3 (18, 7); Blue Jay, 2 (12, 5); Evening Grosbeak, 2 (12, 5); Song Sparrow, 2 (12, 5); Golden-crowned Kinglet, 1 (6, 2); Cardinal, 1 (6, 2); Purple Finch, 1 (6, 2); Pine Grosbeak, 1 (6, 2); Pine Siskin, 1 (6, 2); Red-tailed Hawk, +; Ring-necked Pheasant, +; Great Horned Owl, +; Hairy Woodpecker, +; Downy Woodpecker, +; Tufted Titmouse, +; White-breasted Nuthatch, +; Brown Creeper, +; Mockingbird, +; Am. Robin, +; Hermit Thrush, +, crossbill (sp.), +; Tree Sparrow, +. **Average Total:** 81 birds (488 per sq. km., 198 per 100 acres). **Remarks:** The six most numerous species were seen on all 10 trips; the Song Sparrow and the crow were seen on 9 trips. The Blue Jay, unusually low this winter, was seen on 7 trips. The Red-breasted Nuthatch and the various sparrows were unusually abundant this winter. A total of 36 sparrows (mostly White-throats) was seen just east of the plot on Jan. 27. Both red and gray squirrels were numerous and competed for the avail-

able food supply, the gray squirrels were often seen feeding on hemlock cones and on yew seeds. The arboretum is a favorite spot for picnickers, whose litter probably presents hazards to bird life.—*RICHARD W. SIMMERS, JR.*, 62 Buckingham St., Cambridge, Mass. 02138.

2 UPLAND BEECH—MAPLE FOREST—Location: In northwestern part of town and northern portion of 280-acre Audubon Center of Greenwich, Fairfield County, Connecticut; 41°06' N, 73°41' W, Glenville, Conn. Quadrangle, USGS. **Continuity:** Established 1972. **Size:** 8.09 ha = 20 acres (rectangular, surveyed). **Description of Area:** See *AB* 25: 970-971 (1971). **Weather:** 1951-1971 averages are shown in parentheses. Average temperatures: Jan., 31.1°F. (28.1°); Feb., 29.4° (30.8°). Precipitation (inches): Jan., 4.35 (2.78); Feb., 3.30 (3.41). The ground was free of snow cover during most of the census period. Above normal temperatures quickly melted the 3 in. of snow that fell during the two months. (Weather information from the weather station at the Stamford Museum 6.5 miles to the east). **Coverage:** Jan. 1, 6, 14, 28; Feb. 4, 10 (twice), 19. Total: 9 trips, averaging 60 minutes each. Trip hours were between 0900 and 1630 hours. **Count:** Black-capped Chickadee, 3 (37, 15); White-breasted Nuthatch, 2 (25, 10); Downy Woodpecker, 1 (12, 5); Blue Jay, 1 (12, 5); Com. Crow, 1 (12, 5); Tufted Titmouse, 1 (12, 5); Am. Goldfinch, 1 (12, 5); Tree Sparrow, 1 (12, 5); Ruffed Grouse, +; Great Horned Owl, +, Hairy Woodpecker, +; Golden-crowned Kinglet, + **Average Total:** 11 birds (density 136 per sq. km., 55 per 100 acres). **Remarks:** Chickadees were seen on all trips and nuthatch missed only once. Downy Woodpecker, Blue Jay and titmouse were seen on 4 trips with Ruffed Grouse and Am. Goldfinch only once and all others on 2 trips. Changes from last years census were chickadee, titmouse, nuthatch, Am. Goldfinch and Tree Sparrow (+1) each. Hairy Woodpecker and Downy Woodpecker were (-1) each resulting in a net increase of three over last year. Seen overhead but not counted were 3 Mallards, 10 Herring Gulls and 5 more Com. Crows. The mild winter may have accounted for the increase, as birds were less dependent on feeders and remained in the woodlands. The area was also frequented by White-tailed Deer (*Odocoileus virginianus virginianus*), E. Cottontail (*Sylvilagus floridanus*), E. Gray Squirrel (*Sciurus carolinensis*) and Red Fox (*Vulpes fulva*). Thanks to Wm. Bolton Cook and Joe Zeranski for their help. *GARY E. PALMER (for Greenwich Audubon Society), 109 Greenwich Ave., Greenwich, Conn. 06830.*

3 UPLAND OAK—MAPLE FOREST, SECOND GROWTH, MEADOW AND EDGE.—Location: In the northwestern part of town and southeastern portion of 280-acre Audubon Center of Greenwich, Fairfield County, Connecticut; 41° 06'N, 73° 41'W, Glenville, Conn. Quadrangle, USGS. **Continuity:** Established 1971. **Size:** 8.09 ha = 20 acres (rectangular, surveyed). **Description of Area:** See *AFN* 23: 724-725 (1969). **Weather:** 1951-1971 averages are shown in parentheses.

Average temperatures Jan, 31 1° F (28 1°), Feb, 29.4° (30.8°). Precipitation (inches): Jan., 4.35 (2.78), Feb., 3.30 (3.41). The ground was free of snow during most of the census period. Above normal temperatures quickly melted the 3 in. of snow that fell during the two months. (Weather information from the weather station at the Stamford Museum 6.5 miles to the east.) **Coverage:** Jan. 1, 6, 14, 16, 27; Feb. 10, 14, 19. Total. 8 trips, averaging 67 minutes each. Trip hours were between 0930 and 1610 hours. **Count:** Black-capped Chickadee, 8 (99, 40); Com. Crow, 4 (49, 20); Ruffed Grouse, 2 (25, 10); Downy Woodpecker, 1 (12, 5), Blue Jay, 1 (12, 5); Tufted Titmouse, 1 (12, 5); White-breasted Nuthatch, 1 (12, 5); Dark-eyed Junco, 1 (12, 5); Sharp-shinned Hawk, +; Red-tailed Hawk, +, Ring-necked Pheasant, +; Cardinal, +; Am. Goldfinch, +. **Average Total:** 19 birds (density 235 per sq. km., 95 per 100 acres). **Remarks:** Chickadees were noted on all trips, Downy Woodpecker on 6, Ruffed Grouse and nuthatch on 5, crow and titmouse on 4, Blue Jay and junco on 3, Red-tailed Hawk on 2, and all others were seen only once. Last year's average was also 19 birds but changes were chickadee and crow (+2) each and junco (+1) with Cardinal (-2) and Ruffed Grouse, Hairy Woodpecker and Blue Jay (-1) each. The high count of crows was mainly due to the fact that 28 were seen harassing a Red-tailed Hawk on one trip. The berries (bittersweet, etc.) were not plentiful again this year. This may account for the fact that two years ago the average was 39 birds for the census when the berries were abundant. The grouse were observed during January mostly before the berries were consumed. Seen overhead but not counted were 3 Herring Gulls and 9 more Com. Crows. The area was also frequented by White-tailed Deer (*Odocoileus virginianus virginianus*), E. Cottontail (*Sylvilagus floridanus*) and E. Gray Squirrel (*Sciurus carolinensis*). Thanks to Wm. Bolton Cook for his help. *GARY E. PALMER (for Greenwich Audubon Society), 109 Greenwich Ave., Greenwich, Conn 06830.*

4. UPLAND OAK FOREST.—Location: About 1.5 miles N of Pine Lake on South Hill and about 2 miles E of West Davenport Delaware County, New York, 42°28'3"N 74°56'15"W, West Davenport Quadrangle, USGS. **Continuity:** Established 1971-1972. **Size:** 11.8 ha = 29.1 ± 0.5 acres (nearly square, essentially 6 × 5 units of 208 ft. edge - i.e., measured into a grid of one acre units, measured with steel tape). **Description of Area:** See *AB* 26: 661-662 and 941 (1972). **Weather:** Trips were made in all kinds of weather. Trip temperatures averaged about 24°F, with snow cover varying from 0 to 6 in., averaging 2½ in. All the following weather data are for Oneonta, 10 miles west, and were supplied by the U.S. National Weather Service. For the 44-day study period temperatures ranged from -14° to +58°F with average of daily highs and lows of 24.8°F and total precipitation 2.5 in. (water equivalent). As compared with other years Jan. and Feb. departed by about +2° and -1 in. in precipitation. As compared with other years Oct., Nov., Dec departed by -5°, -4°, +4° and +0.3 in., +4.6 in., +1.5 in. in precipitation. **Coverage:** Jan. 6, 7, 11-18,

21, 21, 25, 27, Feb 1, 3, 8, 10, 15, 17, 18 Total 17 trips, at varying times between 0930 and 1530, averaging 60 observer minutes each. As rapid a pace was used as was compatible with the ability to detect audible birds within one 208 ft. unit to either side. Usually there was one observer, sometimes two, sometimes three—observing individually. This method likely records only a fraction of the birds present during the counting period. **Count:** Black-capped Chickadee, 2(7); Pine Siskin, 2(7); Hairy Woodpecker, 1(3); White-breasted Nuthatch, 1(3); Red Crossbill, 1(3); Pileated Woodpecker, +; Downy Woodpecker, +; Brown Creeper, +. **Average Total:** 7 birds (density, 23 per 100 acres). **Remarks:** The Chickadee was noted on 6 trips, the Pine Siskin on 6 trips, the Hairy Woodpecker on 7 trips, the White-breasted Nuthatch on 7 trips and the Red Crossbill on 9 trips. There were 2 trips when no birds were seen in the plot. Evening Grosbeak flocks were seen over the plot on 3 trips, Pine Grosbeak flocks over on 3 trips, Pine Siskin flocks on 5 trips, American Goldfinch flocks on 2 trips and Red Crossbill flocks on 13 trips. The chickadees seem to winter chiefly in the hemlock ravines but forage through the plot. The Red Crossbills were always in deciduous trees. It is rather interesting to compare this count with last year's, which averaged 100 observer minutes per trip. The counts for chickadee, Hairy and Downy Woodpeckers, nuthatch, and creeper were nearly the same both years.—*J. ROBERT MILLER, Dept. of Chemistry, ROBERT FRITZ, and JAMES D. PARSONS, JR., Hartwick College, Oneonta, N Y., 13820.*

5. BLACK SPRUCE—TAMARACK BOG.

—**Location:** Mud Lake bog, about 2 miles N of Pine Lake on South Hill and about 2 miles E of West Davenport, Delaware Co., New York; 42°29'N, 74°55'45"W, West Davenport Quadrangle, USGS. **Continuity:** Established 1971-1972. **Size:** 4.6 ha = 11.3 acres (1.9 acres of central water not included in plot area; elliptical, measured into a square grid of 16 one-acre units by steel tape, and many measured vegetation edge points connected to give the vegetation zone ellipses for a plot on graph paper, from which zonal areas and widths were determined). **Description of Area:** See AB 26: 659-661 and 959 (1972). **Weather:** Trips were made in all kinds of weather. Trip temperatures averaged about 24°F; with snow cover varying 0 to 8 in., and averaging 3 in. All the following weather data are for Oneonta, 10 miles west, and were supplied by the U.S. National Weather Service. For the 44 day study period temperatures ranged from -14° to +58°F, with average of daily highs and lows of 24.8° and total precipitation 2.5 in. (water equivalent). As compared with other years Jan. and Feb. departed by about +2° and -1 in. in precipitation. As compared with other years Oct., Nov., Dec. departed by -5°, -4°, +4° and +0.3 in., +4.6 in., +1.5 in. **Coverage:** Dec. 17; Jan. 6, 11-13, 18, 21, 25, 27; Feb. 1, 3, 8, 10, 15, 17, 19. Total: 16 trips, at varying times between 1030 and 1530 P.M., averaging 78 observer minutes each. Detecting birds present in such a small plot likely counts a high percentage of those present during the count period. **Count:** This is given first for the 11.3

acre plot The second number in parentheses is the average per trip per 100 acres using the same average per trip count as before but using only the actual forage area - i.e., shrub (II) and tree (III) zones (8.7 acres) Pine Siskin, 20 (177) (230); Red Crossbill, 16 (142) (184); Black-capped Chickadee, 13 (115) (149); Evening Grosbeak, 2 (18) (23); Red-breasted Nuthatch, 1 (9) (12); Brown Creeper, 1 (9) (12); Hairy Woodpecker, +; White-breasted Nuthatch, +; Golden-crowned Kinglet, +; Pine Grosbeak, +; Am. Goldfinch, + **Average Total:** 53 birds (density 470 (610) per hundred acres). **Remarks:** The Chickadee was noted on all trips in bands of varying numbers, Red Crossbill on all trips, Red-breasted Nuthatch on 12 trips, Pine Siskin on 12, Brown Creeper on 6 and Evening Grosbeak on 5. Chickadee, White-breasted Nuthatch, Hairy Woodpecker and Brown Creeper were recorded just off the plot (2,2,1 and 1 trips). Flocks of siskins and crossbills frequently flew over the plot. Rarely chickadees and Red-breasted Nuthatches foraged in the few small trees in zone I. It is rather interesting to compare this year's count with last year's which averaged 175 observer minutes per trip. This year, as compared to last year, there were far fewer Hairy and Downy Woodpeckers and Blue Jays in evidence in the 2-mile walk each way between Mud Lake and the Charlotte Valley through deciduous and hemlock forest. Last year Pine Grosbeak was unusually numerous in the Oneonta, N Y, area and this year Pine Siskin and Red Crossbill have been unusually common.—*J. ROBERT MILLER, Dept. of Chemistry, ROBERT FRITZ, and JAMES D. PARSONS, JR., Hartwick College, Oneonta, N Y 13820.*

6. UPLAND STREAM BOTTOM DECIDUOUS WOODS.—

Location: 5 miles northeast of Pittsburgh, Pennsylvania. **Continuity:** Established 1972. **Size:** 50 acres (note: due to an extension of a power line and the subsequent cutting away of the trees along its route, as well as an extension of a sewer line on the eastern boundary, 10 acres were eliminated from the study area). **Description of Area:** See AB 26:662-663 (1972) (Note: the average size trees were remeasured and found to be much closer to 60 ft; with a maximum of 90 ft.). **Coverage:** Dec. 27, 30; Jan. 6, 14, 21, 27; Feb. 3, 10. Total: 8 trips, all in mid-morning, averaging 2 25 hours per coverage. **Weather:** Temperatures ranged from low 20s (3 walks) to high 40s and low 50s (3 walks). With the exception of a 10-day cold spell in mid-January, the weather was much warmer than usual with December and January averaging 5°F over the normal temperature. In late January and early February, the highs were often 20° above normal. There was also virtually no snow over ½ in. in accumulation **Count:** Tufted Titmouse, 46 (227, 92); Dark-eyed Junco, 46 (227, 92); Black-capped Chickadee, 43 (213, 86); Am. Goldfinch, 22 (109, 44); White-breasted Nuthatch, 10 (49, 20); Cardinal, 10 (49, 20); Carolina Wren, 9 (44, 18); Downy Woodpecker, 8 (40, 16); Blue Jay, 6 (30, 12); Brown Creeper, 6 (30, 12); Golden-crowned Kinglet, 6 (30, 12); Hairy Woodpecker, 5 (25, 10); Evening Grosbeak, 4 (20, 8); White-throated Sparrow, 2 (10, 4); Com. Flicker, 1 (5, 2); Pileated Woodpecker, 1 (5, 2); Carolina Chickadee, 1 (5, 2),

chickadee hybrid, 1 (5, 2), Am Robin, 1 (5, 2), Purple Finch, 1 (5, 2); Pine Grosbeak, 1 (5, 2); Pine Siskin, 1 (5, 2); Red Crossbill, 1 (5, 2); Song Sparrow, 1 (5, 2), Red-tailed Hawk, +; Ruffed Grouse, +; Red-breasted Nuthatch, +. **Average Total:** 232 birds 1,130 per sq. km., 464 per 100 acres.). **Remarks:** 27 species. There was an extraordinary increase (almost 100%) in the number of birds in this study area over last year. Two factors may have been responsible for this increase. First, the weather was very warm and snow-free, and second, several species of tree including tulip-tree, hemlock, basswood, and black birch had conspicuously excellent food supplies. The majority of the increase came from the Dark-eyed Junco, Tufted Titmouse, Black-capped Chickadee, and Am. Goldfinch. The goldfinches were in a fairly large flock (30) that roamed the woods feeding in the trees along the stream; the juncos were found in two resident flocks, one (10-15) near the field north of the area, and the second (35-45) near the hemlocks in the eastern end of the area; chickadees and titmice were generally common, particularly near the hemlocks. The junco increase was probably owing to the snow-free weather and the proximity of a telephone line cut which had a good weed crop this year. The excellent chickadee count was almost entirely due to an invasion early in the period. The chickadee average for the first four walks was 51.0, while the average for the second four walks was a more normal 34.5. Titmice, on the other hand, were normally common early in the period (average for first four walks: 38) and abnormally abundant late in the period (average for second four walks: 55). The rather unusual presence of goldfinches was undoubtedly due to the seed crop in the trees along the stream. In general, the largest concentrations of birds were found around two small weedpatches, the hemlocks, the pond, and several bud-laden Black Birches. Other increases were noted in White-Breasted Nuthatches, Hairy and Downy Woodpeckers, and Brown Creepers. Pine Grosbeaks, Purple Finches (which have staged their first local winter invasion in years) and Red Crossbills all had extensive local invasions, while Pine Siskins and Evening Grosbeaks had rather poor years. Cardinals were more frequently observed later in the period. The Downy Woodpecker/Hairy Woodpecker ratio of 8/5 is unusually low on one count, an incredible high of 10 Hairies were recorded. Song Sparrows were only found near the telephone cut. The known Carolina Wren population is fifteen, but they were often hard to find when they were not singing. The abundance of Carolina Wrens in such a wooded area is curious, and it can most probably be traced back to the successful introduction of Great Rhododendrons along the stream, which apparently provide adequate cover. White-Breasted Nuthatches were especially common in the middle of the period when they were often found in very loose flocks, and when a maximum of 18 was found. The Blue Jays were usually found along the edge of the woods, but they occasionally wandered deep into the woods. The overall range of counts was from 215 to 258 birds per trip, which is a remarkably small range. This suggests that at least some species must have very wide feeding ranges, because there was no pattern

for the considerable individual variances that could be explained by conditions of observation, weather, flocks of birds, or time of year. Some of these individual ranges are: Hairy Woodpecker, 1-10; White-breasted Nuthatch, 7-18; Golden-crowned Kinglet, 0-9; Downy Woodpecker, 4-11; Black-capped Chickadee, 31-61, Tufted Titmouse, 30-63; and Brown Creeper, 3-8. The only apparent cause for the range of the totals per trip was the presence of the two major flocks of juncos and goldfinches. This suggests that some of these birds probably have winter ranges that extend well into other woods. One other possible explanation would be that one of the new houses near the study area maintained a feeder that I did not know about. Since this is the only major woods within at least one mile of the closest border, and mainly since the local food crop was unusually good, I believe that the productivity of this woods this winter is not typical of western Pennsylvania woodlands.—SCOTT ROBINSON, *Grandview Drive South, Pittsburgh, Pa. 15215.*

7. FOREST DEVELOPING AFTER CULTIVATION.—**Location:** 5 miles northeast of Hampstead, Maryland; on the watershed of Prettyboy Reservoir, 0.2 miles northeast of Beckleysville crossroads; 39°39' N., 76°47' W.; Lineboro Quadrangle, USGS. **Continuity:** Established 1969. **Size:** 8.1 ha = 20 acres. **Description of Area:** Described in *AFN* 23:528 (1969). **Weather:** During the study period there were 3 days when the temperature did not rise above freezing and 7 days when it did not go below freezing. Precipitation was about normal but much of it was light and misty so that there was a general impression of wet weather. None coincided with the 2 major cold periods, so there was no snow. **Coverage:** Dec. 29; Jan. 1, 6, 7, 14, 28; Feb. 2, 4. **Total:** 8 trips, averaging 90 minutes each, between 0800 and 1030. **Count:** Golden-crowned Kinglet, 3 (37, 15); Carolina Chickadee, 2 (25, 10), Dark-eyed Junco, 2 (25, 10); Blue Jay, 1 (12, 5); Tufted Titmouse, 1 (12, 5); Brown Creeper, 1 (12, 5); Winter Wren, 1 (12, 5); Carolina Wren, 1 (12, 5); Am. Robin, 1 (12, 5); Cardinal, 1 (12, 5); Downy Woodpecker, +; Com. Crow, +; Song Sparrow, +. **Average Total:** 14 birds (density, 173 per sq. km., 70 per 100 acres) **Remarks:** Seen flying over were Am. Goldfinch (3 trips), Evening Grosbeak (1 trip) and additional crows (8 trips). Chickadee was noted on 7 trips; kinglet on 6 trips; Carolina Wren on 5 trips; creeper and jay on 4 trips; Winter Wren, titmouse, cardinal, and junco on 3 trips; woodpecker and robin on 2 trips; Song Sparrow on only 1 trip.—HAVEN KOLB, *Rte. 1, Box 147A, Millers, Maryland, 21107.*

8. MATURE DECIDUOUS FLOODPLAIN FOREST.—**Location:** Glen Echo, Maryland, 2½ miles northeast of the District of Columbia, between the C. & O. Canal and the Potomac River. **Continuity:** Established 1948. 22 intermittent years. Continuous since 1957. **Size:** 17.8 ha = 44.1 acres. **Description of Area:** See *AFN* 2: 153-156 (1948). The land is a fairly flat strip along the river, supporting a heavy growth of deciduous hardwoods 80 to 100 ft. high. **Weather:** Temperature during walks averaged 31°F. There was no snow during the census period. **Coverage:** Jan 6,

7, 13, 14 (2), 21 (2), 25 (1½), 28 (1½), 30; Feb. 3, 10, 11. Total: 14 trips, between 0715 and 1630; the 13 complete trips occurred between 0715 and 1230. Observer hours totalled 42, and complete trips averaged 3 hours. **Count:** Starling, 50 (280, 113); Carolina Chickadee, 26 (146, 59); Downy Woodpecker, 9 (50, 20); Tufted Titmouse, 9 (50, 20); Dark-eyed Junco, 9 (50, 20); Carolina Wren, 7 (39, 16); Cardinal, 7 (39, 16); Com. Crow, 4 (29, 9); Am. Goldfinch, 4 (22, 9); White-throated Sparrow, 4 (22, 9); Red-bellied Woodpecker, 3 (17, 7); Pileated Woodpecker, 2 (11, 5); White-breasted Nuthatch, 2 (11, 5); Brown Creeper, 2 (11, 5); Song Sparrow, 2 (11, 5); Turkey Vulture, 1 (6, 2); Rock Dove, 1 (6, 2); Mourning Dove, 1 (6, 2); Yellow-bellied Sapsucker, 1 (6, 2); Hairy Woodpecker, 1 (6, 2); Winter Wren, 1 (6, 2); Black Vulture, +; Barred Owl, +; Com. Flicker, +; Blue Jay, +; Mockingbird, +; Yellow-rumped Warbler, +; Purple Finch, +. **Average Total:** 146 birds (818 per sq. km., 331 per 100 acres). **Remarks:** Total species, 28. Seen on the water near the area: Pied-billed Grebe, Great Blue Heron, Mallard, Black Duck, Wood Duck, Bufflehead, Hooded Merganser, Com. Merganser, Herring Gull, Belted Kingfisher. Last year the average total showed a distinct though not significant decrease from 1971. This year the average total moved up again and is somewhat above the mean for this tract. The relatively mild temperature, averaging 31° as compared with 28° in 1972, and the lack of snow were favorable to a rise in the bird population. In addition, the flood of last June left the area more brushy and protected, with some big trees down and many smaller trees bent double. Increase was marked for Starlings and Carolina Chickadees. Carolina Wrens returned to a high point after a dip in their curve since 1966. The lack of snow on the ground increased the numbers of juncos and White-throated sparrows feeding on the edge of the area. Starlings as usual showed great variability, with trip counts ranging from 14 to 137. Variation depends chiefly on how many roost on the area during the night and how rapidly they leave for their feeding grounds in the morning. Most of the Starlings have left by 0900 to 0930, and they begin to return about 1600. There is evidence that morning departure is accelerated by colder temperatures. In this census period, on walks starting between 0700 and 0800 the number of Starlings

present at 20° to 29°F averaged 25, at 30° to 39° averaged 51; and at 40° to 49° averaged 84. Thus the somewhat higher average temperature of trips was probably a factor in the high Starling count.—*JOAN H. CRISWELL (compiler), WILLIAM H. CRAMER, C. E. CRAVEN, DONALD MEHLMAN, MRS. B. MEHLMAN (members of the Audubon Naturalist Society, 8940 Jones Mill Rd., Washington, D.C. 20015).*

9. HICKORY-OAK-ASH FLOODPLAIN FOREST.—**Location:** Floodplain of Middle Patuxent River due west of Hobbits Glen Golf Course, Columbia, Howard County, Maryland; 39°13'10"N, 76°54'45"W, Clarksville Quadrangle, USGS. **Continuity.** Established 1972. **Size:** 18.4 ha = 45.5 acres (L-shaped following the 310-foot contour; surveyed). **Description of Area:** See AB 25: 963-964 (1971). The dominant canopy trees are Pignut Hickory (*Carya glabra*), Red Oak (*Quercus rubra*) and Green Ash (*Fraxinus pennsylvanica*). **Weather:** Exceptionally mild during the late fall and winter. No snow prior to or during the census period. Temperatures on 4 morning counts ranged from 24° to 40° F. and on the 4 afternoon counts from 24° to 39°. Wind speeds ranged from calm to 10 mph. The sky was clear on four days, partly cloudy on one, and overcast on three (essentially the same as last year). **Coverage:** Jan. 6, 7, 13, 14, 20, 21; Feb. 10, 11. Total: 8 trips, averaging 3 hours, 18 minutes. The morning trips started in the first 9 minutes after sunrise, and the afternoon trips ended in the last 16 minutes before sunset. **Count:** Cardinal, 16 (87, 35); White-throated Sparrow, 15 (81, 33); Carolina Chickadee, 10 (54, 22); Downy Woodpecker, 9 (49, 20); Tufted Titmouse, 8 (43, 18); Red-bellied Woodpecker, 6 (33, 13); Carolina Wren, 6 (33, 13); White-breasted Nuthatch, 4 (22, 9); Yellow-rumped Warbler, 4 (22, 9); Purple Finch, 4 (22, 9); Com. Flicker, 3 (16, 7); Blue Jay, 3 (16, 7); Hairy Woodpecker, 2 (11, 4); Brown Creeper, 2 (11, 4); Golden-crowned Kinglet, 2 (11, 4); Red-winged Blackbird, 2 (11, 4); Rufous-sided Towhee, 2 (11, 4); Red-tailed Hawk, 1 (5, 2); Bobwhite, 1 (5, 2); Mourning Dove, 1 (5, 2); Pileated Woodpecker, 1 (5, 2); Yellow-bellied Sapsucker, 1 (5, 2); Com. Crow, 1 (5, 2); Winter Wren, 1 (5, 2); Am. Goldfinch, 1 (5, 2); Dark-eyed Junco,



Study 9. Hickory-Oak-Ash Floodplain Forest, Maryland. Two views. Photos/Chandler S. Robbins.

1 (5, 2); Song Sparrow, 1 (5, 2); Turkey Vulture, +; Red-shouldered Hawk, +; Barred Owl, +; Belted Kingfisher, +; Mockingbird, +; Am. Robin, +; Ruby-crowned Kinglet, +; Starling, +; Tree Sparrow, +. **Average Total:** 108 birds (587 per sq. km., 237 per 100 acres). **Remarks:** Total species, 36. Average number of birds flying over the plot: Com. Crow, 3; Red-winged Blackbird, 2; Evening Grosbeak, 1; Com. Grackle, +; Red Crossbill, +. Eleven species of birds were seen on all 8 trips: Red-bellied Woodpecker, Hairy Woodpecker, Downy Woodpecker, Blue Jay, Carolina Chickadee, Tufted Titmouse, White-breasted Nuthatch, Carolina Wren, Cardinal, Purple Finch, White-throated Sparrow. The Com. Flicker, Pileated Woodpecker, Brown Creeper and Rufous-sided Towhee were recorded on seven of the eight trips. The Turkey Vulture, Bobwhite, Barred Owl, Mockingbird, Am. Robin, Ruby-crowned Kinglet, Starling and Tree Sparrow were found on only one trip each. This year's winter population was 45% lower than last year's. The greatest difference was in Yellow-rumped Warblers (54 last winter, 4 this winter). The species that showed the greatest drop are all birds that fed largely on Poison Ivy (*Toxicodendron radicans*) berries last winter: Yellow-rumped Warbler, Downy Woodpecker, White-throated Sparrow, Carolina Chickadee, Evening Grosbeak and Com. Flicker. The Poison Ivy berry crop was very poor this past fall and most of the berries were consumed before the beginning of the study period. By the end of the 1973 study, fruits of Bittersweet (*Celastrus scandens*) and Tulip-tree (*Liriodendron tulipifera*) were still conspicuous but very few fruits of Poison Ivy, Japanese Honeysuckle (*Lonicera japonica*) or Box-elder (*Acer negundo*) could be found. The only species that were appreciably more common this winter than last winter were the Tufted Titmouse (8 versus 6), Winter Wren (1 versus +), Carolina Wren (6 versus 2), Golden-crowned Kinglet (2 versus 1) and Rufous-sided Towhee (2 versus 1).—CHANDLER S. ROBBINS, U.S. Bureau of Sport Fisheries and Wildlife, Laurel, Md. 20810.

10. UPLAND TULIP-TREE-MAPLE-OAK FOREST.

—**Location:** West edge of Middle Patuxent River valley, southwest of Hobbitts Glen Golf Course at Columbia, Howard County, Maryland; 39°12'55" N, 76°54'40" W, Clarksville Quadrangle, USGS. **Continuity:** Established 1972. **Size:** 11.98 ha = 29.6 acres (basically rectangular, 1125 ft. north-south by 1000 ft. east-west, but irregularly extending farther in each direction where uniformity of habitat permitted). **Description of Area:** See AB 25: 971 (1971), and 26: 665 (1972). The dominant canopy trees are Tulip-tree (*Liriodendron tulipifera*), Red Maple (*Acer rubrum*), White Oak (*Quercus alba*) and Red Oak (*Q. rubra*). **Weather:** Exceptionally mild for the second consecutive year during late fall and winter. No snow prior to or during the census period. Temperatures ranged from 15° to 26° F. on the four morning counts and 26° to 48° on the four afternoon counts. Winds 0 to 12 mph. The sky was clear on six days and overcast on two days. **Coverage:** Jan. 6, 7; 13, 14, 21, 25; Feb. 10, 11. **Total:** 8 trips averaging 2 hours, 23 minutes.

The morning trips started at local sunrise; the afternoon trips were finished between 20 minutes and 0 minutes before sunset. **Count:** Carolina Chickadee, 6 (50, 21); Downy Woodpecker, 3 (25, 10); Golden-crowned Kinglet, 3 (25, 10); Cardinal, 3 (25, 10); White-throated Sparrow, 3 (25, 10); Tufted Titmouse, 2 (17, 7); Carolina Wren, 2 (17, 7); Am. Goldfinch, 2 (17, 7); Red-bellied Woodpecker, 1 (8, 3); Yellow-bellied Sapsucker, 1 (8, 3); Hairy Woodpecker, 1 (8, 3); Blue Jay, 1 (8, 3); White-breasted Nuthatch, 1 (8, 3); Brown Creeper, 1 (8, 3); Winter Wren, 1 (8, 3); Purple Finch, 1 (8, 3); Dark-eyed Junco, 1 (8, 3); Red-tailed Hawk, +; Red-shouldered Hawk, +; Mourning Dove, +;



Study 10. Upland Tulip-tree-Maple-Oak Forest, Maryland. Photo/Chandler S. Robbins.

Great Horned Owl, +; Barred Owl, +; Com. Flicker, +; Pileated Woodpecker, +; Com. Crow, +; Am. Robin, +; Yellow-rumped Warbler, +. **Average Total:** 33 birds (275 per sq. km., 111 per 100 acres). **Remarks:** Total species, 27. Average number of birds flying over the plot: Red-winged Blackbird, 16; Com. Crow, 4; Mourning Dove, 1; Com. Grackle, +; Evening Grosbeak, +; Red Crossbill, +. Four species were seen on all counts: Downy Woodpecker, Carolina Chickadee, Carolina Wren, Cardinal. The Golden-crowned Kinglet and White-throated Sparrow were seen on only one count. The following species were found on only one count: Red-tailed Hawk, Red-shouldered Hawk, Mourning Dove, Great Horned Owl and Yellow-rumped Warbler. The total population was 31% less than last year. The four commonest species of

last year showed the greatest decrease Carolina Wren, 8 to 6, Yellow-rumped Warbler, 6 to +; White-throated Sparrow, 6 to 3; Cardinal, 5 to 3. All of these species relied heavily upon berries of Poison Ivy (*Toxicodendron radicans*) last winter, whereas these berries were very scarce this winter. Only three of the species with an average of one of more individuals in the study plot increased in 1973: Yellow-bellied Sapsucker, Winter Wren and Golden-crowned Kinglet. No migration was noted during the period covered by the study, nor was there any appreciable singing within the study period.—*CHANDLER S. ROBBINS, U.S. Bureau of Sport Fisheries and Wildlife, Laurel, Md. 20810.*

11. MIXED HARDWOOD FOREST.—**Location:** Northwest of Plum Point and 1 mile inland from Chesapeake Bay on Tobacco Road between State Routes 263 and 261, Calvert County, Maryland. **Size:** 11.3 ha = 28 acres. **Continuity:** Established 1959; 15 consecutive years. **Description of Area:** See *AFN* 13 333, 1959. **Weather:** The sky was cloudy on only 3 of the 16 days. The wind was objectionable on only 1 day. The ground was snow-covered only on Jan. 11. The creek flowed throughout the period and the low area was frozen for only 2 weeks in January. High temperatures on count days varied between 27° and 60°F. **Coverage:** Dec. 27; Jan. 2, 7, 11, 14, 17, 18, 21, 25, 29, 30; Feb. 3, 5, 8, 10. **Total:** 15 trips. The trips averaged 94 minutes and started between 0918 and 1335 EST. **Count:** Carolina Chickadee, 8 (71, 29); Cardinal, 8 (71, 29); Tufted Titmouse, 4 (35, 14); Carolina Wren, 4 (35, 14); Golden-crowned Kinglet, 3 (26, 11); Yellow-rumped Warbler, 3 (26, 11); White-throated Sparrow, 3 (26, 11); Brown Creeper, 2 (18, 7); Red-bellied Woodpecker, 1 (9, 4); Yellow-bellied Sapsucker, 1 (9, 4); Hairy Woodpecker, 1 (9, 4); Downy Woodpecker, 1 (9, 4); Com. Crow, 1 (9, 4); Winter Wren, 1 (9, 4); Am. Robin, 1 (9, 4); Rusty Blackbird, 1 (9, 4); Bobwhite, +; Am. Woodcock, +; Barred Owl, +; Belted Kingfisher, +; Com. Flicker, +; Pileated Woodpecker, +; Blue Jay, +; Hermit Thrush, +; Ruby-crowned Kinglet, +; Evening Grosbeak, +; Purple Finch, +; Am. Goldfinch, +; Dark-eyed Junco, + **Average Total:** 43 birds (density, 379 per sq. km., 154 per 100 acres). **Remarks:** Turkey Vultures occurred over the area 4 times and the Black Vulture and Red-shouldered Hawk once each. The average totals showed a loss for the second consecutive year, and they were well below last year's (59 birds and 211 per 100 acres) and the 14-year average (64 birds and 229 per 100 acres). The 15-year average is now 63 birds, 556 per sq. km., and 225 per 100 acres. The Carolina Chickadee and Cardinal, as last year, were the most numerous species and were again in equal numbers. But they were in slightly lower numbers than last year. The White-throated Sparrow continued to show a loss. It dropped from last year's 7 birds to 3, which was the greatest loss this year. Others showing slight decreases were Com. Flicker, Red-bellied Woodpecker, Downy Woodpecker, Tufted Titmouse, Brown Creeper, and Dark-eyed Junco. The Yellow-bellied Sapsucker, Hairy Woodpecker, Carolina Wren and Yellow-rumped Warbler showed increases. The Belted Kingfisher occurred for the first time. A total

of 29 species was recorded this year. Since a greater than usual number of counts (16) were made this year, a comparison of the totals and densities for the first eight and the last eight counts was made. The first half had 43 birds and 154 per 100 acres and the second half 47 birds and 168 per 100 acres. Species that increased in the second half were Com. Flicker, Downy Woodpecker, Carolina Chickadee, Tufted Titmouse, Hermit Thrush and Purple Finch. Those that decreased in the second half were Winter Wren, Carolina Wren, Cardinal and White-throated Sparrow. Species that occurred in the first half only were Bobwhite, Ruby-crowned Kinglet, Am. Goldfinch and Dark-eyed Junco. Those that occurred in the second half only were Pileated Woodpecker, Blue Jay, Am. Robin and Rusty Blackbird.—*JOHN H. FALES, Ridge Road, Neeld Estate, Huntingtown, Md. 20639*

12. MATURE HARDWOOD FOREST.—**Location:** Weimer Nature trails of Bethany College, Bethany, Brooke County, West Virginia; 40°12'45"N; 80°35'55"W to 80°33'45"W; Bethany Quadrangle, USGS. **Continuity:** New. **Size:** 12.2 ha = 30 acres (square) **Description of Area:** See *AB* 25: 972-973 (1971). **Coverage:** Feb. 5, 7, 10-12, 18, 20, 22. **Total:** 8 trips, between 0800 and 1600. Trips averaged about 2 hours. **Weather:** Average high and low temperatures on the count days were 34° and 19°F, respectively. In 3 out of 8 trips there was a light snow covering on ground. **Count:** (average number of birds per trip, followed in parentheses by average number per 100 acres) chickadee sp., 6 (20); Tufted Titmouse 3 (10); Downy Woodpecker 3 (10); White-breasted Nuthatch 2 (6); Cardinal 1 (3); Tree Sparrow 1 (3); Com. Crow 1 (3); Brown Creeper 1 (3); Red-bellied Woodpecker 1 (3); Carolina Wren, +; Pileated Woodpecker, +; Red-breasted Nuthatch, +; Golden-crowned Kinglets, +; Blue Jay, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; Ruffed Grouse, +. **Average Total:** 20 species (67 per 100 acres)—*ALBERT R. BUCKELEW, JR., KATHLEEN DOWNEY, DANIEL J. KOCHAKI (compiler), SHELDON LEWIS (Biology Department, Bethany College, Bethany, West Virginia 26032).*

13. UPLAND OAK-HICKORY HARDWOOD FOREST.—**Location:** Burling Park, McLean, Virginia, 38°57' N, 77°12' W. **Continuity:** Established 1971. **Size:** 11.0 ha = 27.2 acres. **Description of Area:** Census site is part of a 336-acre oak-hickory-tulip-tree upland forest park, situated above the gorge of the Potomac River. See *AB* 25:636 and *Atlantic Naturalist* 26:77. This remarkable park was saved from residential development in 1970 by timely citizen action. It is hoped that it can be preserved henceforth in its natural state. **Weather:** Cloudy days outnumbered clear, but only 3 trips encountered precipitation. No snow cover during the period. A mild late January thaw brought 40° to 60°F. temperatures, but temperatures during trips averaged 32.7°, ranging from 14° to 58°. **Coverage:** Jan 7 (2), 8, 10 (2), 12, 14 (2), 15, 17-19, 23-25 (2), 29-31 (2); Feb. 1 (2)-3, 5, 10, 11. **Total:** 27 trips between 0720 and 1735. Fifteen trips were in the morning, 10 around mid-day, and 2 in the later afternoon. **Total**

hours of observation, 41, average trip length, 1½ hours. **Count:** Carolina Chickadee, 7 (64, 26); White-breasted Nuthatch, 3 (27, 11); Red-bellied Woodpecker, 2 (18, 7), Com. Crow (some overhead), 2 (18, 7); Tufted Titmouse, 2 (18, 7); Pileated Woodpecker, 1 (9, 4); Hairy Woodpecker, 1 (9, 4); Downy Woodpecker, 1 (9, 4); Blue Jay, 1 (9, 4); Brown Creeper, 1 (9, 4); Red-shouldered Hawk, +; Barred Owl, +; Com. Flicker, +, Yellow-bellied Sapsucker, +; Winter Wren, +; Carolina Wren, +; Am. Robin, +; Golden-crowned Kinglet, +; Purple Finch, +; Dark-eyed Junco, +. **Average Total:** 21 birds per trip (density, 191 per sq. km., 77 per 100 acres). **Remarks:** Turkey Vulture, Mourning Dove, Herring Gull, Red-tailed Hawk and Fish Crow were seen flying overhead. Total species seen, 25. This third-year study resulted in an overall density twice that of the previous year but only slightly greater than 1971. The greater variety of species (25 as against 18 [1971] and 17 [1972]) presumably stemmed from the greater frequency of census trips. Chickadees in particular were up in numbers, as were crows and nuthatches, but titmice were down slightly. A Barred Owl was seen being mobbed by crows on Jan. 29. Owl or hawk pellets were found. It is suspected that a pair of Barred Owls may make their home near the census area. Six vultures overhead at 1730 Feb. 2 were probably roost-bound toward the east. A loose foraging association or "concentration" of birds seen Jan. 14 contained at least 9 species. Several chickadees uttered calls or songs more characteristic of the black-capped species, but identification was not positive. The Burling Park area continues to be absolutely free of the Starlings and House Sparrows which inflate bird density totals in other censuses. Careful search failed to reveal any bluebirds, a species seldom encountered close to metropolitan Washington, although some bluebirds have been detected within several hundred yards of the census area in recent winters.—**JOHN B. BAZUIN, JR., MRS. WILLIAM DAVIS, BILL DAVIS, BEN FERN, EDWARD A. MAINLAND (compiler, 7208 Churchill Rd., McLean, Va. 22101), DAVID MEALMAN, LEE POOLE, BARRY SPERLING, ROBERT WATSON, and DONALD WEBER.**

14. UPLAND MIXED HARDWOOD FOREST.—**Location:** 2 miles southeast of Wise, Virginia; 36°57'N, 82°32'W, Wise Quadrangle, USGS. **Continuity:** New. **Size:** 9.9 ha = 24.5 acres. Irregular, 1500 × 800 ft., measured on geological survey map. **Description of Area:** The area is fairly typical deciduous second-growth forest of the Cumberlands. It is a steep ravine dropping abruptly from 2600 ft. to 2200 ft. and surrounded in its entirety by similar habitat except for a small portion of the northeastern corner, where the forest opens to residential area. A small stream comprises the southern border. Chestnut Oak (*Quercus prinus*) composes about 75% of the total number of canopy trees. Other common species are Tulip-tree (*Liriodendron tulipifera*), Red Oak (*Q. rubra*), Scrub Oak (*Q. ilicifolia*), Black Birch (*Betula prinus*), and Red Maple (*Acer rubrum*). There are scattered individuals of White Oak (*Q. alba*), Umbrella Magnolia (*Magnolia tripetala*), and Eastern Hemlock (*Tsuga canadensis*). The understory consists mainly of Great

Rhododendron (*Rhododendron maximum*), Mountain Laurel (*Kalmia latifolia*), and Flame Azalea (*Rhododendron calendulacium*). The ground cover includes Poison Ivy (*Rhus radicans*), Greenbrier (*Smilax rotundifolia*), Galax (*Galax aphylla*), Partridgeberry (*Mitchella repens*), Wintergreen (*Gaultheria procumbens*), and Maidenhair Fern (*Adiantum pedatum*). (Botanical information from A. E. Radford, H. E. Ahles, and C. R. Bell, *Guide to the Vascular Flora of the Carolinas*, Chapel Hill, 1964). **Food:** There is very little weedy growth except in the northeastern corner, where there is a small clearing. **Weather:** Temperatures ranged from -3° to 65°F. During Jan. and Feb. precipitation as rain was 3.92 in., as snow 11.5 in. (Information from Roy Wells, Clinch Valley College Weather Station.). **Coverage:** Jan. 7, 8, 10, 20, 27; Feb. 3, 9, 11. Total: 8 trips, 6 morning and 2 afternoon, averaging 96 minutes each. **Count:** Carolina Chickadee, 6 (61, 24); Tufted Titmouse, 5 (50, 20); Golden-crowned Kinglet, 5 (50, 20); Dark-eyed Junco, 3 (30, 12); Downy Woodpecker, 2 (20, 8); White-breasted Nuthatch, 2 (20, 8); Pileated Woodpecker, 1 (10, 4); Yellow-bellied Sapsucker, 1 (10, 4); Com. Crow, 1 (10, 4); Carolina Wren, 1 (10, 4); Red-tailed Hawk, +; Ruffed Grouse, +; Hairy Woodpecker, +; Blue Jay, +; Brown Creeper, +; Am. Robin, +; Cardinal, +; Song Sparrow, +. **Average Total:** 27 birds (272 per sq. km., 110 per 100 acres). **Remarks:** The Downy Woodpecker, Carolina Chickadee, Tufted Titmouse, and White-breasted Nuthatch were noted on every trip, the Golden-crowned Kinglet on 7. The Pileated Woodpecker, sapsucker, Hairy Woodpecker, crow, and Carolina Wren were seen on 3 trips. The high density of juncos was due primarily to the movement of a single large flock (25) through the study area on one trip Red-tailed Hawks began nesting on the area by Feb. 3.—**DWIGHT E. PEAKE, Box 28, Wise, Va. 24293**

15. OLD GROWTH BEECH—TULIP-TREE—BLACK GUM FOREST.—**Location:** South Officer's Woods, 1 mile southeast of Volga, Jefferson County, Indiana; 38°46'N, 85°30'W. Volga quadrangle, USGS. **Continuity:** Established 1972. **Size:** 10.08 ha = 24.9 acres. **Description of Area:** See *AB* 25 979-980 (1971). **Weather:** Temperatures were about average for southern Indiana; precipitation was above normal in November and December, but below normal in January and February. On count days, snow cover ranged from none (6 times) to 2 in. Temperatures during the daytime counts ranged from 10 to 45°F.; wind from various quarters. 0-3 mph.; sky clear four times, partly cloudy twice, overcast three times. A light misty rain fell for an hour once, but otherwise there was no precipitation during counts. **Coverage:** Dec. 28; Jan. 13, 20, 26, 27; Feb. 10, 17, 23, 27 (night). Total 8 daylight trips (7 morning and one afternoon), averaging 150 minutes and ranging from 131 to 195 minutes, plus one night trip of 70 minutes. **Count:** Com. Grackle, 37 (367, 149); Starling, 12 (119, 48); Purple Finch, 9 (89, 36); Tufted Titmouse, 7 (69, 28); Cardinal, 7 (69, 28); Carolina Chickadee, 6 (60, 24); Red-bellied Woodpecker, 2 (20, 8); Downy Woodpecker, 2 (20, 8); Blue Jay, 2 (20, 8); White-breasted Nuthatch, 2 (20, 8); Brown Creeper, 2 (20, 8); Golden-crowned Kinglet,

2 (20, 8), Mourning Dove, 1 (10, 4), Pileated Woodpecker, 1 (10, 4); Hairy Woodpecker, 1 (10, 4); Am. Robin, 1 (10, 4); Am. Goldfinch, 1 (10, 4); Red-tailed Hawk, +; Barred Owl, +; Com. Flicker, +; Red-headed Woodpecker, +; Red-breasted Nuthatch, +; Carolina Wren, +; White-throated Sparrow, +; Dark-eyed Junco, +. **Average Total:** 97 birds (963 per sq. km., 390 per 100 acres.) Only the Downy Woodpecker, chickadee, titmouse, White-breasted Nuthatch, and Cardinal were noted on all 8 daylight trips; in contrast the Red-breasted Nuthatch, wren, cowbird, grackle, White-throated Sparrow, and junco were noted only once. Different results obtained by counting or not counting birds in flight are highlighted by this count. If individual birds not seen to land had been counted, the preceding count would have included: Brown-headed Cowbird, 2 (20, 8); Com. Crow, 1 (10, 4); Turkey Vulture, +. In addition, the Starling count would be increased to 80 (794, 321); Com. Grackle to 50 (496, 201), Am. Robin to 3 (30, 12). Average total would then be 181 birds (1,796 per sq. km., 787 per 100 acres). Cynthia Marion, Jackson R. Webster and Juanita R. Webster assisted with the count, but their time was not calculated above.—*J. DAN WEBSTER, Hanover College, Hanover, Ind. 47243.*

16. OAK-MAPLE FOREST AND FOREST-EDGE.—**Location:** Six miles northeast of Champaign, Illinois. **Continuity:** Established 1948. **Size:** 22.3 ha = 55 acres of forest plus 1.25 miles of forest-edge. **Description of Area:** See *AFN* 2: 151-152 (1948). **Coverage:** Dec 16, 31; Jan. 13, 27; Feb. 10, 24. **Total:** 6 trips, 15 party-hours. **Count:** *Forest Interior Species:* Downy Woodpecker, 4 (18, 7); Red-bellied Woodpecker, 2 (9, 4), Carolina Chickadee, 2 (9, 4); Great Horned Owl, 1 (4, 2); Hairy Woodpecker, 1 (4, 2); White-breasted Nuthatch, 1 (4, 2); Brown Creeper, +; Carolina Wren, +, Winter Wren, +; Golden-crowned Kinglet, +. *Forest-edge Species* (Individuals per kilometer and per mile in parentheses): Dark-eyed Junco, 45 (58, 36); Starling, 18 (23, 14); Tree Sparrow, 10 (13, 8); Blue Jay, 9 (12, 7); Red-headed Woodpecker, 8 (10, 6); Ring-necked Pheasant, 4 (5, 3); Song Sparrow, 3 (4, 2); Am Robin, 2 (4, 2); Cardinal, 2 (4, 2); Mourning Dove, 1 (1, 1); Com. Flicker, 1 (1, 1); Swamp Sparrow, 1 (1, 1); Red-tailed Hawk, +; Com. Crow, +; Com. Grackle, +. **Average Total:** *Forest Interior*, 11 birds (49 per sq. km., 20 per 100 acres); *Forest-Edge*, 104 birds (134 per km., 83 per mile).—*S. CHARLES KENDEIGH, Vivarium Bldg., Wright and Healey Streets, Champaign, Ill. 61820.*

17. BOTTOMLAND OAK-GUM-CYPRESS FOREST.—**Location:** North of State Highway 12 in LeRoy Percy State Park, 4 miles West of Hollandale, Washington County, Mississippi; parts of Sections 5, 8 and 9, T15N, R7W. **Continuity:** Established 1971. **Size:** 11.36 ha = 28.1 acres; rectangular in shape: 836 ft × 1463 ft.; laid off with compass and steel tape. **Description of area:** See *AB* 25: 638-639 (1971). **Weather:** During the study period the temperatures on count days ranged from 27° to 62° F. The mean high temperature from Jan. 6 through Feb. 18 was 50.6°

and the mean low was 34.0° Total rainfall for the same period was 10.60 in. For the comparable period last year the mean high temperature was 54.1°, the mean low was 34.8°, and the total rainfall was 9.01 in. On Jan. 7 an ice storm caused widespread damage to trees. Temperatures from Jan. 7 through Jan. 12 remained just below freezing. The preceding months of November and December were considerably wetter than normal while temperatures remained about seasonable. (Weather data from Delta Branch Experiment Station, Stoneville, Miss., 15 miles to the north.) **Coverage:** Jan. 6, 13, 14, 20, 27, 28; Feb. 3, 10, 17, 18. **Total:** 10 trips at various times from 0845 to 1530, 6 morning and 4 afternoon. Two observers covered the plot, each with assigned areas, on 4 trips; while on 6 trips only one observer worked. Average time per trip; 150 observer-minutes. **Count:** Yellow-rumped Warbler, 19 (167, 68); Red-winged Blackbird, 16 (141, 57); Rusty Blackbird, 16 (141, 57); White-throated Sparrow, 12 (106, 43); Am. Robin, 8 (70, 28); Com. Grackle, 7 (62, 25); Cardinal, 6 (53, 21); Com. Flicker, 4 (35, 14); Red-bellied Woodpecker, 4 (35, 14); Golden-crowned Kinglet, 4 (35, 14); Starling, 4 (35, 14); Hermit Thrush, 3 (26, 11); Yellow-bellied Sapsucker, 2 (18, 7); Downy Woodpecker, 2 (18, 7); Carolina Chickadee, 2 (18, 7); Ruby-crowned Kinglet, 2 (18, 7); Cedar Waxwing, 2 (18, 7); Pileated Woodpecker, 1 (9, 4); Hairy Woodpecker, 1 (9, 4); Blue Jay, 1 (9, 4); Tufted Titmouse, 1 (9, 4); Brown Creeper, 1 (9, 4); Winter Wren, 1 (9, 4); Carolina Wren, 1 (9, 4); Brown Thrasher, 1 (9, 4); E. Bluebird, 1 (9, 4); Rufous-sided Towhee, 1 (9, 4); Wood Duck, +; Red-tailed Hawk, +; Am Woodcock, +; E. Phoebe, +; Mockingbird, +; Pine Warbler, +; Am. Goldfinch, +; Dark-eyed Junco, +, Swamp Sparrow, +. **Average Total:** 122 birds (1,074 per sq. km., 434 per 100 acres); 36 species. **Remarks:** Seen on every trip were: flickers, Red-bellied Woodpeckers, sapsuckers, Downy Woodpeckers, Am Robins, Yellow-rumped Warblers, Cardinals, and White-throated Sparrows. The Golden-crowned Kinglets, Hermit Thrushes, grackles, and Rusty Blackbirds were seen on 9 trips. A flock of 150 Red-winged Blackbirds seen on one of the days (they were seen on 4 trips) accounts for their high average. The Cedar Waxwings were seen only once, in a flock of 15. New species recorded this year were: Wood Duck, Brown Thrasher, and Pine Warbler. Although there are no native pine trees within 50 miles, the Pine Warbler seemed to be attracted to Spanish Moss and a single bird was seen on each of four days. We will continue to check the area through the spring for possible nesting. Species showing a significant decline this year were: chickadees, robins, Yellow-rumped Warblers, blackbirds, finches, and sparrows. Last year a much better than normal food supply resulted in abnormally large numbers of these species. The food supply this year was about normal and appeared in the form of Sweet Gum seeds, a few samaras on the elms, weed seeds, nuts, and insect larvae. There were no berries left on the trees. The Yellow-rumped Warblers seemed to be feeding primarily on insects. The chickadees experienced a decline in our area this year as evidenced by our Christmas Bird Count, as well as day to day observations. After three years of study, the informa-

tion accumulated indicates that neither time of day nor weather conditions seems to have an effect on obtaining a correct census. In comparing the data obtained on cloudy and clear days, cold and mild days, morning and afternoon counts, the totals remained fairly constant.—MR. AND MRS. G. E. ALEXANDER, JR., Box 659, Greenville, Miss. 38701.

18. MATURE BOTTOMLAND HARDWOOD FOREST.

Location: Thistlethwaite Wildlife Management Area, 3 miles north of Washington, Louisiana, St. Landry Parish; 30°40'N, 92°03'W; Opelousas Quadrangle, USGS; on the western extreme of the Management Area, ¼ to ½ mile south of Plant Road. **Continuity:** New. **Size:** 8.09 ha = 20 acres (rectangular, 660 ft. by 1320 ft., surveyed by hand compass and pacing). **Description of Area:** The study area is located on the western boundary of the 10,000-acre Thistlethwaite Wildlife Management Area. The forest canopy is essentially closed. Considerable numbers of dead trees and limbs are present, both standing and littering the ground. The area was last logged in 1938. Soils are recent alluvium with a high clay content. **Vegetation:** The tract is composed of mixed bottomland hardwood species. Trees, 9-in. and over based on 20 0.1 acre circular samples, 86/acre; total basal area 106 sq. ft./acre. Species comprising 90% of the total number of trees (figures after each give number of trees/acre, relative density (%), relative dominance (%), frequency (%), in that sequence): Water oak (*Quercus nigra*), 36,44,49,100; Sweet-gum (*Liquidambar styraciflua*), 14,17,11 75; Sugarberry (*Celtis laevigata*), 7,8,7,35; Cherrybark oak (*Q. falcata* var. *pagodaefolia*), 6,8,9,35; Green ash (*Fraxinus pennsylvanica*), 3,4,2,25; Pignut hickory (*Carya glabra*), 3,4,2,35. Trees, 9-in. DBH and over by diameter class (figures after each class give number of trees/acre, relative density (%), basal area in square feet/acre, relative dominance (%): A (9-12 in.) 36,44,22,21; B (13-16 in.) 22,27,26,25; C (17-20 in.) 15,18,27,27; D (21-24 in.) 6,7,17,16; E (25-28 in.) 1,1,4,4; F (36-39 in.) 1,1,8,7. Average height of the dominant trees on the 20 0.1 acre plots was 82 ft. Trees 3-9 in. DBH based on 20 0.01 acre circular samples, 135/acre; total basal area 22 square feet/acre. Species comprising 90% of total number of trees (figures after each give number of trees/acre, relative density (%), relative dominance (%), frequency (%), in that sequence): Ironwood (*Carpinus caroliniana*), 40,32,32,40; Pignut hickory, 35,28,22,30; Cow oak, 20,16,16,15; Water oak, 15,12,16,15. Ground vegetation to 6 ft. height was estimated on 20 0.001 acre plots. Following is species of plants found on over half of the plots (be decreasing frequency), the percentage of the plots on which it was found, and the estimate of area covered by the plant: Switch cane (*Arundinaria tecta*), 90,27; oak (*Quercus* spp.) 85,4; sedge (*Cyperaceae*), 80,4; ironwood, 55,3; rattan vine (*Berchemia scandens*), 55,3; *Viola affinis*, 50,2. Plant names are from Radford, Ahles, and Bell, *Manual of the Vascular Flora of the Carolinas*, 1964. **Topography:** The area was essentially flat, averaging 35 ft. in elevation. **Edge:** The study area is bounded on the west by an approximate 100 ft. strip

of heavily grazed more open woodland (to the west of this strip is pasture) and on all other sides by at least ¼ mile of forest continuum. **Water:** The area is interspersed with 3 to 4 meandering streams approximately 1 ft. deep, and many areas of standing water of lesser depth during the winter season. **Food:** Oak mast was fairly plentiful on the area. A few birds were noted feeding on Sweet-gum seed and Sugarberry fruit. The quantity of dead wood probably provided a quantity of boring insects. **Weather:** Data were from the general geographical area in which the study area was located. Rainfall averaged approximately 4 in. per month for January and February (about 1.5 in. below the long time monthly mean). Temperatures averaged 46°F. for January (5° below the long range mean) and 49° for February (4° below the long range mean). There were 2 snowfalls of approximately 2 in. each during January and February on the study area. The temperature during the counts averaged around 60°F. except for two mornings of approximately 30°. **Coverage:** Jan 31; Feb. 4-7, 9, 10. **Total:** 8 trips, 7 between 0654 and 1025, 1 from 1455 to 1717, averaging 135 minutes. **Count:** White-throated Sparrow, 29 (358, 145); Com Grackle, 22 (272, 110); Red-headed Woodpecker, 11 (136, 55); Yellow-bellied Sapsucker, 10 (124, 50); Brown Thrasher, 9 (111, 45); Blue Jay, 6 (74, 30); Am Robin, 6 (74, 30); Cardinal, 6 (74, 30); Carolina Wren, 4 (49, 20); Rufous-sided Towhee, 4 (49, 20); Red-bellied Woodpecker, 3 (37, 15); Tufted Titmouse, 3 (37, 15); Rusty Blackbird, 3 (37, 15); Ruby-crowned Kinglet, 3 (37, 15); Orange-crowned Warbler, 2 (25, 10); Yellow-rumped Warbler, 2 (25, 10); Carolina Chickadee, 1 (12, 5); Mockingbird, 1 (12, 5); Pileated Woodpecker, 1 (12, 5); Hermit Thrush, 1 (12, 5); Golden-crowned Kinglet, 1 (12, 5); Brown-headed Cowbird, 1 (12, 5); Cedar Waxwing, 1 (12, 5); Red-shouldered Hawk, +, Turkey, +; Am. Woodcock, +; Barred Owl, +; Com Flicker, +; Hairy Woodpecker, +; Com. Crow, +, Am. Goldfinch, +; Fox Sparrow, +. **Average Total:** 130 birds (1,606 per sq. km., 650 per 100 acres). **Remarks:** Each species in the previous listing through Yellow-rumped Warbler was noted on each visit except Carolina Wren, Red-bellied Woodpecker, and Yellow-rumped Warbler, which were noted on all but one visit. Species noted on only one visit include: Red-shouldered Hawk, Turkey, Barred Owl, Cedar Waxwing, Am. Goldfinch, and Fox Sparrow. Cardinals were noted calling on each visit except Feb. 9. This lowered activity was attributed to the relatively harsh conditions on that date (28°F., wind 13-18 knots, 1 in. snow on ground). Examination of data by visits showed no discernible effect of the weather conditions on any other species.—JAMES G. DICKSON, School of Forestry and Wildlife Management, Louisiana State University, Baton Rouge, La. 70803.

19. MIXED PINE—DECIDUOUS FOREST —

Location: One mile west of the Northwestern State University campus, within the Northwestern State University Natural History Reservation and on the south side of Louisiana Highway 6, (Section 81, R7W, T9N), Natchitoches Parish, Louisiana. **Continuity:** Established 1971. **Size:** 8.9 ha = 22 acres (L-shaped, measured by pacing with compass). **Descrip-**

tion of Area: See AB 25 639-640 (1971) and 26 669 (1972). **Weather:** Daytime temperatures ranged from 32° to 57°F. and night temperatures ranged from 25° to 45°. Four count days were overcast and two were clear. Two inches of snow were on the ground on Jan. 11, an additional inch fell that night, but the snow cover had melted by Jan. 14. About one inch of rain fell on Jan. 25. Wind during counts ranged from 0 to gusts up to 3 on the Beaufort scale. The general winter weather pattern was colder and wetter than usual for the area. **Coverage:** Jan. 11, 12, 14, 20, 26, 27. Total: 6 trips all between 1000 and 1600, averaging 2 hours. **Count:** Com. Grackle, 26 (292, 118); Pine Warbler, 7 (79, 32); White-throated Sparrow, 6 (67, 27); Blue Jay, 5 (56, 23); Carolina Chickadee, 5 (56, 23); Golden-crowned Kinglet, 5 (56, 23); Ruby-crowned Kinglet, 5 (56, 23); Cardinal, 4 (45, 18); Am. Goldfinch, 4 (45, 18), Tufted Titmouse, 3 (34, 14); Carolina Wren, 3 (34, 14); Pine Siskin, 3 (34, 14); Red-bellied Woodpecker, 2 (22, 9); Yellow-bellied Sapsucker, 2 (22, 9); Brown Thrasher, 2 (22, 9); Am. Robin, 2 (22, 9); Hermit Thrush, 2 (22, 9); Pileated Woodpecker, 1 (11, 5); Hairy Woodpecker, 1 (11, 5); Downy Woodpecker, 1 (11, 5), Red-breasted Nuthatch, 1 (11, 5); Brown Creeper, 1 (11, 5); Solitary Vireo, 1 (11, 5); Orange-crowned Warbler, 1 (11, 5); Yellow-rumped Warbler, 1 (11, 5); Rufous-sided Towhee, 1 (11, 5); Dark-eyed Junco, 1 (11, 5); Red-tailed Hawk, +; Com. Flicker, +; E. Phoebe, +; Mockingbird, +. **Average Total:** 96 birds (density, 10,078 per sq. km., 436 per 100 acres). **Remarks:** Total species, 31. The Com. Grackle, Pine Warbler, kinglets, Carolina Chickadee, Blue Jay, Cardinal, Carolina Wren, Tufted Titmouse, Yellow-bellied Sapsucker, Am. Robin, Red-bellied Woodpecker and Hermit Thrush were seen on all 6 counts. The Pine Warbler, White-throated Sparrow, Hairy Woodpecker and Brown Thrasher were seen on 5 counts. Thirty species were seen in 1971 and 27 in 1972. The density has increased from 200 in 1971 to 291 in 1972 and to 436 in 1973. The species chiefly responsible for the increase in 1973 was the Com. Grackle. Grackles were absent from the area in 1972 but returned in 1973. The presence of the Pine Siskin and Red-breasted Nuthatch indicates an influx of northern species that did not occur in the winters of 1971 or 1972.—CHARLES E. VIERS, Dept. of Biological Sciences, Northwestern State University, Natchitoches, La. 71457.

20. SLASH PINE PLANTATION.—**Location:** 3½ miles north of the intersection of state highways 111 and 464 and south of highway 464 Vernon Parish, Louisiana; Sections 11 and 12, 2 S, R 11 W; 30°27'N, 93°27'W, Knight Quadrangle, USGS. **Continuity:** Established 1972; First winter census. **Size:** 16.19 ha = 40.0 acres (square, surveyed by hand compass and pacing). **Description of Area:** The dominant vegetation is Slash Pine (*Pinus elliottii*) planted in January 1952. Understory vegetation is very sparse and consists of Longleaf Pine (*Pinus palustris*), Red Cedar (*Juniperus virginiana*), Blackjack Oak (*Quercus marilandica*), Sweet Gum (*Liquidambar styraciflua*), Holly (*Ilex opaca*), Devil's Walking Stick (*Aralia spinosa*), Wax Myrtle (*Murica cerifera*), Yellow Jessamine (*Gelsemium sempervirens*), and Blackberry (*Rubus*

sp.) The ground cover is a mixture of native grasses that have been smothered out by pine needles. A cruise of the dominant vegetation based on 16, 20 factor points indicates 255 trees per acre, 3 in. DBH and over. The average DBH is 8.3 in. and average height of dominant trees is 65 ft. This plantation was thinned in 1969 and again in 1972 and has been control-burned periodically, which accounts for the lack of hardwood understory. There is an old road on the west side of the plot and seepage into the road ditches has furnished water for the birds this winter. **Edge:** Bordered on all sides by a similar forest type. **Topography:** Essentially flat except for the road which has been worn down 2 to 3 ft. below the average level of the rest of the area. **Elevation:** 290 ft. **Weather:** Temperature at freezing or above with one exception. Skies and winds were quite variable. **Coverage:** Dec. 3, 11, 17; Jan. 14, 27, Feb. 3, 11, 17. Total: 8 trips, between dawn and 1000 hours. Total man-hours: 17.4 **Count:** Pine Warbler, 20 (124, 50); E. Bluebird, 10 (62, 25); Brown-headed Nuthatch, 4 (5, 10); Yellow-rumped Warbler, 4 (25, 10); Dark-eyed Junco, 3 (19, 8); Golden-crowned Kinglet, 2 (12, 5); Chipping Sparrow, 2 (12, 5); Backman's Sparrow, 1 (6, 2); Com. Crow, 1 (6, 4); Red-bellied Woodpecker, 1 (6, 2); Blue Jay, 1 (6, 2); Am Robin, 1 (6, 2); Com. Flicker +; Yellow-bellied Sapsucker +; Hairy Woodpecker +; Downy Woodpecker +; Red-cockaded Woodpecker +; E. Phoebe +, Carolina Chickadee +; Hermit Thrush +. **Average Total:** 50 birds (density, 309 per sq. km., 125 per 100 acres). **Remarks:** Three species noted throughout the survey period were Pine Warblers, E. Bluebird and Brown-headed Nuthatches. Com. Crow and Com Grackle were visitors.—E. C. CLEAVELAND, 61 Harvard Drive, DeRidder, La. 70634.

21. MATURE POPLAR FOREST.—**Location:** Elk Island National Park, Alberta; 23 miles east of Edmonton on Highway 16, on the Hayburger Trail east of road through park and 4 miles north of Highway 16, 53°37½'N, 112°50½'W, 83 H/10 West, Elk Island Park, NTS. **Continuity:** New. **Size:** 10.0 ha = 24.7 acres (rectangular, 400 × 250 m, lines laid out in 50 m intervals, measured by 50 m wire cable and compass). **Description of Area:** See AB 26: 988-989 (1972). The dominant canopy trees are Balsam Poplar (*Populus balsamifera*) and Quaking Aspen (*P. tremuloides*). Average canopy height, 47 ft. (range 40-54 ft.). **Weather:** Though temperatures for the period covered by the study ranged from +29° to +49°F, the mean temperature was 5.8°F above normal due to cold spells of short duration. The seasonal snowfall was 3.5 in. below normal for the end of February, in spite of a blizzard which struck on Jan. 2 with winds up to 60 mph. Snow cover was constant, ranging in depth from 3-12 in. (Data supplied by Atmospheric Environment Service weather office at Edmonton). **Coverage:** Dec. 3, 10, 16, 25, 29; Jan 6; Feb. 10, 17. Total: 8 trips, averaging 99 minutes each, between 1030 and 1545 CST. **Count:** Black-capped Chickadee, 4 (40, 16); Ruffed Grouse, 1 (10, 4); Hairy Woodpecker, 1 (10, 4); Great Horned Owl, +; Downy Woodpecker, +; N. Shrike, +; Pine Grosbeak, +. **Average Total:** 6 birds (60 per sq. km., 24 per 100 acres). Occasional visitors (only seen flying

over plot; total number seen): Goshawk, 1; Com. Raven, 1. **Remarks:** Except for a Goshawk flying over on Dec. 10 and a Com. Raven on Feb. 10, no birds were seen on the plot those days. The sky was overcast and snow was falling on those two days. The Great Horned Owl was seen only once, on Dec. 25 at 1540 (37 min. before sunset.). The N. Shrike appeared only once to attempt to catch a Black-capped Chickadee but was unsuccessful. Two Pine Grosbeaks (male and female) were seen on only one occasion, eating Saskatoon berries (*Amelanchier alnifolia*) that wintered on the bushes. Ravens, which are rare winter visitors only, appear irregularly in this area; this winter they were particularly abundant.—**LORAN L. GOULDEN**, Dept. of Biochemistry, University of Alberta, Edmonton, Alberta.

22. ISOLATED PONDEROSA PINE FOREST.

—**Location:** Four miles east of Colorado Springs, El Paso County, Colorado, and one-half mile north of US Highway 24. **Continuity:** Established 1961, 6 intermittent years. **Size:** 8.1 ha = 20 acres. **Description of Area:** See *AFN* 15: 368-369 (1961). Since this area was last censused in 1960-61, the development of Colorado Springs has extended eastward to envelop this isolated "ecological island." There are now many houses and roads surrounding the area to north, west and south, not to mention five houses built within the "atoll" and two on the outer edge of the study area. However, the pines and shrubs have remained relatively undisturbed. **Weather:** The census period followed a very cold, snowy and windy autumn, but was in itself fairly moderate. The average temperature was about 34°F., with a low of 5° and a high of 58°. Snowfall totaled 4.3 in. **Coverage:** Jan. 13, 14, 20, 21, 27; Feb. 25, 28; Mar. 3, 4. Total: 9 trips, averaging 1½ hours. **Count:** Mountain Bluebird, 6 (74, 30); Black-billed Magpie, 5 (62, 25); Starling, 4 (49, 20); House Finch, 4 (49, 20); junco sp., 4 (49, 20); Dark-eyed (White-winged) Junco, 3 (37, 15); Dark-eyed (Slate-colored) Junco, 3 (37, 15); Am. Robin, 2 (25, 10); Pine

Siskin, 2 (25, 10); Dark-eyed (Oregon) Junco, 2 (25, 10); Downy Woodpecker, 1 (12, 5); Scrub Jay, 1 (12, 5); Mountain Chickadee, 1 (12, 5); House Sparrow, 1 (12, 5); Cassin's Finch, 1 (12, 5); Gray-headed Junco, 1 (12, 5); Am. Kestrel, +; Rock Dove, +; W. Meadowlark, +; Am. Goldfinch, +; Tree Sparrow, +. **Average Total:** 41 (density, 507 per sq. km., 205 per 100 acres). **Remarks:** Although the environs of this isolated pine grove have become "urbanized" in the past twelve years, both the number of species and of individuals is greater now than in the past. However, it should be noted that most of the increase in average density is due to the presence this winter of late-winter flocks of the Mountain Bluebird, Starling, and Pine Siskin. Indeed, the bluebirds were recorded only on the last field trip, in a flock of 50 individuals. Hence, disregarding these species, the density is essentially what it was in 1961. The increase in diversity may be because this woodland has increasingly become an ecological "oasis" as the surrounding countryside has fallen to high-density development. Furthermore, there are now several feeding stations with seeds and suet located on the site, encouraging small birds. In 1961 the effect of nimrods was predicted; and indeed this winter 3 Steller's Jays were found shot. Intensified human activity has undoubtedly accounted for the disappearance of the Great Horned Owl and possibly the Com. Flicker from the woodland, while usurpation of surrounding grassland by housing has eliminated the Horned Lark. However, urbanization has facilitated a great—and in retrospect predictable—increase in populations of the Starling, House Sparrow and Rock Dove (an average of 7 for the area now, compared with less than 0.5 in 1961, and that only for the Starling). As the housing density of the pine grove increases over the next decade, it will be interesting to follow further avian changes.—**ROBERT FOLLANSBEE**, **BONNIE TIMMONS** and **RICHARD G. BEIDLEMAN**, Dept. of Biology, Colorado College, Colorado Springs, Colorado, 80903.



Study 22. Isolated Ponderosa Pine Forest, Colorado. On left, site in 1961. Photo/Robert G. Beidleman. On right, same site 1973. Photo/Robert Follansbee.

23. LOWER FOOTHILLS, PONDEROSA PINE FOREST.—**Location:** One-half mile south of Boulder, Colorado. **Size:** 8.09 ha = 20 acres. **Continuity:** Established 1964. 5 intermittent years. **Description of Area:** Situated in the northeast corner of a pine-covered mesa, at an elevation of 5900 ft. See *AFN* 8: 372 (1954). **Weather:** November, December, and January had greater than average snowfall and below average temperatures. February had below average precipitation and normal temperatures. Snow partially or wholly covered the plot on 9 trips; the most was 14 in. on Dec. 17. Temperatures ranged from 5° to 45°F. **Coverage:** Oct. 29; Nov. 19; Dec. 17, 24; Jan. 1, 7, 28, Feb. 4, 18, 25. Total: 10 trips, totaling 7.5 hours. Trips were taken from 7:30 to 9:00 a.m. **Count:** Pygmy Nuthatch, 9 (111, 45); Steller's Jay, 8 (99, 40); Mountain Chickadee, 7 (86, 35); junco (sp.), 4 (49, 20); White-breasted Nuthatch, 3 (37, 15); Brown Creeper, 2 (25, 10), Golden-crowned Kinglet, 1 (12, 5); Com. Flicker, +, Hairy Woodpecker, +; Black-billed Magpie, +; Com. Crow, +; Pine Siskin, +; Red Crossbill, +; Dark-eyed (White-winged) Junco, +; Dark-eyed (Slate-colored) Junco, +; Gray-headed Junco, +. **Average Total:** 34 birds (420 per sq. km., 170 per 100 acres.) **Remarks:** This winter population was about average. There was no pine cone crop on the mesa. No Clark's Nutcrackers, Red-breasted Nuthatches, or Cassin's Finches were seen. Red Crossbills were scarce. Bitter cold weather and much snow may have caused the decrease in Golden-crowned Kinglets as compared to last winter. Many of the Steller's Jays were moving from foothill areas south of the plot into Boulder where peanuts were obtained at feeders. Only those jays actually perching in pines on the study area were counted.—*LOUISE HERING, 568 Marine, Boulder, Colo. 80302.*

24. LODGEPOLE PINE FOREST WITH ASPEN.—**Location:** One mile west of Silverthorne, Colorado, 39°37'N, 105°6'W, Dillon Quadrangle, USGS. **Continuity:** Established 1970. **Size:** 13.4 ha = 33 acres. **Description of Area:** See *AFN* 24:550 and 24 760 (1970). **Weather:** Snow covered the ground throughout the study period but was not as deep as usual. Snow was 6 in. deep Nov. 25; 12 in. deep Dec. 3, and 18 in. deep in Dec. and Jan.; it compacted to 16 in. Feb. 2. Average temperatures (lows and highs) and precipitation are presented in the following table:

	Temperatures (°F)		Precipitation (inches)
	Low	High	
Nov. 16-30	5	33	.49
December	3	31	.71
January	-1	29	.30
February	1	35	.32

Coverage: Nov. 25, 26; Dec. 2, 3, 23, 24; Jan. 14; Feb. 3, 4. Total: 9 trips, 18 man-hours. **Count:** Mountain Chickadee, 12 (90, 36); Gray Jay, 3 (22, 9); Red Crossbill, 3 (22, 9); Black-capped Chickadee, 2 (15, 6), White-breasted Nuthatch, 2 (15, 6); Brown Creeper, 2 (15, 6); Hairy Woodpecker, 1 (7, 3); Downy Woodpecker, +; N. Three-toed Woodpecker, +; Steller's Jay, +; Black-billed Magpie, +; Pine Grosbeak, +; junco sp. +. **Average Total:** 26 birds (195 per sq. km., 79 per 100 acres. **Remarks:** As last year, the Mountain

Chickadee population increased later in the season, so that the average total on the last three trips was 20 birds per trip. When both species of chickadees fed in the forest, they tended to associate with each other and with the nuthatches and creepers. The Black-capped would usually feed lower in the canopy than the Mountains. On Feb. 3 a Brown Creeper was singing. In contrast to the summer distribution, the winter birds occur throughout the forest. The juncos do not usually winter in this snow-covered area, but this winter up to a dozen utilized the feeders at the mountain cabins 150 yards south of the study plot. By February the Lodgepole Pines were developing an excellent cone crop.—*HUGH KINGERY, 10 Emerson, Denver, Colo. 80222.*

25. FLOODPLAIN FOREST AND CULTIVATED BOTTOMLAND.—**Location:** North of and adjacent to the village of Scio, Allegany County, New York, 42°10'N, 77°59'W, Wellsville Quadrangle, USGS, 1926. **Continuity:** Established 1971. **Size:** About 51.8 ha = 128 acres. **Description of Area:** See *AB* 25:644-645 (1971). This year the cultivated area on the southern end was planted to 38 acres of corn, harvested for silage. The 8-acre area of sod is the same as last year, and the northern 8 acres is oat stubble. Changes were effected by Hurricane Agnes which stalled over this region between June 21 and 26, 1972, dumping over 12 inches of rainfall and causing severe flooding of the Genesee River and its tributaries. As the river in flood entered the plot on the south, it cut back the right bank and carried away some vegetation in the floodplain section as well as soil from the adjoining cultivated area. It also cut away the left bank below the mouth of Knights Creek and left large deposits of coarse gravel when the waters receded. Since the area taken away nearly equals that added, for this study the river continues as boundary from its south entrance to the northwest corner of the woods section south of the slough, where the river left the old channel to cut a new bed almost straight to the Amity township line. The former river channel with its four new pools is retained to bound the plot north to the Amity line, from this corner of the woods. New edge at the northwest corner of the plot is now a 6-acre wasteland of large gravel between the old and new river channels. During the flood, slumping occurred in the terrace edge above the slough, and there was extensive silting in this old oxbow lake, but a new pool was formed at its head. Dry Brook changed its course, turning south at the foot of the terrace to fan out and drop into the slough. Major alterations by the U.S. Army Corps of Engineers were made following the flood in the floodplain south of the slough through a channelization program. Hawthorn, Sumac, Wild Grape and miscellaneous deciduous species were bulldozed out. In addition, several Sycamores, Boxelders and Black Willows, from 5 to 16 inches in diameter, were cut and burned. Large areas were denuded, stripped of trees, shrubs and ground cover, and leveled to simulate a parking lot. Another big change was made by the New York Department of Soil Conservation which bulldozed out ten of the eleven 50-ft. White Pines, the only conifers in the plot, from the terrace at the north-

west corner of the cultivated area **Food:** Boxelder seeds, filled milkweed pods, frozen apples on wild trees, and sycamore fruits were plentiful throughout the period covered, as were top dressings of manure on the cultivated fields. Because of practically no snow cover, mice and rabbits were easily obtainable and abundant. Many dead elms and some downed timber furnished insects. The river was frozen across at only two narrow sections which thawed by the middle of January, and most of the pools in the slough area were partially open for the whole study; duckweed was thick. The extensive silting at the slough made a favorite feeding site for the large flocks of crows (72; 133; 250; 250) which usually congregated there. By the time of the study, the few wild grape vines and sumac left by the bulldozers were bare and there were very few full ears of corn to be gleaned from harvest. **Weather:** On every trip the wind was from the south with light breeze, and on all but one trip the sky was clear or with only scattered clouds. For the 39 days covered by the survey, the temperature stayed below freezing 12 days and went below freezing all but 4 nights. The temperature ranged from -1° (Jan. 9) to 58° F. (Jan. 18) with average mean 27.7° . For comparison, the mean for January 1971 was 9.0° (lowest in 57 years), January 1972, 24.5° , and this year, 26.4° . For every trip, aside from a few drift remnants, there was only a trace of snow on the ground except for 1 in. Jan. 25, which was gone by the next day. Total precipitation was about 4 in. in December, 1.6 in. in January and 1 in. for the 6 days of the February coverage. (Data from the Alfred Coop. Weather Station, 16 miles northeast of Scio and 770 ft. higher elevation. Their records differ little from ours.) **Coverage:** Dec. 30; Jan. 9, 11, 12, 16, 18, 19, 25, 26; Feb. 6. Total: 10 trips, averaging 123 minutes each. Nine were made between 0800 and 1110; one between 1435 and 1625. **Count:** Com. Crow, 80 (154, 63); Rock Dove, 38 (73, 30); Evening Grosbeak, 14 (27, 11); Tree Sparrow, 6 (12, 5); Blue Jay, 5 (10, 4); Black-capped Chickadee, 5 (10, 4); White-breasted Nuthatch, 5 (10, 4); Mourning Dove, 3 (6, 2); Downy Woodpecker, 3 (6, 2); Song Sparrow, 3 (6, 2); Black Duck, 2 (4, 2); Com. Merganser, 2 (4, 2); Herring Gull, 2 (4, 2); Am. Goldfinch, 2 (4, 2); Belted Kingfisher, 1 (2, 1); Hairy Woodpecker, 1 (2, 1); Horned Lark, 1 (2, 1); Cardinal, 1 (2, 1); Great Blue Heron, +; Mallard, +; Com. Goldeneye, +; Red-tailed Hawk, +; Am. Kestrel, +; Pileated Woodpecker, +; Red-headed Woodpecker, +; Brown Creeper, +; Starling, +; Dark-eyed Junco, +. Average Total: 174 birds (336 per sq. km., 136 per 100 acres). The table at the close of this report compares counts for the past 3 years. Remarks: This year the Com. Crow and White-breasted Nuthatch were sighted on every trip, the Rock Dove, Blue Jay, Black-capped Chickadee and Song Sparrow on 9 trips, and the Belted Kingfisher and Downy Woodpecker on 8. Regularly flocks of Evening Grosbeaks, Am. Goldfinches and Starlings, as well as a few Cardinals and Black-capped Chickadees, could be seen or heard in bordering areas. On two trips crows were seen mobbing a Great Horned Owl in the conifers west of the plot. Six Pine Grosbeaks appeared across the river from the plot on Jan. 28. The decrease in numbers this year, as shown in the

table, is attributed primarily to the lack of ground cover following the extensive bulldozing of the floodplain areas by the U.S. Army Corps of Engineers after the floods of Hurricane Agnes. Thanks go to Dr. Clarence Klingensmith for originally organizing this study and encouraging its continuance, to Don Maybee and Paul McQueen, owners of the plot, for its use, to Robert Place for weather data, and to Raymond Pitzrick and Michael Pitzrick who each made a partial trip in the field.—VIVIAN PITZRICK, Box 61 R. 1 Amity Lake, Belmont, New York 14813.

Table of Comparative Summary—Birds per 100 Acres in Floodplain Forest and Cultivated Bottomland

	3-year average	1971	1972	1973
>>> Seen 3 years				
Com. Crow	28	1	21	80
Rock Dove	23	11	29	38
Evening Grosbeak	14	8	23	14
Mourning Dove	9	1	25	3
Black-capped Chickadee	5	3	8	5
Blue Jay	4	1	6	5
Black Duck	3	5	2	2
Downy Woodpecker	3	2	5	3
Belted Kingfisher	2	2	2	1
White-breasted Nuthatch	2	1	2	5
Cardinal	2	2	4	1
Am. Goldfinch	2	+	5	2
Tree Sparrow	2	1	1	6
Herring Gull	1	1	1	2
Hairy Woodpecker	1	1	1	1
Horned Lark	1	+	1	1
Com. Goldeneye	+	1	+	+
Brown Creeper	+	+	+	+
>>> Seen 2 years				
Com. Merganser	1	—	2	2
Great Blue Heron	+	+	—	+
Red-tailed Hawk	+	—	+	+
Sparrow Hawk	+	—	+	+
Pileated Woodpecker	+	—	1	+
Starling	+	—	+	+
Song Sparrow	+	—	+	3
>>> Seen 1 year				
Com. Redpoll	4	—	11	—
Pine Siskin	1	—	2	—
Mallard	+	—	—	+
Red-breasted Merganser	+	—	+	—
Cooper's Hawk	+	—	+	—
Red-bellied Woodpecker	+	—	—	+
House Sparrow	+	—	1	—
Dark-eyed Junco	+	—	—	+
White-throated Sparrow	+	—	+	—
Snow Bunting	+	1	—	—
TOTALS 1971	20 Species,	51 birds	(42 per 100 acres)	
1972	30 Species,	195 birds	(152 per 100 acres)	
1973	28 Species,	174 birds	(136 per 100 acres)	

26. UPLAND OAK—WILD GRAPE WOODS.

—**Location:** About 5 miles northeast of Pittsburgh, Pennsylvania. **Continuity:** Established 1972. **Size:** 16.2 ha = 40 acres (Note: Owing to a new housing development, and an accompanying extension of the sewer line that runs through it, 10 acres had to be cut from the study area.) **Description of Area:** See *AB* 26: 673-4 (1972) (Note: The average height of the oaks was remeasured and found to be between 50 and 75 feet. The range of other trees is from 35 feet to 90 feet.) **Weather:** Temperatures ranged from 20° (3 walks) to the mid-40's and low 50's (4 walks) with the average being 36°. With the exception of a mid-January cold spell, the weather was unseasonably warm, averaging at least 5° above normal over the entire period. Wind, rain, and snow were not a factor on census dates, although there was much more rain, and much less snow than normal over the entire winter period. **Coverage:** Dec. 23, 29, 30; Jan. 6, 13, 21, 28; Feb. 4. **Total:** 8 trips, all in mid-morning, averaging 1 75 hours. **Count:** Tufted Titmouse, 29 (179, 72); Black-capped Chickadee, 27 (167, 68); Cardinal, 25 (154, 62); Dark-eyed Junco, 20 (124, 50); White-breasted Nuthatch, 9 (56, 22); Downy Woodpecker, 8 (49, 20); White-throated Sparrow, 7 (43, 18); Am. Goldfinch, 6 (37, 15); Hairy Woodpecker, 4 (25, 10); Carolina Wren 4 (25, 10); Brown Creeper, 3 (19, 8); Golden-crowned Kinglet, 2 (12, 5); Com. Flicker, 1 (6, 2); Pileated Woodpecker, 1 (6, 2); Carolina Chickadee, 1 (6, 2); Am. Robin, 1 (6, 2); Evening Grosbeak, 1 (6, 2); Pine Grosbeak, 1 (6, 2); Ruffed Grouse, +; Blue Jay, +; Red Crossbill, +; Tree Sparrow, +; Song Sparrow, +. **Average Total:** 153 birds (945 per sq. km., 382 per 100 acres). **Remarks:** The total number of birds was up over last year's census, but that was mainly due to sharp increases in Black-capped Chickadees, Cardinals, and Dark-eyed Juncos, the first being the most conspicuous. The increase in Black-capped Chickadees is probably more of a return to normal locally than a population increase, because last year was a bad year for chickadees. Apparently the increase in chickadees was local, because several other Pittsburgh areas reported a decrease in numbers over last year. Cardinals were far more consistently present than they were last year, and on one count, an excellent 45 were found. The Cardinals were singing on this date, and could easily be found, which probably indicates that this is the true population. The abnormally warm and snow-free weather may have also been a factor in the consistency of the Cardinal population which, outside of the one count of 45, varied only between 17 and 25. The unusually high junco figure was owing to a large flock (40+) that occasionally fed in the area. Population declines were noted in the following: Downy Woodpecker, Blue Jay, Com. Crow, Tufted Titmouse, Golden-crowned Kinglet, Evening Grosbeak, Pine Siskin, and Song Sparrow. The acreage that was eliminated had some effects on the counts of the Com. Crow, Tree Sparrow, and Song Sparrow, but it could not have been a factor in the decline of the titmouse. The areas eliminated were poor for titmouse, so although the figure per 100 acres was the same, there were fewer titmice within the 40-acre area of the study. The same is true for the Downy

Woodpecker This year was an invasion year for the Red Crossbill and Pine Grosbeak in Pittsburgh, while it was only a small invasion year for the Pine Siskin and Evening Grosbeaks. The number per square kilometer for the Pileated Woodpecker is probably too high, because there is a resident pair in an area of about 500 acres that was found unusually often during the census. Population increases were also noted in the following: Am. Goldfinch, White-throated Sparrow (probably because of the warm weather), and Hairy Woodpecker. The presence of Purple Finches on the count represents a rather extraordinary "invasion" into our area. Prior to this winter, the Purple Finch had never been recorded here in winter. The Common Flickers disappeared after early January. There is a pair of foxes in this woods, and many dogs, which may explain the scarcity of grouse, and there is a skeet range across the valley which may have some effect on the birds in this area. The Great Horned Owl that has nested in the woods prior years was not found this year, although some large owl pellets were found. Other than making several areas inaccessible, the only effect Hurricane Agnes appears to have had is the creation of a semi-open area where a tree was knocked down. This area had a few robins and White-throated Sparrows early in the period. The Spicebush area in the middle of the plot was very poor this winter. The status of Carolina Chickadees is somewhat unknown for this area. There are some chickadees that have very little or no white on the wing, fairly small bibs, and a Carolina Chickadee call, but a Carolina song has never been heard in the census area. The Carolina Chickadees in the census are based on five birds that had the field marks and the call of the Carolina Chickadees. There is probably a great deal of hybridization between the Carolina and Black-capped, which might explain why many chickadees that are clearly Black-caps often have a Carolina Chickadee call.—*SCOTT ROBINSON, Grandview Drive South, Pittsburgh, Pa. 15215.*

27. MIXED UPLAND HABITAT.—**Location:** the central third (14.2 ha = 35 acres) of Glover-Archbold Park, a long, narrow stream valley park in the northwest section of the District of Columbia. **Continuity:** Established 1961. **Description of Area:** See *AFN* 14 502-503, 1960. **Coverage:** Jan. 6 (2 trips), 13, 14, 19, 20, 21, 28 (2), February 2, 3. Hours ranged from 0930 to 1630, most spanning the noon hour. A total of 26 hours spent in 11 trips gave an average of 2.35 hours a trip, but since this added up to only 9 complete coverages of the area, the time per coverage was 2.88 hours. **Weather:** Cloudy on 8 trips, sunny on 3, some showers on one of the cloudy days. Average temperature was 44°F., below freezing on only 3 trips. Wind was near 10 mph on 4 trips, 29 mph on 1, and calm otherwise. This was the 14th consecutive year of the census. **Count:** Com. Crow, 13 (92, 37); Mourning Dove, 10 (71, 29); Carolina Chickadee, 10 (71, 29); Starling, 8 (56, 23); Purple Finch, 8 (56, 23); Blue Jay, 7 (49, 20); Tufted Titmouse, 7 (49, 20); Dark-eyed Junco, 6 (42, 17); Cardinal, 5 (35, 14); Am. Goldfinch, 5 (35, 14); Rock Dove, 4 (28, 11); Downy Woodpecker, 3 (21, 9); Carolina Wren, 3 (21, 9); House Sparrow, 3

(21, 9), White-throated Sparrow, 3 (21, 9), Turkey Vulture, 2 (14, 6), Ring-billed Gull, 2 (14, 6), Red-bellied Woodpecker, 2 (14, 6); Mockingbird, 2 (14, 6); Red-tailed Hawk, +; Red-shouldered Hawk, +; Pileated Woodpecker, +; Hairy Woodpecker, +; Fish Crow, +, White-breasted Nuthatch, +; Brown Creeper, +; Golden-crowned Kinglet, +; Com. Grackle, +; Brown-headed Cowbird, +; House Finch, +; Rufous-sided Towhee, +; Field Sparrow, +. **Average Total:** 106 (748 birds per sq. km., 303 per 100 acres). Total species, 32. (Total individuals are calculated from the actual total of birds, 955, divided by the complete coverages, 9.) **Remarks:** This year's coverage was much less than last year's, but about the same as in 1971. The chief difference in results comes in the number of individuals rather than species. Our cumulative list is 54, with 47 species that have been seen more than once. Several normal winter residents may have been missed through the low coverage and the lack of early morning trips this year. The first year of the census, 1960, gave us our highest number of individuals, 514 birds per 100 acres, but otherwise the levels have not changed much beyond the fluctuations that might be expected with varying weather and coverage. Our second best year was 1972, with 369 individuals. One species was added this year, the Field Sparrow.—*SHIRLEY A. BRIGGS (compiler), KATHY FAHEY, SIR JOHN LAPSLEY, DAVID MEHLMAN, PAUL WAGNER, DONALD WEBER, Audubon Naturalist Society, 8940 Jones Mill Rd., Washington, D. C. 20015.*

28. SOUTHERN MIXED HARDWOOD FOREST.—**Location:** Wormsloe Plantation, Isle of Hope, Chatham County, Georgia, approximately 9 miles south of the civic center of Savannah, Georgia; Isle of Hope Quadrangle, USGS **Continuity:** Established 1964; 10 years, consecutive. **Size:** 10 ha = 25 acres, censused by walking 2.4 kilometers (1.4 miles) on a single-track, virtually unused road, counting birds within 22.8 meters (75 ft.) on each side. **Description of Area:** See *AFN* 17:502-503 (1963) and 18:555 (1964). **Weather:** temperatures ranged from 35°F. to 70° during counting hours. Weather for six trips was noted as clear, two lightly overcast, and two heavily overcast. **Coverage:** Dec. 28; Jan. 12, 13, 19, 20 (morning and afternoon), 21, 27; Feb. 3, 4. **Total:** 10 trips, 8 in morning and 2 in afternoon; all trips between 0830 and 1730 hours. Total man-hours: 22. **Count:** Am. Robin, 27 (267 per sq. km., 108 per 100 acres); White-throated Sparrow, 22 (217, 88); Rufous-sided Towhee, 16 (158, 64); Blue Jay, 11 (109, 44); Carolina Chickadee, 11 (109, 44); Tufted Titmouse, 11 (109, 44); Ruby-crowned Kinglet, 9 (89, 36); Yellow-rumped Warbler, 9 (89, 36); Cardinal, 7 (69, 28); Fox Sparrow, 7 (69, 28); Red-bellied Woodpecker, 5 (49, 20); Carolina Wren, 5 (49, 20); Pine Warbler, 5 (49, 20); Yellow-bellied Sapsucker, 3 (30, 12); Red-winged Blackbird, 3 (30, 12); Com. Flicker, 2 (20, 8); Red-tailed Hawk, 1 (10, 4); Pileated Woodpecker, 1 (10, 4); Hermit Thrush, 1 (10, 4), Great Horned Owl, +; Downy Woodpecker, +; E. Phoebe, +; Com. Crow, +; Fish Crow, +; Brown Thrasher, +; Golden-crowned Kinglet, +; Black-and-white Warbler, +. **Average Total:** 156 birds (1,542

per sq km, 624 per 100 acres) **Remarks:** As has been the case in previous years, only two Red-tailed Hawks were known to be present on about 400 acres, thus the "estimate" of four per 100 acres is much too high. The Red-winged Blackbirds were in a flock of about 30 which was seen only once. This year's average total of 156 birds is 169% higher than last year's of 58. As has been the case in the past, there were no observable phenomena which would help to account for such a change. It appears that the erratic fluctuations in the numbers of birds wintering on this study area are caused by factors external to the area.—*L. B. DAVENPORT, JR., Biology Dept., Armstrong State College, Savannah, Ga. 31406.*

29. MIXED HABITAT—DISTURBED BOTTOMLAND.—**Location:** Dewey, Washington Co., Oklahoma; 2 miles west of intersection of Ninth Street and Highway 75 and 0.3 miles north on east bank of Caney River; 36°48'N, 95°58'W, Tulsa Quadrangle, USGS. **Continuity:** New. **Size:** 40.47 ha = 100 acres (irregular rectangle roughly 600 by 800 yards, determined from SCS aerial map). **Description of Area:** See *AB* 26:976-977, 1972. **Weather:** A severe winter with snow as early as November. October was wet with 6.9 in. of rain. Streams remained full; black clay soil was saturated and very sticky when not frozen. Temperatures during the count ranged from 9° to 60°F, average low, 28°; average high, 44°. Clear on all but two counts; up to 5 in. of snow on three counts. **Coverage:** Dec. 20, 29 (half trips); Jan. 1, 2, 8, 11 (half trips); Jan. 13, 19, 24, 25, 30; Feb. 6, 8. Ten complete trips; one in late afternoon, one from 1100 to 1545, all others between 0800 and 1345. The trips averaged 4½ hours; 64 man-hours. **Count:** Song Sparrow, 17 (42, 17); Carolina Chickadee, 15 (37, 15); Blue Jay, 14 (35, 14); Bobwhite, 7 (17, 7); Red-bellied Woodpecker, 7 (17, 7); Tufted Titmouse, 6 (14, 6); Starling, 6 (14, 6); Cardinal, 6 (14, 6); Downy Woodpecker, 5 (12, 5); White-throated Sparrow, 5 (12, 5); Am. Goldfinch, 4 (10, 4); Rufous-sided Towhee, 4 (10, 4); Com. Flicker, 3 (7, 3); Com. Crow, 3 (7, 3); Carolina Wren, 3 (7, 3); Am. Robin, 3 (7, 3); Dark-eyed Junco, 3 (7, 3); Swamp Sparrow, 3 (7, 3); Pileated Woodpecker, 2 (5, 2); Red-headed Woodpecker, 2 (5, 2); White-breasted Nuthatch, 2 (5, 2); E. Meadowlark, 2 (5, 2); Red-winged Blackbird, 2 (5, 2); Marsh Hawk, 1 (2, 1); Red-tailed Hawk, 1 (2, 1); Am. Kestrel, 1 (2, 1); Brown Creeper, 1 (2, 1); Mockingbird, 1 (2, 1); E. Bluebird, 1 (2, 1); Loggerhead Shrike, 1 (2, 1); House Sparrow, 1 (2, 1); Tree Sparrow, 1 (2, 1); Fox Sparrow, 1 (2, 1); Lincoln's Sparrow, 1 (2, 1); Great Blue Heron, +; Sharp-shinned Hawk, +; Great Horned Owl, +; Barred Owl, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; Hermit Thrush, +; Orange-crowned Warbler, +; Brown-headed Cowbird, +; Purple Finch, +; Le Conte's Sparrow, +; Harris' Sparrow, +. **Average Total:** 135 birds (334 per sq. km., 135 per 100 acres). **Remarks:** Total species, 46. Present on every trip were Red-bellied Woodpecker, Red-headed Woodpecker, Carolina Chickadee, Tufted Titmouse, Blue Jay, Cardinal, Rufous-sided Towhee, and Song Sparrow. On 7 trips the Towhees were found with a small flock of White-throated Sparrows. This flock sometimes

included one or more Lincoln's, Swamp, or Song Sparrows. The two Red-headed Woodpeckers appeared to be maintaining separate territories, and the Mockingbird was always found in or very near a persimmon tree with fruit. Food was mainly plant seeds, acorns and pecans, whatever insect life was available in the bark of trees, and, for the hawks, a good rabbit crop. The rabbits also attracted hunters who interrupted the count on several occasions. An abundance of mistletoe berries were eaten by migrating bluebirds before the count began. The Orange-crowned Warbler was unusual, but winter sightings are on record for our area. A pair of Red-shouldered Hawks and a Belted Kingfisher flew over the plot on several counts, but were not known to alight. Appreciation is due Gene Hendricks and Doty Goard for help with the field work.—*ELLA DELAP, 409 N. Wyandotte, Dewey, Okla. 74029.*

30. FLOODPLAIN COTTONWOOD FOREST.

—**Location:** In Jefferson County, Colorado, on the South Platte River about 10 miles southwest of Denver; 39°32'N, 105°5'W, Littleton Quadrangle, USGS. **Continuity:** Established 1972. **Size:** 9.7 ha = 24 acres. **Description of Area:** See AB 25:966 (1971). **Weather:** During December and January the ground remained covered with depths of snow varying from 6 in. to 2 ft. By February the snow had mostly gone. December was unusually cold and snowy. **Coverage:** Jan. 6, 11,



Study 30. Floodplain Cottonwood Forest, Colorado.

20, 21; Feb. 4, 10. Total: 6 trips, 10 man-hours. **Count:** Black-billed Magpie, 2 (21, 8); Black-capped Chickadee, 2 (21, 8); Tree Sparrow, 2 (21, 8); Great Horned Owl, 1 (10, 4); Red-tailed Hawk, +; Harlan's Hawk, +; Belted Kingfisher, +; Downy Woodpecker, +; Am. Robin, +; junco sp., +. **Average Total:** 8 birds (82 per 100 ha, 33 per 100 acres). **Remarks:** The last field trip doubled the chickadee population, with the occurrence of a flock of 5, and produced the entire count of Tree Sparrows. The Tree Sparrows seem to need feeding territory more free from snow than the grove this winter; hence we attribute their absence from the grove to the excessive snow cover. (A flock of 75 was seen a half-mile away on Jan. 21.) Hawks were not as numerous this year as last year, either in the grove or feeding on the snow-covered fields nearby.—*RICHARD BOTTORFF, NANCY HURLEY, REED KELLEY, HUGH KINGERY (compiler), 10 Emerson St., Denver, Colo. 80218.*

31. MIXED PRAIRIE PARK.—**Location:** Lancaster County, Nebraska; 5.5 miles (8.8 km) southwest of Lincoln, Chet Ager Nature Center (C.A.N.C.) is in the southwest corner of Pioneers Park; Township 9N, Range 6E; 40°46'N, 96°46'W; Emerald Quadrangle, USGS. **Continuity:** Established 1970; 3 consecutive years. **Size:** 16 ha = 39.5 acres (surveyed). **Description of Area:** See AB 25:648-649 (1971). **Weather:** December 1972 temperatures averaged 21.6° with 6.5 in. snow. January 1973 temperatures averaged 23.4° with 6.7 in. snow; February temperatures averaged 28.4° with 4.8 in. snow. During the 78-day study period maximum temperatures were below freezing 20 days, minimum temperatures were below 0° 18 days, and minimum temperatures were above freezing only once. On count days average temperatures ranged from 1° to 43°F. at C.A.N.C. Extremes for the period of study were -18° and 65°F. (U. S. Dept. of Commerce Environmental Data Service and C.A.N.C weather station). **Coverage:** Dec. 9, 15, 16, 23, 28; Jan. 11, 15, 20, 27; Feb. 3, 10, 17, 24. Total: 13 trips, all between 0845 and 1615 averaging 90 minutes. Total observer hours: 20. **Count:** Mallard, 58 (363, 147); House Sparrow, 34 (213, 86); Dark-eyed (Slate-colored) Junco, 18 (113, 46); Bobwhite, 12 (75, 30); Com. Crow, 9 (56, 23); Harris' Sparrow, 9 (56, 23); Blue Jay, 8 (50, 20); Black-capped Chickadee, 8 (50, 20); Downy Woodpecker, 5 (31, 13); Tree Sparrow, 4 (25, 10); Red-breasted Nuthatch, 3 (19, 8); Cardinal, 3 (19, 8); Starling, 2 (13, 5); Pine Siskin, 2 (13, 5); Red Crossbill, 2 (13, 5); Dark-eyed (Oregon) Junco, 2 (13, 5); Mourning Dove, 1 (6, 3); Long-eared Owl, 1 (6, 3); Hairy Woodpecker, 1 (6, 3); White-breasted Nuthatch, 1 (6, 3); Brown Creeper, 1 (6, 3); Am. Goldfinch, 1 (6, 3); Pintail, +; Hooded Merganser, +; Sharp-shinned Hawk, +; Cooper's Hawk, +; Red-tailed Hawk, +; Rough-legged Hawk, +; Am. Kestrel, +; Ring-necked Pheasant, +; Great Horned Owl, +; Belted Kingfisher, +; Com. Flicker, +; Red-bellied Woodpecker, +; Brewer's Blackbird, +; Golden-crowned Kinglet, +; Song Sparrow, +. **Average Total:** 192 birds (1201 per sq. km., 486 per 100 acres). **Remarks:** Total species, Downy Woodpecker, Blue Jay, Black-capped Chickadee, Red-breasted Nuthatch, House Sparrow and

Slate-colored type junco were observed on all trips. Hairy Woodpecker and Cardinal on 12 trips; Com. Crow and Harris' Sparrow on 11 trips; Mallard on 10 trips; Bobwhite, White-breasted Nuthatch and Oregon type junco on 8 trips. All other species were observed on 6 or fewer trips. Fifteen species were observed at the feeding station. Eleven individuals were banded at feeding station on Feb. 23 by Hazel and Fitzhugh Diggs of Hamburg, Iowa: Downy Woodpecker, 5; Black-capped Chickadee, 3; Red-breasted Nuthatch, 1; Slate-colored junco, 1; Hairy Woodpecker, 1. A Downy Woodpecker, banded in May 1972, was recaptured. The average total number of birds observed was down considerably from last year's census: 192 this year and 267 last year. However the total species number was up slightly: 37 this year to 35 last year. Ten species (Green-winged Teal, Am. Wigeon, Swainson's Hawk, Marsh Hawk, Am. Robin, Cedar Waxwing, meadowlark, Com. Redpoll, Rufous-sided Towhee and White-throated Sparrow) that were counted in last winter's census were not observed this year. A W. Meadowlark was heard singing on adjoining plots on Feb. 3 and 24, 1973. Twelve species (Hooded Merganser, Sharp-shinned Hawk, Cooper's Hawk, Great Horned Owl, Long-eared Owl, Red-bellied Woodpecker, Hairy Woodpecker, Red-breasted Nuthatch, Golden-crowned Kinglet, Brewer's Blackbird, Pine Siskin and Red Crossbill) were observed this year, but were not seen the previous winter. The mixed flock of several hundred juncos, Harris' Sparrows and Tree Sparrows which has been present in past years was not observed. A chickadee (apparently a Black-capped) with an unusual cap was observed during the survey. The cap, normal black on the forehead, became progressively browner over the head until a deep chestnut color was apparent at the cap's end. All other characteristics appeared to be those of a Black-capped Chickadee.—*DR. ESTHER BENNETT, BRYCE ANDERSON, JIM COMMERS (Staff of Chet Ager Nature Center, Lincoln Park and Recreation Dept. 2740 "A" Street, Lincoln, Neb. 68502).*

32. SANDHILL PRAIRIE.—**Location:** Sand Prairie Natural History Reservation, 4 miles east and 4 miles north of Burrton, Harvey County, Kansas (E½ SE¼ Sec 36, R3W, T22S). **Continuity:** New. **Size:** 32.38 ha = 80 acres (rectangular, 440 × 880 yards, measured with cloth tape). **Description of Area:** Elevation 1405 to 1435 ft. The Reservation is composed of stabilized sand dunes interspersed with more level areas of medium elevation, and lowlands that are either temporary or semi-permanent sloughs, marshes, and ponds. The plants associated with each zone are determined by elevation and soil moisture. Two hundred eighty different species of plants have been found on the Reservation, but the following species are dominants at the listed elevation zone. **Dune-top and ridges:** Little Blue Stem (*Andropogon scoparius*) 25%, Three-awn Grass (*Aristida longiseta*) 15%, Paspalum (*Paspalum ciliatifolium*) 15%, Evening Primrose (*Oenothera rhombipetala*) 10%, Western Ragweed (*Ambrosia psilostachya*) 5%, Chickasaw Plum (*Prunus angustifolia*) 5%, Sand Dropseed (*Sporobolus cryptandrus*)

5%, miscellaneous grasses and forbs 20% **Well-drained medium elevation:** Switch Grass (*Panicum virgatum*) 50%, Little Blue Stem (*Andropogon scoparius*) 10%, Western Ragweed (*Ambrosia psilostachya*) 10%, Indian Grass (*Sorghastrum nutans*) 5%, Sand Blue Stem (*Andropogon hallii*) 5%, miscellaneous grasses and forbs 20%. **Temporary or semi-permanent sloughs, marshes, and ponds:** The perimeters of such low areas usually have pure or mixed stands of Black Willow (*Salix nigra*), Prairie Cord Grass (*Spartina pectinata*), and/or Buttonbush (*Cephalanthus occidentalis*). The interior of these lowlands usually has some combination of sedges (*Eleocharis* and *Scirpus*), Smartweeds (*Polygonum*) and miscellaneous other aquatic and wetlands species. Plant names from *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*, Gleason and Cronquist (1963). **Edge:** The Reservation is bounded on the south, west, and north by similar habitat covering an area of approximately 6 sections. These surrounding sandhills areas are primarily used for grazing cattle. To the east of the Reservation is bordered by a county road, across which is located a farm and some tilled acreage usually planted to milo and/or rye. There are a number of temporary sloughs and marshes, and one semi-permanent pond; they were all dry or frozen during this count period. The Little Arkansas River runs ½ mile to the east of the Reservation. **Weather:** During the 37-day study period the temperature remained below freezing on 11 days and above freezing on 8 nights. The temperature ranged from 0° to 55°F. The average temperature during the six counts was 39°F. (Temperatures from weather station on the Reservation.) On all counts the modal wind speed was 12 mph or less, and on 4 counts it was 5 mph or less. **Coverage:** Jan. 12, 13, 20; Feb. 4, 10, 17. Total: 6 trips, all between 1015 and 1645, averaging 78 minutes each. **Count:** Tree Sparrow, 25 (77, 31); Bobwhite, 21 (65, 26); Harris' Sparrow, 6 (19, 8); Ring-necked Pheasant, 2 (6, 3); Com. Crow, 2 (6, 3); Blackcapped Chickadee, 2 (6, 3); Starling, 2 (6, 3); Cardinal, 2 (6, 3); Dark-eyed Junco, 2 (6, 3); Marsh Hawk, 1 (3, 1); Com. Flicker, 1 (3, 1); Downy Woodpecker, 1 (3, 1); Blue Jay, 1 (3, 1); Am. Robin, 1 (3, 1); Am. Goldfinch, 1 (3, 1); Rufous-sided Towhee, 1 (3, 1); Song Sparrow, 1 (3, 1); Red-tailed Hawk, +; Roughlegged Hawk, +; Hairy Woodpecker +; Field Sparrow, +. **Average Totals:** 72 birds (density, 222 per sq. km., 90 per 100 acres). **Remarks:** The Tree Sparrow and Black-capped Chickadee were seen on all 6 trips; Com. Crow and Downy Woodpecker were seen on 5 trips. The Harris' Sparrows were seen on one trip only.—*STAN SENNER, Rt. 2, Newton, Kansas 67114.*

33. SHRUB DESERT.—**Location:** Eastern Lower Valley of El Paso, Texas; roughly the SE¼ of Block 54, Ysleta Grant; plot begins about ¼ mile south of I-10, just west of Zaragosa Road interchange. **Continuity:** New. **Size:** 89 ha = 220 acres, roughly rectangular, 0.5 miles × 0.65 miles (3 sides clocked by car on dirt boundary roads, 4th side paced in part). **Description of Area:** Elevation, 3760 ft. Typical West Texas desert: level and sandy, bounded on the south by a

12 ft sandbank which marks the boundary of the Rio Grande floodplain. Cultivated land and horse stables lie below the escarpment. A row of houses marks the eastern edge of the plot, and a county dump intrudes from the west. A similar-sized tract of desert land lies between the plot and the interstate highway.

Vegetation. Flora on the plot consist of shrubs from 2 to 5 ft. tall; Honey mesquite (*Prosopis juliflora*), Creosote Bush (*Larrea tridentata*), Four-winged Saltbush (*Atriplex canescens*), Desert Christmas Cactus (*Opuntia leptocaulus*), Crucifixion Bush (*Castela texana*). The shrubs are mostly 10 to 20 ft. apart with only sparse low cover, composed of bunches of Dropseed Grass (*Sporobolus*, spp.), Prickly Pear Cactus (*Opuntia engelmannii*), Wild Sunflower (*Helianthus*, spp.) and Tumbleweed (*Amaranthus graecizans*). Plant identifications were made in collaboration with personnel of the Bureau of Land Management.

Weather: Although the sky was mostly clear on all trips, over 3 in. of precipitation fell during January and February, which is triple the average rainfall for the period. Temperatures ranged from 30 to 55°F., with typical rapid warming after sunrise.

Coverage: Dec. 2, 16, Jan. 8; Feb. 5, 19. Total: 5 trips, between 0700 and 1200, averaging 100 minutes. **Count:** Lark Bunting, 202 (227, 92); House Finch, 61 (69, 28); White-crowned Sparrow, 32 (36, 15); House Sparrow, 30 (34, 14); Brewer's Sparrow, 26 (29, 12); Mourning Dove, 23 (26, 10); White-necked Raven, 15 (17, 7); Mockingbird, 3 (3, 1); W. Meadowlark, 3 (3, 1); Pyrrhuloxia, 2 (2, 1), Sage Thrasher, 1 (1, +); Am. Kestrel, +; Roadrunner, +; Steller's Jay, +; Scrub Jay, +; Verdin, +, Cactus Wren, +; Crissal Thrasher, +; Black-tailed Gnatcatcher, +; Loggerhead Shrike, +; Yellow-rumped (Audubon's) Warbler, +; Green-tailed Towhee, +.

Average Total: 398 birds (447 per sq. km., 181 per 100 acres). **Remarks:** The 6 most abundant species were seen on every trip, and the Roadrunner and Sage Thrasher were overlooked on only one trip. The presence of the two jays in this unlikely habitat reflects a large winter population of both species all over El Paso. The Sage Thrasher was seen feeding on the red fruit of the Desert Christmas Cactus on one occasion. Starlings and Brewer's Blackbirds were seen flying over the plot on every trip, moving between the stables and an abandoned corral. Two or three Black-tailed Jackrabbits were seen on each trip — WILLIAM H. HUNT, 8365 Beverly Place, El Paso, Tex. 79907.

34. MESQUITE-JUNIPER CANYON BOTTOMLAND.—**Location:** 12 miles east of Canyon, Texas, and 4 miles from entrance to Palo Duro Canyon State Park (first water crossing); 34°57'N, 101°40'W, Fortress Cliff Quadrangle, USGS. **Continuity:** Established 1968. **Size:** 12.55 ha = 31 acres, steel tape and compass (rectangular). **Description of Area:** See AFN 21 659-661 (1967). **Weather:** During the 85-day study period the temperature remained below freezing on 16 days. The range of temperature was from 71°F. to -1°, while the average temperature was 35°. Precipitation in the form of snow or sleet occurred on 14 days, over 1 in. on 6 days; 2.1 in. on Dec. 14 and 3 1 in. on Feb. 22. The study period was preceded

by 9 9 in of snow in November. The average wind velocity was 12.8 mph. This data is from the Amarillo Air Terminal, approximately 18 miles north of the study area. At this point the elevation is 3604 ft. while on the study area it is 2876 ft. **Coverage:** Dec. 3, 10, 16, 26, 31; Jan. 14, 20, 28; Feb. 4, 11, 18, 25. Total: 12 trips, 10 between 0800 and 1050 and 2 between 1255 and 1530, averaging 152 minutes each. **Count:** Am Robin, 101 (805, 326); Mountain Bluebird, 26 (207, 84); Song Sparrow, 10 (80, 32); Dark-eyed (Slate-colored) Junco, 7 (56, 23); Dark-eyed (Oregon) Junco, 7 (56, 23); Golden-fronted Woodpecker, 6 (48, 19), Rufous-sided Towhee, 6 (48, 19); Bohemian Waxwing, 5 (40, 16); Cedar Waxwing, 5 (40, 16); Starling, 5 (40, 16); Cardinal, 4 (32, 13); White-crowned Sparrow, 4 (32, 13); Bewick's Wren, 3 (24, 10); Am. Kestrel, 2 (16, 6); Com. (Red-shafted) Flicker, 2 (16, 6); Com. Bushtit, 2 (16, 6); House Sparrow, 2 (16, 6); Pine Siskin, 2 (16, 6); Am. Goldfinch, 2 (16, 6); Tree Sparrow, 2 (16, 6); Green-winged Teal, 1 (8, 3); Ladder Quail, 1 (8, 3); Belted Kingfisher, 1 (8, 3); Ladder-backed Woodpecker, 1 (8, 3); Black-crested Titmouse, 1 (8, 3); Mockingbird, 1 (8, 3); Brown Thrasher, 1 (8, 3); Townsend's Solitaire, 1 (8, 3); Ruby-crowned Kinglet, 1 (8, 3); Evening Grosbeak, 1 (8, 3); Rufous-crowned Sparrow, 1 (8, 3); White-throated Sparrow, 1 (8, 3); Lincoln's Sparrow, 1 (8, 3); Mallard, +; Gadwall, +; Pintail, +; Am. Wigeon, +; Sharp-shinned Hawk, +; Golden Eagle, +; Bald Eagle, +; Marsh Hawk, +; Killdeer, +; Mourning Dove, +; Roadrunner, +; Screech Owl, +; Com. (Yellow-shafted) Flicker, +; Yellow-bellied Sapsucker, +; Com. Crow, +; Verdin, +; Long-billed Marsh Wren, +; Cañon Wren, +; Rock Wren, +; Yellow-rumped (Myrtle) Warbler, +; W. Meadowlark, +; House Finch, +; Black-throated Sparrow, +; Field Sparrow, +; Fox Sparrow, +.

Average Total: 216 birds (density, 1,722 per sq. km., 697 per 100 acres). **Remarks:** The Com. (Red-shafted) Flicker, Golden-fronted Woodpecker, Bewick's Wren, Mockingbird, Am. Robin, Cardinal, towhee, and White-crowned and Song Sparrows were seen on every trip, and Am. Kestrel on 11 trips. There were three outstanding features of this count. One was the large variety of species recorded, 58, against the previous high of 50, with 7 of these being new for the count. Another was the great increase in the Am. Robin count (twice as great as the previous high and five times greater than the average) and a Mountain Bluebird count three times greater than the average. Another contributing factor to the high count was the 54 Bohemian Waxwings on one count. However, several species that have often been among the top five in number were reduced substantially, viz., the Dark-eyed Juncos, White-crowned and Song Sparrows.—KENNETH D. SEYFFERT, 2709 S. Fairfield St., Amarillo, Texas, 79103.

35. LIVE OAK-MESQUITE BRUSHLAND.—**Location:** Northeast Preverse, city part of San Antonio, Texas, located 2 miles northeast of San Antonio International Airport. Study area is along the northern boundary of the park, extending 660 yds., east-southeast of Jones-Maltsberger Road and

220 yds south-southwest of the fence **Continuity:** Established 1967. **Size:** 12.1 ha = 30 acres, based on survey stakes along the fence and measured outward 220 yds. by steel tape. **Description of Area:** See *AFN* 21:472 (1967). Human disturbance was slight during the periods with few campers. **Weather:** The season was damp and cold with temperatures averaging almost 5° below normal in January and 3° below for the first half of February. Rainfall was recorded on 15 days of the 6 week period and above normal in amount. **Coverage:** Dec. 29; Jan. 13, 20, 30; Feb. 4 and 13. Total: 6 trips, averaging 95 minutes, between 0800 and 1715. **Count:** Cardinal, 13 (107, 43); Lincoln's Sparrow, 8 (66, 27); Fox Sparrow, 6 (49, 20); Rufous-sided Towhee, 5 (41, 17); Mockingbird, 5 (41, 17); White-throated Sparrow, 4 (33, 13); Black-crested Titmouse, 3 (25, 10); Bewick's Wren, 3 (25, 10); Ruby-crowned Kinglet, 3 (25, 10); Carolina Wren, 2 (16, 7); Am. Robin, 2 (16, 7); Mourning Dove, 1 (8, 3); Ground Dove, 1 (8, 3); Yellow-bellied Sapsucker, 1 (8, 3); Carolina Chickadee, 1 (8, 3); Verdin, 1 (8, 3); Brown Creeper, 1 (8, 3); House Wren, 1 (8, 3); Hermit Thrush, 1 (8, 3); meadowlark sp., 1 (8, 3); Am. Goldfinch, 1 (8, 3); Black Vulture, +; Am. Woodcock, +; Com. Flicker +; Golden-fronted Woodpecker, +; Ladder-backed Woodpecker, +; E. Phoebe, +; Blue Jay, +; Brown Thrasher, +; Long-billed Thrasher, +; E. Bluebird, +; Golden-crowned Kinglet, +; Loggerhead Shrike, +; Pyrrhuloxia, +. **Average Total:** 64 birds (density 527 per sq. km., 213 per 100 acres). **Remarks:** Seen on all counts were Carolina Wren, Mockingbird, Ruby-crowned Kinglet, Cardinal, Rufous-sided Towhee, Fox Sparrow and Lincoln's Sparrow. New species for the 7 years of the study were Am. Woodcock, seen on two walks, and Long-billed Thrasher. The number of birds was second lowest for the study period, although the number of species, 34, was slightly above average.—*JOHN FLORA and JAMES A. MIDDLETON (compiler), San Antonio Audubon Society, Witte Memorial Museum, 3801 Broadway, San Antonio, Tex. 78209.*

36. SHORTGRASS PRAIRIE.—**Location:** 8 miles north-northwest of Nunn, Weld County, Colorado, on the Central Plains Experimental Range of the Agricultural Research Service, Pawnee National Grassland; 40°49'N, 104°55'W. **Size:** 40.5 ha = 100 acres (south block measures 60 × 20 chains, central block 20 × 10, north block 10 × 20, borders are contiguous; blocks marked with grid interval of two chains; surveyed with 2-chain tape and staff compass). **Description of Area:** See *AB* 26:975-976 (1972). **Weather:** Temperatures were mild for this time of year, averaging 42°F. during the censuses. Winds were from a northerly direction, usually northwesterly, and averaged 8.5 mph. One-half to 2 in. of snow covered the plot on Jan. 12 and 20. **Coverage:** Jan. 12-14, 19, 20, 21. Total: 6 counts, between 0825 and 1340, and lasting approximately 75 minutes. **Count:** Horned Lark, 14 (35, 14); Lapland Longspur, 1 (2, 1); Rough-legged Hawk, +. **Average Total:** 15 birds (37 per sq. km., 15 per 100 acres). **Remarks:** Winter distribution of birds on the study plot and the surrounding areas is highly irregular and

sporadic. For example, 60% of the Horned Larks seen were encountered on the last day of the coverage. Obviously, extrapolating the results of the study to other areas or other time periods would be of questionable validity. This field work was supported in part by National Science Foundation Grant No. GB-31862X as part of the avian populations study for the Grassland Biome, U.S. International Biological Program.—*DAVID K. PORTER, Dept. of Fishery & Wildlife Biology, Colorado State University, Fort Collins, Colo. 80521.*

37. HIGH-PLAINS GRASSLAND.—**Location:** Ten miles east of Colorado Springs, El Paso County, Colorado, beginning south of Colorado Route 94 along Enoch Road, extending south and east to the junction with Milne Road and along Milne Road south to the junction with Hanover Road. **Continuity:** Established 1968. 2 intermittent years. **Size:** 6,400 acres (a linear strip about 20 miles in length and ½ mile wide). **Description of Area:** See *AFN* 22:493-494 (1968). **Weather:** The census period followed an unusually wintry autumn, with intense cold, heavy snows, and high winds, but the census period itself was fairly typical of the high-plains grassland winter season. The average temperature was 31°F., with a low of -8° and a high of 58°. Snowfall during the period totaled 3.8 in. **Coverage:** Jan. 9, 12, 15, 19, 28; Feb. 4, 18, 25. Total 8 trips, averaging about 1 hour each, both morning and afternoon. **Count:** (birds per linear mile in parentheses): Horned Lark, 301 (15.1); House Sparrow, 15 (.75); Black-billed Magpie, 9 (+); Starling, 8 (+); Scaled Quail, 4 (+); Rock Dove, 4 (+); W. Meadowlark, 3 (+); Brown-capped Rosy Finch, 3 (+); Rough-legged Hawk, 2 (+); Great Horned Owl, 2 (+); Golden Eagle, 1 (+); Prairie Falcon, 1 (+); Merlin, 1 (+); Am. Kestrel, 1 (+); Marsh Hawk, +; Mountain Bluebird, +; Northern Shrike, +; Gray-crowned Rosy Finch, +. **Average Total:** 352 (17.6 per linear mile, 14 per sq. km., 6 per 100 acres). **Remarks:** The censusing this winter differed somewhat from that reported in 1968, in that *all* birds were counted, including those about farmhouses. Thus the House Sparrow, Starling, and Rock Dove, mainly seen associated with farms, are more evident in this winter's census. Also, the meadowlarks were invariably around farmyards, as were the Scaled Quail; and magpies tended to be more frequently encountered near farm buildings. Horned Larks ranged in numbers from 745 to 28 per trip, with a tendency for the species to congregate in much smaller flocks towards the end of the census period. Owls were seen at two locations along the census route, in an old cottonwood grove and in trees of an abandoned farm. By mid-March owls were nesting at the latter site, as they had the previous year. The Rough-legged Hawk population was down over 1968 (an average of 2 versus 4), probably the result of the more severe fall and early winter, plus the fact that rabbit populations seemed down as well. In actuality, there is a close similarity of species and density between the two winters. Perhaps the most striking difference was the presence of the rosy finches in 1973 (seen on two trips), a condition commonplace in Colorado

this winter. The Mountain Bluebird is the first song bird to move north through Colorado in late winter, heralding the end of winter bird-population studies; and the first one was seen this year on the grassland route on Feb. 25.—*Colorado College Field Zoology Class* (RICHARD G. BEIDLEMAN, compiler; GEORGE BATTAGLIA, HUGH CHENEY, MARC GOALSTONE, JOHN KOSHAH, STEVE PAULSEN and PETER SAWTELL), Department of Biology, Colorado College, Colorado Springs, Colo. 80903.



Study 37. High Plains Grassland, Colorado. Photo/Robert G. Beidleman.

38. FOOTHILLS COTTONWOOD CREEK-BOTTOM AND BRUSHLAND.—Location: Northwest Colorado Springs, El Paso, County, Colorado, on the White House Ranch city park south of the east entrance to the Garden of the Gods, R67W, T13S, Section 34, Continuity: New. Size: About 6.07 ha = 15 acres. Description of Area: An irregularly shaped acreage lying mainly north of the White House Ranch buildings and corrals and bordered on the north by the Garden of the Gods entrance road, including the dry creekbed of Camp Creek and an unnamed intermittent tributary, at an elevation of 6300 ft. There are Plains Cottonwoods (*Populus sargentii*) along the creekbeds, as well as some groves of fairly tall Scrub Oak (*Quercus gambelii*). To the northwest the oaks form an extensive thicket, with Snowberry (*Symphoricarpos* sp.) and Burdock (*Arctium minus*) as a ground cover, while elsewhere in the area there are scattered thickets of oak and Skunkbush (*Rhus trilobata*), with some Mountain-mahogany (*Cercocarpus montanus*). In the past the area has been cultivated in part and badly misused through overgrazing and human impact (the site of group encampments over a several-summer period), with consequent abundance of disturbance vegetation of a variety of species, both native and exotic, as well as bare soil. Native grasses still present include, especially, Blue Grama (*Bouteloua gracilis*), with small patches of Buffalograss (*Buchloe dactyloides*). Although shelter for birds is available, the diversity of food is very limited, and

there is no permanent water on the census acreage. **Edge:** There is a sedimentary hogback to the west, covered with shrubs and a scattering of pinyon and juniper. To the south are the White House Ranch buildings and landscaping and beyond a housing development, while the eastern side of the census area borders on a misused "old field" belonging to the Ranch. North of the Garden of the Gods entrance road the ecosystems are an extension of the census acreage. **Weather:** The census period followed a very cold, snowy and windy autumn, but was in itself fairly moderate. The average temperature was about 32°F., with a low of -5° and a high of 58°. Snowfall totaled about 3.1 in. **Coverage:** Jan. 10, 13, 16, 19, 21; Feb. 25. Total: 6 trips, averaging about 1 hour each, both morning and afternoon. **Count:** House Finch, 34 (560,



Study 38. Foothills Cottonwood Creek-bottom and Brushland, Colorado. General view. Photo/Peter Sawtell.

227); Starling, 23 (379, 153); Dark-eyed (Oregon) Junco, 13 (214, 87); Gray-headed Junco, 4 (66, 27); Black-billed Magpie, 3 (49, 20); Scrub Jay, 2 (33, 13); Black-capped Chickadee, 2 (33, 13); Am. Crow, 1 (16, 7); Evening Grosbeak, 1 (16, 7); Rufous-sided Towhee, 1 (16, 7); Dark-eyed (Slate-colored) Junco, 1 (16, 7); Tree Sparrow, 1 (16, 7); Song Sparrow, 1 (16, 7); Downy Woodpecker, +; Mountain Chickadee, +; Am. Robin, +; Cassin's Finch, +; Dark-eyed (White-winged) Junco, +. **Average Total:** 87 birds (density, 1,433 per sq. km., 580 per 100 acres). **Remarks:** The census area is part of a newly created city park for Colorado Springs. Superficially, it would appear to attract a greater abundance and diversity of birds than actually occurred; but the acreage has been misused and provides little in the way of food for birds during the winter. A greater density of birds does exist around the White House Ranch buildings (not censused here) where there are numerous plantings and a permanent pond. The large population of House Finches is essentially a single flock which inhabits the wooded creek-bottom just east of the White House. The Starlings also occur in one flock which comes into the White House Ranch buildings area in late afternoon to roost.



Study 38. Looking northwest across Camp Creek. Photo: Robert G. Beidleman.

The juncos mainly constitute a single flock which is either near the House Finches or moves up the wooded northwest tributary of Camp Creek. The White House Ranch is of some historical interest to ornithologists, for here William L. Sclater worked on his definitive *A History of the Birds of Colorado* (1912). The ranch

is now destined to become an outdoor education center.—*Colorado College Field Zoology Class* (RICHARD G. BEIDLEMAN, compiler; MARIE HAYS, JIM LAWRENCE, BONNIE TIMMONS, and JOHN TRIENENS), Dept. of Biology, Colorado College, Colorado Springs, Colo. 80903.

39. DECIDUOUS OAK WOODLAND.—**Location:** On the Jasper Ridge Biological Experimental Area of Stanford University, San Mateo County, California; 3.5 miles west-southwest of Stanford University's Main Quadrangle; 37°24'20"N, 122°13'30"W, USGS Palo Alto Quadrangle. **Continuity:** Established 1970. **Size:** 3.24 ha = 8 acres. **Description of Area:** See *AFN* 24: 554-555 (1970). **Weather:** 10.22 in. rainfall in January, 7.83 in. in February, and 0.84 during the first four days of March. This is more than three times the normal rainfall and considerably more than the same period last year during which only 4.36 in. total rainfall occurred. In February, temperatures ranged from 72° to 32°F., with a mean daily high of 61° and a mean daily low of 43°. In the first four days of March, temperatures ranged from 68° to 33° (weather data from Woodside Fire Station, 2½ miles away). **Coverage:** Jan. 27; Feb. 1, 4, 8, 10, 15, 20, 23; Mar. 1, 2, 4. Total:

11 trips, averaging 141 min. each. All were between 0800 and 1145 and totaled 25.9 hours. **Count:** Plain Titmouse, 12 (370, 150); Scrub Jay, 10 (309, 125); Dark-eyed (Oregon) Junco, 9 (278, 113); California Quail, 4 (124, 50); Anna's Hummingbird, 4 (124, 50); Am. Robin, 4 (124, 50); Com. Bushtit, 4 (124, 50); White-breasted Nuthatch, 3 (93, 38); Ruby-crowned Kinglet, 3 (93, 38); Rufous-sided Towhee, 3 (93, 38); Brown Towhee, 3 (93, 38); Golden-crowned Sparrow, 3 (93, 38); Chestnut-backed Chickadee, 2 (62, 25); Yellow-rumped (Myrtle) Warbler, 2 (62, 25); Turkey Vulture, 1 (31, 13); Red-tailed Hawk, 1 (31, 13); Mourning Dove, 1 (31, 13); Com. (Red-shafted) Flicker, 1 (31, 13); Acorn Woodpecker, 1 (31, 13); Yellow-bellied Sapsucker, 1 (31, 13); Hairy Woodpecker, 1 (31, 13); Downy Woodpecker, 1 (31, 13); Violet-green Swallow, 1 (31, 13); Bewick's Wren, 1 (31, 13); W. Bluebird, 1 (31, 13); Cedar Waxwing, 1 (31, 13); Hutton's Vireo, 1 (31, 13); Great Blue Heron, +; Merlin, +; Accipiter, sp.,

+, Band-tailed Pigeon, +, Allen's Hummingbird, +, Steller's Jay, +; Wren-tit, +; California Thrasher, +; Hermit Thrush, +; Orange-crowned Warbler, +; Purple Finch, +; Lesser Goldfinch, +. **Average Total:** 80 birds (2,471 per sq. km., 1,000 per 100 acres.) **Remarks:** The Plain Titmouse, Scrub Jay, junco, Anna's Hummingbird, and Ruby-crowned Kinglet were seen on all 11 trips. The White-breasted Nuthatch, Rufous-sided Towhee, Brown Towhee, Golden-crowned Sparrow, Chestnut-backed Chickadee, Yellow-rumped Warbler, flicker, sapsucker, and Bewick's Wren were seen on 7 to 10 counts. Red-tailed Hawk, Hairy Woodpecker, Am. Robin, Hutton's Vireo, California Quail, Mourning Dove, Acorn Woodpecker, Downy Woodpecker, Common Bushtit, Turkey Vulture, Violet-green Swallow, and California Thrasher were seen on 3 to 6 counts. The California Quail and Acorn Woodpecker were new to the plot this year. Birds definitely more common than in the same period last year were Plain Titmouse (10-12), Scrub Jay (7-10), and Anna's Hummingbird (2-4). The Plain Titmouse has shown a steady increase in number over the last four years. Birds definitely less common than in the same period last year were: Ruby-crowned Kinglet (4-3), Bewick's Wren (3-1), and Yellow-rumped Warbler (3-2). The Ruby-crowned Kinglet and Myrtle Warbler have shown a decrease over the last four years. Bewick's Wren has shown a sharp decrease over the last three years. This was the second low year in a row for the Hermit Thrush, although it has become increasingly common in the riparian woodland nearby. An unusually wet winter, preceded by a drought last summer may account for the low average total number this year compared to that of 1972. (123-80) Wintering birds seem to have been more affected than species that breed on the plot. Wintering birds with low years were: Am. Robin, Cedar Waxwing, and Purple Finch. It is likely that the birds wintered at a lower elevation or further south. Breeding birds with low years were: Chestnut-backed Chickadee, Rufous-sided Towhee, Brown Towhee, Lesser Goldfinch, and junco. We would like to thank David DeSante and Dr. Ward Watt for their sponsorship, and members of the Columbae community for providing transportation to the study plot.—*SUSAN MAAS and ELLEN STEIKER, Dept. of Biological Sciences, Stanford, Calif. 94305.*

40. RIPARIAN OAK WOODLAND.—**Location:** Ancil Hoffman County Park, along the west bank of the American River in Carmichael, Sacramento County California; 38°37'N, 121°18'W, Fair Oaks Quadrangle, USGS. **Continuity:** New. **Size:** 12.95 ha = 32 acres (an irregular rectangle, approximately 2200 × 750 ft., measured on county park map). **Description of Area:** See AB 25: 967-968, 1971. **Edge:** The eastern edge is bounded by a narrow buffer similar to the plot, beyond which is the river bottom, an area of rocks and gravel with only scattered willows and cottonwoods. The southern edge is bounded by a buffer about 40 yards wide which is similar to the plot, beyond which are a golf course and artificial ponds. The western edge is a steep bluff, and the northern edge is a private residence. **Topography:** A slight slope of about 70 ft. in elevation down to the river bot-

tom Elevation 100 ft **Weather:** A very wet winter Although rainfall was 1.36 in. below normal in December, it was 3.69 in. above in both November and January, and 2.65 in. above in February. Temperatures were also low: 3.2° below normal in November, 5.8° below normal in December, 0.9° below in January, but 3.9° above normal in February. **Coverage:** Jan. 5, 14, 18; Feb. 4, 8, 12, 19. Total: 7 trips, between 0600 and 1130 or 1430 and 1800. Total man-hours: 25. **Count:** Scrub Jay, 62 (479, 194); Starling, 56 (432, 175); Golden-crowned Sparrow, 27 (208, 85); Acorn Woodpecker, 24 (185, 75); Band-tailed Pigeon, 22 (170, 69); California Quail, 19 (147, 59); Lesser Goldfinch, 17 (131, 53), Rufous-sided Towhee, 17 (131, 53); Com. (Red-shafted) Flicker, 17 (131, 53); Varied Thrush, 14 (108, 44); Dark-eyed (Oregon) Junco, 14 (108, 44); White-crowned Sparrow, 14 (108, 44); Yellow-rumped (Audubon's) Warbler, 13 (100, 41); House Finch, 13 (100, 41); Am. Robin, 11 (85, 34); Plain Titmouse, 8 (62, 25); Com. Bushtit, 8 (62, 25); Ruby-crowned Kinglet, 6 (46, 19); Anna's Hummingbird, 5 (39, 16), Bewick's Wren, 5 (39, 16); Cedar Waxwing, 5 (39, 16); Nuttall's Woodpecker, 4 (31, 13); Purple Finch, 3 (23, 9); White-breasted Nuthatch, 2 (15, 6); Yellow-rumped (Myrtle) Warbler, 2 (15, 6); W. Meadowlark, 2 (15, 6); Am. Goldfinch, 2 (15, 6); Pied-billed Grebe, 1 (7, 3); White-tailed Kite, 1 (7, 3); Red-shouldered Hawk, 1 (7, 3); Am. Kestrel, 1 (7, 3); Ring-necked Pheasant, 1 (7, 3); Mourning Dove, 1 (7, 3); Belted Kingfisher, 1 (7, 3); Violet-green Swallow, 1 (7, 3), Mockingbird, 1 (7, 3); Hermit Thrush, 1 (7, 3); Fox Sparrow, 1 (7, 3); Lincoln's Sparrow, 1 (7, 3); Sharp-shinned Hawk, +; Cooper's Hawk, +; Red-tailed Hawk, +; Yellow-bellied Sapsucker (*S. V. ruber*), +, Downy Woodpecker, +; House Wren, +; Loggerhead Shrike, +; Townsend's Warbler, +; Pine Siskin, +, Dark-eyed (Slate-colored) Junco, +; White-throated Sparrow, +; Song Sparrow, +. **Average Total:** 409 birds (density, 3,158 per sq. km., 1,278 per 100 acres) **Remarks:** The very wet and cold winter caused one of the largest invasions of Band-tailed Pigeons into the Sacramento area in years, accounting for a very large number of this species in the plot from Jan. 18 on. The goldfinch flocks disappeared entirely after Jan. 18. The Townsend's Warbler was an immature bird, and was seen only on Feb. 4. This species is not normally expected in the Sacramento area until the first week in April. The density figures for the Pied-billed Grebe and the Belted Kingfisher are misleading, for the only suitable habitat for these species within the plot is the small pond in the southern end of the plot. Western Gray Squirrels (*Sciurus griseus*) were seen (density, 6 per 100 acres). Blacktail Jackrabbit (*Lepus californicus*) occurs in the more open portions of the plot (density, 6 per 100 acres). A Brush Rabbit (*Sylvilagus bachmani*) was seen once in dense brush on the edge of the plot bordering the river bottom. Many thanks to Jerry Tangren and Tim Manolis for invaluable advice, and to the National Weather Service for monthly weather data. I would also like to thank Jeff, Carol, Bob, Jim, and Jerry for welcome companionship on some of the census trips.—*DAVID WINKLER 6109 Golden Dawn Way, Sacramento, Ca. 95841.*

41. RIPARIAN WOODLAND—OPEN FIELDS.

—**Location:** El Dorado Nature Center, bounded on the north by Spring Street, south by Willow Street, east by the Long Beach Tree Farm, west by the San Gabriel River, in Long Beach, California **Continuity:** New. [Tract undescribed?—Ed.] **Size:** 34.4 ha-85 acres, rectangular, ½ mile north-south, ¼ mile east-west. **Weather:** Although night temperatures are normally above freezing, usually about 45°F. this year, there were several nights in January when the mercury dropped below freezing. Rainfall was heavier than average this winter, more than 10 in. fell between Jan. 1 and Feb. 15. **Coverage:** Dec. 24; Jan. 2, 10, 17, 24; Feb. 3, 8, 15. Total: 8 trips, all between 0700 and 1100, averaging 150 minutes each. **Count:** Cedar Waxwing, 29 (84,34); Am. Goldfinch, 23 (67,27); Am. Coot, 21(61,25); White-crowned Sparrow, 19(55,22); Mallard, 14(41,16); House Finch, 14(41,16); Cinnamon Teal, 10(29,12); Ruddy Duck, 10(29,12); Song Sparrow, 10(29,12); Lesser Goldfinch, 9(26,11); Pied-billed Grebe, 8(23,9); Am. Wigeon, 8(23,9); W. Meadowlark, 8(23,9); Hermit Thrush, 7(20,8); Com. Yellowthroat, 7(20,8); Anna's Hummingbird, 6(17,7); Com. (Red-shafted) Flicker, 6(7,7); Canvasback, 5(15,6); Blue-gray Gnatcatcher, 5(15,6); Loggerhead Shrike, 5(15,6); Dark-eyed (Oregon) Junco, 5(15,6); N. Shoveler, 4(12,5); Mourning Dove, 3(9,4); Mockingbird, 3(9,4); Ruby-crowned Kinglet, 3 (9,4); Starling, 3(9,4); Lincoln's Sparrow, 3 (9,4); Green Heron, 2(6,2); Am. Robin, 2(6,2); Golden-crowned Sparrow, 2(6,2); Pintail, 1(3,1); Sharp-shinned Hawk, 1(3,1); Red-tailed Hawk, 1(3,1); Am. Kestrel, 1(3,1); Ring-necked Pheasant, 1(3,1); Spotted Dove, 1 (3,1); Belted Kingfisher, 1(3,1); House Wren,1(3,1); Long-billed Marsh Wren, 1(3,1); Savannah Sparrow, 1(3,1); Chipping Sparrow, 1(3,1); Fox Sparrow, 1(3,1); Gadwall, +; Green-winged Teal, +; Redhead, +; White-tailed Kite, +; Cooper's Hawk, +; Red-shouldered Hawk, +; Sora, +; Killdeer, +; Com. Snipe, +; Com Crow, +; Water Pipit, +; Orange-crowned Warbler, +; Rufous-sided Towhee, +. **Average Total:** 266 birds (density, 773 per sq. km., 313 per 100 acres).—**MRS. BARBARA W. MASSEY, 1825 Knoxville Ave., Long Beach, Calif. 90815.**

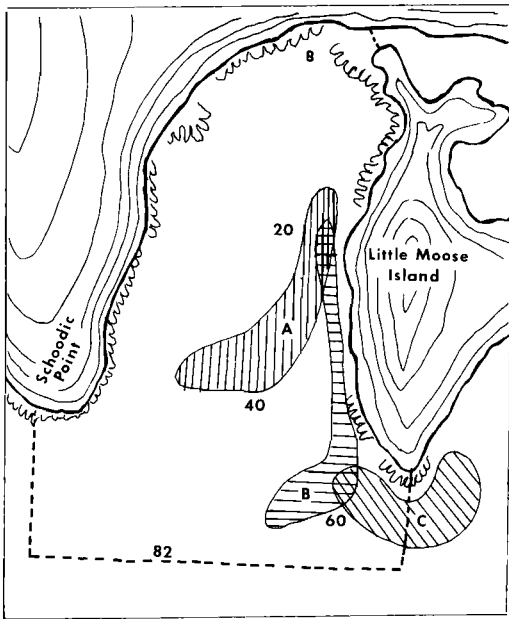
42. EXPOSED PENINSULA AND ADJACENT

OCEAN.—**Location:** Cape Spear National Historic Park, 11 miles east of St. John's, Newfoundland; 47°31'N, 52°37'W (easternmost land in North America); Canadian National Topographic Series, St. John's 1N/10E, 4th Ed., 1966. **Continuity:** New. **Size:** 293.4 ha.=725 acres (determined from aerial photograph and planimeter). **Description of Area:** Open sea 247.9 ha. (612.5 acres); land 45.5 ha (112.5 acres), of which approximately 46% is dry heath and grassland, 27% bare rocks (some cliffs to over 200 ft. in height); 22% bog and 4% low trees, a few clumps of wind-deformed Black Spruce (*Picea mariana*), Balsam Fir (*Abies balsamea*) and alder (*Alnus* sp.). **Weather:** Slightly colder than normal with below normal snowfall. Only 19.27 in. of precipitation at St. John's Airport from December through March (30-yr. normal is 23.67 in.); only 93.2 in. of snow (normal 146.2 in.).

Temperatures from -3° to 55°F., (both extremes in December). Intermittent snow cover to 6 in. depth from Dec. 26 on. Pack ice mainly 3-15 miles offshore commencing Jan. 16, but large iceberg seen as early as Dec. 26. Continuous pack ice coverage to shore on only one count (Mar. 7). **Coverage:** Dec. 5, 16, 26; Jan. 2, 10, 17, 27; Feb. 5, 14, 24; Mar. 7, 17. Total 12 trips, most in a.m., averaging 110 minutes. **Count:** Com. Eider, 341 (116, 47); Oldsquaw, 158 (54, 22), Black Guillemot, 32 (11, 4); Herring Gull, 22 (7, 3), Black-headed Gull, 5 (2, 1); Dovekie, 2 (1, +); Great Black-backed Gull, 2 (1, +); Purple Sandpiper, 1 (+, +); Snow Bunting, 1 (+, +); Goshawk, +; Glaucous Gull, +; Iceland Gull, +; Com. Raven, +; Am. Robin, +. **Average Total:** 564 birds (192 per sq. km., 78 per 100 acres). **Remarks:** Ducks very wary as frequently harassed by hunters both from sea (legal) and ashore (illegal).—**RONALD A. RYDER, 748 Eastdale Dr, Ft. Collins, Colo. 80521.**

43. EXPOSED COVE AND ADJACENT

OCEAN.—**Location:** Schoodic Point section of Acadia National Park, Winter Harbor, Hancock County, Maine; 44°20'N, 68°04'W. Chart 306 USC&GS. **Continuity:** Established 1970. **Size:** 43.7 = 108 acres (irregular shape). **Description of Area:** See *AFN* 23:545 (1969). Area remains unchanged. **Weather:** Warm with no snow cover. Average temperatures measured at the study site: Dec. 26°F., Jan. 28°F., Feb. 31°F. Temperature range during visits: +48° to +8°. Seawater temperatures (surface) measured at a point six miles from the study area (only average figures were available this year) Dec. 40°, Jan. 39°, Feb. 35°. No trips were made during precipitation. Ground was bare throughout the study period. Minor snowfalls did not remain on the ground. Seas were predominantly W at 1 to 2 ft. No major storms and no heavy surf affected the area. For the second year no sea ice formed along the shore. There has been a sharp decline in the numbers of shrimp (*Pandalus borealis*) in the waters of the study area. **Coverage:** Dec. 3, 10, 16, 17, 31; Jan 1, 7, 14, 28; Feb. 4, 11, 25. Total: 12 trips made at varying times from 0800 to 1400. Average time per trip was 1 hour. **Count:** Com. Eider, 108 (247, 100), Herring Gull, 20 (46, 19); Oldsquaw, 14 (32, 13); Bufflehead, 12 (27, 11); Black Guillemot, 9 (21, 8); Horned Grebe, 5 (11, 5); Com. Loon, 2 (5, 2); Great Cormorant, 2 (5, 2); Great Black-backed Gull, 2 (5, 2); Dovekie, 1 (2, 1); Red-throated Loon, +; White-winged Scoter, +; Razorbill, +. **Average Total:** 175 birds (400 per sq km., 162 per 100 acres). **Remarks:** Numbers show a great decline over last year. Ice-free coves allowed Black Ducks to feed in dispersed flocks in other areas. Center of feeding area of Com. Eiders has moved from within the cove to the mouth of the cove, and it is now just beyond the study area. This movement has occurred in the past three years. Low numbers of gulls, grebes, and scoters were characteristic of the entire central coastal area this winter. No acid flights were noted. The greatly decreased numbers in the study area is considered to be part of an overall trend along the coast this winter rather than due to conditions within the study area. Visitors to the intertidal zone were not recorded on every trip this year but did include



Changes of feeding areas of Common Eiders during Winter Population Study

A 1970-1971 B 1971-1972 C 1972-1973

----- Seaward limit of study area. Depths in feet at low water.

Bald Eagle, Com. Raven, Com. Crow, and Red Cross-bill Crossbills appear to drink salt water from small tide pools.—WILLIAM C. TOWNSEND, *Marine Biology Instructor, Sumner H.S., East Sullivan, Maine 04632.*

44. LAGOON.—**Location:** Roaches Run Waterfowl Sanctuary, Arlington, Arlington County, Virginia; 38°52'N, 77°02'30"W, Alexandria Quadrangle, USGS. **Continuity:** New. **Size:** 23.5 ha = 58 acres (oblong with long axis oriented NNE/SSW). **Description of Area:** The area is a lagoon of the Potomac River and is connected to it by a 42 ft.-wide and 110 ft.-long channel. The Sanctuary is bounded on the east and north by the George Washington Memorial Parkway and on the west by railroad tracks. Four major streams, three at the southern end and one along the southwestern edge, flow into the area. All streams carry heavy sediment loads; consequently, the southern end is filling in rapidly. At low tide an extensive mudflat is exposed at the southern end, and smaller ones form near the outlet to the river, which is near the center of the eastern shore. Water depths vary with the tides, and the maximum depth is probably no more than 15 ft. The area is generally level but rises slightly to the east. On the west there is a ridge 10-20 ft. higher than the lagoon and paralleling it. A small wooded islet is present near the central portion of the eastern shore. The whole area is fringed by a narrow band of trees that expands into a small woodlot at the southern end.

Dominant species in order of decreasing abundance are Tree of Heaven (*Ailanthus altissima*), White Sassafras (*Sassafras albidum*), Speckled Alder (*Alnus rugosa*), Red Osier Dogwood (*Cornus stolonifera*), Cottonwood (*Populus deltoides*), Black Willow (*Salix nigra*), Green Ash (*Fraxinus pennsylvanica*), and Sycamore (*Platanus occidentalis*). On the extensive mudflat and adjacent open areas, the following plant species are found: Sensitive Fern (*Onclea sensibilis*), Reed Grass (*Phragmites communis*), Common Cattail (*Typha latifolia*), Sweet Flag (*Acorus calamus*), Black Willow, Yellow Pond Lily (*Nuphar* sp.), Swamp Rose-Mallow (*Hibiscus Moscheutos*), Red Osier Dogwood, and Swamp Milkweed (*Asclepias incarnata*). There is also a small marshy area along the central portion of the western shore. Major plants here are Common Cattail, Sweet Flag, Speckled Alder, Yellow Pond Lily, and Swamp Rose-Mallow. Plant names are from M. L. Fernald, *Gray's Manual of Botany*, 8th ed., 1950. **Weather:** The sky was clear on 6 trips, partly cloudy on 2 trips, and overcast on 6 trips. Temperatures

Table 1.—Average totals of winter waterbird populations at Roaches Run Wildlife Sanctuary, Virginia, 1967-72

Species	'67-68	'69-70	'70-71	'71-72
Horned Grebe				+
Pied-billed Grebe		+		4
Great Blue Heron	+	1		1
Black-crowned Night Heron	1	1	4	3
Canada Goose			+	
Mallard	26	26	101	49
Black Duck	2	8	18	6
Pintail	44	51	45	61
Green-winged Teal				+
American Wigeon	47	18	25	33
N. Shoveler	1	2		
Wood Duck				1
Redhead			1	
Canvasback				+
Lesser Scaup		2	+	
Common Goldeneye		+		+
Ruddy Duck		1	1	
Hooded Merganser				2
Common Merganser	+			28
Red-breasted Merganser				+
American Coot	3	1	1	
Killdeer	+	2	1	10
Common Snipe		2		+
Belted Kingfisher	+	+		
G. Black-backed Gull	3	3	3	7
Herring Gull	125	18	94	37
Tring-billed Gull	27	74	44	88
Bonaparte's Gull				+
Average total	280	211	338	328

ranged from 23° to 57°F. The water was partially frozen on Jan. 12 and 15. **Coverage:** Dec. 19, 29; Jan. 4, 8, 12, 15, 21, 25, 30; Feb. 5, 8, 11. Total: 12 strips, totaling 11.4 hours, between 0940 and 1650. **Count:** Herring Gull, 46(196, 79); Ring-billed Gull, 38 (162, 66); Pintail, 30 (128, 52); Mallard, 28 (119, 48); Great Black-backed Gull, 21 (89, 36); Am. Wigeon, 9 (38, 16); Com. Merganser, 7 (30, 12); Pied-billed Grebe, 2 (9, 3); Great Blue Heron, 2 (9, 3); Black Duck, 1 (4, 2); Killdeer, 1 (4, 2); Black-crowned Night Heron, +; Lesser Scaup, +; Com. Goldeneye, +; Am. Coot, +; Com. Snipe, +; Bonaparte's Gull, +; Belted Kingfisher, +. **Average Total:** 185 birds (788 per sq. km., 319 per 100 acres). **Remarks:** The total population this year was lower than that of any other winter I have censused the area (Table 1). The reason for this decline is unknown but may be related to the flooding caused by Hurricane Agnes last summer. Six species were seen on all trips: Pied-billed Grebe, Mallard, Pintail, Great Black-backed Gull, Herring Gull, and Ring-billed Gull. The Great Blue Heron and Am. Wigeon were seen on all but one trip. The Am. Coot was found dead from unknown causes on Jan. 25—*PAUL W. WOODWARD, 2433 Southgate Square, Reston, Va. 22091.*

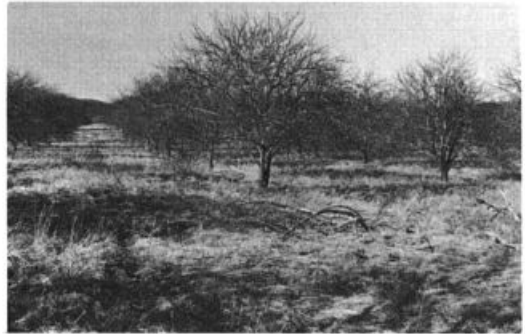
45. RESERVOIR.—**Location:** Carroll Lake, located 3.25 miles southeast of McKenzie, Tennessee, on State Highway 22; 88°28'W, 36°30'N. **Continuity:** Established 1971. **Size:** 40.47 ha = 100 acres. Acreage was determined by the Carroll County A.S.C.S. office using a 1:20,000 aerial photograph and a planimeter. **Description of Area:** See *AB 25:655-656* (1971). This is the third consecutive count for this area. **Weather:** During the study period the temperature ranged from a high of 68°F. to a low of 5°. Average high was 47°, low 29°. In the two-month study period there were 17 days with measurable precipitation. The weather was generally described as warm and rainy by the operator of the McKenzie U.S. Weather Station. **Coverage:** Jan. 6, 7, 8, 9, 12, 19, 31, Feb. 19. Total: 8 trips, averaging 30 minutes per trip. Earliest trip 1230, latest 1645, most after 1600. **Count:** Mallard, 3 (7, 3); Am. Wigeon, +; Green-winged Teal, +; Com. Goldeneye, +; Hooded Merganser, +; Great Blue Heron, +; Belted Kingfisher, +. **Average Total:** 3 birds (7 per sq. km., 3 per 100 acres). **Remarks:** Mallards and Great Blue Herons were observed on three counts. Observed over the reservoir during the counts, but not considered a part of the reservoir ecosystem were: Com. Crow and Starling. A small flock of domestic geese and ducks (1 Canada Goose, 2 Pekin Ducks and 6 Mallards) is maintained by the lake manager. The wild mallards freely fraternized with this domestic flock. No explanation can be given for the low density of birds this year, but this year's count was conducted in the late afternoon rather than during midday as was the case on the previous two studies.—*MR. AND MRS. DON MANNING, Route 2, McKenzie, Tenn. 38201.*

46. PARTIALLY ABANDONED HAYFIELDS AND PASTURES.—**Location:** 7 miles north of the center of Fairfield, Connecticut; 41°12'N, 73°17'W, Westport

Quadrangle USGS Continuity: Established 1972 **Size:** 7.7 hectares = 19 acres. **Description of Area:** See *AB 25: 1007-1008* (1971). **Weather:** Temperature ranged from -2°F. to 60°F. Temperature during area coverage averaged 39°F. The only major precipitations were 5 in. of snow on Jan. 29 and 5 in. of rain on Feb. 2. Otherwise precipitation was normal with insignificant snowstorms and rain at least one day a week on the average. There were no winds over 10 mph recorded during area coverage. **Coverage:** Dec. 18, 21, 22, 28, Jan. 1, 3, 8, 17, 18, 23, 26, 30, Feb. 3, 6, 9, 12, 14, 17, 21. Total: 19 trips, averaging 1.5 hours. Trips were made between 0010-1655 EST. This was the second consecutive year of coverage on the trust for the winter bird population study. **Count:** Dark-eyed (Slate-colored) Junco, 6 (78, 32); Mourning Dove, 3 (39, 16), Black-capped Chickadee, 3 (39, 16); Starling, 3 (39, 16); Ring-necked Pheasant, 2 (26, 11); Tufted Titmouse, 2 (26, 11); White-throated Sparrow, 2 (26, 11), Downy Woodpecker, 1 (13, 5); Com. Crow, 1 (13, 5); Cardinal, 1 (13, 5); House Finch, 1 (13, 5); Am. Goldfinch, 1 (13, 5); Song Sparrow, 1 (13, 5); Goshawk, 1; Great Horned Owl, +; Saw-whet Owl, +; Hairy Woodpecker, +; Blue Jay, +; White-breasted Nuthatch, +; Red-breasted Nuthatch, +; Winter Wren, +; Carolina Wren, +; Mockingbird, +; Am. Robin, +; E. Bluebird, +; Ruby-crowned Kinglet, +, Yellow-rumped (Myrtle) Warbler, +; House Sparrow, +; Purple Finch, +; Pine Grosbeak, +; Com. Redpoll, +; Pine Siskin, +; Red Crossbill, +; White-winged Crossbill, +; Rufous-sided Towhee, +; Tree Sparrow, +; Fox Sparrow, +; Lincoln's Sparrow, +. **Average Total:** 27 birds (351 per sq. km., 142 per 100 acres) **Remarks:** 39 species were recorded in 19 trips on the area this year. I think this was owing to more trips for the study rather than an actual increase in species. A year ago, 32 species were recorded in 13 trips. The average number of birds was down 13 from 1971-2 when 40 was the average total. The area seems to hold only a basic core of birds over the whole winter. Japanese Barberries were the only fruits available, and there were two feeders active all season. Weeds were very poor. The Lincoln's Sparrow was certainly the most unusual species, being very rare here in mid-winter. It fed at one of the feeders and was seen to sing six full songs on Feb. 3. Winter finches were sporadic this winter, and the Pine Siskin, common a year ago with an average of 4 was reduced to a trace status this year. The great number of trace species may be attributed to lack of food. Warm spells here produced higher totals than cold periods. Birds were more vocal on warm days and hence more easily located. It was surprising not to find the Field Sparrow this year. Four years ago, at least six wintered here. Last year it was down to 1. This species elsewhere in Connecticut was down in numbers on wintering grounds. Birds seen flying over the area were Mallard, Herring Gull and Ring-billed Gull. These three species were considered not to be part of this ecosystem. Also additional crows, goldfinches and Starlings flew over but were not counted.—*HELEN HILLS and CHARLES F. HILLS, 3052 Burr St., Fairfield, Conn 06430.*

47. ABANDONED ORCHARD—OLD FIELDS—TREE ROWS.—**Location:** Rockland County, New York, about 4½ miles northeast of Suffern, 2 miles southwest of the intersection of Rtes. 202 and 306. Approximate coordinates on Thiells Quadrangle, USGS; 41°09'15"N, 74°05'40"W. **Continuity:** New. **Size:** 15.5 ha = 38.4 acres (roughly rectangular, measured with steel tape and compass and checked against USGS 7½' Series Topographic Map). **Zone 1:** 16.8 acres, **Zone 2:** 8.9 acres, **Zone 3:** 5.8 acres, **Zone 4:** 5.0 acres, **Zone 5:** 1.9 acres. **Description of Area:** There are five differing zones, and some are bordered with tree rows. **Zone 1:** A 25-year old orchard of Domestic Apple (*Pyrus malus*), abandoned 7 years ago. These trees are spaced 30 ft. apart and average 18 ft. in height. For 20 years large amounts of DDT, aldrin, and diel-drin were applied annually. To the north young individuals of Black Locust (*Robinia pseudo-acacia*) have invaded. The undergrowth is almost 100% Orchard Grass (*Dactylis glomerata*). Patches of annual weeds are common to the north and listed here in decreasing order of occurrence: Common Milkweed (*Asclepias syriaca*), Dandelion (*Taraxacum officinale*) and various asters (*Aster sp.*). **Zone 2:** A 45-year old apple orchard abandoned 10 years ago. Trees averaging 30 ft. in height and are spaced 30 ft. apart. It was sprayed as intensely as Zone 1. About 40% of this zone is undergrown with Poison Ivy (*Rhus radicans*), most often directly under the infested trees. Isolated patches of Red Panicle Dogwood (*Cornus racemosa*) cover a total of 750 sq. ft. Small individuals of Red Cedar (*Juniperus virginiana*), White Oak (*Quercus alba*), Black Oak (*Q. velutina*), and Smooth Sumac (*Rhus glabra*) are present. **Zone 3:** An upland field. In 1971 40% of this field was planted to corn. Previously, this 40% had been planted to cabbages. The rest of the field has been uncultivated for at least 5 years. To the south there are the remains of a large barn, a small shack and a springhouse. On the eastern border a dirt road travels north-south. There are scattered individuals of Red Cedar, Wild Rose (*Rosa sp.*), Bristly Dewberry (*Rubus hispida*), Black Cherry (*Prunus serotina*) and Blackberry (*Rubus allegheniensis*). Abundant annuals include Common Milkweed, Wild Carrot (*Daucus carota*), goldenrods (*Solidago sp.*) Evening Primrose (*Oenothera biennis*) and various asters. **Zone 4:** A sloping lowland-upland field. In 1971 75% of it was planted to corn. A small stream flows the whole length of the field, and during floods covers 15% of the field. To the north the stream is bordered by 15 ft. Pussy Willows (*Salix discolor*), 25 ft. Black Willows (*Salix nigra*) and 7 ft. Smooth Sumacs. Both Blackberry and Black Raspberry (*Rubus occidentalis*) are common along the banks. The dominant grass is again Orchard Grass. Of the many weeds, Evening Primrose, goldenrods, asters, Common Burdock (*Arctium minus*), and Bull Thistle (*Cirsium palustre*) were the most important. **Zone 5:** A 15-year old Peach (*Prunus persica*) orchard. Trees average 10 ft. in height and are spaced 7 ft. apart north-south and 15 ft. apart east-west. 60% of this zone is heavily undergrown with Black Raspberry and Rough Stemmed Goldenrod (*Solidago rugosa*). Orchard Grass is the dominant groundcover. Other goldenrods

and asters are the remaining forbs. Three 8 ft. rose bushes are found on the south end of the zone. **Tree Rows:** Along the internal boundaries there are three tree rows. None exceeds 10 ft. in width and they cover a total area of less than one acre. The border between Zones 2 and 4 consists of only 4 Red Oaks, a Shagbark Hickory (*Carya ovata*) and thickets of Black Raspberry and Blackberry. The boundary between Zones 1 and 3 is predominantly Sassafras (*Sassafras albidum*) with a few apple trees and 3 shrubs of Northern Bayberry (*Myrica pensylvanica*). The boundary between Zones 3 and 4 is the most substantial of the three. It contains mats of Poison Ivy, Running Strawberry-Bush (*Euonymus obovatus*) and Virginia Creeper (*Parthenocissus quinquefolia*). The largest trees are four Domestic Pears (*Pyrus communis*) and a Black Locust. Shrubs include Red Panicle Dogwood, Smooth Sumac and Black Cherry. (Common and generic plant names from M. L. Fernald, *Gray's Manual of Botany*, 1908, G. A. Petrides, *A Field Guide to the Trees and Shrubs*, 1958, and R. T. Peterson and M. McKenny, *A Field Guide to the Wildflowers*, 1968.) **Topography:** Slightly rolling land one mile east of the Ramapo Mts. Elevations range from 430 ft. to 505 ft. This plot is highly exposed to westerly winds coming over the Ramapo Mts. **Edge:** The western edge is bordered by a maple-oak woodland. The eastern edge is bordered by open field (2/3) and suburban development (1/3). The northern edge is mixed, 1/3 orchard, 1/3 open field, 1/3 woodland. The southern edge is 4/5 orchard and 1/5 weed area. The three internal



Study 47. Abandoned Orchard, New York. View facing north, Zone 1. Photo/Bruce B. Edinger.

edges are each about 900 linear ft. **Water:** The small stream empties into a 1/2-acre pond just south of the plot. Six ponds, with a total area of 25 acres, are within 1/2 mile of the plot. **Food:** The apple and peach crops were very poor. Smooth Sumac berries were in large supply throughout the period. Poison Ivy and Red Panicle Dogwood berries were good but largely depleted by February. Dead wood was present in the orchards and tree rows, providing grubs and insect eggs. Weed seeds were in great supply. **Weather:** All trips, except for Dec. 31 and Jan. 29, were made in dry weather. Temperature during the count period ranged from 8 to 65°F. During the counts temperatures

ranged from 17° to 50°F. while wind speeds varied from 0 to 30 mph. Precipitation for December and January was 60% above normal. Average temperatures for these two months were about 3° above normal. (Precipitation and temperature averages from New York City, all other data from home weather station). **Coverage:** Dec. 3, 11, 17, 24, 27, 31; Jan. 6, 13, 20, 25, 29; Feb. 10. **Total:** 12 trips, all counts taken between 0830 and 1100, averaging 70 minutes each. **Count:** Dark-eyed Junco, 13 (84, 34); Starling, 6 (39, 16); Tree Sparrow, 4 (26, 10); Blue Jay, 2 (13, 5); E. Meadowlark, 2 (13, 5); Am. Goldfinch, 2 (13, 5); Com. Flicker, 1 (6, 3); Downy Woodpecker, 1 (6, 3); Com. Crow, 1 (6, 3); Black-capped Chickadee, 1 (6, 3); Tufted Titmouse, 1 (6, 3); Mockingbird, 1 (6, 3); Am. Robin, 1 (6, 3); Cardinal, 1 (6, 3); Purple Finch, 1 (6, 3); Song Sparrow, 1 (6, 3); Am. Kestrel, +; Red-tailed Hawk, +; Roughlegged Hawk, +; Mourning Dove, +; Ruffed Grouse, +; Ring-necked Pheasant, +; E. Phoebe, +; White-breasted Nuthatch, +; N. Shrike,



Study 47. View facing east. Foreground to background: Zones 3, 4, 2. Photo: Bruce B. Edinger.

+; House Finch, +. **Average Total:** 39 birds (density, 251 per sq. km., 102 per 100 acres). **Remarks:** The juncos were seen on only 5 trips, on 3 trips the flocks averaged 50 individuals. The largest number of Song Sparrows, flickers, Downy Woodpeckers, Cardinals, Mockingbirds and Robins never exceeded 2 for one trip. Casual visits to the study plot during the afternoon revealed flocks of up to 200 Starlings feeding in Zone 1. The phoebe was seen on Dec. 11, and was in bad condition. Ground-feeding birds may have been attracted to nearby feeders, lessening the count. The large number of visitors show that this plot is good foraging land but not necessarily a good wintering ground. In fact, its lack of cover probably explains for the low density. A total of 35 Herring Gulls were seen overhead during the counts. Single flocks of Mourning Doves and Evening Grosbeaks were also seen overhead. Mammals observed on the plot during the counts were: White-tailed Deer (*Odocoileus virginianus*), E. Cottontail (*Sylvilagus floridanus*) Gray Squirrel (*Sciurus carolinensis*), Red Squirrel (*Tamiasciurus hudsonicus*), Meadow Vole (*Microtus pennsylvanicus*), and Woodchuck (*Marmota monax*). Spe-

cial thanks to Eric Schnittger, who aided in the mapping of the plot, and George Zackmann, who supplied historical information.—BRUCE B. EDINGER, *Suffern High School Biology Dept., 567 Grandview Ave., Suffern, New York, 10901.*

48. ABANDONED FIELD.—**Location:** Piscataway National Park, Potomac River, 3 miles W of intersection of Route 210 and Bryan Point Road; Accokeek, Prince George's County, Maryland; 38°41'N, 77°4'W, Mt. Vernon Quadrangle, USGS. **Continuity:** New. **Size:** 6.1 ha = 15.0 acres (irregular parallelogram, delineated by steel stakes into one-half acre plots using steel tape). **Description of Area:** See AB 26:995-996 (1972). **Weather:** The winter of 1973 was one of the mildest on record. Snow cover was absent and temperatures ranged from 18°–48°F. on census days. **Coverage:** Dec. 28; Jan. 3, 8, 11, 17, 25, 30; Feb. 5. **Total:** 8 trips, 7 between 0745 and 1130 and 1 between 1325 and 1530, averaging 2.5 hours each. **Count:** Song Sparrow, 12 (198, 80); White-throated Sparrow, 7 (115, 47); Dark-eyed Junco, 5 (82, 33); Cardinal, 1 (16, 7); Savannah Sparrow, 1 (16, 7); Red-shouldered Hawk, 1 (16, 7); Downy Woodpecker, +; Golden-crowned Kinglet, +; Am. Goldfinch, +; Vesper Sparrow, +; Tree Sparrow, +; Field Sparrow, +; Swamp Sparrow, +. **Average Total:** 27 birds (445 per sq. km., 180 per 100 acres). **Remarks:** Species seen flying over included Ring-billed Gull, Mourning Dove, Blue Jay, Com. and Fish Crows, Red-bellied Woodpecker, Com. Flicker, Robin, Starling, Red-winged Blackbird, and Yellow-rumped Warbler. The juncos were always in a single flock on the western edge of the study area. Song Sparrows were well dispersed throughout the entire area. The Savannah Sparrow territory covered 2 acres. The Golden-crowned Kinglet and Downy Woodpecker (recorded on only one trip) were located in a strip of trees and brush extending into the field from an adjacent swamp on the northeast edge. Field Sparrows and Am. Goldfinches were recorded on the final trip only. Vesper Sparrows (recorded on one trip only) are uncommon to rare in Maryland during the winter. The Mockingbird, Tree Sparrow, and Swamp Sparrow were recorded on one trip only. The exceptionally mild winter and good seed crop provided ideal winter conditions for the species in this area.—M. KATHLEEN KLIMKIEWICZ (compiler), 5737 13th St. N.W., Wash., D.C. 20011, and LEONARD TEUBER (field work).

49. ABANDONED STRIP MINE.—**Location:** A part of the campus of Clinch Valley College of the University of Virginia and largely within the town of Wise, Virginia. **Continuity:** Established 1970. **Size:** 25.9 ha = 64 acres. **Description of Area:** See AFN 24:556-557 (1970). **Weather:** Temperatures ranged from –3° to 65°F. Precipitation for January and February was 3.92 in. rain, 11.5 in. snow. (Information from Roy Wells, Clinch Valley College Weather Station.) **Coverage:** Jan. 9, 27; Feb. 3, 4 (2), 5. **Total:** 6 trips, all between 0835 and 1540, averaging 82 minutes each. **Count:** Cedar Waxwing, 10 (39, 16); White-throated Sparrow, 8 (31, 13); Am. Robin, 7 (27, 11); Tufted Titmouse,

5 (19, 8), Cardinal, 5 (19, 8), Song Sparrow, 5 (19, 8), Golden-crowned Kinglet, 4 (15, 6); Com. Crow, 3 (12, 5); Carolina Wren, 3 (12, 5); Dark-eyed Junco, 3 (12, 5); Downy Woodpecker, 2 (8, 3); Blue Jay, 2 (8, 3), Carolina Chickadee, 2 (8, 3); E. Bluebird, 2 (8, 3), Purple Finch, 2 (8, 3); White-breasted Nuthatch, 1 (4, 2); Brown Creeper, 1 (4, 2); Mockingbird, 1 (4, 2), Hermit Thrush, 1 (4, 2); Am. Goldfinch, 1 (4, 2); Chipping Sparrow, 1 (4, 2); Tree Sparrow, 1 (4, 2); Red-shouldered Hawk, +; Bobwhite, +; Hairy Woodpecker, +; Com. Raven, +; Red-breasted Nuthatch, +, Rufous-sided Towhee, +; Field Sparrow, +; Fox Sparrow, +. **Average Total:** 70 birds (270 per sq. km., 109 per 100 acres). **Remarks:** Tufted Titmouse, Cardinal, White-throated Sparrow, and Song Sparrow were noted on every trip. The Cedar Waxwing was present only on the first trip, the robin on the first two. Three species—Com. Raven, Red-breasted Nuthatch, and Chipping Sparrow—were new to the study. The Chipping Sparrow was recorded only on the first trip, and this unusual January record may be attributed to the mildness of the fall and early winter. The population density was by far the lowest since the study was begun. Since the winter was not very harsh, the chief reason for the lack of use of the area apparently was a lack of food. The cold, wet spring and summer of 1972 drastically reduced the production of weed seeds and, to an even greater extent, rose hips, the chief food source on the plot for Cedar Waxwings and robins.—*R. H. PEAKE, Clinch Valley College, Wise, Va. 24293.*

50. CORN FIELD.—**Location:** One-half mile west of North Wilkesboro, North Carolina. **Continuity:** Established 1963. **Size:** 40.47 ha = 100 acres. **Description of Area:** See *AFN* 17:372 (1963). **Weather:** For January average temperature was 41.23°F. and total precipitation 4.03 in. with 7 in. of snow. Maximum and minimum temperatures were 63° and 17° respectively. February average temperature was only slightly higher with 41.41°. Maximum temperature was 64° and minimum 17°. There was no snow. Precipitation was 5.95 in. **Coverage:** Dec. 30; Jan. 5, 15, 17, 24; Feb. 13. **Total:** 6 trips, averaging 3 hours each. **Count:** Starling, 101 (250, 101); Purple Finch, 26 (64, 26); White-throated Sparrow, 13 (32, 13); Red-winged Blackbird, 10 (25, 10); Song Sparrow, 9 (22, 9); Field Sparrow, 6 (15, 6); Am. Robin, 5 (12, 5); Cardinal, 4 (10, 4); Fox Sparrow, 4 (10, 4); Com. Crow, 3 (7, 3); E. Meadowlark, 1 (2, 1); Evening Grosbeak, 1 (2, 1); Dark-eyed Junco, 1 (2, 1); Killdeer, +; Com. Flicker, +, Red-bellied Woodpecker, +; Carolina Chickadee, +, Tufted Titmouse, +; Carolina Wren, +; Mockingbird, +; Rusty Blackbird, +. **Average Total:** 184 birds 455 per sq. km., 184 per 100 acres. **Remarks:** No corn was raised; grass was sowed over the area. Weeds (chiefly Giant Ragweed) predominate on some 25 acres. The only Mourning Doves seen were 3 on one trip. Red-winged Blackbirds fed on the weed seeds, Purple Finches on Sycamore seeds and to a lesser extent on the weeds. The several hundred pigs on the area secured feed from automatic feeders. Only the Starlings dared pick up what little might be scattered from those. White-throated Sparrows were less numer-

ous and seemed less numerous throughout the region as well as in this area. American Robins were more numerous in all three of the North Wilkesboro count areas. Holly berries were scarce but abundant fruit of the privet loaded down the branches.—*WENDELL P. SMITH, 911 E. St., North Wilkesboro, N. C. 28659*

51. CULTIVATED FIELD.—**Location:** One mile west of North Wilkesboro, North Carolina. **Continuity:** Established 1958, continuous except for 1960. **Size:** 25.5 ha = 63 acres. (Formerly 90 acres but 27 acres raised by hauling in dirt and making a shopping center with major portion of area hard-surfaced). **Description of Area:** See *AFN* 12:311 (1958). **Weather:** Average temperature for January was 41.23°F. with a maximum of 63° and a minimum of 17°. January precipitation was 4.03 in. with 7 in. of snow. The February average temperatures was 41.41° with a maximum of 64° and a minimum of 17°. February precipitation was 5.95 in. with no snow. **Coverage:** Jan. 22, 30; Feb. 12, 15, 19, 22. **Total:** 6 trips averaging 3 hours each. **Count:** Mourning Dove, 30 (78, 32); White-throated Sparrow, 7 (27, 11); Song Sparrow, 7 (27, 11); Field Sparrow, 4 (16, 6); Bobwhite, 2 (8, 3); Com. Crow, 2 (8, 3); Am. Robin, 2 (8, 3); Cedar Waxwing, 1 (4, 2); Killdeer, +; Carolina Wren, +; Loggerhead Shrike, +; Savannah Sparrow, +; Fox Sparrow, +. **Average Total:** 45 birds (176 per sq. km., 71 per 100 acres). **Remarks:** The shopping center was placed in the center of the tract leaving 29 acres at one end and 33 at the other. The smaller tract had been bulldozed two years earlier and was growing a large crop of weeds of which Giant Ragweed (*Ambrosia trifida*) was the most numerous. It was in that section that the most birds were found, including all Bobwhite, Mourning Doves, and the Loggerhead Shrike. The larger section had one crop of hay removed from it in June but the second crop was left and was matted down by winter. Only robins and Savannah, White-throated, and Song Sparrows were found here but in smaller numbers. An abundant crop of privet berries along the margin of the area attracted the robins and Cedar Waxwings.—*WENDELL P. SMITH, 911 E. St., North Wilkesboro, N. C. 28659*

52. IRRIGATED PASTURELAND, WEED AREAS, TREE ROWS.—**Location:** The west side of State Highway 74, nine-tenths mile north of the Heppner Library and Museum, Heppner, Morrow County, Oregon. **Continuity:** Established 1971. **Size:** 19.4 ha = 48 acres. **Description of Area:** Described in *AB* 25:651-652 (1971). **Weather:** Temperature during the period averaged 38°F, range was -5° to 63°F. Precipitation for the period was 2.33 in. Snow (about 1 in.) was on the ground on two trips. **Coverage:** Dec. 25; Jan. 6, 14, 21; Feb. 3, 11; Mar. 5. **Total:** 7 trips, averaging 80 minutes each. Time of day ranged from 0850 to 1700, five in the morning and two in the afternoon. Five counts were taken under cloudy skies and two under clear. **Count:** House Sparrow, 126 (649, 263), Dark-eyed (Oregon) Junco, 41 (211, 85); Starling, 35 (180, 73); Black-billed Magpie, 11 (57, 23); House Finch, 8 (41, 17); Song Sparrow, 7 (36, 15); Red-winged Blackbird, 5 (26, 10); Great Horned Owl, 2 (10, 4), Horned Lark, 2 (10, 4); Red-tailed Hawk, 1 (5, 2),

California Quail, 1 (5, 2), Ring-necked Pheasant, 1 (5, 2), Killdeer, 1 (5, 2), Com Snipe, 1 (5, 2), Com Raven, 1 (5, 2); Black-capped Chickadee, 1 (5, 2); Am. Robin, 1 (5, 2); Rough-legged Hawk, +; Com. Flicker, +; Downy Woodpecker, +; Mountain Chickadee, +; Varied Thrush, +; Golden-crowned Kinglet, +; N. Shrike, +; W. Meadowlark, +; Evening Grosbeak, +; Rufous-sided Towhee, +; Dark-eyed (Slate-colored) Junco, +. **Average Total:** 245 birds (1,261 per sq. km., 510 per 100 acres). **Remarks:** The plot was again used as a winter feeding lot for cattle. Six new species were observed. Those species observed on every trip were the Great Horned Owl, Black-billed Magpie, Starling, House Sparrow, Dark-eyed (Oregon) Junco, and Song Sparrow. Only one individual was noted of the following species: Com. Flicker, Mountain Chickadee, Varied Thrush, N. Shrike, W. Meadowlark, and Rufous-sided Towhee. An Audubon Bird Call was used with very good success on every count.—*BUTCH TAYLOR and DAVID WORDEN, Biology Department, Heppner High School, Heppner, Ore. 97836.*

53. URBAN PARK.—**Location:** Western one-half of Hampton Park, Charleston, Charleston County, South Carolina; bounded on the west by the Citadel campus, the east by the park pond and bandstand, the north and south by Mary Murray Drive. **Continuity:** Established 1971. **Size:** 8.1 ha = 20 acres (rectangular, 360 × 270 yds., measured with steel tape). **Description of Area:** See *AB 25(3): 659-660 (1971)*. **Weather:** During the 44-day study period, the temperature was below freezing on 15 days. The average temperature was about 2° below normal with the average high about 58°F. and the average low 38°, with a range from 21° to 75°F. Precipitation for the period totaled 5.74 in. which was 2 in. above normal. Snow or ice was reported on three days. **Coverage:** Dec. 24, 27, 28; Jan. 1, 11, 13, 17, 21, 27; Feb. 4. Total: 10 trips all between 0930 and 1430, averaging 65 minutes each. **Count:** Ring-billed Gull, 25 (309, 125); White-throated Sparrow, 23 (284, 115); Rock Dove, 22 (272, 110); Blue Jay, 15 (185, 75); Fish Crow, 15 (185, 75); Starling, 15 (185, 75); Am. Robin, 9 (111, 45); Rufous-sided Towhee, 7 (86, 35); Com. Flicker, 6 (74, 30); Cardinal, 6 (74, 30); Brown Thrasher, 4 (49, 20); Ruby-crowned Kinglet, 3 (37, 15); Cedar Waxwing, 3 (37, 15); Red-bellied Woodpecker, 2 (25, 10); Mockingbird, 2 (25, 10); House Sparrow, 2 (25, 10); Com. Grackle, 2 (25, 10); Fox Sparrow, 2 (25, 10); Boat-tailed Grackle, 1 (12, 5); Yellow-rumped Warbler, 1 (12, 5); Am. Coot, 1 (12, 5); Belted Kingfisher, 1 (12, 5); Red-headed Woodpecker, 1 (12, 5); Yellow-bellied Sapsucker, 1 (12, 5); Com. Crow, 1 (12, 5); Palm Warbler, 1 (12, 5); Great Egret, +; Snowy Egret, +; Merlin, +; Black-headed Gull, +; Downy Woodpecker, +; Carolina Chickadee, +; Tufted Titmouse, +; Carolina Wren, +; Hermit Thrush, +; Blue-gray Gnatcatcher, +; Black-and-white Warbler, +; Orange-crowned Warbler, +; Am. Goldfinch, +. **Average Total:** 171 individuals (2,112 per sq. km., 855 birds per 100 acres). **Remarks:** An average of 22 species were seen per trip. The Ring-billed Gull, Rock Dove, flicker, jay, Fish Crow, Mockingbird, Brown Thrasher, robin, kinglet,

Starling, House Sparrow, Cardinal, towhee, and White-throated Sparrow were seen on all trips, the Red-bellied Woodpecker, on 9 trips. The number of crows and thrashers seemed to decline during the count period. The first-year Black-headed Gull is the fifth South Carolina record. I wish to thank G. Staley for help in the field.—*DENNIS M. FORSYTHE, Dept of Biology, The Citadel, Charleston, S. C. 29409*

54. SUBURBAN SCHOOL PARK.—**Location:** Deerfield Beach, Florida, between N.E 6th and 9th Avenues, Hillsboro Boulevard, and N.E. 2nd Street, 26°19'N, 80°05'W, USC&GS Nautical Chart No 1248. **Size:** 8.0 ha. = 19.77 acres (rectangular 1127 × 764 ft.). **Continuity:** Established 1969. **Description of Area:** See *AFN 23:552 (1969)* Since last season, 2 one-story houses have been built in the southwest part of the area and one across the east boundary avenue, 2 houses have added screen-enclosed swimming pools, and the school belfry has been eliminated. Two pines, one of two brush tangles, and two dead trees have been removed. A vegetable and flower patch has been planted. The only constant water supply, a dripping hose bib, has been stopped, but water is available in the vicinity. **Weather:** During the 31-day study period, temperatures ranged from 42° to 87°F.; precipitation was 2.18 in. The starting temperature on count mornings averaged 67°. On 6 trips the weather was sunny, on 3, overcast. Winds varied from calm to 15 mph, being over 10 mph on 3 trips. **Coverage:** Dec. 29, 30, 31; Jan. 1, 6, 7, 14, 20, 28. Total: 9 trips, all between 0810 and 0945, averaging 89 minutes each. **Count.** Mourning Dove, 18 (225, 91); House Sparrow, 10 (125, 51); Yellow-rumped Warbler, 5 (62, 25); Mockingbird, 3 (37, 15); Am. Goldfinch, 3 (37, 15); Am. Kestrel, 1 (12, 5); Rock Dove, 1 (12, 5); Red-bellied Woodpecker, 1 (12, 5); Boat-tailed Grackle, 1 (12, 5); Yellow-bellied Sapsucker, +; Blue-gray Gnatcatcher, +, White-eyed Vireo, +; Palm Warbler, +; Spotted-breasted Oriole, +; Com. Grackle, +. **Average Total:** 43 birds (537 per sq. km., 218 per 100 acres). **Remarks:** The kestrel, Mourning Dove, Mockingbird, and House Sparrow were noted on all trips, the Boat-tailed Grackle on 6. The elimination of the school belfry presumably accounts for the drop in Rock Doves from 9 in the previous season to the current 1. This is the first season in five that the area has been without one or more Loggerhead Shrikes. Species flying over on most trips were Turkey Vulture (averaging 9) and Ring-billed Gull. Cattle Egret, Fish Crow, and Red-winged Blackbird flew over occasionally.—*LAURA H. MOSELEY, 1083 Hillsboro Beach, Pompano Beach, Fla. 33062.*

55. URBAN PARK.—**Location:** Victoria Park, Kitchener, Ontario; National Topographic System Index Nos. Waterloo-Kitchener West 40P/7h and Kitchener East 40P/8e. **Continuity:** Established 1969 (results printed in *The Heron*, annual publication of Kitchener-Waterloo Field Naturalists, 1969/70: 27, 1970); 2 intermittent years. **Size:** 21.85 ha = 54.0 acres (from cited figures). **Description of Area:** Seventy-five years ago this urban-core park was created around an artificial lake on Schneider Creek. Very little of the original

bottomland forest remains, most of it along the creek near the back, less-used part of the park; a few scattered Bur Oak (*Quercus macrocarpa*), Silver Maple (*Acer saccharum*), ash (*Fraxinus* sp.), Basswood (*Tilia americana*), White Cedar (*Thuja occidentalis*), and Manitoba Maple (*Acer negundo*). In recent years, Dutch elm disease and stream channelization have resulted in removal of many large White Elms (*Ulmus americana*), some Black Maples (*Acer nigrum*) and a number of other trees and shrubs. The dominant plantings are Norway Spruce (*Picea abies*) in a large grove about the main pavilion, huge Weeping Willow (*Salix babylonica*) along the water, rows of large Sugar and Norway Maple (*Acer saccharum* and *A. platanoides*) with Cut-leaved Silver Maple by water, low ornamental flowering shrubs and trees as well as conifers in and about flower beds. In addition, there are numerous isolated specimen trees of such usual showy species as magnolia, catalpa, etc. After recent clean-up programs, only short sections of long-established hedges remain (privet, barberry, spiraea), and scattered clumps of wild shrubs and vines (*Vitis*, *Rhamnus*, *Viburnum*, *Cornus*, *Solanum dulcamara*). The park now gives the impression of sparsely-wooded lawn and water, with a large open playing field at the main (Courtland Avenue) entrance and the densest cover on the smaller two of the three islands in the lake. Plant names are from M. L. Fernald, *Gray's Manual of Botany*, 8th ed., 1950. **Edge:** Bordered on north by old residential district and heavy traffic route with low speed limit, on south by old and newer residential area with low traffic flow (streets dead-end at park), on east by school, industry and commerce, on west by railway and open creek lands between a residential street and an industrial basin. **Topography:** Essentially flat. Elevation: 1700 ft. **Weather:** Low snowfall, few very cold periods and sporadic pronounced mild spells in January and February. **Coverage:** Dec. 18, 19; Jan. 15; Feb. 22, 26; March 2 Total: 6 trips, all between 0900 and 1145 except one Dec. 18 between 1500 and 1600. Total man-hours: 15 Each trip the entire perimeter of the narrow oblong of the park was covered on foot, and trips averaged 70 minutes each. **Count:** Mallard, 300 (1,373, 556); Starling, 22 (101, 41); Black Duck, 20 (92, 37); Pine Grosbeak, 8 (37, 15); House Sparrow, 8 (37, 15); Canada Goose, 6 (27, 11); Rock Dove, 4 (18, 7); Brown-headed Cowbird, 4 (18, 7); Com. Crow, 3 (14, 6); Black-capped Chickadee, 3 (14, 6); Dark-eyed Junco, 3 (14, 6); Mallard x Black Duck, 2 (9, 4); Wood Duck, 2 (9, 4); Cardinal, 2 (9, 4); Herring Gull, 1 (5, 2); Downy Woodpecker, 1 (5, 2); Blue Jay, 1 (5, 2); White-breasted Nuthatch, 1 (5, 2); Tree Sparrow, 1 (5, 2); Hairy Woodpecker, +; Evening Grosbeak, +; Am. Goldfinch, +; Song Sparrow, +. **Average Total:** 391 birds (1,789 per sq km., 724 per 100 acres). **Remarks:** Total, 22 species, 1 hybrid. Herring Gulls and Rock Doves were seen over the area but included in totals because suitable habitat was available for them to utilize within the park. Numbers of waterfowl fluctuated and presumably included semi-feral birds released when display pens within the park were removed recently, as well as free-flying birds from other parks in the Kitchener-Waterloo-Guelph area. Feeding of grain and thermal

pollution of the creek in the part where the waterfowl wintered created their high numbers, which included 7 domestic geese and 5 domestic ducks as well as 2 Lesser Snow Geese. Numerous feeders around the park (but not within it) attract a number of smaller birds that also frequent the park; individuals were observed moving between feeding stations and park. Apart from the waterfowl, which remained throughout the winter, the only species seen on every trip were Starling, House Sparrow, Black-capped Chickadee and crow. Numbers of the last increased from 1 in December to 7 on Mar. 2 (when the weather was still wintry). Herring Gull, Hairy Woodpecker and Evening Grosbeak were not seen after December, and Song Sparrow was heard only on Mar. 2. Pine Grosbeaks, part of a local invasion, appeared in January (3 seen) and peaked in February-March (16-18), feeding primarily on ash keys. Tree and Song Sparrows and junco were noted mainly in the weedy area along the railway. A few cottontails and mice or shrews, judging from tracks, were also present in that area. Gray Squirrels were quite plentiful in most parts of the park, a number of bird boxes being occupied by them. Dogs roamed the area frequently, and 2 were seen mauling a Black Duck on the ice. House cats, many skaters, and bulldozers and workmen stabilizing lake banks with rock were other disturbance factors. The compiler has studied wildlife in this park since 1953, and plotted and analysed all woody park vegetation in 1970. Victoria Park is now being extensively rehabilitated by the City of Kitchener, a program that began in 1971.—**CRAIG A. CAMPBELL (compiler), WILLARD H. SCHAEFFER and GREGORY R. DONALDSON of OIKOS Associates, Box 747, Waterloo, Ont. N2J, 4C2, assisted by FRANK BLOK.**

56. URBAN RESIDENTIAL AREA, VI.—Location: Alta Vista area, inner suburbs of Ottawa, Carleton County, Ontario. **Continuity:** New. **Size:** 97 ± 6 ha = 240 ± 15 acres (measured from map). **Description of Area:** Roughly square, bounded on the north by Mountbatten, on the west by Blossom and Utah, on the south by Randall and Grace, and on the east by Courtice, Quinn, and Fairbanks. The area was a remote suburb until annexed by the city of Ottawa in 1949. More than half of the houses were built in 1951-56, and the area was fully developed by 1961. It includes only single-family homes except for a few double houses near the centre of the area. A public school and playground, and a fire station and water tower, occupy about 15 acres along the south edge. The area includes a few small clumps and a number of individual trees remaining from the original forest, and many more have been planted. A sample comprising about 30% of the area included 1780 trees, or about 25 trees per acre. The most abundant were maples, especially Manitoba, sugar, and Norway maples (collectively 29%). Other important trees were elms (two species, mostly large) (14%) spruces (3 species; 13%), cedars (10%), birches (9%), and pines (4 species; 8%), while smaller numbers of poplars, crabapples, and at least 13 other species made up the remainder (17%). There were many cedar hedges, and smaller numbers made up of several deciduous shrubs. **Edge:** The area

is bounded by similar housing to north, west, and south. A railway cutting passes close to the northwest corner. On the east, beyond another block of houses, is an undeveloped parkway right-of-way. **Topography:** The eastern half is nearly level, the western half slopes downhill towards the Rideau River (one-quarter mile beyond the northwest corner); elevation 250-330 ft. **Weather:** Snowfall was above average until early January; thereafter snow was infrequent and usually changed to rain, so there was no further accumulation beyond the December levels. Temperatures were about average until mid-January, and milder thereafter. Temperatures on count days ranged from +8° (Feb. 6) to +35° (on 3 surveys), but these dates were selected for less severe conditions. Winds ranged from still up to force 4, the Jan. 16 survey being especially windy. Skies ranged from clear to total overcast. **Coverage:** Nov. 29; Dec. 14, 27; Jan. 16, 26; Feb. 6. Total: 6 counts, averaging 3 hr. 45 min. per trip. All surveys were in the morning. **Count:** House Sparrow, 142 (146, 59); Rock Dove, 44 (45, 18); Evening Grosbeak, 27 (28, 11); Starling, 25 (28, 10); Black-capped Chickadee, 7 (7, 3); Pine Grosbeak, 3 (3, 1); Com. Crow, 1 (1, +); Downy Woodpecker, +; Blue Jay, +; White-breasted Nuthatch, +. **Average Total:** 249 birds (256 per sq. km., 104 per 100 acres). **Remarks:** Occasional visitors were Com. Grackle and Am. Goldfinch during the first two surveys; subsequently Hairy Woodpecker and Am. Robin. The numbers of House Sparrows and Evening Grosbeaks were lower, about two-thirds and one-third respectively of subsequent counts, on the first two surveys, before snow had concentrated them at feeders. Numbers of the other regular species were fairly stable after the first survey. The top five species were noted on all counts. Birds were relatively uniformly distributed over the area except that the school grounds were devoid of birds. The Rock Doves were mainly in three flocks, one of which usually perched on the 100-ft. water tower. The others, which probably also roosted there, were usually seen perched along utility wires. Gray squirrels were seen on all visits, averaging 6 black phase and 2 gray phase per survey. A snowshoe hare in (white) winter pelage was seen just off the southeast corner of the area.—ANTHONY J. ERSKINE, *Migratory Bird Populations, Canadian Wildlife Service, Ottawa, Canada.*

57. CITY PARK.—Location: Grove Ave. and 31st St., Lorain, Ohio. **Size:** 29.26 ha = 72.3 acres (2100 × 1500 feet). **Continuity:** Established 1969. **Description of Area:** See *AFN* 23: 553-555 (1969). **Weather:** The temperature during the study period varied from 15° to 46°F., averaging 31°. There was 2 in. of snow on 2 trips. **Coverage:** Dec. 2, 9, 23, 30; Jan. 6, 13, 20, 27; Feb. 3, 11. Total: 10 trips, between 0900 and 1100, averaging 1.5 hours. **Count:** Starling, 65 (222, 90); Com. Grackle, 39 (133, 54); Blue Jay, 18 (62, 25); Dark-eyed Junco, 9 (31, 12); Rock Dove, 5 (17, 7); House Sparrow, 2 (7, 3); Com. Flicker, 1 (3, 1); Tufted Titmouse, 1 (3, 1); Red-headed Woodpecker, +; Downy Woodpecker, +; Com. Crow, +; White-breasted Nuthatch, +; Rusty Blackbird, +; Cardinal, +; Tree Sparrow, +; Song Sparrow, +. **Average Total:** 140 bird (478 per

sq km, 194 per 100 acres) **Remarks:** Starling and Blue Jay were seen on every trip, junco on 8 trips, Com. Grackle on only 3 trips. Approx. 100 Ring-billed Gulls flew over the park during 1 trip (Lake Erie is 3 miles north). This is the highest average total of the 5-year study owing to the high Starling and Com. Grackle counts this year.—ZIGMOND and HELENA NAGY (*Elyria Audubon Society*), 2332 E 31st St., Lorain, Ohio 44055.

58. CITY PARK.—Location: Des Moines, Iowa **Continuity:** Established 1955, 19th consecutive count **Size:** 13.35 ha = 33 acres. **Description of Area:** See *AFN* 23: 555 (1969). There has been no physical change in the area since the last census. **Weather:** unusually low temperatures prevailed during most of the winter, with only February being slightly warmer than normal. There were more and deeper snows in November and December than is usually the case. A freezing rain turning into several inches of snow early in January was followed by another 8 in. on the 22nd. A blizzard on Nov. 13 left 8 in. of snow which, with subsequent snowfalls, left a cover of several inches on the ground until late January. Temperatures during the hours of the count ranged from 5° to 40°F. with a mean of 31° **Coverage:** Nov. 19, 24, 28; Dec. 9, 27; Jan. 2, 14, 16; Feb. 23, 28. Total: 10 trips, averaging 50 minutes each, all between 0900 and 1000; identical route covered to limit variables to temperature and cloud cover. **Count:** Dark-eyed Junco, 4 (30, 12); House Sparrow, 4 (30, 12); Starling, 3 (22, 9); Blue Jay, 2 (15, 6); White-breasted Nuthatch, 2 (15, 6); Black-capped Chickadee, 1 (7, 3); Cardinal, 1 (7, 3); Tufted Titmouse, 1 (7, 3); Downy Woodpecker, 1 (7, 3), Red-bellied Woodpecker, +; Hairy Woodpecker, +, Pine Siskin, +. **Average Total:** 19 (density, 142 per sq km, 58 per 100 acres). **Remarks:** The numbers of chickadees, titmice, and nuthatches are down. Numerous feeders within 100 yards of the census area might be thought the reason for the decrease, but many feeder operators complained about the scarcity of common species this past winter. I noticed a decided falling off at my own feeders after the Nov. 13 storm. The winter visitors in the general area are considerably fewer than in many years, with few Purple Finches and Red-breasted Nuthatches seen.—WOODWARD H. BROWN, 432 Tonawanda Dr., Des Moines, Ia 50312.

59. DOWNTOWN BUSINESS DISTRICT —RESIDENTIAL AREA.—Location: Downtown Colorado Springs, El Paso County, Colorado **Continuity:** Established 1969. **Size:** 15.38 ha = 38 acres. **Description of Area:** See *AFN* 23: 558-560 (1969) and 24: 569-570 (1970). Major changes in the census area since 1971 include more removal of old, landscaped buildings and replacement either with new buildings or paved parking lots. Thus the area is becoming more "business district" and less residential **Weather:** The study period became increasingly mild and dry, following an unseasonably snowy and cold autumn. The average temperature was about 27°F, with a low of -8° and a high of 58°. Snowfall totaled 3.8 in. The ground was generally clear of snow

Coverage: Dec 29, Jan 3, 8 (1345 and 1530), 12, 14, 16, 19 (1135 and 1300), 21, 22, 23, Feb. 19. Total. 13 trips, both morning and afternoon, averaging 1½ hours each. **Count:** House Sparrow, 27 (176, 71); Rock Dove, 12 (78, 32); Com. (Red-shafted) Flicker, +; Steller's Jay, +; Com. Crow, +; Mountain Chickadee, +, Am. Robin, +; Townsend's Solitaire, +; Starling, +, House Finch, +. **Average Total:** 39 birds (254 per sq. km., 103 per 100 acres). **Remarks:** The shift since 1968-69 from residential development to business development through replacement of landscaped homes by commercial buildings and parking lots is reflected in changes in the bird life of this census area, emphasizing that birds are quite sensitive to alterations even in urban habitats. What has happened to the House Finch is a case in point. In 1968-69 this species averaged 9 individuals for the north three residential-type blocks and (1969-70) 3 in the five south business blocks (unfortunately both areas were not censused each of these winters). With the removal of homes, some of which had feeding stations, and trees and shrubs, the number of House Finches in the residential blocks had fallen to 3 by 1970-71, with 1 in the five blocks of business district, or a total of 4 for the eight blocks (11 per 100 acres). Two years later, only two House Finches were seen during the entire census period for the entire 8-block area, a pair on one date only. The Starling population has also exhibited a decline from 1968-69. Although 10 species were recorded in 1972-73 (as compared with 9 in 1970-71), only two of these species averaged 1 or more individuals per trip, compared with 6 species in 1970-71. Formerly productive sites had in particular undergone alteration. A large landscaped home on a residential block had been razed to make room for a projected 14-story high-rise. Tall Blue Spruce were left on two sides of the excavation but most of the shrubbery was removed. Two years ago this particular block averaged 20 individuals of 8 species; this winter it averaged 10 individuals; and although 7 species were recorded, only two were seen more than twice (out of 13 field trips). Evidently, as a city becomes more commercially developed, there is a loss of diversity of bird life, especially with respect to native species, and an increase in the numbers of, especially, two Old World birds, the House Sparrow and Rock Dove. Interestingly enough, studies carried out by the compiler in downtown Canberra, the capital of Australia, during the Australian winter of 1972, indicated that the three most abundant species there were (in decreasing order) the Rock Dove, House Sparrow, and Starling! —*Colorado College Field Zoology Class (RICHARD G. BEIDLEMAN, compiler; MARGARET EBY, ROBERT FOLLANSBEE, and VIRGINIA MAURER), Department of Biology, Colorado College, Colorado Springs, Colo. 80903.*

60. HARDWOOD-SOFTWOOD FOREST.

—**Location:** North Wilkesboro, North Carolina. **Continuity:** Established 1954. **Size:** 15.0 ha = 37 acres. **Description of Area:** Fully described in *AFN* 8 280-281 (1954), except that the area was doubled the following year. Since then, construction of houses and

roads has reduced the tract by 3 acres. **Weather:** Average temperature for January was 41 °F., average for February was 41.4°. January precipitation totaled 4.03 in. (including 7 in. of snow); February precipitation totaled 5.95 in. (no snow). **Coverage:** Jan. 11, 16, 19, 27; Feb. 13, 26. **Total:** 6 trips, averaging 2½ hours per trip. **Count:** See Table 1. **Average Total:** 13 birds (density, 86 per sq. km. 35 per 100 acres). **Remarks:** Twenty years ago, when the first census was taken, there were three houses on part of one side. At the time of the 1973 count, there were fourteen in a semicircle enclosing nearly half the count area. The forest grew up to the back of each lot and on many of the lots some trees had been left, giving the appearance of a grove. A year or two before the count, the larger timber had been removed from one-half the tract. Only a small part of the remainder had large growth trees. The usual succession of weeds, shrubs, and young growth followed until in 1973 trees in most parts have overshadowed the shrubs. Mountain Laurel (*Kalmia latifolia*) has died out or has decreased. In many parts White Pine (*Pinus strobus*) has grown under the oaks and hickories to a height of 10 to 12 feet, obliterating much of the ground cover. In the center of the area, level ground on both sides of the brook is wetter with a larger growth of Sycamore (*Platanus occidentalis*) and Common Alder (*Alnus serrulata*) forming the bulk of the trees. Vines overspread this area. Changes in bird population can in part be correlated with changes in the forest. Of short time effect is failure or abundance of nuts and berries. The decrease in shrubs has affected some species of birds. There seems to have been a steady decrease of many species which may or may not be a result of forest growth. Pesticides, except for possible use on the small lawns, have not been used. Hunting is forbidden in the area. Breeding birds within this tract remain close to the levels of twenty years ago. Except for the 3 acres taken for buildings, the tract is as wild as ever. Until a few years ago a bay lynx roamed the tract together with a larger tract adjoining on one side. Fluctuations in bird numbers occurred, some in part a result of changes in food supply, some to a changing environment, and some to a cold and snowy winter. The latter might be felt to a greater extent in the succeeding winter. The 1954-55 season gave a count of 59 individuals. Average temperature for count period during that season was 41.8°, colder than for many seasons. Eleven inches of snow fell during the same period. As some sheltered areas lost snow cover quicker than others, the count area may have had an unusual concentration of birds. The 1955-56 winter was milder with much less snow, but the avian population dropped to 30 individuals. Weeds were reduced and there was no holly fruit. The 1956-57 count showed a loss of two individuals from the preceding winter count. There was a poor nut crop. The peak number of individuals was reached in the winter of 1957-58 with 70 individuals of 27 species. The winter of 1958-59 showed a drop to 59 individuals. There were no cones nor acorns nor holly berries, and only a small crop of beechnuts. Dogwood fruit was gone early. From 1959 there has been a decline in the number of individuals and also in the number of species. This has been interrupted by slight increases when food

Table 1

	1954	1955	1956	1957	1958	1959	1960	1961	1962
Com. Crow	—	—	—	+	+	35	35	23	38
Tufted Titmouse	35	8	10	10	15	13	18	13	13
Carolina Chickadee	35	10	10	13	20	10	8	5	8
Mourning Dove	+	—	3	+	40	—	+	55	18
Dark-eyed Junco	50	5	15	18	5	—	+	8	3
Rufous-sided Towhee	+	45	3	—	—	3	20	3	+
White-throated Sparrow	15	18	10	5	10	13	10	—	+
Am. Robin	+	15	+	+	13	+	8	+	20
Carolina Wren	+	5	—	8	10	10	8	3	3
Blue Jay	5	8	3	—	5	3	5	5	+
Cardinal	15	10	+	3	5	3	+	+	+
Purple Finch	+	+	3	—	13	3	5	+	13
Winter Wren	15	3	3	+	3	3	3	5	3
White-breasted Nuthatch	5	5	5	+	3	3	3	3	—
Song Sparrow	10	—	8	5	8	3	3	+	3
Hermit Thrush	+	5	+	+	8	+	3	+	3
Red-bellied Woodpecker	+	+	—	+	+	5	3	3	+
Downy Woodpecker	5	3	+	3	3	3	+	+	3
Barred Owl	+	+	+	3	—	—	3	3	—
Field Sparrow	—	3	—	+	+	3	+	5	—
Golden-crowned Kinglet	15	3	+	—	5	3	+	+	+
Bobwhite	—	—	—	—	—	—	—	—	—
Screech Owl	—	—	—	—	—	—	—	—	—
Am. Goldfinch	5	+	3	+	+	—	3	+	+
Hairy Woodpecker	+	3	3	—	3	+	—	—	+
Red-breasted Nuthatch	—	+	—	—	—	—	+	—	+
Brown Creeper	+	—	+	—	+	3	+	—	3
Eastern Bluebird	+	3	—	3	+	3	—	—	—
Pine Siskin	—	—	—	—	8	—	—	—	—
Common Flicker	—	+	—	—	+	3	—	—	—
Pileated Woodpecker	—	—	+	+	3	+	+	+	—
Yellow-bellied Sapsucker	—	—	—	+	+	+	+	+	+
Starling	—	—	—	—	—	—	+	—	3
Yellow-rumped Warbler	—	—	—	—	+	+	+	+	3
Ruby-crowned Kinglet	—	—	+	+	+	+	—	+	—
Eastern Phoebe	—	—	+	+	+	—	—	—	—
Sharp-shinned Hawk	—	—	+	—	—	—	—	—	—
Cooper's Hawk	—	—	—	—	—	+	—	—	—
Red-tailed Hawk	—	—	—	—	—	—	—	—	—
Red-shouldered Hawk	—	—	—	—	—	—	—	—	—
Am. Woodcock	—	—	+	—	—	—	—	—	—
Great Horned Owl	—	—	+	—	—	—	—	—	—
Mockingbird	—	—	—	—	+	—	+	—	—
House Sparrow	—	—	—	—	—	—	—	—	—
Com. Grackle	—	—	—	—	—	—	—	—	—
Evening Grosbeak	—	—	—	—	—	—	—	—	—
Acres	20	40	40	40	40	40	40	40	40
Density per 100 acres	210	147	75	70	175	118	133	130	130

Birds per 100 acres in Hardwood–Softwood Forest, Study No.60.

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	20-year Mean	No. of Years
23	25	13	11	18	8	8	5	3	+	+	12.2	17
10	10	15	11	8	11	8	3	5	5	5(2)	11.3	20
10	8	13	8	5	11	5	3	3	+	+	9.2	20
8	18	3	+	8	3	+	8	8	5	3(1)	9.0	18
5	3	—	—	—	5	3	3	—	+	+	6.2	15
+	13	—	5	3	5	—	+	3	+	+	5.2	16
+	—	+	3	+	—	—	—	8	5	5(2)	5.1	15
8	—	18	3	+	3	+	+	8	—	5(2)	5.0	18
5	5	5	11	—	3	5	3	5	3	5(2)	4.8	18
5	8	5	8	+	5	—	3	5	+	+	3.6	18
+	+	5	8	3	5	—	3	3	—	3(1)	3.3	18
+	3	+	11	+	8	—	+	+	—	—	3.0	16
3	+	+	3	3	3	3	3	+	—	+	2.8	19
+	5	3	3	+	3	+	3	3	3	3(1)	2.6	19
+	3	—	+	5	—	+	—	+	—	+	2.4	15
5	+	5	+	3	3	3	3	3	+	+	2.2	20
5	3	3	5	+	5	+	3	5	—	+	2.0	18
+	3	+	+	—	3	+	3	3	+	—	1.6	18
3	+	3	—	—	—	3	3	3	3	3(1)	1.5	14
3	—	—	—	—	—	11	—	5	+	+	1.5	11
3	+	+	+	+	+	+	+	+	—	—	1.4	17
5	—	10	3	—	—	—	—	+	—	—	0.9	4
—	—	3	—	—	—	3	3	3	3	3(1)	0.9	7
—	—	+	+	—	3	—	—	+	—	—	0.7	12
+	+	+	+	—	+	—	—	+	—	—	0.4	12
—	3	+	3	3	—	+	—	—	—	—	0.4	8
+	—	+	+	—	3	—	—	+	+	+	0.4	12
+	+	+	—	—	—	—	—	—	—	—	0.4	8
—	—	—	+	—	—	—	—	—	—	—	0.4	2
—	—	—	—	—	—	—	—	—	—	—	0.2	4
+	+	+	+	+	—	+	+	+	+	+	0.2	16
+	3	+	+	—	—	+	—	+	—	—	0.2	12
—	—	—	—	—	—	—	—	—	—	—	0.2	2
+	—	—	—	—	—	—	—	—	—	—	0.2	6
—	—	+	+	—	+	—	—	+	—	—	+	9
—	—	—	—	—	—	—	—	—	—	—	+	3
—	—	—	—	—	—	—	—	—	—	—	+	1
—	—	—	—	—	—	—	—	—	—	—	+	1
—	—	—	+	—	—	—	—	—	—	—	+	1
—	+	—	—	—	—	—	—	—	—	—	+	1
—	—	—	—	—	—	—	—	—	—	—	+	1
—	—	—	—	—	—	—	—	—	—	—	+	2
—	—	—	—	+	—	—	—	—	—	—	+	1
—	—	—	+	—	—	—	—	—	—	—	+	1
—	—	—	—	+	—	—	—	—	—	—	+	1
40	40	40	38	38	38	38	37	37	37	37		
98	108	100	92	55	89	50	49	76	27	35(13)		

was more plentiful than usual. The lowest point was reached in 1971-72 when the count yielded 10 individuals of 17 species. The 1972-73 count gives 13 individuals of 21 species.—WENDELL P. SMITH, *North Wilkesboro, N. C.*

61. WHITE BIRCH-RED MAPLE-ASH WOODLOT.—**Location:** Two miles southeast of Palermo, Maine, and about one-half mile north of State Route 3. Palermo Quadrangle, USGS, 44°22'30"N, 69°27'30"W. On the grounds of the Walters Ecological Experiment Station. **Continuity:** New. **Size:** 6.9 ha = 17.8 acres, irregular in shape (measured with a polar planimeter from a surveyed map of the station). **Description of Area:** Typical south-central Maine mixed hardwood woodland. Canopy about 50 to 60 feet high with trees about 6 in. dbh (diameter breast high). White Birch (*Betula papyrifera*), 40%, Red Maple (*Acer rubrum*), 30%; White (*Fraxinus americana*) and Green (*F. pennsylvanica*) Ash, 20%; miscellaneous hardwoods, 10%. The canopy is very open on the southeast border of the area because of numerous dead elms (*Ulmus americana*) scattered through it. In that section the shrub forms are mostly birch regeneration and Beaked Hazel (*Corylus cornata*) up to 10 feet tall. On the rest of the area shrub forms are mostly maple regeneration and Witch Hazel (*Hamamelis virginiana*). Herbaceous growth is basically ferns and mosses with some spring flowers. **Topography:** sloping, elevation from 540 ft. sloping to Beech Pond at 420 ft. **Edge:** The study plot is part of a dissected old farm. The northern and western borders are on Beech Pond. The southern border is mostly Speckled Alder (*Alnus rugosa*) of various age classes. The eastern border is a variety of softwoods. The study plot is nicely delineated by stone walls. **Water:** Two seasonal brooks and one permanent stream cross the study area while slowly flowing down to Beech Pond. **Food:** Numerous dead elms supplied grubs and boring insects. Three old apple trees that still bear some fruit are present in the area. **Weather:** During the 83-day study period temperatures ranged from -15° to 48°F. The mean low and high temperatures for that period were -2° and 39°, respectively. The mean temperature during actual observation periods was 22° (range, 0°-34°). Snow depths ranged from 8 to 14 in., averaging 11 in. All weather data were taken weekly, from a weather substation on the study area. **Coverage:** Dec. 18, 26; Jan. 8, 15, 22, 30; Feb. 6, 17, 18; Mar. 3, 10. Total: 11 trips, most between 1200 and 1400, one 1030 to 1130 and one 1430 to 1530, averaging 55 minutes each. **Count:** Downy Woodpecker, 1 (15, 6); Black-capped Chickadee, 1 (15, 6); Ruffed Grouse, 1 (7, 3); White-breasted Nuthatch, 1 (7, 3); Com. Redpoll, 1 (7, 3); Hairy Woodpecker, +; Blue Jay, +; Evening Grosbeak, +. **Average Total:** 5 birds (density, 69 per sq. km., 18 per 100 acres). **Remarks:** There were two trips when no birds were observed; both were cold (0° and 4°) and windy. Black-capped Chickadees were observed on 6 trips. Ruffed Grouse and White-breasted Nuthatch were seen on 5 trips. The flock of 6 redpolls was seen only once.—J. M. KIENZLER, *Room 122 Nutting Hall, Univ. of Maine, Orono, Maine 04473.*

62. DECIDUOUS WOODED STREAM VALLEY AND MEADOW. **Location:** Potomac, Maryland, 39°2'40"N, 77°13'50"W, Rockville Quadrangle USGS. **Continuity:** New. **Size:** 35.6 ha = 88 acres. From contour map by planimeter. Boundary of survey area follows that proposed for Nature Study Center "Adventure" in future stream valley park. **Description of Area:** Study tract is a wooded stream valley with adjacent slopes. Range of elevation from valley to ridges averages 80 ft., with a maximum rise of 103 ft. Watts Branch traverses the 88-acre tract from east to west. The tract is also crossed by a paved county road to the north of and paralleling the stream. The 14 acres north of this road (mostly meadow), include a house site and adjacent ornamental plantings on approximately one acre, and two acres of recent second-growth woods bordered by Black Walnut (*Juglans nigra*) and Multiflora Rose (*Rosa multiflora*) along the meadow edges. The dominant trees in this woods are Black Walnut, Tulip-tree (*Liriodendron tulipifera*), Sycamore (*Platanus occidentalis*), and Black Locust (*Robinia pseudo-acacia*), with some Scrub Pine (*Pinus virginiana*), Black Cherry (*Prunus serotina*), and Box-elder (*Acer negundo*), and an understory of Spicebush (*Lindera benzoin*), and Sumac (*Rhus* spp.). The grass meadow is kept closely mowed through the growing season. Black Walnut and Tulip-tree are the dominant trees of the meadow edge and of the shrub-filled draws which make two natural hedge rows on the slope of the meadow. Spicebush is again the dominant shrub here with some Japanese honeysuckle (*Lonicera japonica*), Blackberry (*Rubus* spp.), Sumac, Sassafras (*Sassafras albidum*), and Persimmon (*Diospyros virginiana*). South of the road dividing the area, the stream valley bottomland has Sycamore and Tulip-tree sharing dominance, with Box-elder and Green Ash (*Fraxinus pennsylvanica* var. *sub-integerrima*) as the prime sub-dominants. Tulip-tree retains its prominence on the slopes, joined by Red Oak (*Quercus rubra*) and White Oak (*Q. alba*) with hickories (*Carya* spp.) and Beech (*Fagus grandifolia*) also present. The more mature stands are on the higher slopes to the south and west, with several formerly cleared areas recognized by the persistence of pockets of Scrub Pine near the perimeter of the study area. The majority of the deciduous trees are 1 to 2 ft in diameter with scattered individuals as large as 4 ft in diameter. Two large springs and four draws (two with permanent water courses and two with intermittent flow) join the main stream within the boundaries of the study site. The south border of the tract is a maintained pipeline right-of-way. On the south of the road through the area, to the east and west the tract is continuous with adjacent woodlands. North of the road, the borders are adjacent horse pastures and home sites. Plant names are from M. L. Fernald, *Gray's Manual of Botany*, 8th ed., 1950. **Weather:** During the study period, temperatures ranged from a low of 5°F. on February 3 to a high of 66° on January 17. January temperatures averaged 8° above normal, while February temperatures averaged about 3° below. Precipitation over the total period was near normal, though January records show moisture somewhat above normal (2.94 in. compared with a normal mean

of 2.16 in.) and February records are somewhat below normal (3.94 in. compared with a normal mean of 5.05 in.) A trace of snow (0.1 in.) on February 23 was the only snow during the period. Four trips were made on clear days, and 4 on cloudy days, with light drizzle during the last hour of one trip. Winds ranged from calm (1 day) to 6 to 7 mph (4 days) and 8 to 12 mph (3 days). Weather data taken from Climatological Data for Maryland and Delaware, U.S. Department of Commerce, for weather station in Rockville, Maryland. This station is located approximately five miles northeast of the study area, at an elevation of 320 ft., as compared with elevations ranging from 220 to 330 ft. on the study area. **Coverage:** Jan. 6, 21, 28; Feb. 4, 11, 14, 19 (½), 24 (½). Total: 7 trips, averaging 4 hours 20 minutes each. Trips began between 0655 and 0820, and all were finished by 1200. One coverage consisted of a trip over ½ of the area on each of two different days (Feb. 19 and 24). On two trips (Feb. 11 and 14), each half of the area was covered concurrently by two separate observers. **Count:** Starling, 61 (171, 69); Carolina Chickadee, 19 (53, 22); Cardinal, 14 (39, 16); Com. Crow, 9 (25, 10); White-throated Sparrow, 8 (22, 9); Blue Jay, 7 (20, 8); Tufted Titmouse, 7 (20, 8); Bobwhite, 5 (14, 6); Song Sparrow, 5 (14, 6); Carolina Wren, 4 (11, 5); Purple Finch, 4 (11, 5); White-breasted Nuthatch, 3 (8, 3); Dark-eyed Junco, 3 (8, 3); Field Sparrow, 3 (8, 3); Mourning Dove, 2 (6, 2); Red-bellied Woodpecker, 2 (6, 2); Downy Woodpecker, 2 (6, 2); Red-shouldered Hawk, 1 (3, 1); Pileated Woodpecker, 1 (3, 1); Brown Creeper, 1 (3, 1); E. Bluebird, 1 (3, 1); Golden-crowned Kinglet, 1 (3, 1); House Sparrow, 1 (3, 1); Belted Kingfisher, +; Com. Flicker, +; Hairy Woodpecker, +; Winter Wren, +; Mockingbird, +; Am. Robin, +; Ruby-crowned Kinglet, +; Brown-headed Cowbird, +; Am. Goldfinch, +; Swamp Sparrow, +. Average Total: 164 birds (461 per sq. km., 186 per 100 acres). **Remarks:** Total species, 33. Three additional species were seen only in flight over the area (Turkey Vulture, Rock Dove, Evening Grosbeak). Ten species were seen on every trip (Red-bellied Woodpecker, Downy Woodpecker, Blue Jay, Carolina Chickadee, Tufted Titmouse, Carolina Wren, Starling, Cardinal, White-throated Sparrow, and Song Sparrow). Eight species were seen on only one trip (Belted Kingfisher, Com. Flicker, Hairy Woodpecker, Am. Robin, Ruby-crowned Kinglet, House Sparrow, Brown-headed Cowbird, and Swamp Sparrow).

Pileated Woodpecker was observed on five of the seven trips. Red-shouldered Hawk appears to have established territory in nearby woodland. Description of the area was prepared by *HARRIET GILBERT*.—*JOHN R. NORVELL, MORRILL B. DONNARD, MARGARET T. DONNARD (compiler), Montgomery County Chapter, Maryland Ornithological Society.*

63. UPLAND WOODS AND FIELDS—**Location:** 4½ miles from town of Sharon, Connecticut. **Continuity:** New. **Size:** Approximately 18.2 ha. = 45 acres. **Description of Area:** The area is 60% mixed deciduous trees, 20% open fields, 20% low bushes, lying on both sides of a dirt road. Trees in the area are 25% Black Cherry, 15% ash, 15% beech, 10% Gray Birch, 5% White Birch, 10% mixed oaks. The rest of the trees are Sugar Maple, hickory, Sweet Gum, Mulberry, Hemlock, along with 12 apple trees, 1 crab apple, and 1 pear tree. Bushes in the study area are High Bush Cranberry, Ilex, Dogwood, Witch Hazel, Shadbush, Maple-leaf Viburnum, wild grape, honeysuckle, Poison Ivy, Virginia Creeper, Bittersweet, goldenrod, blackberry and raspberry. There are two small ponds and a swamp of about 5 acres on the edge. **Weather:** Temperatures during the period ranged from 55° to -12°F. This has been an open winter. In December there was 6 in. of snow; in February a total of 24 in. **Coverage:** Trips through the area average 5 days a week from Dec. 1 to February. **Count:** Evening Grosbeak, 15 (101, 45); Tree Sparrow, 15 (101, 45); Dark-eyed Junco, 12 (89, 36); Pine Grosbeak, 10 (74, 30); Blue Jay, 8 (59, 24); Black-capped Chickadee, 6 (45, 18); Mourning Dove, 4 (29, 12); Downy Woodpecker, 4 (29, 12); Com. Crow, 4 (29, 12); Am. Goldfinch, 4 (29, 12); Hairy Woodpecker, 3 (22, 9); Cardinal, 3 (22, 9); Tufted Titmouse, 2 (15, 6); White-breasted Nuthatch, 2 (15, 6); Starling, 2 (15, 6); Canada Goose, +; Black Duck, +; Goshawk, +; Red-tailed Hawk, +; Red-shouldered Hawk, +; Ruffed Grouse, +; Com. Flicker, +; Mockingbird, +; Am. Robin, +; E. Bluebird, +; Pine Siskin, +. **Average Total:** 94 birds (density, 516 per sq. km., 209 per 100 acres). **Remarks:** Total species, 26. The Pine Grosbeaks were seen on 3 trips, the Goshawk and Red-tailed Hawks on 2 trips. Most of the birds seen on the area also come to my feeder.—*GEORGE KOMOROWSKI, Eagle Rise-Bowne Rd., Sharon, Conn. 06069.*