

28th Winter Bird - Population Study

Edited by Ronald A. and Audrey 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-Yrs. of cles Study</i>	
A. Forest Habitats						
1 White Birch-Red Maple-Ash Woodlot	Maine	7.2	83	15.0	5	3
2 Coniferous Parkland and Mixed Hemlock-Hardwoods Forest	Massachusetts	16.6	380	13.0	22	4
3 Pitch Pine-Scrub Oak Forest, I	Massachusetts	7.5	+	4.0	2	1
4 Pitch Pine-Scrub Oak Forest, II	Massachusetts	7.5	40	9.0	3	1
5 Pitch Pine-Scrub Oak Forest, III	Massachusetts	7.5	40	4.0	3	1
6 Upland Beech-Maple Forest	Connecticut	8.1	445	8.8	13	4
7 Upland Mixed Pine-Spruce-Hardwood Plantation	New York	16.6	199	22.0	13	2
8 Maturing Upland Red Pine-White Pine Plantation	New York	15.4	234	13.3	6	4
9 Birch-Tulip Forest	Pennsylvania	8.1	2113	16.7	23	1
10 Disturbed Upland Oak Forest	Pennsylvania	10.1	79	10.0	8	1
11 Mature Deciduous Floodplain Forest	Maryland	17.8	751	32.8	29	24
12 Hickory-Oak-Ash Floodplain Forest	Maryland	18.4	880	17.7	39	4
13 Upland Tulip-tree-Maple-Oak Forest	Maryland	12.0	601	16.3	29	3
14 Mixed Hardwood Forest	Maryland	11.3	406	13.5	28	17
15 Forest Developing after Cultivation	Maryland	8.1	148	12.0	19	7
16 Central Hardwood Forest with Scattered Pine	District of Columbia	26.3	194	11.1	22	22
17 Upland Oak-Hickory Hardwood Forest	Virginia	11.0	145	15.8	19	5
18 Upland Tulip-tree-Oak Forest	Virginia	20.6	189	10.4	23	2
19 Hardwood-Softwood Forest	North Carolina	15.0	53	13.5	14	22
20 Mature Hardwood Forest	West Virginia	12.1	206	?	17	2
21 Upland Pitch Pine-White Pine Forest	Ontario	12.5	217	8.4	13	2
22 Deciduous Woods	Ohio	16.2	241	13.0	18	2
23 Beech-Maple Swamp Forest Mosaic	Ohio	8.3	241	10.7	16	1
24 Old Growth Beech-Tulip-tree-Black Gum Forest	Indiana	10.1	327	20.7	22	3
25 Upland Mixed Hardwood Forest	Tennessee	17.0	582	20.8	24	1
26 Mature Mixed Hardwood Forest	Michigan	9.3	236	11.0	13	1
27 Oak-Maple Forest and Forest Edge	Illinois	22.3	76	18.0	12	27
28 Bottomland-Oak-Gum-Cypress Forest	Mississippi	11.4	1205	22.9	33	4
29 Mixed Pine-Deciduous Forest	Louisiana	8.9	1033	13.0	31	4
30 Oak-Hickory Forest	Kansas	9.7	196	18.0	16	1
31 Mixed Pine-Hardwood Forest	Texas	6.3	1077	14.0	31	1
32 Ponderosa Pine Forest	Colorado	8.1	593	12.5	21	13
33 Alder-Cedar Forest	Washington	13.0	857	21.5	20	1
34 Douglas-Fir Forest	Washington	13.0	888	21.9	17	1
35 Western Sycamore-Coast Live Oak Riparian Woodland	California	4.5	2449	19.7	37	1
36 Bishop Pine Forest	California	6.9	2110	12.0	27	1
37 Mature Douglas-Fir Forest	California	9.8	1756	15.0	21	2
38 Coastal Mixed Forest	California	7.3	1702	24.0	20	1
39 Coastal Monterey Pine Forest	California	40.5	230	18.0	28	1
B. Forest Mixed with Other Habitats						
40 Mixed Upland Habitat and Swamp	Connecticut	14.2	71	8.0	16	3
41 Riparian Woodland Floodplain	New York	13.8	305	19.2	21	1
42 Floodplain Forest and Cultivated Bottomland	New York	51.8	481	20.4	33	5

43. Old Field-Meadow and Primary Deciduous Thickets	Pennsylvania	10.1	257	10.0	11	1
44. Mixed Habitat: Deciduous Wooded Stream Valley and Meadow	Maryland	35.6	494	34.3	42	3
45. Mixed Upland Habitat	District of Columbia	14.2	1190	14.0	36	16
46. Pineland, Scrub and Residential	Florida	8.1	2261	36.0	51	1
47. Grassy Marsh and Deciduous Forest	Ohio	13.4	974	20+	29	1
48. Mixed Habitat-Disturbed Bottomland	Oklahoma	40.5	507	32.0	40	3
49. Cottonwood Riverbottom Habitat, I	Colorado	12.1	914	13.0	27	1
50. Cottonwood Riverbottom Habitat, II	Colorado	10.9	924	12.3	34	1
51. Grazed Cottonwood Riverbottom	Colorado	14.2	4088	11.0	30	1
52. Cottonwood-Abandoned Fields Bottomland	Colorado	8.1	1989	10.5	27	1
53. Ponderosa Pine Sedimentary Creekbottom	Colorado	36.4	124	15.0	17	2
C. Brush, Grassland and Desert						
54. Grassland Municipal Airport	Louisiana	12.2	412	5.3	7	2
55. Mixed Prairie Park	Nebraska	16.0	1314	19.9	30	5
56. Mesquite-Juniper Canyon Bottomland	Texas	12.5	1801	22.2	45	8
57. Live Oak-Mesquite Brushland	Texas	12.1	1112	10.1	36	9
58. Shortgrass Prairie, I	Colorado	40.5	54	5.5	4	3
59. Shortgrass Prairie, II	Colorado	60.7	20	8.0	3	1
60. Shortgrass Prairie, Brushy Mesa and Wooded Creekbottom	Colorado	68.8	35	12.5	14	1
61. Interstate Highway Rest Stop	Colorado	1.2	1894	3.7	6	1
62. Southwestern Riparian Woodland	New Mexico	14.5	1398	18.0	55	1
D. Habitats Including Open Water						
63. Exposed Cove and Adjacent Ocean	Maine	43.7	483	13.0	16	6
64. Salt Water Marsh and Coastal Sand Beach	Connecticut	219.7	106	31.5	46	2
65. River Bank and River	Pennsylvania	4.6	824	13.1	24	1
66. Lagoon	Virginia	23.5	946	10.6	17	7
67. Disturbed Oak-Hickory Forest, Pine Stand, Edge and Pond	Ohio	14.2	105	30.0	20	5
68. Swamp Forest	Indiana	4.9	844	12.5	32	1
69. Impounded Bayou: Oak-Gum-Maple Forest	Louisiana	8.7	2509	10.5	43	1
70. Arboretum	Louisiana	20.2	919	13.5	44	1
71. Beach-Front Recreational Park	California	13.4	1389	18.0	50	1
E. Croplands						
72. Abandoned Orchard-Old Fields-Tree Rows	New York	15.5	1673	14.0	29	3
73. Corn Stubble, Soy Beans and Hayfield	Pennsylvania	40.5	94	7.7	9	2
74. Cornfield, I	Maryland	16.1	304	5.6	13	1
75. Cornfield, II	Maryland	23.8	1739	6.2	20	1
76. Abandoned Field	Maryland	6.1	642	22.0	19	3
77. Cornfield	North Carolina	40.5	47	?	17	13
78. Abandoned Field	Indiana	9.7	113	7.5	14	1
79. Hedgerows-Cornfields	Saskatchewan	62.2	328	61.0	15	2
F. Urban Habitats						
80. Suburban School Park	Florida	8.0	537	11.8	17	7
81. Urban Residential Area	Ontario	111.0	387	29.9	8	2
82. City Park	Ohio	29.3	287	10.0	7	6
83. Urban Cattail Marsh and Cottonwood-Willow Woodland	Colorado	6.1	478	5.5	21	2
84. Urban Nature Center	California	34.4	1128	17.5	56	5

1. WHITE BIRCH-RED MAPLE-ASH WOOD-LOT.— **Location:** Maine; two mi SE of Palermo, and about ½ mi N of State Rt 3. 44°22'30''N, 69°27'30''W, Palermo Quadrangle, USGS. On the grounds of the Walters Ecological Experimental Station. **Continuity:** Established 1973; third year. **Size:** 7.2 ha = 17.8 acres, irregular shape (measured with a polar planimeter from a surveyed map of the Station). **Description of Area:** See *AB* 27(3):702, 1973. **Weather:** During the 92-day study period, temperatures ranged from 17° to 47°F. The mean temperature during actual observation periods was 23° (range 2°-35°). Snow depths ranged from 0 to 20 in. Data from a weather substation on the study area. **Coverage:** Dec. 14; Jan. 5, 12, 25; Feb. 1, 9, 16, 22; Mar. 16. Total, 9 trips, most between 0900 and 1100, one 1000 to 1200 and one 1400 to 1600, averaging 100 minutes each. **Count:** Black-capped Chickadee, mean count 4(56/km²., 22/100 acres); Hairy Woodpecker 1(14, 6); White-breasted Nuthatch 1; Ruffed Grouse, + Downy Woodpecker, +. **Average Total:** 6 birds (83/ km², 34/100 acres). **Remarks:** birds were seen on all days except Dec. 14 which was cold, windy, and very noisy because of the frozen leaf litter. Tracks of two individual Ruffed Grouse were commonly found within and along the edges of the study area; however, only one bird was flushed during the survey. Total birds observed was greater (53) on 9 trips than for the last two years (43 birds on 11 trips in 1972-73 and 41 birds on 11 trips in 1973-74), in spite of deeper snows and colder temperatures. This increase resulted from a greater density of Black-capped Chickadees. — *BARRY N. BURGASON, 244 Nutting Hall, Univ. of Maine, Orono, Me 04473.*

2. CONIFEROUS PARKLAND AND MIXED HEMLOCK-HARDWOODS FOREST. — **Location:** Massachusetts; Arnold Arboretum, Jamaica Plain, Boston. **Continuity:** Established 1971; 4 intermittent years. **Size:** 16.6 ha = 41.0 acres. **Description of Area:** See *AB* 25: 642-643 (1971) and *AB* 26: 961-962 (1972). Few changes since 1973. **Weather:** December and January were relatively mild, with most precipitation as rain; early February was cold and snowy. Water usually or always available at brooks. **Food:** Acorn crop very good, especially white oaks; beechnuts, good; birch seeds, good. White pines and hemlocks had good cone crops; other pines, fair; spruces and Douglas-firs, fair to poor; most true firs, good; golden larch, excellent; larches, fair; *Chamaecyparis*, fair; arborvitae, very poor. Juniper fruits, good; hollies, good; yews, fair. Rhododendron and mountain laurel seed crops, good. **Coverage:** Dec. 18, 23, 28, 30; Jan. 4, 8, 24; Feb. 8. Total, 8 trips. Hours ranged from 0941 to 1525, EST, and totaled about 13. **Count:** Dark-eyed Junco, 23 (139, 56); Am. Goldfinch, 10 (60, 24); Black-capped Chickadee, 7 (42, 17); Blue Jay, 6 (36, 15); Com. Crow, 3 (18, 7); House Finch, 3; Tufted Titmouse, 2 (12, 5); White-breasted Nuthatch, 2; White-throated Sparrow, 2; Downy Woodpecker, 1 (6, 2); Brown Creeper, 1; Mockingbird, 1; Starling, 1; Cardinal, 1; Fox Sparrow, 1; Red-tailed Hawk, +; Mourning Dove, +; owl sp., +; Hairy Woodpecker, +; Am. Robin, +; Evening Grosbeak, +; Rufous-sided Towhee, +. **Average Total:** 63 birds (380/km², 154/100 acres). **Re-**

marks: A Hermit Thrush, seen inside the plot Dec. 7, was seen well just off the plot Dec. 28 and farther off (on Bussey Hill, feeding on *Cotoneaster* fruits) Feb. 8. Pheasant tracks were seen inside the plot Jan. 24. Six species were seen on all eight trips (the top five species and the Mockingbird); additional species seen on six or more trips were the nuthatch, titmouse, Brown Creeper, Cardinal, and White-throated Sparrow. House Finches, believed to roost regularly in the conifers (especially the white firs) in the plot, were seen or heard only on two trips extending beyond mid-afternoon; at least 18 were counted Dec. 28. — *RICHARD W. SIMMERS, JR., 62 Buckingham St., Cambridge, Mass. 02138.*

3. PITCH PINE-SCRUB OAK FOREST, I. MATURE. — **Location:** Massachusetts; Plymouth Co., Myles Standish State Forest, ¾ mi E of College Pond; 41°52'N, 70°39'W, Wareham Quadrangle, USGS. **Continuity:** New. (Breeding Bird Census, 1973.) **Size:** 7.5 ha = 18.53 acres (rectangle 250 x 300 m, surveyed). **Description of Area:** See *AB* 27:975, 1973. **Weather:** Temperatures during the census period ranged from -8.8° to 14.3° C. (16° to 58° F with a mean of 2.2° C (36°F). The ground was bare until Jan. 20 when 8-10 cm (3-4 in) of snow fell. **Coverage:** Jan. 6, 10, 14, 16, 22, 24. Total, 6 trips, averaging 40 minutes each, from 0945 to 1200 and 1400 to 1530. **Count:** Ruffed Grouse, +; Blue Jay, +. **Remarks:** The low average numbers of birds in the plot indicate the sparse bird population of this area in winter. Blue Jays



Study 3. Mature Pitch Pine - Scrub Oak Forest. Photo by Richard A. Lent.

were seen or heard most often, usually outside plot boundaries. The only evidence of mammals seen was White-tailed Deer droppings. Because of good visibility in the plot and the low number of birds present, censusing could be done fairly quickly. This census and the following two were done simultaneously during the period Jan. 6-24. A comparison of the three plots is given at the end of Plot III. — *RICHARD A. LENT, Manomet Bird Observatory, Box O, Manomet, Mass. 02345.*

4. PITCH PINE-SCRUB OAK FOREST, II. REGENERATING. — **Location:** Massachusetts; Plymouth Co., Myles Standish State Forest, 1¼ miles E

of College Pond; 41°52'N, 70°38' W, Wareham Quadrangle, USGS. **Continuity:** New. (Breeding Bird Survey, 1973.) **Size:** 7.5 ha = 18.53 acres (rectangle 250 x 300 m, surveyed). **Description of Area:** See AB 27: 976, 1973. **Weather:** Temperatures during the census period ranged from -8.8° to 14.3° C (16° to 58° F) with a mean of 2.2°C (36°F). The ground was bare until Jan. 20 when 7.6-10.2 cm (3-4 in) of snow fell. **Coverage:** Jan. 8, 12, 15, 17, 21, 23. Total, 6 trips, averaging 1½ hours each, from 1000 to 1200 and 1400 to 1600. **Count:** Blue Jay, 1 (13,5); Black-capped Chickadee, 1; Golden-crowned Kinglet, 1; Red-tailed Hawk, +; Ruffed Grouse, +. **Average Total:** 3 birds (40 birds/km², 16/100 acres). **Remarks:** The one Red-tailed Hawk was observed on Jan. 12 as it flew up from near



Study 4. Regenerating Pitch Pine - Scrub Oak Forest. Photo/ Richard A. Lent.

the ground, possibly after making a kill. Small rodent tunnels were found under the snow along a dirt road running through the center of the plot. Another hawk was seen on Jan. 17 (possibly a Marsh Hawk), outside plot boundaries. Visibility was excellent in this plot; longer visits were needed because of the very dense scrub oak understory which made walking difficult. This census was done simultaneously with two other censuses during the period Jan. 6-24. A comparison of the three plots is given at the end of Plot III. — **RICHARD A. LENT, Manomet Bird Observatory, Box 0, Manomet, Mass. 02345.**

5. PITCH PINE-SCRUB OAK FOREST, III. RECENTLY BURNED. — **Location:** Massachusetts; Plymouth Co., Myles Standish State Forest, 1¼ miles SE of College Pond; 41°51'N, 70°39'W, Wareham Quadrangle, USGS. **Continuity:** New. (Breeding Bird Survey, 1973.) **Size:** 7.5 ha = 18.53 acres (irregular, surveyed). **Description of Area:** See AB 27: 976-977, 1973. **Weather:** Temperatures during the census period ranged from -8.8° to 14.3°C (16° to 58°F) with a mean of 2.2°C (36°F). The ground was bare until Jan. 20 when 7.6-10.2 cm (3-4 in) of snow fell. **Coverage:** Jan. 6, 10, 14, 16, 22, 24. Total, 6 trips, averaging 40 minutes each, from 1000 to 1200 and 1400 to 1600. **Count:** Ruffed Grouse, 1 (12,5); Blue Jay, 1; Golden-crowned Kinglet, 1; Downy Woodpecker, +. **Average Total:** 3 birds (40/km², 16/100 acres). **Remarks:** A



Study 5. Recently burned Pitch Pine - Scrub Oak forest. Photo/ Richard A. Lent.

dead Ruffed Grouse was found on Jan. 16. Also, two burrows in the ground were found, with entrance diameters approx. 12.7-15.2 cm (5-6 in), possibly woodchuck. Visibility in the plot was good. This census was done simultaneously with the two preceding censuses during the period Jan. 6-24. Of the three plots, the mature forest had the lowest density of birds. Blue Jays were most frequently seen (13 individuals from all 3 plots), followed by Golden-crowned Kinglets (11 individuals). The burned area contained the most Blue Jays (7); the regenerating area had 5 jays; the mature plot, 1. Kinglets were most abundant in the regenerating plot (6 birds); the burn had 5; the mature had none. Ruffed Grouse were most abundant on the burned plot (5 birds). The burned and regenerating areas possibly had more birds because of increased sprout growth following fire; this would produce more acorns, twigs, and buds for winter food. Another possible food supply in the burned area is insect eggs and pupae in the wood of standing dead pitch pines; the only Downy Woodpecker found was in this plot. Only a few bird species make use of these forest areas in winter, and individual birds are few in number. On several census trips no birds were seen or heard at all. My grateful thanks go to the staff of Manomet Bird Observatory for the use of their facilities during the 3-week census period. — **RICHARD A. LENT, Manomet Bird Observatory, Box 0, Manomet, Mass. 02345.**

6. UPLAND BEECH-MAPLE FOREST. — **Location:** Connecticut; Fairfield County, Greenwich, in the NW part of town and N portion of 280-acre Audubon Center; 41°06'N, 73°41'W, Glenville, Conn., Quadrangle, USGS. **Continuity:** Fourth consecutive

winter census. **Size:** 8.09 ha = 20 acres (rectangular, surveyed). **Description of Area:** See AB 25:970-971 (1971). **Weather:** 1951-1975 averages are shown in parentheses. Average temperatures: Jan., 34.3°F (28.5°); Feb., 30.9° (30.6°). Precipitation (inches): Jan., 5.44 (2.78); Feb., 3.31 (3.41). Snowfall during the period totaled 14 inches. There was snow on the ground during two visits but the ground was uncovered almost throughout the period. Weather information from Stamford Museum 6.5 miles east. **Coverage:** Jan. 15, 17, 21, 28; Feb. 8, 15; Mar. 1. Total, 7 trips averaging 75 minutes each, between 0830 and 1640 hours EST. **Count:** Dark-eyed Junco, 9 (111, 45); Black-capped Chickadee, 5 (62, 25); Am. Goldfinch, 5; White-throated Sparrow, 4 (49, 20); Blue Jay, 3 (37, 15), Tufted Titmouse, 3; Downy Woodpecker, 2 (25, 10), Com. Crow, 2; White-breasted Nuthatch, 2; Hairy Woodpecker, 1 (12, 5); Pileated Woodpecker, +; Winter Wren, +; Yellow-rumped Warbler, +. **Average Total:** 36 birds (445/km², 180/100 acres). **Remarks:** Crows were seen on all trips; Blue Jay, chickadee, nuthatch, and junco on 6; Downy Woodpecker, titmouse and White-throated Sparrow on 5; Am. Goldfinch on 4; Hairy Woodpecker, Winter Wren on 3; and all others on 1. Changes from last year's average of 9 were junco (+9), Am. Goldfinch and White-throated Sparrow (+4), Blue Jay and chickadee (+3), titmouse (+2), Downy and Hairy Woodpecker (+1) each. Junco and White-throated Sparrow were not recorded on the 3 prior censuses but are not uncommon in the surrounding areas. The habitat has not changed significantly over the last four years. The previous three censuses averaged 9 birds as compared to this year's 36. This significant increase may have resulted from the following: substantial food crop making the birds less dependent on feeders; a rather mild winter; little snow cover. It appeared that a very good number of birds wintered over and were able to survive without feeding stations, thus stayed in their normal habitat. Seen overhead but not counted were Herring Gulls and numerous other Com. Crows. The area was frequented by White-tailed Deer (*Odocoileus virginianus*), Red Squirrel (*Tamiasciurus hudsonicus*), and Eastern Gray Squirrel (*Sciurus carolinensis*). — THOMAS BAPTIST (co-compiler), THOMAS BURKE, and GARY PALMER (co-compiler) 34 Field Rd., Cos Cob, Conn., (members of Mianus Naturalists of Greenwich Audubon Society).

7. UPLAND MIXED PINE - SPRUCE-HARDWOOD PLANTATION. — **Location:** New York; on S side of Brown Rd., near intersection with Vandermark Rd., 3.5 mi W of Alfred, 42°7'30"N, 77°45'W; Andover Quadrangle, USGS. **Continuity:** Established 1974; 2 years. **Size:** 16.6 ha = 41 acres; roughly rectangular; perimeter measured with tape and compass. **Description of Area:** See AB 28: 699-700 (1974). **Weather:** Data provided by the Alfred Cooperative Weather Station indicated that although snowfall was normal during the study period, the mean temperature was 12°F above normal in December and 4.5° above normal in January. The ground was snow-covered on all trips. At least one stream remained open throughout the period; cone production was good this year. **Coverage:** Dec. 27, 30; Jan. 4-5, 7-8, 11, 15, 17, 20, 23-24, 28, 30-31, Feb. 2, 5, 10 Total trips was 8 (with no field-

assistants this year, only half the study area was covered at a time), with coverage varying from 1000 to 1645 EST and totaling 22 hours of field work. Three short trips were made between 2100 and 2300 to listen for owls **Count:** Black-capped Chickadee, 14 (84, 34), Blue Jay, 5 (30, 12); Evening Grosbeak, 3 (18, 7), White-breasted Nuthatch, 2 (12, 5); Red-breasted Nuthatch, 2 Brown Creeper, 2; Ruffed Grouse, 1 (6, 2), Turkey, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; Am. Goldfinch, 1; Pileated Woodpecker, +; Winter Wren, +. **Average Total:** 33 birds (199/km², 80/100 acres). **Remarks:** Golden-crowned Kinglet, second most abundant species last year, was totally absent this year. Thanks is extended to Robert Place for weather data. — ELIZABETH W. BROOKS, Water Wells Rd., Alfred Station, N.Y. 14803.

8. MATURING UPLAND RED PINE-WHITE PINE PLANTATION. — **Location:** New York, 2 miles W of Alfred. The plot is part of the state "re-forestation area" that lies between Randolph Rd. and Water Wells Rd. near the western boundary of the Township of Alfred, Allegany County; 42°7'30"N, 77°45'W; Andover Quadrangle, USGS. **Continuity:** Established 1971; 4 intermittent years. **Size:** 15.4 ha = 38 acres; nearly square, measured by tape and compass. **Description of Area:** Described in AFN 24: 754 (1970). **Weather:** The winter of 1974-75 was fairly mild with no major storms. The total snowfall was 14 in. in January and 12 in. in February. The largest 24-hour amount was 3 in. There was a continuous snow cover under the pines on the study plot. The average highs and lows recorded at the U.S. Cooperative Weather Station at Alfred were 36° and 19°F in January and 35° and 18° in February. The weather was generally favorable on count days; the maximum daily temperature on these days ranged from 26° to 37°. **Food:** As in previous years, the low productivity of seed cones on the pines and the lack of fruiting shrubs limited the available food to the insect life on the stems and foliage of the pines and on the few dead tree stems that are present. **Coverage:** Jan. 13, 22, 31; Feb. 4, 5, 11, 12, 19. Total 8 trips, all between 0935 and 1530 EST. Observer time averaged 100 minutes per trip. **Count:** Black-capped Chickadee, 26 (169, 68); Red-breasted Nuthatch, 4 (26, 11); Brown Creeper, 3 (20, 8); Ruffed Grouse, 1 (7, 2); White-breasted Nuthatch, 1; Golden-crowned Kinglet, 1. **Average Total:** 36 birds, 234/km² 95/100 acres. **Remarks:** A small flock of Evening Grosbeaks was heard flying over the plot during two trips. The tracks of one or two Turkeys were seen in the fresh snow on two trips. An unidentified owl was glimpsed on one trip. Blue Jays and woodpeckers (tapping) were heard in the vicinity of the plot but never on the plot. The chickadees and Red-breasted were noted on all trips, the creepers on seven, the grouse on four, and the White-breasted and kinglets on five. — CLARENCE W. KLINGENSMITH, Alfred Univ., Alfred, N.Y. 14802.

9. BIRCH-TULIP FOREST. — **Location:** Pennsylvania; Lancaster County, 3 mi W of Wakefield (Peach Bottom P.O.) on the E shore of the Susquehanna River, directly across the river from Peach Bottom

Atomic Power Station (York County); 39°46'26"N, 76°14'W, Quarryville Quadrangle, USGS. **Continuity:** New. (Breeding Bird Survey, 1974.) **Size:** 8.1 ha = 20 acres, 836 ft by 1045 ft, tape measure and compass. **Description of Area:** See AB 28: 993 (1974). The dominant canopy trees are Sweet Birch (*Betula lenta*), Tulip-tree (*Liriodendron tulipifera*), Chestnut Oak (*Quercus prinus*), and Red Maple (*Acer rubrum*). Average canopy height, 79 ft. **Weather:** Temperature during census trips averaged 36°F during December, 26° in January and 24° in February (extremes 15°-37°). The sky was clear on 5 trips, partly cloudy to heavy overcast on 5 trips. There was frost on the ground for 3 of the first 4 trips and snow (1 to 3 in) for 5 of the last 6 trips. High winds were a factor on only one trip. **Coverage:** Dec. 20, 27; Jan. 6, 10, 17, 23; Feb. 3, 7, 14, 20. The trips averaged 1 hr, 40 min, and were conducted between 0745 and 1000 EST. **Count:** White-throated Sparrow, 100 (1236, 500); Dark-eyed (Slate-colored) Junco, 18 (222, 90); Black-capped Chickadee, 12 (148, 60); Am. Goldfinch, 11 (136, 55); Cardinal, 9 (111, 45); Carolina Wren, 6 (74, 30); Downy Woodpecker, 4 (49, 20); Tufted Titmouse, 3 (37, 15); Red-bellied Woodpecker, 2 (25, 10); Com. Crow, 2; Rufous-sided Towhee, 2; Bobwhite, 1 (12, 5); Com (Yellow-shafted) Flicker, 1; Sharp-shinned Hawk, +; Ring-necked Pheasant, +; Mourning Dove, +; Hairy Woodpecker, +; White-breasted Nuthatch, +; Winter Wren, +; Am. Robin, +; Hermit Thrush, +; Purple Finch, +; Song Sparrow, +. **Average Total:** 171 birds (2113/km², 855/100 acres). **Remarks:** Total species, 23. Fruits of the Sweet Birch, Tulip-tree, Japanese Honeysuckle (*Lonicera japonica*), and Poison Ivy (*Rhus radicans*) persisted throughout the study period. Seven species were seen on all trips: Downy Woodpecker, Black-capped Chickadee, Tufted Titmouse, Carolina Wren, Cardinal, Am. Goldfinch, and White-throated Sparrow. Six species were seen on only one trip: Bobwhite, Ring-necked Pheasant, Mourning Dove, White-breasted Nuthatch, Hermit Thrush, and Purple Finch. Mammals observed during the study period were the Gray Squirrel (*Sciurus carolinensis*) and E. Cottontail (*Sylvilagus floridanus*). Tracks of the Raccoon (*Procyon lotor*), Opossum (*Didelphis marsupialis*) and White-tailed Deer (*Odocoileus virginianus*) were seen. This census is part of a continuing study to investigate and monitor the environmental conditions in the vicinity of the proposed Fulton Generating Station. — JEFFREY DIETZ, E. TERRY EUSTON, and ROBERT M. SCHUTSKY (compiler), *Ichthyological Associates, Inc., P.O. Box 12, Drumore, PA. 17518.*

10. DISTURBED UPLAND OAK FOREST. —

Location: Pennsylvania; Lycoming Co., Williamsport Municipal Watershed, 8 mi SW of Williamsport; 41°10'N, 77°04'W, Williamsport Quadrangle, USGS. **Continuity:** New. **Size:** 10.1 ha = 25 acres (irregular, surveyed).; **Description of Area:** The plot is part of a 104-acre timber sale which was completed in August 1974. Owing to the low quality of the dominant trees, all trees in excess of 2 in. DBH were felled except for selected seed trees. Prior to cutting, the stand had an average of 318 trees/acre; trees/acre by DBH class: 2-6 in, 187, 6-11 5 in, 104 5, 11 5-17 5 in, 22 2, 17 5 in

+ 3.8. Total basal area, 80 sq ft/acre. The trees over 6 in DBH were 53% Chestnut Oak (*Quercus prinus*), 13% White Oak (*Q. alba*), 13% Red Oak (*Q. rubra*), 13% Scarlet Oak (*Q. coccinea*), 8% other species including White Pine (*Pinus strobus*), Pitch Pine (*P. rigida*), Pignut Hickory (*Carya glabra*), Black Birch (*Betula lenta*), Black Oak (*Q. velutina*), Red Maple (*Acer rubrum*) and Sour Gum (*Nyssa sylvatica*); 14.5% of the oaks were dead. There were 3600 tree seedlings less than 2 ft tall/acre prior to cutting; 2100 Chestnut Oak, 1200 Red Maple, 200 White Oak and 100 of other species. Ground cover, 47% (41,700 stems/acre); composition primarily Black Huckleberry (*Gaylussacia baccata*), Early Low Blueberry (*Vaccinium vacillans*) and Mountain Laurel (*Kalmia latifolia*). Presently there is an average of 7.1 seed trees/acre, 60% Red Oak, 30% Black Birch, 7% Black Oak and 3% other species, average height 57 ft; average DBH 10.5 in. Tree seedlings and ground cover remain the same but there is the addition of the tops and other unmerchantable portions of the cut trees covering 27% of the plot; based on 1/1000 and 1/20 acre plots and variable plot cruise. There is a 1½ acre loading area of disturbed soil which will be planted with a grass-legume mixture in the Spring of 1975. Plant names are from Petrides, *A Field Guide to Trees and Shrubs*, 2nd Ed. **Edge:** Bordered on E by area similar to study plot; S and W by forest similar to before cutting; on NW by an old oil field and orchard reverting to woodland; and on NE by a conifer plantation. **Water:** There is a pond about 25 ft in diameter ¼ mi within the disturbed area, and streams about ¼ mi NE and ¼ mi W in undisturbed forest. **Topography:** NW slope. Elevation, 1320-1440 ft. The plot is in a valley between parallel ridges running NE-SW (ridgetop elevation 1710-1980 ft). **Weather** (From Williamsport airport; 30-year averages in parentheses): Mean temperature: Dec. 34.1° F (30 2°), Jan. 30.6° (27.2°); precipitation: Dec. 4.50 in (3.10 in), Jan. 3.53 in (2.52 in); snowfall: Dec. 4.6 in (9.8 in), Jan. 15.4 in (9.4 in). During counts the temperature varied from 22° to 40° F (mean 30°); skies were overcast on 6 trips with snow flurries on 3; ground snow-covered on 6 trips. **Coverage:** Nov. 29; Dec. 7, 15, Jan. 1, 4, 12, 18; Feb. 2. Total, 8 trips averaging 75 min., between 0822 and 1440. **Count:** Hairy Woodpecker, 4 (40, 16); Downy Woodpecker, 2 (20, 8), Dark-eyed Junco, 2; Red-tailed Hawk, +; Blue Jay, +, Black-capped Chickadee, +; White-breasted Nuthatch, +; Brown Creeper, +. **Average Total:** 8 birds (79/km², 32/100 acres). **Remarks:** Juncos were seen only on the two trips when there was no snow cover. Of the woodpeckers sighted, 72% were first noted on the logging slash, which contains large numbers of beetle larvae. When flushed, the woodpeckers seemed reluctant to leave the cut area, usually circling the observer to return to the general location from which they had flown. White-tailed Deer were seen on 5 trips; apparently 2 does and 3 fawns were feeding on the study area. Tracks of E. Cottontail, Red Fox and weasel sp also were noted. Appreciation is extended to the Williamsport Municipal Water Authority for permission to conduct the study on the Watershed. — CHARLES E SCHWARZ, 1405 Pine Crest Dr., South Williamsport, PA. 17701.

11. MATURE DECIDUOUS FLOODPLAIN FOREST. — **Location:** Maryland; Glen Echo, 2½ miles NW of the District of Columbia, between C. and O Canal and Potomac River. **Continuity:** established 1948. 24 intermittent years. **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:** The winter was relatively mild with little snow. Temperatures on walks averaged 40° F. On three trips there was light snow on the ground. **Coverage** Dec. 22, 25, 28; Jan. 5, 12, 18, and 19 (3 trips); Feb. 2, 9, 15, (2 trips), 17. Total, 14 trips averaging 2 34 hours; 13 between 0730 and 1230 and one between 1400 and 1615. **Count:** Starling 39 (219, 88); Com. Crow, 18 (101,41); Carolina Chickadee, 18; Carolina Wren, 10 (56, 23); Cardinal, 7 (39, 16); Downy Woodpecker, 6(34, 14); Tufted Titmouse 5(28, 11); Purple Finch, 5; White-throated Sparrow, 5; Blue Jay, 4 (22, 9), Am. Goldfinch, 4; Mourning Dove, 3 (17, 7); Song Sparrow, 3; Dark-eyed Junco, 2 (11, 5); Pileated Woodpecker, 1 (6, 2); Red-bellied Woodpecker, 1; White-breasted Nuthatch, 1; Brown Creeper, 1; Mockingbird, 1; Turkey Vulture, +; Am. Kestrel, +; Rock Dove, +; Barred Owl, +; Am. Robin, +; Ruby-crowned Kinglet, +. **Average Total:** 134 birds (75/km², 304/100 acres). **Remarks:** Seen on the water near the area: Horned Grebe, Great Blue Heron, Mallard, Black Duck, Bufflehead, Hooded Merganser, Com. Merganser, Great Black-backed gull, Herring Gull, Belted Kingfisher. Total species observed was 29, only slightly above the average of 27. The average total of 134 was somewhat below last year's 145 but still at about the same level of abundance. — *JOAN CRISWELL (compiler), WILLIAM H. CRAMER, RICHARD GAUTHEY, DAVID MEHLMAN, DONALD MEHLMAN, MIEKE MEHLMAN, BARBARA MILLER (Members of Audubon Naturalist Society, 8940 Jones Mill Rd., Washington, D.C. 20015).*

12. HICKORY-OAK-ASH FLOODPLAIN FOREST. — **Location:** Maryland; floodplain of Middle Patuxent River due west of Hobbits Glen Golf Course, Columbia, Howard County. 39°13'10''N, 76°54'45''W, Clarksville Quadrangle, USGS. **Continuity:** Established 1972; 4 consecutive years. **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 Pig-nut Hickory (*Carya glabra*), Red Oak (*Quercus rubra*), and Green Ash (*Fraxinus pennsylvanica*). Average canopy height, 39 feet. **Weather:** Exceptionally mild and open late fall and winter for the third consecutive year. January temperatures at Clarksville ranged from 15° to 74°F with a mean of 36.5, about 4° above normal. January snowfall totaled 9 in. Temperatures ranged from 15° to 36° on the morning counts and from 33° to 43° on the afternoon counts. Winds were less than 5 mph on six trips, from 5 to 10 on one, and from 10 to 15 on one. Five counts were made under clear skies and three on cloudy days (with light rain on two). There was light snow cover on four trips. **Coverage:** Jan. 4, 5, 18, 19; Feb. 1, 7, 9, 15. Total, 8 trips averaging 2 hours, 43 minutes. The four morning trips started in the

first 10 minutes after sunrise and the four afternoon trips ended within 30 minutes of sunset. **Count:** Cedar Waxwing, 39 (212, 86); Yellow-rumped Warbler, 19 (103, 42); White-throated Sparrow, 13 (71, 29); Downy Woodpecker, 11 (60, 24); Carolina Chickadee, 11, Cardinal, 10 (54, 22); Purple Finch, 8 (43, 18); Com. Flicker, 6 (33, 13); Tufted Titmouse, 6; Red-bellied Woodpecker, 4 (22, 9); Carolina Wren, 4; Evening Grosbeak, 4; Blue Jay, 3 (16, 7); White-breasted Nuthatch, 3; Dark-eyed (Slate-colored) Junco, 3; Hairy Woodpecker, 2 (11, 4); Am. Robin, 2; E. Bluebird, 2, Am. Goldfinch, 2; Rufous-sided Towhee, 2; Barred Owl, 1 (5, 2); Belted Kingfisher, 1; Pileated Woodpecker, 1; Yellow-bellied Sapsucker, 1; Com. Crow, 1, Winter Wren, 1; Hermit Thrush, 1; Starling, 1; Wood Duck, +; Red-tailed Hawk, +; Red-shouldered Hawk, +; Mourning Dove, +; Great Horned Owl, +; Mockingbird, +; Brown Thrasher, +; Golden-crowned Kinglet, +; Ruby-crowned Kinglet, +; Swamp Sparrow, +; Song Sparrow, +. **Average Total:** 162 birds (880/km², 356/100 acres). **Remarks:** Total species, 39. The following 9 species were seen on all 8 counts: Red-bellied Woodpecker, Downy Woodpecker, Carolina Chickadee, Tufted Titmouse, Carolina Wren, Yellow-rumped Warbler, Cardinal, Purple Finch, and White-throated Sparrow; the Belted Kingfisher, Com. Flicker, Hairy Woodpecker, White-breasted Nuthatch, and Rufous-sided Towhee were found on all except one. Species found on only one trip were: Wood Duck, Great Horned Owl, Com. Crow, Brown Thrasher, Golden-crowned Kinglet, Cedar Waxwing (a flock of 309 individuals!), and Swamp Sparrow. The crop of native berries, especially Poison Ivy (*Rhus radicans*), Black Haw (*Viburnum prunifolium*), and Bittersweet (*Celastrus scandens*), was unusually heavy and provided an abundance of food throughout the census period. In an independent study of the same plot, 22 trips were taken by A.D. Geis, Mark Larson, Tom Franklin, and Tom Andres, who recorded 5 species not seen during the Winter Bird-Population Study: Brown Creeper, average of 0.59; House Sparrow, 0.14, Brown-headed Cowbird, 0.09; Great Blue Heron, 0.05, and Field Sparrow, 0.05. The following new wintering species were recorded in the plot this winter: Wood Duck, Am. Woodcock, Great Horned Owl, Brown Thrasher, Cedar Waxwing, House Sparrow, Brown-headed Cowbird, Field Sparrow, and Swamp Sparrow. Even excluding the 1-day invasion of Cedar Waxwings, which resulted in an average of 39 individuals for the season, the number of individuals wintering in the plot was the second highest in the four years of this study. Yellow-rumped Warblers, although only one-third as plentiful as in 1972, were in much higher numbers than in 1973 and 1974. Numbers of most species were comparable to the previous three years.—*CHANDLER S. ROBBINS, U.S. Fish and Wildlife Service, Laurel, Md 20811.*

13. UPLAND TULIP-TREE-MAPLE-OAK FOREST. — **Location:** Maryland; west edge of Middle Patuxent River Valley, southwest of Hobbits Glen Golf Course at Columbia, Howard County, 39°12'55''N, 76°54'40''W, Clarksville Quadrangle, USGS. **Continuity:** Established 1972; 3 intermittent years. **Size:** 11 98 ha = 29 6 acres (basically rectangu-

lar, 1125 ft. north-south by 1000 ft. east-west, but irregularly extending farther in each direction where uniformity of habitat permits). **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 and open late fall and winter for the third consecutive year. January temperatures at Clarksville ranged from 15° to 74° F with a mean of 36.5, about 4° above normal. January snowfall totaled 9 inches. Temperatures ranged from 25° to 60° on the four morning counts and from 32° to 42° on the four afternoon counts. Winds 0 to 8 mph. Four counts were made under clear skies and four on cloudy days (with light sprinkles on two). **Coverage:** Jan. 5, 11-12, 19; Feb. 2, 8-9, 14. Total, 8 trips averaging 2 hours, 2 minutes. The 4 morning trips started at local sunrise and the 4 afternoon trips ended between 5 and 50 minutes before sunset. **Count:** Am. Robin, 27 (225, 91); White-throated Sparrow, 8 (67, 27); Evening Grosbeak, 7 (58, 24); Carolina Chickadee, 5 (42, 17); Carolina Wren, 4 (33, 14); Cardinal, 4; Com. Crow, 3 (25, 10); Purple Finch, 3; Downy Woodpecker, 2 (17, 7); Mourning Dove, 1 (8, 3); Com. Flicker, 1; Red-bellied Woodpecker, 1; Tufted Titmouse, 1; Brown Creeper, 1; E. Bluebird, 1; Hermit Thrush, 1; Cedar Waxwing, 1; Yellow-rumped Warbler, 1; Am. Goldfinch, 1; Turkey Vulture, +; Sharp-shinned Hawk, +; Barred Owl, +; Pileated Woodpecker, +; Hairy Woodpecker, +; Blue Jay, +; White-breasted Nuthatch, +; Winter Wren, +; Golden-crowned Kinglet, +; Dark-eyed (Slate-colored) Junco, +. **Average Total:** 72 birds (601/km², 243/100 acres). **Remarks:** Total species, 29. Average number of birds flying over the plot: Com. Grackle, 15; Red-winged Blackbird, 5; Com. Crow, 4; Fish Crow, +; Starling, +; House Sparrow, +. Only the Carolina Chickadee, Carolina Wren, and Cardinal were found on all trips; the Downy Woodpecker, Purple Finch, and White-throated Sparrow were seen on all except one. The following species were found on only one trip: Turkey Vulture, Sharp-shinned Hawk, Blue Jay, Winter Wren, Golden-crowned Kinglet, Cedar Waxwing, Yellow-rumped Warbler. An unusually heavy crop of berries was responsible for the wintering Hermit Thrushes and for the visits by large flocks of robins that were wintering in the vicinity. In an independent study of the same plot, 34 trips were taken from late December to late February by A.D. Geis, Tom Franklin, Mark Larson, and Tom Andres, who recorded 6 species not seen during the Winter Bird-Population Study: Yellow-bellied Sapsucker, average of 0.1; Red-breasted Nuthatch, 0.1; Great Horned Owl, 0.03; Starling, 0.03; Com. Grackle, 0.03; and Field Sparrow, 0.03. The more intensive coverage by the Geis team showed that the high robin count found on the 8 trips reported herein was atypical and had unduly raised the average population for the study plot this season; they ranked the robin in ninth position instead of first. The total density this winter, excluding the robins, was almost identical with that of 1972. The following new species were recorded in the plot this winter: Hermit Thrush, E. Bluebird, Cedar Waxwing, Com. Grackle, and Field Sparrow.—*CHANDLER S. ROBBINS, U.S. Fish and Wildlife Service, Laurel, Md 20811*

14. MIXED HARDWOOD FOREST. — **Location** Maryland; Calvert Co., NW of Plum Point and 1 mi inland from Chesapeake Bay, on Tobacco Road between State Routes 263 and 261. **Size:** 11.3 ha = 28 acres. **Continuity:** Established 1959; 17 consecutive years. **Description of Area:** See *AFN* 13: 333, 1959. **Weather:** The sky was clear on 7 of the 10 census days. The ground was snow covered on 2 days. The period was marked by high winds which felled numerous trees and by generally milder temperatures. High temperatures on census days varied between 41° and 61° F. Skunk Cabbages were noted very early on Jan. 12. The creek flowed continually and the bog remained mostly free of ice. **Coverage:** Dec. 27; Jan. 4-5, 8, 12, 17, 24-25; Feb. 3, 9. Ten trips, averaging 81 minutes, started between 1010 and 1115 EST. **Count:** Yellow-rumped Warbler, 6 (53, 21); Carolina Chickadee, 5 (44, 18); Tufted Titmouse, 4 (35, 14); Carolina Wren, 4; Cardinal, 4; Purple Finch, 3 (26, 11); Dark-eyed Junco, 3; White-throated Sparrow, 3; Red-bellied Woodpecker, 2 (18, 7); Downy Woodpecker, 2; Com Crow, 2; Com Flicker, 1 (9, 4); Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 1; Brown Creeper, 1; E. Bluebird, 1; Pine Siskin, 1; Field Sparrow, 1; Song Sparrow, 1; Red-tailed Hawk, +; Am. Woodcock, +; Belted Kingfisher, +; Pileated Woodpecker, +; Blue Jay, +; Winter Wren, +; Hermit Thrush, +; Golden-crowned Kinglet, +; Am. Goldfinch, +. **Average Total** 46 birds (406/km², 164/100 acres). **Remarks:** The average totals showed that the winter bird population in this study area increased after losses for 3 consecutive years. Last year's averages were 37 birds and 132/100 acres, an all-time low. However, the densities were well below the 17-year averages of 60 birds and 218/100 acres. The Yellow-rumped Warbler was the most numerous species for the first time. It was third in 1970. The Carolina Chickadee and the Tufted Titmouse both showed increases after losses last year. The Cardinal, which has always been the most numerous species, showed a 50% loss from last year. This cannot be explained as this species was numerous outside the study area. However, it also showed a loss in the breeding-bird census in this plot last summer. There were no other serious losses. The Belted Kingfisher and the Pine Siskin occurred for only the second time, and the Song Sparrow was unrecorded since 1962. A total of 28 species was recorded, the same as last year.—*JOHN H. FALES, Ridge Road, Neeld Estate, Huntingtown, Md. 20639.*

15. FOREST DEVELOPING AFTER CULTIVATION. — **Location:** Maryland; 5 mi NE of Hampstead on the watershed of Prettyboy Reservoir, 0.2 mi NE of Beckleysville crossroads; 39°39'N., 76°47'W Lineboro Quadrangle, USGS. **Continuity:** Established 1969. **Size:** 8.1 ha = 20 acres. **Description of Area:** See *AFN* 23:528 (1969) and 28:701 (1974). **Weather:** During the study period there were 7 nights on which the temperature did not go below freezing and 7 days on which it did not go above freezing. The lake was never completely covered with ice. Precipitation was abundant, but the only measurable snow was 9 cm accumulated during the last 10 days of the study. Temperatures during hours of counting ranged from 15° to 50° F. **Coverage** Dec 28, 30, Jan 4, 12, 18, , 26, Feb 1, 8

Total, 8 trips, averaging 90 minutes each, between 0750 and 1020 EST. **Count:** Carolina Chickadee, 3 (37, 15); Am. Goldfinch, 2 (25, 10); Downy Woodpecker, 1 (12, 5); Blue Jay, 1; Com. Crow, 1; Brown Creeper, 1; Carolina Wren, 1; Yellow-rumped Warbler, 1, White-throated Sparrow, 1; Buteo sp. +; Com. Flicker, +; Tufted Titmouse, +; White-breasted Nuthatch, +; Red-breasted Nuthatch, +; Winter Wren, +, Am. Robin, +; Hermit Thrush, +; Ruby-crowned Kinglet, +; Cardinal, +. **Average Total:** 12 birds (148/km², 60/100 acres.) **Remarks:** seen flying over: Black Duck, Turkey Vulture, Starling and Com. Grackle. The population this year was much higher than last, but still well below the 7-year average.—*HAVEN KOLB, Rt 1, Box 147A, Millers, Md. 21107.*

16. CENTRAL HARDWOOD FOREST WITH SCATTERED PINE — **Location:** Washington, D.C.; Rock Creek Park, lying S of Military Rd. and W of Rock Creek. **Continuity:** Established 1948; 22 intermittent years. **Size:** Until 1961, 80 acres; since 1961, 26.3 ha = 65 acres (triangular, surveyed). **Description of Area:** See *AFN* 2:153-154, 1948. **Weather:** During trips the temperature ranged from 26 to 57° F, with average of 41°; wind 10 mph or less, except up to 15 mph on 2 trips. Sky was clear on 3 trips; no snow cover or precipitation during trips. **Coverage:** Jan. 1, 15; Feb. 8, 16-17, 22. Total, 6 trips, averaging 1.85 hours duration, between 0825 and 1330 EST. **Count:** Carolina Chickadee, 12 (46, 18); Tufted Titmouse, 7 (27, 11); Blue Jay, 5 (19, 8); White-throated Sparrow, 5, Red-bellied Woodpecker, 4 (15, 6); White-breasted Nuthatch, 4; Downy Woodpecker 3 (11, 5); Carolina Wren, 3; Dark-eyed Junco, 2 (8, 3); Turkey Vulture, 1 (4,2); Pileated Woodpecker, 1; Com. Crow, 1; Brown Creeper, 1; Starling, 1; Cardinal, 1; Red-shouldered Hawk, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; Mockingbird, +; Am. Robin, +; Golden-crowned Kinglet+; Purple Finch, +. **Average Total:** 51 birds (194/km², 78/100 acres). **Remarks:** Changes from last year: total population, down 1; total species, up 7; greatest individual species changes, White-throated Sparrows (up 5 from zero), and Com Crow (down 4). The White-throated Sparrow population established a new maximum this year.—*C.E. CRAVEN, Audubon Naturalist Society, 8940 Jones Mill Rd., Washington D.C. 20015.*

17. UPLAND OAK-HICKORY HARDWOOD FOREST. — **Location:** Virginia; Dranesville District (formerly Burling) Park, McLean, Fairfax County. **Continuity:** Established 1971; 5 years. **Size:** 11.01 ha = 27.2 acres. **Description of Area:** See *AB* 25:636 (1971) and *Atlantic Naturalist* 26 (2): 77-78. **Weather:** Generally mild. Temperature on the trips varied from 24° to 60°, the average being 41.6°F. Light rain occurred on two trips and light snow on one. The ground was bare except on two trips when several inches of snow remained from a fall of 4-6 in. on Feb. 4. **Coverage:** Jan. 2, 11, 24, 26; Feb. 1, 8, 9, 14, 16. Total, 9 trips, between 0730 and 1050 or 1255 and 1745, averaging 1 hour and 45 minutes. **Count:** Com. Crow, 4 (36, 15); Red-bellied Woodpecker, 2 (18, 7); Carolina Chickadee, 2; Tufted Titmouse, 2; White-breasted Nuthatch, 2, Hairy Woodpecker, 1 (9, 4), Downy

Woodpecker, 1; Brown Creeper, 1; Ruby-crowned Kinglet, 1; Sharp-shinned Hawk, +; Mourning Dove, +; Great Horned Owl, +; Pileated Woodpecker, +, Yellow-bellied Sapsucker, +; Blue Jay, +; Carolina Wren, +; Mockingbird, +; Golden-crowned Kinglet, +; Cardinal, +. **Average Total:** 16 birds (145/km², 59/ 100 acres).—*JOAN CRISWELL, BEN FERN, JESSICA M. GIUSTI, PAUL and JOAN WOODWARD, ROBERT J. WATSON (compiler), 2636 Marcey Rd., Arlington, Va. 22207.*

18. UPLAND TULIP-TREE-OAK FOREST. — **Location:** Virginia; U.S. Geological Survey National Center, Reston, Fairfax County. 38°56'45''N, 77°21'50''W, Vienna Quadrangle, USGS. **Continuity** Established 1974; 2 years. **Size:** 20.6 ha = 50.9 acres **Description of Area:** See *AB* 28: 701-702 (1974) and *AB* 28: 1003-1004 (1974). **Weather:** The sky was clear on 2 trips, partly cloudy on 3 trips, overcast on 7 trips, and varied between clear and overcast on 2 trips. Temperatures ranged from 28° to 69° F. Winds were generally less than 15 mph. There was snow cover on Feb. 8. **Coverage:** Dec. 21-22, 28-29; Jan. 4-5, 11-12, 18-19, 26 (2 trips); Feb. 1, 8. Total, 14 trips, 6 between 0745 and 1020, totaling 12 hours; 2 between 1145 and 1415, totaling 4.3 hours; 6 between 1410 and 1630, totaling 10.4 hours. **Count:** Carolina Chickadee, 10 (49, 20); Tufted Titmouse, 4 (19, 8); Carolina Wren, 4, Dark-eyed Junco, 4; Red-bellied Woodpecker, 2 (10, 4); Downy Woodpecker, 2; Blue Jay, 2; White-breasted Nuthatch, 2; E. Bluebird, 2; Purple Finch, 2; Brown Creeper, 1 (5, 2); Am. Robin, 1; Golden-crowned Kinglet, 1; Starling, 1; Cardinal, 1; Com. Flicker, +, Pileated Woodpecker, +; Hairy Woodpecker, +; Com Crow, +; Yellow-rumped Warbler, +; Palm Warbler, +; Am. Goldfinch, +; White-throated Sparrow, + **Average Total:** 39 birds (189/km², 77/ 100 acres) **Remarks:** Acorns and Tulip-tree seeds were plentiful. Average number of individuals per count increased 95% over 1974. Golden-crowned Kinglets and Brown Creepers were the only species to decrease. The remains of a male Cardinal were found on Jan. 26, victim of an avian predator; no further Cardinals were seen through the end of the count period. We thank the Director's Staff, U.S. Geological Survey, particularly Phillip Cohen for their encouragement and cooperation.—*JOAN C. WOODWARD and PAUL W WOODWARD, 2433 Southgate Square, Reston, VA 22091.*

19. HARDWOOD-SOFTWOOD FOREST. — **Location:** North Carolina; North Wilkesboro. **Continuity** Established 1954. **Size:** 15.0 ha + 37 acres. **Description of Area:** Fully described in *AFN* 8: 280-281 (1954) except that area was doubled the following year. Since then construction of houses and roads had reduced the tract by 3 acres. **Weather:** Average temperature for January was 41.0° F. Precipitation was 4.08 in., all in form of rain. February average temperature was 41 7° with total precipitation of 4.05 in. Snow mixed with rain fell on the 5th with almost no accumulation. **Coverage:** Jan. 3, 17, 23; Feb. 21, 25; Mar. 6. Total, 6 trips, averaging 2¼ hours per trip. **Count:** Carolina Wren, 2 (13, 5); Screech Owl, 1 (7, 3); Barred Owl, 1; Com Crow, 1, Tufted Titmouse, 1, Winter Wren, 1, Cardinal, 1,

Red-bellied Woodpecker, +; Downy Woodpecker, +; Blue Jay, +; White-breasted Nuthatch, +; Am. Robin, +; Hermit Thrush, +; White-throated Sparrow, +. **Average Total:** 8 birds (53/km², 22/100 acres). **Remarks:** The lowest count in 22 years. Environment has changed little but winter influx of northern migrants has been less throughout the locality, and some resident species seem to have declined in number.— *WENDELL P. SMITH, 911 E St., North Wilkesboro, N.C. 28659.*

20. MATURE HARDWOOD FOREST. — **Location:** West Virginia; Weimer Nature Trail of Bethany College, Bethany, Brooke County, 40°15'45"N; 80°33'45" to 80°33'55"W; Bethany Quadrangle, USGS. **Continuity:** Established 1973; 2 years. **Size:** 12.1 ha = 30 acres (square). **Description of Area:** See *AB* 25:972 (1971). **Coverage:** Feb. 3-7, 10-14, 17-19, 21-22, 24-26. Total, 18 trips between 0800 and 1600. **Weather:** high and low temperatures on count days were 50° and 8°F respectively. There was snow on the ground 10 out of the 18 trips. On 6 trips it was snowing, on 2 it was raining. **Count:** Chickadee sp., 6 (49, 20), Tufted Titmouse, 6; Cardinal, 4 (33, 13); White-breasted Nuthatch, 3 (25, 10); Downy Woodpecker, 2 (16, 7); Com. Crow, 2; Carolina Wren, 1 (8, 3); Red-tailed Hawk, +; Ruffed Grouse, +; Pileated Woodpecker, +; Red-bellied Woodpecker, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; Brown Creeper, +; Winter Wren, +; Song Sparrow, +. **Average Total:** 25 birds (206/km², 83/100 acres).— *ALBERT R. BUCKLEW, JR., KENNETH VOORHIS, Compiler, Biology Dept., Bethany College, Bethany, W.Va. 26032.*

21. UPLAND PITCH PINE-WHITE PINE FOREST. — **Location:** Ontario; St. Lawrence Islands National Park, Mallorytown Landing, on the north side of Highway 2A, 13 mi W of Brockville. **Continuity:** Established 1974; 2 years. **Size:** 12.5 ha = 30.8 acres. **Description of Area:** See *AFN* 28: 702-703 (1974). **Weather:** Maximum snow depth at one time was 36 in. Official temperatures and precipitation could not be obtained. **Coverage:** Dec. 4; Jan. 13 (2 trips), 15; Feb. 3, 9. Total, 6 trips, four between 0805 and 1125, two between 1310 and 1615, averaging 84 minutes each. **Count:** Purple Finch, 7 (56, 23); Black-capped Chickadee, 6 (48, 19); Evening Grosbeak, 3 (24, 10); Ruffed Grouse, 2 (16, 6); Blue Jay, 2; White-breasted Nuthatch, 2; Tree Sparrow, 2; Downy Woodpecker, 1 (8, 3); Brown Creeper, 1; Pine Siskin, 1; Hairy Woodpecker, +; Golden-crowned Kinglet, +; Song Sparrow, +. **Average Total:** 27 birds (217/km², 88/100 acres). **Remarks:** An adult Bald Eagle flew over the census area on Feb. 9. Pine Siskins were observed on Dec. 4 and Evening Grosbeaks on Feb. 3 and 9. E. Cottontails, *Sylvilagus floridanus*, and a Gray Squirrel, *Sciurus carolinensis* (both black and gray phases) were abundant and a single Snowshoe Rabbit, *Lepus americanus*, was observed. The cooperation of Parks Canada and the staff at St. Lawrence Islands National Park is greatly appreciated. A. Brooks assisted on the count of Feb. 9.— *GEOFFREY L. HOLROYD, Dept. of Zoology, Univ. of Toronto, Toronto, Ontario, M5S 1A1.*

22. DECIDUOUS WOODS. — **Location:** Ohio; Shade-Wickwire Woods, Reed Township, Seneca

County, ¼ mi. E. of State Route 4, and ¼ mi. S of Township R 106; 41°05'N, 82°52'W. **Continuity:** Established 1974; 2 years. **Size:** 16.2 ha = 40 acres. **Description of Area:** See *AB* 28: 710 (1974). **Weather:** The skies were overcast on 5 trips. It was snowing on 2 of the trips. Less snow this year than in past years. Temperatures ranged from 20° to 45° F with the average 31°. **Coverage:** Jan. 9, 15, 25, 30; Feb. 14, 19. Total of 13 hours, averaging 2¼ hours per trip. **Count:** Black-capped Chickadee, 9 (56, 23); Downy Woodpecker, 7 (43, 18); Tree Sparrow, 6 (37, 15); Tufted Titmouse, 3 (19, 8); White-breasted Nuthatch, 3; Red-bellied Woodpecker, 2 (12, 5); Blue Jay, 2; Cardinal, 2; Red-tailed Hawk, 1 (6, 3); Hairy Woodpecker, 1; Horned Lark, 1; Song Sparrow, 1; Mourning Dove, +; Screech Owl, +; Great Horned Owl, +; Com. Flicker, +; Com. Crow, +; House Sparrow, +. **Average Total:** 39 (241/km², 98/100 acres). **Remarks:** Average total of individuals dropped from 120 in 1972 (unpublished study), to 72 in 1974, to 39 in 1975. My only explanation is that the winters have been progressively milder and food more abundant. The decline in number of species has not been as severe. Horned Larks were observed and heard flying over the wood lot on all trips. A female Marsh Hawk flew over on one trip and 100+ Snow Buntings were observed in an adjoining field.— *H. THOMAS BARTLETT, P.O. Box 303, Tiffin, Ohio 44883.*

23. BEECH-MAPLE SWAMP FOREST MOSAIC. — **Location:** Ohio; Hardin Co., on the south side of County Road 80 at the intersection of Van Atta Road, 4 mi. SE of Ada (NW ¼ NW ¼ of Section 11, T4S, R9E). **Continuity:** New. **Size:** 8.3 ha = 20.5 acres, 3 contiguous rectangular areas, 295 x 466 ft, 500 x 700 ft, 400 x 1012 ft (measurements taken from a surveyor's plat). **Description of Area:** The woodlot is primarily a beech-maple association, but also has a few swamp forest species. The trees average about 40-50 ft in height and about 8-10 in. DBH. Major species of trees are Sugar Maple (*Acer saccharum*), 25%; Shagbark Hickory (*Carya ovata*), 20%; Beech (*Fagus grandifolia*), 15%; White Ash (*Fraxinus americana*), 15%; Bitternut Hickory (*Carya cordiformis*), 10%; Swamp White Oak (*Quercus bicolor*), 5%; Green Ash (*Fraxinus pennsylvanica*), 5%; miscellaneous hardwood species, 5%. Major understory trees and shrubs are Ironwood (*Carpinus caroliniana*), Hornbeam (*Ostrya virginiana*), Com. Spicebush (*Lindera benzoin*), and Poison Ivy (*Rhus radicans*). These understory plants average 10-20 ft in height and in many places are so thick they impede walking. The woodlot has been logged in the past, the last time about 1955. **Topography:** Flat, elevation 1000 ft. The area is on the north side of a broad end moraine that divides the Ohio River and Lake Erie drainages. **Water:** There are two 20 x 30 ft temporary ponds and a number of smaller temporary pools. A 2 ft wide natural ditch drains the area. Water was frozen during the time of the census. **Edge:** Approximately 40% of the study area is bordered by similar wooded areas, 40% by cultivated fields and 20% by an abandoned field. **Weather:** The average temperature during the time of the counts was 34°F with a range from 30° to 39°. Snow was falling during 3 trips and

1-3 in of snow was on the ground during 6 trips. Average maximum and minimum temperatures for the general area were 34° and 20° respectively, with an average of 27°. A total of 9.5 in of snow fell with a total rain and melted snow value of 2.92 in. (data from Ray Burkholder, U.S. Weather Observer, Pandora, Ohio, 15 miles NW. **Coverage:** Jan. 4-5, 12, 18-19; Feb. 1, 4, 15. Total, 8 trips, between 1415 and 1730, averaging 80 minutes each. **Count:** Dark-eyed (Slate-colored) Junco, 7 (84, 34); Downy Woodpecker, 2 (24, 10); White-breasted Nuthatch, 2; Tree Sparrow, 2; Red-bellied Woodpecker, 1 (12, 5); Hairy Woodpecker, 1; Carolina Chickadee, 1; Tufted Titmouse, 1; Brown Creeper, 1; Cardinal, 1; Song Sparrow 1; Com. Flicker, +, Blue Jay, +; Yellow-rumped (Myrtle) Warbler, +; Com. Grackle, +; Am. Goldfinch, +. **Average Total:** 20 birds (density, 241/km², 98/100 acres). **Remarks:** Juncos were observed on every trip, usually in a flock of 6-10. Only 10-20% of the juncos were females. On four counts Tree Sparrows were seen in flocks of 3-5 birds. Juncos and Tree Sparrows were always observed along the edge of the woodlot. Mixed species flocks were common and often composed of the Downy Woodpecker, Carolina Chickadee, Tufted Titmouse, and Brown Creeper. On 2 trips the Yellow-rumped Warbler was observed eating Poison Ivy berries.—NELSON J. MOORE, Dept. of Biology, Ohio Northern Univ., Ada, Ohio 45810.

24. OLD GROWTH BEECH-TULIP-TREE-BLACK GUM FOREST. — **Location:** Indiana; South Officer's Woods, 1 mile SE of Volga, Jefferson County, 38°46'N, 85°30'W, Volga Quadrangle, USGS. **Continuity:** Established 1972; 3 years. **Size:** 10.08 ha = 24.9 acres. **Description of area:** See AB 25: 979-980 (1971). **Weather:** A mild winter with more rain and less snow than usual. On count days, snow cover was absent except for a trace once. Temperatures during daytime counts ranged from 28 to 55°F; wind, 0 to 15 mph; sky mostly clear twice, overcast 3 times, and partly cloudy 3 times; no precipitation during counts. **Coverage:** Jan. 11, 18, 28; Feb. 1, 8, 15, 22, 26 (night), 27. Total, 8 daylight (4 morning and 4 afternoon) trips averaging 148 minutes and ranging from 136 to 179 minutes, plus one night trip of 53 minutes and ranging from 136 to 179 minutes, plus one night trip of 53 minutes. **Count:** Carolina Chickadee, 7 (69, 28); Cardinal, 6 (60, 24); Tufted Titmouse, 5 (50, 20); Red-bellied Woodpecker, 2 (20, 8); Downy Woodpecker, 2; White-breasted Nuthatch, 2; Golden-crowned Kinglet, 2; Pileated Woodpecker, 1 (10, 4); Hairy Woodpecker, 1; Blue Jay, 1; Com. Crow, 1; Brown Creeper, 1; Carolina Wren, 1; Am. Goldfinch, 1; Mourning Dove, +; Barred Owl, +; Great Horned Owl, +; Com. Flicker, +; Red-headed Woodpecker, +, Am. Robin, +; Purple Finch, +; Dark-eyed Junco, +. **Average Total:** 33 birds (327/km², 133/100 acres). **Remarks:** Only the titmouse, chickadee, and Cardinal were noted on all 8 daylight trips; in contrast, the dove, robin, and junco were noted only once. I believe that birds noted in flight over the area should be included in the count. In this case, the preceding count would have these changes: Increase Com. Crow to 4; add Turkey Vulture, 1, Black Vulture, +; Sandhill Crane, 4, Com.

Grackle, 9, Brown-headed Cowbird, +, increase average total to 50 birds (496/km², 201/100 acres). Randall Crooke assisted with the count, but his time was not calculated above.—J. DAN WEBSTER, Hanover College, Hanover, Ind. 47243.

25. UPLAND MIXED HARDWOOD FOREST. — **Location:** Tennessee; Johnson City, Washington County, approximately ½ mile NW of intersection of Tennessee highway 67 and Brush Creek Rd; 36°17'N, 82°22'W. **Continuity:** New. **Size:** 17 ha = 42 acres (irregular, measured with compass and tape). **Description of Area:** A mixed hardwood forest containing a wide variety of mature trees. The area has not been disturbed in recent years. Several old roads and fences are still visible. A quantitative analysis of the vegetation yielded the following: Trees, 3 in in diameter and over, based on five 0.1 acre circular samples, 318/acre, total basal area, 126 sq ft/acre. Species comprising 90% of the total number of trees (figures after each give number of trees per acre, relative density %, relative dominance, frequency, in that sequence): Red Maple (*Acer rubrum*) 76,24,18,100, Yellow Poplar (*Liriodendron tulipifera*) 40,13,19,100; Beech (*Fagus grandifolia*) 28,9,3,60; Flowering Dogwood (*Cornus florida*) 28,9,3,80; dead trees 22,7,3,100; Shagbark Hickory (*Carya ovata*) 18,6,9,40; Redbud (*Cercis canadensis*) 16,5,2,60; Scrub Pine (*Pinus virginiana*) 12,4,8,60, Red Cedar (*Juniperus virginiana*) 12,4,4,40; White Oak (*Quercus alba*) 8,3,4,80; Sugar Maple (*Acer saccharum*) 8,3,2,40; Sourwood (*Oxydendrum arboreum*) 8,3,2,40. Trees by diameter size class (figures after each class give number of trees per acre, relative density %, basal area in square feet per acre, relative dominance): A (3-6 in) 186,58,18.4,15; B (6-9 in) 60,19,19.6,16; C (9-12 in) 40,13,32,25; D (12-15 in) 32,10,57.6,46; shrub stems per acre, 3390; ground cover, 19%; canopy, 97% average canopy height, 56 ft (range 45-65 ft). Shrubs were mostly Red Maple, Redbud, Yellow Poplar, and Flowering Dogwood. Ground cover was mostly Japanese Honeysuckle (*Lonicera japonica*) and Christmas Fern (*Polystichum acrostichoides*). Plant names from Gleason and Chronquist's *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*, 1963. **Topography:** Hilly with the elevation ranging from 1800 to 2020 ft. **Edge:** The study area is part of a larger tract of woods of about 75 acres. Open fields occur within 100 feet along part of the southern boundary. Abrupt changes in habitat occur along 2 dry ridges where small stands of pine occur. **Water:** A small stream drains the northeastern ¼ of the area. **Weather:** A mild winter with little snow. Average temperature during census, 44° with a range from 25° to 65°F. Total precipitation for January was 4.16 in. **Coverage:** Dec. 30; Jan. 2, 11, 17, 22, 23 (2 trips) 29. Total, 8 trips averaging 2.6 hours. **Count:** Purple Finch, 48 (282, 114); Golden-crowned Kinglet, 20 (118, 48); Carolina Chickadee, 8 (47, 19); Am. Robin, 4 (24, 10); Cardinal, 4; Carolina Wren, 3 (18, 7); Downy Woodpecker, 2 (12, 5); Tufted Titmouse, 2; Bobwhite, 1 (6, 2); Red-bellied Woodpecker, 1, Yellow-bellied Sapsucker, 1; Blue Jay, 1; Com. Crow, 1; Brown Creeper, E. Bluebird, 1; Am. Goldfinch, 1,

Ruffed Grouse, +; Barred Owl, +; Com. Flicker, +; Pileated Woodpecker, +; Hairy Woodpecker, +; E. Phoebe, +; White-breasted Nuthatch, +; Hermit Thrush, +; Yellow-rumped Warbler, +. **Average Total** 99 birds (582/km², 236/100 acres). **Remarks:** The large number of Purple Finches was noteworthy. Purple Finches were observed on all occasions, with one count of 125 birds and one of 100 birds. A large crop of Yellow Poplar seeds seemed to attract and hold the Purple Finches in the area. Golden-crowned Kinglets and Carolina Chickadees were also noted on each trip. Cardinals were recorded on all but one trip and robin, Carolina Wren, and Downy Woodpecker on all but two trips. Birds observed flying over the study area include Rock Dove, Mourning Dove, Starling and Com. Grackle.—**RICHARD LEWIS, Rt. 3, Box 683B, Erwin, Tenn. 37650, and ALLAN SMITH, Rt. 1, WJSO Road, Johnson City, Tenn. 37601.**

26. MATURE MIXED HARDWOOD FOREST. —

Location: Michigan; Oakland County, city of Southfield Civic Center Nature Area, entrance off Evergreen Road at Civic Center Drive; 42°30'N, 83°15'W, Royal Oak Quadrangle, USGS. **Continuity:** New. (Breeding bird census 1974.) **Size:** 9.3 ha = 23 acres. **Description of Area:** See *AB* 28: 1005-1006 (1974). **Weather:** Temperatures ranged from 6° to 30°F. Snow cover averaged 2 to 3 in; light snow or flurries on 2 trips. On one trip the wind reached 14 mph; otherwise, light winds. Average weather conditions for the area. **Coverage:** Jan. 7, 13, 15, 20, 22, 27, 28, 30, 31; Feb. 3, 7. Total, 11 trips, averaging 60 minutes each. Starting time ranged from 0800 to 1400 EST. **Count:** Starling, 9 (97, 39); Downy Woodpecker, 3 (32, 13); Blue Jay, 2 (21, 9); Dark-eyed Junco, 2; Hairy Woodpecker, 1 (11, 4); Com. Crow, 1; Tufted Titmouse, 1; White-breasted Nuthatch, 1; Am. Robin, 1; Cardinal, 1; Mourning Dove, +; Com. Flicker, +; Black-capped Chickadee, +. **Average Total:** 22 birds (236/km², 96/100 acres). **Remarks:** Total species, 13. Natural food included beech nuts, acorns, and hickory nuts; a winter feeding station is maintained on the west edge of the plot and there is one neighboring residential feeder on the east side. The only open water was seen on afternoon trips when the temperature was high enough to melt snow. One species, Downy Woodpecker, was seen on every trip; Black-capped Chickadee was seen on only one trip. The Am. Robins were noted on three trips; however, the count appears high owing to 8 birds foraging on one trip. One Red-tailed Hawk was seen in the area on two trips, and several Am. Goldfinches were observed regularly flying over.—**BETTY CHALLIS, Oakland Audubon Society, 2335 Pontiac Lake Rd., Pontiac, Mich. 48054.**

27. OAK-MAPLE FOREST AND FOREST-EDGE. —

Location: Illinois; Trelease Woods, 6 mi NE of Champaign-Urbana. **Continuity:** Established 1948, 27 years. **Size:** 22.3 ha = 55 acres of forest plus 2.0 km (1.25 mi) of forest-edge. **Description of Area:** See *AFN* 2:151-152 (1948). **Coverage:** Dec. 11, 21; Jan. 9, 23; Feb. 6, 20. Total of 6 trips, 18 party-hours. **Count:** *Forest Interior Species:* Downy Woodpecker, 7 (31, 13); Red-bellied Wood-

pecker, 4 (18, 7); Carolina Chickadee, 2 (9, 4); Great Horned Owl, 1 (4, 2); White-breasted Nuthatch, 1, Brown Creeper, 1; Carolina Wren, 1; Hairy Woodpecker, +; Winter Wren, +. *Forest-edge Species* (individuals per kilometer and per mile in parentheses) Starling, 38± (19±, 30±); Cardinal, 5 (2, 4); Blue Jay, 5; Dark-eyed Junco, 3 (1, 2); Tree Sparrow, 2 (1, 2); Ring-necked Pheasant, 1 (1, 1); Mourning Dove, 1, Song Sparrow, 1; Red-tailed Hawk, +; Com. Flicker, +; Com. Crow, +; Mockingbird, +. **Average Total Forest interior,** 17 birds (77/km², 31/100 acres), **Forest-edge,** 56 birds (28/km, 45/mi). **Remarks:** Late autumn migrants: Com. Grackle, 800± (Dec. 11), Rusty Blackbird, 1 (Dec. 11). Early spring migrants Am. Robin, 1 (Feb. 20); Brewer's Blackbird, 500± (Feb. 20);—**JOHN M. EDGINGTON and S. CHARLES KENDEIGH, Vivarium Bldg., Wright and Healey Sts, Champaign, IL. 61820.**

28. BOTTOMLAND OAK-GUM-CYPRESS FOREST. —

Location: Mississippi; north of State Highway 12 in LeRoy Percy State Park, 4 mi W of Hollandale, Washington County, (parts of Sect. 5, 8, and 9, T15N, R7W). **Size:** 11.4 ha = 28.1 acres; rectangular in shape: 836 x 1463 ft (measured with compass and steel tape). **Description of Area:** See *AB* 25: 638-639 (1971). **Continuity:** Established 1971, 4 years. **Weather:** Temperature on count days ranged from 31° to 68°. The mean high temperature from Jan 4 through Feb. 22 was 56.5° while the mean low was 38.3°F. Total precipitation for the same period was 7.88 in. For the comparable period last year the mean high temperature was 57.4°, the mean low was 39.7°, and the total rainfall was 12.24 in. Temperature and rainfall for January and February were above normal with rain occurring on about a 4-day cycle. Four inches of snow fell Jan. 12 but stayed on the ground only one day. November and December also had above-normal temperatures and above-normal precipitation. (Weather data from Delta Branch Experiment Station, Stoneville, Miss. 15 miles north). **Coverage:** Jan. 4-5, 11, 25, Feb. 8-9, 15, 22. Total, 8 trips starting at various times during the day from 0725 to 1540 CST; 6 morning and 2 afternoon trips. On two trips two observers covered the plot, each with assigned areas. On six trips one observer worked alone. Average time per trip: 172 observer-minutes. **Count:** Yellow-rumped Warbler, 27 (237, 96); Com. Grackle, 19 (167, 68); White-throated Sparrow, 16 (141, 57); Rusty Blackbird, 14 (123, 50), Am. Robin, 8 (70, 28); Cardinal, 8; Red-bellied Woodpecker, 5 (44, 18); Com. Flicker, 4 (35, 14); Swamp Sparrow, 4; Hermit Thrush, 3 (26, 11); Golden-crowned Kinglet, 3; Ruby-crowned Kinglet, 3, Yellow-bellied Sapsucker, 2 (18, 7); Hairy Woodpecker, 2; Blue Jay, 2; Carolina Chickadee, 2; Am Goldfinch, 2; Dark-eyed Junco, 2; Song Sparrow, 2, Wood Duck, 1 (9, 4); Pileated Woodpecker, 1; Downy Woodpecker, 1; E. Phoebe, 1; Tufted Titmouse, 1, Brown Creeper, 1; Winter Wren, 1; Carolina Wren, 1, Starling, 1; Mourning Dove, +; Am. Woodcock, +, Orange-crowned Warbler, +; Red-winged Blackbird, +, Field Sparrow, +. **Average Total** 137 (1205/km², 48/100 acres). **Remarks:** Total species, 33. Seen on every trip were: flicker, Red-bellied Woodpecker, sap-

sucker, Downy Woodpecker, Winter Wren, robin, Yellow-rumped Warbler, Rusty Blackbird, grackle, Cardinal, White-throated Sparrow, and Song Sparrow. On seven trips the following species were seen: Hairy Woodpecker, jay, chickadee, Carolina Wren, thrushes and both kinglets. The Swamp Sparrow was seen on six trips while the goldfinch was seen on five. The average total was approximately what it was last year, but the number of species declined slightly. Creepers and kinglets declined while Hairy Woodpeckers, Blue Jays, and Swamp and Song Sparrows showed marked increases. The food supply did not appear as abundant as last year. The most obvious food being taken was Poison Ivy berries, almost gone by the end of January. Other food in evidence was Sweet Gum seeds, insect larvae, elm samaras, and some flying insects. Minor changes in the habitat continue to take place. Some clearing was done just outside the tract for a maintenance building, and some nature trails are being cut within the tract. The horse pen mentioned last year has become attractive to Song Sparrows. The alligator pond area attracts increasing numbers of Swamp Sparrows and has provided suitable environment for what appears to be a stable winter population of Wood Ducks. A Nature Center with nature trails is planned for the area. The combined effect of habitat change and increased human activity could prove interesting.—*MR. and MRS. G.E. ALEXANDER, JR., 1749 W. Azalea, Greenville, Miss. 38701.*

29. MIXED PINE-DECIDUOUS FOREST. —

Location: Louisiana; one mi W of the Northwestern State University campus, within the university's Natural History Reservation, on the S side of La. Hwy 6 (Sec. 81, R7W, T9N) Natchitoches Parish. **Continuity:** Established 1971; 5 years. **Size:** 8.9 ha = 22 acres (L-shaped, measured by pacing with compass). **Description of Area:** See AB 25: 639-640 (1971) and 26: 669 (1972). **Weather:** Daytime temperatures during the count period ranged from 45° to 72° F and night temperatures from 25° to 50°. Five count days were clear and 2 were overcast. Wind on count days ranged from 0 to 3 on the Beaufort scale. The weather pattern was generally cool and wet. **Coverage:** Dec. 31; Jan. 2, 5-6, 8, 11, 22. Total, 7 trips, between 0930 and 1530, averaging 112 minutes; total man-hours, 13. **Count:** White-throated Sparrow, 22 (247, 100); Com. Grackle, 17 (191, 77); Ruby-crowned Kinglet, 9 (101, 41); Blue Jay, 7 (79, 32); Pine Warbler, 6 (67, 27); Carolina Chickadee, 4 (45, 18); Carolina Wren, 4; Golden-crowned Kinglet, 3 (34, 14); Cardinal, 3; Bobwhite, 2 (22, 9); Red-bellied Woodpecker, 2; Tufted Titmouse, 2, Am. Robin, 2; Cedar Waxwing, 2; Com. Flicker, 1 (11, 5); Yellow-bellied Sapsucker, 1; Mockingbird, 1; Brown Thrasher, 1; Hermit Thrush, 1; Orange-crowned Warbler, 1; Am. Goldfinch, 1; Pileated Woodpecker, +; Hairy Woodpecker, +; E. Phoebe, +; Brown Creeper, +; Blue-gray Gnatcatcher, +; Solitary Vireo, +; Yellow-rumped Warbler, +; Summer Tanager, +; Rufous-sided Towhee, +. **Average Total:** 92 birds (1033/km², 418/100 acres). **Remarks:** Total species seen, 31. The number of species seen in previous winters ranged from 27 to 31. The density per 100 acres declined from 550 to 418, comparable to 1973 when 436 birds per 100 acres were found. The density de-

crease may be partly attributed to the plus density during the 1974 study. The Com. Grackle population increased from 18 per 100 acres in 1974 to 77 in 1975. Significant decreases from 1974 were noted for the Carolina Chickadee, Tufted Titmouse and Dark-eyed Junco. The Summer Tanager was a female that was calling and observed at close range on the Jan. 11 count.—*CHARLES E. VIERS, Dept. of Biological Sciences, Northwestern State Univ., Natchitoches, La 71457.*

30. OAK-HICKORY FOREST. —

Location: Kansas; Jefferson Co., on the University of Kansas' Rockefeller Experimental Tract and the Nelson Environmental Study Area. Predominantly on the SW ¼, NW ¼, Sect. 3, T11S, R20E, Midland Quadrangle, USGS. **Continuity:** New. **Size:** 9.7 ha = 24.0 acres (rectangular 359.7 x 270.1 meters). **Description of Area:** See AB 28: 1090-1011, 1974. **Weather:** Average temperature during censuses was 31.9°F (range 12-44°). One inch of snow covered the ground during the first census and there was light snow cover on the last census. The creek flowing through the area was always partially open during census periods. **Coverage:** Jan. 7-8, 11, 17-18, 24; Feb. 2, 10. Total, 8 trips both morning and afternoon, averaging 1-½ hours per trip, a total of 18 man-hours. **Count:** Black-capped Chickadee, 4 (41, 17), Tufted Titmouse, 3 (31, 13); White-breasted Nuthatch, 3; Downy Woodpecker, 2 (21, 8); Blue Jay, 2; Red-bellied Woodpecker, 1 (10, 4); Hairy Woodpecker, 1, Com. Crow, 1; Am. Goldfinch, 1; Dark-eyed Junco, 1, Red-tailed Hawk, +; Great Horned Owl +; Brown Creeper +; Carolina Wren, +; Golden-crowned Kinglet +. **Average Total:** 19 birds (196/km², 79/100 acres). **Remarks:** Black-capped Chickadees, Downy Woodpeckers, and White-breasted Nuthatches were seen on all trips. Red-bellied Woodpeckers, Blue Jays and Tufted Titmice were noted on 6 trips. Foraging associations of titmice, chickadees and nuthatches were found on 6 trips, always on the western half of the study area. The Carolina Wren was noted 3 times, always along the creek. An Am. Kestrel was seen over the plot harassing the resident Red-tailed Hawk on Jan. 17. My thanks to Peter Lowther for assistance on one count.—*CALVIN L. CINK, Museum of Natural History and Dept. of Systematics and Ecology, the Univ. of Kansas, Lawrence, Kans. 66045.*

31. MIXED PINE-HARDWOOD FOREST. —

Location: Texas; Angelina Co., on Angelina College property, 1.6 mi S of intersection of Loop 287 and U S 59; 31°17'34''N, 94°44'1''W, Lufkin Quadrangle, USGS. **Continuity:** New. (Breeding Bird Census, 1974.) **Size:** 6.31 ha = 15.6 acres (irregular). **Description of Area:** See AB 28:1016 (1974). **Weather:** Temperatures ranged from 31° to 60° F. Most count days had clear to partly cloudy skies, very little wind. Rainfall and temperatures were normal for the area. **Coverage:** Jan. 4 -5, 8-9, 11, 17-18, 24. Total, 8 trips, 7 between 0700 and 0930, 1 trip 1300 and 1500, averaging 1 hour 45 minutes. **Count:** Am. Robin, 10 (158, 64); White-throated Sparrow, 10; Blue Jay, 6 (95, 38); Cardinal, 5 (79, 32); Carolina Chickadee, 4 (626); Carolina Wren, 4; Tufted Titmouse, 3 (48, 19),

Brown Thrasher, 3; Golden-crowned Kinglet, 3; Ruby-crowned Kinglet, 3; Com. Flicker, 2 (32, 13); Yellow-rumped (Myrtle) Warbler, 2; Am. Woodcock, 1 (16, 6); Barred Owl, 1; Pileated Woodpecker, 1; Red-bellied Woodpecker, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; Com. Crow, 1; Brown Creeper, 1; Hermit Thrush, 1; Solitary Vireo, 1; Orange-crowned Warbler, 1; Pine Warbler, 1; Am. Goldfinch, 1; Red-shouldered Hawk, +; Yellow-bellied Sapsucker, +; Red-winged Blackbird, +; Com. Grackle, +; Dark-eyed (Slate-colored) Junco, +; Fox Sparrow, +; Song Sparrow, +. **Average Total:** 68 (1077/km², 436/100 acres). **Remarks:** Total species, 31. Prior experience indicates Golden-crowned Kinglets are not usually so common. *LOUIS DEBETAZ* and *CARROLL L. MOORE* (compiler), *Science Div., Angelina College, P.O. Box 1768, Lufkin, Tex. 75901.*

32. PONDEROSA PINE FOREST. — Location: Colorado; Boulder Co., in the lower foothills 0.5 mi S of Baseline Rd, Boulder, in the eastern part of S1, T1S, R71W, 6th PM. **Continuity:** Established 1953-54; 13 intermittent years. **Size:** 8.1 ha = 20 acres. **Description of Area:** Situated in the NE corner of a pine-covered mesa, at an elevation of 5900 ft. See *AFN* 8 372 (1954). **Weather:** Snowfall was below average and these months were mild. Snow partially or wholly covered the plot on all trips; the most was 6 in. on Feb. 16. Temperatures ranged from 10° to 50°F. **Coverage:** Nov. 10, 17, 30; Dec. 8, 15, 29; Jan. 1, 5, 18-19, 26; Feb. 2, 9, 16, 23. Total, 15 trips, totaling 12.5 hours, made between 0730 and 1030. **Count:** Pygmy Nuthatch, 16 (198, 80); Mountain Chickadee, 12 (148, 60); Steller's Jay, 3 (37, 15); White-breasted Nuthatch, 3; Red-breasted Nuthatch, 3; House Finch, 3; Junco (sp.), 3, Com. (Red-shafted) Flicker, 1 (12, 5); Hairy Woodpecker, 1; Downy Woodpecker, 1; Black-billed Magpie, 1; Brown Creeper, 1; Goshawk, +; Com. Crow, +, Am. Robin, +; Townsend's Solitaire, +; Evening Grosbeak, +; Pine Siskin, +; Red Crossbill, +; Dark-eyed Junco (Slate-colored and Oregon), +; Gray-headed Junco, +. **Average Total:** 48 birds (593/km², 240/100 acres). **Remarks:** This winter population was above average. There was a good pine cone crop, but Red Crossbills were seen only once. House Finches have never been seen on the winter plot before. Woodpeckers were more abundant than in several years, but no Clark's Nutcrackers, Golden-crowned Kinglets, Cassin's Finches, or Dark-eyed (White-winged) Juncos were seen. The Goshawk almost captured a Fox Squirrel on Nov. 17; this is the normal habitat of the Tufted-eared Squirrels.—*LOUISE HERING, 568 Marine, Boulder, Colo. 80302.*

33. ALDER-CEDAR FOREST. — Location: Washington; Evergreen State College campus, Thurston County, on the NE section of campus spanning the nature trail. **Continuity:** New. **Size:** 13.0 ha = 32.0 acres, 360 x 360 (1180 x 1180 ft), surveyed. **Description of Area:** The plot is in a drainage, cut by ravines, which slopes into Budd Inlet of southern Puget Sound. Western Red Cedar (*Thuja plicata*) is typical of these moist areas. The forest is heterogeneous ranging from areas of Red Alder (*Alnus rubra*) poles to large cedars, dependent upon the extent and date of forest

harvest. Most prominent in the understory are Pacific Blackberry (*Rubus ursinus*), Salal (*Gaultheria shallon*), Salmonberry (*R. spectabilis*), Indian Plum (*Osmaronia cerasiformis*), Mountain Oregon Grape (*Berberis nervosa*), Thimbleberry (*R. parviflorus*), and Devil's Club (*Oplopanax horridus*). Ground cover is primarily moss, Sword Fern (*Polystichum munitum*), Twinflower (*Linnaea borealis*), Pipsissewa (*Chimaphila umbellata*), Lady-fern (*Athyrium filix-femina*), Licorice Fern (*Polypodium vulgare*), and Deer-fern (*Blechnum spicant*). A quantitative survey of the vegetation using the point-quarter technique described by Cottam, *et al* (*Ecology* 34:741-757) gave the following results: Trees 5 cm (2 in) diameter (DBH) and over, 765/ha (310/acre). Relative dominance of tree species: Western Red Cedar, 65%; Red Alder, 23%; Bigleaf Maple (*Acer macrophyllum*), 5%; Douglas-fir (*Pseudotsuga menziesii*), 3%; Western Hemlock (*Tsuga heterophylla*), 3%; and Grand Fir (*Abies grandis*). Relative frequency of tree species: Red Alder, 57%, Western Red Cedar, 23%; Bigleaf Maple, 8%, Douglas-fir, 4%; Western Hemlock, 3%; Grand Fir, 3%; and Pacific Yew (*Taxus brevifolia*). Trees by diameter size class: A, 5-15 cm (2-5.9 in.), 64, B, 15-30 cm (5.9-11.7 in), 36; C, 30-45 cm (11.7 = 17.6 in), 10; D, 45-60 cm (17.6-23.4 in), 4; E, 60-75 cm (23.4-29.3 in), 3; F, 75-90 cm (29.3-35.1 in), 1, and G, 90-105 cm (39.1-41.0 in), 1. Canopy cover 65%, ground cover 90%. Average canopy height: 12 m = 39.4 ft (range 3-32 m, 9.9-105.0 ft). Plant names from Hitchcock and Cronquist, *Flora of the Pacific Northwest*, 1973. **Topography:** Ravines, general north slope. Elevation: 10-25 m (33-82 ft). **Edge:** Surrounded by forest. **Weather:** See Study 34. **Coverage:** Jan 25 (½), 26 (½), 31; Feb. 6, 8, 19, 20-22. Total, 8 trips, averaging 2 hrs, 41 min. All censuses were conducted between sunrise and 1130. **Count:** Golden-crowned Kinglet, 47 (363, 147); Winter Wren, 20 (154, 63), Chestnut-backed Chickadee, 17 (131, 53); Pine Siskin, 7 (54, 22); Am. Robin, 4 (31, 13); Purple Finch, 4, Com. Crow, 2 (15, 6); Song Sparrow, 2; Ruffed Grouse, 1 (8, 3); Pileated Woodpecker, 1; Black-capped Chickadee, 1; Red-breasted Nuthatch, 1; Brown Creeper, 1; Bewick's Wren, 1; Ruby-crowned Kinglet, 1; Rufous-sided Towhee, 1; Belted Kingfisher, +, Hairy Woodpecker, +; Steller's Jay, +; White-breasted Nuthatch, +. **Average Total:** 111 birds (857/Km², 347/100 acres). **Remarks:** Behavior and activity was similar to Douglas-fir plot, Study 34. Pine Siskins were seen in flocks on three censuses. A flock of Purple Finches was seen on one census.—*GINNY FAY* (compiler), *POLLY HESSING, KAREN JACOBSEN, and KAREN OAKLEY. c/o S.G. Herman, The Evergreen State College, Olympia, Wash. 98505.*

34. DOUGLAS-FIR FOREST. — Location: Washington; Evergreen State College campus, Thurston Co., on the SW section of campus. **Continuity:** New **Size:** 13.0 = 32.0 acres, 360 x 360 m (1180 x 1180 ft), surveyed. **Description of Area:** The plot is in a coarse soiled, well drained section of 35-40 year old forest. The tree canopy, predominantly Douglas-fir (*Pseudotsuga menziesii*), is dense. Shrubs comprising the thick understory average 3 ft high and are present

throughout approximately 85% of the plot. Most prominent in the understory are Salal (*Gaultheria shallon*), Pacific Blackberry (*Rubus ursinus*), Mountain Oregon Grape (*Berberis nervosa*), Red Huckleberry (*Vaccinium ovatum*), Evergreen Huckleberry (*V. parvifolium*), and Elderberry (*Sambucus racemosa*). Ground cover is primarily Moss, Bracken Fern (*Pteridium aquilinum*), and Sword Fern (*Polystichum munitum*). A quantitative survey of the vegetation using ten 64 sq. m (690 sq ft) quadrats gave the following results: Trees 5 cm (2 in) diameter (DBH) and over, 1100/ha (440/acre); basal area, 14 m²/ha (5.7 m²/acre). Relative dominance of tree species: Douglas-fir 78.5%, Red Alder (*Alnus rubra*) 12.8%, Western Red Cedar (*Thuja plicata*) 2.9%, Western Hemlock (*Tsuga heterophylla*) 2.9%, and Bigleaf Maple (*Acer macrophyllum*) 2.9%. Trees by diameter size class: A, 5-15 cm (2-5.9 in) 32; B, 15-30 cm (5.9-11.7 in), 29; C, 30-45 cm (11.7-17.6 in), 6; and D, 45-60 cm (17.6-23.4 in) 1. Plant names from Hitchcock and Cronquist, *Flora of the Pacific Northwest*, 1973. **Topography:** Slopes into a drainage area beyond the SW corner of the plot. Elevation: 50 (164 ft). **Edge:** Outside of buffer zone, bordered on the E by the campus core, on the W by a small farm, and on the N and S by forest. **Weather:** Average daily temperature: Jan. 3.6°C (38.4°F), Feb. 4.1°C (39.4°F). Rainfall Jan.-Feb., 39.2 cm (15.3 in) (National Weather Bureau). Light (5 mm, ¼ in.), layer of snow present on 2 censuses. **Coverage:** Jan. 21, 30-31; Feb. 6-7, 20-21, 24. Total, 8 trips, averaging 2 hours and 44 min. All censuses were conducted between sunrise and 1130 hours. **Count:** Golden-crowned Kinglet, 57 (440, 178); Chestnut-backed Chickadee, 22 (170, 69); Winter Wren, 18 (139, 56); Pine Siskin, 8 (62, 25); Bewick's Wren, 2 (15, 6); Ruby-crowned Kinglet, 2; Pileated Woodpecker, 1, (8, 3); Com. Crow, 1; Black-capped Chickadee, 1; Red-breasted Nuthatch, 1; Am. Robin, 1; Song Sparrow, 1; Steller's Jay, +; White-breasted Nuthatch, +; Brown Creeper, +; Varied Thrush, +; Rufous-sided Towhee, +. **Average Total:** 115 (888/km², 359/100 acres). **Remarks:** Golden-crowned Kinglets and Chestnut-backed Chickadees foraged in mixed flocks ranging from 5-50 birds. These flocks, which appeared to be led by the kinglets, moved rapidly through the canopy (at approximately 9 m = 29 ft) making counting difficult. Our numbers might be a slight underestimate for these two species. Both species foraged in the bare limbs of conifer and deciduous trees and in the leaves of conifers. Winter and Bewick's Wrens and Ruby-crowned Kinglets were found in the dense shrub understory. Owing to their quietness, Ruby-crowned Kinglet numbers are probably low. Winter Wrens appear to hold winter territories; birds were encountered in the same areas throughout the census period. No berries remained on the shrubs in early January, but small flying insects began to emerge in mid-January. Water was always abundant.—GINNY FAY (compiler), POLLY HESSING, KAREN JACOBSEN, and KAREN OAKLEY. *clo S.G. Herman, The Evergreen State College, Olympia, Wash. 98505.*

35. WESTERN SYCAMORE-COAST LIVE OAK RIPARIAN WOODLAND.—**Location:** California; El Capitan State Beach, along El Capitan Creek, 9 mi W

of Goleta, Santa Barbara Co.; 34°27'30''N, 120°01'20''W, Tajiguas Quadrangle, USGS Continuity: New. **Size:** 4.5 ha = 11.2 acres (a very irregular rectangle, coming to a point at the north end) Acreage determined on a large-scale map (1 in = 300 ft) by totaling areas of component triangles and rectangles. **Description of Area:** The plot is the lower portion of a riparian woodland growing along intermittent El Capitan Creek. The entire woodland is south of U S Highway 101, which runs E-W along this portion of the Santa Barbara County coastline. The woodland is part of a state park, which also includes a large campground, picnic area, and extensive beaches. The principal trees are Western Sycamore (*Platanus racemosa*) and Coast Live Oak (*Quercus agrifolia*). Approximately 150 sycamores and 30 oaks grow in the study area. The sycamores are grouped along the west edge and in the south center of the plot. The oaks are dispersed through the north triangular portion of the study area. Another tree present in the study area is White Alder (*Alnus rhombifolia*). The principal shrubs are Coyote Bush (*Baccharis sp.*), willow (*Salix sp.*), Lemonade Berry (*Rhus integrifolia*), and wild lilac (*Ceanothus sp.*). Coyote bush is found throughout the plot, and the willow is concentrated along El Capitan Creek and a smaller overflow stream course through the west edge of the plot. Ground cover plants include Poison Oak (*Rhus diversiloba*) along the streams, and the introduced Nasturtium (*Tropaeolum majus*) and Periwinkle (*Vinca major*) beneath the sycamores. Taxonomy of native plants is from Broughton, *Plant Communities in Santa Barbara County*, 1972. The plot has a network of nature trails. **Topography:** Flat to gently sloping; average elevation is 10 ft. **Edge:** The study area is bordered on the east by a narrow paved fire road, beyond which is a steep hillside of *Baccharis* and *Ceanothus*, and by a grassy field. On the south lies a rocky shore and the ocean. A large grassy field borders the south half of the west edge of the plot. The north half of the west edge and the north edge border the main paved road into the state park. Beyond this road is further riparian woodland. **Water:** El Capitan Creek is an intermittent stream, which began flowing on Dec. 3, the date of this year's first major rainstorm. Water depth varies from an average 6 in to an average 2 ft after rains. The smaller overflow stream flowed on two occasions during the study period, with an average depth of 6 in. The observed use of creek water by birds includes actual drinking by the House Finch, and bathing by the White-crowned Sparrow and Song Sparrow. **Food:** Seeds and insects appeared to be sufficient for ground-feeding birds. Finches fed often in the crowns of sycamores. Four species of woodpeckers worked over the largest sycamores and oaks. Owl pellets contained small rodent remains. **Hummingbirds** fed in December and January on flowers of a large introduced succulent of the Lily family, the aloe (*Aloe sp.*) **Weather:** Three major rainstorms occurred during the 75-day study period. A measured 5.58 in of rain were recorded in December at the Santa Barbara Airport, 11 mi east. December temperature extremes were 76° (Dec. 14) and 29°F (Dec. 24). Precipitation and temperature data were not available for January and February. However, rainfall amounts in those months were similar to that of December. Daytime temperatures in

the 3 months were in the 50s and 60s. All census trips were undertaken on windless, rainless days. **Coverage:** Dec. 12-13, 19-20; Jan. 3, 13-14; Feb. 11, 18, 24. Total, 10 trips, all between 0850 and 1205 PST, averaging 118 minutes of observation. **Count:** Bushtit, 24 (529, 214); Brewer's Blackbird, 14 (309, 125); White-crowned Sparrow, 14; House Finch, 9 (199, 80); Brown Towhee, 7 (154, 63); Ruby-crowned Kinglet, 6 (132, 54); Song Sparrow, 5 (110, 45); Wrentit, 4 (88, 36); Bewick's Wren, 4; Yellow-rumped (Audubon's) Warbler, 3 (66, 27); Acorn Woodpecker, 2 (44, 18); Scrub Jay, 2; Starling, 2; Lesser Goldfinch, 2; Rufous-sided Towhee, 2; Anna's Hummingbird, 1 (22, 9); Com. Flicker, 1; Downy Woodpecker, 1; Nuttall's Woodpecker, 1; Black Phoebe, 1; Com. Crow, 1; Plain Titmouse, 1; California Thrasher, 1; Hermit Thrush, 1; W. Bluebird, 1; Com. Yellowthroat, 1; Cooper's Hawk, +; Red-tailed Hawk, +; Am. Kestrel, +; Rock Dove, +; Mourning Dove, +; Great Horned Owl, +; Mockingbird, +; Am. Robin, +; Orange-crowned Warbler, +; Golden-crowned Sparrow, +; Lincoln's Sparrow, +. **Average Total:** 111 birds (2449/km², 991/100 acres). **Remarks:** Species total, 37. Eight of the 15 most abundant species (2 or more birds per trip) were seen on all 10 trips. The Brewer's Blackbird, White-crowned Sparrow, Song Sparrow, and Scrub Jay were seen on 9 trips. The Starling and Rufous-sided Towhee were observed on 8 trips, and the Lesser Goldfinch on 7. Five species were observed only once (one individual seen): Am. Kestrel, Rock Dove, Mockingbird, Orange-crowned Warbler, and Lincoln's Sparrow. The California Quail was observed in the study area once during the study period but not on any of the census trips. Other vertebrates regularly observed or heard on census trips include the Pacific Treefrog (*Hyla regilla*), W. Fence Lizard (*Sceloporus occidentalis*), Brush Rabbit (*Sylvilagus bachmani*), and Calif. Ground Squirrel (*Spermophilus beecheyi*). A wood rat (*Neotoma* sp.) was observed once.—**JOHN R. GUSTAFSON, Refugio State Beach, Route 1, Box 257, Goleta, CA. 93017.**

36. BISHOP PINE FOREST. — **Location:** California; 3.75 mi WNW of Inverness, Marin Co., within the southern boundary of Tomales Bay State Park; 38°37'N, 122°53'W, Drakes Bay Quadrangle, USGS. **Continuity:** New. **Size:** 6.9 ha = 17.1 acres (roughly rectangular 3,720 x 200 ft, paced). **Description of Area:** See *AFN* 6:313, 1952, and *AB* 26: 986, 1972. **Weather:** Warm and dry compared to the two previous winters. The average low and high temperatures for the coldest periods during the last three winters were: 1972-73 (26°, 38°F); 73-74 (28°, 40°); and 74-75 (33°, 47°). Rainfall was scant in November, December and early January and although precipitation increased toward the end of January and February the season total of 20.77 in. fell far short of the two previous winters (42.07 and 32.16 in respectively). Rainfall and temperature records were taken at Point Reyes Bird Observatory approximately 15 air mi S of the study area. Three count days were clear, 3 partly cloudy. Maximum wind on all days was 5 mph. **Coverage:** Dec. 24, 25; Jan. 9, 23, Feb. 5, 24. Total, 6 trips between 0900 and 1100. **Count:** Ruby-crowned Kinglet, 24 (347, 140); Yellow-rumped Warbler, 22 (318, 129), Golden-crowned King-

let, 13 (188, 76); Varied Thrush, 12 (173, 70), Chestnut-backed Chickadee, 11 (159, 64); Wrentit, 9 (130, 53); Winter Wren, 9; Pygmy Nuthatch, 8 (116, 47); Hermit Thrush, 5 (72, 29); Hutton's Vireo, 5, Com. Flicker, 4 (58, 23); Steller's Jay, 4; Dark-eyed (Oregon) Junco, 3 (43, 18); Brown Creeper, 2 (29, 12), Bewick's Wren, 2; Pine Siskin, 2; Fox Sparrow, 2, Turkey Vulture, 1 (14, 6); Sharp-shinned Hawk, 1, Anna's Hummingbird, 1; Allen's Hummingbird, 1, Yellow-bellied (Red-breasted) Sapsucker, 1; Hairy Woodpecker, 1; Com. Raven, 1; Am. Robin, 1; Song Sparrow, 1; Red-tailed Hawk, +. **Average Total** 146 birds (2110/km², 854/100 acres). **Remarks:** Golden-crowned Kinglets were virtually absent on the last 3 censuses; during the first 3 they averaged 24 birds, which equals the average of Ruby-crowned Kinglets for the winter period. Pine Siskins and Allen's Hummingbirds were seen only on the February censuses. An average of 2 W. Gray Squirrels were seen. One Mule Deer was seen. Thanks to Pamela Kruskal for field assistance. Contribution No. 108, P.R.B.O.—**ROBERT M. STEWART, Point Reyes Bird Observatory, P.O. Box 321, Bolinas, Ca. 94924.**

37. MATURE DOUGLAS-FIR FOREST. — **Location:** California; Point Reyes National Seashore, 4 mi NW of Bolinas and 1 ¼ mi N of Point Reyes Bird Observatory, (P.R.B.O.); 37°56'N, 122°43'W, Bolinas Quadrangle, USGS. **Continuity:** 2nd intermittent year, censused 1971-72. **Size:** 9.8 ha = 24.2 acres (rectangular 5280 x 200 ft, paced). **Description of Area:** See *AB* 25:987 and *AB* 26:670. **Weather:** See Study 36. Four count days were clear, 2 overcast. Rainfall and temperature were measured 1 ¼ mi S at P.R.B.O., approx 800 ft lower. **Coverage:** Nov. 22; Dec. 13; Jan. 15, 19, Feb. 10, 17. Total, 6 trips made from 0830 to 1100. **Count:** Golden-crowned Kinglet, 63 (643, 260), Ruby-crowned Kinglet, 20 (204, 83); Chestnut-backed Chickadee, 18 (184, 74); Winter Wren, 15 (153, 62), Dark-eyed (Oregon) Junco, 10 (102, 41); Fox Sparrow, 10; Song Sparrow, 8 (82, 33); Steller's Jay, 6 (61, 25), Red-breasted Nuthatch, 5 (51, 21); Wrentit, 4 (41, 17), Hairy Woodpecker, 3 (31, 12); Varied Thrush, 3; Hermit Thrush, 2 (20, 8); Com. Flicker, 1 (10, 4); Brown Creeper, 1; Bewick's Wren, 1; Hutton's Vireo, 1, Rufous-sided Towhee, 1; Am. Robin, +; Townsend's Warbler, +; Golden-crowned Sparrow, +. **Average Total:** 172 birds (1756/km², 711/100 acres). **Remarks:** The Am. Robin was seen once on the last day of censusing and the Golden-crowned Sparrow was seen once near the N border of the study area where it opens into a shrubby meadow, indicating these birds did not utilize the area for most of the winter period. Red-tailed Hawks and a Sharp-shinned Hawk were seen flying over the area. Mule Deer (*Odocoileus hemionus*), Striped Skunk (*Mephitis mephitis*), California Newt (*Taricha torosa*) and Rough-skinned Newt (*Taricha granulosa*) were present. Thanks to Linda Sue Solomon, Ellery Akers and Ane Rovetta for help in censusing. Contribution No. 110, P.R.B.O.—**BILL MANOLIS, Point Reyes Bird Observatory, P.O. Box 321, Bolinas, Ca. 94924.**



38. COASTAL MIXED FOREST. — Location:

California: Point Reyes National Seashore, Arroyo Hondo Creek canyon, 3 ½ mi NW of Bolinas, Marin Co., and ¼ mi N of Point Reyes Bird Observatory; 37°56'N, 122°43'W, Bolinas Quadrangle, USGS. **Continuity:** New. **Size:** 7.3 ha = 18 acres (roughly rectangular 3900 x 200 ft, paced). **Description of Area:** The bottom of a winding, steep creek canyon with mixed forest and a perennial creek. A dirt road runs the length of the plot. Tree species in order of abundance: Red Alder (*Alnus rubra*), Douglas-fir (*Pseudotsuga menziesii*), California Laurel (*Umbellularia californica*), California Buckeye (*Aesculus californica*), and Canyon Oak (*Quercus chrysolepis*). Understory species included: Red Elderberry (*Sambucus callicarpa*), Blue Elderberry (*Sambucus mexicana*), Elk Clover (*Aralia californica*) Sword Fern (*Polystichum munitum*), Lady Fern (*Athyrium filix-femina*) and Coast Wood Fern (*Dryopteris arguta*). **Weather:** See study 36. Six count days were clear, 2 overcast. **Coverage:** Nov. 5, 16-17, 22, Dec. 6, 13; Jan. 5, 19. **Total,** 8 trips made from 0900 to 1200. **Count:** Golden-crowned Kinglet, 59 (810, 328); Ruby-crowned Kinglet, 26 (357, 144); Winter Wren, 14 (192, 78); Fox Sparrow, 5 (69, 28); Song Sparrow, 5; Steller's Jay, 4 (55, 22); Chestnut-backed Chickadee, 3 (41, 17); Wrentit, 2 (27, 11); Sharp-shinned Hawk, 1 (14, 6); Com. Flicker, 1; Yellow-bellied (Red-breasted) Sapsucker, 1; Hutton's Vireo, 1; Townsend's Warbler, 1; Lesser Goldfinch, 1; Anna's Hummingbird, +; *Selasphorus* hummingbird, +; Hairy Woodpecker, +; Downy Woodpecker, +; Brown Creeper, +; Rufous-sided Towhee, +. **Average Total:** 124 birds (1702/km², 689/100 acres). **Remarks:** The Lesser Goldfinch and *Selasphorus* hummingbirds arrived at the end of the period and are considered early spring arrivals. Turkey Vultures, Red-tailed Hawks and Com. Ravens were seen flying over the study area. The Sonoma Chipmunk (*Eutamias sonomae*), W. Gray Squirrel (*Sciurus griseus*), Valley Pocket Gopher (*Thomomys bottae*) and Mule Deer (*Odocoileus hemionus*) were seen, as well as a dead Shrew Mole (*Neurotrichus gibbsii*) and an obvious Aplodontia (*Aplodontia rufa*) colony. The California Newt (*Taricha torosa*), Rough-skinned Newt (*Taricha granulosa*), hybrids of these two, the California Slender Salamander (*Batrachoseps attenuatus*), Arboreal Salamander (*Aneides lugubris*), Ensatina (*Ensatina eschscholtzi*) and the Pacific Giant Salamander (*Dicamptodon ensatus*) were also seen in the study area. Thanks to Jeanne Koelling, Ellery Akers, and Ane Rovetta for help in censusing. Contribution No. 109, P.R.B.O.—BILL MANOLIS, Point Reyes Bird Observatory, P.O. Box 321, Bolinas, Ca. 94924.

39. COASTAL MONTEREY PINE FOREST. —

Location: California; Point Lobos State Reserve, 3.5 mi S of Carmel on State Hwy 1; 36°31'N, 121°56'W, Monterey Quadrangle, USGS. **Continuity:** New. **Size:** 40.5 ha = 100 acres; roughly L-shaped, measured from field and USGS maps. **Description of Area:** Study area is most of the Monterey Pine forest in the Reserve. The dominant tree species is Monterey Pine (*Pinus radiata*), with an occasional Coast Live Oak (*Quercus agrifolia*) forming the tall understory. Major shrubs are

Coffeeberry (*Rhamnus californica*), gooseberry (*Ribes* sp.), Bush Monkey-flower (*Mimulus aurantiacus*), Blue Bush (*Ceanothus thyrsiflorus*) and Poison Oak (*Rhus diversiloba*). Poison Oak grows both as a vine on the trees and as a shrub. The herbaceous layer includes Vetch (*Vicia americana*), California Blackberry (*Rubus vitifolius*), Quaking Grass (*Briza maxima*) and other grasses, and Hedge-nettle (*Stachys bullata*). There are two distinct forest types in the area. Most of the tract is a mature pine forest with a few oaks and a well developed understory. The NW section, however, is a very dense stand of young pines, with essentially no understory. Throughout there are standing and fallen dead trees. Near one edge there is a short private road and a house. **Topography:** The site is on a low, gentle, L-shaped ridge facing the ocean S and W. There are two prominent hills, at the L corner and at the S. end, both hills are about 175 ft. Elevation averages 75 ft. **Edge:** On the S and W down to the ocean are, respectively, brushland, and brushland and grassland. To the N is pine forest and brushland, separated from the plot by a narrow paved road, on the E a dense pine forest continues across Hwy 1. **Water:** No permanent streams or ponds, but a small intermittent creek which carries rain runoff. **Food:** The majority appears to be pine and herb seeds and invertebrates. **Weather:** Variable. Temperature ranged from 29° to 77°F with an average high and low of 60° and 37°. The study period followed a dry fall, and the rainfall remained below normal. Three major winter storms, with a total rainfall of 5.8 in, and several other days with slight rain. The first trips were clear and calm; the last 3, stormy with gusty winds, scattered clouds and occasional showers. **Coverage:** Dec. 23-24, 26, 31; Jan. 3, 31; Feb. 1-2. **Total,** 8 trips, averaging 2 ¼ hours, am and pm, totaling 18 hrs. **Count:** Pygmy Nuthatch, 26 (64, 26), Chestnut-backed Chickadee, 20 (49, 20); Golden-crowned Kinglet, 15 (37, 15); Ruby-crowned Kinglet, 14 (35, 14); Townsend's Warbler, 5 (12, 5); Hairy Woodpecker, 2 (5, 2); Brown Creeper, 2; Winter Wren, 2; Bewick's Wren, 2; Mourning Dove, 1 (2, 1); Scrub Jay, 1; Com. Crow, 1; Hermit Thrush, 1; Dark-eyed (Oregon) Junco, 1; Sharp-shinned Hawk, +; Red-tailed Hawk, +; Band-tailed Pigeon, +; Com. Flicker, +; Yellow-bellied Sapsucker, +; Black Phoebe, +; Say's Phoebe, +; Steller's Jay, +; Wrentit, +; Am Robin, +; Hutton's Vireo, +; Yellow-rumped Warbler, +; White-crowned Sparrow, +; Fox Sparrow, +. **Average Total:** 3 (230/km², 93/100 acres). **Remarks:** Many of the species recorded are characteristic of the closed-cone pine ecosystem of the West Coast and occur here throughout the year, including the Pygmy Nuthatch, Chestnut-backed Chickadee, Brown Creeper, Bewick's and Winter Wrens (preferring forest-floor litter and brush), Hairy Woodpecker, Dark-eyed (Oregon) Junco, and Steller's and Scrub Jay, the latter associated with interspersed brushland. Throughout the pine forest the amount of understory varies, with the majority of the birds in areas of greatest density and diversity of vegetation. However, in the dense stands of young pines the main species encountered were only the kinglets and Hairy Woodpecker. The 5 dominant species—nuthatch, chickadee, kinglets and Townsend's Warbler—were usually in species-association groups moving through the treetops; once 50 individuals were

encountered in a single group. One or two Brown Creepers, working the pine trunks, accompanied these groups. In addition to the Bewick's and Winter Wrens, the Hermit Thrush was regularly found in underbrush. The crows and Mourning Doves were noted once, in flocks. No owls were observed, but Pygmy and Great Horned Owls have previously been reported in the tract. There are differences between this winter's census and the winter censusing done by Grinnell and Linsdale in 1934-35 (*Vertebrate Animals of Point Lobos Reserve*, Carnegie Inst. of Washington [1936]). In that winter, Hutton's Vireos, Bushtits, White-breasted Nuthatches, Black Phoebe, Anna's Hummingbirds, and flickers were frequently encountered; none of these was common, two not even present, this winter. On the other hand, this year the Hairy Woodpecker and especially the Golden-crowned Kinglet were conspicuous. Hairy Woodpeckers may have increased as a result of woodland taking over the more open areas that flickers favor.—CATHERINE HARKINS and RICHARD BEIDLEMAN, Dept. of Biology, Colorado College, Colorado Springs, Colo. 80903.

40. MIXED UPLAND HABITAT AND SWAMP.

— **Location:** Connecticut; Newtown, Fairfield County, intersection of Rte 34 and Zoar Rd.; 41°24'10"N, 73°14'10"W, Derby Quadrangle, USGS. **Continuity:** Established 1968; 3 intermittent years. **Size:** 14.2 ha = 35 acres (irregular, greatest dimensions 653 x 364 yds, surveyed). **Description of Area:** See AFN 22: 714-715 (1968). Disregard 1968 coordinates. **Weather:** Temperatures during count hours ranged from 30° to 42°F. Winds SW - NW; calm one day, light breezes 5 days, overcast 2 days, clear 3 days. No snow cover on 3 trips, snow cover irregular 6 in or less, 5 trips. **Coverage:** Dec. 22, 31; Jan. 6, 28, 31; Feb. 8, 15, 19. Total, 8 trips, between 1150 and 1625, averaging 1 hr. **Count:** Black-capped Chickadee, 3 (21, 9); Dark-eyed Junco, 2 (14, 6); Hairy Woodpecker, 1 (7, 3); White-breasted Nuthatch, 1; Purple Finch, 1; Am. Goldfinch, 1; Sharp-shinned Hawk, +; Ruffed Grouse, +; Great Horned Owl, +; Com. Flicker, +; Downy Woodpecker, +; Tufted Titmouse, +; Brown Creeper, +; E. Bluebird, +; Yellow-rumped Warbler, +; White-throated Sparrow, +. **Average Total:** 10 birds (71/km²; 29/100 acres). **Remarks:** Sharp-shinned Hawk, Great Horned Owl, Com. Flicker, Brown Creeper, E. Bluebird, Yellow-rumped Warbler, Am. Goldfinch, and White-throated Sparrow were seen only once, whereas, the Black-capped Chickadee was seen on 7 trips.—LEON L. BARKMAN, Science Dept., Housatonic Community College, Bridgeport, Conn. 06608.

41. RIPARIAN WOODLAND-FLOODPLAIN. —

Location: New York; Canadaway Creek Nature Sanctuary of Nature Conservancy, 1.25 mi W of Dunkirk, Chautauqua Co, 42°28'30"N, 79°22'W, Dunkirk Quadrangle, USGS, 1954. **Continuity:** New. **Size:** 13.8 ha = 34 acres (roughly rectangular, irregular in E portion due to curvature of the creek, measured from surveys and county tax map). **Description of Area:** Riparian lands along 3173 ft of Canadaway Creek, 200 ft SE of its confluence with Lake Erie. Study area is crossed by

St Rte 5 dividing it into a W section approx 12 acres and an E section approx 22 acres. The creek is bordered by mature Black Willows (*Salix nigra*). The balance is typical floodplain supporting mixed deciduous trees of medium height and an understory of saplings and shrubs. About 9% of the area is open field supporting several species of grasses, Goldenrods (*Solidago* sp.) and Blackberry (*Rubus* sp.). Additional principal trees are Speckled Alder (*Alnus rugosa*), Cottonwood (*Populus deltoides*), Quaking Aspen (*P. tremuloides*), Sycamore (*Platanus occidentalis*), Red Maple (*Acer rubrum*), Red Oak (*Quercus rubra*), Black Walnut (*Juglans nigra*) and Am. Elm (*Ulmus americana*). Many are thickly covered with Wild Grape (*Vitis* spp.) and some large trees have been downed by the weight of the vines creating almost impenetrable ground tangles. The shrub understory is mainly dense consisting of several Viburnum and Dogwood species. In the wetter woodland of the W section, Spicebush (*Lindera benzoin*) is abundant. Staghorn sumac (*Rhus typhina*) is common along the highway and at the field edges. Plant names from M.L. Fernald, *Gray's Manual of Botany*, 8th ed., 1950. **Topography:** Elevation 590 ft. Mostly flat. The creek bank rises about 12 ft in the E Section but is mostly only a foot or two above the creek level. **Edge:** Bounded on the N by residential land and highway, on the E by highway, on the S by brush and residential land, and on the W by woodland. **Food:** Grape vines were heavily fruited at the beginning of the study period but less than 10% remained in mid-February. Fruits of alder, sumac, Highbush Cranberry and Multiflora Rose were abundant throughout the study period. **Weather:** Late fall and early winter were exceptionally mild. Average December temperature was 31.7°F, 3.8° above normal. Average January temperature was 30.1°, 6° above normal. Average February temperature was 29.1°, 4.7° above normal. However, early February weather was more typical of western New York winters, and the 3 February trips were made in the season's coldest weather. Temperatures on the 8 trips ranged from 33° to 13°F; average for all trips was 27°. Snow cover on 6 trips, the deepest being 8 in on Jan. 19 and Feb. 9. Light snow on 2 trips. Clear skies on 2 trips, overcast on 6 trips. (Weather from National Weather Service, Greater Buffalo International Airport.) **Coverage:** Dec. 28; Jan. 5, 19, 24, 31; Feb. 1, 7, 9. Total, 8 trips, all between 0900 and 1630 EST, averaging 144 minutes. **Count:** Cardinal, 9 (65, 26), White-throated Sparrow, 8 (58, 24); Black-capped Chickadee, 7 (51, 21); Downy Woodpecker, 4 (29, 12), Cedar Waxwing, 3 (22,9); Tree Sparrow, 3; Hairy Woodpecker, 2 (15, 6); Golden-crowned Kinglet, 2, Song Sparrow, 1; White-breasted Nuthatch, 1; Winter Wren, 1; Black-crowned Night Heron, +; Mallard, +, Black Duck, +; Belted Kingfisher, +; Com. Flicker, +; Brown Creeper, +; Am. Robin, +; Evening Grosbeak, +; Dark-eyed Junco, +. **Average Total:** 42 birds (305/km², 124/100 acres). **Remarks:** Both woodpecker, chickadee and Cardinal were observed every trip, nuthatch on 7 trips, White-throated and Song Sparrows on 6 trips, kinglet and wren on 5 trips. Cedar Waxwings (2) feeding on sumac were seen once. Dead wood abundance probably accounts for high woodpecker populations. I wish to thank the members of the

Buffalo Ornithological Society who helped with the field work.—FRANCES M. REW, 129 Arbour Lane, Buffalo, N.Y. 14420.

42. FLOODPLAIN FOREST AND CULTIVATED BOTTOMLAND. — **Location:** New York; N of and adjacent to Scio, Allegany Co., 42°10'N, 77°59'W, Wellsville Quadrangle, USGS, 1926. **Continuity:** Established 1971: 5 consecutive years. **Size:** 51.8 ha = 128 acres. **Description of Area:** See AB 25: 644-645 (1971). Cultivated area: 75 acres corn, 5 acres new seeding, 8 acres oats. More dead elms fell under high winds. **Food:** There were no top dressings, except on fields edging the plot. In abundant supply: Box Elder, corn gleanings, weed seeds, sycamore fruits, Duckweed and Minnows. **Weather:** In general, the 50-day study period was about 4°F above normal with average precipitation and snowfall. Temperatures ranged from 8° to 37°, average 22.4°F. Wind was calm to light. The river and slough were open. The ground was usually bare or with up to 5 in. fluffy snow, except on Dec. 28, when the 6 in. snow cover included a 2-in. crust. Lake Erie, 60 miles NW of Scio, reached 32° Mar. 10 but was still open by close of the study. **Coverage:** Dec. 28, Jan. 9, 14, 17, 25; Feb. 1, 5, 8, 12, 15. Ten trips, averaging 123 minutes each, with 8 between 0805 and 1015, and 2 between 1030 and 1300, EST. Total man-hours, 20.4. **Count:** Com. Crow, 112 (216, 88); Rock Dove, 45 (87, 35), Evening Grosbeak, 34 (66, 27); Starling, 12 (23, 9), Song Sparrow, 11 (21, 9); Mourning Dove, 8 (15, 6) Am. Goldfinch, 6 (12, 5); Black Duck, 3 (6, 2); Tree Sparrow, 3; White-throated Sparrow, 3; Downy Woodpecker, 2 (4, 2); White-breasted Nuthatch, 2; Purple Finch, 2; Field Sparrow, 2; Herring Gull, 1; Belted Kingfisher, 1; Blue Jay, 1; Black-capped Chickadee, 1; Great Blue Heron, +; Mallard, +; Com. Merganser, +; Sharp-shinned Hawk, +; Cooper's Hawk, +; Red-tailed Hawk, +; Rough-legged Hawk, +; Am. Kestrel, +; Great Horned Owl, +; Hairy Woodpecker, +; Horned Lark, +; House Sparrow, +; Cardinal, +; Dark-eyed Junco, +; Swamp Sparrow, +. **Average Total:** 249 birds (481/km², 195/100 acres). **Remarks:** Total species: 33, 4 above the 5-year average. Seen on every trip were Rock Dove, Belted Kingfisher, Downy Woodpecker, Com. Crow, Evening Grosbeak and Song Sparrow, while new species for the 5 years were Sharp-shinned and Rough-legged Hawks and Purple Finch. Com. Crow numbers dropped probably as a result of starting a.m. trips an hour later than last year. Many crows had already fed and left the plot. Thanks are extended to Donald and Charles Maybee, owners, for permission to use the property, to Raymond and Michael Pitzrick for help in the field, and to Robert Place for data from the Alfred Coop. Weather Station.—VIVIAN MILLS PITZRICK, Box 61, Route 1, Amity Lake, Belmont, N.Y. 14813.

43. OLD FIELD-MEADOW AND PRIMARY DECIDUOUS THICKETS. — **Location:** Pennsylvania: Buffalo Township, Butler Co., one mi S of intersection of St. Rte 228 and Kepple Rd; on Todd Sanctuary (owned by Audubon Society of W Pa.); 40°44'N, 79°42'W, Freeport Quadrangle, USGS. **Continuity:** New. **Size:** 10.1 ha = 25 acres (measured with line and compass). **Description of Area:** See AB 28 1027-1028 (1974). **Weather** Temperatures aver-

aged mid-thirties ranging -8° to 64°F. Precipitation January, 3.3 in., February, 4.6 in. January days had some snow cover. **Coverage:** Jan. 4, 8, 11, 15, 31, Feb. 8, 15. Total, 7 trips, 10 hours, between 0730 and 1200. **Count:** Black-capped Chickadee, 7 (69, 28), Tufted Titmouse, 5 (49, 20); Dark-eyed Junco, 5; Cardinal, 4 (40, 16); Ruffed Grouse, 1 (10, 4); Downy Woodpecker, 1; Blue Jay, 1; Com. Crow, +; White-breasted Nuthatch, +; Golden-crowned Kinglet, +, Am. Goldfinch, +. **Average Total:** 26 birds (257/km², 104/100 acres). **Remarks:** White-tailed Deer were seen on 5 of the trips. There was a good crop of crabapples (*Pyrus* spp.). I would like to thank Frank Bell for help with some of the censuses.—G. THOMAS BANCROFT, RD 3, Cedar Run Rd, Allison Park, Pa., 15101.

44. MIXED HABITAT; DECIDUOUS WOODED STREAM VALLEY AND MEADOW — **Location** Maryland; Potomac, 39°2'40''N, 77°13'50''W, Rockville Quadrangle, USGS. **Continuity:** Established 1973, 3 years. **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:** See AB 27 702-703 (1973). **Weather:** Temperatures ranged from 10° (Feb. 8) to 50°F (Jan. 26). Rain mixed with snow fell on Jan. 31 but did not accumulate; there was snow cover (1 in-3in) Feb. 5, 8. Winds averaged 0-15 mph. There were 3 clear days, 4 cloudy days, and one day of rain and snow. **Coverage:** Dec. 15; Jan. 5, 12, 19, 26, 31 (½); Feb. 2, 5 (½), 8. Total, 8 counts averaging 4 ¼ hrs. **Count:** Com. Crow, 24 (67, 27); Carolina Chickadee, 21 (59, 24); Starling, 19 (53, 22); Cardinal, 15 (42, 17); Blue Jay, 12 (34, 14); Song Sparrow, 10 (28, 11); Carolina Wren, 7 (20, 8); White-throated Sparrow, 7; Tufted Titmouse, 6 (17, 7); Am. Goldfinch, 6; E Bluebird, 4 (11, 5); Brown-headed Cowbird, 4; Dark-eyed Junco, 4; Red-bellied Woodpecker, 3 (8,3), Downy Woodpecker, 3; Tree Sparrow, 3; Field Sparrow, 3; Com. Flicker, 2 (6, 2); Pileated Woodpecker 2, White-breasted Nuthatch, 2; Mockingbird, 1; Yellow-rumped Warbler, 2; Turkey Vulture, 1 (3, 1); Brown Creeper, 1; Com. Grackle, 1; Red-tailed Hawk, +, Red-shouldered Hawk, +; Rock Dove, +; Mourning Dove, +; Great Horned Owl, +; Barred Owl, +, Belted Kingfisher, +; Yellow-bellied Sapsucker, +, Hairy Woodpecker, +; Winter Wren, +; Am. Robin, +; Hermit Thrush, +; Golden-crowned Kinglet, +, Rufous-sided Towhee, +. **Average Total:** 176 birds (494/km², 200/100 acres). **Remarks:** total species, 42. Two flocks of Ring-billed Gulls (15 and 8) and 1 flock of Canada Geese (15) flew over the study area, each on different days. Significant decreases from last year: White-throated Sparrow, down from 17 to 7 per trip, Dark-eyed Junco from 14 to 4. Several species showed significant increases: Com. Crow, 12 to 24, Carolina Chickadee 12 to 21, Blue Jay 1 to 12, Am. Goldfinch, + to 6, Cardinal 8 to 15, and Carolina Wren 2 to 7. Yellow-rumped Warbler, Hermit Thrush, Com Grackle, Yellow-bellied Sapsucker, Great Horned Owl, Tree Sparrow, Rufous-sided Towhee were new.—MORRILL B. DONNARD, DAVID NUTTER, JOHN R. NORVELL (compiler, Rt. 5, Box 169B, Mt Airy, Md. 21771), Montgomery County Chapter, Maryland Ornithological Society.

45. MIXED UPLAND HABITAT: — Location: District of Columbia; central 1/3 Glover-Archbold Park, a long, narrow stream valley park in the NW section of the District. **Continuity:** Established 1960; 16 years. **Size:** 14.2 ha = 35 acres. **Description of Area:** See *AFN* 14: 502-503 (1960). **Weather:** Clear 3 trips, cloudy 5 trips, sleet or rain 2 trips. Light snow cover 2 trips. Average temperature 45°F. Winds 15-20 mph 2 trips. **Coverage:** Jan. 4, 6-7, 9, 11, 15, 25, 26; Feb. 15-16. Ten trips, from 0900 to 1745 with 2 1/2 censuses in a.m. Total, 13 hrs 55 min; average, 1.86 hrs. **Count:** Starling, 70 (494, 200); White-throated Sparrow, 18 (127, 51); House Sparrow, 11 (78, 31); Cardinal, 10 (71, 29); Carolina Chickadee, 9 (64, 26); Downy Woodpecker, 6 (42, 17); Com. Crow, 6; Tufted Titmouse, 6; Purple Finch, 6; Dark-eyed Junco, 6; Am. Goldfinch, 5 (35, 14); Blue Jay, 4 (28, 11); Carolina Wren, 4; Mourning Dove, 3 (21, 9); Red-bellied Woodpecker, 3; White-breasted Nuthatch, 3; Cedar Waxwing, 3; Mockingbird, 2 (14, 6); Rufous-sided Towhee, 2; Turkey Vulture, 1; (7, 3); Com. Flicker, 1; Pileated Woodpecker, 1; Fish Crow, 1; Black Vulture, +; Red-tailed Hawk, +; Red-shouldered Hawk, +; Bobwhite, +; Herring Gull, +; Rock Dove, +; Screech Owl, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; Winter Wren, +; Gray Catbird, +; Yellow-rumped Warbler, +; Song Sparrow, +. **Average Total:** 170 (1200/km², 486/100 acres). **Remarks:** Total species, 36. The record count for Starlings, which raised the individual count to a record high, came from a pm roost Feb. 15. A conservative estimate of 500 might have grown to 1000 if weather and light had permitted longer study. **Count:** Cumulative list, now 70 species: Screech Owl, Gray Catbird and Yellow-rumped Warbler, were added to the count list. The rising count of House Sparrows, rarely counted before 1969, comes from a growing colony around a neighboring apartment house. The high count of White-throated Sparrows probably is a result of the greater number of late afternoon trips. We tied our record for species number, and found the regular species at expected levels.—*SHIRLEY A. BRIGGS, compiler; JAMES DEANE, BRAD HALL, DAVID MEHLMAN, EDGAR H. SMITH, and DONALD WEBER (members of Audubon Naturalist Society, 8940 Jones Mill Rd., Washington, D.C. 20015).*

46. PINELAND, SCRUB AND RESIDENTIAL. — Location: Florida; 1 mi N of Homestead; 25°29'N, 80°29'W. **Continuity:** New. **Size:** 8.1 ha = 20 acres. **Description of Area:** Mixed residential-agricultural former pineland, typical of local land use. Bisected by road. Roughly 8 acres mature pineland, typical of local land use. Bisected by road. Roughly 8 acres mature pineland with shrub and hardwood understory: dominant tree species: Pine (*Pinus elliottii*) var. *densa*, Poisonwood (*Metopium toxiferum*), Myrsine (*Rapanea guianensis*), Saw Palmetto (*Serenoa repens*), Lantana (*Lantana involucrata*), *Tetrazygia bicolor*, *Smilax* sp., Poison Ivy (*Rhus radicans*). Four acres of high scrub revegetating field dominated by fruiting Florida Holly (*Schinus terebinthifolius*) with no understory: Lead Tree (*Leucaena glauca*), *Baccharis halimifolia*, Snowberry (*Chionococco alba*), Poison Ivy, *Smilax* sp. Three acres of low scrub revegetating field dominated by *Trema micrantha*, *Tetrazygia*, *Schinus*, Poisonwood,

Lantana, Poison Ivy, *Smilax* sp., 3 1/2 acres of unkempt home sites: 1 wooded, 2 bare, 1 planted to fruit and berry-bearing natives with some garden, a weedy artificial pond 20 x 45 ft. One and one-half acres horse pasture with sheds. **Topography:** Flat. Elevation, about 10 ft. **Edge:** A canal, a heavily wooded pine hammock, a field wholly grown to *Schinus* (no understory), an open field of high grass and scrub. **Weather:** Unusually warm and dry. Temperature range, 59°-81°F, averages 62.5° to 75.3°. Sky clear 8 days, overcast 1. Minimal showers 2 days. Wind not a factor. **Coverage:** Dec 29, Jan. 1-2, 7, 17-19, 25; Feb. 9. Nine counts, averaging 4 hrs. each; 36 hrs total. **Count:** Yellow-rumped Warbler, 62 (766, 310); Killdeer, 33 (408, 165); House Sparrow, 20 (247, 100); Gray Catbird, 9 (111, 45); Mourning Dove, 7 (86, 35); Cardinal, 7; Painted Bunting, 7; Mockingbird, 6 (74, 30); Smooth-billed Ani, 4 (49, 20); Blue-gray Gnatcatcher, 4; Ground Dove, 3 (37, 15); Com. Flicker, 3; White-eyed Vireo, 3; Indigo Bunting, 2 (25, 10); Rufous-sided Towhee, 2; Sharp-shinned Hawk, 1 (12, 5); Am. Kestrel, 1; Ruby-throated Hummingbird, 1; Red-bellied Woodpecker, 1; Tree Swallow, 1; Blue Jay, 1; House Wren, 1; Carolina Wren, 1; Am. Robin, 1; Com. Yellowthroat, 1; Red-winged Blackbird, 1; Great Blue Heron, +; Green Heron, +; Great Egret, +; Turkey Vulture, +; Black Vulture, +; Red-tailed Hawk, +; Swainson's Hawk, +; Marsh Hawk, +; Whip-poor-will, +; Belted Kingfisher, +; Downy Woodpecker, +; Great Crested Flycatcher, +; E. Phoebe, +; Least Flycatcher, +; Purple Martin, +; Brown Thrasher, +; Bell's Vireo, +; Pine Warbler, +; Prairie Warbler, +; Palm Warbler, +; E. Meadowlark, +; Spot-breasted Oriole, +; Boat-tailed Grackle, +; Rose-breasted Grosbeak, +, Am. Goldfinch, +. **Average Total:** 183 birds (2261/km², 915/100 acres). **Remarks:** Total species, 51; Bell's Vireo, observed 2 days, is rare but not unknown in S Florida and has been netted in the same locality. Population and observations were affected by a female Sharp-shinned Hawk feeding on the territory. Heron, egret and kingfisher were seen near the canal, large hawks were seen overhead, killdeer and Ground Dove on open ground only, woodpeckers and Pine Warblers in pine woods only, House Wren in scrub only; the remaining species used all habitats.—*ERMA J. FISK, 17101 S.W. 284 St., Homestead, Fla. 33030*

47. GRASSY MARSH AND DECIDUOUS FOREST. — Location: Ohio; Stark County, 1/2 mi NE of Hartville; 40°58'N, 81°19'W, Hartville Quadrangle, USGS. **Continuity:** New. **Size:** 13.44 ha = 33.2 acres (rectangle 2280 x 635 ft, surveyed). **Description of Area:** Flat marsh area is located on the E portion of the plot and comprises 30% of the total area. Vegetation is predominantly Com. Cattail (*Typha latifolia*), Elderberry (*Sambucus canadensis*), and Meadowsweet (*Spiraea latifolia*); the few trees are Black Willow (*Salix nigra*) and hawthorn (*Crataegus* sp.). Much of the forest was logged at one time; presently some trees are moderate size. Predominant trees: Red Maple (*Acer rubrum*) and Black Cherry (*Prunus serotina*) with a scattering of Am. Beech (*Fagus grandifolia*), White Oak (*Quercus alba*); Red Oak (*Q. rubra*), Flowering Dogwood (*Cornus florida*), apple and crabapple (*Malus* sp.), and Sassafras (*Sassafras albidum*) Three small,

swampy areas ringed by Pin Oak (*Q. palustris*) support Buttonbush (*Cephalanthus occidentalis*). Some thickets of Privet (*Ligustrum vulgare*) are present. **Edge:** N and S by human habitation, E by Woodland and W by woodland and a plantation of White Pine. **Topography:** woodland is 15% slope. Elevation: 1155 ft. **Food:** A record snowfall in November flattened goldenrod and other seed-bearing marsh vegetation. Fewer than normal birds were seen there. Fruit was still present on the privet, highbush cranberry, and Multiflora Rose during the census, apples and crabapples were present. Many acorn caches were observed. The author's residence is located on the plot where several feeders are maintained. **Weather:** Average. The ground was barely to moderately snow covered on 8 trips. Temperature varied from 18° to 48°F. **Coverage:** Jan. 2, 5, 10-11, 13, 15-16, 20, 23. Ten trips, averaging over 2 hours. (Feeders observed daily in January.) **Count:** House Sparrow, 20 (149, 60); Dark-eyed Junco, 18 (134, 54); Am. Goldfinch, 15 (112, 45); Cardinal, 14 (104, 42); Song Sparrow, 10 (74, 30); Downy Woodpecker, 8 (60, 24); Black-capped Chickadee, 8; Tufted Titmouse, 7 (52, 21); Blue Jay, 6 (5, 18); Hairy Woodpecker, 4 (30, 12); White-breasted Nuthatch, 4; Starling, 3 (22, 9); Red-bellied Woodpecker, 2 (15, 6); Com. Crow, 2; Tree Sparrow, 2; White-crowned Sparrow, 2; Red-tailed Hawk, 1 (7, 3); Mourning Dove, 1; Brown Creeper, 1; Golden-crowned Kinglet, 1; Harris' Sparrow, 1; White-throated Sparrow, 1; Cooper's Hawk, +; Am. Kestrel, +; Great Horned Owl, +; Com. Flicker, +; Am. Robin, +; Yellow-rumped Warbler, +; Purple Finch, +. **Average Total:** 131 birds (975/km², 395/100 acres). **Remarks:** Total species, 29; Harris' Sparrow, which rarely winters in Ohio, seen daily since Nov. 23 —*JOAN E. ESPENSCHIED, 3056 Swamp St., Hartsville, Ohio 44632.*

48. MIXED HABITAT-DISTURBED BOTTOM-LAND. — **Location:** Oklahoma; Dewey, Washington Co., 2 mi W of intersection of Ninth St. and Hwy 75, 0.3 mi N on bank Caney River, 36°48'N, 95°58'W, Tulsa Quadrangle, USGS. **Continuity:** Established 1972, 3 consecutive years. **Size:** 40.47 ha = 100 acres (irregular rectangle roughly 600 by 800 yds; from SCS aerial map). **Description of Area:** See AB 26: 976-977 (1972). **Weather:** six clear count days; 4 cloudy - overcast. Temperatures, 20° to 65°F. **Coverage:** Dec. 22, 26, Jan. 3, 13, 18, 22, 28; Feb. 3, 7, 10. Ten trips, averaging 3 hrs. 20 min.; 32 man-hours. Two trips between 1350 and 1655; 8 trips between 0800 and 1215 CST. **Count:** Tree Sparrow, 26 (64, 26); Am. Goldfinch, 25 (62, 25); Dark-eyed Junco, 24 (59, 24); Song Sparrow, 17 (42, 17); Carolina Chickadee, 16 (40, 16); Fox Sparrow, 15 (37, 15); Cardinal, 13 (32, 13); White-throated Sparrow, 11 (27, 11); Blue Jay, 9 (22, 9); Downy Woodpecker, 7 (17, 7); Tufted Titmouse, 7; Swamp Sparrow, 7; Bobwhite, 6 (15, 6); Red-bellied Woodpecker, 6; Am. Robin, 3 (7, 3); Red-winged Blackbird, 3; Com. Flicker, 2 (5, 2); Red-shouldered Hawk, 1 (2, 1); Marsh Hawk, 1; Great Horned Owl, 1; Barred Owl, 1; Pileated Woodpecker, 1; Hairy Woodpecker, 1; White-breasted Nuthatch, 1; Brown Creeper, 1; Carolina Wren, 1; E. Bluebird, 1; Loggerhead Shrike, 1; Great Blue Heron, +; Sharp-shinned Hawk, +; Am. Kestrel, +; Yellow-bellied Sapsucker, +;

Com. Crow, +; Mockingbird, +; Golden-crowned Kinglet, +; House Sparrow, +; E. Meadowlark, +; Purple Finch, +; Rufous-sided Towhee, +; Lincoln's Sparrow, +. **Average Total:** 205 birds (507/km², 205/100 acres). **Remarks:** Abundant goldenrod and thistle seeds attracted sparrows. Fruits and nuts were scarce owing to a late spring freeze in 1974. The first visit was disappointing, with only 21 species but additional species were added on 7 trips with a final total of 40 species. Present on all counts were Red-bellied and Downy Woodpeckers, Carolina Chickadee, Tufted Titmouse, Cardinal, Am. Goldfinch, Dark-eyed Junco, Tree, White-throated, Fox, Swamp and Song Sparrows. Weather during the census was not severe but often cold enough to freeze marsh water.—*ELLA DELAP, 409 N. Wyandotte, Dewey, Okla. 74029.*

49. COTTONWOOD RIVERBOTTOM HABITAT

— **Location:** Colorado; W of Cache la Poudre Elem and Jr. High Schools, La Porte, Larimer County, 40°38'N, 105°8'W. **Continuity:** New. **Size:** 12.1 ha = 30 acres, from aerial photo with planimeter. **Description of Area:** typical high plains riverbottom habitat on bank of Cache la Poudre River. Area bordered on two sides by irrigation ditches, and on one side by a small (3.8 ha) cropland. Area is lightly grazed by three horses. The dominant tree is the Plains Cottonwood (*Populus sargentii*). Common trees: Peach-leaf Willow (*Salix amygdaloides*), Boxelder (*Acer negundo*). Less numerous trees: Narrowleaf Cottonwood (*P. angustifolia*), Green Ash (*Fraxinus pennsylvanica*), Thinleaf Alder (*Alnus tenuifolia*), Rocky Mountain Juniper (*Juniperus scopulorum*). Large common shrubs: Am. Plum (*P. americana*), Com. Chokecherry (*P. virginianus*), willow (*Salix* sp.) Ground cover: shrubs, grasses, some cacti. Dominant shrub: Snowberry (*Symphoricarpos occidentalis*). Abundant: Sunflower (*Helianthus salicifolius*), Spurge (*Euphorbia Esula*), Milkweed (*Asclepias speciosa*), Goldenrod (*Solidago gigantea*), Meadow Rue (*Thalictrum dasycarpum*), Com. Mullein (*Verbascum thapsus*), Russian Thistle (*Salsola kali*). Approximately 16% (1.9 ha) lacks trees but is vegetated by grasses and Prickly Pear Cactus (*Opuntia* sp.). Abundant vines: Virgin's Bower (*Clematis ligusticifolia*), Virginia Creeper (*Parthenocissis quinquefolia*). Area is relatively flat, about 1536 m (5040 ft) above sea level. **Weather:** North-central Colorado experienced a very mild winter 1974-1975. Only once during the study period was there snow cover (2.56 cm). Temperatures, -14° - 2°C with a mean 6°C. Counts were taken early in the day before warming occurred or the wind became strong. **Coverage:** Dec. 7, 20, 25; Jan. 7, 23, 30, 31. Total, 7 trips totaling 13 hrs. Six trips between sunrise and 1000, one trip midday. **Count:** Starling, 21 (173, 70); Red-winged Blackbird, 20 (165, 67); Dark-eyed Junco, 17 (140, 57); Tree Sparrow, 12 (99, 40); Black-billed Magpie, 8 (66, 27); Com. Flicker, 7 (58, 23); Canada Goose, 4 (33, 13); Killdeer, 3 (25, 10); House Sparrow, 3; Com. Snipe, 2 (16, 7); Am. Robin, 2; Gray-headed Junco, 2; Song Sparrow, 1; Mallard, 1 (8, 3); Belted Kingfisher, 1; Downy Woodpecker, 1; Blue Jay, 1; Black-capped Chickadee, 1; Brown Creeper, 1, Dipper, 1, Am. Goldfinch, 1, Swainson's



Study 49. Cottonwood riverbottom, lightly grazed, showing abundant ground cover. Photo Paul Gertler.

Hawk, +; Bald Eagle, +; Prairie Falcon, +; Am. Kestrel, +; Winter Wren, +; House Finch, +. **Average Total:** 111 birds (914/km², 370/100 acres). **Remarks:** Killdeer, Black-billed Magpie, Com. Flicker seen 7 counts. Common Snipe, Starling, and Dark-eyed Junco were seen on 6 counts and Belted Kingfisher, Am. Robin and Song Sparrow seen on 5 counts. Red-winged Blackbirds were estimated as second highest, but sighted once as a flock of 120. The occurrence of a Swainson's Hawk in mid-winter may be indicative of a mild winter. These counts are part of a wildlife inventory being conducted for the City of Fort Collins' Greenbelt Project.—PAUL GERTLER, Dept. of Fishery & Wildlife Biology, Colorado State Univ., Ft. Collins, Colo. 80523.

50. COTTONWOOD RIVERBOTTOM HABITAT

— **Location:** Colorado; Fort Collins, s of Colo. Hwy 14, S bank of Cache la Poudre River; 40°34'N, 105°3'W, Fort Collins Quadrangle, USGS. **Continuity:** New. **Size:** 10.9 ha = 27 acres, from aerial photo with planimeter. **Description of Area:** six divisions (percentage of total area in parentheses): wooded area, 4.6 ha = 11.4 acres (42.3); gravel pit lake, 2.0 ha = 4.9 acres (18.3); cattail marsh, 1.4 ha = 3.5 acres (12.8); river, 1.2 ha = 3.1 acres (11.3); open grassy area, 1.0 ha = 2.5 acres (9.2); cement pile where cement trucks have dumped waste, 0.7 ha = 1.6 acres (6.1). South of the area there is a small (3.6 ha) moderately grazed pasture. The area receives industrial and urban use, and is adjacent to two heavily used roads. See Study 49 for scientific names. Dominant trees: Plains Cottonwood and Peachleaf Willow. Other trees: Green Ash, Thinleaf Alder, Narrowleaf Cottonwood, Boxelder, Silver Maple (*Acer saccharinum*), Russian Olive (*Elaeagnus angustifolia*). Unlike most riverbottom areas along the Cache la Poudre River, Snowberry is present but not dominant. Common shrubs and forbs: Burdock (*Arctium minus*), Stinging Nettle (*Urtica dioica*), Spurge, Milkweed and Meadow Rue. In the marshy area Broad-leaved Cattail (*Typha latifolia*) is dominant, Narrow-leaved Cattail (*T. angustifolia*), Three-square Bulrush (*Scirpus americanus*) and Duck Potato

(*Sagittaria latifolia*) are common. The area is a long narrow rectangle of sloughs and woods bordered on the S by a rise of 7.6 meters. The side of this rise has dense growth of Com. Chokecherry, Am. Plum, Wild Grape (*Vitis* sp.), Mock Cucumber (*Echinocystis lobata*), Virginia Creeper, Virgin's Bower, and Poison Ivy (*Rhus radicans*). In the open areas are grasses of the genera *Poa*, *Festuca*, and *Bromus*. Upstream there is a sewage treatment plant which discharges warm effluent, preventing river freezing even during extremely cold weather. **Weather:** See Study 49. Temperatures ranged from -15° - 0° with a mean of 6°C. **Coverage:** Dec. 8, 24; Jan. 21; Feb. 2, 20, 22-23. Total, 7 trips taken between sunrise and 1000, averaging 105 min each. **Count:** Black-billed Magpie, 16 (146, 59); Starling, 10 (92, 37); Com. Snipe, 9 (82, 33); Red-winged Blackbird, 8 (73, 30); Canada Goose, 7 (64, 26); Song Sparrow, 7; Killdeer, 6 (55, 22); Com. Flicker, 6; House Sparrow, 4 (37, 15); Tree Sparrow, 4; Black-capped Chickadee, 3 (27, 11); Mallard, 2 (18, 7); Com. Merganser, 2; Rock Dove, 2; Belted Kingfisher, 2; House Finch, 1; Great Blue Heron, 1 (9, 4); Herring Gull, 1; Downy Woodpecker, 1; Com. Crow, 1; Brown Creeper, 1; Am. Robin, 1; Cedar Waxwing, 1; Pine Siskin, 1; Am. Goldfinch, 1; Dark-eyed Junco, 1; White-crowned Sparrow, 1; Red-tailed Hawk +; Marsh Hawk, +; Ring-necked Pheasant, +; Ring-billed Gull, +; Hairy Woodpecker, +; Harris' Sparrow, +; Swamp Sparrow, +. **Average total:** 101 birds (924/km², 374/100 acres). **Remarks:** Black-billed Magpie, Belted Kingfisher, Com. Flicker, Song Sparrow, Starling, Com. Snipe seen 7 trips. Black-capped Chickadee seen 6 trips, Tree Sparrow, Am. Robin, and Rock Dove seen 5 trips. Pine Siskin and Cedar Waxwing were seen once. A wintering Great Blue Heron is probably the result of a sewage treatment plant discharging warm effluent upstream. This study is part of a wildlife inventory being conducted for the City of Fort Collins' Greenbelt Project.—PAUL GERTLER, Dept. of Fishery & Wildlife Biology, Colorado State Univ., Ft. Collins, Colo. 80523.

51. GRAZED COTTONWOOD RIVERBOTTOM

— **Location:** Colorado; 3 mi. E., 1.5 mi. S of Fort Collins, on S bank of Cache la Poudre River; 40°33'N, 105°1'W, Fort Collins Quadrangle, USGS. **Continuity:** New. **Size:** 14.2 ha = 35 acres, from aerial photo with planimeter. **Description of Area:** The area is bordered N by a feedlot, E by the Northern Colorado Nature Center and a sewage treatment plant, S by an active gravel-mining operation, W by a gravel pond. The river has been diverted from its natural course (which would have run on the N side of the area) and now runs around the S side of the area. Lying at 1482 m = 4860 ft above sea level, the area is generally flat. See studies 49 and 50 for scientific names. The dominant tree species is Plains Cottonwood. Most of the trees are mature, many with dead wood. Also present in small numbers are Peachleaf Willow, Boxelder, Green Ash, and Russian Olive. During fall and winter there is almost no understory vegetation because of very intensive cattle grazing. In most places, bare ground is exposed. In spring, when cattle are not grazing the area, the ground cover consists almost entirely of Burdock, Russian Thistle,



Study 51. Cottonwood riverbottom, heavily grazed, showing absence of ground cover. Photo Paul Gertler.

and Spurge. Owing to rubbing by cattle, the ground is littered with broken branches. **Weather:** See Study 49. Temperatures ranged from -26° to 3°C . with a mean of -8°C . Wind was strong (10-20 mph) during one count. **Coverage:** Dec. 9, 17; Jan. 14, 28; Feb. 6, 22. Total, 6 trips totaling 11 hrs taken between sunrise and 1030. **Count:** Red-winged Blackbird, 467 (3297, 1334); Starling, 32 (6, 91); Dark-eyed Junco, 17 (120, 49), Mallard, 8 (56, 23); Com. Crow 8; Brewer's Blackbird, 8; Black-capped Chickadee, 7 (49, 20); House Sparrow, 7; Black-billed Magpie, 6 (42, 17); Com. Flicker 4 (28, 11); Brown Creeper, 3 (21, 9); Killdeer, 2 (14, 6); Gadwall, 1 (7, 3); Green-winged Teal, 1; Am. Kestrel, 1; Com. Snipe, 1; Rock Dove, 1; Great Horned Owl, 1; Belted Kingfisher, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; Gray-headed Junco, 1; Tree Sparrow, 1; Rough-legged Hawk, +; Bald Eagle, +; Herring Gull, +; Blue Jay, +; Winter Wren, +; W. Meadowlark, +; Song Sparrow, +. **Average Total:** 579 birds ($4088/\text{km}^2$, $1654/100$ acres). **Remarks:** The large number of Red-winged Blackbirds and Starlings and the occurrence of Brewer's Blackbirds during winter, can be attributed to the feedlot adjacent to the plot. Com. Flicker, Black-billed Magpies, Black-capped Chickadees, House Sparrows, Starlings, Red-winged Blackbirds, and Dark-eyed Juncos, were seen on 6 counts. Brown Creepers were seen on 5 counts, and Killdeer, Great Horned Owls, and Belted Kingfishers were seen on 4 counts. The Great Horned Owls used the area, where there is good ground cover. The Rough-legged Hawk, Bald Eagle, and Winter Wren were probably visitors that spent most of their time on the adjacent nature center. This study is part of a wildlife inventory being conducted for the City of Fort Collins' Greenbelt Project.—PAUL GERTLER, Dept. of Fishery & Wildlife Biology, Colorado State Univ., Ft. Collins, Colo. 80523.

52. COTTONWOOD-ABANDONED FIELDS BOTTOMLAND. — **Location:** Colorado; 1 mi NW of Fort Collins, Larimer County, SW junction of Shields St. and Cache La Poudre River; $40^{\circ}36'N$, $105^{\circ}06'W$ (Sect. 3, T7N, R69W), Fort Collins Quadrangle, USGS. **Continuity:** New. **Size:** 8.1 ha = 20 acres (approximately rectangular 1026 x 146 m by aer-

ial photograph and planimeter). **Description of Area:** The study area borders the bank of the Cache La Poudre River, and lies diagonally in a NW - SE rectangular direction at 4990 ft. **Water:** Average width of the river is 10 m with some marsh, pond, and boggy meadow section in the western half of the plot. Stream discharge rate on the average for the month of February is 5 cubic ft/sec. A small tributary flows through the meadow into the river about half way through the area, but dries during late summer. This small creek also feeds a pond of 0.06 acres, that retains water all year. The extreme NW section contains a marsh of 0.5 acres, that derives water directly from the river. **Vegetation:** Principal trees consist of 45% willow (*Salix*), from seedling size to 30 ft in the riverbottom and marsh, 50% Plains Cottonwood (*Populus sargentii*), along the riverbottom, and interdispersed throughout the abandoned fields with crown heights reaching 60 ft, 5% Russian Olive (*Elaeagnus angustifolia*), generally small, dispersed on the study area. Density of trees/acre is low. Most vegetation is herbaceous shrubs and grasses. Chief understory species, in descending order of frequency: Fringe Sage (*Artemisia frigida*), rabbitbrush (*Chrysothamnus*), snowberry (*Symphoricarpos occidentalis*), fescue (*Festuca*), wheatgrass (*Agropyron*), Prickly Pear Cactus (*Opuntia*), Virgin's Bower (*Clematis ligusticifolia*), and milkweed (*Asclepias*). The abandoned fields are now in late stages of succession and constitute the major portion of the study area, with a variety of plant species found throughout. On the NW boundary a dump fringes the marsh, the result of farm dumping. **Edge:** NW boundary follows the river's contour, NE section is defined by a moderately travelled road, and the SE and SW sides join pastureland. **Weather:** Mainly dry conditions prevailed with little cloud cover, and minimum wind. Average temperature on census days was 31°F , with a range of 20° - 42° . Below freezing temperatures occurred on 4 days accompanied by one snowfall with a 2 in accumulation. Winds in excess of 5 mph were recorded only once, when speeds approached 30 mph. Skies were overcast twice. **Coverage:** Feb. 11-12, 14, 17, 21-22; Mar. 1. Total trips, 7, averaging 90 min, between 0700 and 0915. **Count:** Tree Sparrow, 54 (667, 270); Red-winged Blackbird, 17 (210, 85); Mallard, 16 (198, 80); Song Sparrow, 12 (148, 60); Killdeer, 10 (124, 50); Black-billed Magpie, 10; Com. Snipe, 9 (111, 45); Starling, 9; W. Meadowlark, 5 (62, 25); Com. Flicker, 4 (49, 20); Black-capped Chickadee, 4; Canada Goose, 2(25, 10); House Finch, 2; Am. Wigeon, 1 (12, 5); Com. Merganser, 1; Belted Kingfisher, 1; Downy Woodpecker, 1; Com Crow, 1; House Sparrow, 1; Com. Grackle, 1; Red-tailed Hawk, +; Rough-legged Hawk, +; Herring Gull, +; Winter Wren, +; Am. Robin, +; Water Pipit, +; Lesser Goldfinch, +. **Average Total:** 161 (1989/ km^2 , 805/100 acres). **Remarks:** Cattle grazing (20 head) initiated Feb. 21, which may have disturbed the birds foraging in the abandoned fields. Adjacent pastures are heavily used by wintering and migrating Canada Geese and hundreds of individuals constantly pass overhead. The high number of Tree Sparrows was closely correlated with the abundance of Snowberry which they utilized as food.—THEODORE BODNER, Dept. of Fishery & Wildlife Biology, Colorado State Univ., Fort Collins, Colo. 80523.

53. PONDEROSA PINE SEDIMENTARY CREEKBOTTOM. —

Location: Colorado; Running Creek Field Station, 28 mi NE of Colorado Springs and 10 mi S of Elizabeth, Elbert County, parts of Sect. 25, 26, and 35, T9S, R65W; 39°14'N, 104°37'W, Elbert Quadrangle, USGS. **Continuity:** Established 1974. Second year. **Size:** 36.42 ha = 90 acres (measured from map). **Description of Area:** See AB 28(3): 710-711 (1974). **Weather:** The census period followed a mild, dry autumn, and itself was drier, windier and milder than ordinary. The average temperature was about 20°F, with a low of about -20° and a high of about 55°. There were fewer storms resulting in less snowcover than the previous winter. **Coverage:** Dec. 30; Jan. 4, 17, 24-25; Feb. 1; Mar. 1. Total, 7 trips, both am and pm, totaling 15 hrs. **Count:** Am. Robin, 17 (47, 19); Townsend's Solitaire, 8 (22, 9); Pygmy Nuthatch, 6 (16, 7) Mountain Chickadee, 4 (11, 4); Black-billed Magpie, 3 (8, 3); Com. Raven, 2 (5, 2); White-breasted Nuthatch, 2; Mountain Bluebird, 1 (3, 1); Dark-eyed (Slate-colored) Junco, 1; Dark-eyed (Oregon) Junco, 1; Rough-legged Hawk, +; Com. Crow, +; Cañon Wren, +; Rock Wren, +. **Average Total:** 45 birds (124/km², 50/100 acres). **Remarks:** This winter there were fewer species but more individuals than last. Those encountered tended to be residential. The high population of robins and solitaires can probably be accounted for by the mild winter and a bumper crop of juniper berries. Many of the smaller winter birds characteristic of the Ponderosa Pine forest ecosystem were in evidence (Pygmy and White-breasted Nuthatch, Mountain Chickadee, Downy and Hairy Woodpecker, and juncos), but raptors were scarce and no Pine Siskins were seen. The Downy Woodpecker is rare for the Running Creek Field Station, but rarer still was a Snowy Owl, seen SW of the area on 5 dates between Jan. 17 and Feb. 2.—**JOHN KOSHAK and RICHARD BEIDLEMAN (compilers), KATHY BOBAL, RON CAPEN, JIM LEWIS, DOUG MCKENZIE, SAXON SHARPE, MIKE STIEHL, and JIM WOLFE, Dept. of Biology, Colorado College, Colorado Springs, Colo. 80903.**



Study 53. Running Creek Field Station, looking north-east towards sedimentary canyon of Running Creek. Photo/ Richard G. Beidleman.

54. GRASSLAND MUNICIPAL AIRPORT. —

Location: Louisiana; municipal airport of Natchitoches Parish, 31°44'N, 93°66'W, Provencal Quadrangle, USGS. **Continuity:** Established 1974; 2 years. **Size:** 12.14 ha = 30 acres (rectangular, 1320 x 990 ft, measured with steel tape). **Description of Area:** See AB 28: 711-712 (1974). **Weather:** During the 26-day study period day temperatures ranged from 38° - 82°F., with 4 count days 70° or higher. Night temperatures ranged from 25° to 60°. One day was clear, 6 cloudy - partly cloudy. Heavy rain occurred Feb. 1-4, and Feb. 15 more than 4 in. of rain fell. All count days had winds up to 3 on the Beaufort scale. **Coverage:** Jan. 27, 29-30; Feb. 8-10, 21. Total, 7 trips, all between 1000 and 1600, averaging 45 min; total man-hours 5.25. **Count:** Am. Robin, 28 (231, 93); Savannah Sparrow, 13 (107, 43); E. Meadowlark, 8 (66, 27); Com. Flicker, 1 (8, 3); Killdeer, +; Sprague's Pipit, +; Brown-headed Cowbird, +. **Average Total:** 50 birds (412/km², 167/100 acres). **Remarks:** The average total increased from 28 in 1974 to 50 in 1975, with the Am. Robin increasing from 3 to 28 birds/count. The area was mowed and the clippings baled and removed late in the fall, which resulted in a grass covering 2-4 in high. This may have attracted robins.—**CHARLES E. VIERS, Department of Biological Sciences, Northwestern State Univ. Natchitoches, La. 71457.**

55. MIXED PRAIRIE PARK. —

Location: Nebraska; Lancaster County, 5.5 mi (8.8 km) SW of Lincoln; Chet Ager Nature Center (C.A.N.C.) 40°46'N, 96°46'W, Emerald Quadrangle, USGS. **Continuity:** Established 1970; 5 consecutive years. **Size:** 15.9 ha = 39.5 acres (surveyed). **Description of Area:** See AB 25: 648-649 (1971). **Weather:** December temperatures averaged 29.0°F with 8.3 in. snow. January temperatures averaged 23.7° with 14.6 in. snow. February temperatures to the 26th averaged 22.6° with 12.0 in. snow. During the 87-day study period, maximum temperatures were below freezing 20 days, minimum temperatures were below 0° 14 days, and minimum temperatures were above freezing 2 days. During count periods, temperatures ranged 20° to 45° at C.A.N.C. Extremes for the study period were -30° and 64°F. (Data from C.A.N.C. weather station and National Weather Service Station at Lincoln, Nebraska). **Coverage:** Dec. 2, 10, 19, 23; Jan. 3, 14, 21, 28; Feb. 7, 14, 21, 26. Total, 12 trips; 6 in the am, 6 in the pm, averaging 94.3 min. Total observer hours, 19.9. **Count:** House Sparrow, 83 (519,210); Dark-eyed Junco, (150, 61); Mallard, 23, (144, 58); Harris' Sparrow, 15 (44, 38); Tree Sparrow, 11 (64, 28); W. Meadowlark, 9 (56, 23); Starling, 7; Black-capped Chickadee, 7 (44, 18); Downy Woodpecker, 5 (31, 13); Cardinal, 5; Blue Jay, 4 (25, 10); Com. Crow, 3 (19, 8); Am. Goldfinch, 3; Am. Robin, 2 (13, 5); Red-breasted Nuthatch, 2; Belted Kingfisher, 1 (6, 3); Com. Flicker, 1; Hairy Woodpecker, 1; White-breasted Nuthatch, 1; Horned Lark, 1; Song Sparrow, 1; Cooper's Hawk, +; Red-tailed Hawk, +; Am. Kestrel, +; Ring-necked Pheasant, +; Mourning Dove, +; Great Horned Owl, +; Brown Creeper, +; Red-winged Blackbird, +; Com. Grackle, +. **Average Total:** 210 birds 1314/km², 534/100 acres). **Remarks:** Mallard, Belted Kingfisher, Hairy

Woodpecker, Red-breasted Nuthatch, W. Meadowlark, and Harris' Sparrow showed noticeable increases over last year's count. The Mourning Dove noticeably declined in numbers from last year. Of concern this year was the absence from the Center of Long-eared Owl, Pine Siskin, Red Crossbill and Com. Redpoll. To our knowledge, there have been no sightings of the last 3 species in Lancaster Co., this winter. An upward swing in the average total number of birds per trip (147 per trip in 1973-74 to 210 per trip in 1974-75) was encouraging, although that total includes a 40 birds per trip increase in House Sparrows. The average total birds per trip for 5 consecutive winters fluctuated as follows: 1970-71, 161; 1971-72, 267; 1972-73, 192; 1973-74, 147; 1974-75, 210. Large flocks of Tree Sparrows, Dark-eyed Juncos and Harris' Sparrows have been absent from along our creek since early 1972 as indicated by the average total birds per trip for the last three winters compared with the first two winters.—*BRYCE ANDERSON, Chet Ager Nature Center, Lincoln Parks and Recreation Dept., 2740 "A" St, Lincoln, Nebr. 68502.*

56. MESQUITE-JUNIPER CANYON BOTTOM-

LAND. — **Location:** Texas; 12 mi E of Canyon, 4 mi from entrance to Palo Duro Canyon State Park (first water crossing); 34°57'N, 101°40'W, Fortress Cliff Quadrangle, USGS. **Continuity:** Established 1967; 8 years. **Size:** 12.5 ha = 31 acres, Steel tape and compass (rectangular). **Description of Area:** See *AFN* 21: 659-661 (1967). **Weather:** During the 71-day study period the temperature remained below freezing on 5 days. The range of temperature was from 3° to 78°; average, 36°F. The days of greatest precipitation in the form of snow or sleet were Dec. 26 (.6 in), 30 (.9 in), Jan. 2 (2.3 in), 9 (.4 in), 10 (.2 in), Jan. 11 (.6 in), Jan. 12 (.3 in), and Feb. 5 (.7 in). Snow on the last two weekends in February (totaling 11 in) closed the roads into the canyon and prevented the count from being made. The average wind speed was 13 mph. Data is from the Amarillo Air Terminal approximately 18 miles N of the study area. **Coverage:** Dec. 1, 8, 14, 24; Jan. 1, 5, 19, 26; Feb. 2, 9. Total, 10 trips between 0800 and 1035 C.S.T., averaging 133 minutes each. **Count:** Am. Robin, 53 (422, 171); Dark-eyed Junco, 53; Tree Sparrow, 25 (199, 81); Song Sparrow, 20 (159, 65); Cedar Waxwing, 12 (96, 39); White-crowned Sparrow, 9 (72, 29); Am. Goldfinch, 7 (56, 23); Cardinal, 6 (48, 19), Starling 4 (32, 13); White-throated Sparrow, 4; Com. Flicker, 3(10, 24); Golden-fronted Woodpecker, 3, Bewick's Wren, 3; Mountain Bluebird, 3; Rufous-sided Towhee, 3; Bobwhite, 2 (16, 6); Black-crested Titmouse, 2; Lincoln's Sparrow, 2; Am. Kestrel, 1 (8, 3), Ladder-backed Woodpecker, 1; Bushtit, 1; Mockingbird, 1; Townsend's Solitaire, 1; Ruby-crowned Kinglet, 1; House Sparrow, 1; W. Meadowlark, 1; House Finch, 1; Pine Siskin, 1; Rufous-crowned Sparrow, 1; Fox Sparrow, 1; Sharp-shinned Hawk, +; Scaled Quail, +; Roadrunner, +; Great Horned Owl, +, Scrub Jay, +; Winter Wren, +; Cañon Wren, +; Rock Wren, +; Brown Thrasher, +; Curve-billed Thrasher, +; Golden-crowned Kinglet, +; Yellow-rumped Warbler, +; Lesser Goldfinch, +; Savannah Sparrow, +; Harris' Sparrow, +. **Average Total:** 226 birds (1801/km², 729/100 acres). **Remarks:** The

flicker, Golden-fronted Woodpecker, Bewick's Wren, robin, Cardinal, Am. Goldfinch, towhee, junco, and Tree, White-crowned, White-throated and Song Sparrows were seen on every trip, the titmouse on 9 trips, and the Starling on 7. The hawk, Scaled Quail, Roadrunner, owl, jay, Bushtit, canon and Rock Wrens, warbler, Lesser Goldfinch, and Savannah and Harris' Sparrows were seen only on 1 trip. One flock of 39 Canada Geese flew over at an altitude of approximately 500 ft This is the first reported winter observation of the Lesser Goldfinch in the canyon. The bird was a male seen at a distance of 30 ft. The most unusual feature of the count was the large number of Tree Sparrows present This "invasion" appeared to be general in the northern Panhandle.—*KENNETH D. SEYFFERT, 2709 S. Fairfield St., Amarillo, Tex. 79103*

57. LIVE OAK-MESQUITE BRUSHLAND. —

Location: Texas; Northeast Preserve, city park of San Antonio, 2 mi NE of San Antonio International Airport, 29°33'N, 98°27'W, Longhorn Quadrangle, USGS Study area is along the N boundary of the park, extending 660 yards ESE of Jones-Maltsberger Rd and 220 yards SSW of the fence. **Continuity:** Established 1967, 9 years. **Size:** 12.1 ha = 30 acres, based on survey stakes along the fence and measured outward 220 yards by steel tape. **Description of Area:** See *AFN* 21: 472 (1967). Little change in conditions except some increase in bicycle traffic on the main trails. **Weather:** In marked contrast to last season, this period began with much above average soil moisture and good grass coverage. Rainfall of 5.39 in. in November and 1.43 in. in December was much above normal. In November-December 1973 only .45 in. was measured. The temperature was near normal in the count period. **Coverage:** Jan. 4, 8, 15, 24, 26; Feb. 8. Total; 6 trips, averaging 101 minutes, between 0800 and 1135 CST except 1 afternoon trip from 1625 to 1750 CST. **Count:** White-throated Sparrow, 43 (354, 143); Lincoln's Sparrow, 19 (156, 63); Am. Robin, 13 (107, 43); Cardinal, 10 (82, 33); Fox Sparrow, 9 (74, 30); Rufous-sided Towhee, 7 (58, 23); Am. Goldfinch, 6 (49, 20), Black-crested Titmouse, 4 (33, 13); Bewick's Wren, 4, Purple Finch, 4; Bobwhite, 2 (16, 7); Ruby-crowned Kinglet, 2; Am. Woodcock, 1 (8, 3); Inca Dove, 1, Golden-fronted Woodpecker, 1; Ladder-backed Woodpecker, 1; Carolina Chickadee, 1; Carolina Wren, 1, Mockingbird, 1; Hermit Thrush, 1; Red-winged Blackbird, 1; Vesper Sparrow, 1; Dark-eyed Junco, 1; Field Sparrow, 1; Red-tailed Hawk, +; Mourning Dove, +, Barred Owl, +; Com. Flicker, +; Red-breasted Nuthatch, +; Brown Creeper, +; Brown Thrasher, +, Solitary Vireo, +; Yellow-rumped Warbler, +; House Sparrow, +; Brown-headed Cowbird, +; Savannah Sparrow, +. **Average Total:** 135 birds (1112/km², 450/100 acres). **Remarks:** 36 species. The average total was the record high for the count (record low, 31 birds last year). The average count continued to vary with the rainfall of the preceding autumn. Best response to rainfall is the numbers of sparrows of the brush: White-throated, Lincoln's, and Fox Sparrows. New birds for this season, each seen on one walk, were the Inca Dove, Red-winged Blackbird, Savannah Sparrow and Dark-eyed Junco. These birds are common in the vicinity but rare in this brushy area. On Jan. 26 4 Am

Woodcock were flushed, unusual for the area. The Bobwhite count was a covey of 12 birds flushed Jan. 15.—**JAMES A. MIDDLETON**, *San Antonio Audubon Society, San Antonio Garden Center, 3310 N. New Braunfels, San Antonio, Tex. 78209.*

58. SHORTGRASS PRAIRIE, I. — **Location:** Colorado; Weld Co., 8 mi NNW of Nunn on the Central Plains Experimental Range of the Agricultural Research Service, Pawnee National Grassland; 40°49'N, 104°55'W. **Continuity:** Established 1973; 3 years. **Size** 40.5 ha = 100 acres (south block measures 60 x 20 chains, central block 20 x 10, north block 10 x 20, borders are contiguous; blocks marked with grid interval of 2 chains; surveyed with 2-chain tape and staff compass). **Description of Area:** See AB 26: 975-976 (1972). **Weather:** Temperatures ranged from 2° to 55°F. Winds ranged from 0 to 50 mph and averaged 19 mph. One to three inches of snow Feb. 15. **Coverage:** Jan. 10, 12, 15; Feb. 15, 23, 28. Total, 6 counts, between 0845 to 1525, averaging 55 minutes. **Count:** Horned Lark, 21 (52, 21); Rough-legged Hawk, +; Golden Eagle, +; Lapland Longspur, +. **Average Total;** 22 birds (54/km², 22/100 acres). **Remarks:** During the last count many males were on territories. This study was supported in part by National Science Foundation Grant GB-41233X to the Grassland Biome, U.S. International Biological Program, for "Analysis of Structure, Function, and Utilization of Grassland Ecosystems."—**ROGER L. BOYD**, *Department of Zoology and Entomology, Colorado State University, Fort Collins, Colo., 80523.*

59. SHORTGRASS PRAIRIE, II. — **Location:** Colorado: El Paso Co., five miles NE of Peterson Field, Colorado Springs, N of the Rock Island RR and E of Marksheffel Rd; S28, T13S, R65W: Falcon Quadrangle, USGS. **Continuity:** New. **Size:** 60.7 ha = 150 acres; rectangular, measured from USGS map. **Description of Area:** The area is flat to slightly rolling, rising to the N and E and dissected by several shallow dry washes from the north which converge to the SW. The sand and gravel soil overlies arkose sandstone, which outcrops along one of the draws. The dominant grass is Blue Grama (*Bouteloua gracilis*), with lesser amounts of Hairy Grama (*B. hirsuta*), Three-awn (*Aristida fendleriana*), Side-oats Grama (*B. curtipendula*), Bushy Buckwheat (*Eriogonum effusum*), Pasture Sage (*Artemisia frigida*), some Buffalo-grass (*Buchloe dactyloides*) and Ring Muhly (*Muhlenbergia torreyi*), plus scattered herbs, mostly composites; and in more moist sites Needle-grass (*Stipa columbiana*). The area has for some time been grazed by cattle and, indeed, is heavily overgrazed. **Elevation:** About 6560 ft. **Edge:** There is similar rangeland on all sides, although to the south there is minor invasion by residences and industrial development. **Food:** There is very sparse and overgrazed ground cover and hence not an abundance of plant food. Furthermore, the small-mammal population is very limited for birds of prey, with a cottontail family under cement slabs in one ravine and a few Grasshopper Mice, Pocket Gophers, and White-footed Mice active in the winter. The Horned Lark population could afford food for transient Prairie Falcons. **Weather:** This particular winter period



Study 59. Semi-arid shortgrass prairie northeast of Colorado Springs, looking east. Photo/ Richard G. Beidleman.

was dry, windy, and relatively mild. The average temperature was about 32°F, with a range from -11° to 63°, while total snowfall was less than 7 in below normal. **Coverage:** Jan. 5, 8, 14, 19, 26; Feb. 16, 28; Mar. 8. Total, 8 trips, both morning and afternoon, averaging one hour each. **Count:** Horned Lark, 9 (15, 6); Lapland Longspur, 3 (5, 2); Prairie Falcon, +. **Average Total:** 12 birds (20/km², 8/100 acres). **Remarks:** Because of this area's general uniformity and badly overgrazed condition, it does not represent a productive avian habitat. A similar but less misused shortgrass prairie in north-central Colorado (AB 28: 713-714 [1974]) also included Horned Larks and Lapland Longspurs, but the density was 21 birds/100 acres, almost three times higher (though the longspurs were more abundant in the present census). The Colorado Springs site, however, is of special interest because a south-central portion (20 acres) of the tract is slated for eventual quarrying by a sand and gravel company. Following quarrying, the company plans to recontour and revegetate the mined site, using insofar as possible native plants. Horned Larks were the characteristic birds of this grassland area, 1 to 25 seen on every field trip, usually in flight. Lapland Longspurs, not often encountered in this region, were seen only during January, with the largest number being 7. They were generally on the ground. Cattle grazed on the land throughout the period, and a coyote and a small band of pronghorn antelope were periodically present. The planned quarrying operation will have negligible adverse effect on the winter bird population here. Indeed, after rehabilitation the rangeland should be more productive.—**RICHARD BEIDLEMAN** (*compiler*), **CATHERINE CHENEY**, **BETSY COULSON**, **SUE SCHODER**, and **CATHY WHITLOCK** (*Field Zoology Class*), *Dept. of Biology, Colorado College, Colorado Springs, Colo. 80903.*

60. SHORTGRASS PRAIRIE, BRUSHY MESA AND WOODED CREEKBOTTOM. — **Location:** Colorado, 3 ½ mi SW of Fountain, El Paso County, ½ mi W of I-25; parts of Sect. 25 and 30, T16S, R65W, Fountain Quadrangle, USGS. **Continuity:** New. **Size:** 68.8 ha = 170 acres, more or less rectangular; acreage determined from USGS and Utilities Dept. map.

Description of Area: An overgrazed shortgrass prairie, rising onto a dissected gravel mesa to the N and ending on the S at the deep ravine of Little Fountain Creek, with intermittent pools of water. The sparse dominant grassland vegetation is Blue Grama (*Bouteloua gracilis*), with lesser amounts of Three-awn (*Aristida*), Ring Muhly (*Muhlenbergia torreyi*), Wheatgrass (*Agropyron*), and Canada Wild-rye (*Elymus canadensis*), with successional weeds such as Com. Sunflower (*Helianthus annuus*) and Russian-thistle (*Salsola kali*). On the rocky mesa there is considerable Candelabra Cactus (*Opuntia imbricata*), Prickly Pear (*Opuntia*), Yucca (*Yucca glauca*), Bushy Buckwheat (*Eriogonum effusum*), Pasture Sage (*Artemisia frigida*), Little Bluestem (*Andropogon scoparius*), and a single One-seed Juniper (*Juniperus mexicana*), with Skunkbush (*Rhus trilobata*) and some Rabbitbrush (*Chrysothamnus nauseosus*) and Saltbush (*Atriplex*) scattered from the mesa down into intermittent creek draws, in one of which the Skunkbush is very dense, and onto the flats. Near and along Little Fountain Creek there are scattered Plains Cottonwoods (*Populus sargentii*), Peach-leaved Willow (*Salix amygdaloides*) and bushy willows (*Salix* sp.), Tamarisk (*Tamarix pentandra*), Saltbush and Skunkbush. The grassland has been heavily overgrazed in the past, is now experiencing a drought, and is in very poor condition. **Elevation:** About 5460 ft. **Edge:** To the N and S there is an extension of the mesas, to the W an extension of the semiarid grassland into the Fort Carson Military Reservation, while to the E there is more grassland, then the Interstate; and beyond, the agricultural riverbottom of Fountain Creek. **Food:** Because of the nature of the range, grass seeds are at a premium; somewhat more plant food is available along Little Fountain Creek and in the mesa area. The small-mammal population is higher than the small number of predators would suggest, including Kangaroo Rats in abundance, Woodrat, Harvest Mouse, Grasshopper Mouse, White-footed Mouse and Prairie Vole, as well as Cottontails and Black-tailed Jackrabbits. **Weather:** The winter period here was dry, very windy, and relatively mild. The average temperature was about 33°F, with a range from -7° to 63°, while total snowfall was less than 7 in below normal. There was seldom any accumulation of snow on the ground. On occasion the pools of Little Fountain Creek were frozen over. **Coverage:** Jan. 15, 18, 20, 22, 24, 26; Feb. 2, 23; Mar. 2, 8. Total: 10 trips, averaging 1 ¼ hours each, both morning and afternoon. **Count:** Horned Lark 9 (13, 5); Scaled Quail, 6 (9, 4); Brown Towhee, 5 (7, 3); Black-billed Magpie, 3 (4, 2); Tree Sparrow, 1 (1, 1); Goshawk, +; Rough-legged Hawk, +; Golden Eagle, +; Marsh Hawk, +; Great Horned Owl, +; Am. Robin, +; Mountain Bluebird, +; W. Meadowlark, +; Song Sparrow, +. **Average Total:** 24 birds (35/km², 24/100 acres). **Remarks:** This area is characteristic of the mesa valleys in the semiarid country between Colorado Springs and Pueblo at the south end of the Rocky Mountain Front Range, a region with a mixture of northern and southern species of both plants and animals. The site is of further interest because it is the proposed location of a coal-burning power plant. The dominant bird species are distributed as one might anticipate: the Horned Lark in the grassland, the Brown Towhee and Scaled Quail in the brushy

mesa area, and the magpie and Great Horned Owl associated with the limited riparian ecosystem along Little Fountain Creek. The Scaled Quail are apparently derived from introductions on nearby Fort Carson and only periodically show up within this site (a covey of 42 on Jan. 15 and a group of 20 on Mar. 8). Most difficult to explain with respect to the area's bird population is the dearth of raptors, in a location where there is a large power line, many small mammals as a source of food, and tree perches along Little Fountain Creek. There is a large bird-of-prey population during the winter to the east toward the cottonwood riverbottom along Fountain Creek; and this more ideal raptor habitat, combined with the noise of shelling on the army land to the west, may make the census tract relatively less attractive. The productive portions of the 170 acres are the creekbottom and the mesa, neither of which will be directly affected by the development of the power plant in the center of the overgrazed grassland.—**RICHARD BEIDLEMAN (compiler), BETH BRAKER, MICHAEL HANNIGAN, BARBARA HICKS and TIM MARK (Field Zoology Class), Dept. of Biology, Colorado College, Colorado Springs, Colo. 80903.**



Study 60. View southeastward from mesa to power plant site. Photo/ Richard G. Beidleman.

61. INTERSTATE HIGHWAY REST STOP. —

Location: Colorado; Pueblo County, 1.5 mi N of Piñon on the W side of I 25; 38°27'15''N, 104°36'20''W, Pinon Quadrangle. **Continuity:** New. **Size:** 1.2 ha = 3 acres; linear, straight along the boundary and tapering to N and S. Acreage measured on the ground. **Description of Area:** A landscaped highway rest stop, completed about 1968, immediately adjacent to the 4 lane, divided Interstate. Extensive asphalt parking lots and access roads, a landscaped lawn area, scattered exotic tree, shrub and annual flower plantings, 5 roofed picnic shelters, a restroom complex, several small clusters of medium-sized Plains Cottonwoods (*Populus sargentii*), with sparse natural plant cover surrounding the landscaped area. Among the plantings are 24 bushy Piñon Pines (*Pinus edulis*) and 8 Scotch Pines (*P. sylvestris*), 16 Red Cedars (*Juniperus virginiana*), about a dozen scattered locusts (*Robinia*) and a dozen young elms (*Ulmus*), rose bushes and some native planted cacti. **Topography** Essentially flat, rising slightly to the Interstate on the E and to an old paved



Study 61. Pinon rest stop, looking northeast from ridge. Photo/ Richard G. Beidleman.

highway on the W. Elevation: 5030 ft. **Edge:** The rest area is bounded on the E by the Interstate, beyond which is a railroad and the broad agricultural valley of Fountain Creek; on the W the landscaped area gives way abruptly to a disturbed zone of weeds, then the old road, beyond which is a slope of semi-arid vegetation, including *Yucca* (*Yucca glauca*), Skunkbush (*Rhus trilobata*), Candelabra Cactus (*Opuntia imbricata*), and Bushy Eriogonum (*Eriogonum effusum*), rising to the top of a gravelly N-S ridge which overlies Pierre Shale bedrock. On the SW edge there is a dry ravine with some dense cover of Skunkbush. **Food:** Aside from weed seeds and some pine seeds, the main source of available food is scraps from picnicing motorists. However, during severe winter weather few motorists stopped to eat here. **Weather:** This winter was dry, windy, and relatively mild. The average temperature for the period was about 32°F, with a range from -11° to 63°, while total snowfall was less than 7 in, below normal. **Coverage:** Jan. 2, 22-24, 26; Feb. 1, 13, 22-23; Mar. 2, 5 Total, 11 trips, both morning and afternoon, averaging 20 minutes each except for Mar. 5, which covered the period from 0730 to 1820 MDT. In the following count, however, only the census made at 0830 on that date has been included in averaging. **Count:** House Sparrow, 22 (1812, 733); Brown Towhee, 1 (82, 33); Am. Kestrel, +; Black-billed Magpie, +; Starling, +; W. Meadowlark, +. **Average Total:** 23 birds (1894/km², 767/100 acres). **Remarks:** The high densities per 100 acres would never exist in nature, since here a clumped population is involved. The characteristic and abundant resident birds, the House Sparrows, are especially interesting here in that prior to the development of the rest area, they did not occur at this spot. The rest stop had to be populated from sparrow populations at the tiny community of Piñon or from surrounding farms and ranches. During the summer the House Sparrows nest in the hollow pipes that support the roofs of the picnic shelters, as well as in some of the trees and the restroom building. The picnic-shelter nesting sites are usually at carrying capacity in summer (5 shelters, two pipes each, two ends per pipe = 40 sparrows), with the total adult population of the rest stop being about 50 sparrows. The winter population

ranged between 0 and 43. There was a tendency for the sparrows to leave the area during the day, particularly in bad weather, moving toward Piñon or to surrounding farms and ranches where more food and shelter was available. On Mar. 5, for example, there were 40 sparrows at the rest stop at 0730, none in early afternoon, one by 1630, 24 by 1740, and 43 by 1820. In winter the sparrows tend to hide in the small pines between the picnic shelters, though they also used the pipes and shelters themselves, while some flew across to the small cluster of cottonwoods near the Interstate. The 2 Brown Towhees favored the brushy ravine to the SW, but occasionally took shelter in the bushy pines, cottonwoods, and even a culvert at the south end. The other species were transients, seen only one occasion each; however, Starlings were frequently encountered south towards Piñon, as were Rock Doves. As an interesting sidelight, the "sister" rest stop east of the Interstate and 3 miles north does not support a large resident sparrow population and often no birds are present. The sparrows at the west rest stop are now being color banded so that more specific information on their dispersion can be obtained.—RICHARD G. BEIDLEMAN and ROBERT HAYES, Dept. of Biology, Colorado College, Colorado Springs, Colo. 80903.

62. SOUTHWESTERN RIPARIAN WOODLAND.

— **Location:** New Mexico; approximately 1 mi S of Cliff, Sec. 33, T15S, R17W and Sec. 4, T16S, R17W, Cliff Quadrangle, USGS. **Continuity:** New. **Size:** 14.5 ha = 35.7 acres (measured). **Description of Area:** Basically rectangular, skewed NE. S boundary formed by US Highway 180, W boundary by west bank of Gila River, E boundary by farmland, N boundary by a conspicuous river bend. The area is the single longest continuous stand of Cottonwood trees (*Populus fremontii*) in the immediate vicinity. Although Cottonwood is the most striking tree in the area, there are approximately an equal number of Box Elder (*Acer negundo*). The Cottonwoods are evenly distributed throughout the area with no concentrations in any one area. The Box Elder is distributed throughout the area, but is more abundant in the southern portions. The two species combine to give the area, excluding the Gila River proper and two small open field areas, a canopy cover of about 80%. Southern portions of the area contain small stands of willow (*Salix* sp.) and *Baccharis emoryi* which are absent from the middle and northern portions. *Baccharis emoryi* is replaced in these two areas by *B. glutinosa*. Heavy ground cover is comprised of fallen limbs and snags along with the following plants: grass (*Festuca* sp.), an umbellifer, poppy (*Corydalis aurea*), geranium (*Erodium cicutarium*), mint (*Lamium amplexicaule*), sorrel (*Rumex* sp.), and asparagus (*Asparagus officinalis*). All of the above are widespread, the first three being green during most of the winter months. **Topography:** The area is flat with an elevation of 4500 ft. **Edge:** The census tract is surrounded by abandoned farm land to the west, farmed land to the east, similar lands north and south. **Weather:** Temperatures during censusing: low 16°, average low 29°F; high 62°, average high 52°. **Coverage** Jan. 4, 11, 18, 25; Feb. 1, 10. Six trips, averaging 3 hours, between 0830 and 1200. **Count:** Dark-eyed Junco, 30 (208, 84); Red-winged Blackbird, 19 (131,

53), Mourning Dove, 13 (90, 36); Ruby-crowned Kinglet, 13; Bewick's Wren, 12 (83, 34); Song Sparrow, 11 (77, 31); Bridled Titmouse, 9 (62, 25); Brewer's Blackbird, 9; Mallard, 8 (5, 22); White-breasted Nuthatch, 6 (42, 17); Gambel's Quail, 5 (35, 14); Killdeer, 5; Starling, 5; House Finch, 5; Am. Robin, 4 (28, 11); Water Pipit 4; Lincoln's Sparrow, 4; Com. Snipe, 3 (21, 8); Com. (Red-shafted) Flicker, 3; Bushtit, 3; Yellow-rumped Warbler, 3; White-crowned Sparrow, 3; Ladder-backed Woodpecker, 2 (14, 6); Black Phoebe, 2; Brown Creeper, 2; W. Meadowlark, 2; Cardinal, 2; Rufous-sided Towhee, 2; Abert's Towhee, 2; Great Blue Heron, 1 (7, 3); Com. Merganser, 1; Red-tailed Hawk, 1; Sandhill Crane, 1; Spotted Sandpiper, 1; Belted Kingfisher, 1; Gila Woodpecker, 1; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 1; Com. Raven, 1; W. Bluebird, 1; Sharp-shinned Hawk, +; Golden Eagle, +; Marsh Hawk, +; Prairie Falcon, +; Am. Kestrel, +; Ring-necked Pheasant, +; Least Sandpiper, +; Great Horned Owl, +; Acorn Woodpecker, +; E. Phoebe, +; Hermit Thrush, +; Loggerhead Shrike, +; Am. Goldfinch, +; Brown Towhee, +; Swamp Sparrow, +. **Average Total:** 202 birds (1398/km², 566/100 acres). **Remarks:** Total species, 56. Many late migrants were still present in late December, so the census was not initiated until Jan. 4. No really unusual birds were seen with the possible exception of an E. Phoebe, Jan. 18 and 25, and Swamp Sparrow seen Jan. 11. This bird probably occurred more than once but owing to its retiring nature it was seen only once. Brown Creepers were recorded 4 times but were probably present on all trips. A single flock of bushtits was present for a very short period of time on Jan. 18. Birds such as the Great Blue Heron, Killdeer, Com. Snipe, Spotted Sandpiper, and Water Pipit were affected by fluctuations in the river. A single Hermit Thrush on Feb. 1 possibly represents the first returning migrant. A pair of Great Horned Owls moved into the area Feb. 10.—*WILLIAM H. BALTOSSER, 525 W. 13th St., Silver City, N.M. 88061.*

63. EXPOSED COVE AND ADJACENT OCEAN.

— **Location:** Maine; Schoodic Point section of Acadia National Park, Winter Harbor, Hancock County, 44°20'N, 68°04'W, Chart 306 USC&GS. **Continuity:** Established 1968; 6 years. **Size:** 43.7 ha = 108 acres (irregular shape). **Description of area:** See *AFN* 23: 545 (1969). Area remains unchanged. **Weather:** Seasonal with intermittent snow cover not exceeding 6 in. Average temperatures measured at the study site: Dec. 30°, Jan. 23°, Feb. 26°F. Temperature range during visits, -12° to 52°F. Seas were predominantly SE at 2-3 ft. No exceptionally large storms occurred. Coverage: Dec. 1, 5, 8, 12, 15, 19, 22, 26, 29; Jan. 2, 5, 9, 12, 19, 23, 26, 30; Feb. 2, 6, 9, 13, 20, 23, 27. Total, 26 trips made at 1530 regardless of weather, because a water sampling study being run concurrently. Visits to site lasted ½ hour. **Count:** Com. Eider, 82 (188, 76); Herring Gull, 36 (82, 33); Bufflehead, 22 (50, 20); Oldsquaw, 21 (48, 19); Black Guillemot, 19 (43, 18); Red-breasted Merganser, 8 (18, 7); Great Black-backed Gull, 8; Horned Grebe, 6 (14, 6); Com. Loon, 4 (9, 4); White-winged Scoter, 4; Harlequin Duck, 1 (2, 1); Great Cormorant, +, Black Duck, +, Com. Goldeneye,

+; Glaucous Gull, +; Iceland Gull, +. **Average Total** 211 birds (483/km², 195/100 acres). **Remarks:** Harlequin Duck was an adult male, probably the same individual as last year. Numbers of birds occurring at the study site appear to be relative to the numbers occurring over a wider coastal area. Numbers counted at the site and their fluctuations each year coincide with the numbers on nearby Christmas Bird Counts. The average number of birds after 6 trips was the same as after 26 trips so the minimum number of required trips would have presented an accurate picture (exclusive of uncommon visitors to the site) of the wintering population in the cove. With the usual cautions of counting birds that are diving and moving, it is possible that the accuracy of this count approaches 100% since all birds in the study area are visible at one time or another on each visit, a situation unlikely to occur at a wooded or brushy site.—*WILLIAM C. TOWNSEND, Marine Biology Instructor, Sumner High School, East Sullivan, Maine 04632.*

64. SALT WATER MARSH AND COASTAL SAND BEACH.

— **Location:** Connecticut; Great Meadows and Long Beach, Stratford 73°12'10"W, 41°06'20"N, Bridgeport Quadrangle, USGS. **Continuity:** Established 1974; 2 years. **Size:** 219.7 ha = 543 acres. **Description of Area:** See *AB* 28: 719-720, 1974). **Food:** Water was consistently open in the tidal basin, and marsh plants were easily accessible. The ponds were frozen as usual. No significant hard snow crust this year. In the upland areas, seed plants retained good food this year. The same was true for the beach. An indicator of the mild season was water in the ditches, the inside part of the tract being open in most places on Feb. 12. **Weather:** (From nearby Sikorsky Airport): Precipitation: Dec., 5.93 in., Jan., 4.70 in., Feb., 3.11 in. Snowfall: Dec., 2.33 in., Jan., 2.5 in., February, 10.4 in.; .96 in. of precipitation fell on Jan 8-9. Winds averaged over 11 mph all 3 months. Average maximum temperatures: Dec., 40.5°; Jan., 36.9°, Feb., 38.2°F. Average minimum temperatures: Dec., 37.5°; Jan., 35.3°; Feb., 32.3°. Precipitation was about average for this area, and temperatures warmer than usual. **Coverage:** Dec. 28, 31, Jan. 2, 4, 6, 15, 22, Feb. 2, 17. Total trips, 9, between 0600 and 1700, averaging 3.5 hours. **Count:** Herring Gull, 61 (28, 11), Black Duck, 36 (16, 7); Greater Scaup, 20 (9, 4), Horned Lark, 20; Dunlin, 17 (8, 3); Tree Sparrow, 12 (5, 2); Canada Goose, 7 (3, 1); Sanderling, 7; Song Sparrow, 5 (2, 1); Great Black-backed Gull, 4 (2, 1), Short-eared Owl, 4; Starling, 4; Savannah (Ipswich) Sparrow, 4; Com. Goldeneye, 3 (1, 1); Ring-billed Gull, 3; Black-capped Chickadee, 3; Water Pipit, 3; Seaside Sparrow, 3; Swamp Sparrow, 3; Mallard, 2 (1, +); Am. Kestrel, 2; Killdeer, 2; Mute Swan, 1 (+, +), Marsh Hawk, 1; Snowy Owl, 1; Downy Woodpecker, 1; Com. Crow, 1; E. Meadowlark, 1; Savannah Sparrow (nominate form), 1; Am. Wigeon, +; Lesser Scaup, +; Oldsquaw, +; Red-breasted Merganser, +; Rough-legged Hawk, +; Virginia Rail, +; Greater Yellowlegs, +; Purple Sandpiper, +; Long-billed Marsh Wren, +; Yellow-rumped Warbler, +; Sharp-tailed Sparrow, +; Field Sparrow, +; White-crowned Sparrow, +; White-throated Sparrow, +; Lapland Longspur, +, Snow Bunting, + **Average Total** 232

birds (106/km², 43/100 acres). **Remarks:** 46 species. The warmer than usual weather accounted for Seaside Sparrows, Yellow-rumped Warbler, and the White-crowned Sparrow. It also was partially responsible for the increase in individuals seen. Thanks to Helen Hills, Walt Bulmer, Ronald Lundgren and Dennis Varza for their help.—CHARLES F. HILLS, 3052 Burr St., Fairfield, Conn. 06430.

65. RIVER BANK AND RIVER. — **Location:**

Pennsylvania; center under the McElhattan bridge on the N bank of the W Branch of the Susquehanna River, 0.8 km (½ mi) NW of BM 571 in McElhattan; 41°09'57"N, 77°22'22"W, Jersey Shore Quadrangle, USGS. **Continuity:** New. **Size:** River bank, 3.2 km (2 mi) long, from 9 to 33 m wide, mean width, ca. 12m, approximately 4.6 ha = 11.4 acres. The mean river width is about 250 m, which for 3.2 km would be 80 ha = 198 acres of water (measured with car odometer and steel tape). **Description of Area:** The river bank, consisting of the area between the river itself and a road that parallels the river, is entirely wooded except for a few open grassy areas. Trees 7.5 cm in diameter and over, based on 8 rectangular quadrats of 3 X 90 meters; 840 trees/ha; total basal area, 45.4 m²/ha. Species (figures after each give no. of trees/ha, relative density (%), relative dominance (%), frequency (%), importance value (%), in that order): Silver Maple (*Acer saccharinum*) 208, 24, 27, 100, 18; River Birch (*Betula nigra*) 167, 19, 30, 100, 17; Black Cherry (*Prunus serotina*) 148, 17, 12, 63, 11; dead stems 102, 12, 7, 88, 13; Choke Cherry (*P. virginiana*) 69, 8, 6, 63, 9; Black Locust (*Robinia pseudoacacia*) 32, 3.8, 8, 38, 6; Sycamore (*Platanus occidentalis*) 28, 3.3, 7, 25, 4; Box Elder (*Acer negundo*) 28, 3.3, 2, 50, 6; Butternut (*Juglans cinerea*) 14, 1.6, .7, 38, 5; Black Birch (*B. lenta*) 14, 1.6, .2, 13, 2; Mockernut Hickory (*Carya tomentosa*) 5, .5, .2, 13, 2; Am. Hackberry (*Celtis occidentalis*) 5, .5, .1, 13, 2; Norway Maple (*A. platanoides*) 5, .5, .1, 13, 2; Pin Oak (*Quercus palustris*) 5, .5, .1, 13, 2; Red Maple (*A. rubrum*) 5, .5, .1, 13, 2; White Oak (*Q. alba*) 5, .5, .1, 13, 2. Trees by diameter class (figures after each class give trees/ha, relative density (%), basal area (sq. meters)/ha, relative dominance (%): A(7.5-15 cm) 343, 41, 57.9, 3; B (15-23 cm) 134, 16, 69, 4; C (23-38 cm) 245, 30, 349.8, 16; D (38-53 cm) 79, 10 264.3, 12; E (53-69 cm) 32, 4, 194.6, 9; F (69-81 cm) 5, .5, 43.7, 2. Tree species listed above with stems less than 7.5 cm in diameter totaled 662/ha. **Edge:** Bordered on the S by the river itself and across the road on the N, mostly by fields and cropland, plus several houses and one small patch of woodland. One large and one small stream flow into the river in the study plot. **Topography:** At mean water level, there is a drop of about 3 m from the road to the river. During periods of high water the area is flooded. Elevation at the top of the river bank is from 550 to 540 ft. **Weather:** January's mean high temperature was 38°F and the mean low was 23.2°. Precipitation was about average with 3.53 in. For February these figures were 38.1°, 24.3° and 4.34 in. respectively. Wind was calm on one trip, above 5 mph on 5 trips, one of which had gusts up to 40 mph. The sky was overcast or cloudy on all but one trip. The ground had ½-2 in. of snow on most trips, with 5 in. on the last



Study 65. Looking northeast from west end of study area. Photo / Paul W. Schwalbe.

trip. The river was free of ice during the count period. **Coverage:** Jan. 25-26, 28, 30; Feb. 1-3, 6. Total, 8 trips, averaging 98 min each, between 0830 and 1550, 5 completed by 1100. **Count: River Bank:** Evening Grosbeak, 10 (217, 88); Song Sparrow, 6 (130, 53); Black-capped Chickadee, 5 (108, 44); Downy Woodpecker, 2 (43, 18); Tufted Titmouse, 2; Cardinal, 2; Dark-eyed Junco, 2; Tree Sparrow, 2; Rock Dove, 1 (22, 9); Hairy Woodpecker, 1; Com. Crow, 1; White-breasted Nuthatch, 1; Brown Creeper, 1; Starling, 1; White-throated Sparrow, 1; Cooper's Hawk, +; Am. Kestrel, +; Blue Jay, +; Winter Wren, +; Carolina Wren, +; Field Sparrow, +; White-crowned Sparrow, +; Swamp Sparrow, +. **River:** Black Duck, 15 (19, 8); Mallard, 1 (1, 1). **Average Total: River Bank,** 38 birds (824/km², 333/100 acres); **River,** 16 birds (20/km², 8/100 acres of water). **Remarks:** The river bank was flooded once by high water, but no counts were taken during that time. The Evening Grosbeaks were feeding on maple samaras.—MORTON CLASTER, CECIL HAZLETT, WESLEY PEDLOW, JR., CATHERINE PEER, PARKER PEER, SAMUEL ROCKEY, CHARLES SCHACH, PAUL SCHWALBE (compiler, Dept. of Biological Sciences, Lock Haven State College, Lock Haven, Pa. 17745), JAMES VANEMON (members of the West Branch Bird Club and Ornithological Society).

66. LAGOON. — **Location:** Virginia; Roaches Run Waterfowl Sanctuary, Arlington, Arlington Co., 38°52'N, 77°02'30"W, Alexandria Quadrangle, USGS. **Continuity:** Established 1968, 7 intermittent years. **Size:** 23.5 ha = 58 acres (oblong with long axis oriented NNE-SSW). **Description of Area:** See AB 27: 691 (1973). **Weather:** The sky was clear on 8 trips and overcast on 4 trips. Temperatures ranged from 35° to 70°F. There was ice around the edges on Jan. 17 and 22. **Coverage:** Dec. 20, 24, 28; Jan. 1, 6, 9, 13, 17, 22, 25, 29; Feb. 7. Total, 12 trips, totaling 10.6 hours, between 0915 and 1610. **Count:** Ring-billed Gull, 63 (268, 109); Pintail, 39 (166, 67); Herring Gull, 35 (149, 60); Mallard, 29 (124, 50); Am. Wigeon, 18 (77, 31); Killdeer, 16 (68, 28); Great Black-backed Gull, 9 (38, 16); Com. Merganser, 8 (34, 14); Pied-billed Grebe, 3 (13, 5); Com. Snipe, 1 (4, 2);

Great Blue Heron, +; Black Duck, +; Wood Duck, +; Lesser Scaup, +; Hooded Merganser, +; Greater Yellowlegs, +; Belted Kingfisher, +. **Average Total:** 222 birds (946/km², 383/100 acres).—PAUL W. WOODWARD, 2433 Southgate Sq., Reston, Va. 22091.

67. DISTURBED OAK-HICKORY FOREST, PINE STAND, EDGE AND POND. — **Location:** Ohio; Camp Falling Rock, Eden Township, Licking Co. **Continuity:** Established 1968; 5 intermittent years. **Size:** Approximately 14.6 ha = 35 acres. **Description of Area:** See AFN 22: 719-721 (1968) and other numbers related to Breeding Bird Censuses of the area (1937-1974). **Weather:** There were a few unusual periods of temperature or precipitation except the heavy, wet snow of mid-December (about 14 in.) and the 6 in. snowfall present Feb. 13. Damage in the area included seven pines broken off completely and others bent over or partially uprooted. Precipitation and temperatures for January-March, 1975, were slightly below normal. Snow was present on 4 coverages and continuous for most of the latter half of December. **Coverage:** Nov. 21; Dec. 10, 30; Jan. 9, 23; Feb. 13, 27; Mar. 13; Apr. 11. Total hours, 30, from early afternoon to dark. **Count:** Downy Woodpecker, 2 (14, 6); Carolina Chickadee, 2; White-breasted Nuthatch, 2; Cardinal, 2; Dark-eyed Junco, 2; Pileated Woodpecker, 1 (7, 3); Red-bellied Woodpecker, 1; Com. Crow, 1; Carolina Wren, 1; Golden-crowned Kinglet, 1; Red-tailed Hawk, +; Mourning Dove, +; Screech Owl, +; Belted Kingfisher, +; Yellow-bellied Sapsucker, +; Blue Jay, +; Tufted Titmouse, +; Brown Creeper, +; E. Bluebird, +; Song Sparrow, +. **Average Total:** 15 birds (106/km², 43/100 acres). **Remarks:** This fifth winter bird population study is unusual because of an abnormally low density (4-year previous average, 42), sporadic presence of normally expected species, and occurrence of two species not previously recorded. The snowfall of mid-December possibly contributed to the loss of 2 of the 3 Carolina Wrens present on the first two coverages. Other species perhaps sought more favorable winter habitat. This is believed to be true of the Mourning Dove and Song Sparrow, which were not found until Mar. 13. The Tufted Titmouse was not found after the first count. Ten species were recorded on only one survey; two species, Pileated Woodpecker and Carolina Wren, were found on every survey; two predator species, Red-tailed Hawk and Screech Owl, were known to have used the area. Minimum population occurred on Feb. 27 (4 birds) as contrasted to a maximum of 28 birds on Jan. 23. The bluebirds and Yellow-bellied Sapsucker were new for the study. No Accipiters were observed during the winter.—A. H. CLAUGUS, 228 S. Lake St., Carey, Ohio, 43316.

68. SWAMP FOREST. — **Location:** Indiana; Spencer County; About 1 mi W of Grandview, 37°32'30"N, 87°00'W, Rockport Quadrangle, USGS. **Continuity:** New. **Size:** 4.9 ha = 12 acres (rectangular, 626 x 835 ft, measured with a compass and steel tape). **Description of Area:** The study plot is located about 2 mi N of the Ohio River. The dominant trees in order of decreasing abundance are: Red Maple (*Acer rubrum*), Pin Oak (*Quercus palustris*), Red Elm (*Ulmus fulva*)

and Shagbark Hickory (*Carya ovata*). Most prominent in the understory are: Com. Greenbrier (*Smilax rotundifolia*), Honeysuckle (*Lonicera canadensis*) and Poison Ivy (*Rhus toxicodendron*). The woodland was logged approximately 15 years ago. **Topography:** Flat, elevation 393 ft. **Edge:** The study plot is surrounded on all sides by similar habitat for 90 ft. Beyond this are small scattered sections of similar swamp forests, abandoned fields and cultivated fields. **Water:** Owing to the flat nature of the topography and low elevation, drainage is poor and water from 6-18 in. covered about 75% of the plot during the study period. **Weather:** The temperature ranged from 15 to 58°F. The water was frozen twice during the study. Owing to mild weather the ice remained only 3 or 4 days each time. **Coverage:** Dec. 16-17, 19; Jan. 7-8, 14; Feb. 13, 18, 20, 23. Total, 10 trips, between 0700 and 1500, averaging 75 min each. **Count:** Rusty Blackbird, 4 (82, 33); Carolina Chickadee, 3 (62, 25); Tufted Titmouse, 3; Carolina Wren, 3; Am. Robin, 3; Com. Flicker, 2 (41, 17); Red-bellied Woodpecker, 2; Downy Woodpecker, 2; Blue Jay, 2; Am. Goldfinch, 2; Dark-eyed Junco, 2; Swamp Sparrow, 2; Red-shouldered Hawk, 1 (21, 8); Barred Owl, 1; Red-headed Woodpecker, 1; Com. Crow, 1; Winter Wren, 1; Golden-crowned Kinglet, 1; Ruby-crowned Kinglet, 1; Com. Grackle, 1; Cardinal, 1; White-throated Sparrow, 1; Song Sparrow, 1; Red-tailed Hawk, +; Mourning Dove, +; Pileated Woodpecker, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; Brown Creeper, +; E. Bluebird, +; Rufous-sided Towhee, +; Tree Sparrow, +. **Average Total:** 41 birds (844/km², 324/100 acres). **Remarks:** The Rusty Blackbirds were in a flock and seen only once. The Com. Flicker, Red-bellied Woodpecker, Downy Woodpecker, Carolina Chickadee, Tufted Titmouse, Carolina Wren and Swamp Sparrow were noted on at least 8 of the 10 trips. Food, water and shelter were present in the plot, resulting in a large winter population.—RANDALL MADDING, Wapora, Inc., R.R. 2, Charleston, Ill., 61920

69. IMPOUNDED BAYOU: OAK-GUM-MAPLE FOREST. — **Location:** Louisiana; Evangeline Parish, 7 mi NW of Ville Platte within Miller's Lake and connected to the east fork of Bayou Nezpique. The south boundary is 1.1 boat mi (9 right turns) N of the W Miller's Lake spillway; 30°46'N, 92°23'W, Sect 45, T3S, R1E, Turkey Creek Quadrangle, USGS. **Continuity:** New. **Size:** 8.70 ha = 21.47 acres (7085 X 132 ft, measured longitudinally and estimated laterally). **Description of Area:** Plot is composed of two habitats: the bayou (19%) and the Oak-Gum-Maple forest on the bayou's natural banks. The plot is located within the boundaries of a man-made lake (3500-acre Miller's Lake) which was made in the 1940's by erecting levees along the lower edge of a naturally inundated forested area. The lake's permanent levees maintain a high water level in the bayou from December to June. A quantitative survey based on 18 randomly located 01 ha (18.6 ft) circular plots gave the following results: 420 trees/acre with 4 in dbh and over; average canopy height is about 45 ft. Total basal area, 108 sq ft/acre. Major overstory species are: Sweet-gum (*Liquidambar styraciflua*), 39%, Red Maple (*Acer rubrum* var

drummondii, 18%; Cherrybark Oak (*Quercus falcata* var *pagodaefolia*), 12%; Ironwood (*Carpinus caroliniana*), 8%; Water Oak (*Quercus nigra*), 6%; miscellaneous hardwood species, 17%. Predominant in the understory (dbh 0.5 to 3.0 in) are: Ironwood, 35%; Buttonbush (*Cephalanthus occidentalis*), 23%; *Viburnum dentatum*, 11%; Sweet-gum, 8%; *Cornus drummondii*, 7%; as determined by 18 randomly located 001 ha (5.85 ft radius) circular plots. Understory density was 38.3 sq ft/acre. The ground cover (less than 4 5 ft high) consists of Climbing Hempweed (*Mikania scandens*), violet (*Viola* sp.), *Cornus drummondii*, *Viburnum dentatum*, *Berchemia scandens*, Ironwood, Elderberry (*Sambucus canadensis*), *Smilax* sp., Poison Ivy (*Rhus radicans*), Cane (*Arundinaria gigantea*), Cross Vine (*Anisostichus capreolata*), goldenrod (*Solidago* sp.), *Rubus* sp., *Acer rubrum* var. *drummondii*, and *Hydrocotyle* sp. Plant names came from Radford *et al* , *Manual of the Vascular Flora of the Carolinas*, 1968. **Topography:** Flat, elevation 75 ft. **Edge:** The study plot is part of a similar woodland of about 300 acres. To the N, E, and W, outside of the lake are open woodlands and pastures. To the S, outside of the lake are Rice (*Oryza sativa*) fields and pastures. Within the lake there are 900 acres of open water. The remainder of the lake is composed of dense Button Bush, Tupelo Gum (*Nyssa aquatica*), Black Willow (*Salix nigra*), and vegetation mats. **Water:** The plot occurs within a man-made lake which empties into the east fork of Bayou Nezpique. **Weather:** During the count period the temperature ranged from 30° to 74°F. During count days, the average temperature was 55°, cloud cover averaged 95% with two mornings of heavy fog, and the wind averaged 10 mph. The rainfall during the count period, measured was 8.11 in. **Coverage:** Jan. 6; Feb. 8, 10-11, 14-15. Total, 6 trips, between 0700 and 1400, averaging 105 minutes each. **Count:** Yellow-rumped Warbler, 62 (714, 289); Rusty Blackbird, 33 (380, 154); Ruby-crowned Kinglet, 20 (230, 93); Red-winged Blackbird, 10 (115, 47); Carolina Wren, 9 (104, 42); Am. Robin, 9; White-throated Sparrow, 9; Cardinal, 8 (92, 37); Hermit Thrush, 7 (81, 33); Wood Duck, 5 (58, 23); Blue Jay, 5; Com. Flicker, 4 (46, 19); Red-bellied Woodpecker, 4; Carolina Chickadee, 4; Brown Thrasher, 4; Golden-crowned Kinglet, 4; Mallard, 3 (35, 14); Tufted Titmouse, 3; Orange-crowned Warbler, 3; Yellow-bellied Sapsucker, 2 (25, 9); Swamp Sparrow, 2; Green-winged Teal, 1 (12, 5); Red-shouldered Woodpecker, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; E. Phoebe, 1; Winter Wren, 1; Rufous-sided Towhee, 1; Anhinga, +; Great Blue Heron, +; Yellow-crowned Night Heron, +; Black Vulture, +; Great Horned Owl, +; Belted Kingfisher, +; Brown Creeper, +; House Wren, +; Mockingbird, +; White-eyed Vireo, +; Com. Yellowthroat, +; Com. Grackle, +. **Average Total:** 218 birds (2509/km², 1015/100 acres). **Remarks:** During the count period, the amount of exposed ground within the plot changed from 33% on Feb. 8 to 67% on Feb. 15, owing to a 3 in drop in water level within the lake. Rusty Blackbirds and Red-winged Blackbirds using the plot increased in proportion to the newly exposed ground within the plot.—BRENT ORTEGO, School of Forestry and Wildlife Management, Louisiana State Univ., Baton Rouge, La 70803

70. ARBORETUM. — **Location:** Louisiana; School of Forestry, Louisiana Tech University, Ruston, S of Reese Hall and U.S. Hwy 80, 32°31'N, 92°39'W (Sect 26, T18N, R3W). **Continuity:** New. **Size:** 20.2 ha = 50 acres, irregular-roughly rectangular, approximately 1200 x 1900 ft. **Description of Area:** The area consists of a 14-acre lake, 14 acres of pine (*Pinus taeda*, *P. echinata*, and *P. elliotii*) over 20 years of age, 1 acre of fallow field, and the remainder in open areas and various shrubs and trees from throughout the world. Most of these trees and shrubs are less than 15 feet high. Ground cover is predominantly Bermuda Grass (*Cynodon dactylon*) and Carpet Grass (*Axonopus affinis*). **Edge:** The area is bounded on the E by a privet thicket (*Ligustrum vulgare*), and on the other three sides by pasture. The variety of plants on the area and the differences in vegetative profiles provided habitat for a variety of birds. **Topography:** Soils are predominantly Shubata fine sandy loam. Terrain is gently rolling. Elevation varies around 300 ft. **Weather:** Temperatures during the study period ranged from 20° to 80°F. The mean 24-hour minimum during the period was 44° and the mean 24-hour maximum was 63°. There was measurable precipitation 8 days, totaling 4.45 in (data from weather station, School of Forestry, Louisiana Tech Univ.). Temperatures during the counts ranged from 32° to 65°. Cloud cover during the counts was greater than 90% on 6 counts, and 10% on one count. Wind speed during the counts varied from 2 to 18 mph. **Coverage:** Jan. 17, 23-24, 28; Feb. 4, 6, 8. Total, 7 trips, 6 between 0713 and 1018 CST, 1 from 1535 to 1717, averaging 116 minutes. **Count:** Dark-eyed Junco, 32 (158, 64); Am. Robin, 20 (99, 40); Com. Grackle, 18 (89, 36); E. Meadowlark, 16 (79, 32); Cardinal, 14 (69, 28); White-throated Sparrow, 13 (64, 26); Starling, 10 (49, 20); Blue Jay, 8 (40, 16); Song Sparrow, 8; Com. Flicker 6 (30, 12); Mockingbird, 5 (25, 10); Killdeer, 4 (20, 8); Yellow-rumped Warbler, 4; Bobwhite, 3 (15, 6); Carolina Wren, 3; Purple Finch, 3; Field Sparrow, 3; Pied-billed Grebe, 2 (10, 4); Ruby-crowned Kinglet, 2; Loggerhead Shrike, 2; Mourning Dove, 1 (5, 2); Belted Kingfisher, 1; Pileated Woodpecker, 1; Red-bellied Woodpecker, 1; Com. Crow, 1; Carolina Chickadee, 1; Brown Thrasher, 1; Hermit Thrush, 1; E. Bluebird, 1; Red-winged Blackbird, 1; Great Blue Heron, +; Lesser Scaup, +; Red-tailed Hawk, +; Red-shouldered Hawk, +; Yellow-bellied Sapsucker, +; Downy Woodpecker, +; E. Phoebe, +; Tufted Titmouse, +; Golden-crowned Kinglet, +; Water Pipit, +; Brown-headed Cowbird, +; Am. Goldfinch, +; Rufous-sided Towhee, +; Fox Sparrow, +. **Average Total:** 186 birds (919/km², 372/100 acres). **Remarks:** Bird species detected during only one count were: Great Blue Heron, Red-shouldered Hawk, E. Phoebe, Tufted Titmouse, Golden-crowned Kinglet, Water Pipit, and Brown-headed Cowbird. Detected on all counts were: Com. Flicker, Blue Jay, Am. Robin, Loggerhead Shrike, E. Meadowlark, Cardinal, Killdeer, Dark-eyed Junco, Field Sparrow, White-throated Sparrow, and Song Sparrow. A consistent population trend during the study was evident only in Yellow-rumped Warblers. One bird was detected during the first three counts (Jan. 17-24), 15 birds the three counts Jan 28 - Feb 6, and 12 birds

the last count.—*JAMES G. DICKSON, School of Forestry, Louisiana Tech Univ., Ruston, La. 71270.*

71. BEACH-FRONT RECREATIONAL PARK. — **Location:** California; Refugio State Beach, 12 mi W of Goleta, Santa Barbara Co, 34°27'50''N, 120°04'10''W, Tajiguas Quadrangle, USGS. **Continuity:** New. **Size:** 13.4 ha = 33.1 acres (roughly triangular). Acreage was determined on a large-scale map (1 in = 300 ft) by calculating areas of component triangles and rectangles. **Description of Area:** The plot is a large part of a state park, situated between U.S. Hwy 101 and the Pacific Ocean, and includes beach area (approximately 20% of study area), picnic areas, an 85-site campground, 2 park residences, 5 restrooms, a store, and 3 storage sheds. An estimated 95% of all vegetation is introduced, since the park was landscaped when established. Large areas of lawn bordered by trees, and campsites among the trees, dominate the non-beach portion of the plot. The principal trees are Monterey Cypress (*Cupressus macrocarpa*), California Fan Palm (*Washingtonia filifera*), Monterey Pine (*Pinus radiata*), California Pepper Tree (*Schinus molle*), Blue Gum Eucalyptus (*Eucalyptus globulus*), and Bushy Yate (*Eucalyptus lehmannii*). Taxonomy of trees is from *Sunset Western Garden Book*, 1971. The study area is divided approximately in half by Refugio Creek, which flows S to the ocean. During the non-rainy seasons, the creek within the park becomes a slough, blocked by a high sand beach from exit to the sea. After the first major winter storm, the creek is free-flowing. The park has a network of paved roads and one large paved parking area. **Topography:** Flat, except sloping steeply to the railroad grade on the N edge of the plot; average elevation is 5 ft. **Edge:** The triangular study area is bordered on its S side by ocean (coastline is south-facing), and its northern two sides by a railroad track, which circumnavigates the park. Beyond the track are paved entrance roads and brushy hillsides. **Water:** Refugio Creek generally has standing or free-flowing water all year. The creek began flowing over the beach barrier to the ocean on Dec. 3. Water depth varies from 1 ft to 4 ft after rains. The observed use of creek water by birds includes actual drinking by the Brewer's Blackbird and bathing by the Red-winged Blackbird. **Weather:** Three major rain storms occurred during the 75-day study period. A measured 5.58 in. of rain fell in December at Santa Barbara Airport, 14 mi E. December temperature extremes were 76° (Dec. 14) and 29°F (Dec. 24). Data not available for January and February, but rainfall amounts were similar to that of December. Daytime temperatures in the 3 months were in the 50s and 60s. All census trips were undertaken on windless, rainless days. The park was closed to camping and day use because of muddy conditions on 8 of the 10 trips. **Coverage** Dec. 12-13, 19-20, 31; Jan. 3, 13; Feb. 11, 18, 24. Total: 10 trips, all between 1210 and 1535 PST, averaging 108 minutes. **Count:** Sanderling, 26 (194, 79); White-crowned Sparrow, 23 (172, 69); Snowy Plover, 15 (112, 45); Brewer's Blackbird, 15; Red-winged Blackbird, 13 (97, 39); Herring Gull, 10 (75, 30); Bushitit, 8 (60, 24); Rock Dove, 7 (52, 21); Mockingbird, 6 (45, 18); Yellow-rumped Warbler, 6; Killdeer, 5 (37, 15); Willet, 5; Ring-billed Gull, 5;

Am. Coot, 4 (30, 12); Black-bellied Plover, 3 (22, 9), Marbled Godwit, 3; California Gull, 3; Black Phoebe, 3; House Finch, 3; Song Sparrow, 3; Mew Gull, 2 (15, 6); Anna's Hummingbird, 2; Ruby-crowned Kinglet, 2, Red-tailed Hawk, 1 (7, 3); Whimbrel, 1; Spotted Sandpiper, 1; Belted Kingfisher, 1; Yellow-bellied (Red-breasted) Sapsucker, 1; Nuttall's Woodpecker, 1; Com Crow, 1; Bewick's Wren, 1; Rock Wren, 1; California Thrasher, 1; W. Bluebird, 1; Lesser Goldfinch, 1, Brown Towhee, 1; Ring-necked Duck, +; Cooper's Hawk, +; Am. Kestrel, +; Ruddy Turnstone, +, Long-billed Curlew, +; W. Gull, +; Heermann's Gull, +; Royal Tern, +; Hermit Thrush, +; Starling, +, Com. Yellowthroat, +; House Sparrow, +; Rufous-sided Towhee, +. **Average Total:** 186 birds (1389/km², 562/100 acres). **Remarks:** Species total, 50. Only those birds actually present on the surface of the study area were counted. Of the 14 most abundant species (4 or more birds per trip), only the Sanderling, White-crowned Sparrow, Mockingbird, Willet, and Coot were observed on all 10 trips. The Brewer's Blackbird, Rock Dove, and Yellow-rumped Warbler were seen on 9 trips, and the Snowy Plover and Herring Gull on 8 trips. Seven species were observed only once (one individual seen): Ring-necked Duck, Cooper's Hawk, Ruddy Turnstone, W. Gull, Royal Tern, Com Yellowthroat, and Rufous-sided Towhee. Birds observed in the study area during the study period (Dec 12–Feb. 24), but not on any census trip, include the Snowy Egret and Cinnamon Teal. An active California Thrasher nest was in the large lantana bush in the yard of a park residence. A young thrasher was first seen in mid-March. **Food:** Shorebirds and blackbirds fed on flooded lawns after rains, as well as on exposed mudflats along the creek. Finches fed on fallen and attached fruits of a large White Sapote tree (*Casimiroa edulis*). Kelp washed in from off-shore beds attracted shorebirds, blackbirds, and crows. The Yellow-rumped Warbler pursued winged insects in the accumulations of kelp. A lantana bush (*Lantana* sp.) of great proportions (10 ft high x 20 ft long x 8 ft wide) in the yard of one of the park residences attracted many birds, most of them insectivorous. Hummingbirds fed often on lantana flowers. A hummingbird feeder hung near the other residence. Other vertebrates observed or heard on census trips include the Pacific Treefrog (*Hyla regilla*), W Fence Lizard (*Sceloporus occidentalis*), Brush Rabbit (*Sylvilagus bachmani*), and California Ground Squirrel (*Spermophilus beecheyi*).—*JOHN R. GUSTAFSON, Refugio State Beach, Route 1, Box 257, Goleta, Ca 93017.*

72. ABANDONED ORCHARD – OLD FIELDS – TREE ROWS. — **Location:** New York; Rockland County, about 4 ½ mi NE of Suffern, 2 mi SW of intersection of Rtes 202 and 306. Approximate coordinates 41°09'15''N, 74°05'40''W, Thiells Quadrangle, USGS. **Continuity:** Established 1973; 3 years. **Size** 15.5 ha = 38.4 acres. **Description of Area:** See AB 27 693-694 (1973). **Food:** The apple crop was excellent, providing both large numbers of fallen apples and much smaller amounts of attached fruit. The peach crop was, again, virtually non-existent. Smooth Sumac, Poison Ivy, Rose and Bittersweet Nightshade were in great

supply and widely eaten. **Weather:** All trips were made in dry weather. Temperature during the count period ranged from 20-52°F, while count temperatures varied from 28-48°. Precipitation for the count period was below normal (2 in. of snow on Dec. 31, followed by light rain, was the only precipitation). Average temperatures were well above the annual average for the count period. Patchy snow cover existed Jan. 1-5. **Coverage:** Dec. 21-24, 26-29; Jan. 2-5. Total, 12 trips, all between 0830 and 1300, except one Jan. 2 between 1450 and 1600; average, 70 min each. **Count:** Starling, 193 (1242, 503); White-throated Sparrow, 13 (84, 34); Dark-eyed Junco, 8 (51, 21); Cedar Waxwing, 6 (39, 16); Tree Sparrow, 5 (32, 13); Black-capped Chickadee, 4 (26, 10); Am. Robin, 4; Com. Flicker, 3 (19, 8); Downy Woodpecker, 3; Blue Jay, 3; Yellow-rumped Warbler, 3; Cardinal, 3; Am. Goldfinch, 3; Com. Crow, 2 (13, 5); Mockingbird, 2; Evening Grosbeak, 2; Red-tailed Hawk, 1 (6, 3); Mourning Dove, 1; Song Sparrow, 1; Am. Kestrel, +; Ruffed Grouse, +; Com. Snipe, +; Hairy Woodpecker, +; White-breasted Nuthatch, +; Winter Wren, +; Ruby-crowned Kinglet, +, E. Meadowlark, +; Purple Finch, +, House Finch, + **Average Total:** 260 birds (1673/km², 677/100 acres). **Remarks:** Starlings feeding almost exclusively on apples, accounted for the majority of the 400% increase in average bird total over the first year's count, yet excluding the Starlings there was still a nearly 100% increase. Exceptionally mild and dry weather, excellent food supply, and a short count period were probably the most important factors in this year's high count. The maximum number of individuals seen on a single count were: flicker, 5; Mockingbird, 4; Downy Woodpecker, 6; Cardinal, 6; Yellow-rumped Warbler, 8, Starling, 400; Blue Jay, 5; and Am. Goldfinch, 12. Food birds were observed to eat — apples: Starling, Am. Robin, White-throated Sparrow, Downy Woodpecker, and Cardinal; rose hips: Mockingbird, Cedar Waxwing, and Starling; Poison Ivy berries: Yellow-rumped Warbler and Am. Robin; Smooth Sumac berries: Starlings and Mockingbirds. Seen overhead but not included in the count were a total of 35 Herring Gulls, 57 Mallards, and 1 Red-winged Blackbird.—**BRUCE B. EDINGER**, 2630 Clara Dickson Hall, Cornell Univ., Ithaca, N.Y. 14853.

73. CORN STUBBLE, SOY BEANS, AND HAYFIELD. — **Location:** Pennsylvania; One-half mile S of Jersey Shore, 41°11'05"N, 77°15'10"W, Jersey Shore Quadrangle USGS. **Continuity:** Established 1974; 2 years. **Size:** 40.47 ha = 100 acres (rectangular, measured with steel tape and compass). **Description of Area:** See AB 28: 722-723 (1974). This winter the fields were composed of corn stubble, 29.5 ha (73%); soy beans, 7 ha (17%); and short grass, 4 ha (10%). **Weather:** For January the mean high temperature was 38° F and the mean low was 23.2°. Precipitation was about average with 3.53 in. For February these figures were 38.1°, 24.3° and 4.34 in. respectively. Wind was calm on two trips, with a maximum of 10-30 mph on 3 trips. The sky was overcast to partly cloudy on 7 trips. The ground had ½-4 in. of snow on 5 trips. **Coverage:** Jan. 6, 8, 23, 26-27, 31, Feb 1-2 Total, 8 trips, averaging 58 mi-

minutes each between 0950 and 1340, 5 completed before 1200. **Count:** Mourning Dove, 13 (32, 13); E. Meadowlark, 13; Horned Lark, 7 (17, 7); Com. Crow, 3 (7, 3), Rough-legged Hawk, 1 (2, 1); Am. Kestrel, 1; Red Tailed Hawk, +; Marsh Hawk, +; sparrow sp., +. **Average Total:** 38 birds (94/km², 38/100 acres). **Remarks:** The number of species per trip ranged from 0 to 5, and the number of individuals from 0 to 92.—**GLENNA P SCHWALBE, PAUL W. SCHWALBE**, (compiler), Dept of Biological Sciences, Lock Haven State College, Lock Haven, Pa. 11745.

74. CORNFIELD, I. — **Location:** Maryland, McKee-Beshers Wildlife Management Area, Montgomery Co, 39°04'15"N, 77° 23'42"W, Sterling Quadrangle, USGS. **Continuity:** New. **Size:** 16.1 ha = 39.8 acres (roughly rectangular, ca. 1600 ft by 1100 ft with the long axis running E-W). **Description of Area:** This field is on the floodplain of the Potomac River 200 ft from the river bank. The terrain is flat with a maximum elevation of 195 ft. In summer 1974 the whole area was planted in Corn (*Zea mays*). This winter most of the corn had been harvested, but there were five rows ca 7 yds wide left standing. These rows ran E-W and were located on the N and S borders with 3 evenly spaced rows in between. The area is surrounded on the N and S by mixed deciduous woods, on the E by a grassy field, and on the W by a hedgerow of 40 ft tall Am. Elms (*Ulmus americana*) and Hackberries (*Celtis occidentalis*). **Weather:** The sky was overcast on 6 trips and partly cloudy on 2 trips. There was little wind except on Feb. 7. Snow covered the field on Jan 15, 22; Feb. 7, 15 (slight). **Coverage:** Dec. 24; Jan. 3, 10, 15, 22, 29; Feb. 7, 15. Total, 8 trips, all between 0915 and 1050, totaling 5.6 hours. **Count:** Com. Grackle 29 (180, 73); Mourning Dove, 4 (25, 10); Savannah Sparrow, 4; Cardinal, 3 (19, 8); Dark-eyed Junco, 1 (6, 3), Tree Sparrow, 1; White-throated Sparrow, 1; Marsh Hawk, +; Com. Flicker, +; Downy Woodpecker, +, Blue Jay, +; Red-winged Blackbird, +, Song Sparrow, +. **Average Total:** 49 birds (304/km², 123/100 acres). **Remarks:** The majority of the birds recorded (97.1%) were seen on the four trips when there was a snow cover. Except for Com. Grackle, Mourning Dove, and Savannah Sparrow, most species fed mainly along the edges of the field. My impression was that this field was used only sporadically as a source of food, even though there was a considerable amount of corn kernels scattered through it.—**PAUL W. WOODWARD**, Dept of Zoology, Univ. of Maryland, College Park, Md 20742.

75. CORNFIELD, II. — **Location:** Maryland, McKee-Beshers Wildlife Management area, Montgomery Co, 39°04'43"N, 77°23'37"W, Sterling Quadrangle, USGS. **Continuity:** New. **Size:** 23.8 ha = 58.9 acres (roughly rectangular, ca: 1800 ft. by ca. 1500 ft. with the long axis running E-W). **Description of Area:** This field is on the floodplain of the Potomac River 3200 ft from the river bank. Terrain is generally flat, maximum elevation 195 ft. Three slight depressions, which fill with water during periods of heavy rain, were empty this winter. In summer 1974 most of the area was planted in corn (*Zea mays*) except for two ca 28-yd-wide strips of Fescue grass (*Festuca sp*) evenly

spaced between the north and south borders. This winter the corn had been cut except of two ca. 7-yd.-wide rows running E-W at the N and S borders and small strips on either side of the grass strips, which were left standing as wildlife food. The area is surrounded on the E and S by grassy fields, on the N by a mixed deciduous woods, and on the W by a hedgerow of 40-ft tall Am. Elms (*Ulmus americana*) and Hackberries (*Celtis occidentalis*). **Weather:** The sky was clear on 2 trips, partly cloudy on 2 trips, and overcast on 4 trips. There was little wind except on Dec. 26 and Jan. 17. A light snow covered the field on Feb. 9. **Coverage:** Dec. 26; Jan. 3, 10, 17, 27, 31; Feb. 9, 14. Total, 8 trips, all between 0905 and 1115, totaling 6.2 hours. **Count:** Com. Grackle, 478 (2005, 812); Dark-eyed Junco, 73 (306, 124); Red-winged Blackbird, 72 (302, 122); E. Meadowlark, 8 (34, 14); Starling, 5 (21, 8); Cardinal, 3 (13, 5); White-throated Sparrow, 3; Horned Lark, 2 (8, 3); Blue Jay, 2; Brown-headed Cowbird, 1; Mourning Dove, 1 (4, 2); Downy Woodpecker, 1; Carolina Chickadee, 1; Mockingbird, 1; Am. Goldfinch, 1; Tree Sparrow, 1; Song Sparrow, 1; E. Bluebird, +; Savannah Sparrow, +; Vesper Sparrow, +. **Average Total:** 653 birds (2739/km², 1109/100 acres). **Remarks:** Flocks of blackbirds, meadowlarks, and juncos spent a considerable amount of time feeding out in the field, while the other species spent more time along the edges. The grass strips were rarely utilized. This field was probably a main feeding area for these birds.—PAUL W. WOODWARD, Dept. of Zoology, Univ. of Maryland, College Park, Md. 20742.

76. ABANDONED FIELD. — **Location:** Maryland, Piscataway Park, Potomac River, 3 mi W of intersection of Route 210 and Bryan Point Road; Accokeek, Prince George's Co; 38°41'N, 77°4'W, Mt. Vernon Quadrangle, USGS. **Continuity:** Established 1973. **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 1975 was mild. Snow cover was sparse (2 in. on Jan. 23 and trace on Feb. 3). Temperatures ranged from 28° to 48°F on census days. **Coverage:** Dec. 23, 31; Jan. 3, 6, 8, 10, 16, 23, 27, 30; Feb. 3. Total, 11 trips, 10 between 0745 and 1100 hours and one between 1405 and 1605 hours, averaging 2 hours each. **Count:** Tree Sparrow, 8 (132, 53); Savannah Sparrow, 6 (99, 40); Song Sparrow, 6; Bobwhite, 5 (82, 33); White-throated Sparrow, 4 (66, 27); Am. Goldfinch, 2 (33, 13); Swamp Sparrow, 2; Carolina Chickadee, 1 (16, 7); Carolina Wren, 1; Cardinal, 1; Dark-eyed Junco, 1; Red-tailed Hawk, +; Am. Kestrel, +; Com. Flicker, +; Tufted Titmouse, +; Mockingbird, +; E. Bluebird, +; Ruby-crowned Kinglet, +; Field Sparrow, +. **Average Total:** 39 (642/km², 260/100 acres). **Remarks:** Total species, 19, compared to 21 in 1974 and 14 in 1973. Two species are new to the study plot: Red-tailed Hawk and Am. Kestrel. The kinglet was again associated with the strip of trees and brush extending into the field from an adjacent swamp. The bluebirds were "surveying" the nestboxes on the field edge. No large flocks of birds were recorded and Red-winged Blackbirds were not recorded during the census — M KATHLEEN KLIMKIEWICZ (compiler),

13117 Larchdale Rd. No. 2, Laurel, Md. 20811, and LEONARD TEUBER (field work).

77. CORNFIELD. — **Location:** North Carolina; just W of North Wilkesboro. **Continuity:** Established 1963 13 years. **Size:** 40.5 ha = 100 acres. **Description of Area:** Level land except for an abandoned river channel. Boundaries formed by Reddies and Yadkin Rivers, a 100-acre field, the former wooded swamp now being filled for development, some farm buildings and business buildings. **13 year Summary:** See Table 1 In 1963, when the first count was made, poor germination of corn affected 15 acres, which had a heavy growth of Giant Ragweed (*Ambrosia trifida*). The corn was harvested by pigs, which were given supplemental feed of sterile eggs from a chicken hatchery. Drought in the summer of 1963 reduced the yield of corn and affected the growth of ragweed. The 300 hogs consumed the corn crop before the 1964 winter was half gone; supplements of corn on the cob and sterile eggs were provided. Although the tract was posted, there was considerable hunting pressure on Mourning Doves; but inspection revealed that perhaps not more than 30 birds were killed. Corn and eggs were eaten by crows and Starlings. The 1966 winter count gave the maximum bird population of the 13 years, 1089 or nearly 11 birds per acre (30 species). A Starling roost within a mile contributed to the increase in that species. This count illustrates the complexity of factors contributing to a bird population. While temperatures were lower (37.5°F average) and there was much more snow (36 in) than in any other count season, and although the sparrow population was smaller, the total population was greater. Ragweed produced stout stalks with an abundance of seed. The area had a better supply of food than adjoining tracts. In 1967 an invasion of Johnson Grass (*Sorghum halepense*) reduced both corn and ragweed. Loss of the Starling roost and absence of Rusty Blackbirds and grackles were also factors in the declining number of birds. Slight decrease in 1968 correlated with increase in Johnson Grass, which crowded out both corn and ragweed. American Goldfinches were attracted by Com. Burdock (*Arctium minus*). Herbicide applied to portions of the tract killed the burdock in 1969. Corn blight struck in 1971, with the harvest only a fraction of an average crop and very poor in quality. Mourning Doves declined 50% from the 1970 number, crows and Starlings declined 30%. Shelled corn, dumped for the pigs, was eaten by crows and Starlings but apparently not by Mourning Doves. 1972 was a mild season (average temperature, 43.4°), with only 3 in of snow. Corn occupied only 50% of the tract and had been consumed by the end of December. Automatic feeders were introduced. Ragweed continued to deteriorate in size and quality of seed. Mourning Doves and crows almost completely disappeared, and Starlings dropped to 195 (from 570 in 1866). Red-winged Blackbirds, however, reached their maximum for the 13 years. They fed on ragweed seed. No corn was raised in 1973; the area was sowed in grass. Pigs used automatic feeders, and Starlings (still declining) were the only ones to feed on the scattered bits. White-throated Sparrows declined but were less numerous throughout the region. Temperature in 1974 averaged 45 1°, precipita-

**Table 1. Thirteen-year Summary
Winter Counts in North Carolina Cornfield, Study No. 77
(Trace birds seen 3 years or fewer not tabulated.)**

Species	'63	'64	'65	'66	'67	'68	'69	'70	'71	'72	'73	'74	'75	Mean
Red-tailed Hawk	+	-	-	-	+	-	+	-	-	-	-	-	+	+
Red-shouldered Hawk	+	-	+	+	+	-	-	-	+	-	-	+	-	+
Bobwhite	1	8	10	5	3	2	4	1	-	1	-	2	-	3
Kildeer	-	+	+	+	-	-	-	1	-	-	+	+	-	+
Mourning Dove	26	145	176	135	94	71	48	82	23	1	-	+	+	62
Com. Flicker	-	-	-	+	-	+	-	-	+	-	+	+	+	+
Red-bellied Woodpecker	-	-	+	-	+	-	+	+	-	-	+	-	-	+
Downy Woodpecker	+	+	+	+	1	-	+	+	+	-	-	-	-	+
Com. Crow	32	199	210	153	175	57	153	101	83	1	3	3	1	90
Carolina Chickadee	1	1	1	1	5	+	2	1	1	-	+	-	-	1
Tufted Titmouse	-	-	2	1	3	+	1	2	1	+	+	-	+	1
Carolina Wren	-	-	+	1	-	+	1	+	+	1	+	-	3	+
Mockingbird	-	-	-	1	-	-	-	-	-	-	+	1	-	+
Am. Robin	+	-	+	+	-	-	+	-	1	-	5	+	1	1
Cedar Waxwing	+	-	3	-	-	-	1	-	5	-	-	-	-	1
Starling	61	256	326	570	236	325	500	362	356	195	101	56	+	257
House Sparrow	2	13	19	12	8	5	4	2	+	-	-	1	-	5
Eastern Meadowlark	+	+	5	3	-	+	+	-	+	-	1	+	+	1
Red-winged Blackbird	4	11	27	35	6	40	2	12	20	128	10	2	12	24
Rusty Blackbird	1	1	8	6	-	-	-	-	-	-	+	+	-	1
Com. Grackle	-	-	2	76	-	-	-	-	-	-	-	-	-	6
Brown-headed Cowbird	-	-	1	-	-	20	-	-	-	-	-	-	-	2
Cardinal	3	14	10	19	17	5	6	3	6	1	4	3	-	7
Evening Grosbeak	-	-	-	+	-	-	80	2	-	2	1	1	-	7
Purple Finch	4	5	26	13	38	36	5	27	7	24	26	26	+	18
Am. Goldfinch	1	5	17	2	7	27	-	3	8	-	-	-	-	5
Rufous-sided Towhee	1	-	2	+	+	1	1	+	+	-	-	-	+	+
Dark-eyed Junco	3	9	8	3	3	2	3	1	+	+	1	-	-	3
Field Sparrow	+	4	5	1	2	1	-	1	2	2	6	4	+	2
White-crowned Sparrow	-	-	+	+	2	+	+	1	-	-	-	-	-	+
White-throated Sparrow	6	33	28	27	23	17	29	16	42	10	13	3	+	19
Fox Sparrow	1	5	11	8	6	2	6	7	6	+	4	+	-	4
Song Sparrow	1	8	18	17	7	6	13	4	7	1	9	3	2	7
Average Total	148	717	915	1089	636	617	859	628	568	367	184	104	19	527

tion totalled 12.9 in, with 1 in. of snow. Starlings led the count, though now down to an average of 56, followed by Purple Finches with 26. The decline in food continued. The 1975 count has dropped to only 19 birds (47/km², 19/100 acres); contrast this with 2691/km², 1089/100 acres in 1966. Starlings, now down to a trace species, have lost their prime source of food, as the town refuse dumps have given way to sanitary landfills. Ragweed, which covered 25 acres in 1972, was reduced to 7 acres in 1975. Stalks were smaller and weaker, seeds smaller and less numerous; few stalks stood through the winter. Mourning Doves, Purple Finches and White-throated Sparrows were only trace species. The latter 2 species were less common throughout the region. To summarize, weather had some effect; change from corn through weeds to grass had a greater effect; change in methods of feeding livestock also brought reduction in bird population.—WENDELL P. SMITH, 911 E St., N. Wilkesboro, N.C. 28659.

78. ABANDONED FIELD. — **Location:** Indiana; Spencer County, about 1 mi W of Grandview; 37°32'30''N, 87°00'W, Rockport Quadrangle, USGS. **Continuity:** New. **Size:** 9.7 ha = 24 acres (rectangular, 1670 x 626 ft measured with a compass and steel tape). **Description of Area:** The study plot is located 2 miles N of the Ohio River. The dominant plants are: Beard Grass (*Andropogon* sp.), Bog Rush (*Juncus* sp.), Sedge (*Cyperus* sp.), Foxtail (*Setaria* sp.) and Aster (*Aster* sp.). The dominant tree is Sweet Gum (*Liquidambar styraciflua*) and averaged 3 ft in height. There are two

large Pin Oaks (*Quercus palustris*) in the plot. **Topography:** Essentially flat, elevation 393 ft. **Edge** The study plot is surrounded on all sides by similar habitat for 100 yds. Beyond this are small sections of similar abandoned fields, cultivated fields and swamp forests. **Water:** Owing to the flat topography and low elevation, drainage is poor and water from 6 to 18 in covered 75% of the plot during the study. The water was frozen twice during the study, but ice remained only 3 or 4 days each time. **Coverage:** Dec. 16-17, 19, Jan. 7-8, 14; Feb. 13, 18, 20, 23. Total, 10 trips, between 0700 and 1500, averaging 45 minutes each. Total man-hours 7.5. **Count:** E. Meadowlark, 4 (41, 17); Red-tailed Hawk, 1 (10, 4); Marsh Hawk, 1; Am Kestrel, 1; Mourning Dove, 1; Com. Crow, 1, E Bluebird, 1; Tree Sparrow, 1; Red-shouldered Hawk, +; Com. Flicker, +; Blue Jay, +; Loggerhead Shrike, +; Com. Grackle, +; Song Sparrow, +. **Average Total:** 11 birds (113/km², 46/100 acres). **Remarks** The E. Meadowlark used the drier portions for feeding and roosting. The Red-tailed Hawk, Marsh Hawk and Am. Kestrel were observed on 5 of the 10 visits to the plot, hunting for small mammals that lived on the dry portions of the plot. The Loggerhead Shrike was seen on the last 3 counts.—RANDALL MADDING, Wapora, Inc., R.R. 2, Charleston, Ill., 61920.

79. HEDGEROWS-CORNFIELDS. — **Location** Saskatchewan; Saskatoon, on the NE ¼-3-37-5-W of the 3rd Meridian; within the city limits of Saskatoon about ½ mi from residential edge. **Continuity** Estab-

lished 1974; 2 years. **Size:** 62.16 ha = 153.6 acres. **Description of Area:** See AB 28: 725-726 (1974). **Weather:** Temperatures slightly above normal for the period with precipitation being about average. Temperatures ranged from -41° to 34° F. **Coverage:** Dec. 26; daily from Jan. 9 to Feb. 10 inclusive; 34 trips from 0800 to 1800 CST; total hours about 61. **Count:** Bohemian Waxwing, 73 (117, 47); Com. Redpoll, 51 (82, 33), House Sparrow, 42 (68, 27); Black-billed Magpie, 31 (50, 20); Dark-eyed Junco, 3 (5, 2); Gray Partridge, 1 (3, 1); Ring-necked Pheasant, 1 (2, 1); Great Horned Owl, 1; Hairy Woodpecker, +; Downy Woodpecker, +, Black-capped Chickadee, +; Golden-crowned Kinglet, +; Cedar Waxwing, +; Hoary Redpoll, +; Tree Sparrow, +. **Average Total:** 204 birds (328/km², 133/100 acres). **Remarks:** The total number of species decreased over last year but the density increased. The increase resulted from the large number of Bohemian Waxwings seen on several of the trips, with over 1000 seen on Jan. 9. Com. Redpolls also increased over last year with their numbers peaking at an estimated 130 on Feb. 10. The Dark-eyed Juncos successfully wintered without receiving a supplementary food source. Pine Grosbeak, White-winged and Red Crossbills and Evening Grosbeaks were not recorded, indicating the absence of these south of the boreal forest this year. The Tree Sparrows, Cedar Waxwings and Golden-crowned Kinglets were probably tardy migrants being recorded only on the first census day. Gray Partridge and Ring-necked Pheasant populations remained low after last winter's die-off. Common Goldeneyes, Mallards, Rock Doves and Merlin were seen flying over the plot. Open water was present adjacent to the plot.—WAYNE C. HARRIS (compiler), Box 93, Raymore, Sask. SOA 3JO, and SHEILA M. LAMONT.

80. SUBURBAN SCHOOL PARK. — Location: Florida; Deerfield Beach, between N.E. 6th and 9th Ave., Hillsboro Blvd., and N.E. 2nd St; 26°19'N, 80°05'W, USC&GS Nautical Chart No. 1248. **Size:** 80 ha = 19.77 acres (rectangular, 1127 x 764 ft). **Continuity:** Established 1969; 7th consecutive count. **Description of Area:** See AFN 23:552 (1969). The plot now contains 12 one-story houses in addition to the school buildings and public library. **Weather:** During the 25-day study period, temperatures ranged from 45° to 86° F; precipitation was 2.28 in. The starting temperature on count mornings averaged 68° . On 9 trips the weather was sunny; on 1, overcast. Winds varied from calm to 10 mph. being over 5 mph on 3 trips. **Coverage:** Dec. 26-30; Jan. 1-3, 11, 19. Total, 10 trips, between 0812 and 1000 EST, averaging 71 minutes each. **Count:** Mourning Dove, 17 (212, 86); House Sparrow, 13 (162, 66); Rock Dove, 3 (37, 15); Starling, 3; Red-bellied Woodpecker, 2 (25, 10); Mockingbird, 2; Am. Kestrel, 1 (12, 5); Boat-tailed Grackle, 1, Palm Warbler, 1; Yellow-bellied Sapsucker, +; Blue Jay, +; Fish Crow, +; House Wren, +; Yellow-rumped (Myrtle) Warbler, +; Com. Grackle, +; Cardinal, +; Chipping Sparrow, +. **Average Total:** 43 birds (537/km², 218/100 acres). **Remarks:** Total, 17 species. For seven winters the plot has supported one Am. Kestrel: a female during the first 6 years, a young male this winter.—LAURA H. MOSELEY, 1083 Hillsboro Beach, Pompano Beach, Fla 33062

81. URBAN RESIDENTIAL AREA. — Location: Ontario; Ottawa, Carleton Co. **Continuity:** Established 1969-70; second census. **Size:** 111 ± 4 ha = 275 ± 10 acres (measured from map). **Description of Area:** See AFN 24: 567-568 (1970). The only change is five years' growth of trees, which now average 5-6 m. (16-20 ft) in height. Seven new apartment blocks ranging in height from 12 to 23 storeys have been erected immediately adjoining the plot in the past 5 years. **Weather:** Temperatures were much above normal during December and early January, and slightly below normal for the next month. Extreme temperatures recorded ranged from -27° C (-17° F) to $+4^{\circ}$ C ($+39^{\circ}$ F); temperatures on count days ranged from -21° C (Feb. 12) to $+1^{\circ}$ C (Jan 1) Snowfall was below normal throughout. Count days had clear to totally overcast skies, with fog and light snow on one count each; winds were light on all counts **Coverage:** Dec. 21; Jan. 1, 24; Feb. 1, 12, 15, 22 Total, 7 counts, averaging 256 min. per trip, all in the morning. **Count:** House Sparrow, 195 (175, 71); Evening Grosbeak, 90 (81, 33); Starling, 82 (74, 30); Rock Dove, 36 (32, 13); Cedar Waxwing, 27 (24, 10), Black-capped Chickadee, 1 (1, +); Am. Robin, 1, Blue Jay, +. **Average Total:** 433 (387/km²; 157/100 acres). **Remarks:** Increases in Starlings and chickadees, and the presence of Blue Jays and Downy Woodpecker (once), probably resulted from the increase in size and density of trees, which after 15 years are attaining sizes acceptable to these woodland birds. The presence of Cedar Waxwings and robins may be attributed to the mild winter and a very heavy crop of Mountain Ash berries. Evening Grosbeaks were present on all surveys, but the much higher average is partly owing to the concentration of surveys in February this winter, if only February surveys are compared, the mean numbers per survey were 72 in 1970 and 119 in 1975. The dramatic change in behavior of Rock Doves, which never fed on the area in 1969-70, may possibly result from increased use of "chicken scratch" (mixed grain), in place of the much more expensive sunflower seeds, at some local feeders. This is the only change observed which would not have been predicted from a comparison (in press) of urban residential areas studied in winter over the preceding five years.—ANTHONY J. ERSKINE, *Migratory Bird Populations, Canadian Wildlife Service, Ottawa, Canada KIA OH3.*

82. CITY PARK. — Location: Ohio, Grove Ave and 31 St, Lorain. **Size:** 29.3 ha = 72.3 acres (2100 by 1500 ft). **Continuity:** Established 1969. **Description of Area:** See AFN 23: 553-555 (1969). **Weather:** The temperature during the study period varied from 16° to 45° F, averaging 32° F; snow cover on 4 trips from 1 to 4 in. averaging 2.2 in. **Coverage:** Dec. 7, 14, 21, 28; Jan. 4, 11, 18, 25; Feb. 1, 8. Total, 10 trips, between 0900 and 1000, averaging 1 hour. **Count:** Starling, 72 (246, 100); Blue Jay, 9 (31, 12); Rock Dove, 3 (10, 4); Red-tailed Hawk, +; Am. Kestrel, +, Tufted Titmouse, +; White-breasted Nuthatch, + **Average Total:** 84 birds (287/km², 116/100 acres).—ZIGMOND and HELENA NAGY, (Black River Audubon Society), 2332 E. 31 St., Lorain, Ohio 44055

83. URBAN CATTAIL MARSH AND COTTONWOOD-WILLOW WOODLAND. — Location: Colorado, along the N side of Fountain

Creek W of Tejon St. in S Colorado Springs, El Paso County. **Continuity:** New, however, the area was first censused in 1974, and the 1974 census is included with this report. **Size:** 6.07 ha = 15 acres; narrowly rectangular. **Description of Area:** The W end of the tract is a narrow deciduous woodland, with willow thickets (*Salix* sp.) edging on Fountain Creek and medium-sized Plains Cottonwoods (*Populus sargentii*) and Peachleaf Willows (*Salix amygdaloides*) along a parallel old channel and side channel in which some water may stand. The E end of the tract includes a marsh, again with dense willow thickets separating the marsh area from Fountain Creek. The dominant vegetation of the marsh is the cattail (*Typha* sp.), with in somewhat drier areas numerous exotic Teasels (*Dipsacus sylvestris*) and Horsetail Ferns (*Equisetum*). There are a few scattered deciduous trees (locusts, young elms, cottonwoods including dead ones, and willows) associated with the marshy area. A uniform-temperature spring feeds the marsh from along the middle of the north boundary, and the water then courses southeast through several ponds until it joins Fountain Creek at the southeast end of the tract. There is some Rabbitbrush (*Chrysothamnus nauseosus*) and Snowberry (*Symphoricarpos*) in the census area, as well as a number of weedy plants in the disturbed portions of the marsh and woodland. Elevation: 5900 ft. **Edge:** Bounded on the S by the creek, beyond which are a freeway and urban development; to the N, scattered urban development beyond some vacant land; W and especially east along the river some further stands of deciduous woodland. **Food:** The area contains fairly rank vegetation, and subsequently a variety of plant food; also, there are aquatic organisms in the marsh and ponds, including fish. **Weather:** This winter season was relatively dry, windy and mild. The average temperature was about 32°F with a low of -11° and a high of 63°. Total precipitation was less than 7 in, below normal. There was moving water through the marsh throughout the period. The 1974 winter period was similar: warmer, drier, and windier than usual. **Coverage:** 1975: Jan. 10, 15-16; Feb. 7, 15, 20-21, 27; Mar. 2-3, 8. Total, 11 counts, averaging 30 minutes each, both morning and afternoon. 1974: Jan. 20, 27; Feb. 1-2 (2 trips), 6, 9-10, 12, 15; Mar. 4. Total, 11 counts, averaging 30 minutes each, both morning and afternoon. **Count:** [1974 count in brackets]: Song Sparrow, 6 (99, 40) [3]; Starling, 5 (82, 34) [3]; Rock Dove, 3 (49, 20) [2]; Black-billed Magpie, 3 (49, 20) [2]; Dark-eyed (Oregon) Junco, 3 (49, 20) [5]; Mallard, 1 (16, 7) [+]; Com. Snipe, 1 [5]; Com. (Red-shafted) Flicker, 1 [+]; Downy Woodpecker, 1 [0]; Com. Crow, 1 [+]; Am. Robin, 1 [+]; Pine Siskin, 1 [9 (148, 60)]; Am. Goldfinch, 1 [+]; Gray-headed Junco, 1 [1]; Red-tailed Hawk, + [+]; Belted Kingfisher, + [+]; House Sparrow, + [1]; Cassin's Finch, + [1]; House Finch, + [4 (67, 27)]; Brown Towhee, +; [0]; Tree Sparrow, + [3]; Black-capped Chickadee, 0, [1]; Killdeer, 0 [+]; Dark-eyed (White-winged) Junco, 0, [+]; Dark-eyed (Slate-colored) Junco, 0, [+]. **Average Total:** 1975: 29 birds (478/km², 193/100 acres). 1974: 36 birds (593/km², 240/100 acres). **Remarks:** This small marsh and woodland provides considerable variety of bird life within an otherwise fairly uniform urban ecosystem. Although numbers per species may vary, as indicated, there appears to be a basic group of species that one can

expect in the tract in winter. The Song Sparrows frequent the cattails, the Belted Kingfisher a dead-cottonwood perch over a fish-inhabited pond; the snipe the marshy stream; the juncos, magpie, Downy Woodpecker, Starling and chickadee the woodland; the flicker, siskin, and finches the isolated leafless trees, the Mallard the open water; the towhee and Tree Sparrow the brush. The Song Sparrow and magpie are the species most consistently encountered over the two-year period, followed in 1975 by the snipe; and in 1974 by the siskin, Tree Sparrow, snipe and Oregon Junco. This marsh and woodland receive considerable abuse through trash dumping, bulldozing, and even tree cutting; but hopefully the area may be set aside as an urban wildlife refuge.—**RICHARD BEIDLEMAN (compiler), 1974: KATHIE BOBAL and MARCY COTTRELL, 1975: JOYCE BACA, CYNTHIA BONOMO, JEANNIE COVEY, BRUCE LEMMON, and MIKE SCHWEITZER (Field Zoology Class), Dept. of Biology, Colorado College, Colorado Springs, Colo. 80903.**

84. URBAN NATURE CENTER. — Location California; El Dorado Nature Center, Long Beach, bounded on the N by Spring St., S by Willow St., E by a tree farm, W by San Gabriel River. **Continuity:** Established 1971; 5 years. **Size:** 34.4 ha = 85 acres (rectangular, ½ mi N-S, ¼ mi E-W). **Description of Area:** See AB 25: 656, 1971. **Weather:** Winters are clement, night temperatures normally above freezing, usually above 45°; day temperatures up to 75° but usually around 60°F. Rainfall was average this winter, with heavy storms in early and late December, and early February. **Coverage:** Dec. 22, 30; Jan. 4, 10, 16, 28, Feb. 6. Total, 7 trips, between 0800 and 1100, averaging 150 minutes each. **Count:** Am. Wigeon, 43 (125, 51); Am. Goldfinch, 34 (99, 40); Lesser Goldfinch, 33 (96, 39); White-crowned Sparrow, 32 (93, 38); Cinnamon Teal, 25 (73, 29); House Finch, 24 (70, 28); Yellow-rumped Warbler, 21 (61, 25); N. Shoveler, 19 (55, 22); Cedar Waxwing, 19; Pintail, 13 (38, 15); Green-winged Teal, 11 (32, 13); Am. Coot, 11; Mockingbird, 9 (26, 11); Com. Yellowthroat, 9; Song Sparrow, 9; Mallard, 8 (23, 9); Ruddy Duck, 6 (17, 7); Blue-gray Gnatcatcher, 6; Anna's Hummingbird, 5 (15, 6); Lincoln's Sparrow, 5; Canvasback, 4 (12, 5); Killdeer, 4; Loggerhead Shrike, 4; Pied-billed Grebe, 3 (9, 4); Gadwall, 3; Hermit Thrush, 3; Starling, 3; Savannah Sparrow, 3; Chipping Sparrow, 3; Short-billed Dowitcher, 2 (6, 2); Mourning Dove, 2; Com. Flicker, 2; Am. Robin, 1; Green Heron, 1 (3, 1); Red-tailed Hawk, 1; Am. Kestrel, 1; Black-bellied Plover, 1; Caspian Tern, 1; Belted Kingfisher, 1; Black Phoebe, 1; Com Crow, 1; House Wren, 1; Bewick's Wren, 1; Purple Finch, 1; Snowy Egret, +; Black-crowned Night Heron, +; Least Bittern, +; Ring-necked Duck, +; Lesser Scaup, +; Turkey Vulture, +; Sharp-shinned Hawk, +; Am. Avocet, +; Ring-billed Gull, +; Lace-necked Dove, +; Ruby-crowned Kinglet, +; Red-winged Blackbird, +. **Average Total:** 388 birds (1128/km², 456/100 acres). **Remarks:** A male Brazilian Cardinal (escapee) has been a year-long resident of the nature center. Killdeer and Black-bellied Plover were seen on one visit only, the dowitchers on two.—**BARBARA W. MASSEY, 1825 Knoxville Ave, Long Beach, Ca 90815**