

Thirtieth 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-cies</i> | <i>Yrs of Study</i> |
|---|--------------------------|------------------|--------------------------|------------------|-----------------|---------------------|
| A. Forest Habitats | | | | | | |
| 1 Maple-Pine-Oak Second Growth | Massachusetts | 11.8 | 59 | 20.0 | 13 | 1 |
| 2 Northern Coniferous Forest | Vermont | 13.2 | 357 | 16.0 | 16 | 1 |
| 3 Upland Mixed Pine-Spruce-Hardwood Plantation | New York | 16.6 | 180 | 23.0 | 12 | 4 |
| 4 Disturbed Upland Oak Forest | Pennsylvania | 10.1 | 257 | 6.5 | 9 | 3 |
| 5 Forest Developing after Cultivation | Maryland | 8.1 | 210 | 12.0 | 17 | 9 |
| 6 Mature Deciduous Floodplain Forest | Maryland | 17.8 | 470 | 47.7 | 31 | 26 |
| 7 Hickory-Oak-Ash Floodplain Forest | Maryland | 18.4 | 266 | 20.0 | 28 | 6 |
| 8 Upland Tulip-tree-Maple-Oak Forest | Maryland | 12.0 | 242 | 16.0 | 24 | 5 |
| 9 Mixed Hardwood Forest | Maryland | 11.3 | 257 | 15.0 | 30 | 19 |
| 10 Upland-Oak-Hickory Hardwood Forest | Virginia | 11.0 | 108 | 27.5 | 26 | 7 |
| 11 Upland Tulip-tree-Oak Forest | Virginia | 20.6 | 209 | 24.0 | 20 | 4 |
| 12 Mature Northern Hardwoods | West Virginia | 12.2 | 181 | 21.0 | 14 | 4 |
| 13 Beech-Maple Swamp Forest Mosaic | Ohio | 8.3 | 181 | 9.9 | 17 | 3 |
| 14 Mixed Pine and Deciduous Forest | Indiana | 14.5 | 310 | 29.0 | 28 | 1 |
| 15 Tamarack Bog and Hardwood Forest | Michigan | 8.5 | 129 | 7.3 | 8 | 2 |
| 16 Upland Deciduous Forest | Illinois | 6.1 | 195 | 4.5 | 18 | 1 |
| 17 Oak-Maple Forest and Forest-Edge | Illinois | 22.3 | 72 | 14.0 | 25 | 29 |
| 18 Floodplain Forest, I | Illinois | 12.4 | 371 | 7.0 | 25 | 1 |
| 19 Floodplain Forest, II | Illinois | 12.4 | 565 | 8.0 | 28 | 1 |
| 20 Bottomland Oak-Gum-Cypress Forest | Mississippi | 11.4 | 941 | 24.0 | 39 | 6 |
| 21 Mixed Pine-Deciduous Forest | Louisiana | 8.9 | 1156 | 12.0 | 29 | 7 |
| 22 Slash Pine Plantation | Louisiana | 16.2 | 377 | 13.5 | 20 | 2 |
| 23 White Spruce Forest | Alberta | 24.0 | 79 | 16.7 | 15 | 1 |
| 24 Ponderosa Pine - Douglas-Fir Foothills Forest | Washington | 11.2 | 144 | 10.0 | 12 | 2 |
| 25 Mature Western Hemlock - Douglas-Fir Forest | Washington | 10.1 | 425 | 16.7 | 14 | 1 |
| B. Forest Mixed with Other Habitats | | | | | | |
| 26 Riparian Woodland Floodplain* | New York | 13.8 | 247 | 20.4 | 26 | 2 |
| 27 Riparian Woodland Floodplain | New York | 13.8 | 101 | 11.25 | 12 | 3 |
| 28 Mixed Habitat: Deciduous Wooded Stream Valley and Meadow | Maryland | 35.6 | 239 | 21.0 | 35 | 5 |
| 29 Mixed Upland Habitat | Dist. of Columbia | 14.2 | 694 | 32.3 | 29 | 18 |
| 30 Coastal Disturbed Floodplain | Virginia | 8.1 | 680 | 12.5 | 40 | 13 |
| 31 Pineland, Scrub and Residential | Florida | 10.1 | 529 | 20.0 | 31 | 3 |
| 32 Floodplain Woodland and Field | Ohio | 22.5 | 3902 | 8.3 | 23 | 2 |
| 33 Mixed Habitat-Disturbed Bottomland | Oklahoma | 40.5 | 250 | 23.5 | 31 | 5 |
| 34 Floodplain Cottonwood Forest | Colorado | 9.7 | 465 | 9.5 | 19 | 3 |
| C. Brush, Grassland and Desert | | | | | | |
| 35 Grassland Municipal Airport | Louisiana | 12.1 | 377 | 5.0 | 7 | 4 |
| 36 Sandhill Prairie | Kansas | 32.4 | 136 | 5.8 | 21 | 3 |
| 37 Mesquite-Juniper Canyon Bottomland | Texas | 12.5 | 1257 | 18.0 | 40 | 10 |
| 38 Live Oak-Mesquite Brushland | Texas | 12.1 | 996 | 17.1 | 42 | 11 |
| 39 Pinyon-Juniper Woodland | Colorado | 10.0 | 220 | 14.3 | 11 | 1 |
| 40 Lower Foothills Brushland-Grassland-Creekbottom Ecotone* | Colorado | 14.2 | 353 | 5.3 | 14 | 1 |
| 41 Creosotebush Desertscrub | Arizona | 19.4 | 144 | 7.8 | 20 | 1 |
| 42 Oak-Juniper Canyon | Arizona | 14.6 | 2540 | 21.1 | 64 | 1 |
| 43 Paloverde Desertscrub | Arizona | 12.1 | 206 | 14.5 | 19 | 1 |
| 44 Mesquite Brushland | Arizona | 10.1 | 1403 | 8.3 | 18 | 1 |
| 45 Grassland Airport | Arizona | 4.9 | 3108 | 8.7 | 22 | 1 |
| 46 Undisturbed Coastal Sage Scrub | California | 14.9 | 180 | 22.0 | 23 | 1 |
| 47 Grassland | California | 9.3 | 343 | 11.7 | 17 | 1 |
| 48 Coast Live Oak Riparian Woodland | California | 6.9 | 916 | 12.0 | 27 | 1 |
| 49 Sycamore-Coast Live Oak Riparian Woodland | California | 6.8 | 1647 | 23.0 | 30 | 1 |

| | <i>Habitat</i> | <i>State or Province</i> | <i>Hec-tares</i> | <i>Birds per sq. km.</i> | <i>Hrs Obs.</i> | <i>Spe-cies</i> | <i>Yrs of Study</i> |
|---|---|--------------------------|------------------|--------------------------|-----------------|-----------------|---------------------|
| 50 | Sycamore-Coast Live Oak Riparian Woodland | California | 7.7 | 987 | 13.0 | 17 | 1 |
| 51 | Sycamore-Coast Live Oak Riparian Woodland | California | 6.1 | 1120 | 24.2 | 34 | 1 |
| 52 | Old Field returning to Creosotebush Scrub | California | 8.1 | 1012 | 8.3 | 18 | 1 |
| 53 | Disturbed Coastal Sage | California | 9.2 | 751 | 16.0 | 15 | 1 |
| D. Habitats including Open Water | | | | | | | |
| 54 | Exposed Cove and Adjacent Ocean | Maine | 43.7 | 201 | ? | 12 | 8 |
| 55 | Mixed Upland Habitat and Swamp | Connecticut | 14.2 | 77 | 8.0 | 15 | 5 |
| 56 | River Bank and River* | Pennsylvania | 4.6 | 1668 | 14.3 | 25 | 2 |
| 57 | River Bank and River | Pennsylvania | 4.6 | 651 | 11.2 | 22 | 3 |
| 58 | Tupelo Swamp* | Louisiana | 10.0 | 2290 | 9.5 | 37 | 2 |
| 59 | Offshore Oil Production Platform | Louisiana | 78.5 | 129 | 182.1 | 16 | 1 |
| 60 | Bulrush and Cattail Marsh in Conifer Forest | Montana | 40.5 | 235 | 18.7 | 15 | 1 |
| 61 | Willow Woodland-Freshwater Marsh | California | 28.8 | 3438 | 7.3 | 31 | 1 |
| 62 | Disturbed Coastal Salt Marsh | California | 22.2 | 3504 | 19.2 | 31 | 1 |
| 63 | Freshwater Marsh | California | 9.7 | 1905 | 15.8 | 46 | 1 |
| E. Croplands | | | | | | | |
| 64 | Floodplain Forest and Cultivated Bottomland | New York | 51.8 | 216 | 15.3 | 23 | 7 |
| 65 | Abandoned Orchard-Old Fields-Tree Rows | New York | 15.5 | 215 | 14.0 | 25 | 5 |
| 66 | Corn Stubble, Soy Beans and Hayfield* | Pennsylvania | 40.5 | 254 | 9.1 | 14 | 3 |
| 67 | Corn Stubble, Barley and Short Grass | Pennsylvania | 40.5 | 77 | 4.0 | 5 | 4 |
| 68 | Abandoned Field | Maryland | 6.1 | 395 | 22.0 | 19 | 5 |
| 69 | Abandoned Farm | Ontario | 40.5 | 22 | 14.2 | 10 | 1 |
| F. Urban Habitats | | | | | | | |
| 70 | Suburban School Park | Florida | 8.0 | 300 | 10.2 | 16 | 9 |
| 71 | Suburban Nature Center | California | 34.4 | 1236 | 23.3 | 61 | 6 |
| 72 | Suburban Park | California | 8.1 | 927 | 11.7 | 14 | 1 |

*Counts made in 1976 but not printed in *AB* 30 (6). — *Dept. F. & W. Biol., Colo. St. Univ., Ft. Collins, CO. 80532*

1. MAPLE-PINE-OAK SECOND-GROWTH FOREST. — **Location:** Massachusetts; Norfolk Co., Town of Foxboro conservation land, off Willow and East Sts.; 42°04'N, 71°11'30"W; Mansfield Quadrangle, USGS. **Continuity:** New (Breeding Bird Census, 1976). **Size:** 11.8 ha = 29.2 acres (irregular hexagon, approaching a rectangle with a N-S long dimension and beveled NE corner, from Tax Assessor's maps 1 in. = 80 ft). **Description of Area:** See *AB* 31:50-51 (1977). **Weather:** During census trips temperature ranged from 7° to 40°F with an average of 23°F. Ground bare on first 2 trips; snow cover on remaining 8 trips ranged from 4 to 20 in. Sky clear on 6 trips, light snow fell on 1, light rain on another. Weather data for Boston, about 20 mi N, supplied by U.S. National Weather Service: for Dec., Jan. and Feb., temperature departures from normal were respectively -4.0°, -5.9°, +0.3°F; total rainfall equivalent precipitation during the census period was 6.25 in., all but .25 in. as snow; persistent cold in Jan. with nearly double the average snowfall. **Coverage:** Dec. 21, 24, 27, 30; Jan. 2, 12, 14, 29; Feb. 5, 13. Total, 10 trips, between 0900 and 1240, averaging 116 min each. **Count:** Black-capped Chickadee, 3 (25, 10); Blue Jay, 2 (17, 7); Golden-crowned Kinglet, 2; Goshawk, +; Ruffed Grouse, +; Hairy Woodpecker, +; Downy Woodpecker, +; Tufted Titmouse, +; White-breasted Nuthatch, +; Brown Creeper, +; Mockingbird, +; Dark-eyed Junco, +; Tree Sparrow, +. **Average Total:** 7 birds (59/km², 24/100 acres) **Remarks:** Chickadees were seen on 7 trips, king-

lets on 6, Blue Jays on 5, Ruffed Grouse on 3, and other species on 1 or 2. Deep snow necessitated use of snowshoes for the last five trips and alteration of transects to avoid heavy brush. A mixed foraging group of 2 titmice, 1 Brown Creeper, 2 chickadees, and 1 kinglet was observed on 1 trip; on another trip a group (same?) included in addition 2 nuthatches, 1 Downy Woodpecker, and 5 chickadees. The 2 Goshawks responded to my "psh-psh" call by flushing from a grove of pines 100 ft away, the first bird (adult) flying overhead at tree-top level and the second (immature) alighting in a tree 20 ft directly above me. Feeders on nearby Willow and East Streets supported a winter population of about 100 birds; this easy access to food may partially explain the low number of birds recorded in the census area — *WILLIAM E. DAVIS, JR., College of Basic Studies, Boston Univ., Boston, MA 02215.*

2. NORTHERN CONIFEROUS FOREST. — **Location:** Vermont; 3.5 mi N of Wolcott, Lamoille Co., 44°36'N, 72°26'W; Hardwick Quadrangle, USGS. **Continuity:** New. **Size:** 13.15 ha = 32.5 acres (Surveyed by tape and compass and divided into 49 sub-plots; boundaries marked with aluminum plates painted with letters and numbers). See *AB* 31:53 (1977). **Weather:** Temperature below freezing for the entire study. Mean daily temperature was -12.6°C, low for the period was -37°, and the high was -2°C. Snowfall for the period was slightly below normal, 29.6 in. Snowpack 14 in. at the

beginning of the period and 33 in at the end. **Coverage:** Jan 3, 5, 13, 21, 31; Feb. 7, 14, 15. Total, 8 trips, averaging 2 hours; 5 trips between 0930 and 1200, 3 trips between 1300 and 1500, totaling 22 man-hours. **Count:** Purple Finch, 13 (99, 40); Red-breasted Nuthatch, 11 (84, 34), Blue Jay, 5 (38, 15); Black-capped Chickadee, 5; Pine Siskin, 4 (30, 12); White-winged Crossbill, 4; Ruffed Grouse, 1 (8, 3); Hairy Woodpecker, 1; Boreal Chickadee, 1; Golden-crowned Kinglet, 1; Pine Grosbeak, 1; Pileated Woodpecker, +; Brown Creeper, +; N. Shrike, +, Com. Redpoll, +; Red Crossbill, +. **Average Total:** 47 birds (357/km², 145/100 acres). **Remarks:** Total species, 16 Red-breasted Nuthatches and Black-capped Chickadees were seen on all trips; the Boreal Chickadee and Purple Finch were seen on 6 trips. Four species were seen only once: N. Shrike (one), Pine Grosbeak (flock of 8), Com. Redpoll and Red Crossbill (3 each). Crossbills, Purple Finches and Pine Siskins utilized the cones of Balsam Fir and Black Spruce of which there was an excellent crop — *LARRY N. METCALF, The Center for Northern Studies, Wolcott, VT 05680.*

3. UPLAND MIXED PINE-SPRUCE-HARDWOOD PLANTATION. — **Location:** New York; 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; 4 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 supplied by the Alfred Cooperative Weather Station indicated that mean daily temperatures in January averaged 10.66°F, 15.1° colder than the 63-year averages, setting a new record. Snowfall during January measured 24.8 in., about 10 in. more than normal. During the period from Jan. 27 to Feb. 2, temperatures dropped several times below -20°, and for 3 days the high for the day was below zero. A blizzard Jan. 28 contributed to the development of 4 ft drifts in the more open areas of the study area, and all trips had to be made on snowshoes. For the first time in memory, there was a two-week period during the study when the two streams in the plot were completely frozen or snowed over. Temperatures on trips ranged from 0° to 30°; frequently counts had to be made during periods of light flurries and/or light to moderate wind. **Coverage:** Jan. 2-3, 5-6, 9, 13, 15, 21, 23-24; Feb. 2-3, 6-9, 12, 14-15. Hours varied from 0915 to 1645 EST and totaled 23 hours of field work. There were 8 total trips (only half the study area could be adequately covered at a time). One short visit was made after dark to listen for owls. **Count:** Black-capped Chickadee, 17 (102, 41); Brown Creeper, 3 (18, 7); Golden-crowned Kinglet, 3; Blue Jay, 2 (12, 5); Ruffed Grouse, 1 (6, 2); Hairy Woodpecker, 1; Downy Woodpecker, 1; White-breasted Nuthatch, 1; Red-breasted Nuthatch, 1; Turkey, +; Pileated Woodpecker, +, Evening Grosbeak, +. **Average Total:** 30 birds (181/km², 73/100 acres). **Remarks:** There was a poor cone crop. Chickadees and Brown Creepers were observed on every trip. The extreme cold and blizzard conditions during the last week in January had a significant effect on the number of birds encountered. Average number of birds per trip on the five trips prior to Jan. 27 was 35; on the three trips made after Feb. 2 the number was down to 21. Thanks to Robert Place for weather data — *ELIZABETH W. BROOKS, Water Wells Rd., Alfred Station, NY 14803.*

4. 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:** Established 1975; 3 consecutive years. **Size:** 10.1 ha = 25 acres (irregular, surveyed). **Description of Area:** See AB 29:756 (1975). This was the third winter after cutting **Weather:** (from Williamsport airport; 30-year averages in parentheses): Mean temperature: Dec. 26.1°F (30.2°), Jan. 14.9° (27.2°); precipitation: Dec. 1.74 in. (3.10 in.), Jan. 1.35 in. (2.52 in.); snowfall: Dec. 6.0 in. (9.8 in.), Jan 16.0 in. (9.4 in.). During counts the temperature varied from 14° to 30° (mean 19°); skies overcast on 2 trips, ground snow-covered on 6 trips. **Coverage:** Dec. 5, 12, 19; Jan. 2, 9, 16; Feb. 5. Total, 7 trips averaging 55 min, between 0849 and 1047. **Count:** Am. Goldfinch, 19 (188, 76); Dark-eyed Junco, 6 (59, 24); Black-capped Chickadee, 1 (10, 4); Red-tailed Hawk, +; Downy Woodpecker, +; White-breasted Nuthatch, +; Brown Creeper, +, Golden-crowned Kinglet, +; White-throated Sparrow, + **Average Total:** 26 birds (257/km², 104/100 acres) **Remarks:** For the first time since the area was logged there was abundant seed on the Black Birch seed trees. The goldfinches and juncos were always observed feeding on this seed; however, goldfinches were not seen on the plot after Jan. 2. 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.*

5. 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, 9 years. **Size:** 8.1 ha = 20 acres. **Description of Area:** See AFN 23:528 (1969) and AB 28:701 (1974). **Weather:** During the 41-day study period there was no night when the temperature did not go below freezing and there were 33 days when it did not go above freezing. The range was -27° to +6°C. The ground was covered with snow the entire period, though the total fall was only about 38 cm in 4 storms. **Coverage:** Dec. 27, 30; Jan. 2, 8, 15, 22, 30, Feb. 5. Total, 8 trips averaging 90 min each, between 0815 and 1000 EST. **Count:** White-throated Sparrow, 4 (49, 20); Yellow-rumped Warbler, 3 (37, 15); Downy Woodpecker, 2 (25, 10); Blue Jay, 2; chickadee (sp.), 2, Am. Robin, 1 (12, 5); Hermit Thrush, 1; Golden-crowned Kinglet, 1; Cardinal, 1; Com. Flicker, +; Red-bellied Woodpecker, +; Com. Crow, +; Tufted Titmouse, +; White-breasted Nuthatch, +; Red-breasted Nuthatch, +, Brown Creeper, +; Carolina Wren, +; Ruby-crowned Kinglet, +; Evening Grosbeak, +. **Average Total:** 17 birds (210/km², 85/100 acres). **Remarks:** Seen flying over: Turkey Vulture, Com. Grackle, and additional crows and Evening Grosbeaks. The weather was by far the most severe of the nine winters, but the count was the highest! — *HAVEN KOLB, Rte. 1, Box 147A, Mullers, MD 21107.*

6. MATURE DECIDUOUS FLOODPLAIN FOREST. — **Location:** Maryland, Montgomery Co., Glen Echo, 2½ mi NW of District of Columbia, between C and O. Canal and Potomac River; Falls Church Quadrangle, USGS. **Continuity:** Established 1948; 26 inter-

mittent years **Size:** 17.8 ha = 44.1 acres **Description of Area:** See *AFN* 2:153-156 (1948). A fairly flat strip along the river, supporting a heavy growth of deciduous hardwoods 80 to 100 ft high. **Weather:** January was the coldest in 30 years, with average temperature of 25.1°F, 10° below normal. Average temperature for walks was: December, 34°; January, 21°; February, 37°. Because of ice and snow no walks could be taken in the first part of January. On all January walks the ground was covered with 3 in. of crusted snow; only small patches remained in February. **Coverage:** Dec. 19, 31; Jan. 20 (3 trips), 23, 29-30 (2 trips); Feb. 1, 4, 5 (2 trips), 12-14, 19 (2 trips). Total, 18 trips averaging 2.65 hours; 13 between 0700 and 1145; 2 between 1000 and 1415; 3 between 1500 and 1800 **Count:** Starling, 24 (134, 54); Carolina Chickadee, 18 (101, 41); Downy Woodpecker, 7 (39, 16); Com. Crow, 6 (34, 14); Cardinal, 6; Tufted Titmouse, 3 (17, 7); Rusty Blackbird, 3; White-throated Sparrow, 3; Red-bellied Woodpecker, 2 (11, 5); Carolina Wren, 2; Mourning Dove, 1 (6, 2); Rock Dove, 1; Yellow-bellied Sapsucker, 1, Blue Jay, 1; Brown Creeper, 1; Winter Wren, 1; Purple Finch, 1; Am. Goldfinch, 1; Dark-eyed Junco, 1; Song Sparrow, 1; Turkey Vulture, +; Bobwhite, +; Barred Owl, +; Pileated Woodpecker, +; Hairy Woodpecker, +; White-breasted Nuthatch, +; Mockingbird, +; Golden-crowned Kinglet, +; Ruby-crowned Kinglet, +; House Finch, +; Rufous-sided Towhee, +. **Average Total:** 84 birds (471/km², 190/100 acres). **Remarks:** Seen on or above the water nearby: Great Blue Heron, Mallard, Bufflehead, Herring Gull, Ring-billed Gull, Belted Kingfisher, Fish Crow. Total species, 31, somewhat above the average of 27. The average total of 84 individuals, however, was considerably below the corresponding figure of 118 for 1976. The latter figure is also the average for the period since 1960 when the level of winter abundance was significantly raised by loss of nearby habitat. In fact, 84 was the lowest count during any year except the extremely cold and snowy winter of 1961 with a count of 70. As in 1961, the loss in 1977 occurred in nearly all common winter residents. If the effect is the same as in 1961, it is short-term for most of these species, since in 1962 the average total returned to a nearly normal level of 111 birds. A long-term effect will, however, probably be found for the Carolina Wren, which decreased from 10 per trip in 1976 to 2 in 1977. Similarly, in 1961, this species decreased to 2 (from 7 in 1960), and fell to 1 in 1962. Thereafter it gradually returned to a normal level and reached a high of 10 in 1975 and 1976. A similar long-term effect for this species appeared in the breeding census for Cabin John Island, the central 18.75 acres of the winter territory, with no territorial males in 1961 as compared with 6 in 1960. This loss was followed by a gradual upswing to 7 in 1976, probably a maximum for this tract. — *JOAN CRISWELL (compiler), K. FREUND, RICHARD GAUTHEY, LEANDER and JONATHAN LOVELL, WILLIAM H. CRAMER, BARBARA MILLER (Audubon Naturalist Society, 8940 Jones Mill Rd., Washington, DC 20015).*

7. HICKORY-OAK-ASH FLOODPLAIN FOREST. — **Location:** Maryland; floodplain of Middle Patuxent River due W of Hobbits Glen Golf Course, Columbia, Howard Co.; 39°13'10"N, 76°54'45"W, Clarksville Quadrangle, USGS. **Continuity:** Established 1972; 6 consecutive years. **Size:** 18.4 ha = 45.5 acres (L-shaped following the 310-ft contour; surveyed). **Description of**

Area: See *AB* 25 963-964 (1971). The dominant canopy trees are Bitternut Hickory (*Carya cordiformis*), Pin Oak (*Quercus palustris*), and Red Ash (*Fraxinus pennsylvanica*). Average canopy height, 39 ft. **Weather:** Extraordinarily cold. Temperatures during the period averaged 8° below normal, in marked contrast to the 5 previous years of this study. Ground covered with 3 to 4 in. of hard crusted snow during entire period. Middle Patuxent River almost completely frozen throughout the study, ice reaching a measured thickness of 10½ in. Temperatures on the four morning trips ranged from 7° to 50°F and temperatures on the afternoon trips ranged from 18° to 62°; except on the last two days of the study temperatures during census trips were between 7° and 36°. Mean temperature for all census trips was 29°F. Skies were clear on four trips and partly cloudy on four. **Coverage:** Jan. 22-23, 30; Feb. 5, 6, 9, 11-12. Total, eight trips averaging 2 hours, 30 minutes. Morning trips started between 10 and 30 minutes after sunrise, and afternoon trips finished between 6 and 35 minutes before sunset **Count:** Yellow-rumped Warbler, 9 (49, 20); Red-bellied Woodpecker, 6 (33, 13); Downy Woodpecker, 6; Carolina Chickadee, 6; Tufted Titmouse, 4 (22, 9); Cardinal, 4, Yellow-bellied Sapsucker, 2 (11, 4); Am. Robin, 2; Am Goldfinch, 2; White-throated Sparrow, 2; Com. Flicker, 1 (5, 2); Pileated Woodpecker, 1; Hairy Woodpecker, 1, White-breasted Nuthatch, 1; E. Bluebird, 1; Purple Finch, 1; Turkey Vulture, +; Red-shouldered Hawk, +, Am. Kestrel, +; Mourning Dove, +; Barred Owl, +; Blue Jay, +; Com. Crow, +; Brown Creeper, +; Mockingbird, +; Starling, +; Evening Grosbeak, +; Dark-eyed Junco, +. **Average Total:** 49 birds (266/km², 108/100 acres) **Remarks:** Total species, 28. The 1977 counts were not started until the peak of the severe freeze. Seven species that had been seen all 5 previous winters were missed this year: Belted Kingfisher, Winter Wren, Carolina Wren, Golden-crowned Kinglet, Ruby-crowned Kinglet, Rufous-sided Towhee, and Song Sparrow. Eight other species were found in lower numbers than ever before: Downy Woodpecker, Blue Jay, Com. Crow, Carolina Chickadee, Tufted Titmouse, White-breasted Nuthatch, Cardinal, and White-throated Sparrow. This year's average total was 68% below the mean of the previous 5 years. Fruits of Sycamore (*Platanus occidentalis*), Tuliptree (*Liriodendron tulipifera*), and Bittersweet (*Celastrus scandens*) persisted throughout the study period, but Poison Ivy (*Rhus radicans*) berries, on which so many species depend for winter survival, were gone by the end of January. Only seven species were found on all trips: Red-bellied Woodpecker, Yellow-bellied Sapsucker, Downy Woodpecker, Carolina Chickadee, Tufted Titmouse, Yellow-rumped Warbler, and Cardinal. — *CHANDLER S. ROBBINS, 7902 Brooklyn Bridge Road, Laurel, MD 20810.*

8. UPLAND TULIP-TREE-MAPLE-OAK FOREST. — **Location:** Maryland; W edge of Middle Patuxent River Valley, SW of Hobbits Glen Golf Course at Columbia, Howard Co.; 39°12'55"N, 76°54'40"W, Clarksville Quadrangle, USGS. **Continuity:** Established 1972, 5 intermittent years. **Size:** 11.98 ha = 29.6 acres (basically rectangular, 1125 ft N-S by 1000 ft E-W, but irregularly extending farther in each direction where uniformity of habitat permits). **Description of Area:** See *AB* 25:971 (1971) and 25:665 (1972). The dominant canopy trees are Tulip-tree (*Liriodendron tulipifera*), Red Maple (*Acer*

rubrum), White Oak (*Quercus alba*), and Red Oak (*Q. rubra*). **Weather:** Extraordinarily cold. Temperatures ranged from 9° to 24°F on the four morning counts and from 22° to 59° on the four afternoon counts. Mean temperature for all eight counts was 28°. Winds 0 to 10 mph. Four counts were made under clear skies and four under partly cloudy skies. **Coverage:** Jan. 8, 9, 20, 23, 30; Feb. 6, 10, 12. Total, eight trips averaging 1 hour, 57 minutes. Morning trips started between 5 and 20 minutes after sunrise, and afternoon trips ended 20 to 25 minutes before sunset. **Count:** White-throated Sparrow, 4 (33, 14), Red-bellied Woodpecker, 3 (25, 10); Downy Woodpecker, 3; Carolina Chickadee, 3; Tufted Titmouse, 3; Yellow-rumped Warbler, 2 (17, 7); Cardinal, 2; Com. Flicker, 1 (8, 3); Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 1; Blue Jay, 1; White-breasted Nuthatch, 1, Brown Creeper, 1; Hermit Thrush, 1; Evening Grosbeak, 1; Purple Finch, 1; Turkey Vulture, +; Red-shouldered Hawk, +; Am. Kestrel, +; Pileated Woodpecker, +; Com. Crow, +; Carolina Wren, +; Red-winged Blackbird, +; Am. Goldfinch, +. **Average Total:** 29 birds (242/km², 98/100 acres). **Remarks:** Total species, 24. During the period January 10 to 23, temperatures averaged 14° below normal. There was a dramatic drop in bird population between the Jan. 9 trip and the Jan. 20 trip. The average number of birds found on the first two trips was 41.5, compared with an average of 22 for the last six trips. Carolina Wrens were not found after the second trip. White-throated Sparrows dropped from an average of 16.5 to an average of 0.3, and Cardinals dropped from an average of 3 to 2. Only 1 of 3 Hermit Thrushes survived. The Downy Woodpecker was the only species found on every trip and the Red-bellied Woodpecker and Tufted Titmouse were the only species found on seven of the eight trips. — CHANDLER S. ROBBINS, 7902 Brooklyn Bridge Rd., Laurel, MD 20810.

9. MIXED HARDWOOD FOREST. — **Location:** Maryland; Calvert Co., NW of Plum Point and 1 mi inland from Chesapeake Bay, on Tobacco Rd. between State Routes 263 and 261. **Continuity:** Established 1959; 19 years. **Size:** 11.3 ha = 28 acres. **Description of Area:** See *AFN* 13:333 (1959). The woodland of which this study area is a part has been heavily logged during the past year. The larger trees in the study area were cut during the census period, which resulted in a drastic change. **Weather:** Clear days 7 of the 10 trips. January was one of the coldest on record here, and the ground was covered with snow and ice the entire period although less so on the last two trips. The creek and bog were frozen continually. High temperature on census days varied between 31 and 64°F. **Coverage:** Jan. 3, 15, 21, 24, 26; Feb. 1, 4, 8, 10-11. Total, 10 trips, averaging 90 min, started between 1003 and 1152 EST. **Count:** Cardinal, 4 (35, 14); Carolina Chickadee, 3 (26, 11); Field Sparrow, 3, White-throated Sparrow, 3; Bobwhite, 2 (18, 7); Red-bellied Woodpecker, 2; Tufted Titmouse, 2; Yellow-rumped Warbler, 2; Com. Flicker, 1 (9, 4); Yellow-bellied Sapsucker, 1; Downy Woodpecker, 1; Com. Crow, 1; Carolina Wren, 1; Dark-eyed Junco, 1; Tree Sparrow, 1; Song Sparrow, 1; Red-shouldered Hawk, +; Mourning Dove, +; Pileated Woodpecker, +; Hairy Woodpecker, +; Blue Jay, +; Brown Creeper, +; Winter Wren, +; Am. Robin, +; Hermit Thrush, +; E. Bluebird, +; Golden-crowned Kinglet, +; Evening Grosbeak, +;

Am Goldfinch, +, Rufous-sided Towhee. + **Average Total:** 29 birds (256/km², 104/100 acres). **Remarks:** The bird population was the lowest yet experienced here. The average birds count (29) was just under half the 18-year average of 60 (214/100 acres). The 19-year average is 58 birds (207/100 acres). The Cardinal repeated as the most abundant species followed again by the Carolina Chickadee, but both species were reduced in numbers. Species showing increases over last year were Red-bellied Woodpecker, Com. Crow, Yellow-rumped Warbler, and Dark-eyed Junco. Species showing no change were Com. Flicker, Yellow-bellied Sapsucker, and Field Sparrow. All other species showed losses. Not occurring this year were Am. Woodcock, White-breasted Nuthatch, Red-breasted Nuthatch, and Purple Finch. The Bobwhite and Rufous-sided Towhee occurred for only the fourth time, and the Tree Sparrow for the second time. A total of 30 species was recorded, and the 19-year average is 25. There is no doubt that both the severe winter weather and the lumbering contributed to the reduction of birds this year. — JOHN H. FALES, Ridge Rd., Neeld Estate, Huntingtown, MD 20639.

10. UPLAND OAK-HICKORY HARDWOOD FOREST. — **Location:** Virginia; Fairfax Co., Dranesville District Park, McLean. **Continuity:** Established 1971, 7 consecutive years. **Size:** 11.02 ha = 27.2 acres. **Description of Area:** See *AB* 25:636 (1971) and *Atlantic Naturalist* 26 (2):77-78. **Weather:** Severe cold prevailed throughout the area during January. For the 7 trips made that month, the average temperature was 24.9°. During February, temperatures were more nearly normal, averaging 46.3°F per trip. The average for all 14 trips was 36.0°. About 4 in. of snow, glazed with ice, covered the ground throughout January, but by mid-February only scattered patches remained. No precipitation was encountered on any of the trips. **Coverage:** Jan. 8, 19, 20 (2 trips), 22, 23, 28; Feb. 3, 4, 10 (2 trips), 13, 17, 26. Total, 14 trips, between 0830 and 1240 or 1230 and 1635, averaging 1 hour and 58 minutes. **Count:** Com. Crow, 3 (27, 11); Red-bellied Woodpecker, 2 (18, 7); Tufted Titmouse, 2; Pileated Woodpecker, 1 (9, 4); Downy Woodpecker, 1; Carolina Chickadee, 1; White-breasted Nuthatch, 1; Starling, 1; Turkey Vulture, +; Red-tailed Hawk, +; Red-shouldered Hawk, +; Mourning Dove, +; Barred Owl, +; Com. Flicker, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; Blue Jay, +; Fish Crow, +; Brown Creeper, +; Winter Wren, +; Carolina Wren, +; Mockingbird, +; Golden-crowned Kinglet, +; Ruby-crowned Kinglet, +; Com. Grackle, +; White-throated Sparrow, +. **Average Total:** 12 birds (109/km², 44/100 acres). **Remarks:** The White-throated Sparrow and Mockingbird are obviously unusual in a tract consisting entirely of woodland, several hundred feet from the nearest edge. The Mockingbird was recorded in 1972 and 1975; the White-throated Sparrow is new to the count, as are the Starling, Fish Crow, and Com. Grackle. The average number of birds (12) is on the low side, but the number of species (26) is a record high. Possibly both facts are to be explained by the unusually severe winter, which may have encouraged birds to disperse in search of food and shelter, thus producing a high count of wanderers. Further influence of the cold may be reflected in the low count for the Carolina Wren, which was recorded on two January trips, but then disappeared. Rock Doves seen flying overhead on several trips were not counted,

since there was no evidence that they were using the tract — *JON BAYLISS, GILBERT H. ESPENSHADE, BEN FERN, MARY MANTON, ROBERT J. WATSON (compiler), 2636 Marcey Rd., Arlington, VA 22207.*

11. UPLAND TULIP-TREE - OAK FOREST. —

Location: Virginia; Fairfax Co., U.S. Geological Survey National Center, Reston, 38°56'45"N, 77°21'50"W, Vienna Quadrangle, USGS. **Continuity:** Established 1974, 4 years. **Size:** 20.6 ha = 50.9 acres. **Description of Area:** See AB 28: 701-702 and 1003-1004 (1974). **Weather:** Clear on 6 trips, overcast on 5 trips, and partly cloudy on 1 trip. Temperatures ranged from 19° to 49°F. Light snow cover on Dec. 29; 2-4 in. of ice-covered snow on the ground for all Jan. counts; traces of snow on the ground until the Feb. 12 count. Winds were calm to light except for Jan. 22 when they were gusty. **Coverage:** Dec. 29, Jan. 6, 12, 15-16, 22; Feb. 2-3, 8 (2 trips), 12, 14. Total 12 trips, 6 between 0735 and 1015 and 6 between 1425 and 1650, totaling 24.0 hours. **Count:** Dark-eyed Junco, 9 (44, 18); Carolina Chickadee, 7 (34, 14); Tufted Titmouse, 6 (29, 12); Blue Jay, 4 (19, 8); Red-bellied Woodpecker, 2 (10, 4); Downy Woodpecker, 2; Com. Crow, 2; White-breasted Nuthatch, 2; Cardinal, 2; Purple Finch, 2; Brown Creeper, 1 (5, 2); Carolina Wren, 1; Golden-crowned Kinglet, 1; Brown-headed Cowbird, 1; White-throated Sparrow, 1; Hairy Woodpecker, +; Am. Robin, +; E. Bluebird, +; House Sparrow, +; Evening Grosbeak, +. **Average Total:** 43 birds (209/km²; 84/100 acres). **Remarks:** Tulip-tree seeds and acorns were common. With the exception of Feb. 12, total birds per count fell into 2 categories: roughly 60 individuals per count during the coldest part of the count period when persistent snow-ice cover was on the ground and roughly 30 individuals per count before and after this period. The 60-bird counts were due to increases in most of the common birds of chickadee flocks and to the presence of erratically occurring birds, such as finches, sparrows, and bluebirds. The only species clearly affected by the severe weather was the Carolina Wren. The area has supported an average of three pairs of wrens in winter. The first 3 counts of this year located wrens on 2 territories, but no wrens were seen or heard after Jan. 12. — *JOAN C WOODWARD and PAUL W. WOODWARD, 2433 Southgate Square, Reston, VA 22091.*

12. MATURE NORTHERN HARDWOODS. —

Location: West Virginia; Weimer Nature Trails of Bethany College, Bethany, Brooke Co., at 40°12'45"N, 80°33'55" to 80°33'45"W; Bethany Quadrangle, USGS. **Continuity:** Established 1973; 4 years. **Size:** 12.2 ha = acres (square). **Description of Area:** See AB 25:972 (1971). **Weather:** High and low temperatures on count days were 68° and 19°F respectively. Snow on the ground 6 out of 14 trips. On 4 trips it was snowing, on 5 more it was raining. **Coverage:** Feb. 3, 5, 10, 16, 19, 22-28. Total, 14 trips, between 0800 and 1700 hours. Trips averaged about 1.5 hours. **Count:** Downy Woodpecker, 4 (33, 13); Carolina Chickadee, 4; Tufted Titmouse, 4; White-breasted Nuthatch, 3 (25, 10); Red-bellied Woodpecker, 2 (16, 7); Hairy Woodpecker, 1 (8, 3); Com. Crow, 1; Brown Creeper, 1; Carolina Wren, 1; Cardinal, 1; Pileated Woodpecker, +; Winter Wren, +; Golden-crowned Kinglet, +; Dark-eyed Junco, +. **Average Total:** 22 birds (181/km², 73/100 acres). — *ALBERT R. BUCKELEW, JR., ALAN H. SNIDER (compiler), Biology Dept., Bethany College, Bethany, WV 26032.*

13. BEECH-MAPLE SWAMP FOREST MOSAIC —

Location: Ohio; Hardin Co., on the S side of County Road 80 at the intersection of Van Atta Road, 4 mi SE Ada (NW ¼ NW ¼ of Sec. II, T4S, R9E). **Continuity:** Established 1975. **Size:** 8.3 ha = 20.5 acres. **Description of Area:** See AB 29:760-761 (1975). **Weather:** Two counts were made while snow fell. The other days were clear. Snow covered the ground during the entire count. On count days, snow depth averaged 38 cm and the only ground exposed was on the lee side of fallen logs and holes made by squirrels. During counts the average temperature was -9°C with a general locality average of -12°C and average maximum and minimum temperatures -7°C and -17°C respectively. The average temperature for January was 9.4°C lower than the average for the last 20 years. Total snowfall 45.7 cm = 18 in. with a snow melt value of 4.0 cm = 1.6 in. (data from Ray Burkholder, U.S. Weather Observer, Pandora, Ohio). **Coverage:** Jan. 7, 15, 21-22, 29-30; Feb. 6. Total: 7 afternoon trips averaging 85 min with a range of 75-95 min. **Count:** House Sparrow, 3 (36, 15); Downy Woodpecker, 2 (24, 10); chickadee sp., 2; Song Sparrow, 2; Com. Flicker, 1 (12, 5); Red-bellied Woodpecker, 1; Hairy Woodpecker, 1; Tufted Titmouse, 1; White-breasted Nuthatch, 1; Cardinal, 1; Screech Owl, +; Great Horned Owl, +; Blue Jay, +; Brown Creeper, +; Carolina Wren, +; Am. Robin, +; Dark-eyed Junco, +. **Average Total:** 15 birds (181/km², 73/100 acres). **Remarks:** Diversity of bird species changed little from the previous two years, but total number of birds decreased. This drop was particularly striking in the Dark-eyed Junco population, which previously had the highest number for any species. The decrease could partially be attributed to the severe winter and snow cover over potential foraging areas. House Sparrows increased in number and often perched in deep cover along the edge of the woods. On Jan. 15, a flock of 6 Com. Goldeneyes was seen flying SW over the woods. Snow was falling during this count. — *NELSON J MOORE, Dept. of Biology, Ohio Northern Univ., Ada, OH 45810.*

14. MIXED PINE AND DECIDUOUS FOREST. —

Location: Indiana; Jefferson Co., 7 mi W of Hanover Southeast corner at intersection of county roads 1066 W and 250 S; 38°42'0"N, 85°35'6"W, Kent Quadrangle, USGS. **Continuity:** New. **Size:** 14.53 ha = 35.87 acres (square; 2 sides surveyed with transit and chain, other lines with compass and steel tape). **Description of Area:** Second growth forest, much of it planted with pines in 1948. Trees 4 in. dbh and over on ten 0.1-acre plots were counted. They totaled 196/acre density and 113 sq ft/acre basal area. By diameter size classes they were 4-8 in. dbh 91/acre density, 18 sq ft/acre basal area; 8-12 in. dbh 56, 31; 12-16 in. dbh 35, 37; 16-20 in. dbh 12, 21, 22 in. dbh 2, 5. By species they were: Scrub Pine (*Pinus virginiana*) 60/acre density, 45 sq ft/acre basal area, Tulip-tree (*Liriodendron tulipifera*) 16, 23; Black Oak (*Quercus velutina*) 23, 11; White Ash (*Fraxinus americana*) 23, 8; Red Oak (*Q. rubra*) 11, 4; White Oak (*Q. alba*), 9, 4; Sycamore (*Platanus occidentalis*) 4, 3; Pin Oak (*Q. palustris*) 4, 3; Am. Elm (*Ulmus americana*) 6, 3; Sassafras (*Sassafras albidum*) 11, 3; nine other species [Flowering Dogwood (*Cornus florida*), Black Cherry (*Prunus serotina*), Red Cedar (*Juniperus virginiana*), Shagbark Hickory (*Carya ovata*), Red Maple (*Acer rubrum*), Bitternut Hickory (*Carya cordiformis*), Sweet

Pignut Hickory (*C. ovals*), Pignut Hickory (*C. glabra*), Redbud (*Cercis canadensis*) 29, 8. Canopy height 25 to 60 ft, and quite irregular. **Topography:** About one-half level, with small valleys cut lower, their slopes gentle, relief 30 ft; elevation 740 ft on level area. **Soil:** Four kinds of deep silt loam: Avonburg on the flat, Grayford, Cincinnati, and Rossmoyne variously on the slopes. **Water:** No water on the area earlier, but a small creek in the SE corner was running by Feb. 12. **Edge:** Similar forest extended in all directions — for some distance from the N and W boundaries, 60 ft from the S and E boundaries to the edge of graveled roads, beyond which were pastures and cultivated fields. **Weather:** An unusually severe winter. On counts, temperatures ranged from 17 to 56°F, winds from 1 to 10 mph from varied directions, sky from clear (5 times) to overcast (twice). The only precipitation during counts was a light drizzle for an hour once. Snow cover was absent in December, complete (as much as 12 in. on the level, deeper in drifts) from Jan. 7 through Feb. 13, and patchy through Feb. 19. **Coverage:** Dec. 27-28; Jan. 7, 15, 22; Feb. 1, 11-12 (partial), 13 (partial), 18 (night), 19. Total, 8 complete daylight trips of 116 to 190 minutes, averaging 158 minutes, with 2 observers on 3 trips and 1 observer on 5 (29 man-hours). Two abbreviated day trips and one 45-minute night trip not included. **Count:** Am. Robin, 7 (48, 20), Carolina Chickadee, 6 (41, 17); Cedar Waxwing, 5 (34, 14); Tufted Titmouse, 4 (28, 11); Cardinal, 4; Com. Flicker, 2 (14, 6); Downy Woodpecker, 2; Golden-crowned Kinglet, 2; Yellow-rumped Warbler, 2; Pileated Woodpecker, 1 (7, 3); Red-bellied Woodpecker, 1; Yellow-bellied Sapsucker, 1; Blue Jay, 1; White-breasted Nuthatch, 1; Red-breasted Nuthatch, 1; Brown Creeper, 1, E Bluebird, 1; Purple Finch, 1; Am. Goldfinch, 1; White-throated Sparrow, 1; Red-tailed Hawk, +; Barred Owl, +; Com. Crow, +; Ruby-crowned Kinglet, +; Com. Redpoll, +; Pine Siskin, +; Dark-eyed Junco, +; Song Sparrow, +. **Average Total:** 45 birds (310/km², 125/100 acres) **Remarks:** Only the chickadee and the titmouse were noted on all 8 trips. If birds noted in flight above the plot were counted, the above census should be amended thus Add Cooper's Hawk, +; Starling, +; Red-winged Blackbird, 5; increase Com. Crow to 3; increase average total to 53 birds (365/km², 148/100 acres). Keith Gehring, Jackson Webster, Juanita Webster, and Marcus Webster assisted me. — DAN WEBSTER, Hanover College, Hanover, IN 47243.

15. TAMARACK BOG AND HARDWOOD FOREST. — **Location:** Michigan; Berrien Co., Lincoln Township one mile SW of Stevensville, in Grand Mere State Park, 0.5 mi N of Willow Dr. on Wishart Rd. 42°00'N 86°33'W; Bridgman Quadrangle, USGS. **Continuity:** Established 1976; 2 years. **Size:** 8.5 ha = 21 acres. **Description of Area:** See AB 30:1049 (1976). **Coverage:** Dec 26; Jan. 1-2, 9, 23; Feb. 6, 13, 20. Total, 8 trips between 0800 and 1000, averaging 55 min per trip. **Weather:** Snowfall above normal, temperatures below normal. Windy and snowing on all trips. **Count:** Blue Jay, 3 (35, 14); Downy Woodpecker, 2 (24, 10); Black-capped Chickadee, 2; Tufted Titmouse, 2; White-breasted Nuthatch, 2; Red-bellied Woodpecker, +; Hairy Woodpecker, +; Cardinal, +. **Average Total:** 11 birds (129/km², 52/100 acres). **Remarks:** Had the worst winter on record, but it did not decrease number of birds seen. The number of birds was up this year, and we

gained one species, Red-bellied Woodpecker. There was a good food crop, and heavy snows could have brought the birds to this area to feed. — ALBERT MORSE, JAMES MULLINS (compiler), 2558 Locust Lane, Stevensville, MI 49127.

16. UPLAND DECIDUOUS FOREST. — **Location:** Illinois; Jackson Co., 3 mi ESE Makanda at the SW tip of Little Grassy Lake; 37°36'N, 89°09'30"W, Makanda Quadrangle, USGS. **Continuity:** New. **Size:** 6.1 ha = 15.2 acres (irregular, paced). **Description of Area:** See AB 31:44 (1976 Breeding Bird Census). **Weather:** Much colder and with more snow than normal. January data from the Southern Illinois Airport, 13 mi NNW temperature, -14° to 43°, average 18°F, 28 in. snow (1976 -3° to 59°, 32", 2 in., respectively). **Coverage:** Dec. 18, 25, Jan. 8, 22, 29; Feb. 3; all trips of 45 minutes, between 0700 and 1245. **Count:** Tufted Titmouse, 3 (49, 20), Red-bellied Woodpecker, 2 (33, 13); Carolina Chickadee, 2; Downy Woodpecker, 1 (16, 7); Blue Jay, 1; White-breasted Nuthatch, 1; Carolina Wren, 1; Am. Robin, 1, Golden-crowned Kinglet, 1; Com. Flicker, +; Pileated Woodpecker, +; Hairy Woodpecker, +; Com. Crow, +, Brown Creeper, +; E. Bluebird, +; Yellow-rumped Warbler, +; Cardinal, +; Dark-eyed Junco, +. **Average Total:** 12 birds (195/km², 79/100 acres). **Remarks:** The number of birds observed on the area dropped from 21 to 10 during the study. Woodpeckers, jays, and robins remained constant, but all other birds decreased, perhaps freezing or starving to death. I thank Crab Orchard N.W.R. and Giant City State Park, each of which owns a portion of the study plot, for permission to use the area — MICHAEL D. MORRISON, Southern Illinois Bird Observatory, P.O. Box 2471, Carbondale, IL 62901.

17. OAK-MAPLE FOREST AND FOREST-EDGE. — **Location:** Illinois; 6 miles NE of Champaign, Illinois. **Continuity:** Established 1948. **Size:** 22.3 ha = 55 acres of forest plus 2.0 km or 1.25 mi of forest-edge. **Description of Area:** See AFN 2:151-152 (1948). **Weather:** Mean monthly temperature during January was 15.7°F (8.7°C) below normal, and snowfall 13.7 in. (35 cm) above normal. **Coverage:** Dec. 6, 18, 28; Feb. 11, 23. Total, 5 trips, 14 party-hours. **Count:** *Forest Interior Species:* Downy Woodpecker, 6 (27, 11); Brown Creeper, 3 (13, 5); Red-bellied Woodpecker, 2 (9, 4); Great Horned Owl, 1 (4, 2), White-breasted Nuthatch, 1; Winter Wren, 1; Carolina Wren, 1; Golden-crowned Kinglet, 1; Hairy Woodpecker, +; Carolina Chickadee, +. *Forest-edge Species* (Individuals per kilometer and per mile in parentheses) Tree Sparrow, 14 (7, 11); Dark-eyed Junco, 11 (6, 9), Starling, 10 (5, 8); Red-headed Woodpecker, 7 (4, 6), Blue Jay, 5 (2, 4); Ring-necked Pheasant, 3 (1, 2); Cardinal, 2 (1, 2); Song Sparrow, 1 (1, 1); Com. Flicker, +, Com. Crow, +. **Average Total:** *Forest Interior*, 16 birds (72/km², 29/100 acres); *Forest-edge*, 53 birds (26/km², 42/mile). **Remarks:** Late autumn migrants: Ruby-crowned Kinglet, 1 (Dec. 18), 2 (Dec. 18); Am. Goldfinch, 4 (Dec. 6); early spring migrants: Am. Robin, 1 (Feb. 11); Red-winged Blackbird, 250 (Feb. 11); Com. Grackle, 1 (Feb. 11). The Carolina Wren, Golden-crowned Kinglet, and Tree Sparrow, present in December were not found in February. — S. CHARLES KENDEIGH and JOHN EDGINGTON, Vivarium Bldg., Wright & Healey Sts., Champaign, IL 61820.

18. FLOODPLAIN FOREST, I. — Location: Illinois, Coles Co., 4 km S of Charleston, along the Embarras River and a tributary, Kickapoo Creek; 39°26'N, 80°10'W, Toledo Quadrangle, USGS. **Continuity:** New. **Size:** 12.4 ha = 30.6 acres. **Description of Area:** Low-lying floodplain forest following the creek 854 m and the river 564 m. An iron bridge over the creek forms N boundary, adjacent to site are either upland and slope forests or croplands. A small road borders the S part of the site for about 300 m. Canopy trees (216 trees/ha) ranked according to importance value (a composite measure of relative frequency, relative density, and relative dominance): Silver Maple (*Acer saccharinum*), 104.3; Box Elder (*A. negundo*), 76.1; Cottonwood (*Populus deltoides*), 34.7; Hackberry (*Celtis occidentalis*), 33.7; Slippery Elm (*Ulmus rubra*), 16.8; Sycamore (*Platanus occidentalis*), 9.2; Black Walnut (*Juglans nigra*), 8.9; Green Ash (*Fraxinus lanceolata*), 6.3. Other species include Black Willow (*Salix nigra*), Bur Oak (*Quercus macrocarpa*), and Honey Locust (*Gleditsia triacanthos*). The understory layer, 289 stems/ha, has as its six most prevalent plants Box Elder, Silver Maple, Slippery Elm, Grape (*Vitis* sp.), Hackberry and Poison-ivy (*Rhus radicans*). Important ground cover plants include grasses (*Poa compressa*, *Cinna arundinacea*, *Leersia* spp., *Elymus virginicus*, and others), Poison-ivy, Coneflower (*Rudbeckia* sp.), Aster (*Aster* sp.), Horsetweed (*Erigeron canadensis*), Nettle (*Laportea canadensis*), Smartweed (*Polygonum* sp.), and Clearweed (*Pilea pumila*). Bare ground covered 38.6% of the site. **Water:** Except during mid-January to mid-February, some running water and pools remained open. **Food:** Seed supply abundant during December, but almost consumed by mid-January. **Weather:** The coldest winter on county record, and large amounts of snow and ice made both site and access roads virtually inaccessible during much of January and February. Temperatures during the period ranged from -20°F to 70°F. On census days, temperatures varied from 6°F to 65°F. Winds ranged from calm to about 10 mph. Sky clear on four trips, overcast on two. **Coverage:** Dec. 18, Jan. 4, 30; Feb. 9; Mar. 5, 9. Total, 6 trips, between the hours of 0800 and 1500, averaging 70 min. **Count:** Dark-eyed Junco, 7 (57, 23); Carolina Chickadee, 5 (40, 16). Free Sparrow, 5; Cardinal, 4 (32, 13); Red-headed Woodpecker, 3 (24, 10); Downy Woodpecker, 3; Blue Jay, 3; Tufted Titmouse, 3; Red-bellied Woodpecker, 2 (16, 7); Com. Crow, 2; House Sparrow, 2; Song Sparrow, 2, Red-tailed Hawk, 1 (8, 3); Mourning Dove, 1; White-breasted Nuthatch, 1; Brown Creeper, 1; Carolina Wren, 1, Red-shouldered Hawk, +; Belted Kingfisher, +; Com. Flicker, +; Hairy Woodpecker, +; Red-winged Blackbird, +; Com. Grackle, +; Am. Goldfinch, +; Swamp Sparrow, +. **Average Total:** 46 (371/km², 150/100 acres). **Remarks:** The Red-headed Woodpecker, Blue Jay, and Carolina Chickadee were seen on every trip. Perhaps the cold or decreased food supply caused numbers of such birds as the sparrows and Carolina Wren to decline during the census period. Certain birds marked as "visitors" were noted as migrants in fall (Red-shouldered Hawk, Belted Kingfisher, Swamp Sparrow) or in spring (Red-winged Blackbird, Com. Grackle). The assistance of L. W. B. Smith in censusing is appreciated. — RUTH RIEGEL and DANIEL VARLAND, Dept. of Zoology, E. Illinois Univ., Charleston, IL 61920.



19. FLOODPLAIN FOREST, II. — Location: Illinois; Coles Co., 8 km S of Charleston, along the Embarras River; 39°25'N, 80°10'W; Toledo Quadrangle, USGS. **Continuity:** New. **Size:** 12.4 ha = 30.6 acres. **Description of Area:** Floodplain forest on either side of small river. One small creek empties into the river mid-way through the study site. Adjacent to the site are either upland and slope forests or croplands. Canopy trees (410 trees/ha), ranked according to importance value (a composite measure of relative frequency, relative density, and relative dominance), were Silver Maple (*Acer saccharinum*), 132.6; Box Elder (*A. negundo*), 51.5; Sycamore (*Platanus occidentalis*), 26.3; Slippery Elm (*Ulmus rubra*), 24.5; Green Ash (*Fraxinus lanceolata*), 19.8; Hackberry (*Celtis occidentalis*), 14.6; Cottonwood (*Populus deltoides*), 9.7; Black Walnut (*Juglans nigra*), 9.7. Other species include Osage Orange (*Maclura pomifera*), Basswood (*Tilia americana*), Ohio Buckeye (*Aesculus glabra*). The most common understory plants (590 stems/ha) were Box Elder, Grape (*Vitis* sp.), Slippery Elm, Greenbrier (*Smilax glauca*), Poison-ivy (*Rhus radicans*), and Hackberry. Ground cover species included grasses (*Poa compressa*, *Cinna arundinacea*, *Leersia* spp., *Elymus virginicus*, and others), Poison-ivy, Coneflower (*Rudbeckia* sp.), Aster (*Aster* sp.), Horsetweed (*Erigeron canadensis*), Smartweed (*Polygonum* sp.), and Clearweed (*Pilea pumila*). Bare ground covered 38.6% of the site. **Water:** River mostly frozen from mid-December until late February, but some isolated pools remained open. **Food:** As in Census No. 18 seed supply seemed to run short in January. **Weather:** Census days' temperatures ranged from 10° to 65°F. Winds varied from calm to about 10 mph. Sky clear on 3 trips, overcast on 3. Snow was on the ground in January and February. **Coverage:** Dec. 18; Jan. 7; Feb. 2, 7, 9. Total, 6 trips between 0650 and 1630, averaging 80 min. **Count:** Dark-eyed Junco, 10 (81, 33); Mourning Dove, 9 (73, 29); Carolina Chickadee, 8 (65, 26); Downy Woodpecker, 7 (57, 23); Cardinal, 7; Tree Sparrow, 5 (40, 16); Red-bellied Woodpecker, 3 (24, 10); Blue Jay, 3; Tufted Titmouse, 3; Mallard, 2 (16, 7); Turkey Vulture, 2; Red-headed Woodpecker, 2; Com. Crow, 2; Swamp Sparrow, 2; Red-tailed Hawk, 1 (8, 3); White-breasted Nuthatch, 1; Carolina Wren, 1; Am. Goldfinch, 1; Song Sparrow, 1, Wood Duck, +; Marsh Hawk, +; Great Blue Heron, +, Belted Kingfisher, +; Horned Lark, +; House Sparrow, +; Red-winged Blackbird, +; Com. Grackle, +; Rufous-sided Towhee, +. **Average Total:** 70 (565/km², 229/100 acres). **Remarks:** Downy Woodpecker, Carolina Chickadee, Cardinal, and Dark-eyed Junco were seen on all trips. As reported in Census No. 18, seed-eaters and the Carolina Wren declined sharply during the census period, perhaps because of weather conditions or lack of food. Birds assumed to be migrants were seen in fall (Great Blue Heron, Mallard, Belted Kingfisher); others were recorded in spring (Wood Duck, Horned Lark, Red-winged Blackbird, Com. Grackle, Rufous-sided Towhee). The assistance of Steve Harrison in censusing is appreciated. — RUTH RIEGEL and DANIEL VARLAND, Dept. of Zoology, E. Illinois Univ., Charleston, IL 61920.

20. BOTTOMLAND OAK - GUM - CYPRESS FOREST RECENTLY DISTURBED. — Location: Mississippi; N of State Highway 12 in LeRoy Percy State Park, 4 mi W of Hollandale, Washington Co. (parts of

Sec 5, 8, & 9, T15N, R7W) **Continuity:** Established 1971, 6 years (1976 omitted because of inaccessibility during construction). **Size:** 11.4 ha = 28.1 acres; rectangular in shape, 836 × 1463 ft (measured with compass and steel tape). **Description of Area:** See *AB* 25 638-639 (1971). A major drainage and road project, started in the summer of 1975 and now complete, has definitely affected the area. Prior to construction, 11% of the area could have been considered "clear." Now the clear area in the tract is 27%. The old road has been elevated and widened, with ditches cut along the sides. Two major canals have been cut through the area for drain parts of the Park lying outside the area, but tributary drainage swales have been cut into the woods inside the plot. Previously, 1 to 6 in. of water stood over about 30% of the woods in the tract. Now only small puddles remain. The drainage project has had a marked effect on the ecology of that part of the count area. **Weather:** Temperature on count days ranged from 19° to 67°F Mean high during count period: 47.8°; mean low: 27.4° Total precipitation during count period: 6.1 in. The averages for the previous five years were 54.6°, 36.7°, and 9.9° in. respectively. This winter was the coldest in over a decade. Snow fell twice during the count period but did not stay on the ground over 2 days. November and December had below-normal precipitation and below-normal temperatures (coldest November in 47 years). Winds did not exceed 3 on the Beaufort scale. (Weather data from Delta Branch Experiment Station, Stoneville, 15 mi north). **Coverage:** Jan. 15-16, 22, 29-30; Feb 5, 6, 12-13, 19. Total of 10 trips; starting trips from 0810 to 1430 CST; 7 morning and 3 afternoon trips. On 4 trips two observers covered the plot, each with assigned areas; on 6 trips one observer worked alone. Average time per trip: 144 obs.-min. **Count:** White-throated Sparrow, 20 (176, 71); Yellow-rumped Warbler, 11 (97, 39), Cardinal, 10 (88, 36); Starling, 9 (79, 32); Com. Grackle, 9; Dark-eyed Junco, 5 (44, 18); Carolina Chickadee, 4 (35, 14); Swamp Sparrow, 4; Com. Flicker, 3 (26, 11), Red-bellied Woodpecker, 3; Yellow-bellied Sapsucker, 3; Carolina Wren, 3; Red-winged Blackbird, 3; Hairy Woodpecker, 2 (18, 7); Blue Jay, 2; Winter Wren, 2, Rusty Blackbird, 2; Am. Goldfinch, 2; Pileated Woodpecker, 1 (9, 4); Downy Woodpecker, 1; Tufted Titmouse, 1; Am. Robin, 1; Hermit Thrush, 1; Golden-crowned Kinglet, 1; Ruby-crowned Kinglet, 1; Orange-crowned Warbler, 1; Com. Yellowthroat, 1; Song Sparrow, 1; Red-tailed Hawk, +; Am. Woodcock, +; E. Phoebe, +; Brown Creeper, +; Mockingbird, +; Brown Thrasher, +; E. Bluebird, +; Pine Warbler, +; House Sparrow, +; Purple Finch, +; Fox Sparrow, +. **Average Total:** 107 (941/km², 381/100 acres). **Remarks:** Total species, 39. Seen on every trip were: Red-bellied Woodpecker, sapsucker, chickadee, Carolina Wren, Yellow-rumped Warbler, Cardinal, White-throated Sparrow, Swamp Sparrow. Seen on 9 trips were the flicker and Hairy Woodpecker; and on 8 trips, Blue Jay, Winter Wren, Golden-crowned Kinglet, Red-winged Blackbird, and grackle. On 7 trips: Hermit Thrush and junco; and on 6 trips, Downy Woodpecker, Starling, yellowthroat, and Rusty Blackbird. The average total was down significantly, while the number of species increased. Showing decided increases were wrens, chickadee, titmouse, Blue Jay, Starling, and Cardinal, while the woodcock, Hermit Thrush, and Rusty Blackbird declined. The food supply was considerably less plentiful. Poison-ivy berries, usually plentiful, were absent, as were the elm samaras.

Flying insects were seen only on the last two trips Weed seeds and insect larvae were the primary food source — *MR. & MRS. G. E. ALEXANDER, JR., 1749 W. Azalea, Greenville, MS 38701.*

21. MIXED PINE-DECIDUOUS FOREST. — Location: Louisiana; Natchitoches Parish, 1 mi W of Northwestern State Univ. campus, within university's Natural History Reservation, on S side of Louisiana Hwy. 6 (Sec 81, R7W, T9N). **Continuity:** Established 1971; 7 consecutive years. **Size:** 8.9 ha = 22 acres (L-shaped, measured by pacing with compass). **Description of Area:** See *AB* 25:639-640 (1971) and 26:699 (1972). **Weather:** During the 18-day study period, day temperatures ranged from 32° to 60°F, with 5 count days 40° or higher. Night temperatures ranged from 15° to 40°. Four count days were clear, and two were cloudy. Wind on count days ranged from 0 to 3 on the Beaufort Scale. Weather during the study period was colder than normal. **Coverage:** Jan. 14, 17, 19, 24, 26, 31. Total, 6 trips between 1400 and 1700, averaging 2 hours. Total man-hours, 12 **Count:** White-throated Sparrow, 29 (326, 132); Com Grackle, 26 (292, 118); Carolina Chickadee, 5 (56, 23), Ruby-crowned Kinglet, 5; Carolina Wren, 4 (45, 18), Pine Warbler, 4; Cardinal, 4; Red-bellied Woodpecker, 3 (34, 14); Purple Finch, 3; Dark-eyed Junco, 3; Yellow-bellied Sapsucker, 2 (22, 9); Blue Jay, 2; Am. Robin, 2, Com. Flicker, 1 (11, 5); Pileated Woodpecker, 1; Downy Woodpecker, 1; E. Phoebe, 1; Tufted Titmouse, 1, Brown Thrasher, 1; Hermit Thrush, 1; Solitary Vireo, 1, Yellow-rumped Warbler, 1; Rufous-sided Towhee, 1, Chipping Sparrow, 1; Hairy Woodpecker, +; Brown Creeper, +; Winter Wren, +; Mockingbird, +; Golden-crowned Kinglet, +. **Average Total:** 103 birds (1157/km², 468/100 acres). **Remarks:** Total species, 29 The total species in previous winters has ranged from 27 to 31, and 41 have been observed in the 7 years of study The kinglets, Blue Jay and Am. Goldfinch decreased from previous winters, but other species were near their 7-year average. — *CHARLES E. VIERS, Dept. of Biological Sciences, Northwestern State Univ., Natchitoches, LA 71457.*

22. SLASH PINE PLANTATION. — Location: Louisiana; Vernon Parish, 3½ mi N of intersection of state highways 111 and 464 and S of highway 464, in Sec 11 and 12 of T2S, R11W; 30°27'N, 93°27'W, Knight Quadrangle, USGS. **Continuity:** Established 1972; second winter census. **Size:** 16.19 ha = 40.0 acres (square, surveyed by hand compass and pacing). **Description of Area:** See *AB* 27:677, 981 (1973). **Weather:** Temperature 26 to 53°F. Skies and wind variable. **Coverage:** Dec 21, 28; Jan. 8, 20; Feb. 1, 6. Total, 6 trips made between 0730 and 1100 hours. Total man-hours: 13.5. **Count:** Pine Warbler, 13 (80, 33); Com. Grackle, 13; Ruby-crowned Kinglet, 6 (37, 15); Chipping Sparrow, 6, Brown-headed Nuthatch, 5 (31, 13); Red-bellied Woodpecker, 2 (12, 5); Com. Flicker, 1 (6, 3); Red-cockaded Woodpecker, 1; Carolina Chickadee, 1; Carolina Wren, 1; Yellow-rumped Warbler, 1; Cardinal, 1; Am. Goldfinch, 1; Pileated Woodpecker, +; Yellow-bellied Sapsucker, +; Blue Jay, +; Solitary Vireo, +; Orange-crowned Warbler, +; Bachman's Sparrow, +; Dark-eyed Junco, +. **Average Total:** 61 birds (377/km², 153/100 acres). **Remarks:** The Com. Grackles were seen on the ground and in the trees on only one visit; however, they were seen flying over the plot on every visit. — *E C CLEAVELAND, 61 Harvard Drive, DeRidder, Louisiana 70634.*

23. WHITE SPRUCE FOREST. — **Location:** Alberta; Fenland Trail, 0.5 mi N of Banff townsite on the S side of the Trans Canada Highway, Banff National Park, 51°11'N, 115°35'W. **Continuity:** New. **Size:** 24 ha = 59 acres. **Description of Area:** Wet spruce woodland (52 acres) that surrounds a 7-acre sedge fen; trees, 3 in. diameter and over, based on five 0.1 acre circular samples, 452/acre; total basal area, 111.7 sq ft/acre. Species comprising 100% of the total number of trees [figures after each give number of trees/acre, relative density %, relative dominance and frequency, in that sequence]: White Spruce (*Picea glauca*), 356, 79, 64, 100; Balsam Poplar (*Populus balsamifera*), 72, 16, 4, 80; dead trees, 22, 5, 2, 40; Quaking Aspen (*Populus tremuloides*), 2, 0 4, +, 20. Trees by diameter size class [figures after each class give number of trees/acre, relative density %, basal area in sq ft/acre, relative dominance]: A 214, 47, 21.4, 10, B 88, 19, 26.4, 12; C 102, 23, 89.6, 40; D 30, 7, 52.0, 23, E 4, 1, 12.4, 6; F 4, 1, 19.6, 9. Shrub stems/acre 9600, mostly White Spruce and willow (*Salix* spp.). Ground cover 55%, mostly feathermoss, grasses and sedges. Canopy cover 54%. Average canopy height 49 ft (range 40-60) **Topography:** Stable, level alluvial outwash, base elevation 4570 feet. **Edge:** Forty-mile Creek forms three sides Bordered by similar habitat on all sides. On the N and W sides the narrow spruce band gives way to wet willow swamp. **Weather:** Average maximum temperature, 33°F, average minimum, 14°; total precipitation 11 in. A relatively mild, very dry winter. **Coverage:** Jan 17, 19, 23, 27; Feb. 7, 19; Mar. 1, 18. Total, 8 trips between 0900 and 1700, averaging 125 min each. **Count:** Bohemian Waxwing, 6 (25, 10); Black-capped Chickadee, 4 (17, 7); Boreal Chickadee, 3 (13, 5); Black-billed Magpie, 1 (4, 2); Com. Raven, 1; Mountain Chickadee, 1; Dipper, 1; White-winged Crossbill, 1; Dark-eyed Junco, 1, Hairy Woodpecker, +; N. Three-toed Woodpecker, +; Gray Jay, +; Clark's Nutcracker, +; Red-breasted Nuthatch, +; Brown Creeper, +. **Average Total:** 19 birds (80/km², 32/100 acres). **Remarks:** A Cooper's Hawk was observed in the area. Mammals observed include Moose (*Alces alces*), Coyote (*Canis latrans*) and Red Squirrel (*Tamiasciurus hudsonicus*). — NEIL COLGAN, BRUCE GORDON (co-compiler), AILEEN HARMON, ELIZABETH and GEOFFREY HOLROYD (co-compiler), DIANE McIVOR, HAROLD MORTIMER, ART and JEAN WILSON, Bow Valley Naturalists, Box 1693, Banff, Alta. T0L 0C0.

24. PONDEROSA PINE - DOUGLAS-FIR FOOT-HILLS FOREST. — **Location:** Washington; Dishman Hills of Browne Mt., 2 mi E of Spokane, Spokane Co.; SE ¼ of Sec. 19, T25N, R44E; 47°39'N, 117°17'W, Spokane Quadrangle, USGS. **Continuity:** Established 1975; 2 years. **Size:** 11.15 ha = 27.55 acres (rectangular, 1600 X 750 ft, the long axis N-S, surveyed by tape and compass). **Description of Area:** See AB 30:1051-1052 (1976). **Weather:** Temperatures ranged from about 15°F to 50°F. Cloudy on 5 trips; clear or mostly clear on 3 trips. Calm or nearly so on 7 trips; SW wind 25 mph at treetop level, much lower near ground on Jan. 18. Ground bare of snow to partly bare on 6 trips; 0.5 in. to 4 in. snow on two trips **Coverage:** Dec. 20, 31; Jan. 7, 18, 28; Feb. 4, 9, 15. Trips between 0945 and 1125. Total hours 10.05. **Count:** Red-breasted Nuthatch, 6 (54, 22); Bohemian Waxwing, 4 (36, 15); Red Crossbill, 4; Com. Raven, 1 (9, 4); Pygmy Nuthatch, 1; Ruffed Grouse, +; Com. Flicker, +; Black-billed Magpie, +; Black-capped Chickadee, +; Moun-

tain Chickadee, +, Brown Creeper, +, Golden-crowned Kinglet, +. **Average Total:** 16 birds (144/km², 58/100 acres). **Remarks:** Red-breasted Nuthatches and Red Crossbills were found on every visit. The only other species found on more than two trips was the Com Raven. Bohemian Waxwings occurred only Jan. 7 and were not seen to stop in the census area. — THOMAS H ROGERS, E. 10820 Maxwell Ave., Spokane, WA 99206

25. MATURE WESTERN HEMLOCK-DOUGLAS-FIR FOREST. — **Location:** Mt. Rainier National Park, one mi W of Longmire, Washington, on S side of Nisqually River (Sec. 32, T15N, R8E). **Continuity:** New. **Size:** 10.1 ha = 25 acres (rectangular, 800 X 1361 ft, measured with steel tape). **Description of Area:** Trees, 3 in. in diameter and over, based on seven 0.1-acre circular samples, 236.6/acre; total basal area 489.3 sq ft/acre. Species comprising 90% of the total number of trees (figures after each give number of trees/acre, relative density (%), relative dominance, frequency, in that sequence): Douglas-fir (*Pseudotsuga menziesii*), 64.4, 27, 60, 100; Western Hemlock (*Tsuga heterophylla*), 71.4, 30, 22, 86; Western Red Cedar (*Thuja plicata*), 36.4, 15, 11, 100; Pacific Silver Fir (*Abies amabilis*), 39.2, 17, 2, 71; Pacific (Western) Yew (*Taxus brevifolia*), 7, 3, 0 1, 57; dead trees, 18.2, 8, 5, 71. Shrub stems/acre, 15,500. Ground cover 74%. Canopy cover, 76%; Average canopy height, 44 ft (range 20-60 ft). Running roughly through the center of the 25-acre study plot is a 60 ft. wide tractor road beneath a powerline. The road now is carpeted with 1 to 2 ft high seedlings of *Pseudotsuga menziesii* and *Tsuga heterophylla*. **Topography:** Flat, elevation 2761 ft **Edge:** The study plot is roughly 400 ft away from the Nisqually River to the N. A sewage treatment plant, roughly 150 x 300 ft, is located to the W, and a single-lane paved road runs along the S boundary of the plot. The road is used about twice a day to service the treatment plant except for the road, treatment plant and powerline, the plot is surrounded by mature hemlock-douglas-fir forest **Weather:** Exceptionally mild. No snow on the ground, whereas the average snow depth for Longmire in January and February is 3 to 4 ft. Temperatures ranged from 29° to 35°F. Winds were less than 5 mph. Sky clear on 4 days, overcast 1 day and raining moderately 1 day. **Coverage:** Jan. 27, 31; 2 trips per day Feb. 1-4, the first beginning around 0830 and the second around 1030. Total, 10 trips between 0830 and 1215, averaging 100 minutes each **Count:** Chestnut-backed Chickadee, 12 (119, 48); Pine Siskin, 11 (109, 44); Red Crossbill, 8 (79, 32); Winter Wren, 4 (40, 16); Golden-crowned Kinglet, 4; Hairy Woodpecker, 1 (10, 4); Yellow-bellied Sapsucker (red race), 1; Gray Jay, 1; Varied Thrush, 1; Pileated Woodpecker, +; Steller's Jay, +; Com. Raven, +; Red-breasted Nuthatch, +; Brown Creeper, +. **Average Total:** 43 birds (425/km², 172/100 acres). **Remarks:** Total species, 14 Chestnut-backed Chickadees were noted on all trips and occurred in flocks of 6 to 8. Winter Wrens were also noted on all trips. The Hairy Woodpecker was noted on 9 trips. Red Crossbills, occurring in flocks of 5 to 10, and Pine Siskins, in flocks of 5 to 25, were noted on 7 trips, Golden-crowned Kinglets on 6 trips and found in groups of 6 to 8. The Brown Creeper was seen foraging with a flock of Chestnut-backed Chickadees. A single Steller's Jay was noted twice foraging with Gray Jays. Golden-crowned Kinglets were seen foraging with Chestnut-backed Chickadees once. From 1 to 4 Douglas Squirrels,

Tamiasciurus douglasii, were noted on every trip — SUE BALL, Rt. 1, Box 105H, Eatonville, WA 98328.

26. RIPARIAN WOODLAND-FLOODPLAIN. —

Location: New York; Canadaway Creek Nature Sanctuary of Nature Conservancy, 1.25 mi W of Dunkirk, Chautauqua County, 42°28'30"N, 79°22'W, Dunkirk Quadrangle, USGS, 1954. **Continuity:** Established 1975; 2 years. **Size:** 13.8 ha = 34 acres (roughly rectangular, irregular in E portion due to curvature of creek). **Description of Area:** See AB 29:768-769. **Food:** Grape crop poor, no fruit after Jan. 1. Alder, sumac, Multiflora Rose, Highbush Cranberry and Privet heavily fruited. Weed seeds abundant. **Weather:** Below normal cold began on Dec. 18 and continued throughout count period. Average Jan. temperature 19.7°F, 4° below normal. Average temperature Feb. 1-7 17°, 6° below normal. Wind chill factor on Feb. 2, -50°. Average temperature of trip days 13°. Ground snow-covered on all trips, greatest depth 24 in. on Jan. 25. (Weather from National Weather Service, Gr. Buffalo International Airport.) **Coverage:** Dec. 27; Jan. 2, 17-18, 23, 25, 31; Feb. 7, 1976. All trips between 0900 and 1645 EST, averaging 153 minutes. **Count:** Downy Woodpecker, 4 (29, 12); Black-capped Chickadee, 4; Starling, 3 (22, 9); Cardinal, 3; Am Goldfinch, 3; White-breasted Nuthatch, 2 (15, 6); Hermit Thrush, 2; Song Sparrow, 2; Com. Flicker, 1 (7, 3), Hairy Woodpecker, 1; Blue Jay, 1; Tufted Titmouse, 1, Carolina Wren, 1; Am. Robin, 1; Golden-crowned Kinglet, 1; Com. Redpoll, 1; Dark-eyed Junco, 1; Tree Sparrow, 1; White-throated Sparrow, 1; Black Duck, +; Canvasback, +; Com. Goldeneye, +; Winter Wren, +; Ruby-crowned Kinglet, +; House Sparrow, +; Evening Grosbeak, +. **Average Total:** 34 birds (247/km², 100/100 acres). **Remarks:** Less than half of the 26 species (11) were seen on four or more trips. Only Downy Woodpecker was seen on all trips. Three and possibly four Hermit Thrushes, irregular, rare winter visitors here, survived until the end of Jan., but apparently succumbed to the bitter early Feb. weather. They fed heavily on sumac as did Com. Flickers, robins and Starlings. Fly-overs included Bufflehead, Sharp-shinned Hawk, Mourning Dove and Am. Goldfinch. — FRANCES M. REW, 129 Arbour Lane, Buffalo, NY 14220.

27. 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:** Established 1975; 3 years. **Size:** 13.8 ha = 34 acres (roughly rectangular, irregular in E portion due to curvature of creek). **Description of Area:** See AB 29:768-769. **Food:** Wild Grape crop depleted by early Dec. Alder heavily fruited; sumac, Multiflora Rose, Highbush Cranberry, fair crops; weeds and small shrubs buried under snow with no food available from those sources. Dead wood abundant. **Weather:** Unprecedented in this area. Dec.: record snowfall 60.7 in., average temperature 22°F, 5.9° below normal; Jan.: record snowfall 60.9 in., average temperature 13.8°, 9.7° below normal. Feb.: frigid to the 9th when temperature rose above freezing for first time in 45 days, 53 consecutive days of a trace or more of falling snow ended Feb. 10. Record 43 in. snow on the ground Feb 5, with drifts burying houses. Total snowfall of 183 in at end of month, more than 100 in. above the average for entire winter. Average temperature on trip days,

11°F. Ground deeply snow covered on all trips (Weather from National Weather Service, Gr. Buffalo International Airport.) **Coverage:** Dec. 26; Jan. 8, 23; Feb. 6, 13, 1977. All between 0900 and 1500 EST, averaging 135 minutes. **Count:** Downy Woodpecker, 4 (29, 12), Cardinal, 3 (22, 9); Black-capped Chickadee, 2 (14, 6), White-breasted Nuthatch, 2; Com. Flicker, 1 (7, 3), Hairy Woodpecker, 1; White-throated Sparrow 1; Great Blue Heron, +; Com. Crow, +; Am. Robin, +; Starling, +; Am. Goldfinch, +. **Average Total:** 14 birds (102/km², 41/100 acres). **Remarks:** The blizzard of '77 had a devastating effect on birds attempting to winter. Heavy snowfalls began in early December and snow depth increased rapidly throughout the month. Species counts for the three trips prior to the Jan. 28 storm averaged 9, compared to 12 in 1975-76 with the numbers of individuals also drastically reduced. After the storm, 5 species were found on Feb. 6 and 4 on Feb. 13, attesting to the inability of birds to survive such protracted cold, wind and snow. Twelve species were recorded this year compared to 26 in 1975-76 and the average total of 14 birds compares to 34 for last year. Four species were found on all trips, Downy Woodpecker, Black-capped Chickadee, White-breasted Nuthatch and Cardinal. — FRANCES M. REW, 129 Arbour Lane, Buffalo, NY 14220.

28. 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, 5 years. **Size:** 35.6 ha = 88 acres (from contour map by planimeter). Boundary 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 20° (Dec. 31, Jan 9) to 55°F (Dec. 19). Precipitation (drizzle) occurred on Feb. 12; there were 2 clear days and 4 cloudy days; winds averaged 20 mph on Feb. 21, but remained calm on other days. Snow (3-4 in.) remained on the ground on Jan 9, with a lesser amount by Feb. 12. December and January temperatures ranged well below normal with February's slightly above. **Coverage:** Dec. 19, 31; Jan. 9; Feb. 12, 14, 21. Total, 6 counts averaging 3½ hrs. **Count:** Com. Crow, 12 (34, 14); Carolina Chickadee, 10 (28, 11); Cardinal, 10; White-throated Sparrow, 10 (Starling, 9 (25, 10), Dark-eyed Junco, 5 (14, 6); Field Sparrow, 5; Song Sparrow, 4 (11, 5); Blue Jay, 3 (8, 3); Tufted Titmouse, 3, Carolina Wren, 3; House Sparrow, 3; Red-bellied Woodpecker, 2 (6, 2); Downy Woodpecker, 2; Mockingbird, 2, E. Bluebird, 1 (3, 1); Am. Goldfinch, 1; Cooper's Hawk, +; Sharp-shinned Hawk, +; Red-tailed Hawk, +; Red-shouldered Hawk, +; Mourning Dove, +; Barred Owl, +, Com. Flicker, +; Pileated Woodpecker, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; White-breasted Nuthatch, +; Winter Wren, +; Golden-crowned Kinglet, +; Yellow-rumped Warbler, +; Evening Grosbeak, +; Purple Finch, +; Tree Sparrow, +; Swamp Sparrow, +. **Average Total:** 85 birds (239/km², 97/100 acres). **Remarks:** Total species, 35. A flock of 45 Canada Geese flew over the area on Jan. 9; other birds seen flying over during the study period were Brown-headed Cowbird, Killdeer, Turkey Vulture. — MORRILL B. DONNALL, DAVID FALLOW, BILL WENDELL, JIM WILKINSON, JOHN R. NORVELL (Compiler, Rt 7, Box 32, Mt. Airy, MD 21771), Montgomery County Chapter, Maryland Ornithological Society.

29. MIXED UPLAND HABITAT. — **Location:** District of Columbia; central third of Glover-Archbold Park, a long, narrow stream-valley park in NW District of Columbia. **Continuity:** Established 1960; 18 years. **Size:** 14.2 ha = 35 acres. **Description of Area:** See *AFN* 14 502-503 (1960). **Weather:** Colder than any previous year, with the average temperature on trips 34.6°F. January average was 28.5°, February's 39.5°. The ground was covered with snow and ice on 10 trips, partially so for 1 Temperature was below freezing for 7 trips, barely above for 6, and over 50° for only 2. Wind was calm on 8 trips, slight to 15 mph on 8, and up to 30 mph on 1. **Coverage:** Dec. 31; Jan. 1, 9, 13, 15, 23, 24; Feb. 1, 3, 5 (2 trips), 10, 13, 15, 19, 21 (2 trips). Hours ranged from 0840 to 1720, most trips beginning in late morning and spanning the noon hour, or in early afternoon. Only 3 trips were entirely in the morning. A total of 32 hours 20 min was spent on the 17 trips, which gave 13.5 complete coverages. Average per coverage, 2.39 hours; average per trip, 1.9 hours. **Count:** White-throated Sparrow, 13 (92, 37), Com. Crow, 10 (71, 29); Carolina Chickadee, 10; Tufted Titmouse, 9 (64, 26); Rock Dove, 8 (56, 23); Cardinal, 8; Dark-eyed Junco, 6 (42, 17); Downy Woodpecker, 5 (35, 14); Starling, 5; Purple Finch, 4 (28, 11); Red-bellied Woodpecker, 3 (21, 9); Blue Jay, 3; House Sparrow, 3; Am. Goldfinch, 3; White-breasted Nuthatch, 2 (14, 6); Mockingbird, 2; Turkey Vulture, 1 (7, 3); Mourning Dove, 1; Pileated Woodpecker, 1; Carolina Wren, 1; Rufous-sided Towhee, 1; Red-tailed Hawk, +; Red-shouldered Hawk, +; Herring Gull, +; Com. Flicker, +; Hairy Woodpecker, +; Brown Creeper, +; Winter Wren, +; Song Sparrow, +. **Average Total:** 99 (699/km², 283/100 acres). **Remarks:** Total species, 29. Temperatures represent the higher levels for these days since most observers chose midday or early afternoon in response to the unusually cold weather and persistent snow and ice. Perhaps the birds were more active then, too. It is often a time when the birds leave the park to explore feeding stations in the neighborhood, but one person living nearby put quantities of birdseed down in the heart of the census area, which may have kept more of the birds on hand when observers were counting. With these factors possibly balancing out, this should be one of the more accurate and thorough of the censuses. Total numbers did not reflect damage from the severe weather, but a few dropped markedly through the period. Carolina Wrens, by last summer at a peak breeding population (14 pairs) after several mild winters, and maintaining a winter average of 4 the last 3 years; started with 3 on Dec. 31, 7 on Jan. 1, and thereafter only 1 or 2 at infrequent intervals. On Feb. 21, one observer found 2, another 1. One Winter Wren was seen Jan. 1 and Jan. 9, but none thereafter. Mockingbirds were seen only 3 times, singly, after Feb. 2. — *SHIRLEY A. BRIGGS (compiler), L. HARTSELL CASH, OLIVE HOLBROOK, LEANDER B. LOVELL, and EDGAR H. SMITH, 7605 Honeywell Lane, Bethesda, MD 20014.*

30. COASTAL DISTURBED FLOODPLAIN. — **Location:** Virginia; Gloucester Co., Beaverdam Swamp, bounded on SE by Route 14 and 10-ft. contour to 0.53 km upstream. **Continuity:** Begun 1965, first publ. 1976. **Size:** 8.09 ha = 20 acres. **Description of Area:** See *AB* 30 1053-1055. **Weather:** 6 cloudy days; 4 clear; temperatures, 16 to 56°F; coldest winter in 13 years of count. **Coverage:** Dec. 5, 12, 17, 26; Jan. 8, 22; Feb. 4, 11, 20,

27. Total, 10 trips, averaging 75 min, counts between 0700 and 1040 EST. **Count:** Yellow-rumped Warbler, 6 (74, 30); Bobwhite, 5 (62, 25); Purple Finch, 5; Carolina Wren, 3 (37, 15); Com. Grackle, 3; Red-bellied Woodpecker, 2 (25, 10); Com. Flicker, 2; Blue Jay, 2; Com. Crow, 2; Carolina Chickadee, 2; Tufted Titmouse, 2, Am. Goldfinch, 2; Field Sparrow, 2; Swamp Sparrow, 2, Red-shouldered Hawk, 1 (12, 5); Pileated Woodpecker, 1; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 1, Downy Woodpecker, 1; White-breasted Nuthatch, 1, Winter Wren, 1; Am. Robin, 1; Hermit Thrush, 1, E Bluebird, 1; Golden-crowned Kinglet, 1; Ruby-crowned Kinglet, 1; Cedar Waxwing, 1; White-throated Sparrow, 1; Song Sparrow, 1; Great Blue Heron, +; Wood Duck, +; Am. Woodcock, +; Com. Snipe, +; Barred Owl, +, E Phoebe, +; Brown Creeper, +; Mockingbird, +; Red-winged Blackbird, +; Rusty Blackbird, +; Dark-eyed Junco, +. **Average Total:** 55 birds (680/km², 275/100 acres). **Remarks:** Total species, 40. In spite of a complete failure of Am. Holly (*Ilex opaca*) berries (evidently owing to uneaten crop in 1976), end of Poison-ivy berries by Jan. 1, scant Greenbrier (*Smilax*) fruit, bitter cold for six weeks and late elm seed, bird numbers were up 11% over 1976. The Yellow-rumped Warbler was the only species present on all counts, although 16 species were on half of them. The Belted Kingfisher was absent for the first time in 12 years owing to ice, but open springs brought the Com. Snipe and Rusty Blackbird back after a 3-year absence. The Bobwhites were a covey of 10 flushed 5 times. Of the 60 species recorded in 13 years, only 13 have occurred every year; while 37 species occurred in 7 years. For the first time, no species were added. Destruction of canopy trees by Beavers continues to promote a shrub swamp. This study resembles that of Chandler S Robbins (*AB* 30:1045-1046) since only 8 of his species have not been seen in our area. The two are also the only counts having the Yellow-rumped Warbler and White-throated Sparrow as the most common species — *MARVIN L. and BARRY G. WASS, Box 752, Gloucester, VA 23061.*

31. PINELAND, SCRUB AND RESIDENTIAL. — **Location:** Florida; Dade Co.; 1 mi N of Homestead, 25°29'N, 80°29'W. **Continuity:** Established 1975; 3 years **Size:** 10.1 ha = 25 acres. **Description of Area:** See *AB* 29:770 (1975). **Weather:** Mild. Temperatures on count days 43°F once, usually 54° to 84°. No precipitation on count days; 2 days overcast. Wind a factor one day only **Coverage:** Jan. 1-2, 7, 14; Feb. 17-18. Total, 20 hours, 12 trips with observation of feeders and local grounds added. Trips between 0700 and 0900, and late morning for hawks and anis; a "listen" at dusk for catbirds, Whip-poor-wills and Screech Owls. Buntings and Cardinals counted by maxima at feeders at one time. **Count:** Yellow-rumped Warbler, 7 (69, 28); Mourning Dove, 6 (59, 24); Tree Swallows, 5 (49, 20); Am. Robin, 5; Painted Bunting, 5; Gray Catbird, 3 (30, 12); Indigo Bunting, 3, Am. Kestrel, 2 (20, 8); Smooth-billed Ani, 2; Com. Flicker, 2; Cardinal, 2; Bobwhite, 1 (10, 4); Cattle Egret, 1; Green Heron, 1; Ground Dove, 1; Ruby-throated Hummingbird, 1; Red-bellied Woodpecker, 1, E Phoebe, 1; Blue Jay, 1; House Wren, 1; Mockingbird, 1, Blue-gray Gnatcatcher, 1; White-eyed Vireo, 1; Rufous-sided Towhee, 1; Sharp-shinned Hawk, +; Killdeer, +, Belted Kingfisher, +; Downy Woodpecker, +; Least Flycatcher, +; Ruby-crowned Kinglet, +; Com. Yellow-

throat, + **Average Total:** 53 birds (524/km², 212/100 acres) **Remarks:** Total species, 31. Bobwhite and robin on single counts only. Four counts taken before Florida's Big Freeze, Jan. 18 ff., two a month later (after absence). No diminution of species or numbers noted except for hummingbirds and Yellow-rumped Warblers. A paucity of the usual resident winter birds reported all winter by bird feeders and experienced bird watchers. Sharp-shinned Hawks were numerous but could not entirely have accounted for this lack. Natural food was abundant up to the Freeze, feeders were stocked as usual. The local area remains undeveloped. The following table reflects an alarming trend.

| | 1975 | 1976 | 1977 |
|-------------------------|--------|------|------|
| Species | 51 | 41* | 31 |
| Av Total | 183 | 83 | 53 |
| Density/km ² | 1808** | 820 | 524 |

*Flicker omitted in error

**published acreage and density (of 2261) in error in AB 29 770

— ERMA J. FISK, 17101 S.W. 284 St., Homestead, FL 33030

32. FLOODPLAIN WOODLAND AND FIELD. —

Location: Ohio; Seneca Co., Heidelberg College land known as the Lewis Farm, Tiffin; along Rock Creek between Main St. and Hedges-Boyer Park; 41°05'N, 83°09'W. **Continuity:** Established 1976; 2 years. **Size:** 22.5 ha = 55.5 acres. **Description of Area:** See AB 30 1055 (1976). **Weather:** Temperatures ranged from 2° to 33°F, with the average 13°. This was the coldest winter in many years, and the one with the most snow. However, the creek was completely frozen on only one trip. **Coverage:** Dec. 23; Jan. 9, 22, 30; Feb. 6. Total, 5 trips, averaging 100 min. each, between 0900 and 1200 EST. **Count:** Dark-eyed Junco, 313 (1394, 564); Tree Sparrow, 260 (1158, 468); Mourning Dove, 221 (984, 398); Song Sparrow, 25 (111, 45); House Sparrow, 16 (71, 29); Cardinal, 15 (67, 27); Cedar Waxwing, 10 (45, 18); Am. Goldfinch, 4 (18, 7); Red-tailed Hawk, 2 (9, 4); Downy Woodpecker, 2, Blue Jay, 2; Starling, 2; Yellow-rumped Warbler, 2; Red-bellied Woodpecker, 1 (4, 2); Tufted Titmouse, 1; White-breasted Nuthatch, 1; Carolina Wren, 1; Red-shouldered Hawk, +; Belted Kingfisher, +; Com. Crow, +, Brown Creeper, +; Field Sparrow, +; Swamp Sparrow, + **Average Total:** 878 birds (3909/km², 1582/100 acres) **Remarks:** Even though it was a very cold winter and there was a great amount of snow, the number of birds was amazing. The Cedar Waxwings and Yellow-rumped Warblers disappeared in late January. Dark-eyed Juncos were as high as 1000, and Mourning Doves as high as 420. The Tree Sparrow numbers were about the same all winter. — JAMES COFFMAN and H. THOMAS BARTLETT (compiler), P.O. Box 303, Tiffin, OH 44883.

33. MIXED HABITAT - DISTURBED BOTTOMLAND. — Location: Oklahoma; Washington Co., Dewey, 2 mi W of intersection of Ninth St. and Hwy. 75, 0.3 mi N on E bank of Caney River, 36°38'N, 95°58'W, Tulsa Quadrangle, USGS. **Continuity:** Established 1972; 5 consecutive years. **Size:** 40.47 ha = 100 acres (irregular rectangle roughly 600 x 800 yards; from SCS aerial map). **Description of Area:** See AB 26:976-977 (1972). **Weather:** Severe; snow and ice through January; temperatures from 20° to 52°F. **Coverage:** Dec. 21, 30; Jan. 5, 14, 17, 21, 24, 27; Feb. 3, 9. Ten trips, two between 1330

and 1555, others between 0800 and 1210, totalling 23 hrs. 35 min. **Count:** Am. Robin, 27 (67, 27); Carolina Chickadee, 10 (25, 10); Cardinal, 8 (20, 8); Am. Goldfinch, 7 (17, 7); Red-bellied Woodpecker, 6 (15, 6), Blue Jay, 6; E. Bluebird, 6; Bobwhite, 4 (10, 4); Song Sparrow, 4; Com. Flicker, 3 (7, 3); Downy Woodpecker, 3; Cedar Waxwing, 3; Red-tailed Hawk, 2 (5, 2); Tufted Titmouse, 2; Loggerhead Shrike, 2; Red-winged Blackbird, 2, Tree Sparrow, 2; Barred Owl, 1 (2, 1); Pileated Woodpecker, 1; White-breasted Nuthatch, 1; Mockingbird, 1; Marsh Hawk, +; Am. Kestrel, +; Great Horned Owl, +, Hairy Woodpecker, +; Brown Creeper, +; E. Meadowlark, +, Brewer's Blackbird, +; Rufous-sided Towhee, +; Dark-eyed Junco, +; Swamp Sparrow, +. **Average Total:** 101 birds (250/km², 101/100 acres). **Remarks:** Great Blue Heron, Yellow-bellied Sapsucker, Carolina Wren, House Sparrow, White-throated, Fox and Lincoln's Sparrows were absent from the plot for the first year since the count began in 1972. Brewer's Blackbird was a new species. — ELLA DELAP, 409 N. Wyandotte, Dewey, OK 74029.

34. FLOODPLAIN COTTONWOOD FOREST. —

Location: Colorado; Jefferson Co., on S. Platte River, about 10 mi SW of Denver; 39°32'N, 105°5'W, Littleton Quadrangle, USGS. **Continuity:** Established 1972, 3 intermittent years. **Size:** 9.7 ha = 24 acres. **Description of Area:** See AB 25:966 (1971). **Weather:** Drought has arrived in Colorado, and precipitation was substantially below normal for fall and winter months. Light snows fell only 4 or 5 times, and remained on the ground only briefly. Temperatures were about normal. **Coverage:** Dec. 11, 18, 24, 26; Jan. 2, 16, Feb. 11. Total, 7 trips, 9½ man-hours. **Count:** Am. Goldfinch, 13 (134, 54), Tree Sparrow, 13; Song Sparrow, 4 (41, 17); Black-billed Magpie, 3 (31, 13); Pine Siskin, 3; Great Blue Heron, 2 (21, 8), White-breasted Nuthatch, 2; Red-tailed Hawk, 1 (10, 4), Great Horned Owl, 1; Black-capped Chickadee, 1, White-throated Sparrow, 1; Harris' Sparrow, 1; Marsh Hawk, +; Merlin, +; Ring-necked Pheasant, +; Belted Kingfisher, +; Com. Flicker, +; N. Shrike, +; House Finch, +. **Average Total:** 45 birds (463/km², 188/100 acres). **Remarks:** The goldfinches flocked through the grove, but did not, like the herons, hawks, and magpies, use it exclusively. The herons rested on the ground in the grove during mid-day. The only birds restricted to the grove were the sparrows, owl, and nuthatches. Two sizeable flocks of sparrows, mostly Trees with a few Songs, used brushy areas on the E and S sides of the grove. Thanks to David Hutchinson for one trip during the study period. — URLING and HUGH KINGERY, 869 Milwaukee St., Denver, CO 80206.

35. GRASSLAND MUNICIPAL AIRPORT. — Location: Louisiana; municipal airport of Natchitoches Parish, 31°44'N, 93°66'W, Provencal Quadrangle, USGS. **Continuity:** Established 1974; 4 consecutive 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 21-day study period, day temperatures ranged from 35° to 75°F, with five count days 58° or higher. Night temperatures ranged from 20° to 50°F. All count days were clear and had winds up to 3 on the Beaufort Scale. The winter was colder than normal. **Coverage:** Feb. 7, 9, 14, 18, 23, 28. Total, 6 trips between 1300 and 1630, averaging 50 minutes; total man-hours, 5. **Count:** Savannah Sparrow, 23

(189, 77), E Meadowlark, 10 (82, 33), Am Robin, 6 (49, 20), Sprague's Pipit, 4 (33, 13); Le Conte's Sparrow, 2 (16, 7); Killdeer, 1 (8, 3); Grasshopper Sparrow, +. **Average Total:** 46 birds (379/km², 153/100 acres). **Remarks:** The average total increased to 46 in 1977 from an average of 33 for 1974-76. All species increased from their 1976 count totals. The Savannah Sparrow, E. Meadowlark, and Sprague's Pipit were observed on all counts, the Le Conte's Sparrow on 5 counts, the robin on 4 counts, Killdeer on 2 counts, the Grasshopper Sparrow on one count. — CHARLES E. VIERS, *Dept. of Biological Sciences, Northwestern State Univ., Natchitoches, LA 71457.*

36. SANDHILL PRAIRIE. — **Location:** Kansas; Sand Prairie Natural History Reservation, 4 mi E and 4 mi N of Burrton, Harvey Co. (E½ SE¼ Sec. 36, R3W, T22S) **Continuity:** Established 1973; 3 intermittent years **Size:** 32.38 ha = 80 acres (rectangular, 440 x 880 yards, measured with cloth tape). **Description of Area:** See AB 27:684 (1973). **Water:** All low areas have been dry since fall. **Weather:** During the 14-day study period the temperature remained below freezing on 3 days and was below freezing every night. The temperature ranged from -3° to 50°F, with an average maximum of 37° and an average minimum of 15°. Average temperature during counts was 37°F. The study period was preceded by two weeks of very cold temperatures. For the first count there was a 5 to 6 in. snow cover, scattered snow cover for the last two counts. During counts winds were light (0-15 mph, mean 4 mph). Sky clear to partly cloudy except for one count done under an overcast sky. (Data taken on Reservation and near Newton). **Coverage:** Jan. 11, 14-15, 20, 23, 24. Total, 6 trips, 5 between 1420 and 1710 and 1 between 0910 and 1000, averaging 58 minutes each. **Count:** Tree Sparrow, 34 (105, 42); Bobwhite, 4 (12, 5); Ring-necked Pheasant, 1 (3, 1); Hairy Woodpecker, 1; Downy Woodpecker, 1; Black-capped Chickadee, 1; Cardinal, 1; Dark-eyed Junco, 1; Red-tailed Hawk, +; Rough-legged Hawk, +; Marsh Hawk, +; Prairie Falcon, +; Great Horned Owl, +; Short-eared Owl, +; Com. Flicker, +; Red-bellied Woodpecker, +; Brown Creeper, +; Loggerhead Shrike, +; Field Sparrow, +; Harris Sparrow, +; Song Sparrow, +. **Average Total:** 44 birds (136/km², 55/100 acres). **Remarks:** Numbers of Tree Sparrows were up over the previous two counts but most other species and total birds were down. These low numbers may have been due to the very cold weather during the first half of January. — JANET MOYER, DWIGHT PLATT and CAROL SUE STAYROOK, *Dept. of Biology, Bethel College, North Newton, KS 67117.*

37. 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; 10 years **Size:** 12.5 ha = 31 acres. Steel tape and compass (rectangular). **Description of Area:** See AFN 21:659-661 (1967). **Weather:** During the 75-day study period the temperature was from -1° to 79°F; average, 37°. Greatest precipitation in the form of snow or sleet occurred Jan. 1 (1.2 in.), 8 (1.1 in.), 9 (3.6 in.), 22 (.5 in.); Feb. 2 (.6 in.), 3 (.5 in.), 23 (.2 in.), 25 (.9 in.), and 26 (1.5 in.). Average wind speed was 13.1 mph (data from Amarillo Air Terminal, approximately 18 mi N of study area).

Coverage: Dec 5, 12, Jan 16, 23, 30, Feb 6, 13, 20, 27 Total, 9 trips between 0800 and 1000 CST, averaging 120 min each. **Count:** Dark-eyed Junco, 41 (327, 132), Cedar Waxwing, 38 (303, 123); Am. Robin, 13 (104, 42); House Finch, 7 (56, 23); Am. Goldfinch, 7; Starling, 6 (48, 19); Cardinal, 6; White-crowned Sparrow, 5 (40, 16); Golden-fronted Woodpecker, 4 (32, 13), Bewick's Wren, 4; Black-crested Titmouse, 3 (24, 10), House Sparrow, 3; Rufous-sided Towhee, 3; Song Sparrow, 3; Com. Flicker, 2 (16, 6); Ladder-backed Woodpecker, 2; Com. Bushtit, 2; Am. Kestrel, 1 (8, 3), Bobwhite, 1; Scaled Quail, 1; Downy Woodpecker, 1, Long-billed Marsh Wren, 1; Mockingbird, 1; Townsend's Solitaire, 1; Pine Siskin, 1; Rufous-crowned Sparrow, 1; Sharp-shinned Hawk, +; Marsh Hawk, +, Mourning Dove, +; Belted Kingfisher, +; Brown Creeper, +; Cañon Wren, +; Rock Wren, +; Brown Thrasher, +; Curve-billed Thrasher, +; N. Shrike, +, Brown-headed Cowbird, +; Brown Towhee, +; Tree Sparrow, +; Field Sparrow, +. **Average Total:** 158 birds (1259/km², 510/100 acres). **Remarks:** The flicker, Golden-fronted Woodpecker, Ladder-backed Woodpecker, titmouse, Bewick's Wren, robin, Starling, Cardinal, goldfinch, Rufous-sided Towhee, junco, and Song Sparrow were seen on every trip, the Downy Woodpecker, Long-billed Marsh Wren, Mockingbird, House Sparrow, House Finch, and White-crowned Sparrow were seen on 8 trips, and the waxwing on 7 trips. Sharp-shinned Hawk, Marsh Hawk, Bobwhite, dove, kingfisher, bushtit, Rock Wren, Curve-billed Thrasher, shrike, cowbird, and Brown Towhee were seen only on 1 trip. — KENNETH D. SEYFFERT, 2206 S. Lipscomb St., Amarillo, TX 79109.

38. LIVE OAK - MESQUITE BRUSHLAND. — **Location:** Texas; Bexar Co., W. W. McAllister Park of San Antonio, formerly NE Preserve, 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 yds ESE of Jones-Maltsberger Rd. and 220 yds SSW of the fence. **Continuity:** Established 1967; 11 consecutive years. **Size:** 12.1 ha = 30 acres, based on survey stakes along the fence and measured outward 220 yds by steel tape **Description of Area:** See AFN 21:472 (1967). New housing covers the land to the W, across Jones-Maltsberger Rd. from the study area. There is no developing as yet along the N fence and little change in park usage. A stream of sewage effluent, 3 yds wide, crosses the area on a path about 400 yds long. The flow began in 1975 and is increasing with small pools this year. **Weather:** Rainy and cold season. Rainfall in October through January totaled 15.99 in., 8.26 in. above normal. Temperatures for this period averaged nearly 7°F below normal. **Coverage:** Dec. 27; Jan. 3, 18, 20-21, 25, 28, Feb 3-4. Total, 9 trips, averaging 114 min each, between 0820 and 1715 CST. **Count:** White-throated Sparrow, 31 (255, 103); Am. Robin, 28 (231, 93); Purple Finch, 9 (74, 30); Rufous-sided Towhee, 9; Am. Goldfinch, 7 (58, 23); Cardinal, 6 (49, 20); Lincoln's Sparrow, 5 (41, 17); Black-crested Titmouse, 4 (33, 13); Dark-eyed Junco, 4; Bewick's Wren, 3 (25, 10); Ruby-crowned Kinglet, 3; Carolina Chickadee, 2 (16, 7); Wood Duck, 1 (8, 3); Bobwhite, 1; Am. Woodcock, 1; Mourning Dove, 1; Carolina Wren, 1; Mockingbird, 1; Hermit Thrush, 1; Solitary Vireo, 1; Field Sparrow, 1, Fox Sparrow, 1; Great Blue Heron, +; Great Horned Owl,

+, Com Flicker, +, Golden-fronted Woodpecker, +, Yellow-bellied Sapsucker, +; Ladder-backed Woodpecker, +; E. Phoebe, +; Brown Creeper, +; House Wren, +; Winter Wren, +; Brown Thrasher, +; Long-billed Thrasher, +; Golden-crowned Kinglet, +; Starling, +; Orange-crowned Warbler, +; Yellow-rumped Warbler, +; Ovenbird, +; Pyrrhuloxia, +; Harris' Sparrow, +; Song Sparrow, +. **Average Total:** 121 birds (997/km², 403/100 acres). **Remarks:** 42 species. Highest number of species for the count; accomplished without hawks, vultures, and turkey which seem to be lost owing to housing developments. The average total was second to the average of 135 in 1975, another wet year. The averages for Am. Robin, Purple Finch and Dark-eyed Junco were high for the count. New birds were Great Blue Heron and Wood Duck, attracted by the stream, and the accidental Ovenbird. The Verdin was missed for the 3rd year after being recorded the first 8 years. No Verdin nest was noted. — STEVEN HAWKINS and JAMES A. MIDDLETON, (compiler), *San Antonio Audubon Society, San Antonio Garden Center, 3310 N. New Braunfels, San Antonio, TX 78209.*

39. PINYON-JUNIPER WOODLAND. — **Location:** Colorado; El Paso Co., 560 ft E of intersection of Garden of the Gods Dr. and Rampart Range Rd., then 500 ft. N to cul de sac in Cabin Canyon (Sec. 33, T13S, R67W). **Continuity:** New. **Size:** 10 ha = 24.71 acres; 317 × 317 m (1037.5 × 1037.5 ft), measured with a steel tape and compass bearing. **Description of Area:** The relative density of the four species of trees present is: Pinyon Pine (*Pinus edulis*), 57%; Red Cedar (*Juniperus scopulorum*), 12%; One-seed Juniper (*J. monosperma*), 16%; and Ponderosa Pine (*P. ponderosa*), 15%. East facing slopes have a higher density of trees than S facing slopes. Ponderosa Pine is in greatest abundance on south facing slopes. Line intercept method shows 34% of the ground is covered by two species of shrubs. Their relative dominance is Mountain-mahogany (*Cercocarpus montanus*), 53%, and Scrub Oak (*Quercus gambelii*), 47% (Harrington, H. D 1964. *Manual of the Plants of Colorado*, 2nd ed. The Swallow Press, Chicago). **Topography:** Rolling ridges and valleys. Elevation, 6280 to 6580 ft. Slopes face E and S. **Edge:** The plot is just inside Pike National Forest, bordered on the S by the Garden of the Gods, a large city park with relatively undisturbed vegetation. A dirt road is located 0.2 mi W. North and E are large expanses of similar habitat. **Weather:** During the 10-day study period the temperature was above freezing every day and below freezing every night. The range of temperature was from 7° to 62°F. Two in. of snow fell Dec. 24, but had melted by the Dec. 26 count. Skies clear and sunny on all counts except Dec. 24. (Temperatures from Peterson Air Force Base, 9.5 mi E at equal elevation). **Coverage:** Dec. 20, 22-24, 26-27, 29. Total, 10 trips on 7 days, all between 0857 and 1455, averaging 86 min each. **Count:** Dark-eyed Junco, 7 (70, 28); Scrub Jay, 4 (40, 16); Mountain Chickadee, 3 (30, 12); Townsend's Solitaire, 3; Black-capped Chickadee, 2 (20, 8); Com. Raven, 1 (10, 4); Pine Siskin, 1; Gray-headed Junco, 1; Com. Flicker, +; Plain Titmouse, +; White-breasted Nuthatch, +. **Average Total:** 22 birds (220/km², 89/100 acres). **Remarks:** The Dark-eyed Junco and Townsend's Solitaire were noted on every trip, and Scrub Jay on 7 trips. The Com. Raven was seen on 2 trips with 0.8 of the total observed in one group. One Downy Woodpecker, one Steller's Jay and

four groups of Pine Siskins were observed just off the plot. Five Black-billed Magpies were observed flying over the plot. — CHARLES A. SCHNEEBECK, *Div. of Life Sciences, Fullerton College, Fullerton, CA 92634.*

40. LOWER FOOTHILLS BRUSHLAND-GRASSLAND-CREEKBOTTOM ECOTONE. — **Location:** Colorado; Pulpit Rock City Park, Colorado Springs, El Paso County; 38°55'N, 104°48'W, Colorado Springs Quadrangle, USGS. **Continuity:** New. **Size:** 14.17 ha = 35 acres (measured from map); rectangular. **Description of Area:** The tract lies in an E-W intermittent-creek amphitheater N of Pulpit Rock in northern Colorado Springs. The dry, sandy creekbottom has a sparse scattering of Plains and Narrowleaf Cottonwoods (*Populus sargentii* and *P. angustifolia*), with some Snowberry (*Symphoricarpos occidentalis*), while the eroded creek-bottom slopes and intersecting ravines, with exposures of sedimentary rock (Dawson arkose), support scattered stands of brush, especially Gambel's Oak (*Quercus gambelii*), Mountain-mahogany (*Cercocarpus montanus*) on ridges, and Skunkbush (*Rhus trilobata*) in draws, with a dotting of Red Cedar (*Juniperus scopulorum*), Ponderosa Pine (*Pinus ponderosa*), and Pinyon Pine (*P. edulis*). Above the brushy slopes the land levels and becomes disclimax semiarid grassland dominated by Blue Grama (*Bouteloua gracilis*), with Bushy Buckwheat (*Eriogonum effusum*), Yucca (*Yucca glauca*), and Prickly-pear (*Opuntia* sp.). **Elevation:** 6240 to 6350 ft. **Edge:** The area ends on the W at a high railroad embankment, beyond which is a maze of highways; to the N and S the valley rises through semiarid grassland to sedimentary ridges openly covered with Ponderosa Pine; while to the E the sparsely wooded creekbottom continues, to end in a sedimentary box canyon. Beyond the broad sedimentary amphitheater, especially to the E, lies the densely developed urban sprawl of Colorado Springs. **Weather:** The period was somewhat milder and drier than normal, continuing a two-year drought pattern. Average temperature was about 35°F, with a range from -5° to 67°F. Snowfall totaled 13.6 in., but the water equivalent was only 0.72 in. The ground was generally clear of snow except in early January, early February, and early March. The intermittent creek was dry throughout the census period. **Coverage:** Jan. 7, 12, 19; Feb. 15, 27; Mar. 2, 12, 1976. Total, 7 trips, averaging 45 minutes, both morning and afternoon. **Count:** Dark-eyed (Oregon) Junco, 20 (141, 57); Scrub Jay, 7 (49, 20); Black-billed Magpie, 6 (42, 17); Am. Robin, 6; Rufous-sided Towhee, 4 (28, 11); House Finch, 2 (14, 6); Com. (Red-shafted) Flicker, 1 (7, 3); Downy Woodpecker, 1; Black-capped Chickadee, 1; Townsend's Solitaire, 1; Dark-eyed (Slate-colored) Junco, 1; Red-tailed Hawk, +; Mountain Chickadee, +; White-breasted Nuthatch, +; Dark-eyed (White-winged) Junco, +; Gray-headed Junco, +. **Average Total:** 50 birds (353/km², 143/100 acres). **Remarks:** Even though this area is separated from the main Front Range foothills by the broad valley of Monument Creek, the species encountered are essentially the same (See AB 30:1058, Bear Creek County Park; and AFN 22:494-496 [1968]). An earlier study carried out a few mi to the SE in ecologically similar Palmer Park (AFN 20:470-471 [1966]) was also similar, with the Oregon Junco dominant (57/100 acres). Of the 16 species and subspecies seen at Pulpit Rock, 14 were also recorded at Palmer Park; but in total species and subspecies Palmer Park had 21. Although attractive

to the eye, the Pulpit Rock valley supports less variety and density of birds than some other local foothills sites because of the lack of water, the sparseness of the deciduous woodland, the discontinuity of the brushland, and past overgrazing. Robins were first recorded in mid-February and were migratory, whereas at Bear Creek (AB 30:1058) robins were seen throughout the winter period, although numbers increased in late February. — RICHARD BEIDLEMAN (compiler), SALLY CARROLL, PEGGY LUBCHENCO, CHAR QUIST, and MARY STUART (Field Zoology Class), Dept. of Biology, Colorado College, Colorado Springs, CO 80903.

41. CREOSOTEBUSH DESERT SCRUB. — **Location:** Arizona; Maricopa Co., 1 mi E of Scottsdale; 33° 35'N 111° 52' 30"W, Sawik Mountain Quadrangle, USGS. **Continuity:** New. **Size:** 19.4 ha = 48 acres (1254 X 1672 ft, measured with compass and tape). **Description of Area:** The dominant plant is Creosotebush (*Larrea divaricata*), averaging 5 ft in height and spaced 5-20 ft apart. The dominant grass is *Schismus barbatus*. Approximately ¼ of the ground is bare. **Topography:** Flat. **Elevation:** 1380 ft. **Edge:** The plot is surrounded on all sides by similar habitat. **Weather:** The mean temperature for Feb. was 55.1°F and total precipitation was 0.6 in. **Coverage:** Feb. 7, 13-14, 22, 26-27. Total, 6 trips, between 0700 and 1700 hours, averaging 78 minutes. **Count:** Sage Thrasher, 10 (51, 21); Water Pipit, 3 (15, 6); Gambel's Quail, 2 (10, 4); Mourning Dove, 2; Yellow-rumped Warbler, 2; meadowlark sp., 2; Prairie Falcon, 1 (5, 2), Burrowing Owl, 1; Cactus Wren, 1; Loggerhead Shrike, 1; Black-throated Sparrow, 1; Sage Sparrow, 1; White-crowned Sparrow, 1; Red-tailed Hawk, +; Marsh Hawk, +; White-winged Dove, +; Com. Flicker, +; Rock Wren, +; Vesper Sparrow, +. **Average Total:** 28 birds (144/km², 58/100 acres). **Remarks:** Sage Thrashers were observed on all trips. Species found on only one trip were Gambel's Quail, White-winged Dove, Burrowing Owl, Com. Flicker, Rock Wren, Water Pipit, Vesper Sparrow and White-crowned Sparrow. — GRACE HOSTERMAN and RANDALL MADDING (compiler), Box 1614, Nogales, AZ 85621.

42. OAK-JUNIPER CANYON. — **Location:** Arizona; Santa Cruz Co., 1 mi NE of Nogales; 31° 20'N, 111° 55'W, Nogales Quadrangle, USGS. **Continuity:** New. **Size:** 14.6 ha = 36 acres (627 X 2508 ft, measured with a tape). **Description of Area:** Dominant trees are One-seed Juniper (*Juniperus monosperma*) and Emory Oak (*Quercus emoryi*). Shrubs are represented by Silk Tassel (*Garrya wrightii*), False Mesquite (*Calliandra eriophylla*), Rock-rose (*Cowania mexicana*), Yerba de pasmo (*Baccharis ramulosa*), Desert Broom (*Baccharis sarothroides*), *Rhus trilobata*, *Zinnia pumila*, *Mimosa dysocarpa*, and *Mimosa biuncifera*. The dominant grasses are *Bouteloua curtipendula*, *Panicum obtusum*, *Sporobolus cryptandrus*, *Bouteloua hirsuta*, *B. eriophylla*, *Muhlenbergia emersleyi*, *Phleum pratense* and *Setaria macrostachya* Beargrass (*Nolina microcarpa*), and *Agave palmeri* are also present. **Topography:** Gently rolling to steep hillsides bisected by a dry stream bed. **Elevation:** 3900 ft. **Edge:** Canyon surrounded by residential areas on the N, E and W sides, S boundary defined by a highway and sparsely vegetated hills. **Weather:** Jan. temperatures ranged from 19 to 71°F with 1.76 in. of rainfall. Feb. temperatures ranged from 18 to 84° with a trace of rainfall. **Coverage:** Jan. 23, 29 (twice), 30; Feb. 2, 5 (twice), 13

(twice), 19 (twice) Total, 11 trips, between 0900 and 1800 hours, averaging 115 minutes. **Count:** Great-tailed Grackle, 81 (556, 225); House Finch, 65 (446, 181), Mountain Bluebird, 41 (281, 114); Chipping Sparrow, 41; Gambel's Quail, 19 (130, 53); White-crowned Sparrow, 16 (110, 44); Mourning Dove, 8 (55, 22); Am. Robin, 8; Brown Towhee, 8; Mockingbird, 7 (48, 19); Brewer's Blackbird, 6 (41, 17); Pyrrhuloxia, 6; Cactus Wren, 5 (34, 14); Ruby-crowned Kinglet, 5; Rufous-crowned Sparrow, 4 (27, 11); Black-throated Sparrow, 4; Brewer's Sparrow, 4; Com. Flicker, 3 (21, 8); Gila Woodpecker, 3; raven sp., 3; Verdin, 3; Bewick's Wren, 3; House Sparrow, 3; Dark-eyed Junco, 3; Curve-billed Thrasher, 2 (14, 6), Sage Thrasher, 2; Cardinal, 2; Green-tailed Towhee, 2; Rock Dove, 1 (7, 3); White-winged Dove, 1; Inca Dove, 1, Ladder-backed Woodpecker, 1; Mexican Jay, 1; Bridled Titmouse, 1; Com. Bushtit, 1; White-breasted Nuthatch, 1; Swainson's Thrush, 1; Savannah Sparrow, 1; Vesper Sparrow, 1; Rufous-winged Sparrow, 1; Lincoln's Sparrow, 1; Cooper's Hawk, +; Red-tailed Hawk, +; Marsh Hawk, +; Band-tailed Pigeon, +; Roadrunner, +; Screech Owl, +; Broad-billed Hummingbird, +; Ash-throated Flycatcher, +; Say's Phoebe, +; *Empidonax* sp., +; Brown Creeper, +; House Wren, +; W. Bluebird, +; Townsend's Solitaire, +; gnatcatcher sp., +; Phainopepla, +; Loggerhead Shrike, +; Rufous-sided Towhee, +; Lark Sparrow, +; Mexican Junco, +; Black-chinned Sparrow, +; White-throated Sparrow, +; Song Sparrow, +. **Average Total:** 370 birds (2540/km², 1028/100 acres) **Remarks:** The compiler's residence is adjacent to the plot and several feeders are maintained. — JOHN BACHE-WIIG (compiler), JOHN BELL and RANDALL MADDING, Box 1614, Nogales, AZ 85621.

43. PALOVERDE DESERT SCRUB. — **Location:** Arizona; Maricopa Co., 3 mi E of Scottsdale; 33° 35'N, 111° 50'W, Sawik Mountain Quadrangle, USGS. **Continuity:** New. **Size:** 12.17 ha = 30.1 acres (1045 X 1254 ft, measured with a compass and tape). **Description of Area:** Dominant plants are Yellow Paloverde (*Cercidium microphyllum*) and Ironwood (*Olneya tesota*). Other plants in the plot are Creosotebush (*Larrea divaricata*), Jojoba (*Simmondsia chinensis*), Wolfberry (*Lycium* sp.), Bitterbush (*Encelia farinosa*), Bursage (*Ambrosia* sp.), Indian Paint Brush (*Castilleja linariaefolia*), Mistletoe (*Phoradendron californicum*), Saguaro (*Cereus giganteus*), Barrel Cactus (*Ferocactus* sp.), and Cholla (*Opuntia* sp.). Approximately ¼ of the ground is bare. **Topography:** Flat. **Elevation:** 1530 ft. **Edge:** The plot is surrounded on all sides by similar habitat. **Weather:** Jan temperatures averaged 51.2°F with 0.71 in. of precipitation; Feb. temperatures averaged 55.1° with 0.6 in. of precipitation. **Coverage:** Jan. 16-17, 19; Feb. 6-7, 10, 14 Total, 7 trips, between 0800 and 1400, averaging 124 minutes. **Count:** W. Bluebird, 6 (49, 20); Gambel's Quail, 3 (25, 10); Verdin, 2 (16, 7); Black-tailed Gnatcatcher, 2; Ruby-crowned Kinglet, 2; Phainopepla, 2, Black-throated Sparrow, 2; White-crowned Sparrow, 2, Mourning Dove, 1 (8, 3); Costa's Hummingbird, 1; Com. Flicker, 1; Gila Woodpecker, 1; Red-tailed Hawk, +, Bewick's Wren, +; Cactus Wren, +; Mockingbird, +, Curve-billed Thrasher, +; Crissal Thrasher, +; House Finch, +. **Average Total:** 25 birds (205/km², 83/100 acres). **Remarks:** The following species were observed on all trips: Verdin, Black-tailed Gnatcatcher, Ruby-crowned Kinglet, Phainopepla, and Com. Flicker. Species observed on only one census were: Gambel's

Quail, Red-tailed Hawk, Cactus Wren, Curve-billed Thrasher, Crissal Thrasher and House Finch. —*GRACE HOSTERMAN and RANDALL MADDING (compiler), Box 1614, Nogales, AZ 85621.*

44. MESQUITE BRUSHLAND. — **Location:** Arizona; Santa Cruz County, 1 mi W of Nogales; 31° 20' N, 111° 57' W, Nogales Quadrangle, USGS. **Continuity:** New. **Size:** 10.15 ha = 25.07 acres (1045 × 1045 ft, measured with tape). **Description of Area:** The dominant tree is Honey Mesquite (*Prosopis juliflora*). Shrubs found in the plot are Graythorn (*Condalia lycoides*), *Hymenoclea monogyra*, Desert Willow (*Chilopsis linearis*), Desert Broom (*Baccharis sarothroides*), and Wait-a-minute Bush (*Mimosa biuncifera*). Dominant grasses are *Sporobolus airoides*, *Andropogon* sp., *Setaria* sp., *Aristida* sp., *Chloris virgata*, and *Bouteloua curtipendula*. **Topography:** Flat. **Elevation:** 3780 ft. **Edge:** The plot is located in a grassy valley bordered on the E and W sides by hills sparsely covered with mesquite and various grasses, N by similar habitat and a highway and S by grassland. **Weather:** Jan. temperatures ranged from 19 to 71°F with 1.76 in of rainfall; Feb. temperatures ranged from 18 to 84°F with a trace of rainfall. **Coverage:** Jan. 20-24, 26, 31; Feb. 2-3, 6. Total, 10 trips, between 0930 and 1730 hours, averaging 50 min. **Count:** Chipping Sparrow, 88 (867, 351), Lark Sparrow, 24 (237, 96); Vesper Sparrow, 11 (108, 44); Mourning Dove, 7 (69, 28); Gambel's Quail, 3 (30, 12); meadowlark sp., 3; House Finch, 2 (20, 8); Say's Phoebe, 1 (10, 4); House Sparrow, 1; Brown Towhee, 1; Brewer's Sparrow, 1; Sharp-shinned Hawk, +; Mexican Jay, +; Bridled Titmouse, +; Verdin, +; Bewick's Wren, +, Ruby-crowned Kinglet, +; Loggerhead Shrike, +. **Average Total:** 142 birds (1400/km², 566/100 acres). **Remarks:** Chipping Sparrows and Mourning Doves were observed on all visits. Large flocks of Chipping Sparrows and Lark Sparrows were encountered on the morning censuses. — *JOHN BACHE-WIIG, JOHN BELL and RANDALL MADDING (compiler), Box 1614, Nogales, AZ 85621.*

45. GRASSLAND AIRPORT. — **Location:** Arizona; Santa Cruz County, 1 mi W of Nogales; 31° 20' N, 111° 57' W, Nogales Quadrangle, USGS. **Continuity:** New. **Size:** 4.9 ha = 12 acres (418 × 1254 ft, measured with a tape). **Description of Area:** The dominant grasses are *Bouteloua curtipendula*, *Chloris virgata*, *Leptochloa dubia*, *Sporobolus airoides*, *Aristida* sp., *Andropogon* sp., *Sporobolus cryptandrus*, *Eragrostis* sp., and *Panicum* sp. Various trees and shrubs in the plot are Honey Mesquite (*Prosopis juliflora*), Desert Broom (*Baccharis sarothroides*), Wait-a-minute Bush (*Mimosa biuncifera*), Desert Willow (*Chilopsis linearis*), Bulb Panicum (*Eriogonum obtusum*), and Squawberry (*Lycium berlandieri*). **Topography:** Flat. **Elevation:** 3780 ft. **Edge:** Grassy valley containing an abandoned airstrip and bordered on the E and W sides by hills sparsely vegetated by mesquite and grasses, S by similar habitat and N by mesquite brushland. **Weather:** Jan. temperatures ranged from 19 to 71°F with 1.76 in. of rainfall; Feb. temperatures ranged from 18 to 84° with a trace of rainfall. **Coverage:** Jan. 20, 24, 26, 31; Feb. 2-3, 6. Total, 10 trips, between 0830 and 1730 averaging 52 minutes. **Count:** Vesper Sparrow, 59 (1215, 492); White-crowned Sparrow, 25 (515, 208); Brewer's Sparrow, 24 (494, 200); meadowlark sp., 17 (350, 142); House Finch, 9 (185, 75); Chipping

Sparrow, 5 (103, 42), Lark Sparrow, 4 (82, 33), Gambel's Quail, 2 (41, 17); Mourning Dove, 2; Savannah Sparrow, 2; Mexican Jay, 1 (21, 8); Lark Bunting, 1; Sharp-shinned Hawk, +; Red-tailed Hawk, +; Am. Kestrel, +, White-winged Dove, +; Say's Phoebe, +; raven sp., +, Bewick's Wren, +; Loggerhead Shrike, +; Brown Towhee, +; Lincoln's Sparrow, +. **Average Total:** 151 birds (3109/km², 1258/100 acres). **Remarks:** The following species were seen on all trips: meadowlark, Vesper Sparrow, Brewer's Sparrow, and White-crowned Sparrow — *JOHN BACHE-WIIG, JOHN BELL (compiler), and RANDALL MADDING, Box 1614, Nogales, AZ 85621*

46. UNDISTURBED COASTAL SAGE SCRUB. — **Location:** California; Rolling Hills Estates, Los Angeles Co.; N corner of intersection of Crest Rd. and Hawthorne Blvd., the easternmost extension of Agua Amarga Canyon; 33° 46' N, 118° 24' W, Redondo Beach Quadrangle, USGS. **Continuity:** New. **Size:** 14.9 ha = 36.8 acres (roughly rectangular 680 × 2300 ft minus a triangular area of 3.9 acres, plus an adjacent square 442 × 473 ft, measured by tape and car odometer). **Description of Area:** A steep, densely foliated canyon that levels out as one moves eastward. To the S, there is a flat field that drops off into the canyon. The northern border of the canyon is a hill that levels off into undulating grasslands. The principal plant on the study plot was California Sagebrush (*Artemisia californica*). Sweet Fennel (*Foeniculum vulgare*) was the second most abundant plant, increasing in abundance in the E part of the canyon. On N canyon walls, mixed with various shrubs, was Prickly-Pear Cactus (*Opuntia littoralis*). Ground cover included annuals and grasses such as Black Mustard (*Brassica nigra*) and Slender Wild Oat (*Avena barbata*). **Topography:** Elevation ranges from 900 to 1100 ft. **Edge:** The canyon is part of a much bigger grassland field, the SE part of which is plowed. The entire field is surrounded by residential areas. **Water:** No running water but previous storms had formed a pond in the W extreme of the canyon. The pond was continuously shrinking owing to evaporation. Heavy dew formed on the plants some mornings. **Weather:** Clear on all study days. No measurable rain during the study, although there were storms both before and after. The temperature ranged from an average high of 70° to an average low of 46°F (Temperatures from local newspaper). **Coverage:** Jan. 11 (twice), 12 (twice), 13-14, 16-17, 18-20. Total, 11 trips, averaging 120 min. each, between 0900 and 1300, except 2 trips between 1530 and 1720. **Count:** House Finch, 6 (40, 16); White-crowned Sparrow, 4 (27, 11); Mourning Dove, 2 (13, 5); Anna's Hummingbird, 2; Loggerhead Shrike, 2; Brown Towhee, 2, Song Sparrow, 2; Green-winged Teal, 1 (7, 3); Am. Kestrel, 1, Ring-necked Pheasant, 1; Com. Bushtit, 1; Mockingbird, 1; Black-tailed Gnatcatcher, 1; Rufous-sided Towhee, 1; White-tailed Kite, +; Red-tailed Hawk, +; Short-eared Owl, +; Allen's Hummingbird, +; Black Phoebe, +; Com. Raven, +; Cactus Wren, +; Bewick's Wren, +, Golden-crowned Sparrow, +. **Average Total:** 27 birds (181/km², 73/100 acres). **Remarks:** The White-tailed Kite, Short-eared Owl, Allen's Hummingbird, Black Phoebe, Cactus Wren, Bewick's Wren and Golden-crowned Sparrows were observed only once. A group of five Com. Ravens was also observed only once. Two Male Green-winged Teal were observed, Jan. 14-20. The Am Kestrel was often perched on the same fence post. Pellets were found below this perch. Two W. Meadowlarks were

in the grassland adjacent to the plot. On Feb. 7, much of this site was destroyed to build townhouses. — **RONALD H MATSON** (California State Univ., Long Beach), 20502 Wayne Ave., Torrance, CA 90503.

47. SLOPING GRASSLAND — **Location:** California; Orange Co., 7 mi E of San Juan Capistrano, National Audubon Society's Starr Ranch Sanctuary; E side of N. Preusker Rd., ½ mi from Bell Canyon, 33°30'N, 117°31'W, Canada Gobernadora Quadrangle, USGS. **Continuity:** New. **Size:** 9.3 ha = 23 acres (irregular shaped area, measured with steel tape). **Description of Area:** Grasses of the genera *Stipa*, *Avena*, *Bromus* and *Hordeum* cover approximately 85% of the area. The remaining portion is covered by California Sagebrush (*Artemisia californica*) and White Sage (*Salvia apiana*) 8%, Prickly Pear Cactus (*Opuntia* sp.) 2% and Stout Thistle (*Cynara cardunculus*) 5%. Two Coast Live Oak trees (*Quercus agrifolia*) are located in the middle of the area. As a whole the grasses are very dense and average about 2 ft in height. New growth is mixed with dry dead grass. The cactus and sage are aggregated in specific areas, not randomly dispersed. The thistle is also aggregated in a specific area, but mixed with grasses and sage. At least 8 years have passed since cattle grazed the area. **Topography:** The study plot slopes about 45° and faces NW. Three natural drainage ditches are present. Elevation 800 ft. **Edge:** Grasses border the N edge, while Prickly Pear Cactus borders the E edge. The S edge is bordered by oak-sycamore woods. Tobacco Tree (*Nicotiana glauca*) borders the NW edge. A road is adjacent to the SW and NW edges. **Water:** The nearest water supply is a slow moving stream ½ mi W. **Food:** Grass seeds from previous growing seasons were found throughout the area. Also, a thin litter layer contained larval and mature insects. House Finches fed on thistle seeds. Hummingbirds fed upon the flowering Tobacco Tree plants. **Weather:** Unseasonably warm weather prevailed during the eight days of the study. The temperature range was 37° to 80°F. Jan. 16-18 warm Santa Ana winds blew most of the day. Two weeks prior to the study 5 in. of rain fell. A trace of precipitation fell on the last day of the survey. (Temperatures from Starr Ranch Sanctuary.) **Coverage:** Jan 13-16, 20. Total, 10 trips; 5 between 0900 and 1100 and 5 between 1430 and 1630. Average time, 70 min. per trip. **Count:** White-crowned Sparrow, 9 (97, 39); Brown Towhee, 7 (75, 30); Savannah Sparrow, 3 (32, 13); Scrub Jay, 2 (21, 9); Mockingbird, 2; W. Meadowlark, 2; Rufous-crowned Sparrow, 2; Anna's Hummingbird, 1 (11, 4); Com. Flicker, 1; Say's Phoebe, 1; Com. Raven, 1; House Finch, 1; Turkey Vulture, +; White-tailed Kite, +; Mourning Dove, +; Com. Crow, +; Song Sparrow, +. **Average Total:** 32 birds (344/km², 139/100 acres). **Remarks:** The W. Meadowlark, White-crowned Sparrow, Brown Towhee and a single Say's Phoebe were seen all trips, the Mockingbird on 8 trips; Anna's Hummingbird, Rufous-crowned Sparrow and flicker on 6 trips. The 5 least abundant species were seen only once. The Brown Towhee and flicker were in sage areas. The Scrub Jay was associated with the Coast Live Oak trees on the study plot. — **THOMAS E. LaROCQUE**, California State Univ., Long Beach, 2502 Del Amo Blvd., Lakewood, CA 90712.

48. COAST LIVE OAK RIPARIAN WOODLAND. — **Location:** California; Orange Co., Starr Ranch

Audubon Sanctuary, in Crow Canyon, 5.5 mi SE of Trabuco Oaks P. O.; 33°35'30"N, 117°34'W, Canada Gobernadora Quadrangle, USGS. **Continuity:** New. **Size:** 6.9 ha = 17.0 acres (irregular 100m x 687m, measured with tape and compass). **Description of Area:** Part of a continuous riparian woodland growing along a stream in the bottom of Crow Canyon. About 5% of the study area is covered by forest canopy, mostly Coast Live Oak (*Quercus agrifolia*) and a few sycamore (*Platanus racemosa*). Principal shrubs in order of relative frequency are Laurel Sumac (*Rhus laurina*), California Sagebrush (*Artemisia californica*), White Sage (*Salvia apiana*), Black Sage (*S. mellifera*), Prickly Pear Cactus (*Opuntia* sp.), Elderberry (*Sambucus mexicana*) and Lemonadeberry (*Rhus integrifolia*). Willow (*Salix*) and Mulefat (*Baccharis* sp.) are found along and in the streambed. **Topography:** Flat. **Elevation:** 850 ft. **Edge:** Continuous riparian woodland borders the study area to N and S. Scattered growths of California Sagebrush, White Sage, Laurel Sumac and Coast Live Oak partially continue up the adjacent slopes. **Water:** A small stream flows along the canyon bottom but was dry at the time of the census. There are small springs near the N end of the study area. **Food:** Abundant insects among the floor litter and a few seeds and acorns remain. **Weather:** Maximum and minimum temperatures during the census were 76° and 40°F, respectively. Rainfall during the period measured 0.03 inches. (Weather data from Robert Lovelace, Starr Ranch Audubon Sanctuary, 3 mi N of Crow Canyon). **Coverage:** Jan. 19, 22, 23 (2), 24, 29, 30 (2). Total, 8 trips between 0800 and 1200 or 1500 and 1700 hrs. PST. Average time per trip was 1½ hrs. **Count:** Yellow-rumped Warbler, 11 (160, 65); Plain Titmouse, 7 (102, 41); Brown Towhee, 7; Ruby-crowned Kinglet, 5 (73, 29); Scrub Jay, 4 (58, 24); Com. Bushtit, 4; Lesser Goldfinch, 4; Acorn Woodpecker, 3 (44, 18); Rufous-sided Towhee, 3; Dark-eyed Junco, 3; Com. Flicker, 2 (29, 12); Bewick's Wren, 2; Red-tailed Hawk, 1 (14, 6); Barn Owl, 1; Anna's Hummingbird, 1; Nuttall's Woodpecker, 1; White-breasted Nuthatch, 1; Wrentit, 1, Hermit Thrush, 1; Purple Finch, 1; Cooper's Hawk, +, Am Kestrel, +; Mountain Chickadee, +; Starling, +; Hutton's Vireo, +; Orange-crowned Warbler, +; Song Sparrow, +. **Average Total:** 63 birds (916/km², 371/100 acres). **Remarks:** Species total, 27. This plot adjoins to the E an earlier study plot (Bontrager, 1974, AB 28 1035-1036) and is 1.6 mi N of the 1977 plot of Flanagan and Gundy. Fewer species were observed during afternoon counts. Lesser Goldfinch was not seen until the last day of the count. Golden Eagle was seen over the slopes adjacent to the study plot. Barn Owl was seen roosting in the same tree on four counts. A few sycamores are being used for acorn storage by Acorn Woodpeckers. California Thrashers were heard on adjacent slopes but none were found on study area. Wrentits were seen on the outer edges of the study area but never along the canyon center. — **JULIA NAGATA**, (Dept. of Biology, California State Univ., Long Beach), 857 E. 92nd St., Los Angeles, CA 90008.

49. SYCAMORE - COAST LIVE OAK RIPARIAN WOODLAND. — **Location:** California; On Starr Ranch Audubon Sanctuary, Orange Co., in Bell Canyon (Sect 36, T6S, R7W), 5 mi North of entrance to Ronald W Caspers Regional Park; Canada Gobernadora Quadrangle, USGS. **Continuity:** New. **Size:** 6.8 ha = 16.8 acres, roughly rectangular, 575 x 1680 ft in extreme dimen-

sions, with long sides approximately N-S, directions determined with hand-held compass, measured with steel tape. **Description of Area:** Canyon-bottom riparian woodland with an intermittent stream cutting through the plot in N-S direction; water usually present after the first heavy rains of the season and remains through mid-July, a N-S dirt road also runs more or less through the middle of the plot. Dominant canopy trees averaging 48 ft and providing about 62% coverage are Coast Live Oak (*Quercus agrifolia*), 65%, and California Sycamore (*Platanus racemosa*), 12%; dead trees, 20%, and White Alder (*Alnus rhombifolia*), 2%, are also present. Most prominent in the understory are young Coast Live Oak, Lemonadeberry (*Rhus integrifolia*) and California Sagebrush (*Artemisia californica*); Redberry (*Rhamnus crocea*) and Laurel Sumac (*Rhus laurina*) are distributed through the area, and in some places there is a great deal of Poison Oak (*Toxicodendron diversilobum*). Along the streambed is considerable Mulefat (*Baccharis glutinosa*) and some Willow (*Salix* sp.). The ground cover, averaging about 80%, consists primarily of a thick growth of various unidentified grasses; in addition there is a heavy mat of relatively undisturbed fallen oak and sycamore leaves. **Edge:** Bordered E and W by more or less gentle grass-covered slopes with scattered growths of California Sagebrush, White Sage (*Salvia apiana*), Laurel Sumac, Prickly Pear Cactus (*Opuntia* sp.) and Wild Buckwheat (*Eriogonum fasciculatum*); bordered to the N and S by contiguous riparian woodland. (Plant names from Munz, *A California Flora*, 1959.) **Topography:** Flat canyon bottom. Elevation: 740 ft. **Water:** During the period of the study water was flowing in the stream through the plot but disappeared underground about one-half mile S. **Food:** A moderate crop of acorns this year and a good growth of seeds on sycamores and shrubs; much dead wood, both standing and down, contains many insects, as does the accumulation of fallen leaves. **Weather:** During the study period minimum temperatures ranged from 38° to 52°F., averaging 43°, and maximum temperatures ranged from 60° to 78°F., averaging 70°; most days were clear or had a few high clouds; rain occurred on two days with a total of 0.10 in. (Weather data from instruments 2 mi N.) **Coverage:** Jan. 19 (2 trips), 23, 26, 28-29, Feb. 4, 6, 8, 10. Total, 10 trips, 9 between 0800 and 1050, and 1 between 1430 and 1625, averaging 138 min each. **Count:** Lesser Goldfinch, 28 (412, 167); Starling, 16 (235, 95); Plain Titmouse, 9 (132, 54); Brown Towhee, 8 (118, 48); Acorn Woodpecker, 7 (103, 42); Com. Bushtit, 6 (88, 36); Ruby-crowned Kinglet, 6; Yellow-rumped Warbler, 6; Com. Flicker, 3 (44, 18); Scrub Jay, 3; Bewick's Wren, 3; California Quail, 2 (29, 12); Nuttall's Woodpecker, 2; White-breasted Nuthatch, 2; Wren, 2; Rufous-sided Towhee, 2; Red-shouldered Hawk, 1 (15, 6); Anna's Hummingbird, 1; W. Bluebird, 1; Hutton's Vireo, 1; Orange-crowned Warbler, 1; Purple Finch, 1; Song Sparrow, 1; Cooper's Hawk, +; Am. Kestrel, +; Great Horned Owl, +; Hermit Thrush, +; House Finch, +; Rufous-crowned Sparrow, +; White-crowned Sparrow, +. **Average Total:** 112 birds (1647/km², 667/100 acres). **Remarks:** Species seen on all 10 trips: Com. Flicker, Acorn Woodpecker, Plain Titmouse, White-breasted Nuthatch, Bewick's Wren, Ruby-crowned Kinglet, Starling, Yellow-rumped Warbler, Lesser Goldfinch, Rufous-sided Towhee, and Brown Towhee; seen on 9 trips, Scrub Jay; on 8 trips, Anna's Hummingbird and Nuttall's Woodpecker. Am.

Kestrel, California Quail and White-crowned Sparrow were seen on 2 trips; Cooper's Hawk, Hermit Thrush and House Finch on one. On 3 trips a single Red-tailed Hawk circled over the plot and on 2 additional trips, a pair did so; a pair nested on the plot in the spring of 1976. It is not known whether the warm, clear weather during the count period may have encouraged the movement of birds to the plot which normally would have been elsewhere. — *BOB and RUTH LOVELESS, P.O. Box 157, San Juan Capistrano, CA 92675.*

50. SYCAMORE - COAST LIVE OAK RIPARIAN WOODLAND. — **Location:** California; At the base of Holy Jim Canyon road, next to NE corner of O'Neil Park, Orange Co.; 33°39'35"N, 117°35'12"W, Santiago Peak Quadrangle, USGS. **Continuity:** New. **Size:** 7.9 ha = 19.52 acres. **Description of Area:** Mainly riparian woodland with some plants that are indicative of coastal sage scrub. The principal trees are California Sycamore (*Platanus racemosa*) and Coast Live Oak (*Quercus agrifolia*), which both had a crown cover of about 5%. The principal shrubs are California Sagebrush (*Artemisia californica*) (20% crown cover), Laurel Sumac (*Rhus laurina*) (15%), Prickly Pear Cactus (*Opuntia* sp.) (15%), California Buckwheat (*Eriogonum fasciculatum*) (3%), Scale Broom (*Lepidospartum squamatum*) (3%), Black Sage (*Salvia mellifera*) (3%), White Sage (*S. apiana*) (3%), and an open area of 20%. The E side is bordered by oak woodland. The N, W and S borders are riparian woodland. **Food:** Acorns were carried off and stored by the Scrub Jays. Many birds fed on the dried fruits and seeds of Laurel Sumac and the fruits of the Prickly Pear. **Weather:** Temperature varied from 55° to 75°F. Jan. 1, 2, and 3 there was moderate rain. **Coverage:** Dec. 29-31, Jan. 1-3, 22-25. Total, 10 trips between 0800 and 1200, average time per trip was 75 min. **Count:** Yellow-rumped Warbler, 22 (278, 113); California Quail, 12 (152, 61), Scrub Jay, 12; Brown Towhee, 12; White-crowned Sparrow, 4 (51, 20); Rufous-sided Towhee, 3 (38, 15); Anna's Hummingbird, 2 (25, 10); Wren, 2; Mockingbird, 2; California Thrasher, 2; Golden-crowned Sparrow, 2; Com. Flicker, 1 (13, 5); Nuttall's Woodpecker, 1; Acorn Woodpecker, 1; Red-tailed Hawk, +; Hermit Thrush, +; Ruby-crowned Kinglet, +. **Average Total:** 78 birds (987/km², 400/100 acres). **Remarks:** The Yellow-rumped Warbler averaged 20 birds per trip for the first 6 trips, but dropped to 5 birds per trip on the last 4 trips. — *JAMES R. BRYAN (California State Univ., Fullerton), 3136 Yorba Linda Blvd., Apt. G-8, Fullerton, CA 92631*

51. SYCAMORE - COAST LIVE OAK RIPARIAN WOODLAND. — **Location:** California; Orange Co., on the Ronald W. Caspers Regional Park in Bell Canyon, 6.1 mi SE of Trabuco Oaks P.O.; 33°35'33"N, 117°34'W, Canada Gobernadora Quadrangle, USGS. **Continuity:** New. **Size:** 6.1 ha = 15 acres (rectangular, 101 m × 604 m = 330 × 1980 ft; measured with tape). **Description of Area:** See AB 28:1035-1036. Typical canyon-bottom riparian woodland, mostly closed canopy of California Sycamore (*Platanus racemosa*), and Coast Live Oak (*Quercus agrifolia*) with about 20% open grassy area. Understory shrubs in order of relative frequency are California Sagebrush (*Artemisia californica*), Black Sage (*Salvia mellifera*), Prickly Pear (*Opuntia* sp.), Mulefat (*Baccharis* sp.), White Sage (*Salvia apiana*), California Buckwheat (*Eriogonum fasciculatum*), Laurel Sumac

(*Rhus laurina*) A stream, approximately 75 ft wide which runs occasionally after the December rains but not at all during this survey, transects the plot. Discontinuous clumps of Mulefat grow along the stream bank and in the bed. **Food:** Plants providing seeds are the sycamore, Coast Live Oak, California Buckwheat, and miscellaneous shrubs. Tobacco Tree (*Nicotiana glauca*) was blooming and provided a source of nectar for hummingbirds. **Water:** No running water on plot but rain collected in natural bowls of oaks can be used for drinking and bathing. **Edge:** Bordered to the E by a slope covered with the same typical coastal sage plants. On the W is a dirt road and then a gentle grass-covered slope which gradually steepens to a 75 ft wall covered with Laurel Sumac and oak. Contiguous riparian woodland lies to the N and S. This area is 1.6 mi S of that described in AB 28. **Topography:** Flat. **Elevation:** 520 ft. **Weather:** During the survey the temperature range was 43° to 67°F. The skies were generally clear. There was 0.03 in. of rain. **Coverage:** 12 surveys, Jan. 15-16, 21-23, 28-30. Average time per survey was 121 min. The surveys were conducted 0900-1100 (6) and 1445-1700 (6). **Count:** Lesser Goldfinch, 21 (346, 140); Yellow-rumped Warbler, 8 (132, 53); Acorn Woodpecker, 6 (99, 40); Brown Towhee, 6; Scrub Jay, 5 (82, 33); Starling, 4 (66, 27); Plain Titmouse, 3 (49, 20); Com. Bushtit, 3; Rufous-sided Towhee, 3; House Finch, 2 (33, 13); Am. Kestrel, 1 (16, 7); Com. Flicker, 1; Nuttall's Woodpecker, 1; Wrentit, 1; W. Bluebird, 1; Ruby-crowned Kinglet, 1; Dark-eyed Junco, 1; Red-tailed Hawk, +; Red-shouldered Hawk, +; Golden Eagle, +; Rock Dove, +; Mourning Dove, +; Anna's Hummingbird, +; Yellow-bellied Sapsucker, +; Say's Phoebe, +; Com. Raven, +; Com. Crow, +; White-breasted Nuthatch, +; Bewick's Wren, +; California Thrasher, +; Hermit Thrush, +; Orange-crowned Warbler, +; Rufous-crowned Sparrow, +; White-crowned Sparrow, +. **Average Total:** 68 birds (1120/km², 453/100 acres) **Remarks:** The Golden Eagle was seen flying over the plot on 3 occasions. There were 4 sightings of Red-tailed Hawks perching on the plot and 7 flying over. Cactus Wrens were heard on 7 occasions just off the plot. — PATRICIA A. FLANAGAN, THOMAS GUNDY, (California State Univ.), 2412 E. 6th St., #2, Long Beach, CA 90814.

52. OLD FIELD RETURNING TO CREOSOTE BUSH SCRUB. — **Location:** California; S of Hwy 62 on Big Morongo Wildlife Reserve in Morongo Valley, San Bernardino Co., 34°03' N, 116°34' W. **Continuity:** New. **Size:** 8.1 ha = 20.02 acres (rectangular, 270 x 300, m, measured by transit and tape). **Description of Area:** An old field that is in several stages of succession from bare ground, 25%; to Coastal Heron's Bill (*Erodium cicutarium*), 25%; to Russian Thistle (*Salsola kali*), 5%; through Alkali Goldenbush (*Haplopappus acradenioides eremophilus*), 30%; to the climax species Creosote Bush (*Larrea tridentata*), 15%. **Topography:** Flat at 2600 ft elevation. **Edge:** To the N and E is an old stand of Creosote Bush. to the W is a paved road and a field of Alkali Goldenbush. To the S are about 15 additional acres of Alkali Goldenbush adjoining approximately 70 acres of cottonwoods. **Water:** About 1000 yds to the S are 2 small ponds. **Food:** There was a large crop of Russian Thistle and Alkali Goldenbush seeds. **Weather:** During the 10-day study period the temperature ranged from 32° to 64°F (Temperatures from Morongo Valley Community

Services District office 0.25 mi W) **Coverage:** Jan 22-25, 27-28, 30-31. Total: 10 trips, 8 between 0830 and 0930, 2 between 1600 and 1700, averaging 50 min each. **Count:** White-crowned Sparrow, 62 (765, 310); Gambel's Quail, 7 (86, 35); W. Bluebird, 3 (37, 15); House Finch, 3; Turkey Vulture, 1 (12, 5); Say's Phoebe, 1; Com. Bushtit, 1; Ruby-crowned Kinglet, 1; Starling, 1; Yellow-rumped Warbler, 1; W. Meadowlark, 1; Cooper's Hawk, +; Red-tailed Hawk, +; Prairie Falcon, +; Am. Kestrel, +; Roadrunner, +; Verdin, +; Loggerhead Shrike, +. **Average Total:** 82 birds (1012/km², 410/100 acres) **Remarks:** White-crowned Sparrows were seen on every trip, House Finches on 6 trips; W. Bluebirds, Say's Phoebe, and Gambel's Quail on 5 trips. The Cooper's and Red-tailed Hawks, Turkey Vultures, Verdin, bush-tits, Roadrunner, and W. Meadowlarks were seen only once. This site is part of a plant succession and animal population study. During the period of June to August 1976 the site contained 50% Russian Thistle. Merriam Kangaroo Rats and Deer Mice are the dominant mammal species on the site; Side-blotched and California Whiptail Lizards were also abundant. — DOUGLAS L WILSON, (California State Univ., Long Beach), P O Box 695, Morongo Valley, CA 92256.

53. DISTURBED COASTAL SAGE. — **Location:** California; Palos Verdes Peninsula, Los Angeles Co., 1 mi E of Forestal Dr., ¼ mi W of Peppertree Dr., ½ mi N of Palos Verdes Dr. S; 35°51' N, 118°21' 58" W, San Pedro Quadrangle, USGS (Sec. 17, T5S, R14W). **Continuity:** New. **Size:** 9.2 ha = 22.7 acres (roughly rectangular 440 × 250 yds, paced). **Description of Area:** This entire south-facing area was completely burned in June, 1973. Vegetation consists of groups of small shrubs and herbaceous plants growing sporadically throughout the area. The uneven distribution is accentuated by "slide" conditions throughout the plot. The estimated percentage of vegetation is 55%; Coyote Bush (*Baccharis pilularis*), 20%; Peppertree (*Schinus molle*), 10%; *Acacia* sp., 5%; Caster Bean (*Ricinus communis*), 3%; *Opuntia* sp., 2%; Wild Mustard (*Brassica campestris*), 1%; Tobacco Tree Plant (*Nicotiana glauca*), and 4%; Lemonadeberry (*Rhus integrifolia*), Bladder Pod (*Isomeris arborea*), and Black Sage (*Salvia mellifera*). The plot includes a small field under cultivation in the SW corner, 2 larger fallow fields to the NW, a barn near the SW field, and archery facilities in the SE section. **Topography:** Sloping, terraced hillside with highest elevation 400 ft. **Edge:** Bounded W and E by similar sage habitat, N by rocky hillside, and S by plowed fields in active use. **Water:** Cultivated fields are irrigated regularly. **Weather:** Fair most of the month. Temperatures ranged from 64 to 76°F; medium to light rainfall 6 days in January. **Coverage:** Jan. 2, 9, 15-16, 18-19, 20, 22. Four trips between 0830 and 1140 and 4 between 1430 and 1630, averaging 120 min. **Count:** White-crowned Sparrow, 31 (337, 137); House Finch, 12 (31, 53); Brown Towhee, 8 (87, 35); California Quail, 6 (65, 26); W. Meadowlark, 3 (33, 13); Mourning Dove, 2 (22, 9); Anna's Hummingbird, 2; Red-tailed Hawk, 1 (11, 4); Am. Kestrel, 1; Say's Phoebe, 1; Mockingbird, 1; Loggerhead Shrike, 1; Costa's Hummingbird, +; Rock Wren, +; Starling, +. **Average Total:** 69 birds (751/km², 304/100 acres). **Remarks:** White-crowned Sparrow, Mockingbird, Brown Towhee, Am. Kestrel, Anna's Hummingbird, House Finch, and Mourning Dove seen on all trips. Western Meadowlarks were seen within plot

only on last trip, but usually fed on surrounding fields. Tilling had already begun for spring planting and the meadowlarks began feeding on fields within the study plot — *KERI ODA*, (California State Univ., Long Beach), 20909 Anza, Apt. 246, Torrance, CA 90503.

54. EXPOSED COVE AND ADJACENT OCEAN. —

Location: Maine; Hancock Co., Schoodic Point section of Acadia Nat'l Park, Winter Harbor, 44°20'N, 68°04'W, Chart 306 USC&GS. **Continuity:** Established 1968; 8 years. **Size:** 43.7 ha = 108 acres (irregular shape). **Description of Area:** See *AFN* 23:545 (1969). Area remains unchanged. **Weather:** Much colder than average, temperatures (average) Dec. 23°F, Jan 15°, Feb. 24°. No major storms, but ice formed in the cove several times, preventing birds from entering. Snow cover, present during entire period, varied from 4 to 24 in. **Coverage:** Dec. 3, 9, 18, 30; Jan. 1, 9; Feb. 6, 13, 20, 23, 27. Total, 11 trips, 7 in a.m., 4 in p.m. lasting from ½ to 1 hour. **Count:** Com. Eider, 31 (71, 29); Herring Gull, 24 (55, 22); Oldsquaw, 12 (27, 11); Horned Grebe, 8 (18, 7); Great Black-backed Gull, 4 (9, 4); Black Guillemot, 3 (7, 3), Com. Loon, 2 (5, 2); Bufflehead, 2; Great Cormorant, 1 (2, 1); Red-breasted Merganser, 1; White-winged Scoter, +, Dovekie, +. **Average Total:** 88 birds (201/km², 81/100 acres). **Remarks:** Figures continue to fluctuate, probably because of weather and sea conditions. A general downward trend is beginning to appear but it will take more years of observation to determine if this is real. Mobility of sea birds causes high variability in the counts. If the scheduled visit to the site is made when the tides are high and there is an on-shore wind birds will have moved to another area. If visits could be scheduled to the site at the same tide, wind, and sea conditions then one might get an idea of the species composition in the study area. The small number of visits to the area places greater weight on the figures obtained during periods of inclement weather. — *WILLIAM C. TOWNSEND*, Marine Biology Instructor, Sumner High School, East Sullivan, ME 04607.

55. MIXED UPLAND HABITAT AND SWAMP. —

Location: Connecticut: Fairfield Co., Newtown, intersection of Rte. 34 and Zoar Rd., 41°24'10"N, 73°14'10"W, Derby Quadrangle, USGS. **Continuity:** Established 1968, 5 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 18° to 39°F. Winds NW; calm 6 days, light breeze to 10-12 mph 2 days. Overcast 6 days, clear 2 days. No snow cover on the first trip; snow cover irregular 8 in. or less on the other 7 trips. **Coverage:** Dec 17, 27; Jan. 4, 14, 21, 28; Feb. 12, 26. Total, 8 trips, between 0730 and 1620, averaging 1 hour each. **Count:** Black-capped Chickadee, 3 (21, 9); Blue Jay, 2 (14, 6); White-breasted Nuthatch, 2; Downy Woodpecker, 1 (7, 3), Com. Crow, 1; Tufted Titmouse, 1; Dark-eyed Junco, 1, Red-tailed Hawk, +; Ruffed Grouse, +; Great Horned Owl, +; Hairy Woodpecker, +; Hermit Thrush, +; Golden-crowned Kinglet, +; Cardinal, +; White-throated Sparrow, +. **Average Total:** 11 birds (78/km², 31/100 acres). **Remarks:** The White-breasted Nuthatch was seen on every trip except one, the Black-capped Chickadee was seen on 6 trips. The Great Horned Owl, Red-tailed Hawk, and Golden-crowned Kinglets were

seen on only one trip. An exceptionally cold winter and bird feeders in areas adjacent to the study area probably had an influence on the population observed. — *LEON L. BARKMAN*, Science Dept., Housatonic Community College, Bridgeport, CT 06608.

56. RIVER BANK AND RIVER. — Location:

Pennsylvania; Center under 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:** Established 1975; 2 consecutive years. **Size:** River Bank, 3.2 km (2 mi) long, from 9 to 33 m wide, mean width, ca 14.3 m, approximately 4.6 ha = 11.3 acres. The mean river width is about 250 m, which for 3.2 km would be 80 ha = 197.7 acres of water (measured with car odometer and steel tape). **Description of Area:** See *AB* 29:780 (1975). **Weather:** January had a mean high temperature of 31.1°F and a mean low of 14.3°. Precipitation was below normal at 2.73 in. Snow cover was 4 to 6 in on three trips and 0 to 3 in. on the other trips. Ice cover on the river was 10% or less on 6 trips and up to 100% on 1 trip. River banks were flooded during the Jan. 28 trip when the ice moved out. Wind was 15-20 mph on three trips. **Coverage:** Jan. 15-18, 22, 25, 28-30, 1976. Total, 9 trips, averaging 95 min. each, between 0812 and 1515, 5 completed by 1045. **Count:** River Bank: Starling, 32 (700, 283); Rock Dove, 13 (284, 115); Black-capped Chickadee, 6 (131, 53); Cardinal, 5 (109, 44); Song Sparrow, 4 (87, 35); Com. Crow, 3 (66, 27); Am. Goldfinch, 3, White-throated Sparrow 3, Downy Woodpecker, 2 (44, 18); Dark-eyed Junco, 2; Tree Sparrow, 2; Am. Kestrel, 1 (22, 9); White-breasted Nuthatch, 1; hawk, sp +, Mourning Dove, +; Hairy Woodpecker, +; Tufted Titmouse, +; Brown Creeper, +; Carolina Wren, +; House Sparrow, +. River: Black Duck, 8 (10, 4); Pied-billed Grebe, +; Mallard, +; Oldsquaw, +; Hooded Merganser, +. **Average Total:** River Bank, 77 birds (1684/km², 681/100 acres); River, 8 birds (10/km², 4/100 acres of water). **Remarks:** For the river bank the number of species seen on each trip was from 6 to 13 and the number of individuals was from 24 to 189. — *MORTON CLASTER, CECIL HAZLETT, JOHN LUNDY, WESLEY PEDLOW, JR., PARKER PEER, SAMUEL ROCKEY, CHARLES SCHACH, GLENNA SCHWALBE, PAUL SCHWALBE*, (compiler, Dept of Biological Sciences, Lock Haven State College, Lock Haven, PA 17745), *JAMES VANEMON* (West Branch Bird Club and Ornithological Society).

57. RIVER BANK AND RIVER. — Location:

Pennsylvania; Center under 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:** Established 1975; 3 consecutive years. **Size:** River Bank, 3.2 km (2 mi) long, from 9 to 33 m wide, mean width, ca. 14.3 m, approximately 4.6 ha = 11.3 acres. The mean river width is about 250 m, which for 3.2 km would be 80 ha = 197.7 acres of water. **Description of Area:** See *AB* 29:780 (1975). **Weather:** January had a mean high temperature of 24°F and a mean low of 5.8°. Precipitation was below normal at 1.35 in. Snow cover was 7 to 12 in. on six trips and 0 to 5 in. on two trips. Ice cover on the river was at least 99% during entire count period. Wind was 10-15 mph on four trips and as high as 30 mph on

two trips **Coverage:** Jan 13, 16, 18, 20-21, 23, 25, 30, 1977 Total, 8 trips, averaging 84 min. each, between 1014 and 1615, 3 completed by 1215. **Count:** River Bank: Rock Dove, 9 (197, 80); Tree Sparrow, 8 (175, 71); Downy Woodpecker, 2 (44, 18); Com. Crow, 2; Song Sparrow, 2; Blue Jay, 1 (22, 9); Black-capped Chickadee, 1; White-breasted Nuthatch, 1; Starling, 1; Cardinal, 1; Dark-eyed Junco, 1; White-throated Sparrow, 1; Mourning Dove, +; Brown Creeper, +; Carolina Wren, +; Yellow-rumped Warbler, +; E. Meadowlark, +; Evening Grosbeak, +; Am. Goldfinch, +; Field Sparrow, +; Swamp Sparrow, +. **River:** Black Duck, 7 (9, 4). **Average Total:** River Bank, 30 birds (656/km², 265/100 acres); River, 7 birds (9/km², 4/100 acres of). **Remarks:** For the river bank the number of species seen on each trip was from 4 to 11 and the number of individuals was from 6 to 72 — **JOHN LUNDY, WESLEY PEDLOW, JR., PARKER PEER, SAMUEL ROCKEY, CHARLES SCHACH, VESTA SCHACH, GLENNA SCHWALBE, PAUL SCHWALBE** (compiler, Dept. of Biological Sciences, Lock Haven State College, Lock Haven, PA 17745), **JAMES VANEMON** (West Branch Bird Club and Ornithological Society).

58. TUPELO SWAMP. — **Location:** Louisiana; Evangeline Parish; Miller's Lake; 15.9 km NW of Ville Platte. The west boundary is 2.1 km NE of the south boat landing; 30°45'N, 90°20'W, Sect. 53 and 54, T3S, R1E, Ville Platte Quadrangle, USGS. **Continuity:** New (Breeding Bird Survey, 1975). **Size:** 10 ha = 24.7 acres measured from aerial photograph. **Description of Area:** See AB 29:1097. **Topography:** Flat, elevation 22.9 m. **Edge:** The study area is part of a 20 ha Tupelo (*Nyssa sylvatica*) swamp. The W boundary is adjacent to open water. **Water:** The average depth was 0.5 meters. **Weather:** During the count period the average temperature was 4°C, cloud cover averaged 15%; and the wind averaged 16 km/hr. The rainfall during the count period measured by U.S.D.A. Plant Protection Div., Opelousas, St. Landry Parish), was 1.3 cm. **Coverage:** Jan. 4, 6 (2), 9, 10, 11, 1976. Total, 6 trips, all between 0700 and 1300, averaging 95 min each. **Count:** Mallard, 58 (580, 235); Yellow-rumped Warbler, 43 (430, 174); Red-winged Blackbird, 23 (230, 93); Starling, 18 (180, 73); Pintail, 14 (140, 57); Carolina Chickadee, 13 (130, 53); Am. Coot, 7 (70, 28); Red-bellied Woodpecker, 7; Downy Woodpecker, 6 (60, 24); Tufted Titmouse, 4 (40, 16); Ruby-crowned Kinglet, 4; Com. Flicker, 3 (30, 12); Hairy Woodpecker, 3; E. Phoebe, 3; Carolina Wren, 3; Pine Warbler, 3; Am. Robin, 2 (20, 8); Cardinal, 2; White-throated Sparrow, 2; Great Horned Owl, 1 (10, 4); Barred Owl, 1; Belted Kingfisher, 1; Yellow-bellied Sapsucker, 1; Blue Jay, 1; Brown Creeper, 1; Blue-gray Gnatcatcher, 1; Solitary Vireo, 1; Orange-crowned Warbler, 1; Com. Grackle, 1; Swamp Sparrow, 1; Great Blue Heron, +; Wood Duck, +; Red-tailed Hawk, +; Pileated Woodpecker, +; Hermit Thrush, +; Rusty Blackbird, +; Am. Goldfinch, +. **Average Total:** 229 birds (2290/km², 927/100). **Remarks:** Low water levels exposed ground which attracted sparrows and thrushes. When the temperature was below 0°C, small woodland birds fed upon the trunks and lower branches of trees, and on the few shrubs within the area. The upper two-thirds of the vegetative strata were abandoned during these periods of cold weather. Bird numbers at lower levels were not noticeably different from higher temperature periods, but the species using the lower levels

were greatly increased. During periods of 0°C or less, Mallards and Pintails used the area heavily. — **BRENT ORTEGO, ROBERT E. NOBLE, and ROBERT B. HAMILTON**, School of Forestry and Wildlife Management, Louisiana State Univ., Baton Rouge, LA 70803

59. OFFSHORE OIL PRODUCTION PLATFORM. — **Location:** Gulf of Mexico; 120 km S, 40°E of Galveston, Texas; 28°15'N, 94°03'W. **Continuity:** New. **Size:** 78.54 ha = 194.07 acres (500 m radius). **Description of Area:** The study area was centered around an offshore oil production platform. Noticeable vegetation was not present. Water depth was 55.2 m. **Weather:** During the count period the temperature ranged from 3.3 to 23.9°C. During counts, the average temperature was 15°C, cloud cover averaged 76%, and the wind averaged 29 km/hr. Rain occurred on 5 count days for a total of 9.7 cm. **Coverage:** Dec. 1-2, 9-16, 23-30. Total, 18 trips, all between 0530-1730, averaging 607 minutes. **Count:** Laughing Gull, 49 (62, 25); Herring Gull, 34 (43, 18); Ring-billed Gull, 16 (20, 8); Yellow-rumped Warbler, 3 (4, 2); Eared Grebe, +; *Diomedea* sp., +; Blue-faced Booby, +; Cattle Egret, +; Am. Wigeon, +; jaeger sp., +; Parasitic Jaeger, +; Pomarine Jaeger, +; Black-legged Kittiwake, +; Sandwich Tern, +; Royal Tern, +; Black Tern, +; Passeriformes?, +. **Average Total:** 102 (130/km², 53/100 acres). **Remarks:** Species total, 16. Boobies and terns were observed to feed only within 100 m of the platform. Gulls congregated in large flocks on the lee side of the platform during periods of strong winds and high wave action. Otherwise, they were observed in small groups throughout the area. Passerines used the platform occasionally as a resting place during their crossing of the Gulf. — **BRENT ORTEGO**, 606 E. Beauregard St., Ville Platte, LA 70586.

60. BULRUSH AND CATTAIL MARSH IN CONIFER FOREST. — **Location:** Montana; Lake Co., on W side of Flathead Lake, 6 miles N of Polson, on Kings Point Rd.; 47°35'N, 114°09'W, Wild Horse Island Quadrangle, USGS. **Continuity:** New (Breeding Bird Census in 1975). **Size:** 40.47 ha = 100 acres (irregular rectangle, determined from maps). **Description of Area:** See AB 31:84-85 (1976). **Weather:** Winter was generally mild, temperatures during survey ranged from 20° to 42°F, with a mean of 34°. Snow cover was below normal and spotty. All open water except the outlet stream was frozen over throughout the census period. **Coverage:** Jan 29, 31; Feb. 2, 11-12, 19, 26-27. Total, 8 trips, between 0800 and 1100 MST, averaging 140 min. each. **Count:** Black-capped Chickadee, 34 (84, 34); Clark's Nutcracker, 8 (20, 8); Mountain Chickadee, 8; Canada Goose, 7 (17, 7); Ruby-crowned Kinglet, 6 (15, 6); Dark-eyed Junco, 5 (12, 5); Ruffed Grouse, 4 (10, 4); Com. Flicker, 4; Downy Woodpecker, 4; Com. Raven, 3 (7, 3); Red-breasted Nuthatch, 3; Bald Eagle, 2 (5, 2); Pileated Woodpecker, 2; Hairy Woodpecker, 2; Black-billed Magpie, 2. **Average Total:** 94 (232/km², 94/100 acres). **Remarks:** Total species, 15. Com. Flicker, Com. Raven, Black-capped Chickadee and Red-breasted Nuthatch were seen on all trips. Bald Eagles and Canada Geese were present on most counts but obviously foraged outside the territory. Mild winter and availability of foods (lack of snow cover) should have been advantageous to most species. — **MARCELLA M. BISHOP**, 212 Second Ave., E. Polson, MT 59860.

61. WILLOW WOODLAND - FRESHWATER MARSH. — **Location:** California; Los Angeles Co., South Gardena Park Site; NW of intersection of Artesia Blvd and Vermont Ave., Gardena; 33°53'N, 118°18'W. **Continuity:** New. **Size:** 2.84 ha = 7.03 acres (irregular in shape, acreage determined from map based on paced boundaries and compass readings). **Description of Area:** Remnant parcel of natural riparian habitat historically present throughout drainages on the southern California coastal floodplain; such habitat has been essentially eliminated in the Los Angeles basin by stream channelization and urban sprawl. Maintaining the study plot as a natural area is under consideration by the City of Gardena. **Vegetation:** Trees, 3-in. diameter and over, based on five 0.1-acre circular samples, 408/acre; total basal area 58.1 square feet/acre. Willow (*Salix gooddingii*) constituted 100% of the woody vegetation, and was encountered in each sample. Trees by diameter size class (figures after each class give number of trees/acre, relative density (%), basal area in square ft/acre, relative dominance (%)): A (3-6 in.) 328, 80, 16.4, 28; B (6-9 in.) 38, 9, 5.7, 10; C (9-15 in.) 14, 3, 5.6, 10; D (15-21 in.) 20, 5, 18.0, 31; E (21-27 in.) 8, 3, 12.4, 21. Woody stems/acre, 5000 (entirely young willows or broken willow branches); this figure is undoubtedly higher along the drier boundaries of the plot, where in some areas there are dense tangles of brush. Ground cover 12%; flooded area 88%; canopy cover 91%; average canopy height 20 ft (range 15-35). Tules (*Scirpus* sp.) were the only additional structurally important plant species present; small patches were encountered in two sample circles, and fairly extensive growths occur within the plot. **Topography:** Essentially flat; study plot in slight depression relative to surrounding area. **Edge:** Residential districts and major highways; some buffering from human activity is provided on the S and E boundaries by areas of recent landfill. A tiny portion of similar habitat occurs on the NE corner of Artesia Blvd. and Vermont Ave. **Water:** Although the area is mainly dry during the summer months, runoff from winter rains results in flooding of approximately 85% of the plot to a depth of 2.5 ft. **Weather:** Temperatures during the count period ranged from 40° to 82°F (average maximum, 72°F; average minimum, 49°F). Total precipitation for the count period was 0.05 in.; this figure is below normal and represents continuing drought in California. **Coverage:** Jan. 11-13, 20 (2), 21, 25, 28. Total: 8 trips; 6 between 0920 and 1040, 1 from 0700 to 0800, and 1 from 1230 to 1315. Trips averaged 55 min each. **Count:** House Finch, 24 (844, 341); Com. Bushtit, 15 (527, 213); Song Sparrow, 12 (422, 171); Anna's Hummingbird, 8 (281, 114); White-crowned Sparrow, 7 (246, 100); Yellow-rumped (Audubon's) Warbler, 6 (211, 85); Brown Towhee, 4 (141, 57); Cinnamon Teal, 3 (105, 43); House Sparrow, 3; Pintail, 2 (70, 28); Red-winged Blackbird, 2; Lesser Goldfinch, 2; Fox Sparrow, 2; Mourning Dove, 1 (35, 14); Com. Flicker, 1; Ash-throated Flycatcher, 1; Black Phoebe, 1; House Wren, 1; Hermit Thrush, 1; Yellow-rumped (Myrtle) Warbler, 1; Lincoln's Sparrow, 1; Green Heron, +; Green-winged Teal, +; White-tailed Kite, +; Red-tailed Hawk, +; Red-shouldered Hawk, +; Am. Kestrel, +; Ring-necked Pheasant, +; Allen's Hummingbird, +; Loggerhead Shrike, +; W. Meadowlark, +; Am. Goldfinch, +. **Average Total:** 98 birds (3445/km², 1394/100 acres) **Remarks:** Total species, 31. Seven species were observed on every trip: Anna's Hummingbird, bushtit,

Yellow-rumped (Audubon's) Warbler, House Finch, Brown Towhee, Fox Sparrow, and Song Sparrow. A single Ash-throated Flycatcher wintered in the area, this species is rare in California in winter. The following species, not associated with the study plot habitat, were observed flying over the area or along its boundaries: Killdeer, California Gull, Ring-billed Gull, Rock Dove, Com. Crow, Mockingbird, Water Pipit, and Starling. This project was supported financially by a grant from the El Dorado Audubon Society. — JONATHAN ATWOOD, Dept. of Biology, California State Univ., Long Beach, CA 90840.

62. DISTURBED COASTAL SALT MARSH. — **Location:** California; Los Angeles County, Venice Bordered by Culver Blvd. (S), Ballona Creek (N), Vista del Mar (W), and where Culver Blvd. and Jefferson Blvd unite (E); 30°58'00"N, 118°27'00"W, Venice Quadrangle, USGS. **Continuity:** New. **Size:** 22.2 ha = 54.8 acres (420m x 528m), measured with steel tape. **Description of Area:** Salicornia marsh habitat and mudflats with small creeks through area. Pickleweed (*Salicornia virginica*) 65%, mudflats 20%, Salt Grass (*Distichlis spicata*) 5% intermixed with Ice Plant (*Carpobrotus edulis*) 8%, and Boxthorn (*Lycium brevipes*) 2%. Study area uniformly covered with Pickleweed and mudflats which are partially submerged in shallow water. Periphery of study area consists of Ice Plant and Salt Grass and dirt mounds. A group of Black Willows (*Salix laevigata*), borders the west end of study area. (Plant identification from Munz, *A Southern California Flora*, 1974. U.C. Press) **Topography:** The study plot as a whole is at sea level and flat. There are several small elevated areas of dirt mounds and cement pilings. **Edge:** At the SE corner, adjacent to the study plot, are horse stables; people ride horses through the study area each day. Ballona Creek is the N border of the study plot, but is not included in the survey. The very active Culver Blvd. borders the S edge of the plot. The W border is residences, and the E border is similar to habitat of the study plot. **Water:** From Ballona Creek come 2 smaller saltwater creeks which flow through the plot, with many smaller branches which spread through the study area. The depths of these creeks vary with the tides. **Weather:** During the 33-day study period, the mean temperature was 65.7°F. There was 3.21 in. of rainfall during that time. (International Airport weather information). **Coverage:** Dec. 20-21, 27 (2 trips); Jan. 10, 12, 13 (2 trips), 21-22. Total, 10 trips, between the hours of 0800 and 1730, averaging 115 min per visit. **Count:** Black-bellied Plover, 561 (2530, 1024), Bonaparte's Gull, 73 (329, 133); Willet, 29 (131, 53), Marbled Godwit, 22 (99, 40); Rock Dove, 17 (77, 30), Water Pipit, 13 (59, 24); W. Meadowlark, 13; California Gull, 7 (32, 13); Savannah Sparrow, 7; Great Blue Heron, 4 (18, 7); Ring-billed Gull, 4; Song Sparrow, 4; Killdeer, 3 (14, 5); Dunlin, 3; Sanderling, 2 (9, 4); Burrowing Owl, 2; Loggerhead Shrike, 2; Am. Golden Plover, 1 (5, 2), dowitcher, sp. 1; Mourning Dove, 1; Eared Grebe, +, Pied-billed Grebe, +; Canada Goose, +; Lesser Scaup, +, Am. Coot, +; Long-billed Curlew, +; Least Sandpiper, +, W. Sandpiper, +; Belted Kingfisher, +; House Finch, +, White-crowned Sparrow, +. **Average Total:** 777 birds (3504/km², 1418/100 acres). **Remarks:** Black-bellied Plover was found every visit, usually roosting out in the mudflats, not actively feeding. One flock of approximately 120 Water Pipits seen Jan. 13 accounts for its high average occurrence on the study area. Usually the

shorebirds were found on mudflat areas and other birds listed were found in vegetated areas. There were two pairs of Burrowing Owls, whose homes and pellets were observed. — KENNETH PAUL DIAL (Dept. of Biology, California State Univ., Long Beach), 7871 W. Manchester #C, Playa del Rey, CA 90291.

63. FRESHWATER MARSH. — **Location:** California, Los Angeles Co., 2 mi W of Wilmington, side of Anaheim St. between Vermont Ave. and State Freeway 11 **Continuity:** New. **Size:** 9.71 ha = 24 acres (rectangular, 165 X 704 yds, measured from aerial photographs). **Description of Area:** Typical freshwater marsh of S California; largest trees in the study plot average about 10 m high and 25 cm dbh (4% of the observable flora). Most plants are low and shrubby, forming dense thickets, under 4 m in height. Black Willow (*Salix gooddingii*), 2%; Red Willow (*S. laevigata*), 1%; Yellow Willow Tree (*S. lasiandra*), 1%; Mulefat (*Baccharis viminea*), 45%; Tumbleweed (*Salsola kali* var. *tenuifolia*), 0.5%; Castor-oil Plant (*Ricinus communis*), 0.5%; Com. Cattail (*Typha latifolia*), 40%; Wild Rye (*Elymus triticoides*), and other miscellaneous grasses, 10%. Cattails line the water's edge and invade inland 50 m or more, giving way to the straggly, loosely branching Mulefat, which dominates the drier areas. The marsh is in a ravine 20 ft. deep and 600 yds at its widest point. A dirt service road runs along the S perimeter; it originates at the W entrance to the marsh and passes a scout house near the SE boundary of the plot. The ravine was a trash dump 20 years ago, but it is now under control of the Los Angeles Dept. of Parks and Recreation. **Topography:** Mostly flat, elevation 20 ft, with a hilly area, elevation 40 ft, in SE corner. **Edge:** The study plot is part of a 103-acre marsh. North is a man-made lake frequently visited by the surrounding population, to the S across Anaheim St., is a very large oil refinery. **Water:** During dry periods the man-made lake allows only a small sluggish stream to drain out and through the marsh. But in the rainy season the lake overflows and floods the lower marsh area, creating temporary lake-like conditions. **Food:** A great abundance of insects, flying, crawling, and burrowing, was observed. Tumbleweeds and Mulefat provide seeds during this time of year. **Weather:** During the visits of the 23-day study the temperature was below 48°F on 3 days, 60° or below on 6 days, but Jan. 18 it was 77° at 1000. Except for the unusual temperature on Jan. 18, the average thermometer reading was 53°, with the range from 45° to 60°. Between Dec. 30 and Jan. 9, 2½ in. of rain fell. **Coverage:** Dec 29; Jan. 1, 4, 9, 12-13, 15-16; 18, 20. Total, 10 trips, all between 0830 and 1130, averaging 95 min each. **Count:** Pintail, 53 (546, 221); White-crowned Sparrow, 49 (504, 204); Bonaparte's Gull, 21 (216, 88); Am. Coot, 10 (103, 42); Song Sparrow, 9 (93, 38); Com. Bushtit, 7 (72, 29); House Finch, 6 (62, 25); Short-billed Dowitcher, 3 (31, 13); Com. Snipe, 3; Mew Gull, 3; Ring-billed Gull, 3, W Sandpiper, 2 (21, 8); Black-necked Stilt, 2; Anna's Hummingbird, 2; Red-winged Blackbird, 2; Pied-billed Grebe, 1 (10, 4); Double-crested Cormorant, 1; Green Heron, 1; Black-crowned Night Heron, 1; Killdeer, 1; Caspian Tern, 1; Long-billed Marsh Wren, 1; Yellow-rumped Warbler, 1; W. Meadowlark, 1; Brown Towhee, 1 Great Blue Heron, +; Snowy Egret, +; Least Bittern, + Am. Bittern, +; Mallard, +; Green-winged Teal, +; Red-tailed Hawk, +; Red-shouldered Hawk, +; Marsh Hawk, +; Willet, +; Greater Yellowlegs, +; Heermann's Gull, +; Mourning Dove, +; Spotted Dove, +, Com

Flicker, +, Black Phoebe, +, Say's Phoebe, +, Mockingbird, +; Water Pipit, +; Loggerhead Shrike, +; Lesser Goldfinch, +. **Average Total:** 185 birds (1905/km², 771/100 acres). **Remarks:** Pintails, White-crowned Sparrows, and Bonaparte's Gulls were noted every trip. The Com Bushtits were observed on only 2 trips. The Red-shouldered Hawk was sitting in the tall willows on one visit. Most shorebirds were seen the first day when only 10% of the study area was covered with water. After Dec 30 as much as 60% of the study plot was covered with water. — LAWRENCE H. PORTZER, (California State Univ., Long Beach), 2650 Brian Ave., Torrance, CA 90505.

64. 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. **Continuity:** Established 1971 7 years. **Size:** 51.8 ha = 128 acres. **Description of Area:** See AB 25:644-645 (1971). Cultivated area: 67 acres ear-corn, 13 acres hay, 8 acres weeds. Eight large Sycamores harvested for fuel. **Food:** In abundance: rabbits and fruits of Box-elder, wild grape and sumac; no top dressings, scarce corn gleanings and few weed seeds. **Weather:** It was possibly the most severe winter in history, with Lake Erie, 60 miles NW of Scio, freezing Dec. 14, record early. For entire 37-day study period, temperatures held below freezing, with the start of trips averaging 15°F (-9.4°C), but stretches of the Genesee River remained open. The slough pools froze. Except for a few wind-swept spots, snow cover gradually increased from 3 to 30 in. At Greater Buffalo International Airport, for the month of Jan., the average temperature of 13.8°F was record coldest and total snowfall of 68.3 in., record highest (Weather data from WBEN-TV; and *Buffalo Evening News*, courtesy of Joseph Thill). **Coverage:** Jan. 4, 11-12, 21, 26; Feb. 2, 5, 9. Eight trips, averaging 115 min each, all between 0840 and 1135 EST. Total 15.3 hrs. **Count:** Rock Dove, 36 (69, 28); Snow Bunting, 25 (48, 20); Evening Grosbeak, 15 (29, 12); Com. Crow, 12 (23, 9); Mourning Dove, 6 (12, 5); Cardinal, 5 (10, 4); Black-capped Chickadee, 3 (6, 2); Blue Jay, 2 (4, 2); Tree Sparrow, 2, Com. Merganser, 1 (2, 1); Red-breasted Merganser, 1, Belted Kingfisher, 1; Downy Woodpecker, 1; White-breasted Nuthatch, 1; Field Sparrow, 1; Bufflehead, +, Cooper's Hawk, +; Herring Gull, +; Great Horned Owl, +; Hairy Woodpecker, +; Brown Creeper, +; Am Goldfinch, +; Song Sparrow, +. **Average Total:** 112 birds (216/km², 88/100 acres). **Remarks:** Comparing this year with '71-'76 average (in parentheses): Total species, 23 (30); Per Trip: Total birds, 112 (226), Com. Crow, 12 (112), and excluding both Com. Crow and Snow Bunting, 99 (108). With advent of the blizzard in late Jan., plot utilization increased from an average birds/trip of 68 between Jan. 4 and 21 to 105 from Jan. 22 to Feb 9 (excluding Snow Buntings). Seen on every trip were Com Crow and Black-capped Chickadee, but Snow Buntings appeared as a single flock (200), Feb. 5. The Bufflehead was new. A Great Blue Heron was found dead Jan. 4. Not counted was a Whistling Swam flying over, Feb. 5, and Com. Goldeneyes which were seen downriver but not on the plot. Low counts this year are attributed to the unusually cold fall with early snowfalls which caused birds to move farther south. Thanks to Donald and Charles Maybee, owners, for permission to use the property, and to Raymond and Michael Pitzrick for field help. — VIVIAN MILLS PITZRICK, Amity Lake, Belmont, NY 14813

65. ABANDONED ORCHARD - OLD FIELDS - TREE ROWS. — **Location:** New York; Rockland Co., about 4½ 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; 5 years. **Size:** 15.5 ha = 38.4 acres. **Description of Area:** See AB 27:693-694 (1973). **Food:** The apple crop was very good, but heavy snow cover rendered most of the fallen fruit inaccessible. The peach crop was a total failure. Smooth Sumac, Poison Ivy, *Rosa* sp and Bitter Nightshade berries were widely available. **Weather:** All trips were made in dry weather. Temperature during the count period ranged from 6° to 40°F, while count temperatures ranged from 8° to 32°F. Precipitation for the count period was about average, but temperatures were well below average. At least 4 in. of snow cover existed after Dec. 25, and was topped with an icy crust after Jan. 10. **Coverage:** Dec. 24, 26, 29; Jan. 1, 2, 4-5, 8-9, 11-13. Total, 12 trips, all between 0830 and 1130, average, 70 min. each. **Count:** White-throated Sparrow, 8 (51, 21); Dark-eyed Junco, 6 (39, 16); Am. Robin, 5 (32, 13); Tree Sparrow, 3 (19, 8); Song Sparrow, 3, Black-capped Chickadee, 2 (13, 5); Tufted Titmouse, 2, Mockingbird, 2; Cardinal, 2; Com. Flicker, 1 (6, 3); Downy Woodpecker, 1; Blue Jay, 1; Com. Crow, 1; Golden-crowned Kinglet, 1; Starling, 1; Purple Finch, 1; Am Goldfinch, 1; Red-tailed Hawk, +; Am. Kestrel, +; Ruffed Grouse, +; Brown Creeper, +; Winter Wren, +; Cedar Waxwing, +; N. Shrike, +; House Finch, +. **Average Total:** 41 birds (264/km², 107/100 acres). **Remarks:** The count period was exceptionally cold. Continuous snow cover after Dec. 25 probably prevented large numbers of Starlings from eating fallen apples, as they have in the past. — *BRUCE B. EDINGER, 31 Ecology House, Cornell Univ., Ithaca, NY 14853.*

66. CORN STUBBLE, SOY BEANS, AND HAY-FIELD. — **Location:** Pennsylvania; One-half mile S of Jersey Shore, 41°11'05"N, 77°15'10"W, Jersey Shore Quadrangle, USGS. **Continuity:** Established 1974; 3 consecutive 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 ha (73%); soy beans, 8.5 ha (21%); and short grass, 2.5 ha (6%). **Weather:** For January the mean high temperature was 31.1°F and the mean low was 14.3°. Precipitation was 2.73 in. For the first week of February these figures were 30.5°, 13.4° and 0.61 in. respectively. Wind was calm on one trip, with a maximum of 10-24 mph on 4 trips. The sky was overcast to partly cloudy on 4 trips. The ground had 3-8 in. of snow on 6 trips. **Coverage:** Jan. 9-11, 17-18, 31, Feb. 1, 9, 1976. Total: 8 trips, averaging 68 min. each between 0845 and 1715, 5 completed before 1300. **Count:** Tree Sparrow, 32 (79, 32); Com. Redpoll, 20 (49, 20); Horned Lark, 19 (47, 19); Mourning Dove, 14 (35, 14); E. Meadowlark, 13 (32, 13); Rough-legged Hawk, 1 (2, 1); Marsh Hawk, 1; Com. Crow 1; Savannah Sparrow, 1; Snow Bunting, 1; Sharp-shinned Hawk, +; Am. Kestrel, +, Am. Goldfinch, +; Song Sparrow, +. **Average Total:** 103 birds (255/km², 103/100 acres). **Remarks:** There was a small section of a soy bean field that was very weedy, where most of the sparrows and all of the Com. Redpolls were found. None of the birds seen were feeding directly on the soy beans. The number of species per trip ranged from 2 to 9, and the number of individuals from 16 to 278 — *GLENNA P. SCHWALBE, PAUL W*

SCHWALBE, (compiler), Dept. of Biological Sciences, Lock Haven State College, Lock Haven, PA 17745.

67. CORN STUBBLE, BARLEY AND SHORT GRASS. — **Location:** Pennsylvania; one-half mile S of Jersey Shore, 41°11'05"N, 77°15'10"W, Jersey Shore Quadrangle, USGS. **Continuity:** Established 1974, 4 consecutive 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, 28.5 ha (71%), barley, 10 ha (25%); and short grass, 1.5 ha (4%). **Weather:** For January the mean high temperature was 24°F and the mean low was 5.8°. Precipitation was low at 1.35 in. Wind was no greater than 20 mph on any trip. The sky was overcast to partly cloudy on 4 trips. The ground had 3-8 in. of snow on 4 trips. **Coverage:** Jan. 9, 15, 21-23, 1977. Total: 5 trips, averaging 48 min each between 1025 and 1525, 3 completed before 1200. **Count:** Horned Lark, 30 (74, 30); Com. Crow, 1 (2, 1); Rough-legged Hawk, +, Marsh Hawk, +; Lapland Longspur, +. **Average Total:** 31 birds (77/km², 31/100 acres). **Remarks:** Almost complete snow cover on all trips this year contributed greatly to this being the lowest count for the area. A coverage of only five trips no doubt was a factor in so few species being recorded this year. The number of species per trip ranged from 0 to 3, and the number of individuals from 0 to 109. — *GLENNA P. SCHWALBE, PAUL W SCHWALBE, (compiler), Dept. of Biological Sciences, Lock Haven State College, Lock Haven, PA 17745.*

68. ABANDONED FIELD. — **Location:** Maryland, Accokeek, Prince George's Co., Piscataway Park, Potomac River, 3 mi. W of intersection of Rte. 210 and Bryan Point Rd.; 38°41'N, 77°4'W, Mt. Vernon Quadrangle, USGS. **Continuity:** Established 1973; 5 consecutive years. **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 1977 was the most severe in many years (severe cold, ice, snow) Temperatures ranged from 14° to 35°F on census days. Snow covered the ground to a depth of at least 2 in. (with ice crust) from Jan. 5 through early Feb. **Coverage:** Dec 22, 27, 29; Jan. 3, 5, 12, 18, 20, 23, 26; Feb. 1. Total, 11 trips, 10 between 0800 and 1105 and one between 1330 and 1525, averaging 2 hrs each. **Count:** Tree Sparrow, 7 (115, 47); Field Sparrow, 3 (49, 20); Carolina Chickadee, 2 (33, 13); White-throated Sparrow, 2; Swamp Sparrow, 2, Song Sparrow, 2; Red-tailed Hawk, 1 (16, 7); Bobwhite, 1; Carolina Wren, 1; Mockingbird, 1; Cardinal, 1, Am Goldfinch, 1; Red-shouldered Hawk, +; Marsh Hawk, +, Downy Woodpecker, +; Tufted Titmouse, +; Ruby-crowned Kinglet, +; E. Meadowlark, +; Dark-eyed Junco, +. **Average Total:** 24 (395/km², 160/100 acres) **Remarks:** Total species, 19. Savannah Sparrows, present in good numbers in 1973 through 1974, were not recorded on any trips. Three species of large raptors were recorded. The field is quite overgrown and provides a haven for many prey species. The severe winter showed its effects in the complete absence of E. Bluebirds (present 3 out of 4 previous winters) and the absence of Carolina Wrens on the last 5 trips. The ice crust over several inches of snow remained from 4 to 6 weeks, covering the available food. Tree Sparrows, rare on the coastal plain, were common again this year. No new species were recorded. — *M. KATHLEEN KLIMKIEWICZ (compiler), 13117 Larchdale Rd. #2, Laurel, MD 20811 and LEONARD TEUBER (field work)*

69. ABANDONED FARM. — **Location:** Ontario, the N half of Lot 14, Concession 9, Township of Flamboro, Regional Municipality of Hamilton-Wentworth, located S of Concession Rd 10 three km E of Clyde, centered on military grid co-ordinate 657038. **Continuity:** New. **Size:** 41.7 ha = 103 acres (rectangular, 415 m E-W by 1006 m N-S). **Description of Area:** A mixture of vegetation and habitat types including: a cornfield (3.2 ha); a creek system vegetation dominated by willow shrubs (*Salix* spp.) and Red Osier Dogwood (*Cornus stolonifera*) with the occasional ash (*Fraxinus* spp.) and Black Willow (*Salix nigra*); a marsh area (2.2 ha) of Cattails (*Typha latifolia*); numerous hedgerows characterized by White Ash (*Fraxinus americana*), Sugar Maple (*Acer saccharum*), and dead Elms (*Ulmus americana*); open, unimproved pastures (27.2 ha) with no woody vegetation; an abandoned homestead area (0.8 ha) consisting of planted trees such as Lilac (*Syringa vulgaris*), Black Locust (*Robinia pseudoacacia*), Apple (*Malus* sp.), and the only concentration of conifers in the study area, composed of White Spruce (*Picea glauca*), Norway Spruce (*P. abies*), White Cedar (*Thuja occidentalis*); a Silver Maple (*Acer saccharinum*) (relative density 94%) swamp (0.8 ha) having a canopy height of 10 m (30% are coppiced with a mean dbh of 23 cm), an understory consisting of Silver Maple (44%) and Yellow Birch (*Betula lutea*), (34%), a very sparse shrub layer, and a ground cover consisting of mosses and ferns; a deciduous wetland stand (2.6 ha) dominated by Silver Maple (42%), ash (26%), Hop-hornbeam (*Ostrya virginiana*) (8%), and Bur Oak (*Quercus macrocarpa*) (9%), with an understory of ash (29%), Ironwood (*Carpinus caroliniana*) (26%), Silver Maple (21%) and a very dense shrub layer consisting primarily of Spicebush (*Lindera benzoin*). The two wooded areas were formerly culled but have not been disturbed for at least two decades. Some of the pastures as well as the cornfield are rented to the neighboring farmer for grazing and silage production. **Topography:** Gently rolling, elevation 283-294 m. **Edge:** Land adjacent to the study plot to the N and S is mostly unimproved pasture. To the S is a cornfield. The deciduous wetland area in the SW corner is part of a wooded belt that extends W and S of the study area. Adjacent to the W boundary are two pine plantations and a Cattail marsh, which is adjacent to the on-site Silver Maple swamp. **Water:** Two small sluggish feeder creeks traverse the study area from NW to SE. They feed a series of 3 small, artificial ponds which in turn feed the marsh area. **Food:** Prolific standing dead-wood provided grubs and boring insects; any ground sources of food were well covered by snow; little fruit was observed on the vegetation. **Weather:** Temperature during the periods of observation ranged from -3° to -20°C with an excursion average of -9°C. It snowed lightly on only 2 occasions and visibility was generally very good. Ground was covered with 0.6 to 0.9 m of snow. Average wind speed was 5.9 km/hr with a range of 0 to 17.7 km/hr. **Coverage:** Jan. 21-26, 28. Total: 7 trips, all between 0715 and 1130, averaging 122 min each. **Count:** Black-capped Chickadee, 5 (12, 5); Hairy Woodpecker, 1 (2, 1); Downy Woodpecker, 1; Blue Jay, 1; Snow Bunting, 1; Red-tailed Hawk, +; Rough-legged Hawk, +; Com. Crow, +; White-breasted Nuthatch, +; N. Shrike, +. **Average Total:** 9 birds (22/km², 9/100 acres). **Remarks:** The chickadee was noted on 6 trips, the Hairy and Downy Woodpeckers and Blue Jay were noted on 5 trips. Birds flying over the study area but not foraging include 22 gulls (over 5 trips), 7 goldfinches (3 trips), and 13 Snow

Buntings (4 trips). The shrike was seen only once, but 2 trips prior to the sighting a White-footed Mouse (*Peromyscus leucopus*) kill was collected. I wish to thank R Blaxley for the use of his farm and P. Eagles for methodology advice. — **TERRY N. TOBIAS**, 140 Olde Towne Place, Thornhill, Ontario. (*Man-Environment Studies, Univ. of Waterloo, Waterloo, Ont.*)

70. SUBURBAN SCHOOL PARK. — **Location:** Florida; Deerfield Beach, between N.E. 6th and 9th Aves., Hillsboro Blvd., and N.E. 2nd St.; 26°19'N, 80°05'W, USCG&GS Nautical Chart No. 1248. **Continuity:** Established 1969; 9 years. **Size:** 8.0 ha = 19.77 acres (rectangular, 1127 x 764 ft). **Description of Area:** See AFN 23:552 (1969). This season 4 one-story classrooms have been added. **Weather:** During the 30-day study period, temperatures ranged from 45° to 80°F; precipitation was 3.56 in. Starting temperature on count mornings averaged 61°. On 6 trips the weather was sunny; on 3, overcast. Winds 0-5 mph. **Coverage:** Dec. 18, 23, 30, 31, Jan 1-2, 8-9, 16. Total, 9 trips, between 0800 and 0945 EST, averaging 68 min. each. **Count:** Mourning Dove, 13 (162, 66); Rock Dove, 4 (50, 20); Mockingbird, 2 (25, 10); House Sparrow, 2; Am. Kestrel, 1 (12, 5); Red-bellied Woodpecker, 1; Starling, 1; Cattle Egret, +; Yellow-bellied Sapsucker, +; Am. Robin, +; Blue-gray Gnatcatcher, +; Palm Warbler, +; Red-winged Blackbird, +; Spot-breasted Oriole, +; Boat-tailed Grackle, +; Com Grackle, +. **Average Total:** 24 birds (300/km², 121/100 acres). **Remarks:** Total, 16 species. Am. Kestrel, Mourning Dove, and Mockingbird were seen on all visits, Rock Dove and House Sparrow on 7, Starling on 5. The drop in average total from 40 last season to 24 this season is echoed in the findings of other observers in nearby locations. — **LAURA H. MOSELEY**, 1083 Hillsboro Beach, Pompano Beach, FL 33062.

71. SUBURBAN NATURE CENTER. — **Location:** California; El Dorado Nature Center, Long Beach Bounded on N by Spring St., S by Willow St., E by Long Beach Tree Farm, W by San Gabriel River. **Continuity:** Established 1971; 6 years. **Size:** 32.38 ha = 80 acres (rectangular, ½ mile N-S, ¼ mile E-W). **Description of Area:** See AB 25:656 (1971). **Weather:** Night temperatures rarely below freezing, usually above 45°F; day temperatures up to 75° but usually around 65°. Rainfall moderately above average this winter, with most of the rain from tropical storms. **Coverage:** Dec. 28; Jan. 1-2, 5, 10, 12, 17, 22, 29-30. Total, 10 trips, all between 0800 and 1100, averaging 140 min. each. **Count:** House Finch, 110 (340, 138); White-crowned Sparrow, 46 (142, 58), Am. Wigeon, 4 (127, 51); Am. Goldfinch, 35 (108, 44), N Shoveler, 16 (49, 20); Lesser Goldfinch, 15 (46, 19), Mallard, 13 (40, 16); Green-winged Teal, 13; Cinnamon Teal, 13; Am. Coot, 11 (34, 14); Yellow-rumped Warbler, 10 (31, 13); Song Sparrow, 9 (28, 11); Anna's Hummingbird, 8 (25, 10); Mockingbird, 8; Yellowthroat, 6 (19, 8), Chipping Sparrow, 6; Ruddy Duck, 5 (15, 6); Mourning Dove, 5; Com. Flicker, 5; Dark-eyed Junco, 5; Pintail, 4 (12, 5); Loggerhead Shrike, 4; Lincoln's Sparrow, 4; Pied-billed Grebe, 3 (9, 4); Hermit Thrush, 3; Black Phoebe, 2 (6, 2); Com. Crow, 2; Com. Bushtit, 2; Blue-gray Gnatcatcher, 2; Green Heron, 1 (3, 1); Ring-necked Duck, 1; Canvasback, 1; Turkey Vulture, 1; Sharp-shinned Hawk, 1; Cooper's Hawk, 1; Red-tailed Hawk, 1; Caspian Tern, 1; Spotted Dove, 1; Belted Kingfisher, 1; Scrub Jay, 1; House Wren, 1; Ruby-crowned Kinglet, 1; Starling, 1; Red-winged Blackbird, 1; Purple Finch, 1, Savannah Sparrow, 1; Golden-crowned Sparrow, 1, Fox

Sparrow, 1, Double-crested Cormorant, +, Great Blue Heron, +; Great Egret, +; White-tailed Kite, +; Am. Kestrel, +; Ring-necked Pheasant, +; Sora, +; Com. Gallinule, +; Com. Snipe, +; Long-billed Marsh Wren, +; Orange-crowned Warbler, +; Brazilian Cardinal, +; Green-tailed Towhee, +. **Average Total:** 425 birds (1313/km², 531/100 acres). — **BRIAN DANIELS**, (*California State Univ.*), 3471 Lama, Long Beach, CA 90808.

72. SUBURBAN PARK. — **Location:** California; NW corner of El Dorado Park, Area II, Long Beach, Los Angeles Co. **Continuity:** New. **Size:** 8.0 ha = 19.8 acres (rectangular, 200 x 480 yds, measured with rope). **Description of Area:** Picnic grounds, all trees and grass planted by Parks Dept. Groundcover is Com. Bermuda Grass (*Cynodon dactylon*). Tree-cover is approximately 7% with large open areas. Average tree height is 25 ft. with a DBH of 8 in. Tree species include: Canary Island Pine (*Pinus canariensis*), 21%; Evergreen Ash (*Fraxinus uhdei*), 14%; California Sycamore (*Platanus racemosa*), 11%; Aleppo Pine (*Pinus halepensis*), 10%; Jacaranda (*Jacaranda acutifolia*), 9%; Italian Stone Pine (*Pinus pinea*), 8%; California Pepper Tree (*Schinus molle*), 6%; Coast Live Oak (*Quercus agrifolia*), 5%; Red Ironbark Eucalyptus (*Eucalyptus sideroxylon*), 4%; Bailey Acacia (*Acacia baileyana*), 3%; Tulip Tree (*Liriodendron tulipifera*), 3%; S. Live Oak (*Quercus virginiana*), 2%; Silk Tree (*Albizia julibrissin*), 1%. **Topography:** Flat, elevation 25 ft. **Edge:** The study area is bounded by at least 100 yds of similar parkland in all directions. **Water:**

There is no water within the study area but there are two man-made lakes connected by a small stream about 100 yds E, and there is a flood-control channel 100 yds W that carries some water during the winter and spring. **Weather:** During the 25-day study period the temperature remained above freezing, ranging from 37° to 85° (temperatures from local newspaper). There were 6 days of rain, with rainfall totaling less than 1 in. Winds were mild, with the exception of a Santa Ana condition that lasted two days. **Coverage:** Jan. 4, 6 (2), 18-19, 22, 23, 28. Total, 10 trips. Trips between 0900 and 1600 hours, averaging 70 min. **Count:** Starling, 39 (487, 197), Yellow-rumped Warbler, 11 (137, 56); W. Meadowlark, 5 (62, 25); Am. Coot, 4 (50, 20); Marbled Godwit, 4; Com. Crow, 3 (37, 15); Loggerhead Shrike, 3; Mourning Dove, 2 (25, 10); Anna's Hummingbird, 2; Com. Flicker, 2, Long-billed Curlew, +; Mockingbird, +; Brazilian Cardinal, +; Lesser Goldfinch, +. **Average Total:** 75 birds (936/km², 379/100 acres). **Remarks:** The warbler, shrike and hummingbird were noted on every trip, the flicker was noted on 7 trips, the meadowlark and dove on 5 trips. The Brazilian Cardinal has been observed for the last few years in the vicinity of the El Dorado Park Nature Center (see *AB* 76:732 (1974)), approximately ½ mi S of study plot. It is believed to be a solitary individual that has taken up residence within the area — **JEFFREY S. BOYD**, 154 Roycroft Ave., Long Beach, CA 90803.

A note of explanation

IN AN ARTICLE on page 18, Frances C. James provides the interested reader with the keys to understanding of the vegetative analysis section of the Winter Bird-Population Studies and Breeding Bird Censuses. In the paragraphs below we append an explanation of the various numbers that are a part of the **Census** section of these reports. With these two explanations, there should be a sharp reduction in baffled readers, and an increased appreciation of the great value of these studies.

The number immediately following the species name is the number of territorial males (or females, in the case of the Brown-headed Cowbird) actually found within the study plot. It is determined by repeated coverage of the study plot, noting on each visit on the plot maps the "registrations" or encounters, either visual or aural, with singing males. Comparison of the visit maps will indicate fairly accurately where, and how many, singing males of what species have territories on the plot.

IMMEDIATELY FOLLOWING this number, within parentheses, are two numbers. The first is the number of pairs that theoretically would be found in this, or an identical plot, of 100 hectares, and the second is the same figure for 100 acres. The purpose is obviously to give a uniform standard of density for comparison with other species and other studies. The hectare, being 2.471 times as large as an acre, provides a figure for the first numeral inside the parentheses which is 2 471

times as large as the second, rounded, of course, to whole or half numbers.

Thus, if the plot is 29 hectares (ha), and there is a figure of 13 territorial House Wrens, the figures in parentheses would translate to (45, 18).

The equation for hectares would simply be:

$$\frac{100 \text{ ha}}{29 \text{ ha}} \times 13 = 44.85, \text{ or } 45, \text{ and for acres it would be:}$$

$$\frac{100 \text{ acres}}{72} \times 13 = 18.2 \text{ or } 18.$$

In the published census, this would appear as House Wren, 13 (45, 18);

SINCE THE NUMBER of territorial males on the plot are averages gained on a number of visits, the number "+" is used after a species name to indicate that on average there was less than one pair (or sometimes less than 0.5 pairs) on the plot. For example, if six trips resulted in registrations of one territorial House Wren on only two trips, the average would be 0.3 pairs, or "+".

In the item headed **Total**, the first number is the total number of species and the second the total breeding pairs of all species within the plot, and the figures immediately following are this latter total raised to theoretical 100-hectare (km²) and 100-acre plots.

The species themselves are listed in descending order of numbers and ascending A.O.U. Checklist order. Thus Song Sparrow 20 would come before Blue Jay 18, but Blue Jay 10 would come before Song Sparrow 10. —R A