

Thirty-fifth Winter Bird - Population Study

Edited by Calvin L. Cink and Roger L. Boyd

THE 66 STUDIES submitted this year (not counting 6 submitted for previous years) represent a marked decline (20%) from last year's 82. A total of 21 states and provinces are represented, again a decrease from the 25 of last year. California had the highest total with 14 studies, followed by Pennsylvania with 10 and Kansas with 9.

Observers reported a total of 972 hours in the field, averaging 14.3 hours per plot. The highest total was 49.5 hours for Small Town, Residential and Commercial Areas in Kansas.

The total area covered this year

amounted to 1147.85 hectares (2836.3 acres), for an average census area of 17.39 ha. The number of birds per km² ranged from 0 (based on the sum of four 1-ha patches of Aspen Woods, cut and managed for Ruffed Grouse, in Pennsylvania) to 42,712 (the shallow pond and mudflat portion of Riparian Canyon Bottom, Marsh, and Pond in California), and averaged 1584 (inflated by two California pond counts, and excluding counts from prior years published in this issue). Total species counted ranged from 0 (Aspen Woods, Pennsylvania) to 81 (Freshwater Marsh, California).

Forty-one percent of the studies are new and provide data for a variety of interesting habitats. A few persistent observers continue to provide data on study areas censused for more than 10 years.

The editors thank all compilers for submission of their studies and their obvious care in following correct format and submission by the deadline. Thanks also to Bill Stark for editorial help. The deadline for 1983 reports is June 15, 1983.

—Biology Department, Baker University, Baldwin City, KS 66006

List of Studies

| Habitat | State or Province | Hectares | Birds/ sq. km. | Hrs. Obs. | Species | Yrs of Study |
|----------------------------------------------------------|-------------------|----------|-------------------|--------------|---------|-----------------|
| A. Forest Habitats | | | | | | |
| 1. Maple-Pine-Oak Second-Growth Forest | Massachusetts | 11.8 | 76 | 15.2 | 9 | 6 |
| 2. Oak-Maple Bottomland | Massachusetts | 6.7 | 135 | 7.5 | 9 | 1 |
| 3. Upland Mixed Pine-Spruce-Hardwood Plantation | New York | 16.6 | 253 | 13.0 | 18 | 9 |
| 4. Mixed Hemlock-White Cedar-Hardwood Forest | New York | 4.5 | 157 | 11.5 | 5 | 5 |
| 5. Moist Deciduous Forest-Lake Ontario Wetland | New York | 16.2 | 439 | 26.0 | 30 | 1 |
| 6. Aspen (Cut 1980-81) | Pennsylvania | 4.18 | 0 | 5.8 | 0 | 1 |
| 7. Aspen (Cut 1976-77) | Pennsylvania | 4.02 | 0 | 5.8 | 4 | 1 |
| 8. Mixed Oak (Cut 1976-77) | Pennsylvania | 3.33 | 60 | 5.8 | 4 | 1 |
| 9. Mature Aspen (Treated sector) | Pennsylvania | 3.24 | 77 | 5.8 | 4 | 1 |
| 10. Mature Mixed Oak (Treated sector) | Pennsylvania | 2.61 | 93 | 5.8 | 6 | 1 |
| 11. Mature Aspen (Untreated sector) | Pennsylvania | 3.24 | 100 | 5.8 | 6 | 1 |
| 12. Mature Deciduous Floodplain Forest | Maryland | 17.8 | 555 | 11.25 | 26 | 31 |
| 13. Mature Longleaf Pine Forest | Georgia | 20.0 | 295 | 21.3 | 25 | 2 |
| 14. Mature Beech-Magnolia Forest | Florida | 15.75 | 1,359 | 25.0 | 30 | 1 |
| 15. Bottomland Oak-Gum-Cypress Forest Recently Disturbed | Mississippi | 11.4 | 2,814 | 15.2 | 33 | 11 |
| 16. Mixed Pine-Deciduous Forest | Louisiana | 8.9 | 371 | 12.0 | 19 | 12 |
| 17. Ozark Oak-Hickory Forest-Second Growth | Missouri | 7.85 | 306 | 19.7 | 23 | 3 |
| 18. Oak-Hickory Forest I | Kansas | 8.1 | 432 | 7.8 | 12 | 4 |
| 19. Oak-Hickory Forest II | Kansas | 8.1 | 358 | 6.5 | 22 | 4 |
| 20. Oak-Hickory Forest III | Kansas | 8.1 | 395 | 7.8 | 17 | 4 |
| 21. Oak-Hickory Forest IV | Kansas | 8.1 | 136 | 8.0 | 13 | 4 |
| 22. Oak-Hickory Forest V | Kansas | 8.1 | 284 | 9.6 | 11 | 4 |
| 23. Oak-Hickory Forest VI | Kansas | 8.1 | 99 | 8.8 | 10 | 4 |
| 24. Oak-Hickory Forest VII | Kansas | 8.1 | 1,310 | 20.0 | 26 | 1 |
| 25. Ponderosa Pine Forest | Colorado | 8.1 | 778 | 13.0 | 17 | 19 |
| 26. Ponderosa Pine-Scrub Oak Forest | Colorado | 12.0 | 258 | 8.0 | 14 | 2 |
| 27. Ponderosa Pine-Douglas Fir Foothills Forest | Washington | 11.15 | 72 | 14.3 | 5 | 7 |
| 28. Slickrock-Ponderosa Pine-Pygmy Forest-Chaparral | Utah | 16.19 | 37 | 20.67 | 13 | 2 |
| 29. Deciduous Oak Woodland | California | 5.67 | 512 | 9.3 | 17 | 4 |
| 30. Willow-Aspen River Valley | Alberta | 8.6 | 255 | 8.5 | 11 | 1 |
| B. Forest Mixed with Other Habitats | | | | | | |
| 31. Floodplain Forest and Cultivated Bottomland | New York | 51.8 | 386 | 11.7 | 29 | 11 |

| Habitat | State or Province | Hectares | Birds/ sq. km. | Hrs Obs. | Species | Yrs of Study |
|-------------------------------------------------------|-------------------------|----------|-------------------|-------------|---------|-----------------|
| 32. Mixed Lowland Forest and Meadow with Stream | Pennsylvania | 8.1 | 902 | 14.0 | 26 | 1 |
| 33. Mixed Upland Habitat | District of Columbia | 14.2 | 494 | 28.0 | 34 | 23 |
| 34. Floodplain Woodland and Field | Ohio | 22.5 | 461 | 10.5 | 24 | 7 |
| 35. Mixed Habitat—Disturbed Bottomland | Oklahoma | 40.47 | 299 | 20.0 | 37 | 10 |
| 36. Campground in Old Orchards | Utah | 10.1 | 1,315 | 21.2 | 25 | 2 |
| 37. Disturbed Coastal Floodplain | California | 9.7 | 1,153 | 20.8 | 41 | 1 |
| C. Brush, Grassland and Desert | | | | | | |
| 38. Suburban Shrubland | New York | 9.07 | 220 | 6.9 | 14 | 1 |
| 39. Brushy Field and Wooded Edge (1979-80) | Pennsylvania | 7.54 | 584 | 17.6 | 21 | 2 |
| Brushy Field and Wooded Edge (1981-82) | Pennsylvania | 7.54 | 637 | 13.9 | 20 | 4 |
| 40. Grassland Municipal Airport | Louisiana | 12.14 | 198 | 5.0 | 5 | 9 |
| 41. Floodplain Tall Grass Prairie | Kansas | 10.1 | 59 | 12.0 | 6 | 1 |
| 42. Foothills Mesa Brushland | Colorado | 24.3 | 99 | 10.0 | 19 | 1 |
| 43. Coastal Sage Scrub | California | 8.05 | 388 | 18.0 | 21 | 1 |
| 44. Disturbed Foothill Grassland | California | 9.17 | 251 | 7.2 | 12 | 1 |
| D. Habitats including Open Water | | | | | | |
| 45. Mixed Upland Habitat and Swamp | Connecticut | 14.2 | 21 | 9.0 | 14 | 9 |
| 46. Cat-tail Marsh | New York | 8.95 | 11 | 11.2 | 4 | 3 |
| 47. Moist Deciduous Forest—Lake Ontario Wetland | New York | 16.2 | 439 | 26.0 | 30 | 1 |
| 48. River Bank and River | Pennsylvania | 4.6 | 802 | 9.4 | 19 | 7 |
| | | 80.0 | 7 | 0.5 | 6 | 7 |
| 49. Barrier Beach and Saltwater Estuary | Florida | 212.5 | 1,050 | 33.0 | 67 | 5 |
| 50. Sewage Lagoons—Riparian Woodland (1981) | Utah | 24.3 | 268 | 16.4 | 19 | 1 |
| Sewage Lagoons—Riparian Woodland (1982) | Utah | 24.3 | 663 | 19.2 | 30 | 2 |
| 51. Restored Coastal Salt Marsh (1981) | California | 8.8 | 729 | 10.0 | 37 | 1 |
| Restored Coastal Salt Marsh (1982) | California | 8.8 | 1,902 | 18.0 | 44 | 2 |
| 52. Coastal Salt Marsh | California | 6.5 | 1,035 | 10.0 | 19 | 2 |
| 53. Coastal Marsh | California | 6.3 | 5,149 | 12.5 | 53 | 3 |
| 54. Coastal Waters—Sandy Beach | California | 5.9 | 677 | 4.7 | 13 | 1 |
| 55. Freshwater Pond | California | 1.9 | 13,161 | 5.0 | 27 | 2 |
| 56. Freshwater Marsh | California | 9.71 | 2,914 | 15.0 | 81 | 3 |
| 57. Riparian Canyon Bottom, Marsh, and Pond | California | 19.2 | 1,688 | 31.5 | 33 | 1 |
| | | 2.8 | 42,712 | 4.5 | 43 | 1 |
| E. Urban Habitats | | | | | | |
| 58. Suburban Development in Pine—Oak Forest (1981) | Massachusetts | 15.0 | 1,073 | 18.0 | 25 | 1 |
| Suburban Development in Pine—Oak Forest (1982) | | 15.0 | 653 | 12.0 | 19 | 2 |
| 59. Urban Golf Course | Maryland | 25.0 | 396 | 32.0 | 28 | 2 |
| 60. Suburban Cemetery (1980) | Alabama | 15.0 | 3,499 | 42.0 | 42 | 3 |
| Suburban Cemetery (1981) | Alabama | 15.0 | 2,858 | 37.0 | 43 | 4 |
| Suburban Cemetery (1982) | Alabama | 15.0 | 5,149 | 40.0 | 40 | 5 |
| 61. Small Town, Residential and Commercial Areas | Kansas | 66.9 | 1,212 | 49.5 | 30 | 1 |
| 62. City Ravine | Ontario | 34.0 | 332 | 15.0 | 20 | 3 |
| 63. Urban Park with Pond | Ontario | 14.2 | 295 | 11.0 | 20 | 1 |
| 64. Urban Park; Lake, Marsh and Adjacent Mixed Forest | California | 4.99 | 5,812 | 16.6 | 58 | 2 |
| 65. Urban Park; Mature Mixed Coniferous Forest | California | 8.38 | 1,504 | 12.8 | 33 | 2 |
| 66. Suburban University Campus | California | 28.2 | 1,251 | 27.0 | 23 | 1 |

1. MAPLE – PINE – OAK SECOND - GROWTH FOREST. — Location: Massachusetts; Norfolk Co., Town of Foxboro conservation land, off Willow and E. Sts.; 42°04'N, 71°11'30"W, Mansfield Quadrangle, USGS. Continuity: Established 1977; 6 consecutive years. Size: 11.8 ha = 29.2 acres. Description of Plot: See AB 31:50-51 (1977). Weather: Snow cover was present on all trips, and ranged from 1 to 11 in. Sky was clear on 6 trips, cloudy or partly cloudy on 6. Weather data for Boston, about 20 mi N, supplied by U.S. Nat'l Weather Service: for Dec. and Jan., temperature departures from normal were respectively +0.2° and -6.3°F; total rainfall equivalent precipitation during census period was 7.43 in., well above average for this period. Coverage: Dec. 12, 20, 23-24, 28 (2 trips); Jan. 2-3, 5, 27 (2 trips), 29. Total, 12 trips, 8 morning and 4 afternoon, 0830-1620, averaging 76 min each. Count: Black-capped Chickadee, 6 (51, 21); Blue Jay, 1 (8, 3); White-breasted Nuthatch, 1; Brown Creeper, 1; Ruffed Grouse, +; Hairy Woodpecker, +; Downy Woodpecker, +;

Tufted Titmouse, +; Dark-eyed Junco, +. Average Total: 9 birds (76/km², 31/100 acres). Remarks: Total species, 9. Winter began early with a snowfall of approximately 24 in. on Dec. 6. Chickadees were seen on 10 trips, jays, nuthatches and Brown Creepers seen on 5, juncos on 3, grouse and Downy Woodpeckers on 2, titmouse and Hairy Woodpecker on 1. Com. Crows were heard or seen flying over on 5 trips. The E. Red Cedar (*Juniperus virginiana*) berry crop was poor this year. The largest foraging flock observed consisted of 9 chickadees. On Jan. 5 a Sharp-shinned Hawk was observed flying into the census plot 10 min after the completion of the census trip. Whitetail Deer (*Odocoileus virginianus*) were observed in the census area. During the census period springtails (*Hypogastrura nivicola*) were observed on most of the census area in concentrations on the snow of up to 200/square foot. No birds were observed utilizing this potential food resource. The number of individual birds sighted per hour of observation was 7.3.—WILLIAM E. DAVIS, JR., *College of*

Basic Studies, Boston Univ., Boston MA 02215.

2. OAK-MAPLE BOTTOMLAND. — Location: Massachusetts; Middlesex Co., on the Metropolitan State Hospital land straddling the boundary between towns of Waltham and Belmont; centered very nearly 2150 feet at bearing 143° magnetic from common boundary point among Waltham, Belmont, and Lexington; 42°24'08"N, 71°12'19"W, Lexington Quadrangle, USGS. Continuity: New. Size: 6.7 ha = 16.5 acres (nearly rectangular 1635 × 439 ft., oriented with long axis at 160° magnetic, laid out with handheld compass and surveyor's chain) Description of Plot: A mature oak and maple woods on a local high spot surrounded by marsh and swamp. The state hospital, on whose grounds the plot lies, is expected to be closed within the next 5 years, and the area subjected to development. The plot was laid out so as to maximize areal extent, yet not include any of the margin habitat between the woods and the surrounding swamps and

marshland Trees, 3-in diameter and over, based on seven 0.1-acre circular samples, 362/acre; total basal area 111.8 ft²/acre. Species comprising 97% of the total number of trees (figures after each give number of trees/acre, relative density (%), relative dominance, frequency, in that sequence): Black Oak (*Quercus velutina*) 117, 32, 53, 100; Red Maple (*Acer rubrum*) 81, 23, 16, 86; White Oak (*Q. alba*) 53, 15, 17, 100; Gray Birch (*Betula populifolia*) 36, 10, 4, 71; Com. Chokecherry, (*Prunus virginiana*) 33, 9, 3, 57; Dead trees 29, 8, 3, 86. Trees by diameter size class (figures after each class give number of trees/acre, relative density, basal area in square feet/acre, relative dominance): A (3-6 in.) 223, 62, 22.3, 20; B (6-9 in.) 69, 19, 20, 6, 18; C (9-15 in.) 57, 16, 45.8, 41; D (15-21 in.) 13, 4, 23.2, 21. Shrub stems/acre, 16,700 (including many very small tree seedlings); ground cover, 53%; canopy cover, 83%; average canopy height, 46 ft (range 40-55). **Topography:** Generally flat, ranging from 160 to 190 ft elevation. An esker runs for about 400 ft along the NE boundary. **Water:** Beaver Brook flows along the n. and e. boundary of the plot, approaching closest at the s.e. tip. An unnamed stream originates in the marsh to the W. During rainy seasons, there is much ponding on the lower elevation parts of the plot. **Edge:** The plot is virtually surrounded by marsh and swamp. Two small overgrown fields, totalling less than an acre, are included. Several little-used cinder roads run through the site. **Weather:** An extraordinarily cold, slightly wet census period. Average temperature 19°F. Sky conditions were mostly clear on 3 of the 9 trips, mostly overcast on the remaining 6. No precipitation occurred during censusing. There was snow cover on the ground for all trips, averaging 8 in., with a maximum depth of 12 in. Winds were minimal, except for 10 mph westerlies Jan. 24. **Coverage:** Jan. 1, 9, 16, 23, 24, 30, 31; Feb. 13, 15. Total: 9 trips with single observer, 0710-1015 EST, and averaging 50 minutes. Total man-hours: 7.5. **Count:** Black-capped Chickadee, 4 (60, 24); Downy Woodpecker, 1 (15, 6); Com. Crow, 1 (15, 6); Tufted Titmouse, 1 (15, 6); White-breasted Nuthatch, 1 (15, 6); Brown Creeper, 1 (15, 6); Hairy Woodpecker, +; Blue Jay, +; Mockingbird, +. **Average Total:** 9 birds (135/km², 55/100 acres). **Remarks:** Total species; 9. Black-capped Chickadee was seen on all trips but one, and White-breasted Nuthatch on 7 trips. Downy Woodpecker was observed on 4 trips, with highest count and activity on the last, indicative of possible courtship onset. Thanks to Stew Sanders for assisting with the surveying.—**LEE E. TAYLOR**, 92 Brooks Avenue, Arlington, MA 02174.

3. UPLAND MIXED PINE-SPRUCE-HARDWOOD PLANTATION. — **Location:** New York; Allegany Co., 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; 9 consecutive years. **Size:** 16.6 ha = 41 acres (roughly rectangular, perimeter measured with tape and compass). **Description of Plot:** See AB 28: 699-700 (1974). **Weather:** Average daily temperatures in December (23.9°F) were near normal but January (14.0°) was 8.5° colder than the 63-

year average. Total snowfall during December and January was 45.6 in., 16 in. greater than the 63-year average. **Coverage:** Dec. 12, 15, 20, 25, 29; Jan. 12, 15, 25, 29; Feb. 5. Total: 8 trips, all between 0915 and 1445, totaling 13 observer-hours. **Count:** Black-capped Chickadee, 10 (60, 24); Evening Grosbeak, 8 (48, 20); Red-breasted Nuthatch, 7 (42, 17); Blue Jay, 3 (18, 7); White-winged Crossbill, 3; Ruffed Grouse, 2 (12, 5); Turkey, 2; White-breasted Nuthatch, 2; Golden-crowned Kinglet, 2; Downy Woodpecker, 1 (6, 2); Brown Creeper, 1; Red Crossbill, 1; Cooper's Hawk, +; Pileated Woodpecker, +; Hairy Woodpecker, +; Com. Raven, +; Com. Crow, +; Am. Robin, +. **Average Total:** 42 birds (253/km², 102/100 acres). **Remarks:** Total species, 18. Chickadee, Red-breasted Nuthatch and Blue Jay were seen on every trip. A portion of the stream remained open throughout the period. A bumper spruce cone crop attracted both crossbill species who, along with the flocks of grosbeaks seen on 4 trips, inflated the totals, making 1982 the highest year ever after 2 poor years. However, chickadees and kinglets remain down in number. Red-breasted Nuthatch totals were the highest since the study began. Crow and raven were new to the census. A third of the trees in a 12-acre section of mature Red Pine are being harvested, creating considerable disturbance in the plot, but developing brush piles providing cover for some species. Appreciation to Gaylord Rough for weather data collected at the Alfred Cooperative Weather Station.—**ELIZABETH W. BROOKS**, 1435 Waterwells Rd., Alfred Station, NY 14803.

4. MIXED HEMLOCK-WHITE CEDAR-HARDWOOD FOREST. — **Location:** New York; St. Lawrence Co., St. Lawrence Univ., Kip Tract; 44°35'N, 75°8'W. **Continuity:** Established 1978; 5 consecutive years. **Size:** 4.5 ha = 11 acres. **Description of Plot:** See AB 34:27 (1980). **Weather:** Temp. -28° to 47°F; total precipitation for Jan. & Feb., 4.7 in. snow cover through the census period. **Coverage:** Jan. 29-30; Feb. 9, 10, 15-16, 19, 20, 23-25; Mar. 2-3. Total: 14 trips all between 0800 and 1700 EST, averaging 50 min. Total man-hours: 11.5. **Census:** Black-capped Chickadee, 6 (135, 55); White-breasted Nuthatch 1 (22, 9); Hairy Woodpecker, +; Downy Woodpecker, +; Red-breasted Nuthatch, +. **Average total:** 7 birds (157/km², 64/100 acres). **Remarks:** Total species, 5. Chickadees seen on all trips; 6 sets of Ruffed Grouse tracks and Pileated Woodpecker workings were observed. Barred Owl, Com. Crow, Blue Jay seen near plot.—**SUSAN FERGUSON**, **DARRIN WERBITSKY**, **KENNETH L. CROWELL** (compiler), Dept. of Biol., St. Lawrence Univ., Canton, NY 13617.

5. MOIST DECIDUOUS FOREST-LAKE ONTARIO WETLAND. — **Location:** New York; Oswego Co., 5 mi. w. of SUNY Oswego campus on Lake Ontario shore; 43°26', 76°35'; Oswego W Quadrangle, USGS. **Continuity:** New. **Size:** 16.2 ha = 40 acres. **Description of Plot:** Buttonbush (*Cephalanthus occidentalis*)—Cat-tail (*Typha* spp.) wetland surrounded by moist deciduous forest bisected by a local road. The dominant wetland vegetation is Buttonbush, Com. Cat-

tail, Arrow Arum (*Peltandra virginica*), and Water-willow (*Decodon verticillatus*). The dominant forest trees are Red Maple (*Acer rubrum*) and White Ash (*Fraxinus americana*). The understory is Arrowwood (*Viburnum recognitum*), Speckled Alder (*Alnus incana*), and Red-osier Dogwood (*Cornus alba*). The ground cover is May-apple (*Podophyllum peltatum*) and Sensitive Fern (*Onoclea sensibilis*). Trees 3-in. diameter and over, based on 5 circular samples 0.1 acre each, 348/acre; total basal area 146 ft²/acre. Species comprising 98% of the total number of trees (numbers following each species are number/acre, relative density (%), relative dominance (%), frequency (%), in that order): Red Maple, 150, 43, 38, 100, White Ash, 76, 22, 23, 100; Black Cherry (*Prunus serotina*), 40, 12, 9, 20; Basswood (*Tilia americana*), 18, 5, 3, 40; Red Oak (*Quercus rubra*), 16, 5, 9, 60; Sugar Maple (*A. saccharum*), 8, 2, 3, 40; Yellow Birch (*Betula lutea*), 8, 2, 2, 20; Striped Maple (*A. pennsylvanicum*), 6, 2, 1, 40; Butternut (*Juglans cinerea*), 4, 1, 1, 20. Trees by diameter size class (following each class are number/acre, relative density (%), basal area in ft²/acre, relative dominance (%), frequency (%), in that order): A (3-6 in.) 176, 51, 18, 12; B (6-9 in.) 82, 23, 25, 17; C (9-15 in.) 70, 20, 56, 38; D (15-21 in.) 14, 4, 25, 17, E (21-27 in.) 4, 1, 12, 9; F (27-33) 2, 1, 10, 7. Shrub stems/acre 2700; ground cover 25%, canopy cover 75%; average canopy height 45 ft (range 35-80). **Edge:** Bounded by wetland, similar forest and residential area. **Topography:** Flat with slight rise away from wetland. **Elevation:** 270 ft. **Weather:** Average diurnal temperature during December was 1°C (33°F), during January -7°C (20°F), and during February was 1°C (34°F) on census days. The ground had a snow cover on all but the first 2 census trips. Skies were clear on 5 days, partly cloudy on 3, overcast on 15, and snowfall on 3 days. **Coverage:** Dec. 6, 8, 12-15, 17, 19, 21, 25, 26, 31; Jan. 2, 6, 7, 12, 14, 19-22, 30; Feb. 3, 9, 13, 20. Total, 26 trips averaging 1 hr each between 0700 and 1700. Total man-hours: 26. **Count:** Starling, 39 (241, 98); Cedar Waxwing, 8 (49, 20); Black-capped Chickadee, 6 (37, 15); Com. Redpoll, 4 (25, 10); House Finch, 3 (19, 8); Cardinal, 2 (12, 5); Canada Goose, 1 (6, 3); Herring Gull, 1; Downy Woodpecker, 1; Blue Jay, 1; Pine Siskin, 1; Am. Goldfinch, 1; Dark-eyed Junco, 1; Tree Sparrow, 1; White-throated Sparrow, 1; Mallard, +; Ruffed Grouse, +, Great Black-backed Gull, +; Ring-billed Gull, +; Mourning Dove, +; Great Horned Owl, +; Com. Flicker, +; Pileated Woodpecker, +; Red-bellied Woodpecker, +, Hairy Woodpecker, +; Com. Crow, +, White-breasted Nuthatch, +; Red-breasted Nuthatch, +; Am. Robin, +; Hoary Redpoll, +. **Average Total:** 71 birds (439/km², 178/100 acres). **Remarks:** Total species, 30.—**GEORGE R. MAXWELL**, Dept. of Zoology, State University College, Oswego, NY 13126.

WINTER (1982) BIRDS OF THE BARRENS GROUSE MANAGEMENT AREA

The following six censuses were conducted in six habitat types at the Barrens Grouse Management Area (BGMA), State

Game Lands 176, in Centre County, Pennsylvania. The BGMA consists of approximately 1,166 ha (2,880 acres), one half of which is being managed by the Pennsylvania Game Commission for Ruffed Grouse (*Bonasa umbellus*) habitat using even-aged management. The treated (cut or managed) sector of the BGMA is divided into a uniform pattern of 136 contiguous, square blocks; each block is approximately 4 ha (10 acres) in size. Sixty of the 136 blocks in the treated sector are managed for aspen (*Populus* spp.) regeneration using a 20-year cutting rotation, whereas the remaining 76 blocks are managed for mixed-oak (*Quercus* spp.) regeneration using a 40-year rotation. Each of the 136 blocks is subdivided into four square patches (designated as patches A, B, C, and D), where an individual patch is approximately 1 ha (2.47 acres) in size. Patch A (positioned in the NW corner of a block) in each of the 136 blocks was cut in winter 1976-77. Patch B (NE corner of a block) was cut only in aspen blocks in winter 1980-81 and was left uncut in mixed-oak blocks, with a scheduled cut in winter 1985-86. Thus, 50 percent (2 ha) and 25 percent (1 ha) have been cut in each aspen and mixed-oak block, respectively, in the treated sector of the BGMA. The cutting schedule and the size of each cut (1 ha) have created a mosaic of even-aged stands representing a unique experiment in habitat management for Ruffed Grouse.

The six habitat types censused totaled 20 38 ha (50.34 acres) and included: 1) four aspen patches cut in winter 1980-81, 2) four aspen patches cut in winter 1976-77, 3) three mixed-oak patches cut in winter 1976-77, 4) three mature (uncut) aspen patches in the treated sector, 5) three mature (uncut) mixed-oak patches in the treated sector, and 6) a mature aspen stand in the untreated (unmanaged) sector of the BGMA. The sixth habitat type was about 1.4 km from the managed sector of the BGMA and was a rectangular (100 × 300 m) plot. The other five habitat types were comprised of individual patches of similar age but separated by distances ranging from about 100 to 900 m as a consequence of the cutting pattern. Selection of individual patches for study in each habitat type was made to ensure representative vegetative features and to avoid habitat disturbances created by unimproved dirt roads, restricted access roads, and corridors along transmission powerlines. No streams or lakes occur on the BGMA, but several temporary ponds may be found.

Coverage of all habitat types was Jan. 5, 8, 16, 22, 30; Feb. 6, 13, 20, 25; Mar. 2. Total trips per habitat type was 10, all between sunrise and 1115 hours. Time spent per trip in each habitat type, 30-40 minutes. Mean minimum temperature during census trips was 20°F (3-32°), and snow depth, 1-13 in. Snow depth before the Jan. 30 trip was less than 6 in, on the Jan. 30 and subsequent trips, snow depth exceeded 9 in. A 1-in. ice layer formed on the snow at a depth of 9 in. and this layer remained throughout the remainder of the winter. Snow or sleet occurred on four trips. A total of 11 bird species was seen in one or more habitat types during the winter trips; species observed at the BGMA during the trips but not in the six habitat types selected for study included Rough-legged Hawk, Great Horned Owl, Blue Jay, Com. Crow,

and Am Goldfinch This study was supported by the Pennsylvania Agricultural Experiment Station. — RICHARD H. YAHNER, Forest Resources Lab., Penn. St. Univ., University Park, PA 16802.

6. ASPEN (CUT 1980-81). — **Location:** Pennsylvania; Centre Co., State Game Lands 176, Barrens Grouse Management Area (BGMA); 40°47'N, 78°58'W (patches 49B, 50B); 40°46'30"N, 77°57'30"W (patch 75B); 40°47'N, 77°57'W (patch 79B); Julian Quadrangle, USGS. **Continuity:** New. **Size:** Four patches totaling 4.18 ha = 10.32 acres (measured). **Description of Plot:** No woody plants exceeding 2.5 cm dbh. The most abundant seedling was Black Cherry (*Prunus serotina*); other common seedlings included Scrub Oak (*Quercus ilicifolia*), Dwarf Chinkapin Oak (*Q. prinoides*), Bigtooth Aspen (*Populus grandidentata*), and Quaking Aspen (*P. tremuloides*). Maximum height of seedlings varied from 1 to 3 m. **Edge:** All patches were bordered on N and S sides by mature forest (patch C) and on E and W sides by cut forest (patch A). **Topography:** Relatively hilly, elevation 1230 ft (patch 75B), 1280 ft (patches 49B, 50B), and 1300 ft (patch 79B). **Count:** 0 birds.

7. ASPEN (CUT 1976-77). — **Location:** Pennsylvania; Centre Co., State Game Lands 176, Barrens Grouse Management Area (BGMA); 40°47'N, 78°58'W (patches 50A, 51A); 40°46'30"N, 77°57'30"W (patch 76A); 40°47'N, 77°57'W (patch 80A); Julian Quadrangle, USGS. **Continuity:** New. **Size:** Four patches totaling 4.02 ha = 9.93 acres (measured). **Description of Plot:** Seven Pitch Pine (*Pinus rigida*) (20-30 m tall), one White Oak (*Q. alba*) (12 m tall), and two snags (7 m tall) were left as residual trees. The most abundant seedling was Quaking Aspen; other common seedlings included Bigtooth Aspen, Scrub Oak, Dwarf Chinkapin Oak, Black Cherry, and Blueberry (*Vaccinium* spp.). Maximum height of seedlings was 4-10 m. **Edge:** All patches were bordered on N and S sides by mature forest (patch D) and on E and W sides by cut forest (patch B). **Topography:** Relatively hilly, elevation was 1230 ft (patch 76A), 1280 ft (patches 50A, 51A), and 1300 ft (patch 80A). **Count:** Red-tailed Hawk, +; Black-capped Chickadee, +; Dark-eyed Junco, +; Tree Sparrow, +. **Remarks:** Total species, 4. Red-tailed Hawk seen on one trip perched in mature residual Pitch Pine. Dark-eyed Junco and Tree Sparrow observed on trips prior to Jan. 30; perhaps ice crust formation at this time prohibited ground foraging by these species. Each of the four species was noted only on one trip.

8. MIXED-OAK (CUT 1976-77). — **Location:** Pennsylvania; Centre Co., State Game Lands 176, Barrens Grouse Management Area (BGMA); 40°47'N, 78°58'W (patches 42A, 43A); 40°46'30"N, 77°57'30"W (patch 84A); Julian Quadrangle, USGS. **Continuity:** New. **Size:** Three patches totaling 3.33 ha = 8.23 acres (measured). **Description of Plot:** The most abundant seedlings were Red Maple (*Acer rubrum*), White Oak, Scrub Oak, and Black Cherry. Less common seedlings included Scarlet Oak (*Q. coccinea*), N. Red Oak (*Q. rubra*), Dwarf Chinkapin Oak, Bigtooth Aspen, and Blueberry. Maximum

height of seedlings was 6-8 m, but a few Bigtooth Aspen exceeded 20 m. **Edge:** All patches were bordered on all sides by mature forest (patches B, C, or D). **Topography:** Relatively hilly, elevation was 1290 ft. **Count:** Black-capped Chickadee, 1 (30, 12), Tufted Titmouse, 1; Ruffed Grouse, +, White-breasted Nuthatch, +. **Average Total:** 2 birds (60/km², 24/100 acres). **Remarks:** Total species, 4. Tufted Titmouse seen on three trips, Black-capped Chickadee on two trips, and the remaining two species on one trip.

9. MATURE ASPEN (TREATED SECTOR). — **Location:** Pennsylvania, Centre Co., State Game Lands 176, Barrens Grouse Management Area (BGMA); 40°47'N, 78°58'W (patches 50C, 51D); 40°47'N, 77°57'W (patch 80D); Julian Quadrangle, USGS. **Continuity:** New. **Size:** Three patches totaling 2.61 ha = 6.45 acres (measured). **Description of Plot:** The most abundant species of canopy trees included Bigtooth Aspen, Quaking Aspen, Pitch Pine, White Oak, and Scarlet Oak. Principal species in the understory were Bigtooth Aspen, White Oak, Scrub Oak, and Red Maple. Average canopy height was 36 m. **Edge:** All patches were bordered on N and S sides by cut (managed) forest (either patch A or B) and on E and W sides by mature forest (either patch C or D). **Topography:** Relatively hilly, elevation was 1280 ft (patches 50C, 50D) and 1320 ft (patch 80D). **Count:** Downy Woodpecker, 1 (38, 16); Black-capped Chickadee, 1, Brown Creeper, +; White-breasted Nuthatch, +. **Average Total:** 2 birds (77/km², 31/100 acres). **Remarks:** Total species, 4. Black-capped Chickadee seen on five trips, Downy Woodpecker on three trips, and remaining two species on one trip.

10. MATURE MIXED OAK (TREATED SECTOR). — **Location:** Pennsylvania, Centre Co., State Game Lands 176, Barrens Grouse Management Area (BGMA), 40°47'N, 78°58'W (patches 41B, 42B), 40°46'30"N, 77°57'30"W (patch 83B); Julian Quadrangle, USGS. **Continuity:** New. **Size:** Three patches totaling 3.24 ha = 8.00 acres (measured). **Description of Plot:** The most abundant species of canopy trees included White Oak, Scarlet Oak, N. Red Oak, and Red Maple. Principal species in the understory were White Oak, Scarlet Oak, Northern Red Oak, Scrub Oak, Dwarf Chinkapin Oak, Red Maple, and Black Cherry. Average canopy height was 38 m. **Edge:** All patches were bordered on N and S sides by cut (managed) forest (either patch A or B) and on E and W sides by mature forest (either patch C or D). **Topography:** Relatively hilly, elevation was 1290 ft for all patches. **Count:** Black-capped Chickadee, 2 (62, 25); Downy Woodpecker, 1 (31, 13); Pileated Woodpecker, +, Tufted Titmouse, +; Brown Creeper, +, White-breasted Nuthatch, +. **Average Total:** 3 birds (93/km², 38/100 acres). **Remarks:** Total species, 6. Downy Woodpecker seen on five trips, Black-capped Chickadee on four trips, Tufted Titmouse and White-breasted Nuthatch on three trips, and Pileated Woodpecker and Brown Creeper on one trip.

11. MATURE ASPEN (UNTREATED SECTOR). — **Location:** Pennsylvania; Centre Co., State Game Lands 176, Barrens Grouse Management Area (BGMA); 40°45' 30"N, 77°58'W; Julian Quadrangle, USGS. **Continuity:** New. **Size:** Rectangular plot (100 × 300 m) totaling 3.00 ha = 7.41 acres (measured). **Description of Plot:** The most abundant species of canopy trees included Big-tooth Aspen, Quaking Aspen, Pitch Pine, Black Cherry, Scarlet Oak, and N. Red Oak. Principal species in the understory were Scrub Oak, Dwarf Chinkapin Oak, Black Cherry, and Red Maple. Average canopy height was 40 m. **Edge:** All sides of the plot were bordered by similar mature forest. **Topography:** Relatively hilly, elevation 1230 ft on the N border and increased to 1310 ft on the S border. **Count:** Ruffed Grouse, 1 (33, 13), Downy Woodpecker, 1; Black-capped Chickadee, 1; Brown Creeper, +; White-breasted Nuthatch, +; Golden-crowned Kinglet, +. **Average Total:** 3 (100/km², 40/100 acres). **Remarks:** Total species, 6. Black-capped Chickadee and Downy Woodpecker seen on four trips, Brown Creeper and White-breasted Nuthatch on two trips, and Ruffed Grouse and Golden-crowned Kinglet on one trip. Ruffed Grouse observed consisted of a total of 9 individuals in Scrub Oak on N end of plot, but 4 of the 9 birds were immediately outside of the study plot.

12. MATURE DECIDUOUS FLOODPLAIN FOREST. — **Location:** Maryland; Montgomery Co., Glen Echo, 2.5 mi NW of the District of Columbia, between the C. and O Canal and the Potomac River, 38° 58'N, 77°8'30"W, Falls Church Quadrangle, USGS. **Continuity:** Established 1948; 31 intermittent years. **Size:** 17.8 ha = 44.1 acres. **Description of Plot:** See *AFN* 2: 153-156 (1948). This was the hardest winter since 1977 with record temperatures ranging down to several degrees below zero. The latter half of January had 3 snow storms of which 2 were of unusual severity. There was snow up to several inches on the ground during the period. At times Cabin John Island was cut off from the mainland and could not be censused. Weather became warmer in February. Temperatures on walks averaged 25°F in January with 6-10 in. of snow on the ground; in February, 36° with little snow. **Coverage:** Jan. 22, 24; Feb. 6, 13, 15. 5 trips totalling 11 25 hours; 4 trips between 0750 and 1115, and one trip 1400-1600. **Count:** Carolina Chickadee, 32 (179, 73); Am. Goldfinch, 12 (67, 27); Mourning Dove, 11 (62, 25); Tufted Titmouse, 8 (45, 18); Downy Woodpecker, 5 (28, 11); Cardinal, 5; Starling, 4 (22, 9); Red-bellied Woodpecker, 3 (17, 7); Com. Crow, 3; Turkey Vulture, 2 (11, 5); Brown Creeper, 2; Black Vulture, 1 (6, 2); Barred Owl, 1; Com. Flicker, 1; Pileated Woodpecker, 1; Hairy Woodpecker, 1; Blue Jay, 1; White-breasted Nuthatch, 1; Winter Wren, 1; Carolina Wren, 1; Dark-eyed Junco, 1; White-throated Sparrow, 1; Song Sparrow, 1; Am. Kestrel, +; Yellow-bellied Sapsucker +; Mockingbird, +. **Average Total:** 99 birds (555/km², 225/100 acres). **Remarks:** Total species: 26. Close to the average of 27 for the entire period during which this census has been taken. The average total of 99 was below the 119 for last year and this was almost entirely due to the continuing loss of

Starlings since 1975 and the reaction of the Carolina Wren to the 1982 winter. This wren had been recovering from the hard winter of 1977 and had reached 3 in 1981 but dropped back to 1 this year. The most unusual species for this winter was the kestrel previously sighted only in 1975 and 1978. Crows were not numerous simply because they happened not to tease the Barred Owls which were present (1 or 2) on all walks.—*J. R. GAUTHEY and JOAN H. CRISWELL (compiler), 3519 Jermantown Rd., Fairfax, VA 22030.*

13. MATURE LONGLEAF PINE FOREST. — **Location:** Georgia; Thomas Co.; Arcadia Plantation, 4 mi SE of the junction of Rtes 319 and 212; 30°45'N, 84°00'W, Pine Park and Thomasville Quadrangles, USGS. **Continuity:** Established 1980. However, see *AB* 34: 29-30 (1980). **Size:** 20 ha = 49.4 acres. **Description of Plot:** See *AB* 35: 69 (1981). **Weather:** From clear and cold to warm and foggy. Average low during census period 5°C (range -3 to 16°), average high during census period 14° (range 9 to 20°). **Coverage:** Jan. 16-19, 21, 23-25. All 8 trips were started within 10 min of sunrise. Total hours: 21.3. **Census:** E. Meadowlark, 8 (40, 16); Bobwhite, 6 (30, 12); Com. Yellowthroat, 6; Red-cockaded Woodpecker, 4 (20, 8); Brown-headed Nuthatch, 4; Pine Warbler, 4; Red-bellied Woodpecker, 3 (15, 6); House Wren, 3; Palm Warbler, 3; Rufous-sided Towhee, 3; Com. Flicker, 2 (10, 4); White-breasted Nuthatch, 2; Loggerhead Shrike, 2; Wood Duck, 1 (5, 2); Mourning Dove, 1; Pileated Woodpecker, 1; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 1; Blue Jay, 1; Carolina Wren, 1; E. Bluebird, 1; Yellow-rumped Warbler, 1; Red-breasted Nuthatch, +; Am. Robin, +; Red-winged Blackbird, +. **Average Total:** 59 birds (295/km², 119/100 acres). **Remarks:** Total species, 25. Other species in the vicinity: Great Horned Owl, Com. Crow, Cedar Waxwing, Swamp Sparrow, and Song Sparrow. Large numbers of Am. Robins (300+) moved through the pine trees on foggy days, but these were excluded from the study because of the brief nature of their visits. Thanks to Tall Timbers Research Station for financial support and permission to work at the study site.—*TODD ENGSTROM, Department of Biological Science, Florida State University, Tallahassee, FL 32306.*

14. MATURE BEECH — MAGNOLIA FOREST. — **Location:** Florida; Leon Co., Tall Timbers Research Sta., Woodyard Hammock, 22 mi N of Tallahassee; 30°40'N, 84°15'W, Beachton Quadrangle, USGS. **Continuity:** New. **Size:** 15.75 ha = 38.92 acres (rectangular, 700 × 225 m, surveyed with tape measure and compass). **Description of Plot:** See *AB* 35:32 (1981). **Weather:** Average low, 5.6°C; average high, 20.0°. Variable wind. **Coverage:** Jan. 16, 19, 21, 26; Feb. 2, 4-6; 8 trips starting within 10 min of sunrise, Averaging 186 min. Total hours: 25. **Census:** Cedar Waxwing, 44 (279, 113); Am. Robin, 43 (273, 110); Tufted Titmouse, 27 (171, 69); Red-bellied Woodpecker, 15 (95, 39); Carolina Wren, 13 (83, 33); Cardinal, 12 (76, 31); Ruby-crowned Kinglet, 10 (63, 26); Blue Jay, 9 (57, 23); Com. Flicker, 7 (44, 18); Yellow-bellied Sapsucker, 7; Carolina Chickadee, 7; Pileated Woodpecker, 4 (25,

10), Yellow-rumped Warbler, 4, Pine Warbler, 3 (19, 8); E. Phoebe, 2 (13, 5); Hairy Woodpecker, 1 (6, 3); Downy Woodpecker, 1; Hermit Thrush, 1; Solitary Vireo, 1, Black-and-white Warbler, 1; Purple Finch, 1, Am. Goldfinch, 1; Turkey Vulture, +; Black Vulture, +; Red-tailed Hawk, +; Barred Owl, +; Com. Crow, +; Blue-gray Gnatcatcher, +; White-eyed Vireo, +; Orange-crowned Warbler, +. **Average Total:** 214 birds (1359/km², 550/100 acres). **Remarks:** Total species, 30. Am. Goldfinches were observed overhead on all trips. White-tailed Deer were seen on one trip. Thanks to Todd Engstrom for guidance and encouragement and Tall Timbers Research Station for permission to work on the study site.—*CATHLEEN NESMITH, Dept. Biol. Sci., Florida St. Univ., Tallahassee, FL 32306.*

15. BOTTOMLAND OAK — GUM — CYPRESS FOREST RECENTLY DISTURBED. — **Location:** Mississippi; Washington Co., N of State Highway 12 in Leroy Percy State Park, 4 mi W of Hollandale (parts of Sec 5, 8 and 9; T-15N, R-7W), 33°10'N, 90°56'W, Swan Lake NW Quadrangle, USGS. **Continuity:** Established 1971; 11 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 Plot:** See *AB* 25:638-639 (1971) and *AB* 32:30 (1978) for description of alterations. **Weather:** mean high during count period 47.5°F; mean low: 29.8°; total precipitation 4.9 in., previous ten-year averages: 50.4°, 33.3° and 8.1 in. Low records were broken on Jan. 14, 15 and 17 with 3 in. of snow during that period. Preceding fall had cooler temperatures and below-average precipitation. **Coverage:** Jan. 9, 16-17, 23-24; Feb. 6, 13, 21. Total of 8 trips; starting times 900-1420 CST, 4 morning, 4 afternoon. Average time per trip, 114 obs-min. **Count:** Com. Grackle, 236 (2075, 840); Starling, 25 (220, 89); Red-winged Blackbird, 13 (114, 46); Carolina Chickadee, 5 (44, 18); Red-bellied Woodpecker, 4 (35, 14); Blue Jay, 4; Dark-eyed Junco, 4; White-throated Sparrow, 4; Com. Flicker, 3 (26, 11); Tufted Titmouse, 3; Yellow-rumped Warbler, 3; Carolina Wren, 2 (18, 7); House Sparrow, 2; Com. Snipe, 1 (9, 4); Pileated Woodpecker, 1; Yellow-bellied Sapsucker, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; Brown Thrasher, 1; Ruby-crowned Kinglet, 1; Rusty Blackbird, 1; Cardinal, 1; Rufous-sided Towhee, 1; Swamp Sparrow, 1; Song Sparrow, 1; Buteo sp., +; Screech Owl, +; Brown Creeper, +; Am. Robin, +; Hermit Thrush, +; Golden-crowned Kinglet, +; Orange-crowned Warbler, +; Am. Goldfinch, +. **Average Total:** 320 birds (2814/km², 1139/100 acres). **Remarks:** Total species, 33. Seen 7 or more trips: flicker, Red-bellied Woodpecker, chickadee, titmouse, Cardinal, White-throated Sparrow. A mixed flock of grackles, Red-winged Blackbirds and Starlings numbering 2150 was seen on one trip. The food supply was very good and consisted of: weed seeds, insect larvae, flying insects, Deciduous Holly berries, and Poison Ivy berries (which lasted throughout the count period). Open areas created 6 years ago by construction connected with a drainage project continue to regenerate with stands of fast growing

saplings, buttonbush, and various briar bushes. The Park Management is beginning to maintain the spoil bank areas of the newly constructed canals by clearing these areas. Roadside ditches are also being maintained. If the large blackbird flock was eliminated, our average total would be less than in years past, continuing the downward trend in "average total" since area disturbance. The number of species was about average. Species showing decided declines since area disturbance are: Winter Wren, Hermit Thrush, Yellow-rumped Warbler, Rusty Blackbird, Cardinal, and White-throated Sparrow. Species showing increases are jay, Carolina Wren, House Sparrow, grackle, and junco.—*G. E. ALEXANDER, JR., 930 South Washington Avenue, Greenville, MS 38701.*

16. MIXED PINE-DECIDUOUS FOREST. — **Location:** Louisiana; Natchitoches Parish, 1 mi W of the Northwestern State Univ. campus, within the university's Natural History Reservation, on the S side of Louisiana Rt. 6, 31°44'N, 93°06'W; Provençal Quadrangle, USGS. **Continuity:** Established 1971, 12 consecutive years, 1978 count not published. **Size:** 8.9 ha = 22 acres (L shaped, measured by pacing with compass). **Description of Plot:** See AB 25:639-640 (1971) and 26:699 (1972). **Weather:** During the 28-day study period day temperatures ranged from 36° to 80°F with 5 count days 50° or above. Night temperature lows ranged from 22° to 55°. Four count days were clear with two cloudy. Wind on count days ranged from 0-3 Beaufort. The winter was generally mild with little rain or snow. **Coverage:** Jan. 26-27; Feb 2, 9, 21-22. Total, 6 trips, 1100-1600, averaging 2 hours. **Count:** Am. Robin, 7 (79, 32), Blue Jay, 4 (45, 18); Carolina Chickadee, 4, Ruby-crowned Kinglet, 4; Yellow-rumped Warbler, 3 (34, 14); Pine Warbler, 3; Red-bellied Woodpecker, 2 (22, 9); Carolina Wren, 2; Downy Woodpecker, 1 (11, 5); Tufted Titmouse, 1; Cardinal, 1; Am. Goldfinch, 1; Red-shouldered Hawk, +; Com. Flicker, +; Pileated Woodpecker, +; E. Phoebe, +; Brown Creeper, +; Mockingbird, +; Solitary Vireo, +. **Average Total:** 33 birds (371/km², 150/100 acres). **Remarks:** Total species, 19. Forty-five species have been observed in the 12 years of the study and the 12-year mean is 27. The 1982 average of 371/km² is less than one half of the 12-year mean of 816 and is the lowest density in the 12-year period. The Am. Robin density of 79/km² was higher than the 12-year mean of 30/km². Conspicuously absent in 1982 were Com. Grackle (12 year mean = 118/km²) and White-throated Sparrow (12 year mean = 120/km²). These and another ground feeder, the Dark-eyed Junco (12 year mean = 27/km²), were the most significant cases of reduced density. Other species were near their 12-year means.—*CHARLIE VIERS, Dept. of Biol. Sci., Northwestern State Univ. of LA, Natchitoches, LA 71457.*

17. OZARK OAK-HICKORY FOREST—SECOND GROWTH. — **Location:** Missouri; St Louis Co., Washington Univ. Tyson Research Center, on I-44, 8 mi W of I-270; 38°31'N, 90°34'W, Manchester Quadrangle USGS. **Continuity:** Established 1980, 3 consecutive years. **Size:** 7.85 ha = 19.4 acres, a

strip through uniform terrain **Description of Plot:** See AB 35(1):25. **Weather:** Typical of Jan. and Feb. for the area. Several snows prevented access to the census plot. Clear sky (6 trips), cloudy or overcast (3 trips), fog (1 trip). Winds generally insignificant, but appeared to reduce bird detection on 1 trip. Temperature 2°-59°F. **Coverage:** Jan. 18, 21, 26-27; Feb. 22, 24, 26-28; Mar. 2. Ten trips, about 2 hrs each, 0820-1200. Total man-hours: 19.7. **Count:** Canada Goose, 6 (76, 31); Blue Jay, 2 (25, 10); unidentified (probably mostly Carolina) Chickadee, 2; Tufted Titmouse, 2; Am. Robin, 2; Red-winged Blackbird, 2; Red-tailed Hawk, 1 (13, 5); Turkey, 1; Red-bellied Woodpecker, 1; Downy Woodpecker, 1; Com. Crow, 1; White-breasted Nuthatch, 1; Com. Grackle, 1; Am. Goldfinch, 1; Bald Eagle, +; Killdeer, +; Com. Flicker, +; Pileated Woodpecker, +; Hairy Woodpecker, +; Brown Creeper, +; E. Bluebird, +; Golden-crowned Kinglet, +; Purple Finch, +. **Average Total:** 24 birds (306/km², 124/100 acres). **Remarks:** Total: 23 species. The Turkeys were in one flock of 10. The Canada Geese were in one flock of 60 overhead. Other wandering species, not tightly associated with oak-hickory forest, were Red-tailed Hawk, Bald Eagle, Killdeer, Red-winged Blackbird and Com. Grackle. Blue Jay was seen on 8 trips, Downy Woodpecker on 6, Red-bellied Woodpecker and Tufted Titmouse on 5, Red-tailed Hawk, White-breasted Nuthatch and Red-winged Blackbird on 4.—*MARY FRANCIS GOODLOE, VI HALLETT, RANDY KOROTEV, EUGENIA LARSON, CARMEN PATTERSON, MARY WIESE of the Webster Groves Nature Study Society. RICHARD W. COLES (compiler), Tyson Research Center, P. O. Box 258, Eureka, MO 63025.*

WINTER BIRD POPULATIONS OF SELECTED OAK-HICKORY FORESTS IN NORTHEASTERN KANSAS

The following six studies represent the fourth consecutive winter of research on birds in 20-acre stands of oak-hickory forest in southern Douglas County, Kansas. See AB 33:66-67, 1979 for a description of vegetation and topography.

Weather data from a climatological station at the Univ. of Kansas at Lawrence, 12 mi NW of the study areas, show temperatures colder than normal with a mean Jan. high of 32.3°F and Feb. high of 39.4°. January lows averaged 12.9°, Feb. lows 21.3°. Precipitation was 3.6 in. greater than normal in Jan., most of it as rain. Precipitation in Feb. was less than normal (.96 in.) but included 11.6 in. of snow accumulation the first week and a half.

Notable changes this year included marked increases in densities in all but one grid. Diversity remained nearly the same. Red-headed Woodpeckers showed large increases in 3 plots, perhaps because of increased mast crops on these areas. Blue Jays also were more abundant on those same plots. Golden-crowned Kinglets were present on all but one plot after being absent last winter. A windstorm in Aug. 1981 downed many large oaks, and concentrations of

leaves remaining on these trees provided roosting cover for several species of birds

Our thanks to the Field Research Committee, Division of Biological Sciences at the Univ. of Kansas for use of research areas under their control and to Mr. Frank Sturdy, Mr. and Mrs. Thomas Beisecker, and Mr. and Mrs. Earl Cutler for access to study areas on their properties.—*CALVIN L. CINK, ROGER L. BOYD, and WILLIAM J. STARK, JR., Biology Dept., Baker Univ., Baldwin City, KS 66606.*

18. OAK-HICKORY FOREST, I. — **Location:** Kansas; Douglas Co., on the Univ. of Kansas Wall Biological Reserve. Predominantly on the NW ¼, SW ¼, Sec. 28, T14S, R20E, 38°48'N, 95°12'W, Baldwin City Quadrangle, USGS. **Continuity:** Established 1979, 4 years. **Size:** 8.1 ha = 20 acres. **Coverage:** Jan. 15, 25; Feb. 2, 7, 16, 21. Total 6 trips, 0910-1145, averaging 1.3 hours. **Count:** Red-headed Woodpecker, 15 (185, 75); Blue Jay, 7 (86, 35); Tufted Titmouse, 6 (74, 30), Bobwhite, 3 (37, 15); White-breasted Nuthatch, 3; Golden-crowned Kinglet, 1 (12, 5); Red-tailed Hawk, +; Mourning Dove, +; Red-bellied Woodpecker, +; Downy Woodpecker, +; Black-capped Chickadee, +; Brown Creeper, +. **Average Total:** 35 birds (432/km², 175/100 acres). **Remarks:** Total species, 12. Red-headed Woodpecker, Blue Jay and Tufted Titmouse were seen on all trips. Great Horned Owl roost found with fresh pellets but bird never seen. Fourteen medium to large trees were blown down in a severe storm in Aug. 1981.

19. OAK-HICKORY FOREST, II. — **Location:** Kansas; Douglas Co., on the Univ. of Kansas Breidenthal Biological Reserve and Cedar Crest Wildlife Refuge (Cliff Woods) Predominantly on the NE ¼, NW ¼, Sec 28, T14S, R20E, 38°48'N, 95°12'W, Baldwin City Quadrangle, USGS. **Continuity:** Established 1979, 4 years. **Size:** 8.1 ha = 20 acres **Coverage:** Jan. 11, 24, 28; Feb. 16, 21, 23 Total 6 trips, 0830-1100, averaging 65 min **Count:** Red-headed Woodpecker, 9 (111, 45), Tufted Titmouse, 4 (49, 20); Blue Jay, 3 (37, 15); Black-capped Chickadee, 3; White-breasted Nuthatch, 2 (25, 10); Dark-eyed Junco, 2; Com. Flicker, 1 (12, 5); Downy Woodpecker, 1; Golden-crowned Kinglet, 1, Red-winged Blackbird, 1; Cardinal, 1; Purple Finch, 1; Sharp-shinned Hawk, +; Red-tailed Hawk, +; Bald Eagle, +; Barred Owl, +; Red-bellied Woodpecker, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; Am. Robin, +; E. Bluebird, +; Am. Goldfinch, +. **Average Total:** 29 birds (358/km², 145/100 acres). **Remarks:** Total species, 22. Red-headed Woodpecker and Blue Jay were seen on each trip. Three medium to large trees were blown down in a severe storm in Aug. 1981.

20. OAK-HICKORY FOREST, III. — **Location:** Kansas; Douglas Co., on the Univ. of Kansas Breidenthal Biological Reserve. Predominantly on the NE ¼, NW ¼, Sec 28, T14S, R20E, 38°48'N, 95°11'W, Baldwin City Quadrangle, USGS. **Continuity:** Established 1979, 4 years. **Size:** 8.1 ha = 20 acres **Coverage:** Jan. 11, 24, 28; Feb. 2, 7, 14. Total 6 trips, 0800-0945, averaging 1.3 hours **Count:** Red-headed Woodpecker, 7 (86, 35),

Tufted Titmouse, 6 (74, 30), White-breasted Nuthatch, 3 (37, 15); Red-bellied Woodpecker, 2 (25, 10); Downy Woodpecker, 2; Blue Jay, 2; Black-capped Chickadee, 2; E. Bluebird, 2; Golden-crowned Kinglet, 2; Dark-eyed Junco, 2; Am. Robin, 1 (12, 5); Cardinal, 1; Cooper's Hawk, +; Com. Flicker, +; Hairy Woodpecker, +; Com. Crow, +; Brown Creeper, +. **Average Total:** 32 birds (395/km², 160/100 acres). **Remarks:** Total species, 17. Red-headed Woodpecker, Downy Woodpecker and Tufted Titmouse were seen on each trip. A single flock of 10 Com. Mergansers flew overhead Feb. 14. Nine medium to large trees were blown down in a severe storm in Aug. 1981.

21. OAK-HICKORY FOREST, IV. — **Location:** Kansas; Douglas Co., Sturdy's Woods. Predominantly on the NE ¼, NW ¼, Sec. 27, T14S, R20E, 38°48'N, 95°10'W, Baldwin City Quadrangle, USGS. **Continuity:** Established 1979, 4 years. **Size:** 8.1 ha = 20 acres. **Coverage:** Jan. 6, 15, 20, 25, 30; Feb. 13, 18, 27. Total 8 trips, 0800-1545, averaging 60 min. **Count:** Tufted Titmouse, 2 (25, 10); Golden-crowned Kinglet, 2; Hairy Woodpecker, 1 (12, 5); Blue Jay, 1; Com. Crow, 1; Black-capped Chickadee, 1; White-breasted Nuthatch, 1; Brown Creeper, 1; Dark-eyed Junco, 1; Great Horned Owl, +; Red-bellied Woodpecker, +; Downy Woodpecker, +; Am. Goldfinch, +. **Average Total:** 11 birds (136/km², 55/100 acres). **Remarks:** Total species, 13. No species were seen on all trips but the Tufted Titmouse was seen on 7. Densities have more than doubled over last year's low number. Six medium to large oaks were toppled in Aug. 1981, and provided roost cover for Golden-crowned Kinglets.

22. OAK-HICKORY FOREST, V. — **Location:** Kansas; Douglas Co., East Beisecker Woods. Predominantly on the NE ¼, NE ¼, Sec. 35, T14S, R20E, 38°48'N, 95°09'W, Baldwin City Quadrangle, USGS. **Continuity:** Established 1979, 4 years. **Size:** 8.1 ha = 20 acres. **Coverage:** Jan. 7, 10, 19, 23, 26; Feb. 7, 11, 18. Total 8 trips, 0830-1150, averaging 1.2 hours. **Count:** Tufted Titmouse, 6 (74, 30); Red-headed Woodpecker, 5 (62, 25); Black-capped Chickadee, 3 (37, 15); Dark-eyed Junco, 3; Blue Jay, 2 (25, 10); Red-bellied Woodpecker, 1 (12, 5); Downy Woodpecker, 1; White-breasted Nuthatch, 1; Golden-crowned Kinglet, 1; Great Horned Owl, +; Am. Goldfinch, +. **Average Total:** 23 birds (284/km², 115/100 acres). **Remarks:** Total species, 11. Red-headed Woodpecker, Black-capped Chickadee and Tufted Titmouse were seen on all trips. No windthrow from the windstorm in Aug. 1982 was noted in this plot except for 2 fairly old snags.

23. OAK-HICKORY FOREST, VI. — **Location:** Kansas; Douglas Co., West Beisecker Woods. Predominantly on the SW ¼, NE ¼, Sec. 35, T14S, R20E, 38°48'N, 95°09'W, Baldwin City Quadrangle, USGS. **Continuity:** Established 1979, 4 years. **Size:** 8.1 ha = 20 acres. **Coverage:** Jan. 7, 10, 19, 23, 26; Feb. 7, 11, 18. Total 8 trips, 0830-1150, averaging 1.1 hours. **Count:** Tufted Titmouse, 3 (37, 15); Red-headed Woodpecker, 2 (25, 10); Red-bellied Woodpecker, 1 (12, 5); Downy Woodpecker, 1; Blue Jay, 1; Hairy Wood-

pecker, +, Com. Crow, +, White-breasted Nuthatch, +; Brown Creeper, +; Am. Goldfinch, +. **Average Total:** 8 birds (99/km², 40/100 acres). **Remarks:** Total species, 10. Only the Red-headed Woodpecker was seen on each trip. This was the only plot of the six that showed a decrease in densities compared to the past two winters. Tree composition is much different from the other plots and population changes here seem to be relatively independent of changes on the other plots.

24. OAK-HICKORY FOREST VII. — **Location:** Kansas; Douglas Co., Priestley's Woods. Predominantly on NW ¼, SW ¼, Sec. 22, T-14S, R-20E, 38°48'N, 95°12'W, Baldwin City Quadrangle, USGS. **Continuity:** New Size: 8.1 ha = 20 acres. **Description of Plot:** See AB 36:85 (1982). This census plot is much more level than the Oak-Hickory Forest I-VI censuses and is located on both sides of a major creek. **Weather:** Same as Oak-Hickory I-VI. **Coverage:** Feb. 7, 11, 14, 20-21, 25, 28; Mar. 6-7, 11. Total, 10 trips, 0740-1240, averaging 2 hr. **Count:** Am. Robin, 34 (420, 170); Dark-eyed Junco, 17 (210, 85); Black-capped Chickadee, 9 (111, 45); Com. Crow, 6 (74, 30); Red-winged Blackbird, 6; Cardinal, 5 (62, 25); Tufted Titmouse, 4 (49, 20); Brown Creeper, 4; Golden-crowned Kinglet, 4; Red-bellied Woodpecker, 3 (37, 15); Downy Woodpecker, 3; Blue Jay, 3; White-breasted Nuthatch, 2 (25, 10); E. Bluebird, 2; Red-tailed Hawk, 1 (12, 5); Com. Flicker, 1; Red-headed Woodpecker, 1; Hairy Woodpecker, 1; Am. Kestrel, +; Great Horned Owl, +; Barred Owl, +; Yellow-bellied Sapsucker, +; Brown Thrasher, +; Starling, +; Com. Grackle, +; Brown-headed Cowbird, +. **Average Total:** 106 birds (1310/km², 530/100 acres). **Remarks:** Total species, 26. This census was conducted relatively late, compared to other censuses we conducted, but even accounting for that this plot seems to support greater numbers of species and individuals. Two large flocks of robins were seen; 180 on Feb. 25 and 104 on Mar. 11. Also, one flock of 17 bluebirds was seen on Feb. 25. The number of chickadees was also especially high throughout the count period.—*WILLIAM J. STARK, JR. and ROGER L. BOYD, Biol. Dept., Baker Univ., Baldwin City, KS 66006.*

25. PONDEROSA PINE FOREST. — **Location:** Colorado; Boulder Co., in the lower foothills 0.5 mile S of Baseline Rd., Boulder; in the E part of sec. 1, T1S, R71W, 6th PM. **Continuity:** Established 1953-54; 19 intermittent years. **Size:** 8.1 ha = 20 acres. **Description of Plot:** Situated in the NE corner of a pine-covered mesa, at an elevation of 5900 ft. See AFN 8:372 (1954). **Weather:** Snowfall scarce; dry and warm. Snow partially or wholly covered the plot on 7 trips; the most was 3 in. on Jan. 1. Temperatures, 30°-55°F. **Coverage:** Nov. 1, 15, 22, 28; Dec. 6, 13, 19; Jan. 1, 5, 14, 23, 31; Feb. 14, 20. Total 14 trips, 0840-1130 totaling 13 hrs. **Count:** Red-breasted Nuthatch, 20 (247, 100); Pygmy Nuthatch, 18 (222, 90); Red Crossbill, 8 (99, 40); Mountain Chickadee, 7 (86, 35); White-breasted Nuthatch, 3 (37, 15); Black-billed Magpie, 2 (25, 10); Steller's Jay, 2; House Finch, 2; Brown Creeper, 1 (12, 5); Com. Flicker, +; Hairy Woodpecker, +; Downy

Woodpecker, +, Com. Crow, +, Townsend's Solitaire, +; Pine Siskin, +; Dark-eyed Junco (White-winged race), +; Junco sp., +. **Average Total:** 63 birds (778/km², 315/100 acres). **Remarks:** Total species, 17. The invasion of Red-breasted Nuthatches and Red Crossbills was unusual and boosted the winter population to well above average.—*LOUISE HERING, 568 Marine, Boulder, CO 80302 and BOB JICKLING, 310 Skylark Way, Boulder, CO 80303.*

26. PONDEROSA PINE - SCRUB OAK FOREST. — **Location:** Colorado; El Paso Co., U. S. Air Force Academy; 500 m W of the junction of Monument Creek and West Monument, 38°57'N, 104°50'W, Pikeview Quadrangle, USGS. **Continuity:** Established 1980; 2 years. **Size:** 12 ha = 29.65 acres (rectangle, measured). **Description of Plot:** See AB 35:88. **Weather:** Temperature and winds for Dec., Jan., and Feb. were near normal. Precipitation was unusually high, with a near record snowfall for Dec. The days of snowfall were twice the norm for the entire period. **Coverage:** Dec. 25, 28; Jan. 1, 9, 18, 24, 30; Feb. 20. Total: 8 trips 0730-1400, averaging one hr. **Count:** Dark-eyed Junco, 11 (92, 37); Pygmy Nuthatch, 8 (67, 27); Mountain Chickadee, 6 (50, 20); Gray-headed Junco, 2 (17, 7); Steller's Jay, 1 (8, 3); White-breasted Nuthatch, 1; Brown Creeper, 1; Townsend's Solitaire, 1; Red Crossbill, 1; Great Horned Owl, +; Hairy Woodpecker, +; Downy Woodpecker, +, Com. Raven, +; Am. Goldfinch, +. **Average Total:** 31 birds (258/km², 105/100 acres). **Remarks:** Total species, 14. *JOHN ORBRINGER, U.S.A.F. Academy, CO 80840.*

27. PONDEROSA PINE-DOUGLAS FIR FOOTHILLS FOREST. — **Location:** Washington, Spokane Co.; Dishman Hills of Browne Mt., 2 mi. e. of Spokane. SE ¼ of sec. 19, T25N, R44E; 47°39'N, 117°17'W, Spokane Quadrangle, USGS. **Continuity:** Established 1975. **Size:** 11.15 ha = 27.55 acres (rectangular, 1600 × 750 ft, the long axis N-S, surveyed by tape and compass) **Description of Plot:** See AB 30:1051-52 (1976). **Weather:** Temperature 19°F to 36°F. Cloudy (4 trips), clear to partly cloudy (2 trips), snowing and light rain (1 trip). Wind 0-3 mph (up to 8-10 mph Feb. 3). Snow depth 4-14 in (some bare ground Feb. 3 & 8.). **Coverage:** Dec. 16, 29; Jan. 13, 18, 25; Feb. 3, 8, 1000-1224. Total man-hours: 14.3. **Count:** Red Crossbill, 4 (36, 15); Red-breasted Nuthatch, 3 (27, 11); Golden-crowned Kinglet, 1 (9, 4); Ruffed Grouse +; Com. Raven +. **Average Total:** 8 birds (72/km², 29/100 acres). **Remarks:** Total species: 5. A rather poor conifer seed crop.—*THOMAS H. ROGERS, E 10820 Maxwell Ave., Spokane, WA 99206*

28. SLICKROCK-PONDEROSA PINE-PYGMY FOREST-CHAPARRAL. — **Location:** Utah; Washington Co., Zion Nat'l Park, unsurveyed area along Zion—Mt. Carmel highway, with S center of plot at the confluence of Pine and Clear Creeks, 37°12'53"N, 112°56'04"W; Zion Nat'l Park Topographic Map (Zion Canyon Section), USGS. **Size:** 16.19 ha = 40 acres (440 yards square, paced). **Continuity:** Established 1981. **Description of Plot:** See AB 35:91-92

(1981) **Weather:** Temperatures 4-5° below normal; snowfall above average. **Coverage:** Dec 19, 31; Jan. 2, 9, 15, 21, 24, 26, 29; Feb. 8, 10 trips averaging 124 min, 1005-1530 MST. **Count:** Plain Titmouse, 2 (12, 5); Com. Raven, 1 (6, 3); White-breasted Nuthatch, 1; Pygmy Nuthatch, 1; Gray-headed Junco, 1; Hairy Woodpecker, +; N. Three-toed Woodpecker, +; Steller's Jay, +; Mountain Chickadee, +; Brown Creeper, +; Townsend's Solitaire, +; N. Shrike, +; Dark-eyed Junco, +. **Average Total:** 6 birds (37/km², 15/100 acres). **Remarks:** Total species, 13. Plain Titmouse and White-breasted Nuthatch were found on 6 trips and Com. Raven was seen on 4; all other birds were present on 3 or fewer trips. The average total was the same as last year, but the number of species increased from 9 to 13. Although N. Three-toed Woodpecker was a new bird for Zion, it was first reported from Cedar Breaks Nat'l Mon., less than 20 mi to the N, in 1947. It was found on Jan. 15, feeding on a Ponderosa Pine.—*JEROME L. GIFFORD, P. O. Box 85, Springdale, Utah 84767.*

29. DECIDUOUS OAK WOODLAND. — **Location:** California; Monterey Co., Hastings Reservation, 2.5 mi E. Jamesburg; 36°23'N, 121°33'W, Rana Creek Quadrangle, USGS. **Continuity:** Established 1978, 4 consecutive years. **Size:** 5.67 ha = 14 acres. **Description of Plot:** See AB 33:82-83. **Weather:** Temperatures during Feb., 26°-78°F. Mean minimum was 37° and mean maximum was 63°, compared to 40-year means of 36° and 61°, respectively. February precipitation was 1.58 in., considerably below the 40-year mean of 3.67 in. However, season-to-date precipitation through the end of February was above normal (17.35 in. vs 40-year mean of 14.70 in.) and included 4 in. of snow, Jan. 19-21. **Coverage:** Feb. 1, 8, 10, 18-19, 21, 23-24, 26; Total, 9 trips, 0720-0945 PST. Total hours: 9.3. **Census:** Dark-eyed Junco, 14 (247, 100); W. Bluebird, 4 (71, 29); Plain Titmouse, 3 (53, 21); Hermit Thrush, 2 (35, 14); Nuttall's Woodpecker, 1 (18, 7); Scrub Jay, 1; White-breasted Nuthatch, 1; Am Robin, 1; Ruby-crowned Kinglet, 1; Yellow-rumped Warbler, 1; Anna's Hummingbird, +; Com. Flicker, +; Acorn Woodpecker, +; Downy Woodpecker, +; Violet-green Swallow, +; Hutton's Vireo, +, Brown Towhee, +. **Average Total:** 29 birds (512/km², 207/100 acres). **Remarks:** Total, 17 species. Dark-eyed Junco, W. Bluebird, and Plain Titmouse were recorded on all 9 censuses. Total density was considerably below that recorded last year, but similar to those of the first 2 years of the study. Violet-green Swallows were observed on 3 of the later censuses and were apparently early migrants. Flocks of Band-tailed Pigeons frequently were seen flying over the study area, but were never recorded on the plot.—*RONALD L. MUMME and ALAN DEQUEIROZ, Hastings Reservation, University of California, Star Route Box 80, Carmel Valley, CA 93924.*

30. WILLOW-ASPEN RIVER VALLEY. — **Location:** Alberta; within Weaselhead Park, Calgary, Section 26, T23, R2W5M. **Continuity:** New. **Size:** 8.6 ha = 21.3 acres (rectangular, 1470 × 630 ft, estimated with

compass and steel tape) **Description of Plot:** Majority is willow thicket and open willow-aspens. Aspen average 4 in. dbh but range to more than 12 in. dbh. White Spruce average 8 in. and range to more than 15 in. Pussy Willow (*Salix discolor*), 35%; Wolf Willow (*Elaeagnus commutata*) 30%; Red Osier Dogwood (*Cornus stolonifera*) 10%; Quaking Aspen (*Populus tremuloides*) 10%; Water Birch (*Betula occidentalis*) 3%; White Spruce (*Picea glauca*) 3%; Shrubby Cinquefoil (*Potentilla fruticosa*) 3%; Common and Swamp Horsetail (*Equisetum arvense* and *E. fluviatile*) 3%; miscellaneous 3%. The willows average 12 ft, the aspens 15 ft, but both they and the White Spruce range in excess of 50 ft. Several trails traverse the area. **Topography:** Rises slightly to the N, average elevation 3505 ft. **Edge:** The plot is part of a diverse river valley park. An old road runs along part of the W border. An abandoned river cuts the SE corner of the plot resulting in approximately one acre of marshy meadow. **Water:** The Elbow River bounds the N edge of the plot. A number of the fast reaches along the river remain open through most of the winter. **Food:** The wild food crop of berries and seeds was good. Few cones and no dead wood. **Weather:** Daytime temperatures, -24°-9°C., average -5°. Night temperatures, -29°-0°C. Snowfall totalled 6.4 in. Snow cover averaged 8 in. **Coverage:** Jan. 23-24, 30-31 (2 trips); Feb. 6 (2 trips) = 7, 14, 20. Total: 10 trips, averaging 51 min each. Total man-hours: 8.5. **Count:** Bohemian Waxwing, 10 (116, 47); Com. Redpoll, 8 (93, 38); Black-capped Chickadee, 2 (23, 9); Black-billed Magpie, 1 (12, 5); Pine Grosbeak, 1; Great Horned Owl, +; Downy Woodpecker, +; Com. Raven, +; Am. Robin, +; N. Shrike, +; Evening Grosbeak, +. **Average Total:** 22 birds (255/km², 103/100 acres). **Remarks:** Total species, 11. The Bohemian Waxwing was noted on 5 trips, Com. Redpoll was seen on 8 trips, Black-capped Chickadee, on 8, the Black-billed Magpie on 9, the Evening Grosbeak on 1, and the Pine Grosbeak on 3. A flock of 51 Bohemian Waxwing was seen on one trip. 32 Com. Redpolls were seen on one trip and 25 on another.—*DOUG M. COLLISTER, 3426 Lane Cresc. S.W., Calgary, Alberta, T3E 5X2.*

31. FLOODPLAIN FOREST AND CULTIVATED BOTTOMLAND. — **Location:** New York; Allegany Co., N of and adjacent to Scio, 42°10'N, 77°59'W, Wellsville Quadrangle, USGS. **Continuity:** Established 1971; 11 intermittent years (1978 omitted). **Size:** 51.8 ha = 128 acres. **Description of Plot:** See AB 25:644-645 (1971). More willow shoots and a 9-in. poplar cut down by beavers and 20 to 30 ft. of riverbank on upper and lower ends lost to flood of Oct. 28. Cultivated area: 13 acres hay; 40 acres corn stubble; 35 acres fresh plowing, an excellent source of grit. **Food:** Very scarce except for abundant rabbits and squirrels and regular top dressings. **Weather:** Although Lake Erie, 60 mi NW of Scio, froze Jan. 12, a week late, foul weekends characterized the month, with high winds and/or blizzards the first 4 and an ice storm the last. Snow cover, 3-10 in. with a thick, solid crust effectively sealing off abundant corn gleanings except where opened by tractor treads or snowmobiles. Tempera-

tures averaged 5 °F (2 °C) below normal with mean for beginning of trips 20 °F (-6.3°). For most of the 27-day study period, the Genesee River was frozen except for a narrow channel at the N and S ends of the plot, and only the small spring-fed area of the upper slough pool was ice free. (Weather data courtesy of Ken Johnson, Wellsville Water & Light.) **Coverage:** Jan. 2, 6, 9, 13, 16, 20, 28. Seven trips, averaging 100 min each, 0825-1200 EST. Total 11.7 hours. **Count:** House Finch, 54 (104, 42); Rock Dove, 21 (41, 16); Evening Grosbeak, 21; Starling, 18 (35, 14); House Sparrow, 17 (33, 13); Com Crow, 10 (19, 8); Snow Bunting, 9 (17, 7); Blue Jay, 8 (15, 6); Brown-headed Cowbird, 8; Mourning Dove, 5 (10, 4); Downy Woodpecker, 4 (8, 3); Cardinal, 4; Am. Goldfinch, 4; Dark-eyed Junco (Sl.-col.), 4; White-breasted Nuthatch, 3 (6, 2); Black-capped Chickadee, 2 (4, 2); Tree Sparrow, 2; Com Merganser, 1 (2, 1); Red-bellied Woodpecker, 1; Red-winged Blackbird, 1; Purple Finch, 1; Com. Redpoll, 1; Song Sparrow, 1; Red-tailed Hawk, +; Rough-legged Hawk, +; Ruffed Grouse, +; Herring Gull, +; Belted Kingfisher, +; Pileated Woodpecker, +. **Average Total:** 200 birds (386/km², 156/100 acres). **Remarks:** Comparing 1982 with '71-'81 average (in parentheses). Total species, 29 (26). Per trip: Total birds, 200 (174), crow, 10 (81), and excluding both crow and Snow Bunting, 181 (90). New for the study were the Ruffed Grouse and Brown-headed Cowbird. Appearing on every trip were the Blue Jay, Com. Crow, House Sparrow, Cardinal, Evening Grosbeak and House Finch; and on every trip but one were the Rock Dove, Downy Woodpecker, Black-capped Chickadee, White-breasted Nuthatch, Brown-headed Cowbird and Dark-eyed Junco. The Com. Merganser, Red-winged Blackbird, Com. Redpoll, Song Sparrow and Snow Bunting were each seen only once. Noted regularly a short distance outside the study area were Black Duck, Com Goldeneye, a Cooper's Hawk and Turkeys. This best count since 1976 is partially a reflection of the concentration of birds at three well stocked feeders next to the plot in Scio village. This population used the plot for cover, grit and foraging as well as for bathing and feeding along the river. Grateful acknowledgement to Roberta Clark and Raymond Pitzrick for field help, Jan. 2, and to Charles Maybee for permission to use the property.—*VIVIAN MILLS PITZTRICK, Amity Lake, Belmont, N.Y. 14813.*

32. MIXED LOWLAND FOREST AND MEADOW WITH STREAM. — **Location:** Pennsylvania; Erie Co., 0.3 miles S of the Borough of Edinboro on W side of State Hwy 99; extends S through the Big Conneauttee Creek Valley, 41°51'30"N, 80°07'30"W, Cambridge Springs Quadrangle, USGS. **Continuity:** New. BBC established 1981. **Size:** 8.1 ha = 2 acres (rectangular), 1205 ft N—S by 723 ft E—W. **Description of Plot:** See BBC this issue #000. **Weather:** Temperatures averaged 2.3°F above normal in Dec. and 5.9° below normal in Jan. Precipitation was normal in Dec. and 1.4 in. above normal in Jan. Snow cover, 4-9 in. throughout the study period and had been present since Dec. 11. Temperatures during the trips 18°-32°. The

stream flowing through the area is the outlet for Edinboro Lake and does not freeze over during the winter. **Coverage:** Dec. 23-26, 28; Jan. 1, 3, 5. **Total:** 8 trips, averaging 105 min., 0800-1330. **Count:** Mallard, 13 (161, 65); Tree Sparrow, 9 (111, 45); Black-capped Chickadee, 7 (86, 35); House Sparrow, 6 (74, 30); Cardinal, 5 (62, 25); Am. Goldfinch, 5; Blue Jay, 4 (49, 20); Dark-eyed Junco, 4; Downy Woodpecker, 3 (37, 15); Evening Grosbeak, 3; Song Sparrow, 3; White-breasted Nuthatch, 2 (25, 10); Great Blue Heron, 1 (12, 5); Red-tailed Hawk, 1; Am. Kestrel, 1; Mourning Dove, 1; Belted Kingfisher, 1; Hairy Woodpecker, 1; Com. Crow, 1; Tufted Titmouse, 1; Starling, 1; Pintail, +; Cooper's Hawk, +; Ruffed Grouse, +; Red-breasted Nuthatch, +; Brown-headed Cowbird, +. **Average Total:** 73 birds (902/km², 365/100 acres). **Remarks:** Total species, 26. Birds seen per trip, 40-95. Species seen on fewer than 33% of the trips (1 or 2) are listed with a plus. Bird feeders were present at one location on the study site and probably had some influence on density and diversity.—*DONALD B. SYNDER, Department of Biology, Edinboro State College, Edinboro, PA 16444.*

33. MIXED UPLAND HABITAT. — **Location:** District of Columbia, the central third of Glover-Archbold Park, a long, narrow stream valley park, 38°55'N, 77°05'W, Washington W Quadrangle, D.C.-MD.-VA., USGS. **Continuity:** Established 1960; 23 years. **Size:** 14.2 ha = 35 acres. **Description of Plot:** see AFN 14:502-503 (1960). **Weather:** Average temperature of trips, 38°F, but average for the period lower, since no trips were made during record Jan. cold; 7 trips with snow cover (3 snowing) 2 raining, 8 cloudy, 5 clear, wind mostly calm but 4 days windy, one at 23-40 mph. **Coverage:** Jan. 9, 30 (2 trips), Feb. 6, 7 (3 trips), 9, 11-14 (2 trips), 16, 20 (2 trips), 21 (2 trips). **Total:** 18 trips, 16, complete coverages, 0930-1750, 8 in morning, 8 in afternoon, 2 spanning noon, 28 hours, averaging 1 hour 45 min. **Count:** Carolina Chickadee, 16 (113, 46); Rock Dove, 8 (56, 23); Com. Crow, 7 (49, 20); Downy Woodpecker, 6 (42, 17); Tufted Titmouse, 6; Cardinal, 4 (28, 11); House Sparrow, 4; Red-bellied Woodpecker, 3 (21, 9); Starling, 3; Dark-eyed Junco, 3; Blue Jay, 2; White-breasted Nuthatch, 2; Turkey Vulture, 1 (7, 3); Com. Flicker, 1; Mockingbird, 1; Brown-headed Cowbird, 1; Am. Goldfinch, 1; White-throated Sparrow, 1; Black Vulture, +; Red-tailed Hawk, +; Am. Kestrel, +; Mourning Dove, +; Screech Owl, +; Pileated Woodpecker, +; Hairy Woodpecker, +; Fish Crow, +; Brown Creeper, +; Winter Wren, +; Carolina Wren, +; Com. Grackle, +; Purple Finch, +; House Finch, +; Rufous-sided Towhee, +; Song Sparrow, +. **Average Total:** 70 birds (494/km², 200/100 acres). **Remarks:** Total species, 34. Herring and Ring-billed gulls flew over the plot. One sighting of a probable Cooper's Hawk would have added a new species but it was not seen clearly enough. Totals were down slightly from last year, perhaps reflecting record Jan. cold, with brief below-zero temperatures.—*SHIRLEYA. BRIGGS (compiler); L. HARTSELL CASH, KERK FISHER, OLIVE HOLBROOK, LISA LEFFERTS, RICH-*

ARD RAINES, EDGAR H SMITH, 7605 Honeywell Lane, Bethesda, MD 20814.

34. 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 1975, 7 years. **Size:** 22.5 ha = 55.5 acres. **Description of Plot:** See AB 30:1055 (1976) and AB 35:31 (1981). **Weather:** Normal temperatures in Dec. and early Jan., then below normal for remainder of the period. Snow cover much above normal. Temperature from -10°F to 38°, average 16°. Creek was never frozen solid although it was 90+% on several trips. **Coverage:** Dec. 12, 24; Jan. 3, 17, 26; Feb. 7, 9. **Total:** 7 trips, averaging 90 mins., 6 between 0800 and 1100 EST and 1, 1300-1500. **Total man-hours:** 10.5. **Count:** House Sparrow, 27 (120, 49); Dark-eyed Junco, 16.5 (73, 30); Tree Sparrow, 12.5 (56, 23); Am. Goldfinch, 12 (53, 22); Mourning Dove, 9 (40, 16); Cardinal, 8 (36, 14); Song Sparrow, 6 (27, 11); Starling, 3.5 (16, 6); Downy Woodpecker, 2 (9, 4); Blue Jay, 2; Black-capped Chickadee, 2; Com. Flicker, 1 (4, 2); White-breasted Nuthatch, 1; Com. Redpoll, 1; Sharp-shinned Hawk, +; Screech Owl, +; Belted Kingfisher, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; Tufted Titmouse, +; Brown Creeper, +; Cedar Waxwing, +; House Finch, +; Field Sparrow, +. **Average Total:** 103.5 birds (461/km², 186/100 acres). **Remarks:** Total species, 24, highest since count began. Sharp-shinned Hawk, Hairy Woodpecker and House Finch were new to the count.—*JAMES COFFMAN and H. THOMAS BARTLETT (compiler), 3443 East Co. Rd. 36, Tiffin, OH 44883.*

35. MIXED HABITAT - DISTURBED BOTTOMLAND. — **Location:** Oklahoma; Washington Co., Dewey, 2 mi W of intersection of Ninth St. and Hwy 75 and 0.3 mi N on E bank of Caney River; 36°48'N, 95°58'W, Tulsa Quadrangle, USGS. **Continuity:** Established 1972; 10 consecutive years. **Size:** 40.47 ha = 100 acres. **Description of Plot:** See AB 26:976-977 (1972). **Weather:** Cold, little precipitation. Temperatures were above freezing on only one count. **Coverage:** Dec. 23, 30; Jan. 12, 19, 27; Feb. 2, 8; 0755-1155; total 20 hrs, 5 min. **Count:** Carolina Chickadee, 16 (40, 16); Dark-eyed Junco, 16; Bobwhite, 14 (35, 14); Blue Jay, 9 (22, 9); Red-bellied Woodpecker, 7 (17, 7); Tufted Titmouse, 7; Downy Woodpecker, 6 (15, 6); E. Bluebird, 6; Am. Robin, 4 (10, 4); Cardinal, 4; Am. Goldfinch, 4; White-breasted Nuthatch, 3 (7, 3); Red-winged Blackbird, 3; Song Sparrow, 3; Com. Flicker, 2 (5, 2); Red-headed Woodpecker, 2; Brown Creeper, 2; E. Meadowlark, 2; Purple Finch, 2; Red-tailed Hawk, 1 (2, 1); Great Horned Owl, 1; Barred Owl, 1; Pileated Woodpecker, 1; Hairy Woodpecker, 1; Com. Crow, 1; Carolina Wren, 1; House Sparrow, 1; Fox Sparrow, 1; Great Blue Heron, +; Sharp-shinned Hawk, +; Red-shouldered Hawk, +; Marsh Hawk, +; Mockingbird, +; Hermit Thrush, +; Loggerhead Shrike, +; Starling, +; Tree Sparrow, +. **Average Total:** 121 birds (299/km², 121/100 acres). **Remarks:** Total species, 37. Only the Red-tailed

Hawk, Barred Owl, Red-bellied and Downy woodpeckers, chickadee, titmouse, and Song Sparrow were seen on every trip. Seed and mast crops were very poor. Only sumacs held their fruit into winter, and the thrush species and flicker were seen feeding on sumac berries. The Carolina Wren and House Sparrow were present for the first time since 1976. The low count for finch species is typical of the entire area this winter.—*ELLA DELAP, 409 N. Wyandotte, Dewey, OK 74029.*

36. CAMPGROUND IN OLD ORCHARDS. — **Location:** Utah; Washington Co., Zion Nat'l Park, Watchman campground, loops A, B and C; 37°12'N, 113°00'W; Zion Nat'l Park Topographic Map (Zion Canyon Section), USGS. **Size:** 10.1 ha = 25 acres. **Continuity:** Established 1981. **Description of Plot:** See AB 36: 37 (1982). **Weather:** Temperatures 4-5°F below normal, above-average precipitation, with snowfall totaling 13 in. during study period. **Coverage:** Dec. 20; Jan. 2, 5, 10, 16, 22, 25, 27, 31, Feb. 5; 10 trips averaging 127 minutes, 1005-1610 MST. **Count:** Dark-eyed Junco, 32 (316, 128); Red-winged Blackbird, 28 (277, 112); Starling, 22 (217, 88); Com. Flicker, 8 (79, 32); Am. Robin, 8; Gray-headed Junco, 7 (69, 28); Mountain Chickadee, 6 (59, 24); Brewer's Blackbird, 5 (49, 20); Black-capped Chickadee, 4 (40, 16); Yellow-bellied Sapsucker, 3 (30, 12); Downy Woodpecker, 3; Hairy Woodpecker, 2 (20, 8); Ruby-crowned Kinglet, 2; Am. Goldfinch, 2; Brown Creeper, 1 (10, 4); Great Blue Heron, +; Sharp-shinned Hawk, +; Am. Kestrel, +; Belted Kingfisher, +; Say's Phoebe, +; Scrub Jay, +; Com. Raven, +; Red-breasted Nuthatch, +; Hermit Thrush, +; W. Bluebird, +. **Average Total:** 133 birds (1315/km², 532/100 acres). **Remarks:** Total species, 25. Woodpeckers, chickadees and kinglet were the only birds seen on 9 or 10 trips. Red-winged Blackbird, second highest this year, was not present last year, while House Finch, fourth highest last year, was not found this year. Woodpeckers and starlings were drawn to the plot by pecans still on the trees.—*JEROME L. GIFFORD, P.O. Box 85, Springdale, Utah, 84767.*

37. DISTURBED COASTAL FLOODPLAIN. — **Location:** California; Orange Co., 1 mi NE of Santa Ana River mouth, 33°38'45'N, 117°56'50'W, Newport Beach Quadrangle, USGS. **Continuity:** New. **Size:** 9.7 ha = 24 acres (trapezoidal in shape, N base 430 ft, S base 860 ft, measured by calibrated pace), elev. 1620 ft. **Description of Plot:** A disturbed, heterogeneous, low-lying plot with mixed habitats. Surface runoff from outlying areas and storm sewers provides variable fresh water source. A small (1 acre) marsh is located along the N border of the plot and consists of cattail (*Typha* sp.) and sedge (*Cyperus oederatus*). The balance of the plot is, to varying extents, flooded subsequent to winter rains. Approximately 6 acres (25%) is dominated by immature willows (*Salix* sp.); most of the trees are concentrated in the SW quadrant and form a relatively continuous vegetation. The trees range from 10 to 30 ft in height; most are 15-25 ft. DBH ranges less than 1 in. to 12 in.; average of 4.5 in. Understory almost entirely Pampasgrass

(*Cortaderia* sp.), cover ranges from sparse to dense. SE and S central 6 acres dominated by dense association of Cocklebur (*Xanthium strumarium*), *C. oleratus*, various grasses and Asteraceae herbs; Mulefat (*Baccharis glutinosa*), Castor Bean (*Ricinus communis*), and *Cortaderia* scattered throughout. E. central (5 ± acres) is highly disturbed and partially barren; otherwise covered by low forbs and grasses and widely scattered *Haplopappus venetus* shrubs. N sector (exclusive of marsh) consists of dense (impassable) to scattered tussocks of *Cortaderia*, extensive *Cyperus*, isolated stands of bamboo, and representatives of most of the other species previously mentioned. Edge: The S edge is defined by a fence and telephone poles (more disturbed floodplain-oil field beyond); E edge is W. Balboa Blvd. (residential area and small park beyond); N edge is a dirt road (bluffs and residential area beyond); W edge is similar to, but drier than, non-willow associations described previously. **Topography:** Elevation range 5-20 ft; 5-10 ft. and imperceptible slope if extreme E edge is excluded. **Water:** Maximum depth of standing water 16 in.; average depth 3 in. Food: Insect, other invertebrate, frog, lizard and small mammal populations large and diverse; good plant food crop. **Weather:** Temperature range: 44-67°F; avg low, 49°; avg high, 63°. Heavy rain prior to start of count; trace amounts during actual count period. Winter rainfall well below seasonal average. Six count days with little or no wind; two days with moderate to high (10-30 mph) winds. Skies ranged from clear (3 days) to overcast (1 day). **Coverage:** Jan. 7, 10-12, 14-15, 19, 25; first 6 counts 0825-1235; last 2 1330-1605. Eight counts averaging 2.6 hrs each. **Count:** Song Sparrow, 19 (196, 79); Bushtit 16 (165, 67), Anna's Hummingbird, 10 (103, 42); Ruby-crowned Kinglet, 10; Yellow-rumped Warbler, 8 (82, 33); Com. Yellowthroat, 7 (72, 29); Blue-gray Gnatcatcher, 6 (62, 25); House Finch, 4 (41, 17); Lesser Goldfinch, 4; Hermit Thrush, 3 (31, 13); Townsend's Warbler, 3; Red-tailed Hawk, 2 (21, 8); Orange-crowned Warbler, 2; Red-winged Blackbird, 2, White-crowned Sparrow, 2; Turkey Vulture, 1 (10, 4); White-tailed Kite, 1; Red-shouldered Hawk, 1; Sora, 1; Com. Snipe, 1; Com. Flicker, 1; Black Phoebe, 1; Com. Crow, 1; Long-billed Marsh Wren, 1; Black-and-white Warbler, 1; Am. Redstart, 1; W. Meadowlark, 1; Am. Goldfinch, 1; Lincoln's Sparrow, 1; Sharp-shinned Hawk, +; Cooper's Hawk, +; Marsh Hawk, +; Virginia Rail, +; Mourning Dove, +; Belted Kingfisher, +; Say's Phoebe, +; Bewick's Wren, +; Loggerhead Shrike, +; Hutton's Vireo, +; N. (Bullock's) Oriole, +; Brown Towhee, +. **Average Total:** 112 birds (1153/km², 467/100 acres). **Remarks:** Total species, 41. Numerous flyovers noted but not included: ducks, gulls, Rock Doves and Starlings (several times each); Com. Ravens and Greater Yellowlegs (once each). Burrowing Owls (maximum of 2) were observed on 3 occasions just to N of plot boundary. A disproportionately high number of species were found in the willows; density projections of some species may thus be affected. The Townsend's Warblers, Black-and-white Warbler, and Am. Redstart were found exclusively in the SW willow forest; the latter two species are of casual occurrence in coastal

California. Bushtits may have been induced to cross plot boundaries by "pishing" and squeaking techniques. Singing Song Sparrows were quite conspicuous during morning count periods but were much harder to locate in afternoon counts. The count area represents increasingly rare open space in coastal Orange County. Although disturbed, a large part of the plot provides excellent escape and feeding cover for a tremendous variety of animal species. While generally destructive, human activity in the area is nevertheless minimal.—LOREN R. HAYS, Dept. of Biology, Calif. St. Univ., Long Beach, and 21661 Brookhurst # 109, Huntington Beach, CA 92646.

38. SUBURBAN SHRUBLAND. — **Location:** New York; Monroe Co., Roberts Wesleyan College, North Chili, 43°08'N, 77°48'W, Spencerport Quadrangle, USGS. **Continuity:** New. **Size:** 9.07 ha = 22.42 acres (rectangular, 1050 × 930 ft., paced). **Description of Plot:** Dominated by thick growths of dogwood (*Cornus* sp.) interspersed with herbaceous vegetation (*Bromus*, *Poa*, *Solidago*, *Aster*, etc.) typical of abandoned farmland. Tree saplings, especially elm (*Ulmus* sp.), are scattered throughout and are particularly thick in a depression in the SE portion of the area. A deteriorating treeline (including *Prunus*, *Quercus* and *Ulmus* sp.) runs through the S portion of the plot. Vegetation to the S of this treeline is much less shrubby than the rest of the plot. **Topography:** Gently rolling. The highest portion is a relatively non-woody knoll in the NE corner and the lowest is a C-shaped depression in the SE portion of the plot. **Edge:** Bordered on the N and E by treelines of mixed deciduous species, on the S by shrub and grass growth, and on the W by residential housing. Residential housing is within 100 yds of the plot along approximately 65% of the plot's boundaries. Snowmobile trails meander through the outer portions of the plot. **Water:** A few inches of standing water and/or ice were present in the depression. Food: Fruiting trees and shrubs were present as were seedy tops of herbaceous plants. **Weather:** Temperatures stayed below freezing on 34 days and above freezing on 3 nights. One day and 7 nights had sub-zero (°F) temperatures. Temperatures, -15°-50°. By the end of the season 102 in. of snow fell, with 9 days during the period having snowfalls greater than 1 in. The ground was usually covered with 1-2 ft of crusty snow, although about 50% of the plot was snow free on one trip. The winds were southerly on 5 of the 6 trips (northerly on the remaining) and ranged from 0-10 mph. **Coverage:** Jan. 2, 6, 12, 29; Feb. 5, 15. Total, 6 trips, 1120-1544, averaging 69 minutes. **Count:** Black-capped Chickadee, 6 (66, 27); Cardinal, 4 (44, 18); House Sparrow, 3 (33, 13); Tree Sparrow, 3; Starling, 2 (22, 9); Mourning Dove, 1 (11, 4); Downy Woodpecker, 1; Am. Kestrel, +; Com. Flicker, +; Hairy Woodpecker, +; Blue Jay, +; White-breasted Nuthatch, +; Am. Robin, +; Am. Goldfinch, +. **Average Total:** 20 birds (220/km², 89/100 acres). **Remarks:** Total species, 14. Black-capped Chickadee and Cardinal were observed on all trips. Am. Kestrel, Com. Flicker, Hairy Woodpecker, Blue Jay, White-breasted Nuthatch, Am. Robin and Am. Goldfinch

were observed on 1 trip each. Pheasant tracks were seen on half the trips, especially in the wet elm thicket, although no pheasants were flushed. Possibly the area served as an evening roost. Purple Finches were observed in a hedgerow just outside the plot on 3 of the 6 trips.—LYNN BRABAND, Roberts Wesleyan College, 2301 Westside Drive, Rochester, NY 14624.

39. BRUSHY FIELD AND WOODED EDGE. — **Location:** Pennsylvania; Cumberland Co., 1 mi NE of Carlisle, 0.3 mi NNW of U.S. Rte 11, off Cavalry Rd., on National Guard property; 40°12'N, 77°10'W, Carlisle Quadrangle, USGS. **Continuity:** Established 1978, 4 consecutive years. **Size:** 7.54 ha = 18.62 acres. **Description of Plot:** See AB 33:74 (1979). **Weather:** (1979-80): There was less precipitation than usual. No single snowfall resulted in more than 2 in. of snow. Temperatures during first several weeks of study and last several weeks were a few degrees above normal. January's temperatures were average. All trips were made on days without precipitation, except for light rain on one visit. Temperatures on visits, -11°-9°C with an average of 2°. **Coverage:** Dec. 16, 23, 27, 28, 31; Jan. 6, 13, 19, 25; Feb. 18, 23. Total, 11 trips averaging 96 min. each; 5 trips, 0700-1000, and 6, 1330-1700. **Count:** Starling, 11 (146, 59); Dark-eyed Junco, 10 (133, 54); House Finch, 6 (80, 32); Cardinal, 3 (40, 16); Tree Sparrow, 3; chickadee sp., 2 (27, 11); White-throated Sparrow, 2; Ring-necked Pheasant, 1 (13, 5); Downy Woodpecker, 1, Blue Jay, 1; White-breasted Nuthatch, 1, Brown Creeper, 1; Mockingbird, 1; Song Sparrow, 1; Sharp-shinned Hawk, +; Mourning Dove, +; Hairy Woodpecker, +; Com. Crow, +; Tufted Titmouse, +; Carolina Wren, +; Am. Goldfinch, +. **Average Total:** 44 birds (584/km², 236/100 acres). **Remarks:** Total species, 21. Cardinal, Dark-eyed Junco, and Mockingbird were seen on every trip. Am. Kestrel, Killdeer, Rock Dove, and Brown-headed Cowbird were seen flying over the area. **Weather (1981-82):** Winter several degrees colder than normal but with normal precipitation. Temperatures got as low as -18°C. Temperatures during visits, -7°-5°, averaging -2°. Snow cover of up to 8 in. on 5 trips; partial snow cover on 4 other trips. **Coverage:** Dec. 16, 25, 28, 29, Jan. 2, 12, 27, 30; Feb. 10, 12, 24. Total, 11 trips; 6, 0700-1200 and 5, 1500-1700, all averaging 76 min; total observer-hours, 13.9. **Count:** House Finch, 17 (226, 91); Tree Sparrow, 8 (106, 43); Dark-eyed Junco, 6 (80, 32); Cardinal, 4 (53, 21); White-throated Sparrow, 3 (40, 16); Mourning Dove, 2 (27, 11); Sharp-shinned Hawk, 1 (13, 5); Ring-necked Pheasant, 1; Downy Woodpecker, 1; Blue Jay, 1; Black-capped Chickadee, 1; Brown Creeper, 1; Mockingbird, 1; Starling, 1, Com. Crow, +; Tufted Titmouse, +; White-breasted Nuthatch, +; Com. Grackle, +; Am. Goldfinch, +; Song Sparrow, +. **Average Total:** 48 birds (637/km², 258/100 acres). **Remarks:** 20 species. Notable drops from last year (1980-81) in White-throated Sparrows, Starlings, and Am. Goldfinches. No species seen on every trip, but House Finch, Tree Sparrow, Dark-eyed Junco, Cardinal, and White-throated Sparrow all seen on 10 of 11 trips. Rock Dove and Brown-headed Cowbird observed flying over area. Large flocks

of up to several thousand Com. Crows flew over and around the area every morning and evening enroute to a roost of approximately 500,000 individuals 3 miles away.—**BRIAN F. ROLLFINKE**, 1013 Harriet St., Carlisle, PA 17013.

40. GRASSLAND MUNICIPAL AIRPORT.—**Location:** Louisiana; Natchitoches Par., municipal airport of Natchitoches, 31°44'N, 93°06'W; Provencal Quadrangle, USGS. **Continuity:** Established 1974; 1978 study not published. **Size:** 12.14 ha = 30 acres (rectangular, 1320 × 990 ft. measured with steel tape). **Description of Plot:** See AB 28:711-712 (1974). **Weather:** During the 9-day study period day temperature highs were 60-80°F. Night lows, 30°-50°. Four count days were clear, 2 were cloudy. All count days had winds up to Beaufort 3. The winter was mild with little rain or snow. **Coverage:** Feb. 16-18, 21, 23, 24. Total: 6 trips, 1200-1600 CST, averaging 50 min; total hours, 5. **Count:** E. Meadowlark, 10 (82, 33); Savannah Sparrow, 8 (66, 27); Am. Robin, 4 (33, 13); Sprague's Pipit, 1 (8, 3); Le Conte's Sparrow, 1. **Average Total:** 24 birds (198/km², 80/100 acres). **Remarks:** Total species, 5. The average total of 198/km² was down from the 9-year mean of 260/km². The E. Meadowlark and Savannah Sparrow increased in density, whereas other species were lower than in previous winters. The grass was shorter and the dry conditions could have made the area less attractive than in previous winters. The E. Meadowlark and Savannah Sparrow were observed on all trips.—**CHARLIE VIERS**, Dept. of Biological Sciences, Northwestern State Univ. of LA, Natchitoches 71457.

41. FLOODPLAIN TALLGRASS PRAIRIE.—**Location:** Kansas; Douglas Co., portion of Baker Wetlands Research Area (Baker Univ., Baldwin City). It occupies much of the NW¼, SW¼, Sec. 18, T-13N, R-20E; 33°55'N, 95°14'W, Lawrence E Quadrangle, USGS. **Continuity:** New. Established as a breeding bird census plot in 1974. **Size:** 10.1 ha = 25 acres. **Description of Plot:** See AB 28:1031-1032 (1974). **Weather:** Temperatures during the study period were colder than normal with a mean high in Jan. of 32.3°F and in Feb. of 39.4°. January lows averaged 12.9° and Feb. lows 21.3°. Precipitation was 3.6 in. greater than normal in Jan., most of it as rain. Precipitation in Feb. was less than normal (.96 in.) but included 11.6 in. of snow that accumulated the first week and a half. **Coverage:** Jan. 9, 16, 23, 30; Feb. 6, 13, 20, 27. Total, 8 trips, averaging 90 min; 1000-1200. **Count:** E. Meadowlark, 3 (30, 12); Song Sparrow, 2 (20, 8); Swamp Sparrow, 1 (10, 4); Marsh Hawk, +; Red-winged Blackbird, +; Le Conte's Sparrow, +. **Average Total:** 6 birds (59/km², 24/100 acres). **Remarks:** Total species, 6. Although this prairie was mowed in July of 1981, sufficient regrowth had occurred in late summer and fall to provide a dense cover of cordgrass averaging 100 cm tall. The area seemed to be used primarily as roosting cover. Most grass seed heads had fallen in autumn, as did forb seeds, and snow cover made this food source unavailable to the birds. E. Meadowlarks and Song Sparrows were observed on all trips. Le Conte's Sparrow was seen on one trip. White-tailed Deer (usually 4) bedded in the

tall grass and E. Cottontails were very numerous (average of 10 per census).—**CALVIN L. CINK**, Biology Department, Baker Univ., Baldwin City, KS 66006.

42. FOOTHILLS MESA BRUSHLAND.—**Location:** Colorado; El Paso Co., NW Colorado Springs, S of intersection of Garden of the Gods Rd. and 30th St.; Sec. 27 (NE¼), T13S, R67W; 38°53'30"N, 104°52'30"W, Pikeview Quadrangle, USGS. **Continuity:** New. **Size:** 24.3 ha = 60 acres; a triangular plot extending E from 30th St. upslope to Glen Eyrie Reservoir. **Description of Plot:** This plot encompasses the N end of an extensive foothills mesa, with an associated N-facing slope and a broad, W-facing amphitheater valley. Dominant vegetation includes brushy species such as the abundant Skunkbush (*Rhus trilobata*), Mountain Mahogany (*Cercocarpus montanus*), Rabbitbrush (*Chrysothamnus nauseosus*), Winterfat (*Eurotia lanata*), Four-wing Saltbush (*Atriplex canescens*), Snakeweed (*Gutierrezia sarothrae*), Snowberry (*Symphoricarpos* sp.), Wild Rose (*Rosa* sp.), Yucca (*Yucca glauca*), and Bushy Buckwheat (*Eriogonum effusum*), in an open brushland with interspersed grasses, especially Blue Grama (*Bouteloua gracilis*) and also Side-oats Grama (*B. curtipendula*), Three-awn (*Aristida* sp.), Little Bluestem (*Andropogon scoparius*) and Canada Wildrye (*Elymus canadensis*), as well as herbaceous vegetation like Pasture Sage (*Artemisia frigida*), Linear-leaved Wormwood (*A. dracunculoides*), Great Mullein (*Verbascum thapsus*), Annual Sunflower (*Helianthus annuus*), Prickly Pear (*Opuntia* sp.), Sulphur Flower (*Eriogonum umbellatum*),

Ragwort (*Senecio* sp.), and others. At the heads of ravines eroded into the mesa there are small copes of Scrub Oak (*Quercus gambelii*) and Locust (*Robinia* sp.), while there is a very limited scattering of Pinyon Pine (*Pinus edulis*), Rocky Mountain Red Cedar (*Juniperus scopulorum*) and One-seed Juniper (*J. monosperma*). Elevation: 6460-6640 ft. The upper part of the mesa is coarse gravel, overlying sedimentary beds. To the E, atop the mesa, are several old reservoir basins, only Glen Eyrie with water. The mesa top continues to E and S, sloping into valleys to the N and W, with sedimentary foothills beyond to the W. City development is encroaching on all sides but the W. **Weather:** A relatively normal winter period but windier than usual, with an average temperature of 30.5°F and a range from -8°-53°. Snowfall totaled 13.9 in. coming mainly in early March. Most of the time, however, the ground was clear. **Coverage:** Jan. 22, 25, 30; Feb. 6, 14, 19, 20, 27; Mar. 7, 9. Total, 10 trips, both am and pm, averaging 1 hr. **Count:** Dark-eyed Junco, 11 (45, 18); Black-billed Magpie, 4 (16, 7); Am. Robin, 4; Am. Goldfinch, 2 (8, 3); Tree Sparrow, 2; Townsend's Solitaire, 1 (4, 2); Red-tailed Hawk, +; Rough-legged Hawk, +; Golden Eagle, +; Am. Kestrel, +; Com. Flicker, +; Scrub Jay, +; Com. Raven, +; Black-capped Chickadee, +; House Finch, +; Pine Siskin, +; Brown Towhee, +; White-crowned (Gambel's) Sparrow, +; Song Sparrow, +. **Average Total:** 24 birds (99/km², 40/100 acres). **Remarks:** Total species, 19. The lower part of this plot includes the Blair Bridge city park, while the upper mesa is planned as an open-space portion of a projected housing development to the S. The



WB-PS 42, Colorado Springs, Co. Skunkbush, Singleseed Juniper (upper left), and Scrub Oaks (upper right). Photo/Richard G. Beidleman.

juncos and Tree Sparrows were the main winter residents, whereas other species tended to be visitors, especially from the foothills to the W. A large, isolated One-seed Juniper on the mesa slope proved to be very attractive to certain birds; 1-2 Townsend's Solitaires were regularly seen there, and on occasion the Scrub Jay and robin. Although a Brown Towhee was seen once in the plot, it was surprising that no wintering Rufous-sided Towhees were encountered here, because they do occur frequently in brushy habitat to the W. It was also surprising that few birds (except occasional Tree Sparrows) occurred in the extensive open stand of N-slope Skunkbush.—**RICHARD BEIDLEMAN** (compiler), **DAVID BUCK**, **MARIA CATLETT**, **SHERRIE DeMONTE**, **JENNIFER DIMLING**, **EVAN FRANCIS**, **DANIEL LEVITT**, **KENNETH MIMMACK**, **SUZANNA MONTAGUE**, **PETER ORDWAY**, **ANA VARGO**, **CHRISTOPHER WALSH**, and **GARY ZALLAR** (Field Zoology Class), Dept. of Biology, Colorado College, Colorado Springs, CO 80903.

43. COASTAL SAGE SCRUB. — **Location:** California; Orange Co., Starr Ranch, Nat. Aud. Soc. Sanct., on the S side of Pruesker Peak approximately 5.1 mi. N of the entrance to Ronald W. Caspars Regional Park on Ortega Hwy; 33°36'26"N, 117°33'06"W, Canada Gobernadora Quadrangle, USGS. **Continuity:** New. **Size:** 8.05 ha = 21 acres (rectangular, 200 × 450 m with a 75 × 66 m section excluded from the NW corner, the length running almost N-S; measured with a steel tape). **Description of Plot:** Coastal sage scrub on steep E and W facing slopes. A dirt fire road runs down the top of the ridge N-S and then turns W, for a total of 538 m. Shrubs and bunch grasses average 0.21 m in height. Small forbs and matted vegetation (e.g. *Erodium* sp., *Calystegia* sp.) were not measured for height. Coverage by matted vegetation was 30%; coverage by shrubs was 29.7%. The dominant plant species are: Poaceae species, 41.9%; *Lotus scoparius*, 21.8%; *Salvia apiana*, 15.7%; *Artemisia californica*, 4.9%; *Opuntia littoralis* complex, 3.3%. Other plants present on the plot include: *Rhus integrifolia*, *R. laurina*, *Mirabilis californica*, *Eriogonum fasciculatum*, *Marah macrocarpus*, *Crassula erecta*, *Lupinus* sp., *Haplopappus* sp., *Galium* sp., *Castilleja* sp., *Dudleya* sp., *Samolus* sp., *Yucca whipplei*, *Sisyrinchium bellum*, *Dichelostemma pulchellum*, *Chlorogalum* sp. This area was burned completely in Nov. 1980, and the vegetation has not yet returned to mature coastal sage scrub (see AB 32:98, 1978 for description of an area on the same slope before the fire). Edge: The SW corner of the plot borders a steep canyon which was not burned; the vegetation in this area is thicker and taller. Otherwise, the plot is surrounded by similar vegetation. Elevation 1400-1600 ft. **Weather:** Temperatures, 31°-73°F, with a mean high temperature of 59.6° and a mean low of 38°. Rainfall was 1.65 in. Conditions during counts varied from cool and overcast to warm and clear. **Coverage:** Coverage was twice a day on Jan. 18-19, 23-24; 0845-1615, PST. Eight counts; average length, 2.25 hours. **Count:** Grasshopper Sparrow, 7 (82, 33); California Quail, 5 (59, 24), Brown Towhee, 4 (47, 19); Lesser

Goldfinch, 3 (35, 14), Rufous-crowned Sparrow, 3; White-crowned Sparrow, 3; Chipping Sparrow, 2 (24, 10); Marsh Hawk, 1 (12, 5); Bewick's Wren, 1; Mockingbird, 1; Savannah Sparrow, 1; Dark-eyed Junco, 1; Golden-crowned Sparrow, 1; Red-tailed Hawk, +; Mourning Dove, +; White-throated Swift, +; Wren-tit, +; Cactus Wren, +; Hermit Thrush, +; W. Meadowlark, +; Black-throated Sparrow, +. **Average Total:** 33 birds (388/km², 157/100 acres). **Remarks:** Brown Towhees were seen on all trips. Grasshopper and Rufous-crowned sparrows were observed on 7 counts. The quail occurred in large coveys on 4 occasions. Ravens were observed overhead during 7 counts. A Golden Eagle and a flock of Band-tailed Pigeons flew over the plot on one occasion each. California Thrashers were observed just beyond the plot perimeter during most counts.—**RAYMOND BRAMSFIELD**, **PATRICK HERENDEEN**, **DOLORES LOERA**, Dept. of Biology, Calif. St. Univ., Long Beach and 1751 Loma, #2, Long Beach, CA 90804; 3832 14th St., Long Beach, CA 90808.

44. DISTURBED FOOTHILL GRASSLAND. — **Location:** California; Orange Co., Starr Ranch, Nat. Aud. Soc. Sanct., approx. 4.8 mi N of entrance to Ronald W. Caspars Regional Park on Ortega Hwy; 33°36'14"N, 117°33'30"W, Canada Gobernadora Quadrangle, USGS. **Continuity:** New. **Size:** 9.17 ha = 22.67 acres (L-shaped, 1147 ft on the N and W sides; measured with a steel tape). **Description of Plot:** Grassland, with 14 cactus (*Opuntia littoralis* complex) patches interspersed throughout (total area of cactus, approximately 945 m² or 1% of the total plot area). The three largest patches each contain a *Rhus integrifolia*. Wild artichokes (*Cynara* sp.) occupy an area in the NW corner of approximately 3193 m² or 3.5% of the plot. The dominant plants are: *Erodium obtusilicatum*, 47%; 3 unidentified species of annual grasses (Poaceae), 31.2%; *Stipa* sp., 7.5%; *Lepidium* sp., 2%. *Erodium bothrys*, *Dichelostemma pulchellum*, *Crassula erecta*, *Sanicula* sp., and *Stellaria* sp. were present in smaller numbers. A small temporary pond was present on the E side during the first 7 counts; it had evaporated before the final 2 counts. A dirt fire road runs through the E portion of the plot for 264 m. The entire area burned in Nov., 1980, but seems to have totally recovered. Edge: Bounded on the N and W by riparian woodland, on the S by grassland and a ravine containing coastal sage scrub, and on the E by a steep slope of coastal sage scrub. **Topography:** The W and E sides of the plot (elevations, 840 and 1040 ft, respectively) are level and are connected by a very steep slope which runs N-S. **Weather:** Temperatures, 34°-70°F, with a mean high temperature of 64.0°, and a mean low temperature of 39.5°. Rainfall was 0.09 in. Conditions varied from extremely overcast to clear. **Coverage:** Jan. 23, 24, 30, 31; Feb. 4; 0730-1600, PST. Nine counts; average length, 48 minutes. **Count:** Savannah Sparrow 8 (87, 35); Lesser Goldfinch, 7 (76, 31); W. Meadowlark, 3 (33, 13); Red-tailed Hawk, 1 (11, 4); Marsh Hawk, 1; Mockingbird, 1; Brown Towhee, 1; Grasshopper Sparrow, 1; White-throated

Swift, +, Say's Phoebe, +, Bewick's Wren, +; Cactus Wren, +. **Average Total:** 23 birds (251/km², 101/100 acres). **Remarks:** Total species, 12. Savannah Sparrows were seen on all counts. Brown Towhees, Mockingbirds, Bewick's and Cactus wrens were observed only in the cactus patches; Lesser Goldfinches were also associated with cactus except for one occasion, when a flock of 36 was foraging in the grass. Turkey Vultures, Band-tailed Pigeons, Anna's Hummingbirds, Com. Ravens and a single Com. Flicker were observed in flight over the plot. Special thanks to Bruce Kaufman for assistance with surveying.—**RAYMOND BRAMSFIELD**, **PATRICK HERENDEEN**, **DOLORES LOERA**, Dept. of Biology, Calif. St. Univ., Long Beach and 1751 Loma, #2, Long Beach, CA 90804; 3832 14th St., Long Beach, CA 90808.

45. MIXED UPLAND HABITAT AND SWAMP. — **Location:** Connecticut; Fairfield Co., Newton, intersection of Rte 34 and Zoar Rd.; 41°24'10"N, 73°14'10"W, Derby Quadrangle, USGS. **Continuity:** Established 1968, 9 intermittent years. **Size:** 14.2 ha = 35 acres (irregular, greatest dimensions 653 × 354 yds. surveyed). **Description of Plot:** See AFN 22:714-715 (1968). **Weather:** Temperature during count hours, 14-56°F. Wind W to NW, calm 7 days, light breeze to 8 mph on 2 days. Partly cloudy 2 days, overcast 3 days, clear 4 days. No snow cover 7 trips, 2-8 in. on 2 trips. **Coverage:** Dec. 4, 11, 26; Jan. 6, 21, 28, Feb. 8, 18, 27. Total 9 trips, 0700-1700, averaging 1 hr. each. **Count:** Com. Crow, 1 (7, 3); Black-capped Chickadee, 1; White-breasted Nuthatch, 1; Sharp-shinned Hawk, +; Ruffed Grouse, +; Pileated Woodpecker, +; Hairy Woodpecker, +; Downy Woodpecker, +; Blue Jay, +; Tufted Titmouse, +; Mockingbird, +; E. Bluebird, +; House Finch, +; Dark-eyed Junco, +. **Average Total:** 3 birds (21/km², 9/100 acres). **Remarks:** Total species, 14. Black-capped Chickadees and White-breasted Nuthatches were seen on six trips. Seven species were seen on one trip only. Scarcity of wild food and decreased habitat because of defoliation of evergreens by gypsy moth larvae may be the cause of a significant drop in the quantity of birds.—**LEON L. BARKMAN**, Western Connecticut Bird Club, P.O. Box 867, Woodbury, CT 06798.

46. CATTAIL MARSH. — **Location:** New York; St. Lawrence Co., 2 mi NW of Canton, NE end of Upper and Lower Lakes Wildlife Management Area; 44°37'N, 75°14'W, Canton Quadrangle, USGS. **Continuity:** Established 1978, 3 intermittent years. **Size:** 8.95 ha = 22 acres. **Description of Plot:** See AB 33:35 (1981); 36:98 (1982). **Weather:** During counts, temp. 15-35°F, wind 0-20 mph, sky clear to snowing; period temp. ranged -12° to 47°F, snow and ice cover throughout. **Coverage:** Feb. 12, 20, 25; Mar. 3, 9. Total, 5 trips; 1000-1730. Total hours, 11.2. **Count:** Black-capped Chickadee, 1 (11, 5), Rough-legged Hawk, +; Blue Jay, +; Com. Crow, +. **Average Total:** 1 bird (11/km², 5/100 acres). **Remarks:** Total species, 4. All birds occurred in trees and shrubs on edge of marsh. Hawk Owl and 2 N. Shrikes frequented area throughout period, but not seen

on counts Great Horned Owl pellet found — *PHILIP VANDONGEN*, and *KENNETH L. CROWELL*, (compiler), Dept. of Biol., St. Lawrence Univ., Canton, NY 13617.

47. MOIST DECIDUOUS FOREST-LAKE ONTARIO WETLAND. — Location:

New York; Oswego Co., 5 mi. W of S U.N.Y. Oswego campus on Lake Ontario shore; 43°26'N, 76°35'W; Oswego W Quadrangle, USGS. **Continuity:** New. **Size:** 16.2 ha = 40 acres. **Description of Plot:** Buttonbush (*Cephalanthus occidentalis*)—Cattail (*Typha* spp.) wetland surrounded by moist deciduous forest bisected by a local road. The dominant wetland vegetation is Buttonbush, Com. Cattail, Arrow Arum (*Peltandra virginica*), and Water-willow (*Decodon verticillatus*). The dominant forest trees are Red Maple (*Acer rubrum*) and White Ash (*Fraxinus americana*). The understory is Arrowwood (*Viburnum recognitum*), Speckled Alder (*Alnus incana*), and Red-osier Dogwood (*Cornus alba*). The ground cover is May apple (*Podophyllum peltatum*) and Sensitive Fern (*Onoclea sensibilis*). Trees 3-in. diameter and over, based on 5 circular samples 0.1 acre each, 348/acre; total basal area 146 ft²/acre. Species comprising 98% of the total number of trees (numbers following each species are number/acre, relative density (%), relative dominance (%), frequency (%), in that order): Red Maple, 150, 43, 38, 100; White Ash, 76, 22, 23, 100; Black Cherry (*Prunus serotina*), 40, 12, 9, 20; Basswood (*Tilia americana*), 18, 5, 3, 40; Red Oak (*Quercus rubra*), 16, 5, 9, 60; Sugar Maple (*Acer saccharum*), 8, 2, 3, 40; Yellow Birch (*Betula lutea*), 8, 2, 2, 20; Striped Maple (*A. pensylvanicum*), 6, 2, 1, 40; Butternut (*Juglans cinerea*), 4, 1, 1, 20. Trees by diameter size class (following each class are number/acre, relative density (%), basal area in sq. ft./acre, relative dominance): A (3-6 in.) 176, 51, 18, 12; B (6-9 in.) 82, 23, 25, 17; C (9-15 in.) 70, 20, 56, 38; D (15-21 in.) 14, 4, 25, 17; E (21-27 in.) 4, 1, 12, 9; F (27-33) 2, 1, 10, 7. Shrub stems/acre 2700; ground cover 25%; canopy cover 75%; average canopy height 45 ft. (range 35-80). **Edge:** Bounded by wetland, similar forest and residential area. **Topography:** Flat with slight rise away from wetland. **Elevation:** 270 ft. **Weather:** Average diurnal temperature during Dec. was 1°C (33°F), during Jan. -7°C (20°F), and during Feb. was 1°C (34°F) on census days. The ground had a snow cover on all but the first two census trips. Skies were clear on 5 days, partly cloudy on 3, overcast on 15, and snowfall on 3 days. **Coverage:** Dec. 6, 8, 12-15, 17, 19, 21, 25, 26, 31; Jan. 2, 6-7, 12, 14, 19-22, 30; Feb. 3, 9, 13, 20. Total, 26 trips averaging 1 hour each 0700-1700. **Count:** Starling, 39 (241, 98); Cedar Waxwing, 8 (49, 20); Black-capped Chickadee, 6 (37, 15); Com. Redpoll, 4 (25, 10); House Finch, 3 (19, 8); Cardinal, 2 (12, 5); Canada Goose, 1 (6, 3); Herring Gull, 1, Downy Woodpecker, 1; Blue Jay, 1; Pine Siskin, 1; Am. Goldfinch, 1; Dark-eyed Junco, 1; Tree Sparrow, 1; White-throated Sparrow, 1; Mallard, +; Ruffed Grouse, +; Great Black-backed Gull, +; Ring-billed Gull, +; Mourning Dove, +; Great Horned Owl, +; Com. Flicker, +; Pileated Woodpecker, +; Red-bellied Woodpecker, +; Hairy Woodpecker, +; Com. Crow, +; White-breasted Nuthatch, +; Red-breasted

Nuthatch, +, Am Robin, +, Hoary Redpoll, +. **Average Total:** 71 birds (439/km², 178/100 acres). **Remarks:** Total species, 30.—*GEORGE R. MAXWELL*, Dept. of Zoology, State University College, Oswego, N.Y. 13126.

48. RIVER BANK AND RIVER. — Location: Pennsylvania; Clinton Co., Center under the McElhattan bridge on the N bank of the W branch of the Susquehanna River, 0.8 km (½ mi) NW of BM 571 in McElhattan; 41°09'57"N, 77°22'22"W, Jersey Shore Quadrangle, USGS. **Continuity:** Established 1975; 7 intermittent years. **Size:** River Bank, approximately 4.6 ha = 11.4 acres. River, 80 ha = 197.7 acres of water. See AB 29:780 (1975) for measuring technique. **Description of Plot:** See AB 29:780 (1975). **Weather:** Mean temperature during the trips was 29.4°F, with a mean low of 15.8° and a mean high of 35.1° for the period from Dec. 30 to Feb. 21. The ground had snow cover of 6-7 in. on all but the first two trips. Ice cover on the river was 50-95%, Feb. 5-21. **Coverage:** Dec. 30; Feb. 5, 14, 21 (two trips each); Feb. 7 (one trip). Total, 9 trips averaging 66 min, 0750-1445. **Count: River Bank:** Tree Sparrow, 8 (173, 70); Black-capped Chickadee, 7 (152, 61); Evening Grosbeak, 4 (87, 35); Blue Jay, 3 (65, 26); Cardinal, 3; Rock Dove, 2 (43, 18); Downy Woodpecker, 2; White-breasted Nuthatch, 2; White-throated Sparrow, 2; Com. Crow, 1 (22, 9); Starling, 1; Dark-eyed Junco, 1; Field Sparrow, 1; Com. Flicker, +; Hairy Woodpecker, +; Tufted Titmouse, +; Mockingbird, +; Am. Robin, +; Song Sparrow, +. **River:** Herring Gull, 2 (2, 1); Ring-billed Gull, 2; Whistling Swan, 1 (1, 1); Black Duck, 1; Mallard, +; Com. Merganser, +. **Average Total:** River Bank 37 birds (802/km², 325/100 acres); River 6 birds (7/km², 3/100 acres of water). **Remarks:** Total species, River Bank, 19; River, 6.—*PARKER PEER, GLENNA AND PAUL SCHWALBE* (compiler) Dept. of Biol. Sci., Lock Haven St. Coll., Lock Haven, PA. 17745, (members of the West Branch Bird Club and Ornithological Society).

49. BARRIER BEACH AND SALTWATER ESTUARY. — Location: Florida; Duval Co., on N side of St. John's River, where it meets the sea, and S side of Ft. George River, immediately S of Little Talbot Island State Park. Area is 1 mi N of Mayport Naval Base and is known locally as the North Jetties Area (Mayport Quadrangle, USGS, 30°25'N, 81°25'W). **Continuity:** Established 1978, 5 years. **Size:** 212.5 ha = 525 acres (two triangles, one 5900 × 6400 × 5300 ft, the other 5300 × 5000 × 3400 ft, calculated from USGS map). **Description of Plot:** See AB 33:47-48 (1979). **Water:** The inlet continues to shallow and salt marsh vegetation continues to gain ground on the W side of the inlet. **Weather:** Temperatures, 17-86°F. December averaged 1.5° below normal and Jan. 0.7° below normal, but Feb. was much warmer than normal. The temperature never got below 35° and the average was 5.1° above normal. February was also drier than usual, 1.9 in. less precipitation than normal. (Weather data from Jacksonville Intl. Airport, 15 mi inland.) **Coverage:** Dec. 12, 20, 26, 31; Jan. 3, 10, 16; Feb. 15, 18, 20-21. Total, 11 trips, 0800-1530, on all tides, averaging 3 hrs.

each Census methods have had to be changed because a new paved entrance has been cut and the old entrance has been closed. Since one cannot now drive along the beach, much more walking is required to cover the area. Efforts were made to cover the same areas as in former years. **Count:** Herring Gull, 321 (151, 61); Royal Tern, 194 (91, 37); Dunlin, 186 (88, 35); Brown Pelican, 150 (71, 29); Ring-billed Gull, 144 (68, 27); Black Skimmer, 136 (64, 26); Tree Swallow, 133 (63, 25); Semipalmated Plover, 123 (58, 23); Sanderling, 110 (52, 21); Great Black-backed Gull, 100 (47, 19); Ruddy Turnstone, 86 (40, 16); Laughing Gull, 83 (39, 16); W Sandpiper, 81 (38, 15); Short-billed Dowitcher, 77 (36, 15); Double-crested Cormorant, 50 (24, 10); Red-breasted Merganser, 46 (22, 9); Black-bellied Plover, 42 (20, 8); Forster's Tern, 34 (16, 6); Red Knot, 25 (12, 5); Lesser Scaup, 21 (10, 4); Willet, 18 (8, 3); Caspian Tern, 15 (7, 3); Savannah Sparrow, 9 (4, 2); Yellow-rumped Warbler, 6 (3, 1); Black Scoter, 5 (2, 1); Piping Plover, 5; Red-winged Blackbird, 4 (2, 1); Horned Grebe, 3 (1, 1); Greater Scaup, 3; Wilson's Plover, 3; Bonaparte's Gull, 3; Wood Stork, 2 (1, +); Long-billed Curlew, 2; Mourning Dove, 2; Gannet, 1 (+, +); Great Blue Heron, 1; Great Egret, 1; Killdeer, 1; Purple Sandpiper, 1; Ground Dove, 1; Belted Kingfisher, 1; Boat-tailed Grackle, 1; Com. Loon, +; Green Heron, +; Little Blue Heron, +; Snowy Egret, +; Louisiana Heron, +; Oldsquaw, +; Surf Scoter, +; scoter sp., +; Turkey Vulture, +; Red-shouldered Hawk, +; Osprey, +; Am. Kestrel, +; Clapper Rail, +; Com. Snipe, +; Solitary Sandpiper, +; Greater Yellowlegs, +; Lesser Yellowlegs, +; Least Sandpiper, +; "peep", +; Long-billed Dowitcher, +; Marbled Godwit, +; jaeger sp., +; Little Gull, +; Com. Flicker, +; Cardinal, +; Rufous-sided Towhee, +; Vesper Sparrow, +. **Average Total:** 2230 birds (1050/km², 425/100 acres). **Remarks:** Total species, 67. The average total is down by some 1300 from last year's five year high. Tree Swallows were seen on 8 of 11 counts, but the mean was inflated by a flock estimated at 1118 on Feb. 15. Marbled Godwits were very scarce compared to last year. For the first 4 years of the study a single Long-billed Curlew was seen on almost every count, this year there were two females seen on every count save one. All gulls were down from last year's very high numbers except Great Black-backed which continues to increase. Brown Pelican, Red-breasted Merganser, Ruddy Turnstone and Caspian Tern reached 5-year highs, while Black Skimmer and Laughing Gull reached a 5-year low.—*JOSEPH WILSON*, 843 Alderman Rd. #801, Jacksonville, FL, 32211 and *ROBERT W. LOFTIN*, Univ. of N. Florida, Box 17074, Jacksonville, FL, 32216.

50. SEWAGE LAGOONS - RIPARIAN WOODLAND. — Location: Utah; Washington Co., Springdale Sewage Plant, adjoining W edge of Rockville; 37°10'N, 113°3'W, Springdale West Quadrangle, U.S.G.S. **Continuity:** Established Dec. 1980, reporting both year's data now. **Size:** 24.3 ha = 60 acres (880 × 330 yards, surveyed). **Description of Plot:** Flat farmland with built-up lava rock dikes surrounding two lagoons. The Virgin River parallels the S edge of the plot

and a 100-ft talus slope and cliff of conglomerate rock extend along the N edge. The E pond, containing 12 acres, is the primary lagoon; another pond to the W contains 9 acres. An irrigation ditch that ran along the base of the talus slope has been replaced by pipe, and trees along the ditch were cut, leaving 3-4-ft. stumps with beginning second growth. The riparian woodland runs along the N and S sides of the plot, and has a width of up to 60 yards. About 95% of the trees are Fremont Cottonwood (*Populus fremontii*), with Black Willow (*Salix nigra*), Velvet Ash (*Fraxinus velutina*) and Tamarix (*T. pentandra*) making up the other 5%. About 85% of the cottonwoods are less than 15-in. dbh. Use of the facility did not begin until late fall, 1980, but the E pond was partially filled with river water in July; a growth of green algae covered the bottom, and native fishes were present in the pond. A triangular piece in the SE corner of the plot, containing about 5 acres, produced a bumper crop of cockleburs (*Xanthium strumarium*) during the summer. Elevation: 1122 m (3680 ft).

Weather, 1980-81: 4-8°F above normal in both Dec. and Jan. Two in. of snow fell Jan. 30. **Coverage:** Dec. 29; Jan. 4, 7, 9, 11, 14, 18, 21, 25, 29, 31; Feb. 4; 12 trips, averaging 82 min., 1015-1600 MST. **Count:** Am. Wigeon, 31 (128, 52); Mallard, 8 (33, 13); House Finch, 7 (29, 12); Ring-necked Duck, 6 (25, 10); Dark-eyed Junco, 5 (21, 8); Water Pipit, 3 (12, 5); White-crowned Sparrow, 2 (8, 3); Say's Phoebe, 1 (4, 2); Cañon Wren, 1; W. Bluebird, 1; Great Blue Heron, +; Pintail, +; Com. Goldeneye, +; Red-tailed Hawk, +; Belted Kingfisher, +; Com. Flicker, +; Ladder-backed Woodpecker, +; Com. Raven, +; Song Sparrow, +. **Average Total:** 65 birds (268/km², 108/100 acres). **Remarks:** Total species, 19. **Weather, 1981-82:** Temperatures 4-5°F below normal; above average precipitation, with snowfall totaling 13 in. **Coverage:** Dec. 12, 19, 22; Jan. 2, 5, 10, 14, 17, 21, 26, 28, 30; 12 trips, averaging 96 min.; 1030-1640 MST. **Count:** Mallard, 84 (346, 140), Canada Goose, 22 (91, 37); House Finch, 11 (45, 18); N. Shoveler, 10 (41, 17); Am. Coot, 6 (25, 10); Dark-eyed Junco, 6; Green-winged Teal, 5 (21, 8); Ring-necked Duck, 4 (16, 7); Am. Wigeon, 3 (12, 5); Water Pipit, 3; Com. Goldeneye, 2 (8, 3); Eared Grebe, 1 (4, 2); Pied-billed Grebe, 1; Bufflehead, 1; Com. Merganser, 1; Say's Phoebe, 1; Great Blue Heron, +; Pintail, +; Canvasback, +; Lesser Scaup, +; Surf Scoter, +; Ruddy Duck, +; Red-tailed Hawk, +; Am. Kestrel, +; Killdeer, +; Com. Flicker, +; Black Phoebe, +; Com. Raven, +; Com. Crow, +; Cañon Wren, +. **Average Total:** 161 birds (663/km², 268/100 acres). **Remarks:** Total species, 30. Both lagoons were in use during the past year, increasing the growth of algae available for waterfowl food. Colder than normal weather to the north in Jan. 1982 probably caused the increase in waterfowl. Although Am. Wigeon dropped from 31 to 3 on the WB-PS, the species increased on the St. George Christmas Bird Count, 40 mi downriver, so they probably just migrated farther because of the colder weather. The Surf Scoter, first record in the southern part of the state, was present on the ponds Nov. 30-Dec. 14, 1981.—**JEROME L. GIFFORD, P.O. Box 85, Springdale, UT 84767.**

51. RESTORED COASTAL SALT MARSH. — **Location:** California; Humboldt Co., within 1 mi E of Eureka; 40°47'30"N, 124°07'30"W, Arcata S Quadrangle, USGS. **Continuity:** WB-PS established 1980; BBC established 1979. **Size:** 8.8 ha = 21.7 acres. The central study area, which has been restored to tidal action, is 3.8 ha = 9.3 acres. Note that these values are adjusted from previous studies; calculations of birds per 100 ha and 100 acres for previous studies should be multiplied by a correction factor of 1.12. The census numbers refer to the entire area (8.8 ha). **Description of Plot:** See AB 34:100-101 and AB 35:37. **Weather (1981):** Clear 4 days, overcast 3 days, rain 1 day. Tide: low 5, high 3. **Coverage:** Jan. 25, Feb. 3, 7-8, 10, 12, 15, 19. Total hours: 10. **Count:** Yellow-rumped Warbler, 14 (159, 65); W. Meadowlark, 9 (102, 42); Song Sparrow, 9; Long-billed Marsh Wren, 7 (80, 32); Com. Snipe, 6 (68, 28); Lincoln's Sparrow, 5 (57, 23); Red-winged Blackbird, 4 (46, 18); Am. Robin, 3 (34, 14); Ruby-crowned Kinglet, 2 (23, 9); Savannah Sparrow, 2; Pied-billed Grebe, 1 (11, 5); Least Sandpiper, 1; Black Phoebe, 1; Double-crested Cormorant, +; Snowy Egret, +; White-winged Scoter, +; White-tailed Kite, +; Marsh Hawk, +; Am. Kestrel, +; Virginia Rail, +; Sora, +; Am. Coot, +; Killdeer, +; Greater Yellowlegs, +; W. Sandpiper, +; Belted Kingfisher, +; Com. Flicker, +; Wrenit, +; Varied Thrush, +; Water Pipit, +; Starling, +; Brewer's Blackbird, +; House Finch, +; Pine Siskin, +; Am. Goldfinch, +; Fox Sparrow, +; Swamp Sparrow, +. **Average Total:** 64 birds (729/km², 295/100 acres). **Remarks:** Total species, 37. Species seen on 8 visits: Black Phoebe, Long-billed Marsh Wren, Ruby-crowned Kinglet, Yellow-rumped Warbler, Lincoln's Sparrow, Song Sparrow. Most of the species that are not typical marsh species were seen on the alder and willow area, which has not been directly affected by salt marsh restoration. Up to 3 immature Swamp Sparrows, which are unusual, wintered in the study area. The marsh restoration, is beginning to draw typical salt marsh species but still has many differences when compared to a healthy salt marsh (see AB 35:101 and this issue). John Sterling conducted 3 of the censuses. This study was funded by the U.S. Fish and Wildlife Service, Wildlife Research Field Station, Arcata, Calif. **Weather (1982):** 8 census days were overcast, 1 was partly cloudy, 1 was foggy, and 2 were clear. Rain occurred toward the end of the last census. Total precipitation during the study period was 4.03 in. Temperatures during the census period, 32-66°F (data from Nat'l Weather Service in Eureka). **Coverage:** Jan. 23, 27, 29; Feb. 1, 4, 9, 11, 16; 0705-1155. Total hours: 18. **Count:** Starling, 50 (569, 230); Greater Yellowlegs, 22 (251, 101); Least Sandpiper, 20 (228, 92); Snowy Egret, 16 (182, 74); Long-billed Marsh Wren, 10 (114, 46); Song Sparrow, 10; Yellow-rumped Warbler, 6 (68, 28); Savannah Sparrow, 6; Am. Robin, 5 (57, 23); W. Meadowlark, 3 (34, 14); Dark-eyed Junco, 3; Killdeer, 2 (23, 9); Am. Bittern, 1 (11, 5); White-tailed Kite, 1; Marsh Hawk, 1; Virginia Rail 1; Com. Snipe, 1; W. Sandpiper, 1; Marbled Godwit, 1; Belted Kingfisher, 1; Com. Flicker, 1; Black Phoebe, 1; Ruby-crowned Kinglet, 1; Red-winged Blackbird,

1, Fox Sparrow, 1, Lincoln's Sparrow, 1, Horned Grebe, +; Pied-billed Grebe, +, Great Blue Heron, +; Great Egret, +; Mallard, +; Bufflehead, +; Sharp-shinned Hawk, +; Peregrine Falcon, +; Merlin, +, Am. Coot, +; dowitcher sp., +, Bonaparte's Gull, +; Com. Crow, +; Varied Thrush, +; Hermit Thrush, +; House Finch, +; White-crowned Sparrow, +, Swamp Sparrow, +. **Average Total:** 167 birds (1902/km², 770/100 acres). **Remarks:** Total species, 44. Species seen on all 8 trips included Snowy Egret, Greater Yellowlegs, Long-billed Marsh Wren, Am. Robin, Savannah Sparrow, and Song Sparrow. The dike restraining tidal action was breached Dec. 19, 1980. The increase in shorebirds and Ardeids is remarkable (cf. AB 35:37). The drainage systems for tidal water have not yet developed, so the central study area contains areas of standing water that are heavily used by shorebirds. The comparative salt marsh for this study (AB 35:101 and Study 52 this issue) does not have similar high numbers of shorebirds, nor does it have extensive standing water. The borrow area for the dike isolating the freshwater marsh has changed significantly since the first BBC (AB 34:101-102) and now supports sparrows; the Swamp Sparrow is an unusual bird for the area. This study was funded by the U.S. Fish and Wildlife Service, Wildlife Research Field Station, Arcata, Calif.—**DANA L. BASE, 3753 Bamboo Ct., Concord, CA 94520 and SANDRA L. JACOBSON, P.O. Box 171, Arcata, CA 95521.**

52. COASTAL SALT MARSH. — **Location:** California, Humboldt Co., Eureka; near foot of Bay St. and KIEM radio towers and bordering Eureka Slough; 40°47'N, 124°07'W. Eureka Quadrangle, USGS. **Continuity:** New. BBC established in 1980. **Size:** 6.5 ha = 16 acres. **Description of Plot:** See AB 35:101 (1981) **Weather:** Clear 4 days, overcast 3 days, rain 1 day. Tide: 5 low, 3 high. **Coverage:** Jan. 25; Feb. 7, 8, 10, 12, 15, 19, 21, 8 trips, 0815-1230. Total hours: 10. **Count:** Starling, 38 (587, 238); Long-billed Marsh Wren, 10 (154, 63); Song Sparrow, 9 (139, 56); Red-winged Blackbird, 3 (46, 19); Brewer's Blackbird, 3; Savannah Sparrow, 2 (31, 13); White-tailed Kite, 1 (15, 6); Am. Coot, 1, Great Blue Heron, +; White-winged Scoter, +; Marsh Hawk, +; Am. Kestrel, +; Killdeer, +; Com. Snipe, +; Belted Kingfisher, +; Com. Flicker, +; Am. Robin, +; Yellow-rumped Warbler, +; Palm Warbler, +. **Average Total:** 67 birds (1035/km², 419/100 acres). **Remarks:** Total species, 19. Species seen on all 8 trips: Long-billed Marsh Wren, Song Sparrow. The Starlings occurred in one flock of 300 which was loafing on telephone wires; they do not regularly forage in the marsh. The Palm Warbler is a vagrant and was seen only once this winter out of more than 30 visits. This marsh is being used as a comparative salt marsh for a salt marsh restoration project on a nearby slough (Study 51). John Sterling conducted 3 of the visits. This study was funded by the U.S. Fish and Wildlife Service, Wildlife Research Field Station, Arcata, CA.—**SANDRA L. JACOBSON, P.O. Box 171, Arcata, CA 95521.**

53. COASTAL MARSH. — **Location:** California; Los Angeles Co., Long Beach, 1

mi S of California St Univ, Cerritos Wetlands, 33°45'N, 118°07'W, Long Beach Quadrangle, USGS. **Continuity:** Established 1976; 3 intermittent years. **Size:** 6.3 ha = 15.5 acres. **Description of Plot:** See AB 36:42-43 (1982). **Weather:** Temperature, 34°-70°F, with a mean low of 45.2° and a mean high of 61.9°. Precipitation on census dates included .98 in. on Dec. 30, .08 in. on Jan 1, and a trace on Jan. 10. **Coverage:** Dec. 29-31; Jan. 1, 3, 7, 8, 10, 12, 22. Total, 10 trips, throughout the day, averaging 75 min each. **Count:** W. Sandpiper, 218 (3475, 1406); Willet, 17 (271, 110); Long-billed Dowitcher, 16 (255, 103); Ring-billed Gull, 8 (128, 52); Marbled Godwit, 7 (112, 45); Water Pipit, 7; Black-bellied Plover, 6 (96, 39); W. Meadowlark, 6; Red-breasted Merganser, 5 (80, 32); Dunlin, 5; Savannah Sparrow, 4 (64, 26); Am. Avocet, 2 (32, 13); Sanderling, 2; Caspian Tern, 2; Long-billed Marsh Wren, 2; Great Blue Heron, 1 (16, 6); Great Egret, 1; Green-winged Teal, 1; Mallard, 1; Com. Goldeneye, 1; Bufflehead, 1; Semipalmated Plover, 1; Killdeer, 1; Black-necked Stilt, 1; Lesser Yellowlegs, 1; Whimbrel, 1; Least Sandpiper, 1; Forster's Tern, 1; Com. Flicker, 1; Loggerhead Shrike, 1; Starling, 1; Pied-billed Grebe, +; W. Grebe, +; Double-crested Cormorant, +; Snowy Egret, +; Pintail, +; Lesser Scaup, +; Ruddy Duck, +; Osprey, +; White-tailed Kite, +; Red-tailed Hawk, +; Am. Kestrel, +; Ruddy Turnstone, +; Long-billed Curlew, +; Spotted Sandpiper, +; Greater Yellowlegs, +; W. Gull, +; California Gull, +; Bonaparte's Gull, +; Burrowing Owl, +; Anna's Hummingbird, +; Belted Kingfisher, +; Say's Phoebe, +. **Average Total:** 323 birds (5149/km², 2084/100 acres). **Remarks:** Total species, 53. The average number of individuals noted per trip is almost double last winter's figure of 166. An increase in frequency of observation and flock size of W. Sandpipers, the predominant species in both surveys, largely accounts for this. An exception to the general trend was the Great Blue Heron, with an average of 1 individual per visit this season, vs. 7 last season. Fifty-three species were seen at least once this season, as compared to 42 last season. Five species seen in the 1981 survey were not seen this season while 16 species observed in this survey were not noted last season. Only 2 species, Willet and Great Blue Heron, were seen on all 10 trips. The Savannah Sparrows, seen on 8 trips, are the (endangered) Belding's subspecies, and undoubtedly nest in the *Salicornia*. W. Meadowlark numbers increased in the late afternoon. A pole placed in the marsh's center to measure tidal height was at various times occupied by an Osprey, a Red-tailed Hawk, and a Say's Phoebe.—DENNIS MINSKY, Dept. of Biol., Calif. St. Univ., Long Beach, and 6908 Mantova St., Long Beach, CA 90815.

54. COASTAL WATERS - SANDY BEACH. — **Location:** California; Orange Co., 1 mi N of Laguna Beach; 33°33'24"N, 117°48'02"W, Laguna Beach Quadrangle, USGS. **Continuity:** New. **Size:** 5.9 ha = 14.6 acres (rectangular 4240 ft by 150 ft [from cliff base to just outside breakers], width measured with a range finder, length measured on USGS map). **Description of Plot:** Continuous sandy beach with no vegetation other than

algal drift **Topography:** Sea level, gently sloping beach. **Edge:** Beach is bordered at either end by rocky headlands. The inland side is bound by a steeply sloping bluff covered with coastal sage scrub and, at the southern end, El Morro Trailer Park. The seaward side is bordered by ocean, with kelp beds not far off shore. **Water:** Ocean water is generally clean, with moderate currents and gentle surf. A fresh water runoff crosses the beach a few yards S of its midpoint. **Food:** Insects and flies in the algal drift, refuse, sand dwelling invertebrates, and fish. **Weather:** Average daily temperature was 64°F with a range of 40° to 80°. Ocean temperature was 57° throughout the study period. Afternoons were clear, but mornings were occluded by patchy or dense fog. **Coverage:** Jan. 30; Feb. 1 (2 trips), 3, 4, 8. Total: 6 trips, 4 between 0730 and 1030, 2 between 1400 and 1730. All trips were made soon after a high tide and averaged 47 min. **Count:** Ring-billed Gull, 15 (254, 103); Sanderling, 8 (135, 55); Willet, 6 (102, 41); Marbled Godwit, 3 (51, 21); Black-bellied Plover, 2 (34, 14); gull sp. (immature), 2; Eared Grebe, 1 (17, 7); Brown Pelican, 1; Snowy Plover, 1; Whimbrel, 1; W. Grebe, +; W. Gull, +; California Gull, +; Heermann's Gull, +. **Average Total:** 40 birds (677/km², 274/100 acres). **Remarks:** Total species, 13.—CHERYL A. BEEM, Dept. of Biology, California St. Univ., Long Beach CA 90840 and 264 Viejo St., Laguna Beach, CA 92651.

55. FRESHWATER POND. — **Location:** California; Los Angeles Co., Long Beach, less than 1 mi S of California St. Univ.; Sims Pond, 33°45'N, 118°07'W, Long Beach Quadrangle, USGS. **Continuity:** Established 1981, second consecutive year. **Size:** 1.9 ha = 4.6 acres (paced with meter tape and Rangefinder #620). **Description of Plot:** See AB 36:43 (1982). **Weather:** Temperatures, 34°-70°F, with a mean low of 45.2° and a mean high of 61.9°. Precipitation included .98 in. on Dec. 30, .08 in. on Jan. 1 and a trace on Jan. 10. **Coverage:** Dec. 29-31; Jan. 1, 3, 7, 8, 10, 12, 22. Total, 10 trips both morning and afternoon, averaging 30 min. **Count:** Red-winged Blackbird, 142 (7628, 3087); Lesser Scaup, 47 (2525, 1022); Ring-billed Gull, 23 (1236, 500); Ruddy Duck, 8 (430, 174); Am. Coot, 8; California Gull, 4 (215, 87); Pied-billed Grebe, 3 (161, 65); Black-crowned Night Heron, 2 (107, 43); Mallard, 2; Double-crested Cormorant, 1 (54, 22); Green Heron, 1; Canvasback, 1; W. Gull, 1; Heermann's Gull, 1; Yellow-rumped Warbler, 1; Great Egret, +; Snowy Egret, +; Gadwall, +; Cinnamon Teal, +; Killdeer, +; Com. Snipe, +; Spotted Sandpiper, +; Mew Gull, +; Bonaparte's Gull, +; Belted Kingfisher, +; Black Phoebe, +; Song Sparrow, +. **Average Total:** 245 birds (13,161/km², 5326/100 acres). **Remarks:** Total species, 27. Large numbers of Red-winged Blackbirds were seen in the cattails bordering this pond on 9 trips, whereas last season just a few males were noted nearby. Black-crowned Night Herons were seen on 8 trips; last season none were observed. An average of 5 Ring-billed Gulls were at the pond last season; this season there were 23 per visit, and they were often joined in bathing activities by individuals of 5 other gull species (none seen last season). Bathing gulls were seen on all

but the single late afternoon trip, when they had already left for night roosting spots. Numbers of Lesser Scaup were fairly constant (32-54) and lower than last season's count (59). Canvasback averaged only 1 per visit, vs. 8 last season. A Sora was seen outside the survey period. This area is becoming increasingly disturbed, with housing construction on 3 sides and a major highway on the fourth.—DENNIS MINSKY, Dept. of Biology, California St. Univ., Long Beach and 6908 Mantova St., Long Beach, CA 90815.

56. FRESHWATER MARSH. — **Location:** California; Los Angeles Co., 2 mi W of Wilmington, N side of Anaheim St. between Vermont Ave. and State Freeway 11, Harbor Lake, 33°46'30"N, 118°18'24"W, Torrance Quadrangle USGS. **Continuity:** Established 1978; 3 intermittent years. **Size:** 9.71 ha = 24 acres. **Description of Plot:** See AB 32:45 (1978). **Water:** During dry periods the man-made lake allows only a small sluggish stream to drain out and through the marsh. In the rainy season the lake overflows and floods the lower marsh area, creating temporary lake-like conditions. **Food:** A great abundance of insects crawling, burrowing, and flying was observed. Tumbleweeds and mulefat provide seeds during this time of year. **Weather:** Throughout the 51-day study period the temperature was below 60°F except on 3 days: 60°, Jan. 14; 68°, Feb. 12, and 75°, Feb. 19; all taken at 1030. Average maximum temperature was 62°, ranging from 55° to 75°. Between Dec. 31 and Jan. 30 there were two sampling days with moderate rainfall. **Coverage:** Dec. 31; Jan. 14, 30; Feb. 8, 12, 19. Total, 6 trips, averaging 150 min each. **Count:** Am. Coot, 20 (206, 83); Ruddy Duck, 16 (165, 67); Yellow-rumped Warbler, 16; Bushtit, 15 (154, 63); Red-winged Blackbird, 15; White-crowned Sparrow, 14 (144, 58); Mourning Dove, 13 (134, 54); House Finch, 13; Pintail, 10 (103, 42); Ring-billed Gull, 9 (93, 38); Long-billed Marsh Wren, 9; Starling, 9; Pied-billed Grebe, 8 (82, 33); Mallard, 7 (72, 29); Bonaparte's Gull, 7; Brewer's Blackbird, 7; N. Shoveler, 6 (62, 25); W. Meadowlark, 6; Eared Grebe, 4 (41, 17); Forster's Tern, 4; Lesser Goldfinch, 4; Am. Wigeon, 3 (31, 13); Killdeer, 3; Long-billed Dowitcher, 3; Spotted Dove, 3; Blue-gray Gnatcatcher, 3; Brown Towhee, 3; Savannah Sparrow, 3; Black-crowned Night Heron, 2 (21, 8); Green-winged Teal, 2; Cinnamon Teal, 2; Am. Avocet, 2; Mew Gull, 2; Rock Dove, 2; Anna's Hummingbird, 2; Com. Flicker, 2; Mockingbird, 2; Loggerhead Shrike, 2; Song Sparrow, 2; Red-throated Loon, 1 (10, 4); W. Grebe, 1; Double-crested Cormorant, 1; Great Blue Heron, 1; Green Heron, 1; Great Egret, 1; Snowy Egret, 1; Canada Goose, 1; Canvasback, 1; Bufflehead, 1; Red-tailed Hawk, 1; Am. Kestrel, 1; Snowy Plover, 1; Black-necked Stilt, 1; Com. Snipe, 1; Lesser Yellowlegs, 1; Least Sandpiper, 1; Marbled Godwit, 1; W. Gull, 1; Caspian Tern, 1; Black Phoebe, 1; Say's Phoebe, 1; Tree Swallow, 1; Hermit Thrush, 1; Ruby-crowned Kinglet, 1; Com. Yellowthroat, 1; Dark-eyed Junco, 1; Golden-crowned Sparrow, 1; Am. Bittern, +; Sora, +; Black-bellied Plover, +; Ruddy Turnstone, +; Long-billed Curlew, +; Dunlin, +; Glaucous-winged Gull, +; California Gull, +,

Belted Kingfisher, +, Scrub Jay, +, Water Pipit, +; Orange-crowned Warbler, +; Brown-headed Cowbird, +; Am. Goldfinch, + **Average Total:** 283 birds (2914/km², 1179/100 acres). **Remarks:** Total species, 81. Mallard, Pintail, Ruddy Duck, Am. Coot, Ring-billed Gull, Mourning Dove, Bushtit, Long-billed Marsh Wren, Starling, Yellow-rumped Warbler, Red-winged Blackbird, House Finch and White-crowned Sparrow were noted (in abundance) every trip. Water level was higher throughout the marsh over the study period. This was due in part to increased precipitation, and the upgraded maintenance of the City of Carson's flood control project which empties into the N end of the marsh-lake complex and drains out of the SE end of the study plot. This may have had some effect on the visibility of some shorebirds, rails, and herons.—*JOHN J. ISITT, Department of Biology, California St. Univ., Long Beach, and 742 Sunrise Blvd., Long Beach, CA 90806.*

57. RIPARIAN CANYON BOTTOM, MARSH, AND POND. — **Location:** California, Orange Co., between Jamboree Rd. and Back Bay Dr., 3 mi NE of Newport Beach, Sec 24, T-10W, R-6S; 33°38'N, 117°53'W, Santa Ana Quadrangle, USGS. **Continuity:** New **Size:** 22 ha = 55 acres (rectangular, 260 × 853 m, from USGS topo). **Description of Plot:** A canyon bottom, oriented E to W, bordered on the N and S by bluffs rising 50-100 ft. The upper 2/3 of the canyon supports a riparian corridor dominated by Arroyo Willow (*Salix lasiolepis*), and several dense stands of Cattail (*Typha latifolia*). The willows average 25 ft in height and 6-10 in. dbh. The canopy is somewhat open with a limited understory of saplings, Cattails and Pampas Grass (*Cortaderia selloana*). The floor of the riparian grove is blanketed by water-loving grasses and herbaceous plants. The SE corner of the canyon is dominated by ruderal vegetation: Castor-bean (*Ricinus communis*), Sweet Fennel (*Foeniculum vulgare*) and Russian Thistle (*Salsola kali*). The slopes of the canyon exhibit a variety of plant associations depending upon the degree of disturbance. The slopes of the upper canyon are characterized by annual grasses, Mustard (*Brassica campestris*), and Russian Thistle, which grade into introduced ornamental shrubs (*Acacia*), *Eucalyptus* sp, pines and Ice Plant (*Mesembryanthemum* spp.). The bluffs of the lower canyon support relatively undisturbed coastal sage scrub; Bush Sunflower (*Encelia californica*), Bladderpod (*Isomeris arborea*), and Black Sage (*Salvia mellifera*). The lower 1/3 of the canyon has recently (fall of 1981) been modified to create a freshwater marsh. Of the 7.2 ha (18 acres), 1.8 ha (4.5 acres) is the old stream course which supports scattered willows, Cattail and Watercress (*Rorippa nasturtium-aquaticum*) and an open area of grasses and Mustard. A shallow pond and mudflats account for 2.8 ha (7 acres). The remaining area is an exposed spoil mound lacking vegetation during this survey. **Topography:** The canyon is 1/2 mi long, bordered by 50-100 ft bluffs. Elevations within the canyon range from 6 ft at the mouth to 45 ft at the E end. **Edge:** Big Canyon is surrounded by residential development and associated ornamental landscaping on 3 sides. The W end opens onto

Upper Newport Bay, a tidal saltmarsh. **Water:** A permanent stream flows the length of the canyon. Water is also present in the form of seeps and storm drain outlets along the base of the bluffs. The year-round abundance of water in a normally arid area is a result of heavy landscape irrigation. **Food:** The marshy condition of the area supports many insects. The shallow pond provides burrowing insects as well as algae. The ruderal and slope areas provide an abundance of seeds. The *Eucalyptus* and flowering ornamentals are utilized by nectar feeders. **Weather:** During the survey period extreme nighttime lows did not drop below 40°F while high temperatures reached into the 70s during the day. Precipitation was infrequent, falling on 6 occasions and totaling approximately 3 in. Morning overcast and fog were common. **Coverage:** Dec. 15, 18, 23, 28, 31; Jan. 6, 9, 12, 18, 24, 30, 31; Feb. 2, 4. Total, 14 trips, 0730-1130, averaging 150 min. **Count:** Two distinct habitat types and bird assemblages are found within the study area—the 2.8 ha (7 acre) pond and the remaining 19.2 ha (48 acres) of riparian, marsh and uplands. For this reason 2 lists are provided. It is expected that as the spoil pile and pond age they will become more closely aligned with the avifaunal association observed in the rest of the canyon. **Riparian/Marsh:** White-crowned Sparrow, 82 (422, 171); Yellow-rumped Warbler, 59 (304, 123); House Finch, 50, (257, 104); Bushtit, 30 (154, 63); Song Sparrow, 17 (88, 35); Com. Yellowthroat, 13 (67, 27); Anna's Hummingbird, 12 (62, 25); Ruby-crowned Kinglet, 7 (36, 15); Mourning Dove, 5 (26, 10); Black Phoebe, 5; House Wren, 5; Lesser Goldfinch, 5; Com. Snipe, 3 (15, 6); Long-billed Marsh Wren, 3; Hermit Thrush, 3; Red-tailed Hawk, 2 (10, 4); Sora, 2; Com. Flicker, 2; Mockingbird, 2; Starling, 2; W. Meadowlark, 2; Brown Towhee, 2; Lincoln's Sparrow, 2; Turkey Vulture, 1 (5, 2); Am. Kestrel, 1; Com. Crow, 1; Blue-gray Gnatcatcher, 1; Loggerhead Shrike, 1; Orange-crowned Warbler, 1; House Sparrow, 1; Red-winged Blackbird, 1; Golden-crowned Sparrow, 1; Spotted Dove, +; Ash-throated Flycatcher, +; Say's Phoebe, +; W. Flycatcher, +; Cactus Wren, +; Water Pipit, +; Yellow Warbler, +; Townsend's Warbler, +; Wilson's Warbler, +; Am. Redstart, 4; Summer Tanager, +. **Average Total:** 324 birds (1688/km², 675/100 acres). **Pond:** W. Sandpiper, 57 (19, 662, 7957); dowitcher sp., 135 (4765, 1929); Am. Avocet, 113 (3989, 1614); California Gull, 80 (2824, 1143); Least Sandpiper, 74 (2612, 1057); Ring-billed Gull, 63 (2224, 900); Marbled Godwit, 41 (1447, 586); Am. Coot, 39 (1377, 557); Dunlin, 18 (635, 257); Canvasback, 15 (529, 214); N. Shoveler, 14 (494, 200); Green-winged Teal, 10 (353, 143); Black-necked Stilt, 5 (176, 71); Bufflehead, 4 (141, 57); Killdeer, 4; Pintail, 3 (106, 43); Am. Wigeon, 3; Semipalmated Plover, 3; Mallard, 2 (71, 29); Cinnamon Teal, 2; Ruddy Duck, 1 (35, 14); Long-billed Curlew, 1; Glaucous-winged Gull, 1; Bonaparte's Gull, 1; Great Blue Heron, +; Snowy Egret, +; Lesser Scaup, +; Black-bellied Plover, +; Greater Yellowlegs, +; Willet, +; Spotted Sandpiper, +; W. Gull, +; Caspian Tern, +. **Average Total:** 1210 birds (42,712/km², 17,285/100 acres). **Remarks:** (Pond) Total species, 33. Larger numbers of sandpipers were counted during high

tides in Upper Newport Bay. The number of birds fluctuated with the tidal cycle. Great Blue Heron and Willet were counted only once although they are abundant in the nearby bay. The Snowy Egret was an infrequent visitor. The Greater Yellowlegs was counted once and is uncommon in the immediate area. (Riparian) Total species, 43. The Summer Tanager was counted only once, as were the W. Flycatcher and Yellow Warbler. Starlings counted during the survey were normally on the periphery of the study area. The 3 most numerous species moved freely between the riparian vegetation of the canyon bottom and the ruderal vegetation of the slopes.—*CARL WILCOX, 1013 W. Bay Ave., Newport Beach, CA 92661 and BARBARA W. MASSEY, 1825 Knoxville Ave., Long Beach, CA 90815.*

58. SUBURBAN DEVELOPMENT IN PINE-OAK FOREST. — **Location:** Massachusetts; Plymouth Co., between N end of Long Pond and Long Pond Rd.; 41°51'N, 70°36'W; Sagamore Quadrangle, USGS **Continuity:** New (1981). **Size:** 15 ha = 37.07 acres (an irregular, roughly oval area). **Description of Plot:** The plot was developed during 1968-1975 into 63 housing lots. Strips of undisturbed woodland were left between adjoining rows of houses and between some individual lots. Percent coverage of total land surface: 61% natural vegetation, 15% buildings, 14% open lawn, 10% blacktop. The dominant tree is Pitch Pine (*Pinus rigida*), 40%, followed by White Oak (*Quercus alba*), 20%. Other trees present, in order of decreasing abundance, are White Pine (*P. strobus*), Black Oak (*Q. velutina*), Scarlet Oak (*Q. coccinea*) and Pin Oak (*Q. palustris*). Average tree height is 14 m and density approximately 95 trees/acre (236/ha.). The shrub layer, averaging 0.75 m in height, is rather sparse and composed primarily of Late Low Bush Blueberry (*Vaccinium angustifolium*), 50%, and Black Huckleberry (*Gaylussacia baccata*), 30%. Other shrubs present are Scrub Oak (*Q. ilicifolia*), *Sassafras albidum* and Staghorn Sumac (*Rhus typhina*). The herb layer is minimal. **Edge:** bordered on all sides by similar forest with interspersed housing lots. **Topography:** Rising slightly toward N, elevation 100-170 ft. **Coverage (1981):** Feb. 4, 6, 10, 13, 17, 18, 23, 27; Mar. 2, 3. Total: 10 trips, averaging 110 min. Total man-hours: 18. **Weather (1981)** Temperatures, 12°-46°F (-11 to 8°C), averaging 32°F (0°C). Snow cover was absent or patchy on all but Feb. 6 when 1 in. covered the ground. Skies were clear on 4 days, partly cloudy on 4, overcast on 2. **Count (1981)** Black-capped Chickadee, 25 (167, 67); Pine Siskin, 24 (160, 65); Evening Grosbeak, 21 (140, 57); Blue Jay, 20 (133, 54); Am. Goldfinch, 14 (93, 38); Starling, 11 (73, 30); Mourning Dove, 8 (53, 22); Tufted Titmouse, 7 (47, 19); Dark-eyed Junco, 7; White-breasted Nuthatch, 6 (40, 16); Downy Woodpecker, 3 (20, 8); Red-breasted Nuthatch, 3; House Sparrow, 3; Brown Creeper, 2 (13, 5); Golden-crowned Kinglet, 2; House Finch, 2; Bobwhite, 1 (7, 3); Hairy Woodpecker, 1; Com. Redpoll, 1; Sharp-shinned Hawk, +; Com. Crow, +; Red-winged Blackbird, +; Cardinal, +; White-throated Sparrow, +; Song Sparrow, +. A single Horned Lark and 18 Snow Buntings flew over the plot on Feb

17 Flocks of 34 and 26 Red-winged Blackbirds and 21 and 20 Com. Grackles, almost certainly spring arrivals, were seen on Mar. 2 and 3, respectively. **Average Total** (1981): 161 birds (1073/km², 434/100 acres). **Weather** (1982): Temperatures ranged during census trips from 0° to 51°F (-18° to 10°C), averaging 25°F (-3°C). Snow cover varied from 1-3 in to 12 in. Skies clear on 2 trips, partly cloudy on 3, overcast on 3. **Coverage**: Jan. 18, 25; Feb. 11, 15, 16, 19, 22, 27. Total: 8 trips 0830-1130 EST, averaging 88 min. Total man-hours: 12. **Count**: Black-capped Chickadee, 28 (187, 76); Mourning Dove, 16 (107, 43); Starling, 16; Evening Grosbeak, 10 (67, 27); Tufted Titmouse, 5 (33, 15); Dark-eyed Junco, 5; Downy Woodpecker, 3 (20, 8); Blue Jay, 3; White-breasted Nuthatch, 3; Golden-crowned Kinglet, 2 (13, 5); Am. Goldfinch, 2; Hairy Woodpecker, 1 (7, 3); Red-breasted Nuthatch, 1; Brown Creeper, 1; House Sparrow, 1; House Finch, 1; Com. Crow, +; Cardinal, +; Song Sparrow, +. Two unidentified redpolls flew over the plot on Feb. 11. **Average Total**: 98 birds (653/km², 264/100 acres). **Remarks**: Total species (1981) 25, (1982) 19. In both years, 6 houses consistently provided food, 6 only sporadically. Birds tended to congregate at feeders, although mixed flocks were frequently observed foraging throughout suitable habitat. Noteworthy decreases from 1981 to 1982 occurred in Blue Jays and nearly all Fringillids, perhaps owing in part to more severe 1982 winter weather. Natural food supply did not differ noticeably between the 2 years. In general, boreal finches were much scarcer regionally in 1982 than in 1981. Special thanks to Diane Tessaglia for vegetation analysis and original plot survey.—**CHRISTOPHER C. RIMMER**, *Manomet Bird Observatory, Manomet, MA 02345*.

59. URBAN GOLF COURSE.—**Location**: Maryland; Prince George's Co., Univ. of Maryland golf course bounded by Metzert Rd., Adelphi Rd., and University Blvd., College Park. 39°00'N, 76°57'30"W, Washington E, DC-MD Quadrangle, USGS. **Continuity**: Established 1981, 2 years. **Size**: 25 ha = 61.8 acres. **Description of Plot**: See AB 36: 45-46 (1982). **Weather**: Colder and more snow than usual. Temperature on walks averaged 28°F, 2-12 in. of snow on 3 walks. The sky was cloudy 5 trips. An ice storm killed some birds known to be present at first. Carolina Wrens and Mockingbirds disappeared. **Coverage**: Jan. 21, 28; Feb. 4, 11, 18, 25. **Total**: 6 trips 0730-1000. Total man-hours 32. **Count**: Carolina Chickadee, 16 (64, 26); Com. Crow, 12 (48, 19); Tufted Titmouse, 10 (40, 16); Ring-billed Gull, 9 (36, 15); Mourning Dove, 9, Am. Robin, 8 (32, 13); Starling, 5 (20, 8); Blue Jay, 5; Dark-eyed Junco, 5; Red-bellied Woodpecker, 5; Com. Flicker, 3 (12, 5); Canada Goose, 2 (8, 3); Downy Woodpecker, 2; House Sparrow, 2; Brown-headed Cowbird, 2; Fish Crow, 1 (4, 2); White-breasted Nuthatch, 1; Brown Creeper, 1; Mockingbird, 1; Cardinal, 1; Song Sparrow, 1, Red-tailed Hawk, +; Pileated Woodpecker, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +; Carolina Wren, +; Com. Grackle, +; Field Sparrow, +. **Average Total**: 99 birds (396/km², 160/100 acres). **Remarks**: Total species, 28. Species seen on all 6 counts were Ring-billed Gull, Com.

Flicker, Red-bellied Woodpecker, Blue Jay, Com. Crow, Carolina Chickadee, and Tufted Titmouse. We are indebted to Roland S. Shook and Joe Engler for setting up and analyzing this study plot.—**JOE ENGLER, IVAN KLEIN, STEVEN HOLT, DONALD H. MESSERSMITH**, *Univ. of Maryland, College Park, MD 20742*.

60. SUBURBAN CEMETERY.—**Location**: Alabama, Jefferson Co., Birmingham, Oakland Cemetery, immediately NE of intersection of Pike and Warrior Rds in Ensley section; 33°29'N, 86°54'W, Bessemer Quadrangle, USGS. **Continuity**: Established 1978; 5 consecutive years. **Size**: 15 ha = 37 acres. **Description of Plot**: See AB 34: 18-19 (1980). **Weather 1980**: Winter cold with precipitation about normal. **Coverage**: Plot is censused daily throughout the year; 84 trips, Dec. 1, 1979-Feb. 29, 1980, 0900-1630. Total man-hours, 42. **Count, 1980**: Starling, 302 (2017, 816); Com. Grackle, 90 (601, 243); Am. Robin, 37 (247, 100); Red-winged Blackbird, 19 (127, 51); House Sparrow, 16 (107, 43); Blue Jay, 12 (80, 32); Cardinal, 8 (53, 22); Brown-headed Cowbird, 7 (47, 19); Cedar Waxwing, 6 (40, 16); White-throated Sparrow, 6; Mourning Dove, 4 (27, 11); Mockingbird, 3 (20, 8); Rusty Blackbird, 3; Rufous-sided Towhee, 3; Dark-eyed Junco, 3; Com. Flicker 2 (13, 5); Rock Dove, 1 (7, 3); Tufted Titmouse, 1; Yellow-rumped Warbler, 1; Sharp-shinned Hawk, +; Red-tailed Hawk, +; Am. Kestrel, +; Am. Woodcock, +; Ring-billed Gull, +; Red-bellied Woodpecker, +; Yellow-bellied Sapsucker, +; Downy Woodpecker, +; Ash-throated Flycatcher, +; Com. Crow, +; Carolina Chickadee, +; Brown Creeper, +; Winter Wren, +; Brown Thrasher, +; Golden-crowned Kinglet, +; Ruby-crowned Kinglet, +; Pine Warbler, +; Purple Finch, +; Evening Grosbeak, +; Am. Goldfinch, +; Field Sparrow, +; Chipping Sparrow, +; Fox Sparrow, +. **Average Total, 1980**: 524 birds (3499/km², 1416/100 acres). **Remarks**: Total species, 42. Seven species, Am. Robin, Cedar Waxwing, Starling, Red-winged Blackbird, Rusty Blackbird, Com. Grackle, and Brown-headed Cowbird, staged through the tract each evening on the way to a roost of about 50,000 birds 2 mi SW. Most merely passed through the tract, but many spent varying amounts of time and often fed. Without these seven species the average total would be 60 birds (400/km², 162/100 acres). The Ash-throated Flycatcher was seen Dec. 5 & 9 (3rd record for inland Alabama). **Weather, 1981**: Dry with temperatures above normal. **Coverage**: Dec. 1, 1980-Feb. 28, 1981, 74 ½-hr trips, 0900-1630. Total man-hours, 37. **Count, 1981**: Com. Grackle, 171 (1142, 462); Starling, 143 (955, 386); Blue Jay, 14 (93, 38); Red-winged Blackbird, 14; House Sparrow, 11 (73, 30); White-throated Sparrow, 11; Cardinal, 8 (53, 22); Mourning Dove, 7 (47, 19); Brown-headed Cowbird, 7; Rusty Blackbird, 6 (40, 16); Rock Dove, 5 (33, 14); Rufous-sided Towhee, 5; Field Sparrow, 5; Am. Robin, 4 (27, 11); Dark-eyed Junco, 4; Mockingbird, 3 (20, 8); Tufted Titmouse, 2 (13, 5); Com. Flicker, 1 (7, 3); Red-bellied Woodpecker, 1; Carolina Chickadee, 1; Brown Creeper, 1; Brown Thrasher, 1; Golden-crowned Kinglet, 1; Ruby-crowned Kinglet, 1; Yellow-rumped War-

bler, 1, Red-tailed Hawk, +, Am Kestrel, +; Killdeer, +; Yellow-bellied Sapsucker, +; Downy Woodpecker, +; Com. Crow, +, White-breasted Nuthatch, +; Carolina Wren, +; Hermit Thrush, +; Cedar Waxwing, +; Purple Finch, +; House Finch, +, Pine Siskin, +; Am. Goldfinch, +; Red Crossbill, +; Chipping Sparrow, +; Fox Sparrow, +; Song Sparrow. +. **Average Total, 1981**: 428 birds (2858/km², 1157/100 acres). **Remarks**: Total species, 43. If we deduct the same seven species that go through the tract each day on the way to roost and use the tract apparently only in small numbers as in the 1980 census above, the average total would be 83 birds (554/km², 224/100 acres). **Weather, 1982**: Temperatures were much colder than usual but precipitation about normal. Two inches of snow on ground Jan. 14-15. very unusual for this latitude; temps. frequently approached 0°F **Coverage**: Dec. 1, 1981-Feb. 28, 1982, 80 ½-hr trips, 0900-1630. Total hours, 40. **Count, 1982**: Starling, 446 (2979, 1205); Com Grackle, 200 (1336, 541); Red-winged Blackbird, 31 (207, 84); Am. Robin, 26 (174, 70); Mourning Dove, 12 (80, 32); House Sparrow, 10 (67, 27); Rufous-sided Towhee, 10; Blue Jay, 6 (40, 16); Cedar Waxwing, 6; Cardinal, 5 (33, 14); Brown-headed Cowbird, 4 (27, 11); Mockingbird, 3 (20, 8); Rock Dove, 2 (13, 5); Rusty Blackbird, 2; Dark-eyed Junco, 2, White-throated Sparrow, 2; Com. Flicker, 1 (7, 3); Yellow-rumped Warbler, 1; Purple Finch, 1; Field Sparrow, 1; Sharp-shinned Hawk, +; Cooper's Hawk, +; Red-tailed Hawk, +; Merlin, +; Am. Kestrel, +; Ring-billed Gull, +; Red-bellied Woodpecker, +, Downy Woodpecker, +; E. Phoebe, +, Carolina Chickadee, +; Tufted Titmouse, +; White-breasted Nuthatch, +; Brown Creeper, +; Winter Wren, +; Brown Thrasher, +; E. Bluebird, +; Ruby-crowned Kinglet, +; Am. Goldfinch, +, Fox Sparrow, +; Song Sparrow, +. **Average Total, 1982**: 771 birds (5149/km², 2084/100 acres). **Remarks**: Total species, 40. If we disregard 7 species of roost birds (see 1980 & 1981 average totals above), the average total would be 56 birds (374/km², 151/100 acres) For the 5 years of the study, 1978-82 the average total birds per trip has been 338, 298, 524, 428, 771; without the seven roost species, the average total has been 121, 86, 60, 83, 56, a decrease of about one half (46%) Four nuisance species, Starling, Red-winged Blackbird, Com. Grackle, and Brown-headed Cowbird are responsible for the entire increase in average total noted above. The five species of hawks, four of them accipiters and falcons, were probably attracted by the large number of birds going to roost. Of the 58 species recorded all five years, 30 are recorded every year. The remaining 28 appear to be mostly wandering local residents rather than migrants.—**THOMAS A. IMHOF**, *1036 Pike Rd, Birmingham, AL 35218*.

61. SMALL TOWN, RESIDENTIAL AND COMMERCIAL AREAS.—**Location**: Kansas; Douglas Co., the central portion of Baldwin City, bounded by Kansas highway 56 (Ames St.) on the north, Newton St. on the south, 10th St. on the west, and 6th St. on the east. 38°47'N, 95°11'W, Baldwin City Quadrangle, USGS. **Continuity**: New. **Size**: 66 9

ha = 165.3 acres (rectangular, 1500 × 4800 ft measured from an aerial photo). **Description of Plot:** Includes the older portions of town with mature trees in yards and boulevards. Relative amounts of different habitats include residential homes with mowed lawns and mature trees, 68.4%; small college campus (Baker University) with lawns and many trees (the Ivan Boyd Arboretum), 15.4%; commercial buildings and development, 9.6%; gradeschools and playgrounds, 3.8%; vacant grass lots, 2.8%. The dominant canopy tree is Sugar Maple (*Acer saccharum*) but there are also large numbers of Silver Maple (*A. saccharinum*), Black Walnut (*Juglans nigra*), Hackberry (*Celtis occidentalis*), and Am. Elm (*Ulmus americana*). A variety of ornamental plantings are common in the understorey as foundation plantings or yard borders (e.g. *Juniperus* sp., *Spirea* sp., and *Forsythia* sp.). A quantitative survey of the vegetation gave the following results: Trees, 3 in diameter and over, based on 52, 1.0 acre square quadrats, 12/acre; total basal area 211 ft²/acre. Species comprising 90% of the total number of trees: Sugar Maple, 4, 43, 31, 100; Silver Maple, 0, 7, 6, 57; Black Walnut, 0, 7, 6, 8, 47; Hackberry, 0, 6, 5, 37; Am. Elm, 0, 6, 5, 37; Pin Oak (*Quercus palustris*), 0, 6, 5, 5, 50; Red Bud (*Cercis canadensis*), 0, 5, 5, 4, 63; Siberian Elm (*U. pumila*), 0, 3, 3, 3, 37; Red Cedar (*Juniperus virginiana*), 0, 3, 3, 1, 33; Green Ash (*Fraxinus pennsylvanica*), 0, 2, 2, 3, 27; Black Oak (*Q. velutina*), 0, 2, 2, 3, 27; Red Elm (*U. rubra*), 0, 2, 2, 3, 6. Trees by diameter size class: A (3-6 in.) 1, 9, 2, 1; B (6-9 in.) 2, 17, 7, 4; C (9-15 in.) 3, 32, 32, 17; D (15-21 in.) 2, 22, 39, 20; E (21-27 in.) 1, 12, 49, 26, F (27-33 in.) 1, 8, 60, 32. Shrub stems/acre 260. Canopy cover (from summer samples), 32%. Average canopy height 48 ft (range 15-70). **Edge:** Bounded by similar habitat on all sides. **Topography:** Fairly flat with only a slight increase in elevation from edge to center. **Elevation:** 1050 ft. **Weather:** Same as "Winter bird populations of selected oak-hickory forests in northeastern Kansas", this issue AB. **Coverage:** Jan. 4, 5, 11-14, 21-22, 27-28; Feb. 11, Total 11 trips, 0730-1250, averaging 4.5 hours. **Count:** House Sparrow, 198 (296, 120); Pine Siskin, 168 (251, 102); Am. Goldfinch, 146 (218, 88); Starling, 111 (166, 67); Dark-eyed Junco, 46 (69, 28); Cardinal, 29 (43, 18); Blue Jay, 21 (31, 13); Purple Finch, 17 (25, 10); Black-capped Chickadee, 15 (22, 9); Tufted Titmouse, 9 (13, 5); Com. Flicker, 8 (12, 5); Downy Woodpecker, 8; White-breasted Nuthatch, 7 (10, 4); Am. Robin, 7; Tree Sparrow, 6 (9, 4); Red-bellied Woodpecker, 5 (7, 3); Yellow-bellied Sapsucker, 4 (6, 2); Red-breasted Nuthatch, 2 (3, 1); Am. Kestrel, 1 (1, 1); Hairy Woodpecker, 1; Brown Creeper, 1; Evening Grosbeak, 1; Sharp-shinned Hawk, +; Red-tailed Hawk, +; Mourning Dove, +; Screech Owl, +; Red-headed Woodpecker, +; Golden-crowned Kinglet, +; Cedar Waxwing, +; Com. Grackle, +. **Average Total:** 811 birds (1212/km², 491/100 acres). **Remarks:** Total species, 30. Numbers of winter visitors per trip appeared to depend heavily on temperature and snow cover. Permanent residents such as the Black-capped Chickadee may be drawn to feeding stations off the area during cold weather although the area itself contains

40 active feeders which concentrate these species and offsets emigration.—*CALVIN L. CINK, Biology Dept., Baker Univ., Baldwin City, KS 66006.*

62. CITY RAVINE. — **Location:** Ontario; Toronto, Wigmore Park ravine, East Don River valley N of Eglinton Ave., 43°55'N, 79°20'W. **Continuity:** New, BBC in 1980. **Size:** 34 ha = 84 acres. **Description of Plot:** See AB 35:74 (1981). **Weather:** Mean temperature during counts, -4.8°C; extremes, -12° and +1°. Two days clear, 2 partly cloudy, 2 overcast. Little snow cover until Feb. 7-13, during which over 30 cm fell. Deep snow persisted until the end of the study period. **Coverage:** Jan. 20, 26; Feb. 2, 12, 28; Mar. 7. Total, 6 trips, 0930-1500, averaging 150 min. **Count:** Black-capped Chickadee, 39 (115, 46); Starling, 22 (65, 26); Mourning Dove, 15 (44, 18); Com. Redpoll, 7 (21, 8); Cardinal, 6 (18, 7); Dark-eyed Junco, 6; Downy Woodpecker, 4 (12, 5); Blue Jay, 4; Am. Goldfinch, 3 (9, 4); White-winged Crossbill, 3; Com. Crow, 2 (6, 2); Hairy Woodpecker, 1 (3, 1); White-breasted Nuthatch, 1; Red-tailed Hawk, +; Am. Kestrel, +; Ring-necked Pheasant, +; N. Shrike, +; Red-winged Blackbird, +; Purple Finch, +; Pine Grosbeak, +. **Average Total:** 113 birds (332/km², 135/100 acres). **Remarks:** Total species, 20, with a mean of 11.3 species/count. Average diversity (*H'*) per count was 2.66 and average evenness (*J'*) was 0.763. The composition of bird communities in the Toronto area during the winter of 1981-82 differed markedly from those of the previous two winters. Those species at the northerly limit of their winter range in the Toronto region were much less abundant this year (*cf.*, e.g., AB 35:41-42, 1981), while some erratic winter finches such as crossbills were more abundant. Chickadee populations were high; their density in Wigmore Park on Jan. 26 was 165/km² but it declined to less than one half of that by the end of Feb.—*ALLAN J. GREENBAUM, 45 Anewen Dr., Toronto, Ontario, M4A 1R9.*

63. URBAN PARK WITH POND. — **Location:** Ontario; Lakeside Park, Kitchener. **Continuity:** New. **Size:** 14.2 ha = 35.2 acres (measured from survey map). **Description of Plot:** See AB 36:77 (1982). A small added area contains conditions as follows: A Norway Spruce (*Picea abies*) hedgerow, lawn and several Black Walnut (*Juglans nigra*) are present. The W margin of the plot consists of 6 house yards, 3 of which have bird feeders. A community trail and a band ca. 50 m deep of Balsam Poplar (*Populus balsamifera*), willow (*Salix* sp.), Manitoba Maple (*Acer negundo*), and Red Osier Dogwood (*Cornus stolonifera*) occur E of the house yards. **Weather:** Blizzard conditions on 3 weekends during the census period. January and Feb. temperatures were colder than average with extremes during the count period being 6.6 and -25.6°C. Temperatures during counts, 3 to -13°C. Snow depth was 3 cm on Dec. 24; by Jan. 15, 20 cm of snow was present; between Feb. 7 and 20 30-70 cm of snow cover persisted. **Coverage:** Dec. 24, 1981; Jan. 3, 7, 15, 23; Feb. 7, 13-14, 17, 20, 1982. Total, 10 trips, averaging 65 min.; 0700-1745, most before 1100. Total man-hours: 11. **Count:** Cardinal, 6 (42, 17); Evening Gros-

beak, 6; Black-capped Chickadee, 5 (35, 14); Am. Goldfinch, 5; Starling, 4 (28, 11); Dark-eyed Junco, 4; Tree Sparrow, 4; Mourning Dove, 2 (14, 6); Com. Crow, 2; Downy Woodpecker, 1 (7, 3); Blue Jay, 1; White-breasted Nuthatch, 1; House Sparrow, 1, Sharp-shinned Hawk, +; Hairy Woodpecker, +; Red-breasted Nuthatch, +, Brown Creeper, +; Golden-crowned Kinglet, +; Com. Redpoll, +; Song Sparrow, +. **Average Total:** 42 birds (295/km², 119/100 acres). **Remarks:** Total species, 20. Cardinal and Black-capped Chickadee were found on every trip, Starling and Downy Woodpecker present on 9 of 10 trips. Species overhead included: Mallard, Herring Gull and Rock Dove.—*KENNETH W. DANCE, 132 Village Road, Kitchener, Ontario, Canada N2M 4L2.*

64. URBAN PARK: LAKE, MARSH AND ADJACENT MIXED FOREST. — **Location:** California; city and county of San Francisco, Golden Gate Park, N. Lake, S of 43rd Ave and Fulton St. entrance to the park; 37°46'N, 122°30'W, San Francisco N Quadrangle, USGS. **Continuity:** Established 1981, second consecutive year. **Size:** 4.99 ha = 12.33 acres, irregularly oblong plot measured from "Golden Gate Park Irrigation and Domestic Water Systems" (map), Drawing #15,555, Board of Park Commissioners, Division of Engineers, San Francisco, CA (May 19, 1941). **Description of Plot:** See AB 36:48 (1982). **Weather:** Temperatures 40°-65° with an average of 55°F. It was clear during 12 visits, overcast on 5 and rained during one of those. Wind was negligible on all visits. **Coverage:** Nov. 2, 7-8, 22, 28; Dec. 5, 13, 26, 28; Jan. 1, 12, 15, 24; Feb. 5, 7, 16, 21; 0750-1725 hrs. (PST). 17 visits totaled 16.6 hrs, averaging 0.98 hrs. **Count:** Am. Coot, 79 (1583, 641); Mallard, 50 (1002, 406); Mew Gull, 41 (822, 333); Yellow-rumped Warbler, 37 (742, 300); N. Shoveler, 11 (220, 89); Am. Wigeon, 9 (180, 73); Ruby-crowned Kinglet, 8 (160, 65); Brewer's Blackbird, 5 (100, 41); Song Sparrow, 5; Starling, 4 (80, 32); Anna's Hummingbird, 3 (60, 24); Am. Robin, 3; Cedar Waxwing, 3; Dark-eyed Junco, 3; White-crowned Sparrow, 3; Golden-crowned Sparrow, 3; California Gull, 2 (40, 16); Mourning Dove, 2; Black Phoebe, 2; Chestnut-backed Chickadee, 2; Pygmy Nuthatch, 2; Red-winged Blackbird, 2; Fox Sparrow, 2; Pied-billed Grebe, 1 (20, 8); Ruddy Duck, 1; W. Gull, 1; Downy Woodpecker, 1; Bushtit, 1; Hermit Thrush, 1; Golden-crowned Kinglet, 1; House Finch, 1; Pine Siskin, 1; Horned Grebe, +; Double-crested Cormorant, +; Green-winged Teal, +; Blue-winged Teal, +; Wood Duck, +, Lesser Scaup, +; Red-shouldered Hawk, +; Sora, +; Glaucous-winged Gull, +, Ring-billed Gull, +; Rock Dove, +; Allen's Hummingbird, +; Belted Kingfisher, +, Com. Flicker, +; Yellow-bellied Sapsucker, +; Brown Creeper, +; Winter Wren, +, Varied Thrush, +; Hutton's Vireo, +, Black-and-white Warbler, +; Orange-crowned Warbler, +; Townsend's Warbler, +; Com. Yellowthroat, +; Wilson's Warbler, +; Purple Finch, +; Brown Towhee, +; **Average Total:** 290 birds (5812/km², 2352/100 acres). **Remarks:** Total species, 58. The water level of N Lake was maintained at a higher level than the previous year, thus

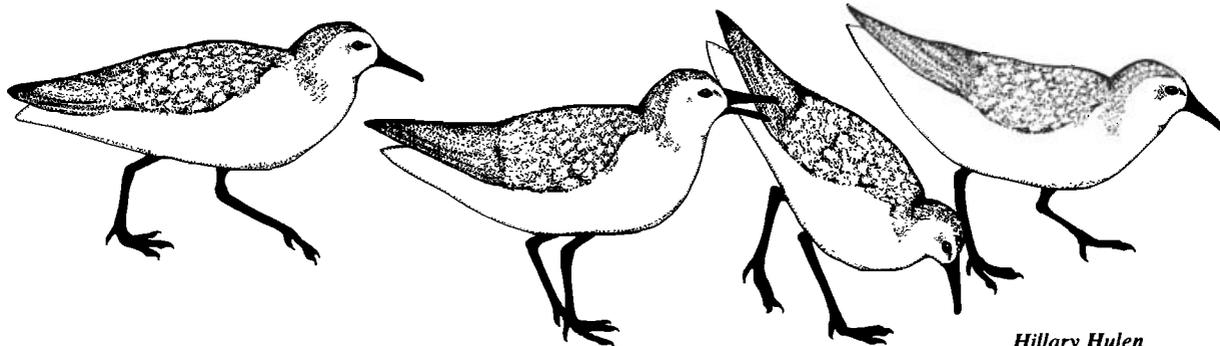
flooding islands previously used by roosting waterfowl. This may have accounted for the 78% decline in Am. Wigeon numbers, and 39% decline for Mallards compared to the previous year. The 311% increase in Yellow-rumped Warblers was paralleled by an increase in the population of other passerines in the adjacent coniferous forest plot. Current plans for redevelopment of this and the other two lakes comprising the Chain-of-Lakes before next winter make this the last study to provide baseline data for this habitat sample of Golden Gate Park.—**DANIEL P. MURPHY**, 2945 Ulloa St., San Francisco, CA 94116.

65. URBAN PARK: MATURE MIXED CONIFEROUS FOREST. — **Location:** California; City and County of San Francisco, Golden Gate Park, W. of the 43rd. Ave. and Fulton St. entrance to the park; 37°46'N, 122°30'W, San Francisco N. Quadrangle, USGS. **Continuity:** Established 1981, 2 consecutive years. **Size:** 8.38 ha = 20.7 acres. **Description of Plot:** See AB 36:47-48 (1982). **Weather:** Temperatures, 42°-65°, averaged 52°F. It was clear on 7 visits, overcast on 4 and rained on one of those. Wind was generally negligible, but ranged to about 15 mph on at least 2 visits. Heavy Jan. rains may have had an impact on the bird population. **Coverage:** Nov. 7, 22, 28; Dec. 5, 27; Jan. 2, 10, 15, 24; Feb. 7, 21; 0825-1250 hrs (PST). The 11 visits totaled 12.8 hrs, averaging 1.16 hrs. **Count:** Dark-eyed Junco, 32 (382, 155); Golden-crowned Kinglet, 14 (167, 68); Am. Robin, 12 (143, 58); Mourning Dove, 11 (131, 53); White-crowned Sparrow, 11; Pygmy Nuthatch, 8 (95, 39); Golden-crowned Sparrow, 7 (84, 34); Ruby-crowned Kinglet, 5 (60, 24); Yellow-rumped Warbler, 5; Anna's Hummingbird, 4 (48, 19); Downy Woodpecker, 2 (24, 10); Chestnut-backed Chickadee, 2; Bushtit, 2; Hermit Thrush, 2; N. Flicker, 1 (12, 5); Scrub Jay, 1; Red-breasted Nuthatch, 1; Starling, 1; Townsend's Warbler, 1; House Finch, 1; Pine Siskin, 1; Brown Towhee, 1; Fox Sparrow, 1; Sharp-shinned Hawk, +; Cooper's Hawk, +; Red-shouldered Hawk, +; Am. Kestrel, +; California Quail, +; Rock Dove, +; Black Phoebe, +; Brown Creeper, +; Varied Thrush, +; Hutton's Vireo, +. **Average Total:** 126 birds (1504/km², 609/100 acres). **Remarks:** Total species, 33. Fifty Black-bellied Plovers were seen flying overhead on Dec. 5, and 2 Com. Ravens flew over on Dec. 5 and again on Feb. 7. Both species are rare in the

park. An Anna's Hummingbird was observed on a nest on Dec. 5. There were consistently more birds on the plot than last year. The average population increase was 79% over the previous year. This may be because of any number of factors. Normal population variations are the most likely factor. Five species account for the majority of the population increase: Mourning Dove, Am. Robin, Golden-crowned Kinglet, Dark-eyed Junco and White-crowned Sparrow. Golden-crowned Kinglets were in very high numbers during the winter in all local appropriate habitats. It is possible the other species were in high numbers as well. New openings in the forest from recently fallen and cut trees may have been a factor, especially for the robins. Exceptionally heavy rains elsewhere in the Bay Area during Jan. may have forced birds from other wintering habitats to less hard hit areas such as San Francisco. Populations were quite high during that rainy period, but they were also high throughout the entire survey period. This appears to be the last year this survey can be considered for base line data on the impact of the reforestation program, as significant numbers of trees fell and were removed during the late winter and early spring. It is expected more will be cut before winter 1982.—**DANIEL P. MURPHY**, 2945 Ulloa St., San Francisco, CA 94116.

66. SUBURBAN UNIVERSITY CAMPUS — **Location:** California; Los Angeles Co., California St. Univ., Long Beach (upper campus). 33°48'N, 118°17'W, Los Alamitos Quadrangle USGS. Bounded on N by walkway separating upper and lower campus, S by State Highway 22, E by residential area, W by U.S. Veterans Hospital. **Continuity:** New. **Size:** 28.2 ha = 69.7 acres (established from an architectural map; roughly rectangular, about 817 to 866 yds. N-S and 408 yds. E-W). **Description of Plot:** Buildings comprise 21% of the area, paved parking lots, roadways, and walkways roughly 20%. The flora of the university consists of 211 species, many of which are exotic. Most buildings are surrounded by low ornamental shrubs, primarily Bougainvillea (*Bougainvillea glabra*), Privet (*Ligustrum* sp.), Chinese Hibiscus (*Hibiscus rosa sinensis*), Laurel-leaved Snail Seed (*Cocculus laurifolius*), Oleander (*Nerium oleander*), Indian Hawthorn (*Rhapiolepis endica*), Chinese Wisteria (*Wisteria sinensis*), Shiny Xylosma (*Xylosma congertum*), and Ivy (*Hedera* sp.). The re-

mainder of the area is mowed grass. The dominant trees are Ficus (*Ficus benjamina*, *F. retusa*), Gum (*Eucalyptus citriodora*, *E. polyanthemos*), Peach (*Prunus persica*, *P. cerasifera*), Olive (*Olea europaea*), Palms (*Washingtonia filifera*, *Archontophoenix cunninghamiana*, *Prachcarpus fortunei*, *Erythea edulis*), Sycamore (*Platanus racemosa*), California Live Oak (*Quercus agrifolia*), Pine (*Pinus canariensis*, *P. pinea*), Evergreen Ash (*Fraxinus uhdei*), Chinese Elm (*Ulmus parvifolia*). **Topography:** Elevation 10-80 ft with approximately half of the campus 75 ft or higher. Fairly level but sloping down at the N end. **Weather:** Rainfall previous to and during the survey (2.44 in.) was below the seasonal norm. Temperatures 34°-70°F, averaging 65° high and 44° low. **Coverage:** Jan. 8, 11-13, 15, 22, 26, 28, 30. Total, nine trips averaging 3 hrs each, all beginning at 0730. **Count:** House Sparrow, 76 (269, 109); Cedar Waxwing, 72 (255, 103); House Finch, 59 (209, 85); Starling, 30 (106, 43); Rock Dove, 18 (64, 26); Yellow-rumped Warbler, 17 (60, 24); Bushtit, 15 (53, 22); Am. Goldfinch, 15; Spotted Dove, 9 (32, 13); Anna's Hummingbird, 9; Mockingbird, 9; Com. Crow, 7 (25, 10); Mourning Dove, 6 (21, 9); Am. Robin, 3 (11, 4); Allen's Hummingbird, 2 (7, 3); Scrub Jay, 2; White-crowned Sparrow, 2; Ruby-crowned Kinglet, 1 (4, 1); Orange-crowned Warbler, 1; Turkey Vulture, +; Sharp-shinned Hawk, +; Am. Kestrel, +; Hermit Thrush, +. **Average Total:** 353 birds (1251/km², 506/100 acres). **Remarks:** Total species, 23. Gulls (mostly Ring-billed) were seen flying overhead (usually heading inland) during all counts and Double-crested Cormorants passed overhead on 3 occasions. A Sharp-shinned Hawk seen on 2 counts was probably the same bird (a female) killed Feb. 1, as it flew into a window while chasing a Cedar Waxwing on campus. Several hundred Am. Robins, Mourning Doves, and Starlings roosted in the Ficus trees every evening but were not encountered during the morning surveys. Birds seen on adjacent lower campus included Red-tailed Hawk, Killdeer, Ring-billed Gull, Com. Flicker, and Loggerhead Shrike. There were no appreciable differences noted between surveys made during midsemester break (7) and those when classes were in session (2).—**HEATHER HOLLIS** and **STEVEN V. NEELY**, Department of Biology, California St. Univ., Long Beach. (H.H) 1637 E. Florida St., Long Beach, CA 90802. (S.V.N.) 10371 Orangewood Ave., Garden Grove, CA 92640.



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