

Thirty-third Winter Bird – Population Study

Edited by Calvin L. Cink and Roger L. Boyd

THE 92 CENSUSES SUBMITTED this year represent a slight increase over last year. There are 25 states and provinces represented, which is also slightly higher than last year. California has the highest state total of 24 studies, in a variety of habitats from coastal mudflats to urban nature centers. The states and province with the next highest numbers of studies are Maryland with 11 and Minnesota, New York, and Ontario with 7 each.

Observers reported a total of 1436.52 hours in the field, averaging 15.3 hours per census plot. The highest total was for 63 hours in Disturbed Coastal Scrub in California. The total area studied this year amounted to 1521.09 hectares

(3758.8 acres) for an average census area of 16.2 ha. The number of birds per sq. km. ranged from 0 to 14,486 and averaged 902 (standard deviation 1754) birds. The total species recorded varied from 0 (Cat-tail Marsh) to 69 (Barrier Beach and Saltwater Estuary).

Thirty-seven percent of the studies are new and provide data from some very interesting habitats. The remainder represent studies carried on for several winters (in fact, 8 have been done 10 or more years) and the remarks on the yearly changes observed on these areas provide some interesting reading.

While the winter studies are never as numerous as those done on breeding

populations, the results are potentially just as valuable. If winter censuses are done on areas whose vegetation has been quantitatively described and whose breeding birds have been censused, they give us yet another view of the importance of that habitat for the survival of its avifauna. We would encourage those who have gone through the effort of establishing a breeding bird census grid to continue their censuses in the winter.

The editors wish to thank all compilers for submission of their studies and to Frances Dixon for her editorial help. The deadline for 1981 reports is June 15, 1981.—*Biology Department, Baker University, Baldwin City, KS 66006.*

List of Studies

Habitat	State or Province	Hec-tares	Birds per sq. km.	Hrs. Obs.	Spe-cies	Yrs of Study
A. Forest Habitats						
1. Maple-Pine-Oak Second-Growth Forest	Massachusetts	11.8	25	21.9	9	4
2. Upland Oak Forest	New York	11.8	25	10.3	3	7
3. Upland Mixed Pine-Spruce-Hardwood Plantation	New York	16.6	121	12.0	10	7
4. Mixed Hemlock-White Cedar-Hardwood Forest	New York	8.56	303	20.0	9	3
5. Upland Tulip-Tree-Maple-Oak Forest	Maryland	11.98	92	14.2	19	8
6. Mature Deciduous Floodplain Forest	Maryland	17.8	611	14.5	26	29
7. Upland Oak-Hickory Hardwood Forest	Virginia	11.02	109	22.8	15	10
8. Upland Tulip-Tree-Oak Forest	Virginia	20.6	131	12.1	13	7
9. Upland Mixed Hardwood Forest	Virginia	9.9	40	9.3	11	1
10. Mixed Pine and Deciduous Forest	Indiana	14.53	220	28.0	21	2
11. Bottomland Oak-Gum-Cypress Forest Recently Disturbed	Mississippi	11.4	876	17.6	31	9
12. Mixed Pine-Deciduous Forest	Louisiana	8.9	786	12.0	25	10
13. Ozark Oak-Hickory Forest-Second-Growth	Missouri	7.85	127	18.5	11	1
14. Oak-Hickory Forest I	Kansas	8.1	358	6.0	20	2
15. Oak-Hickory Forest II	Kansas	8.1	49	6.0	11	2
16. Oak-Hickory Forest III	Kansas	8.1	383	7.5	18	2
17. Oak-Hickory Forest IV	Kansas	8.1	148	14.0	13	2
18. Oak-Hickory Forest V	Kansas	8.1	185	14.0	15	2
19. Oak-Hickory Forest VI	Kansas	8.1	185	14.0	19	2
20. Ponderosa Pine Forest	Colorado	8.1	309	12.5	20	17
21. Ponderosa Pine-Douglas Fir Foothills Forest	Washington	11.15	81	18.6	10	5
22. Douglas Fir-Madrone-Tanbark Oak Forest	Oregon	7.81	423	18.0	19	1
23. Semi-disturbed Willow-Cottonwood-Black Walnut Riparian Woodland	California	17.7	1645	27.3	61	2
24. Deciduous Oak Woodland	California	5.67	688	11.0	18	3
25. Mixed Conifer-Oak Forest Burned and Logged	California	10.0	460	9.9	22	1
26. Mixed Conifer-Oak Forest I	California	10.0	200	16.0	20	1
27. Mixed Conifer-Oak Forest II	California	10.0	220	17.0	18	1
28. Sycamore-Coast Live Oak-Riparian Woodland	California	6.15	1902	11.0	36	1
29. Riparian Willow Forest	California	6.0	1733	20.0	31	1
B. Forest Mixed with Other Habitats						
30. Abandoned Pasture-Young Mixed Forest	New York	4.37	92	12.0	3	3
31. Black Spruce-Tamarack Bog	New York	4.60	153	13.3	6	7

<i>Habitat</i>	<i>State or Province</i>	<i>Hec- tares</i>	<i>Birds per sq. km.</i>	<i>Hrs. Obs.</i>	<i>Spe- cies</i>	<i>Yrs of Study</i>
32. Mixed Upland Habitat	Dist. of Columbia	14.2	664	61.0	34	21
33. Coastal Disturbed Floodplain	Virginia	8.09	247	14.0	25	16
34. South Florida Slash Pine	Florida	40.0	240	14.0	30	1
35. Slash Pine-Cypress Mosaic	Florida	40.0	533	17.7	47	1
36. Mixed-Mesophytic Woods, Fields, and Brush	Tennessee	30.0	401	62.0	40	3
37. Floodplain Woodland and Field	Ohio	22.5	459	9.5	16	5
38. Mixed Habitat-Disturbed Bottomland	Oklahoma	40.47	722	24.7	39	8
39. Natural Deciduous Creekbottom-Brushy Mesa Urban Park	Colordao	32.4	167	9.0	24	1
40. Riparian Woodland-Willow Thickets	Utah	16.19	741	20.8	33	1
41. Mixed Habitat: Riparian Woodland and Adjacent Oak Savanna	California	8.76	1141	18.0	34	2
C. Brush, Grassland and Desert						
42. Grassland Municipal Airport	Louisiana	12.15	264	5.0	5	7
43. Live Oak-Mesquite Brushland	Texas	12.10	313	9.3	22	14
44. Pygmy Forest-Chaparral	Utah	16.19	877	17.1	32	1
45. Desert Shrub	Utah	64.75	42	29.7	20	5
46. Bajada Desert Scrub	Arizona	8.9	618	18.0	20	1
47. Sonoran Desert Creosote Scrub	Arizona	10.1	603	25.0	16	1
48. Grassland with Vernal Pools	California	10.03	568	9.3	6	1
49. Coastal Scrub	California	8.1	630	50.0	25	2
50. Disturbed Coastal Scrub A	California	4.7	2641	63.0	38	1
51. Disturbed Coastal Scrub B	California	8.1	951	40.0	30	1
52. Soft Chaparral	California	8.1	469	4.5	22	1
D. Wetlands and Habitats including Open Water						
53. Mixed Upland Habitat and Swamp	Connecticut	14.2	78	8.0	14	8
54. Cat-tail Marsh	New York	6.9	0	10.0	0	2
55. Lagoon	Virginia	23.5	1057	11.9	15	12
56. Barrier Beach and Saltwater Estuary	Florida	212.5	727	36.0	69	3
57. Farm with Ponds	Utah	10.52	1502	24.8	46	5
58. Lake in City Park	British Columbia	4.5	6411	10.7	27	1
59. Diked Coastal Salt Marsh	California	5.0	724	12.0	39	1
60. Intertidal Mudflat on Large Bay	California	31.1	4559	9.7	37	1
61. Coastal Bay	California	18.21	2548	20.0	23	1
62. Tidal Channel-Recreation Area	California	15.33	672	10.0	26	1
63. Tidal Lagoon-Park	California	8.09	1754	9.0	21	1
64. Cat-tail Tule Marsh	California	2.79	1972	7.5	19	1
E. Shelterbelts						
65. Mature (1946) Four-row Shelterbelt	Minnesota	0.698	1003	6.5	8	2
66. Mature (1948) Five-row Shelterbelt	Minnesota	0.706	4109	6.5	6	2
67. Mature (1949) Eight-row Shelterbelt	Minnesota	0.373	268	6.5	4	2
68. Mature (1951) Three-row Shelterbelt	Minnesota	0.324	3081	6.5	5	2
69. Immature (1961) Nine-row Shelterbelt	Minnesota	0.787	127	6.5	9	2
70. Immature (1966) Four-row Shelterbelt	Minnesota	0.298	335	6.5	5	2
71. Immature (1974) Three-row Shelterbelt	Minnesota	0.208	481	6.7	1	2
F. Croplands						
72. Floodplain Forest and Cultivated Bottomland	New York	51.8	149	11.1	21	9
73. Cornfield I (1978)*	Maryland	16.1	62	7.1	12	6
74. Cornfield I (1979)*	Maryland	16.1	286	6.1	16	7
75. Cornfield I (1980)	Maryland	16.1	143	5.8	13	8
76. Cornfield II (1978)*	Maryland	23.8	193	9.3	15	6
77. Cornfield II (1979)*	Maryland	23.8	222	8.4	17	7
78. Cornfield II (1980)	Maryland	23.8	256	6.3	18	8
79. Abandoned Turf Field (1978)*	Maryland	6.3	222	4.7	7	3
Abandoned Turf Field (1979)*	Maryland	6.3	905	4.0	6	4
Abandoned Turf Field (1980)	Maryland	6.3	301	3.4	8	5
G. Urban Habitats						
80. City Ravine I	Ontario	20.0	355	16.0	16	1
81. City Ravine II	Ontario	4.4	340	5.25	10	1
82. City Ravine III	Ontario	19.4	88	13.3	12	1
83. City Ravine IV	Ontario	19.6	153	12.0	15	1
84. City Ravine V	Ontario	5.0	440	4.0	9	1
85. City Park with Mature Forest	Ontario	18.5	205	14.16	17	1
86. Suburban River Valley with Woods and Field	Ontario	20.0	240	14.66	21	1
87. Urban Mobile Home Parks	Arizona	16.2	1353	12.0	24	1
88. Suburban Nature Center	California	34.4	1773	20.0	56	6
89. Suburban Park	California	63.5	626	27.0	32	2
90. Urban Area Farm	California	3.24	14,486	5.25	13	1
91. Urban Woodland Park	California	13.5	2486	10.5	30	2
92. Urban Nature Center	California	7.3	2142	18.0	32	2

*Counts made in previous winters but not published.—*Ed.*

1 MAPLE-PINE-OAK SECOND-GROWTH FOREST.—**Location:** Massachusetts; Norfolk Co., Norfolk Co., Town of Foxboro conservation land, off Willow and East Sts.; 42°04'N, 71°11'30"W, Mansfield Quadrangle, USGS. **Continuity:** Established 1977; 4 consecutive years. **Size:** 11.8 ha = 29.2 acres. **Description of Area:** See AB 31:50-51 (1977). **Weather:** During census trips average temperature ranged from 11° to 42°F with an average of 26°F. Ground bare on 11 trips; snow cover on other trips ranged from 0.5 to 5 in. Sky partly cloudy on 4 trips, overcast on 2 and clear on 10. Weather data for Boston, about 20 mi N, supplied by U.S. National Weather Service: for Dec., Jan. and Feb., temperature departures from normal were respectively +3.7°, +0.2°, -2.5°F; rainfall equivalent precipitation departures were respectively -2.82, -2.95, -2.66 in., with a total of 1.94 in. during the census period. **Coverage:** Dec. 21, 30-31; Jan. 2, 4-5, 10, 13, 20, 26; Feb. 3, 9, 10, 17-18, 23. Total, 16 trips, 12 morning and 4 afternoon, between 0725 and 1545, averaging 82 min each. **Count:** Black-capped Chickadee, 2 (17, 7); Dark-eyed Junco, 1 (8, 3); Red-tailed Hawk, +, Ruffed Grouse, +; Hairy Woodpecker, +, Downy Woodpecker, +; Com. Crow, +; White-breasted Nuthatch, +; Mockingbird, + **Average Total:** 3 birds (25/km², 10/100 acres). **Remarks:** Total species, 9. Chickadees were seen on 9 trips, Downy Woodpeckers on 4, grouse and nuthatches on 3, juncos on 2 and the remaining species on 1. Crows were heard or seen flying over on 7 trips. Blue Jays were absent for the second consecutive winter. The number of species recorded per hour of observation and the number of bird sightings per hour both reached a four-year low of respectively 0.4 and 3.4.—*WILLIAM E DAVIS, JR., College of Basic Studies, Boston Univ., Boston, MA 02215.*

2. UPLAND OAK FOREST.—**Location:** New York; Delaware Co., about 1.5 mi N of Pine Lake on South Hill and about 2 mi E of West Davenport, 42° 28' 3" N, 74° 56' 15" W, West Davenport Quadrangle, USGS. **Continuity:** Established 1972; 7 intermittent years. **Size:** 11.8 ha = 29.1 ± 0.5 acres (nearly square, essentially 6 x 5 units of 208 ft. edge — i.e., measured into a grid of one-acre units, with steel tape). **Description of Area:** See AB 26: 661-662 and 941 (1972). **Weather:** Trips were made in all kinds of weather. Trip temperatures averaged about 21°F, with snow cover 0 to 12 in, averaging 3 in. The following weather data are for Cooperstown, about 12 mi N, and were supplied by the U.S. Nat'l Weather Service. For the months of Jan and Feb. temperatures ranged from -8° to +53° with an average of 21° and total precipitation was 1.75 in. As compared with the 30-year period the Jan. mean departed +2° and the Feb. mean -5°. Precipitation departure for Jan.-Feb. was -3.34 in. Oct. temperatures were normal but Nov. averaged +4° and Dec. +6° as compared with the 30-year mean. Rainfall was -0.52, -0.07, and -1.81 in. **Coverage:** Jan. 8, 10, 17, 19, 26; Feb. 2, 7, 14, 17, 28. Total: 10 trips, between 0800 and 1500, mostly mid and late a.m., averaging 62 observer minutes each. The method used was the same as described in the 1973 winter count. **Count:** Downy Woodpecker, 1(8,3); White-breasted Nuthatch, 1;

Black-capped Chickadee 1. **Average Total:** 3 birds (25/km², = 10/100 acres). **Remarks:** Total species, 3. Chickadee was seen on 2 trips, nuthatch on 3 and Downy on 5. This was the first time that Hairy Woodpeckers were not seen. Downy Woodpecker was absent the two previous severe winters. Chickadee was low, as it was in the previous two severe winters.—*J. ROBERT MILLER, Dept. of Chemistry, ROBERT PAVELKA, THOMAS WYNNE, Hartwick College, Oneonta, NY 13820.*

3. UPLAND MIXED PINE-SPRUCE-HARDWOOD PLANTATION.—**Location:** New York; Allegany Co., S side of Brown Rd., near its intersection with Vandermark Rd., 3.5 mi W of Alfred, 42°7'30" N, 77°45' W; Andover Quadrangle, USGS. **Continuity:** Established 1974; 7 consecutive years. **Size:** 16.6 ha = 41 acres (roughly rectangular, perimeter measured with tape and compass). **Description of Area:** See AB 28:699-700 (1974). **Weather:** It was the mildest December and January in years. According to data provided by the Alfred Cooperative Weather Station only 20.1 in. of snow had fallen by the end of January compared with 76.7 in. the year before. The ground was bare throughout December and the stream remained open the entire study period. **Coverage:** Dec. 15, 20, 28; Jan. 1, 4, 6, 22, 30. Seven trips were made between 0930 and 1200; one trip was made in late afternoon, with a total of 12 hours of field work. Because of the lack of snow cover the entire plot could be covered in one trip, contrasting with recent years when it often took 3 runs to complete one trip. **Count:** Black-capped Chickadee, 11 (66, 27); Red-breasted Nuthatch, 3 (18, 7); Brown Creeper, 2 (12,5); Ruffed Grouse, 1 (6, 2); Blue Jay, 1; White-breasted Nuthatch, 1; Golden-crowned Kinglet, 1; Pileated Woodpecker, +; Downy Woodpecker, +; Am. Goldfinch, +. **Average Total:** 20 birds (121/km²; 49/100 acres). **Remarks:** Total species, 10. Chickadee, Brown Creeper and Red-breasted Nuthatch were observed on every trip. There was a good cone crop. Average total birds was the lowest since the study commenced and reflects a general downward trend.—*ELIZABETH W. BROOKS, 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°08'W, Canton Quadrangle, USGS. **Continuity:** Established 1978, 3 years. **Size:** 8.56 ha = 21.2 acres. Area increased in size by 10.2 acres by extending N and E; edge on S eliminated. **Description of Area:** See AB 34:27 (1980). **Weather:** Warmer and drier than usual. Thaw in late December, little snow accumulation (25-30 cm) all winter. **Coverage:** Dec. 17; Jan. 9, 15-16, 19, 21-22, 24, 29, 31; Feb. 2, 4. Total, 12 trips, totaling 20 hrs. **Count:** Black-capped Chickadee, 25 (291, 118); White-breasted Nuthatch, 1 (12, 5); Ruffed Grouse, +; Great Horned Owl, +; Pileated Woodpecker, +; Hairy Woodpecker, +; Downy Woodpecker, +; Blue Jay, +; Red-breasted Nuthatch, +; Brown Creeper, +. **Average Total:** 26 birds (303/km², 123/100 acres). **Remarks:** Total species, 10. A bird feeder on

the SE edge of the area concentrated the chickadees, perhaps accounting for their high density. Am. Goldfinch and Evening Grosbeak occasionally flew over. Ruffed Grouse tracks seen on W border — *WILLIAM CHAISSON and KENNETH L CROWELL, Dept. of Biology, St. Lawrence Univ., Canton, NY 13617.*

5. UPLAND TULIP-TREE-MAPLE-OAK FOREST.—**Location:** Maryland, Howard Co., W edge of Middle Patuxent River Valley, SW of Hobbits Glen Golf Course at Columbia, 39°12'55"N, 76°54'40"W, Clarksville Quadrangle, USGS. **Continuity:** Established 1972; 8 intermittent years. **Size:** 11.98 ha = 29.6 acres (basically rectangular, 1125 ft N-S by 1000 ft E-W, but irregularly extending farther in each direction where uniformity of habitat permits) **Description of Area:** See AB 25:971 (1971) and 25:655 (1972). **Weather:** Temperatures averaged about 4° above normal in December, normal in January, and about 4° below normal in February. Precipitation was below normal all three months; snow cover was limited to Jan. 5-11, Feb. 6, and Feb. 28-29, with a maximum of 6 in. Jan. 6 Temperatures on the four morning trips ranged from 11° to 37° F, and on the afternoon trips ranged from 24° to 40°. Skies were clear on three trips, partly cloudy on two, and overcast on three. Winds were 0-5 mph **Coverage:** Jan. 6, 13 (2), 16; Feb. 9 (2), 13-14. Total: 8 trips, averaging 1 hr, 45 min Morning trips started at sunrise and afternoon trips ended from 5 to 15 minutes before sunset. **Count:** Carolina Chickadee, 3 (25, 10); Downy Woodpecker, 2 (17, 7); Red-bellied Woodpecker, 1 (8, 3); Yellow-bellied Sapsucker, 1; Com. Crow, 1; Tufted Titmouse, 1; Cardinal, 1; Am. Goldfinch, 1, Red-tailed Hawk, +; Great Horned Owl, +, Hairy Woodpecker, +; Blue Jay, +; Fish Crow, +; White-breasted Nuthatch, +, Brown Creeper, +; Golden-crowned Kinglet, +; Yellow-rumped Warbler, +; Purple Finch, +; White-throated Sparrow, + **Average Total:** 11 birds (92/km², 37/100 acres). **Remarks:** Total species, 19. This year's population was the lowest ever, although temperatures and snow cover locally were not far from normal. Birds seen per trip ranged from 2 to 40 with a mean of 11.5 Yellow-shafted Flicker was missed for the first time, and Purple Finch and White-throated Sparrow were the scarcest in the 8 years of this study. The only new species this year was Fish Crow, a species that has been observed flying over the plot on most other winters. The Red-tailed Hawk, Great Horned Owl, Fish Crow, Golden-crowned Kinglet, Yellow-rumped Warbler, and White-throated Sparrow were found on only one trip each.—*CHANDLER S. ROBBINS, 7902 Brooklyn Bridge Road, Laurel, MD 20810*

6. MATURE DECIDUOUS FLOOD-PLAIN FOREST.—**Location:** Maryland, Montgomery Co., Glen Echo, 2½ miles NW of the District of Columbia, between the C and O. Canal and the Potomac River, Falls Church Quadrangle, USGS. **Continuity:** Established 1948; 29 intermittent years. **Size:** 17.8 ha = 44.1 acres. **Description of Area:** See AFN 2:153-156 (1948). **Weather:** Milder than in the previous three winters, averaging

37°F. on walks. **Coverage:** Jan. 12, 19; Feb. 2, 9, 16, 23; Total, 6 trips averaging 2.42 hours, all between 0800 and 1100. **Count:** Carolina Chickadee, 34 (191, 77); Starling, 14 (78, 32); Downy Woodpecker, 10 (56, 23); Tufted Titmouse, 8 (45, 18); Cardinal, 8; Com. Crow, 7 (39, 16); Am. Goldfinch, 6 (34, 14); Brown Creeper, 4 (22, 9); Carolina Wren, 4; Red-bellied Woodpecker, 3 (17, 7); White-breasted Nuthatch, 2 (11, 5); White-throated Sparrow, 2; Song Sparrow, 2; Turkey Vulture, 1 (6, 2); Pileated Woodpecker, 1; Hairy Woodpecker, 1; Mockingbird, 1; Purple Finch, 1; Red-shouldered Hawk, +; Barred Owl, +; Yellow-bellied Sapsucker, +; Winter Wren, +; Yellow-rumped Warbler, +; Evening Grosbeak, +; Pine Siskin, +; Dark-eyed Junco, +. **Average Total:** 109 birds (611/km², 247/100 acres). **Remarks:** Total species, 26, was about average (27) for this tract. The average total of 109 is, like the totals for 1977-79, below average for the area. This results from the loss of Carolina Wrens beginning in 1977 and a continuing decrease of Starlings starting in 1975, and is probably connected with a loss of large trees suitable for roosting. Starlings use the winter area chiefly for roosting rather than feeding. The Carolina Wren was reduced to 2 in 1977 as compared with 10 in 1976, and has now risen to 4.—*J.R. GAUTHEY and JOAN H. CRISWELL* (compiler), 3519 Jermantown Rd., Fairfax, VA 22030.

7 UPLAND OAK-HICKORY HARDWOOD FOREST.—**Location:** Virginia; Fairfax Co., Dranesville District Park, McLean. **Continuity:** Established 1971; 10 years. **Size:** 11 02 ha = 27.2 acres. **Description of Area:** See AB 25:636 (1971). **Weather:** Temperatures were about normal, ranging from 25° to 50°F on the trips, with an average of 38°. About 4 in. of snow fell on Jan. 5 and remained throughout most of the month. **Coverage:** Jan. 5, 8-9, 12, 16, 19 (2), 25; Feb. 5, 8, 11, 15, 20. Total, 13 trips, between 0800 and 1155 or 1200 and 1625, averaging 1 hr, 45 min. **Count:** Com. Crow, 4 (36, 15); Pileated Woodpecker, 1 (9, 4); Red-bellied Woodpecker, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; Carolina Chickadee, 1; Tufted Titmouse, 1; White-breasted Nuthatch, 1; Brown Creeper, 1; Turkey Vulture, +; Red-tailed Hawk, +; Mourning Dove, +; Blue Jay, +; Fish Crow, +; Carolina Wren, +. **Average Total:** 12 birds (109/km², 44/100 acres). **Remarks:** Total species, 15 —*JON BAYLESS, GIL ESPENSHADE, BEN FERN, JESSICA GIUSTI, SHIRLEY ISLER, TOM LUSSIER, BILL PER-LEE, A F SCHINDLER, PAT SCHINDLER, HERB THOMPSON, PAT VARLEY, ROBERT J. WATSON* (compiler), 2636 Marcey Rd., Arlington, VA 22207.

8 UPLAND TULIP-TREE-OAK FOREST.—**Location:** Virginia; Fairfax Co., USGS Nat'l Center, Reston, 38°56'45"N, 77°21'50"W, Vienna Quadrangle, USGS. **Continuity:** Established 1974; 7 consecutive years. **Size:** 20.6 ha = 50.9 acres. **Description of Area:** See AB 28:701-702; 1003-1004 (1974) and AB 34:49 (1980). Ten acres of forest has been cleared 350 ft NW of the area. **Weather:** The sky was clear on 5 trips, partly cloudy on 1, and overcast on 2. Temperatures

ranged from 16° to 36°F. Winds were calm to moderate. There was a 6-8 in. snow covering on Jan. 6 and a light one on Feb. 2. **Coverage:** Dec. 29; Jan. 6, 12, 20, 26; Feb. 2, 9, 16. Total, 8 trips between 0725 and 0930, totaling 12.1 hours. **Count:** Tufted Titmouse, 8 (39, 16); Carolina Chickadee, 7 (34, 14); White-breasted Nuthatch, 3 (15, 6); Dark-eyed Junco, 3; Cardinal, 2 (10, 4); Red-bellied Woodpecker, 1 (5, 2); Downy Woodpecker, 1; Blue Jay, 1; Com. Crow, 1; Mourning Dove, +; Hairy Woodpecker, +; Brown Creeper, +; Golden-crowned Kinglet, +. **Average Total:** 27 birds (131/km², 53/100 acres). **Remarks:** Total species, 13. The average total population was at its lowest level since 1974 with a 27.8% decrease from last winter. Significant individual changes were a 80% decrease in Blue Jays, a 40% increase in Carolina Chickadees, an almost 100% decrease in Brown Creepers, and a 57.1% decrease in Dark-eyed Juncos.—*JOAN C. and PAUL W. WOODWARD*, 4117 Virginia St., Fairfax, VA 22030.

9. UPLAND MIXED HARDWOOD FOREST.—**Location:** Virginia; Wise Co., 2 mi SE of Wise; 36°57'N, 82°32'W, Wise Quadrangle, USGS. **Continuity:** Established 1973. First time since then. **Size:** 9.9 ha = 24.5 acres. Irregular, 1500 x 800 ft, measured on geological survey map. **Description of Area:** See AB 27:674 (1973). **Weather:** Trips were made on days when there was little snow cover on the study area. During the period from Dec. 26 to Jan. 31 there were 3.69 in. of rain and 18.7 in. of snow. The high temperature was 57°F, the low 12°; the mean high temperature was 40.5°, the mean low 27.6°. (Information from Roy Wells, Clinch Valley College Weather Station.) **Coverage:** Dec. 29; Jan. 2-3, 12, 20, 26-27. Total, 7 trips between 0855 and 1655, averaging 80 min. per trip. **Count:** Ruffed Grouse, 1(10,4); Downy Woodpecker, 1; Carolina Chickadee, 1; White-breasted Nuthatch, 1; Pileated Woodpecker, +; Yellow-bellied Sapsucker, +; Blue Jay, +; Com. Crow, +; Tufted Titmouse, +; Brown Creeper, +; Hermit Thrush, +. **Average Total:** 4 birds (40/km², 16/100 acres). **Remarks:** Total species, 11. Chickadees and nuthatches were observed on 5 trips, grouse and Downy Woodpeckers on 2, Pileated Woodpeckers on 3. Common Ravens flew over the area twice. Since 1973 the study area has undergone some change. The tree in which Red-tailed Hawks nested has fallen, and the hawks have not returned. In 1978 an underground coal mine was opened adjacent to the study area, and a small portion of the bench created for the mine shaft impinges on about a quarter of an acre of the study unit along the stream that marks the lower portion of the plot. Noise from the mine fan makes listening conditions difficult in a portion of the study plot and may, in fact, have decreased bird populations in the tract.—*RICHARD H. PEAKE, Clinch Valley College, Univ. of Virginia, Wise, VA 24293.*

10. MIXED PINE AND DECIDUOUS FOREST.—**Location:** Indiana; Jefferson Co., 7 mi W of Hanover. SE corner at intersection of county roads 1066 W and 250 S; 38°42'0"N, 85°35'6"W. Kent Quadrangle, USGS. **Continuity:** Established 1977; 2 years.

Size: 14.53 ha = 35.89 acres. **Description of Area:** See AB 32:27-28 (1978). Little change is apparent in 3 years, but several of the large pines have fallen or died standing. **Water:** The 2 small creeks were running each count day. **Weather:** December and February were about average, but January was milder than usual. On counts, temperatures ranged from 10 to 51°F, winds from 0 to 10 mph from varied directions, sky from clear (4 times) and partly clear (4 times), to overcast (once) The only precipitation during counts was a light rain for 50 min once. Snow cover was continuous for 3 weeks in early February, on counts it varied from none (5 times) or patchy (twice), to complete (4 to 6 in., twice) **Coverage:** Dec. 20, 26 (partial), 29 (partial), 31; Jan. 9, 16, 18 (night), 26; Feb. 2, 13, 23, 29 (night). Total, 9 complete daylight trips of 135 to 174 minutes and averaging 154 minutes, with 2 observers on 1 trip and 1 observer on 8 trips (26 man-hours total) In addition, 2 abbreviated day trips (with 2 and 3 observers) and 2 night trips totaled 8 man-hours. **Count:** Am. Robin, 4 (28,11), Carolina Chickadee, 3 (21,8); Cedar Waxwing, 3; Cardinal, 3; Downy Woodpecker, 2 (14,6); Com. Crow, 2; Blue Jay, 2; Tufted Titmouse, 2; Golden-crowned Kinglet, 2, Yellow-rumped Warbler, 2; Com. (Yellow-shafted) Flicker, 1 (7,3); Red-bellied Woodpecker, 1; Hairy Woodpecker, 1, White-breasted Nuthatch, 1; Brown Creeper, 1; Ruby-crowned Kinglet, 1; Purple Finch, 1, Screech Owl, +; Pileated Woodpecker, +, Yellow-bellied Sapsucker, +; E. Bluebird, +. **Average Total:** 32 birds (220/km², 89/100 acres). **Remarks:** Total species, 21. Only crow, Golden-crowned Kinglet, and Cardinal were noted on all 9 trips. I believe that birds noted in flight above the plot should be counted. This would add Red-tailed Hawk, +; Rock Dove, +; Starling, 5; and increase Com. Crow to 4; Cedar Waxwing to 4; and the average total to 40 birds (275/km², 112/100 acres). Richard Davis, Dwight Chamberlain, and Juanita Webster helped me.—*DAN WEBSTER, Hanover College, Hanover, NH 47243.*

11. BOTTOMLAND OAK-GUM-CYPRESS FOREST RECENTLY DISTURBED.—**Location:** Mississippi, Washington Co., N of State Highway 12 in Leroy Percy St. Park, 4 mi W of Hollandale, (parts of Sec. 5, 8 and 9; T-15N, R-7W). **Continuity:** Established 1971; 9 years (1976 omitted because of inaccessibility during construction). **Size:** 11.4 ha = 28.2 acres; rectangular in shape, 836 x 1463 ft. **Description of Area:** See AB 25:638-639 (1971), and AB 32 30 (1978) for alterations. **Weather:** Mean high during count period: 47.4°F; mean low 33.1°; total precipitation: 5.85 in. Previous 8-year averages: 51.1°, 33.8°; and 8.8 in respectively. Preceding fall had slightly warmer temperatures and average precipitation. **Coverage:** Jan. 12-13, 19-20; Feb. 2-3, 16-17. Total, 8 trips; starting 0810 to 1335 CST; 7 a.m., 1 p.m. Average time per trip, 132 obs-min. **Count:** Com. Grackle, 30 (263, 106); White-throated Sparrow, 17 (149, 60), Dark-eyed Junco, 7 (61, 25); Swamp Sparrow, 5 (44, 18); Carolina Chickadee, 4 (35, 14); Carolina Wren, 4; Com. Flicker, 3 (26, 11); Red-bellied Woodpecker, 3; Blue Jay, 3,

Am. Robin, 3; Cardinal, 3, Tufted Titmouse, 2 (18, 7); Brown Creeper, 2; Golden-crowned Kinglet, 2; Rusty Blackbird, 2; Song Sparrow, 2; Pileated Woodpecker, 1 (9, 4); Yellow-bellied Sapsucker, 1; Downy Woodpecker, 1, Winter Wren, 1; Ruby-crowned Kinglet, 1; Starling, 1; Yellow-rumped Warbler, 1; Red-winged Blackbird, 1; Am. Woodcock, +; Hairy Woodpecker, +; House Wren, +; Hermit Thrush, +; Com. Yellowthroat, +; Field Sparrow, +; Lincoln's Sparrow, +, **Average Total:** 100 birds (876/km² 355/100 acres) **Remarks:** Total species, 31. Seen on 7 or more trips were; flicker, Red-bellied Woodpecker, jay, creeper, Golden-crowned Kinglet, Swamp Sparrow. A flock of 200 grackles was seen on one trip. The food supply was excellent with weed seeds, insect larvae, a few flying insects, deciduous holly berries, and poison ivy berries. The berries were completely gone by the sixth trip. Since area disturbance 4 yrs. ago, jay, Carolina Wren, grackle, junco, Swamp and Song sparrows have become much more prevalent. The species showing significant declines are Hermit Thrush, Yellow-rumped Warbler, and Rusty Blackbird.—*MR. AND MRS G.E. ALEXANDER, JR., 1749 W. Azalea, Greenville, MS 38701.*

12. MIXED PINE-DECIDUOUS FOREST.—Location: Louisiana; Natchitoches Parish, one mi W of the Northwestern State University campus, within the university's Natural History Reservation, on the S side of Louisiana Hwy 6 (Sec. 81, R7W, T9N). **Continuity:** Established 1971, 10 consecutive years, not published in 1978. **Size:** 8.9 ha = 22 acres (L-shaped, measured by pacing with compass). **Description of Area:** See AB 25 639-640 (1971) and 26:699 (1972). **Weather:** During the 18-day study period, day temperature highs ranged from 35° to 65°F with five count days 50° or higher. Night temperature lows ranged from 25° to 50°. All count days were partly cloudy to cloudy. Wind on count days ranged from 1 to 2 on the Beaufort scale. The winter was generally warmer and milder than average. **Coverage:** Dec. 21, 27-28; Jan. 10, 15, 17. Total 6 trips between 0900 and 1600 averaging 2 hrs. **Count:** Cedar Waxwing, 12 (135, 55), Ruby-crowned Kinglet, 10 (112, 45); Yellow-rumped Warbler, 8 (90,36); White-throated Sparrow, 8; Blue Jay, 6 (67, 27); Carolina Chickadee, 4 (45, 18); Carolina Wren, 4; Pine Warbler, 3 (34, 14); Cardinal, 3, Red-bellied Woodpecker, 2 (22, 9); Tufted Titmouse, 2; Com. Flicker, 1 (11, 5); Downy Woodpecker, 1; E. Phoebe, 1; Brown Creeper, 1; Mockingbird, 1; Am. Robin, 1; Solitary Vireo, 1; Am. Goldfinch, 1; Pileated Woodpecker, +; Yellow-bellied Sapsucker, +, Hairy Woodpecker, +; Brown Thrasher, +, Golden-crowned Kinglet, +; Orange-crowned Warbler, +. **Average Total:** 70 birds (786/km², 318/100 acres). **Remarks:** Total species, 25. Forty-five species have been observed in the 10 years of the study and the 10-year mean was 28 species. The density increased from 445/km² in 1978 and 457/km² in 1979 to 786/km² in 1980; however, the density is less than the 10-year mean of 881/km². Significant changes in density occurred in the Com. Grackle with a plus density in 1980 and a 10-year mean of 137/km²

and the Cedar Waxwing with 135/km² in 1980 and a 10-year mean of 17/km². Other species were near their 10-year mean.—*CHARLIE VIERS, Dept. of Biol. Sc., Northwestern St. Univ. Louisiana, Natchitoches, LA 71457.*

13. OZARK OAK-HICKORY FOREST—SECOND GROWTH.—Location: Missouri; St. Louis Co., Washington Univ. Tyson Research Center, on I-44, 8 mi. S.W. of I-270; 38°31'N, 90°34'W, Manchester Quadrangle USGS. **Continuity:** New. The Tyson Research Center, a fenced 2000-acre (810 ha) tract of oak-hickory forest, second growth, was established in 1963; the former owner, The U.S. Army, held the site in protective custody since 1941. **Size:** 7.85 ha = 19.4 acres in a strip 2200 ft long and 384 ft wide, situated in forest. Measurements by steel tape; area determination by weighed tracing method. An old field is located 400 ft S of the S edge of the strip boundary; two ponds are located 600 ft NE of the E end of the strip. **Description of Area:** A quantitative survey of the vegetation based on six 1/10 acre circular plots revealed the following: Trees, 3 in. diameter and over, 290/acre; total basal area; 84.32 ft.²/acre. Species comprising 90% of the total number of trees (figures after each give: number per acre, relative density %, relative dominance %, and frequency): White Oak (*Quercus alba*) 64, 22, 23, 100; Black Oak (*Quercus velutina*), 45, 15, 16, 83; Dead tree, 34, 12, 10, 100; Red Oak (*Quercus rubra*), 29, 9, 10, 50; Black Hickory (*Carya texana*), 16, 5, 12, 66; Slippery Elm (*Ulmus rubra*), 16, 5, 3, 50; Sugar Maple (*Acer saccharum*), 14, 5, 2, 50; Mockernut Hickory (*Carya tomentosa*), 13, 4, 9, 83; Red Bud (*Cercis canadensis*), 11, 4, 1, 66; Post Oak (*Quercus stellata*), 11, 4, 6, 50; Chinquapin Oak (*Q. prinoides*), 8, 3, 1, 17; White Ash (*Fraxinus americana*), 6, 2, 1 50; Flowering Dogwood (*Cornus florida*), 5, 2, 1, 33; Shagbark Hickory (*Carya ovata*), 5, 2, 1, 33; E. Red Cedar (*Juniperus virginiana*), 3, 1, 1, 17. Average canopy height 52 ft (range 40-60 ft), canopy cover 60%, shrub stems/acre, 11,167; ground cover 57%. Shrubs: seedlings/saplings of canopy oaks, hickories, cedars, dogwood, sassafras, (*Sassafras albidum*), and Carolina Buckthorn (*Rhamnus caroliniana*). Ground cover: goldenrod (*Solidago ulmifolia* and *S. nemoralis*), Bedstraw (*Galium tinctorium*), grapes (*Vitis* spp.), Wild Bergamot (*Monarda russeliana*), Aromatic Sumac (*Rhus aromatica*), Trumpet Creeper (*Campsis radicans*), an aster (*Aster turbinellus*), greenbrier (*Smilax* spp.), grasses, etc. Plant names follow Steyermark, J.A. 1963 Flora of Missouri. **Edge:** Bordered on all sides by similar forest; fire road runs the length of the strip in center. **Topography:** Strip runs along top of ridge and includes slopes of N and S exposure, with elevation 550-750 ft. **Weather:** Typical of January for the area: temperatures around freezing, frequent cloud cover, occasional snow, sleet or rain. **Coverage:** Jan. 14, 16, 18, 21, 24, 26, 28, 30; Feb. 11. Eight trips between 0900 and 1130; 2 between 1050 and 1400. Total man-hours: 18½. **Count:** Com. Crow, 3 (38, 15); Downy Woodpecker, 2 (25, 10); Blue Jay, 1 (13, 5); chickadee sp. 1; Tufted Titmouse, 1; White-breasted Nut-

hatch, 1, Am. Robin, 1, Red-tailed Hawk, +; Pileated Woodpecker, 1; Red-bellied Woodpecker, +; Cardinal, +; Dark-eyed Junco, +. **Average Total:** 10 birds (127/km², 52/100 acres). **Remarks:** Total species, 12. No species seen on every trip. Downy Woodpecker seen on 8 trips, White-breasted Nuthatch on 6, Blue Jay on 4, Com. Crow on 2 (once as a passing flock), robin on 2 (once in a flock).—*RICHARD W. COLES (compiler), Tyson Research Center, P.O. Box 258, Eureka, MO 63025; ART CHRIST, VIHAL-LETT, EUGENIA LARSON, CARMEN PATTERSON, WM. RUDDEN, CLAUDIA SPENER, Webster Groves Nature Study Society.*

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

This is the second wintering bird population census conducted on the following six oak-hickory forest plots in s. Douglas County, Kansas. See *Am. Birds* 33:66-67, 1979, for a description of vegetation and topography.

The weather this winter was much milder than normal. Temperatures during the counts varied from -7° to 45°F. A small amount of snow was present at the end of January and again in late February, but no more than 3-4 in.

The most noticeable difference between this year's and last year's censuses was the decrease in Red-headed Woodpeckers in areas I-IV. There was only a slight increase in the other two areas. Species number and individuals were also generally lower with the exception of VI.

Our thanks to the Field Research Committee, Division of Biological Sciences, at the University 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 and ROGER L. BOYD, Biol. Dept., Baker Univ., Baldwin City, KS 66066.*

14. 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, 2 years. **Size:** 8.1 ha = 20 acres. **Coverage:** Jan. 12, 26, 31; Feb. 3, 10, 26. Total, 6 trips, between 0810 and 1300, averaging 1 hr. **Count:** Downy Woodpecker, 4 (49, 20); Red-winged Blackbird, 4; Com. Crow, 3 (37, 15), Red-bellied Woodpecker, 2 (25, 10), Blue Jay, 2; White-breasted Nuthatch, 2; Brown Creeper, 2; Golden-crowned Kinglet, 2; Starling, 2; Red-tailed Hawk, 1 (12, 5); Hairy Woodpecker, 1; Am. Robin, 1; Cedar Waxwing, 1; Purple Finch, 1; Dark-eyed Junco, 1; Com. Flicker, +; Yellow-bellied Sapsucker, +; Horned Lark, +; Black-capped Chickadee, +; Am. Goldfinch, +. **Average Total:** 29 birds (358/km², 145/100 acres) **Remarks:** Total species, 20. Only the Downy Woodpecker was seen on every trip. Red-bellied Woodpecker was seen on 5 of 6 trips. The absence of Red-headed Woodpecker had a profound effect on the overall amount of bird activity.

15. 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, 2 years. **Size:** 8.1 ha = 20 acres. **Coverage:** Jan. 6, 12, 26; Feb. 3, 19, 26. Total, 6 counts, between 0835 and 1155, averaging 1 hr. **Count:** Downy Woodpecker, 2 (25, 10); Tufted Titmouse, 1 (12, 5); Dark-eyed Junco, 1; Com. Flicker, +; Red-bellied Woodpecker, +; Hairy Woodpecker, +; Blue Jay, +; White-breasted Nuthatch, +; Brown Creeper, +; Am. Robin, +; Golden-crowned Kinglet, +. **Average Total:** 4 birds (49/km², 20/100 acres). **Remarks:** Total species, 11. Downy Woodpecker was seen on 5 of 6 trips. All other species were seen on only 1 or 2 trips. The previous year, 20 species averaged 64 birds per count. This grid is located on a S-facing slope which might have affected the abundance of food during a mild and dry winter.

16. 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. **Size:** 8.1 ha = 20 acres. **Coverage:** Jan. 5, 13, 26; Feb. 3, 16, 19. Total, 6 counts, between 0805 and 1600, averaging 75 min. **Count:** Starling, 5 (62, 25); Downy Woodpecker 3 (37, 15); Black-capped Chickadee, 3; Tufted Titmouse, 3; White-breasted Nuthatch, 3; Am. Robin, 3; Com. Crow, 2 (25, 10); Com. Flicker, 1 (12, 5); Red-bellied Woodpecker, 1; Hairy Woodpecker, 1; Blue Jay, 1; Brown Creeper, 1; Golden-crowned Kinglet, 1; Cardinal, 1; Purple Finch, 1; Am. Goldfinch, 1; Red-tailed Hawk, +; Barred Owl, +. **Average Total:** 31 birds (383/km², 155/100 acres). **Remarks:** Total species, 18. The Downy Woodpecker and Brown Creeper were seen on every trip. White-breasted Nuthatch was seen on 5 out of 6 trips. The previous year, 23 species averaged 96 birds per count. Sixty-two of these birds were Red-headed Woodpeckers and Starlings. After subtracting these birds the average nearly equals this year's average.

17. 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, 2 years. **Size:** 8.1 ha = 20 acres. **Coverage:** Jan. 5, 12; Feb. 7, 9, 14, 21, 23. Total 7 trips, both a.m. and p.m., averaging 2 hrs each. **Count:** Downy Woodpecker, 2 (25, 10); Brown Creeper, 2; Red-bellied Woodpecker, 1 (12, 5); Hairy Woodpecker, 1; Blue Jay, 1; Com. Crow, 1; Black-capped Chickadee, 1; Tufted Titmouse, 1; White-breasted Nuthatch, 1; Golden-crowned Kinglet, 1; Com. Flicker, +; Red-headed Woodpecker, +; Am. Goldfinch, +. **Average Total:** 12 birds (148/km², 60/100 acres). **Remarks:** Total species, 13. Hairy and Downy woodpeckers and Brown Creepers were seen on all trips and Red-bellied Woodpeckers on all but one. Am. Goldfinches were observed as one small foraging flock. Although the number of species was

the same as last year the average total individuals was reduced by over 60%. Particularly noticeable was a large drop in Red-headed Woodpeckers from an average of 16 in 1979 to + in 1980.

18. 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, 2 years. **Size:** 8.1 ha = 20 acres. **Coverage:** Jan. 13, 20, 27; Feb. 3, 10, 17, 24. Total 7 trips, both a.m. and p.m., averaging 2 hrs each. **Count:** Red-headed Woodpecker, 8 (99, 40); Downy Woodpecker, 2 (25, 10); Blue Jay, 1 (12, 5); Black-capped Chickadee, 1; Tufted Titmouse, 1; White-breasted Nuthatch, 1; Brown Creeper, 1; Red-tailed Hawk, +; Great Horned Owl, +; Com. Flicker, +; Red-bellied Woodpecker, +; Hairy Woodpecker, +; Com. Crow, +; Am. Robin, +; Am. Goldfinch, +. **Average Total:** 15 birds (185/km², 75/100 acres). **Remarks:** Total species, 15. Red-headed Woodpecker was the only species seen on all trips but Downy Woodpecker, Blue Jay and White-breasted Nuthatch were seen on all but two trips. The Red-headed Woodpecker population was larger than last winter, but food supplies apparently were unable to sustain their numbers which dropped from 10 in Jan. to 5 in Feb. Several dying and dead individuals were found in February, all emaciated. Species observed on the area increased over last year but average individuals decreased slightly.

19. 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, 2 years. **Size:** 8.1 ha = 20 acres. **Coverage:** Jan. 13, 20, 27; Feb. 3, 10, 17, 24. Total, 7 trips, both a.m. and p.m., averaging 2 hrs each. **Count:** Red-headed Woodpecker, 4 (49, 20); Downy Woodpecker, 2 (25, 10); Blue Jay, 2; Black-capped Chickadee, 1 (12, 5); Tufted Titmouse, 1; White-breasted Nuthatch, 1; Brown Creeper, 1; Am. Robin, 1; Golden-crowned Kinglet, 1; Cedar Waxwing, 1; Sharp-shinned Hawk, +; Red-tailed Hawk, +; Great Horned Owl, +; Com. Flicker, +; Red-bellied Woodpecker, +; Hairy Woodpecker, +; Com. Crow, +; Cardinal, +; Dark-eyed Junco, +. **Average Total:** 15 birds (185/km², 75/100 acres). **Remarks:** Total species, 19. Red-headed and Downy woodpeckers were seen on all trips and White-breasted Nuthatches and Blue Jays on all but one. Waxwings and robins were seen as small foraging flocks on one trip each. The average individuals on this area more than doubled last year's.

20. PONDEROSA PINE FOREST.—Location: Colorado; Boulder Co., in the lower foothills 0.5 mile S of Baseline Rd., Boulder; in the E part of S1, T1S, R71W, 6th PM. **Continuity:** Established 1953-54; 17 intermittent years. **Size:** 8.1 ha = 20 acres. **Description of Area:** Situated in the NE corner of a pine-covered mesa, at an elevation of 5900 ft. See *AFN* 8:372 (1954). **Weather:** Snowfall was above average; a long stormy winter. Snow partially or wholly covered the plot on

all trips, the most was 20 in on Jan 1. Temperatures ranged from 12° to 50°F. **Coverage:** Nov. 4, 18; Dec. 2, 9, 19; Jan 1, 15, 20; Feb. 4, 10, 17, 24; Mar. 2, 9, 23. Total 15 trips, totaling 12.5 hrs made between 0755 and 1100. **Count:** Pygmy Nuthatch, 9, (111, 45); junco spp., 6 (74, 30); Steller's Jay, 2 (25, 10); Mountain Chickadee, 2; Dark-eyed Junco (*J. oreganus*), 2; Black-billed Magpie, 1 (12, 5); White-breasted Nuthatch, 1; Brown Creeper, 1; Pine Siskin, 1; Com. Flicker, +; Hairy Woodpecker, +; Downy Woodpecker, +; Red-breasted Nuthatch +; Am. Robin, +; Cassin's Finch, +; House Finch, +; Red Crossbill, +; Dark-eyed Junco (*J. aikenii*), +; Dark-eyed Junco (*J. hyemalis*) +; Gray-headed Junco, +. **Average Total:** 25 birds (309/km², 125/100 acres). **Remarks:** Total species, 17. This winter population was well below average. *LOUISE HERING, 568 Marine, Boulder, CO 80302 and HOPE LEIGHTON, 2607 6th, Boulder, CO 80302*

21. 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; 5 years. **Size:** 11.15 ha = 27.55 acres (rectangular, 1600 x 750 ft, the long axis N-S, surveyed by tape and compass). **Description of Area:** See *AB* 30:1051-1052 (1976). **Weather:** Temperature from 6° to 44°F. Cloudy to mostly cloudy on 7 trips, snowing on 1 trip, light rain on 1 trip and mostly clear on 1 trip. Calm on 4 trips, wind up to 3 mph on 4 trips, 0-7 mph on 1 trip and 0-10 mph on 1 trip. Ground bare to 6 in. snow. **Coverage:** Dec. 19, 26; Jan. 1, 9, 16, 21, 24; Feb. 2, 9, 16. Trips between 0957 and 1211. Total hours, 18.6. **Count:** Pygmy Nuthatch, 4 (36, 15); Mountain Chickadee, 2 (18, 7); Ruffed Grouse, 1 (9, 4); Black-capped Chickadee, 1; Red-breasted Nuthatch, 1; Com. Flicker, +; Downy Woodpecker, +; Black-billed Magpie, +; Brown Creeper, +; Golden-crowned Kinglet, +. **Average Total:** 9 birds (81/km², 33/100 acres). **Remarks:** Total species, 10. No birds noted Feb. 9; 2-3 birds of 2 species noted Dec. 19 & 26 & Feb. 16; 7-22 birds of 3-6 species noted Jan. 1-Feb. 2. **Corrigendum** Average totals for the 1978-79 census should be: 135/km², 54/100 acres (*AB* 34:32) — *THOMAS H. ROGERS, E. 10820 Maxwell Ave., Spokane, WA 99206.*

22. DOUGLAS FIR-MADRONE-TAN-BARK OAK FOREST.—Location: Oregon, Josephine Co., 3 mi. E of I-5, at Exit 76, Wolf Creek (Sec. 19, T33S, R5W); 42°41'N, 123°20'W, Glendale Quadrangle, USGS. **Continuity:** New. Established as BBC, 1979. **Size:** 7.81 ha = 19.3 acres (rectangular, paced with compass, 700 ft E-W x 1200 ft N-S). **Description of Area:** Mixed evergreen, second-growth forest, with some brushy clearings. For detailed description, see *AB* 34:74 (1980). **Weather:** During 7 trips in Jan, the temperature was in the range of 28°-40°F, and overcast; 2 Feb. trips were overcast, but warmer, only slight breezes, mostly calm, during all trips; vegetation often wet from recent showers. **Coverage:** Jan. 8, 11, 15, 18, 23, 28, 31, Feb. 5, 26. Total: 9 trips, all between 0720 and 0930, averaging 2 hrs each

Count: Golden-crowned Kinglet, 12 (154, 62), Steller's Jay, 5 (64, 26); Winter Wren, 3 (38, 16); Chestnut-backed Chickadee, 3; Mountain Quail, 2 (26, 10); Hutton's Vireo, 2; Pileated Woodpecker, 1 (13, 5); Ruby-crowned Kinglet, 1; Black-capped Chickadee, 1, Red-breasted Nuthatch, 1; Wren-tit, 1; Fox Sparrow, 1; Red-shafted Flicker, +; Yellow-bellied Sapsucker, +; Hairy Woodpecker, +, White-breasted Nuthatch, +; Brown Creeper, +; Varied Thrush, +; Hermit Thrush, +. **Average Total:** 33 birds (423/km², 171/100 acres). **Remarks:** Total species, 19. Mountain Quail, in flocks of 6-8, were noted on 3 trips. Pileated and Hairy woodpeckers used the study plot for feeding, but normally preferred the surrounding (on two sides) uncut forest. All species of woodpeckers seemed to have wide feeding areas; each was noted on about 4 trips. Both thrush species were found on only two trips, but may have been unnoticed on others, as they remained inconspicuous. Although the Chestnut-backed Chickadee was found on almost all trips, the Black-capped Chickadee, in small flocks, was noted on only two mid-Jan trips. The White-breasted Nuthatch frequented a snag near the N boundary—a regular feeding area? This census is bound to underestimate. Some species almost certain to be present (i.e., Mountain Quail, Wren-tit, chickadees, thrushes, and woodpeckers) don't act conspicuously enough to be found by call-note, by sight, or response to squeaking. Only after Jan. 23 did such species begin to be vocal. In this small canyon, wide-ranging species, as Red-tailed Hawk and raven, were noted on the surrounding ridgetops, but not on the plot. Spotted Owl from neighboring old-growth forest was occasionally heard.—**ELEANOR A. PUGH**, "Lichen," 3050 Coyote Creek Road, Wolf Creek, OR 97497.

23. SEMI-DISTURBED WILLOW-COTTONWOOD-BLACK WALNUT RIPARIAN WOODLAND.—**Location:** California; Tehama Co., on the W bank of the Sacramento R., N edge of Red Bluff (NW ¼ of NW ¼ of Sec. 20, T27N, R3W), 40°11'N, 122°14'W, Red Bluff Quadrangle, USGS. Part of Dog Island and Samuel Ayer City Park. **Continuity:** Established 1978; 2 years. **Size:** 17.7 ha = 43.7 acres. **Description of Area:** See AB 33:24-25 (1979). **Weather:** Mostly clear in Dec. with temperatures ranging from 26° to 70°F. Jan. and Feb. were much wetter and warmer than average with heavy storms in mid-Jan. and late Feb. **Coverage:** Dec. 5, 12, 26; Jan. 3, 8, 22, 30; Feb. 5, 13. Total, 9 trips, between 0800 and 1130 PST, averaging 182 min each. **Count:** Am. Goldfinch, 30 (170, 69); Dark-eyed Junco, 27 (153, 62); Am. Robin, 23 (130, 53); Bushtit, 20 (113, 46); Ruby-crowned Kinglet, 20, Scrub Jay, 16 (90, 37); Yellow-rumped Warbler (Audubon's), 14, (79, 32); Lesser Goldfinch, 10 (57, 23); Com. Flicker, 9 (51, 21), Song Sparrow, 9; Nuttall's Woodpecker, 8 (45, 18); Bewick's Wren, 8; Rufous-sided Towhee, 8; Plain Titmouse, 7 (40, 16); Hermit Thrush, 7; Cedar Waxwing, 7; Downy Woodpecker, 5 (28, 11); White-breasted Nuthatch, 5; Orange-crowned Warbler, 5; Pied-billed Grebe, 4 (23, 9); Black Phoebe, 4; Com. Crow, 4; Starling, 4; Brown Towhee, 4, White-crowned Sparrow, 4; Snow Goose,

3 (17, 7), Mallard, 3, California Quail, 3, Wood Duck, 2 (11, 5); Com. Merganser, 2; Anna's Hummingbird, 2; Belted Kingfisher, 2; Great Blue Heron, 1 (6, 2); Green Heron, 1; Turkey Vulture, 1; Red-shouldered Hawk, 1; Killdeer, 1; Spotted Sandpiper, 1; Ring-billed Gull, 1; Yellow-bellied Sapsucker, 1; Mockingbird, 1; Water Pipit, 1; Golden-crowned Sparrow, 1; Fox Sparrow, 1; W. Grebe, +; Ross' Goose, +; Am. Wigeon, +; Cooper's Hawk, +; Acorn Woodpecker, +; *Empidonax* flycatcher (probable Dusky), +; Tree Swallow, +; Yellow-billed Magpie, +; Red-breasted Nuthatch, +; Varied Thrush, +; Blue-gray Gnatcatcher, +; Hutton's Vireo, +; Yellow-rumped (Myrtle) Warbler, +; House Finch, +; Lincoln's Sparrow, +. **Average Total:** 291 birds (1645/km², 666/100 acres). **Remarks:** Total 61 species and 1 subspecies. Am. Goldfinch and Am. Robin showed the biggest increase from last year, while White-crowned Sparrow and Cedar Waxwing showed the biggest decrease. Most species seemed to be up 10-20%. Of the 25 species with 4 individuals or more, 20 showed increases while only 5 showed decreases. Floodwaters covered most of the study area during mid-Jan. and during the latter half of Feb.—**STEPHEN A. LAYMON**, P.O. Box 1357, Yreka, CA 96097; **KAREN CARTIER**, 1147 Neal Dow, Chico, CA 95926.

24. 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, 3 years. **Size:** 5.67 ha = 14 acres. **Description of Area:** See AB 33:82-83 (1979). The dominant canopy tree is Blue Oak (*Quercus douglasii*) with very little understory. The ground cover is a diverse mixture of grasses and forbs. Average canopy height 25 ft (range 17-30). **Weather:** During the study period temperatures ranged from 26° to 79°F (same range as last winter). Temperatures were above normal in Dec. (mean maximum 65°, mean minimum 38° compared to 40-year means of 61° and 36°) and in Jan. (mean maximum 60°, mean minimum 38° compared to 40-year means of 60° and 34°). Precipitation was above normal in both months (5.38 in. for Dec.; 4.43 in. for Jan. compared to 40-year means of 3.78 and 4.07). Also "season-to-date" precipitation was above normal at 13.78 in. for Jan. compared to the 40-year mean of 11.04 in. The first days of Feb. continued warm. **Coverage:** Dec. 17, 29, 31; Jan. 8, 21, 26, 28; Feb. 3-5; 0800-1000 PST. Total hours, 11. **Count:** Dark-eyed Junco, 15 (265, 107); Plain Titmouse, 6 (106, 43); Ruby-crowned Kinglet, 4 (71, 29); Yellow-rumped Warbler, 4; W. Bluebird, 3 (53, 21); Hutton's Vireo, 2 (35, 14); Anna's Hummingbird, 1 (18, 7); Nuttall's Woodpecker, 1; White-breasted Nuthatch, 1; Bewick's Wren, 1; Am. Robin, 1; Com. Flicker, +; Acorn Woodpecker, +; Scrub Jay, +; Com. Crow, +; Bushtit, +; Hermit Thrush, +; Lesser Goldfinch, +. **Average Total:** 39 birds (688/km², 279/100 acres). **Remarks:** Total, 18 species. Com. Flicker, Com. Crow, Hermit Thrush, and Lesser Goldfinch were seen on only one day while Plain Titmouse and Ruby-crowned Kinglet were seen every day. Yellow-rumped Warbler and Plain Titmouse

increased markedly over last winter (from an average total of + and 2 respectively in winter 1978-79). A smaller crop of Toyon berries than last year appears to correlate with the absence of Purple Finches and Cedar Waxwings from the plot this year.—**PAMELA L. WILLIAMS**, Hastings Reservation, University of California, Star Route Box 80, Carmel Valley, CA 93924.

25. MIXED CONIFER-OAK FOREST BURNED AND LOGGED.—**Location:** California; Riverside Co., W slope of San Jacinto Mountains, 6 air mi NW of Idyllwild, 33°49'N, 116°46'W; NE ¼, NW ¼, Sec 21, T4S, R2E, Lake Fulmor Quadrangle, USGS. **Continuity:** New. **Size:** 10.0 ha = 24.7 acres (square, 317m per side, surveyed with hand-held compass and measured with steel tape). **Description of Area:** The entire plot was burned in the Soboba Fire of Aug. 1974. Prior to the fire, the area was a typical stand of mixed conifer-oak forest consisting of Yellow Pines (*Pinus coulteri*, *P. jeffreyi*, *P. ponderosa* and their hybrids), Sugar Pine (*P. lambertiana*), Incense Cedar (*Calocedrus decurrens*), White Fir (*Abies concolor*), California Black Oak (*Quercus kelloggii*) and Canyon Live Oak (*Q. chrysolepis*). The understory included Manzanitas (*Arctostaphylos* spp.), California-Lilacs (*Ceanothus* spp.), and Interior Live Oak (*Q. wilizenii*). The area was salvage-logged after the fire with all merchantable trees removed. Later all accessible areas were disced by tractor in preparation for reforestation. Consequently, the plot is a mosaic of 2 habitat types: Type 1: open, flat, disced areas with dense annual grass and forb cover, scattered shrub islands and scattered black oaks and Canyon Live Oaks. Very few snags are left standing. A quantitative survey of the vegetation gave the following results: Based on a 100 toe-point transect, 81% ground cover, with the most common species being Annual Grass (*Bromus* spp.) 39%, Annual Buckwheat (*Eriogonum* spp.) 20%, Trefoil (*Lotus* spp.) 13%, and California-Lilac 12%. Type 2: Undisced, steep areas with dense California-Lilac, Manzanita, and Interior Live Oak shrub cover and resprouting Black Oaks and Canyon Live Oaks. Snags are more common than in Type 1, but many large dead trees were removed during logging. Stumps indicate that some trees removed were greater than 40 in. dbh. Ground cover is relatively sparse. Most of this habitat type is located along the SE boundary near Papoose Creek, in the extreme SE corner, and in the NW ¼ of the plot. A quantitative survey of the vegetation gave the following results: Based on a 100 toe-point transect, 77% of the ground cover is vegetation, primarily California-Lilac 29%, Canyon Live Oak snags 13%, Manzanita 11%, Canyon Live Oak 8%, Interior Live Oak 8%, and Annual grass 6%. 63% of the plot (6.3 ha) is Type 1 and 37% (317 ha) is Type 2. The soil is decomposed granite. A dirt road passes along the SW boundary and then proceeds NE through the plot. **Topography:** Relatively flat except in the NW ¼ where there is a small ravine, and along the SE boundary near Papoose Creek, elevation range 5400-5600 ft. **Edge:** Surrounded on all sides by similar habitat. The nearest unburned area is about 250m SW of the plot. **Water:** A small intermittent stream

(Dec-June) flows through the NW ¼ and Papoose Creek flows along the SE boundary. Papoose Creek dries up in late summer or fall some years. **Food:** Warmer weather and less-than-average snowfall made food more abundant and accessible. **Weather:** During the 22-day study period the low temperatures range was 23-40°F and the high temperature range was 40-65°. There were 6 days with below freezing temperatures. Total precipitation, 17 in. There was no snow on any of the trips. Skies were clear on 3 trips and partly cloudy on 5. Wind speeds were generally low. (Weather data from the James San Jacinto Mountains Reserve.) **Coverage:** Feb. 4-6, 9-10, 17, 24-25. Total: 8 trips, all between 0730 and 1130, averaging 74 min. Total hours: 10. **Count:** Dark-eyed Junco, 24 (240, 97), W. Bluebird, 6 (60, 24); Band-tailed Pigeon, 3 (30, 12); Acorn Woodpecker, 2 (20, 8), Plain Titmouse, 2; Bushtit, 2; Mountain Chickadee, 1 (10, 4); White-breasted Nuthatch, 1; Wren-tit, 1; Bewick's Wren, 1; Ruby-crowned Kinglet, 1; Pine Siskin, 1; Rufous-sided Towhee, 1; Am. Kestrel, +; Mountain Quail, +; Com. Flicker, +; Hairy Woodpecker, +; Steller's Jay, +; Com. Raven, +; Am. Robin, +; Starling, +; White-crowned Sparrow, +. **Average Total:** 46 birds (460/km², 186/100 acres). **Remarks:** Total species, 22. Dark-eyed Junco and W. Bluebird were observed on all trips and Band-tailed Pigeon, Plain Titmouse and Bewick's Wren on all but one. Bushtit, Pine Siskin, Am Kestrel, Com. Raven, and White-crowned Sparrow were observed on only one trip. Thanks to Andrew C. Sanders for surveying the plot and assisting with plant identification.—KEN S. BERG, James San Jacinto Mountains Reserve, Dept. of Biology, Univ. of California, Riverside, CA 92521.

26. MIXED CONIFER-OAK FOREST

I.—Location: California; Riverside Co., W slope of San Jacinto Mountains, 6 air mi NW of Idyllwild; 33°49'N, 116°46'W; NW ¼, SW ¼, Sec. 22. T4S, R2E, Lake Fulmor Quadrangle, USGS. **Continuity:** New. **Size:** 10 0 ha = 24.7 acres (square, 317 m per side, surveyed with hand-held compass and measured with steel tape). **Description of Area:** Typical Transition Zone forest of W slope of San Jacinto Mountains. Canopy trees are Yellow Pines (*Pinus coulteri*, *P. jeffreyi*, *P. ponderosa* and their hybrids), Sugar Pine (*P. lambertiana*), Incense Cedar (*Calocedrus decurrens*), White Fir (*Abies concolor*), California Black Oak (*Quercus kelloggii*), and Canyon Live Oak (*Q. chrysolepis*). Prominent understory species include Manzanitas (*Arctostaphylos* spp.), California-Lilacs (*Ceanothus* spp.), Coffeeberry (*Rhamnus californica*), and Interior Live Oak (*Q. wislizenii*). The ground cover is patchy and generally sparse. It includes Bedstraw (*Galium* spp.), Monkeyflowers (*Mimulus* spp.), Pennyroyal (*Monardella nana*), Miner's Lettuces (*Claytonia perfoliata* and *C. spathulata*), Meadow-Rue (*Thalictrum fendleri*), and Goldenrod (*Solidago californica*). Plant names are from P. Munz, *A Flora of Southern California*. The leaf and needle litter is generally thick. The soil is of decomposed granite, and granite outcrops are common. The area was selectively logged around 1900 and has not been significantly

disturbed since then. Dead trees are common, both standing and down. A dirt road passes through the NW corner of the plot. A quantitative survey of the vegetation gave the following results: Trees, 3 in. diameter and over, based on five 0.1 acre circular samples, 314/acre; total basal area 222 sq. ft/acre. Species comprising 90% of the total number of trees: Incense Cedar 90, 29, 27, 60; Canyon Live Oak 88, 28, 13; 60; California Black Oak 46, 15, 23, 60; Yellow Pines 44, 14, 29, 100; Interior Live Oak 24, 8, 1, 40. Trees by diameter size class: A (3-6 in.) 12, 36, 11, 5; B (6-9 in.) 82, 26, 25, 11; C (9-15 in.) 80, 25, 68, 31; D (15-21 in.) 16, 5, 28, 13; E (21-27 in.) 18, 6, 56, 25; F (27-33 in.) 4, 1, 20, 9; G (33-40 in.) 2, 1, 14, 6. Shrub stems/ acre, 2300; ground cover 1%, canopy cover 73%; average canopy height 52 ft (range 45-60). **Topography:** Steep; NW aspect; average slope 38%; elevation range 5550-6000 ft. The E third of the plot (lower end) is flatter than the remainder. **Edge:** Surrounded by similar habitat on all sides. There has been some selective logging in recent years within 100m of the plot boundaries. **Water:** three very small intermittent streams (Dec.-Jun.) flow NW through the plot. The nearest perennial water source is Indian Creek, ¼ mi. NW. **Food:** The acorn crop was not heavy. **Weather:** During the 13-day study period the low temperature range was 27-35°F and the high range was 37-55°F. There were 8 days with below-freezing temperatures. Total precipitation was 6.03 in. Patchy snow ¼ in. deep was encountered on 6 of the trips. Skies were clear on 4 trips, partly cloudy on 2 and overcast on 2. Wind speeds were 1-10 mph, except up to 20 mph on 2 trips. (Weather data from James San Jacinto Mountains Reserve.) **Coverage:** Mar. 1-2, 7-10, 12-13. Total: 8 trips, all between 0800 and 1210, averaging 119 min. Total hours: 16. **Count:** Acorn Woodpecker, 4 (40, 16); Band-tailed Pigeon, 2 (20, 8); Steller's Jay, 2; Mountain Chickadee, 2; Plain Titmouse, 2; Brown Creeper, 2; Dark-eyed Junco, 2; Com. Raven, 1 (10, 4); White-breasted Nuthatch, 1; Pygmy Nuthatch, 1; Ruby-crowned Kinglet, 1; Red-tailed Hawk, +; Anna's Hummingbird, +; Com. Flicker, +; Hairy Woodpecker, +; White-headed Woodpecker, +; Scrub Jay, +; Bushtit, +; Wren-tit, +; W. Bluebird, +. **Average Total:** 20 birds (200/km², 81/100 acres). **Remarks:** Total species, 20. Acorn Woodpeckers were observed on all trips, and Steller's Jay and Brown Creeper on all but one. Anna's Hummingbird, Com. Flicker, Scrub Jay, Bushtit, and W. Bluebird were observed on only 1 trip. The late study period may have resulted in smaller numbers of Mountain Chickadees and Pygmy Nuthatches because of flocks disbanding. A Band-tailed Pigeon nest with one egg was found on Mar. 9, 100 m off the plot. Thanks to Andrew C. Sanders for surveying the plot and assisting with plant identification.—KEN S. BERG, James San Jacinto Mountains Reserve, Dept. of Biology, Univ. of California, Riverside, CA 92521.

27. MIXED CONIFER-OAK FOREST

II.—Location: California; Riverside Co., W slope of San Jacinto Mountains, 6 air mi NW of Idyllwild; 33°49'N, 116°46'W; T4S, R2E, Sec. 22, SE ¼, NW ¼, Lake Fulmor

Quadrangle, USGS **Continuity** New **Size:** 10.0 ha = 24.7 acres (square, 317 m per side, surveyed with hand-held compass and measured with steel tape). **Description of Area:** Typical Transition Zone forest of W slope of San Jacinto Mountains. Canopy trees are Yellow Pines (*Pinus coulteri*, *P. jeffreyi*, *P. ponderosa* and their hybrids), Sugar Pine (*P. lambertiana*), Incense Cedar (*Calocedrus decurrens*), White Fir (*Abies concolor*), California Black Oak (*Quercus kelloggii*), and Canyon Live Oak (*Q. chrysolepis*). Prominent understory species include Manzanitas (*Arctostaphylos* spp.), California-Lilacs (*Ceanothus* spp.), Coffeeberry (*Rhamnus californica*), and Interior Live Oak (*Q. wislizenii*). The ground cover species include Bedstraw (*Galium* spp.), Monkeyflowers (*Mimulus* spp.), Pennyroyal (*Monardella nana*), Miner's Lettuces (*Claytonia perfoliata* and *C. spathulata*) and Meadow-Rue (*Thalictrum fendleri*). Plant names are from Munz, P., *A Flora of Southern California*. The soil is decomposed granite, and some very large granite boulders are present. The area was selectively logged around 1900 and repeatedly in recent years. Logging debris and fresh stumps are conspicuous. The overstory and ground cover densities reflect this disturbance. Less dead wood, standing and down, is present than would be in the pristine condition. A dirt road bisects the plot along the E-W axis and another follows the SW boundary. A quantitative survey of the vegetation gave the following results: Trees, 3-in. diameter and over, based on five 0.1-acre circular samples, 144/acre; total basal area 152 sq. ft/acre. Species comprising 90% of the total number of trees (figures after each give number of trees/acre, relative density (%), relative dominance (%), and frequency): Yellow Pines, 90, 62, 74, 100; California Black Oak, 32, 22, 18, 60; Sugar Pine, 10, 7, 2, 60. Trees by diameter size class (trees/acre, relative density, basal area in sq. ft/acre, and relative dominance): A (3-6 in.) 24, 17, 2, 2; B (6-9 in.) 24, 17, 7, 5; C (9-15 in.) 54, 34, 42, 27, D (15-21 in.) 30, 21, 53, 35; E (21-27) 8, 6, 28, 19; F (27-33 in.) 4, 3, 20, 13. Shrub stems/acre, 1560; ground cover, 45%, canopy cover, 58%, average canopy height 42 ft (range 40-60). **Topography:** Generally flat, sloping up at the NE and SW edge and sloping down at the NW edge. Average slope about 12%; elevation 5800-6000 ft. **Edge:** Surrounded by similar habitat on all sides. Nearby stands may be of different density because of differences in logging activity. **Water:** Three small intermittent streams (Dec.-Jun.) flow NW through the plot. Perennial water sources are Indian Creek, ¼ mi. NW and Black Mountain Creek, ¼ mi. E. **Food:** Acorn crop was not heavy; insects were relatively abundant and accessible due to warmer than average weather. **Weather:** During the 49-day study period the low temperatures ranged from 23 to 44°F and the high temperatures from 36-65°. There were 12 days with below freezing temperatures. Precipitation was extremely high, totalling 32 in. Precipitation for the entire season averages about 30 in. Patchy snow 1-2 in deep was encountered on 4 of the trips. Skies were clear on 1 trip, partly cloudy on 5 and overcast on 1. **Coverage:** Jan. 4, 6, 24, 30-31, Feb. 3, 5, 22. Total: 8 trips, all between 0824

and 1148, averaging 128 min Total hours 17 **Count.** Mountain Chickadee, 5 (50, 20), Pygmy Nuthatch, 4 (40, 16); Acorn Woodpecker, 2 (20, 8); White-breasted Nuthatch, 2; Brown Creeper, 2; Ruby-crowned Kinglet, 2; Band-tailed Pigeon, 1 (10, 4); Steller's Jay, 1; Plain Titmouse, 1; W Bluebird, 1; Dark-eyed Junco, 1; Anna's Hummingbird, +; Yellow-bellied Sapsucker, +, Hairy Woodpecker, +; White-headed Woodpecker, +; Com. Raven, +; Wren-tit, +, Black-throated Gray Warbler, +. **Average Total:** 22 birds (220/km², 89/100 acres). **Remarks:** Total species, 18. No species was observed on all trips. Mountain Chickadee, Pygmy Nuthatch, Acorn Woodpecker, White-breasted Nuthatch, Brown Creeper, Band-tailed Pigeon, Plain Titmouse, and Hairy Woodpecker were observed on 4 or more trips. Yellow-bellied Sapsucker, White-headed Woodpecker, and Com. Raven were observed only once. A male Black-throated Gray Warbler was seen only on Jan. 4. Thanks to Andrew C. Sanders for surveying the plot and assisting with plant identification.—KEN S. BERG, James San Jacinto Mountains Reserve, Department of Biology, University of California, Riverside, CA 92521.

28. SYCAMORE - COAST LIVE OAK RIPARIAN WOODLAND.—**Location:** California; San Diego Co., Kit Carson Park in Escondido; 33°05'N, 117°03'W, Escondido Quadrangle, USGS. **Continuity:** New (BBC, 1979). **Size:** 6.15 ha = 15.2 acres. **Description of Area:** See AB: 34:74 (1980). **Weather:** Temperatures were above average for all census months (Jan., +5.2°F above average; Feb., +6.8°; Mar., +2.6°). Rainfall was extremely heavy; the Jan.-Mar. total was 22.34 in above average for the period. **Coverage:** Jan. 19, 26; Feb. 2, 11, 17, 23; Mar. 1, 8. Total, 8 trips, 0635-1520 PST. Total hours: 11 **Count:** Bushtit, 26 (423, 171); Acorn Woodpecker, 10 (163, 66); Scrub Jay, 8 (130, 53), Rufous-sided Towhee, 8; Starling, 7 (114, 46); Brown Towhee, 7; Anna's Hummingbird, 6 (98, 39); House Wren, 6; Mourning Dove, 4 (65, 26); Hutton's Vireo, 4; Com. Flicker, 3 (49, 20); Nuttall's Woodpecker, 3; Plain Titmouse, 3; Bewick's Wren, 3; Ruby-crowned Kinglet, 3; Yellow-rumped Warbler, 3, Orange-crowned Warbler, 2 (33, 13); Am. Goldfinch, 2; White-tailed Kite, 1 (16, 7); Red-shouldered Hawk, 1; Spotted Dove, 1; Black Phoebe, 1; Mockingbird, 1; California Thrasher, 1; Dark-eyed Junco, 1; Golden-crowned Sparrow, 1; Song Sparrow, 1; Yellow-bellied Sapsucker, +; W. Flycatcher, +; Wren-tit, +; Hermit Thrush, +; Cedar Waxwing, +; Townsend's Warbler, +; House Finch, +; White-crowned Sparrow, +; Lincoln's Sparrow, +. **Average Total:** 117 birds (1902/km², 770/100 acres). **Remarks:** Total species, 36. Thirty trees 3 in. and over in diameter were felled during flooding in late Feb.-early Mar. in the census area. No appreciable decrease in bird numbers was noted.—KENNETH L. WEAVER, 1339 Taylor Place, Escondido, CA 92027.

29. RIPARIAN WILLOW FOREST.—**Location:** California; Riverside Co., along the Santa Ana River, within Prado County Park, 3 mi W of Norco, 4 mi N of Corona, off River Road; 33°55'N, 117°35'W, Cor-

ona North Quadrangle, USGS **Continuity:** New. **Size:** 6.0 ha = 14.8 acres (rectangular 150 x 400 m, measured by a calibrated pace). **Description of Area:** A dense, fairly homogeneous stand of willows (*Salix* sp.) with widely scattered Cottonwoods (*Populus fremontii*). The willows ranged from 10 to 15 m in height; the Cottonwoods from 15 to 20 m. The willows had a density of 0.156 trees/m² and an average tree diameter at breast height of 14.8 cm (determined using the Point Quarter method). Canopy cover within the forest ranged from 90 to 100 percent closure. The species composition of the willows included 60% Arroyo Willow (*S. lasiolepis*), 35% Red Willow (*S. laevigata*) and a minor representation of Golden Willow (*S. lasian-dra*). Early in the study, ground cover was restricted to scattered patches of Wild Rose (*Rosa californica*), Blackberry (*Rubus ursinus*) and Stinging Nettles (*Urtica holosericea*); during this period over 95% of the ground was devoid of non-arborescent vegetation. By the end of the study, European grasses (*Avena* sp), Horehound (*Marrubium vulgare*) and Wild Celery (*Apium graveolens*) began to cover much of the ground area. Plant names are from P.A. Munz, *California Flora*, 1959. **Edge:** The SE edge is delineated by the Santa Ana River, the NW edge is the mowed lawns of the Park's picnic area, the NE and SW edges are bordered by more riparian willow forest. **Topography:** Flat, elevation 162 m (540 ft). **Weather:** Unseasonably mild with maximum temperatures of 21° to 27° C. The only precipitation occurred during a one-week period and totaled approx. 10 cm. **Coverage:** Dec. 28 - 30; Jan. 2-3, 13, 19-20, 25; mostly 0830-1130. Total hours: 20. **Count:** Yellow-rumped Warbler, 19 (317, 128); Song Sparrow, 15 (250, 101); Bewick's Wren, 14 (233, 95); Com. Crow, 12 (200, 81); Bushtit, 12; Ruby-crowned Kinglet, 7 (117, 47); Com. Yellowthroat, 5 (83, 34); Rufous-sided Towhee, 5; Orange-crowned Warbler, 3 (50, 20); Am. Goldfinch, 3; Downy Woodpecker, 2 (33, 14); Nuttall's Woodpecker, 2; Anna's Hummingbird, 1 (17, 7); Com. Flicker, 1; Black Phoebe, 1; Brown Creeper, 1; Black-throated Gray Warbler, 1; White-tailed Kite, +; Cooper's Hawk, +; Red-tailed Hawk, +; Red-shouldered Hawk, +; Am. Kestrel, +; Barn Owl, +; Great Horned Owl, +; Scrub Jay, +; Wren-tit, +; Blue-gray Gnatcatcher, +; Loggerhead Shrike, +; Hutton's Vireo, +; Brown Towhee, +; White-crowned Sparrow, +. **Average Total:** 104 birds (1733/km², 703/100 acres). **Remarks:** Total species, 31. Spring comes early to this region, and the resident bird species respond by initiating territorial and courtship activities by mid-January. As a result, Bewick's Wrens, Song Sparrows, and Rufous-sided Towhees increased visibility through the month of January. Census numbers for these species are probably conservative. Courtship activity was observed in the Red-shouldered Hawk, White-tailed Kite, and kestrel. These raptors hunt away from the census area but the riparian forest is utilized for nest locations. The species diversity found on this plot is far greater than any other habitat type in the area.—CAMERON BARROWS, Dept. of Biology, California State Univ., Long Beach and 3162 Yellowtail Dr., Los Alamitos, CA 90720.

30. ABANDONED PASTURE—YOUNG MIXED FOREST.—**Location:** New York, St. Lawrence Co., 0.25 mi E of Howardville Rd., 0.25 mi SW of Rte 68; 44°33'N, 75°03'W, Pierrepont Quadrangle, USGS **Continuity:** Established 1978, 3 years. **Size:** 4.37 ha = 10.8 acres. **Description of Area:** See AB 32:74 (1978). **Weather:** Warmer and drier than usual. First snow mid-December, rain Dec. 28; snow cover early Jan. through Mar.; max. depth 35 cm. **Coverage:** Dec 29, Jan. 6, 18; Feb. 5, 10, 20; Mar. 4, 6, 8. Total 9 visits between 1100 and 1600. Total hours, 12. **Count:** Ruffed Grouse, 2 (46, 19); Black-capped Chickadee, 2; Blue Jay, +. **Average Total:** 4 birds (92/km², 37/100 acres). **Remarks:** Total species, 3. Grouse were seen on 4 visits, chickadees on 5. Evening Grosbeak and White-breasted Nuthatch flew over Grouse declined rapidly in late winter. Mar-nie Reed Crowell and Thomas L. Crowell assisted.—KENNETH L. CROWELL, Dept of Biology, St. Lawrence Univ., Canton, NY 13617.

31. BLACK SPRUCE - TAMARACK BOG.—**Location:** New York; Delaware Co., Mud Lake Bog, about 2 miles N of Pine Lake on South Hill and about 2 mi E of West Davenport; 42°29'N, 74°55'45" W, West Davenport Quadrangle, USGS. **Continuity:** Established 1972; 7 intermittent years. **Size:** 4.6 ha = 11.3 acres (1.9 acres central water not included in plot area; elliptical, measured into square grid of 16 1-acre units by steel tape, and many measured vegetation edge points connected to give the vegetation zone ellipses for a plot on graph paper, from which zonal areas and widths were determined). **Description of Area:** See AB 26:659-661, and 959 (1972). **Weather:** Trips were made in all kinds of weather. Trip temperatures averaged about 21°F, with snow cover 0-12 in., averaging 4 in. The following weather data are for Cooperstown, about 12 mi N, and were supplied by the U.S. National Weather Service For the months of Jan. and Feb temperatures ranged from -8° to +53° with an average of 21° and total precipitation was 1.75 in. As compared with other years (30-yr period) Jan. and Feb. departed about -1° and -3.34 in. precipitation. Feb. departed -5° Rainfall was -0.52, -0.07, and -1.81 in. **Coverage:** Jan. 17, 19-20, 26, 31; Feb. 2, 7, 14, 17, 28. Total: 10 trips mostly between 1000 and 1600, averaging 80 observer min each The method was the same as described in the 1973 winter count of this plot. **Count:** Black-capped Chickadee, 7 (153, 62); Ruffed Grouse, +; Downy Woodpecker, +; Blue Jay, +; White-breasted Nuthatch, +; Brown Creeper, +. **Average Total:** 7 birds (153/km², 62/100 acres). **Remarks:** Total species, 6. Chickadee was seen every trip. The two previous severe winters chickadees were very low and Downy Woodpeckers were absent — J. ROBERT MILLER, Dept. of Chemistry, ROBERT PAVLEKA, THOMAS WYNNE, Hartwick College, Oneonta, NY 13820.

32. MIXED UPLAND HABITAT.—**Location:** District of Columbia; the central third (35 acres) of Glover-Archbold Park, a long, narrow stream valley park in the NW section of the District of Columbia. **Continuity:** Established 1960; 21 years (20 in this journal)

Size: 14.2 ha = 35 acres **Description of Area:** See *AFN*, 14:502-503 (1960). **Weather:** Milder than the previous 3 winters. Temperature averaged 39.6°F. Clear weather on 13 trips, cloudy on 13, snow on the ground for 6. Wind was light or calm on 16 trips, 5-10 m p.h. on 7, 10-15 m.p.h. on 6, and 20 m p.h. on 1. **Coverage:** Jan. 1, 3, 12 (2), 13, 20 (2), 21-22, 24, 25-26 (3), 27 (2), 31; Feb. 5, 7-9 (2), 12-13, 17-18. Hours ranged from 0715 to 1830, with 15 in the a.m., 14 in the p.m., and one spanning the noon hour; total, 61 hrs, 30 trips; 25.65 complete coverages of the area. Average time per coverage was 2 hrs, 24 min. **Count:** Carolina Chickadee, 15 (106, 43); House Sparrow, 9 (64, 26); Com. Crow, 8 (56, 23); Tufted Titmouse, 8; Starling, 7 (49, 20); Cardinal, 7; Rock Dove, 6 (42, 17); Mourning Dove, 5 (35, 14); Downy Woodpecker, 4 (28, 11); Dark-eyed Junco, 4; White-breasted Nuthatch, 3 (21, 9); Turkey Vulture, 2 (14, 6); Ring-billed Gull, 2; Red-bellied Woodpecker, 2; Blue Jay, 2; Carolina Wren, 2; House Finch, 2; White-throated Sparrow, 2; Black Vulture, 1 (7, 3); Mockingbird, 1; Brown-headed Cowbird, 1; Am. Goldfinch, 1; Red-tailed Hawk, +; Herring Gull, +; Screech Owl, +; Barred Owl, +; Com. Flicker, +; Pileated Woodpecker, +; Hairy Woodpecker, +; Fish Crow, +; Brown Creeper, +; Winter Wren, +; Purple Finch, +; Song Sparrow, +. **Average Total:** 94 birds (664/km², 269/100 acres). **Remarks:** Total species, 34. Although far more hours were spent the total is far below some years before the very cold winters of 1977-79. There were 170 individuals and 35 species in 1975, but the highest species total was 38 in 1978. The first Barred Owl since 1966 was found, Carolina Chickadees and Tufted Titmice increased, while White-throated Sparrows decreased. The year round resident birds continue on an even level. Carolina Wrens came up from 1 to 2, encouraging after the recent winters.—*SHIRLEY A. BRIGGS and DONALD WEBER, compilers, L H CASH, J. EVERETT, ROBERT HILTON, OLIVE HOLBROOK, G.T. and SUSAN HUNT, GEORGE MAURER, EDGAR H. SMITH, KAY STORTZ, and JOHN YOUNG. 7605 Honeywell Lane, Bethesda, MD 20014.*

33. COASTAL DISTURBED FLOOD-PLAIN.—**Location:** Virginia; Gloucester Co., Beaverdam Swamp, bounded on SE by Route 14 and 10-ft contour to 530m upstream. **Continuity:** Established 1965, first published 1976, 16 years. **Size:** 8.09 ha = 20 acres. **Description of Area:** See *AB* 30: 1053-1055 (1976). **Weather:** 62-28°F before Feb.; floods hampered early censuses, reaching 6 ft above banks. Feb. brought a series of snowstorms, worst on Mar. 1-2, with sustained blizzard conditions and coldest temperatures (17°), setting a 53-year record for snow. **Coverage:** Dec. 2, 24; Jan. 27; Feb. 2, 23; Mar. 1-2. Total 7 visits, hours ranged from 0650 to 1525, with 2 counts in p.m. **Count:** Yellow-rumped Warbler, 4 (49, 20); Am. Robin, 3 (37, 15); Carolina Chickadee, 2 (25, 10); Tufted Titmouse, 2; Cedar Waxing, 2; Am. Woodcock, 1 (12, 5); Com. Flicker, 1; Red-bellied Woodpecker, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; White-breasted Nuthatch, 1; Golden-crowned Kinglet, 1; Red-shouldered Hawk, +; Belted Kingfisher,

+, Pileated Woodpecker, +, Brown Creeper, +; Winter Wren, +; Carolina Wren, +; Hermit Thrush, +; Rusty Blackbird, +; Cardinal, +; Purple Finch, +; Am. Goldfinch, +; Swamp Sparrow, +; Song Sparrow, +. **Average Total:** 20 birds (247/km², 100/100 acres). **Remarks:** Total species, 25. Robin, Cedar Waxwing, and Rusty Blackbird seen only in March. Bobwhite were dominant last year because of the presence of a covey of 10. None were seen this year, perhaps a result of floods, hunting, maturation of swamp forest and nearby development.—*MARVIN L. WASS, Box 752, Gloucester, VA 23061.*

34. SOUTH FLORIDA SLASH PINE—

Location: Florida; Monroe Co., Big Cypress National Preserve; 25°42'25"N, 81°4'30"W, Big Boy Lake Quadrangle, USGS. **Continuity:** New. **Size:** 40 ha = 98.8 acres (square, 632.5 x 632.5 m, measured). **Description of Area:** Virgin south Florida slash pine forest interspersed with small areas of prairie. These two communities comprise 100% of the plot; the pine 81.5% (32.6 ha) and the prairie 18.5% (7.4 ha). The pine community overstory is essentially south Florida slash pine (*Pinus elliotii* var. *densa*), with a small amount of cabbage palm (*Sabal palmetto*). The prairies are made up of a mixture of grasses dominated by *Schizachyrium rhizomatium*. Small wetter areas of dense saw grass (*Cladium jamaicensis*) and alligator flag (*Thalia geniculata*) are found in the centers of many prairie patches. Quantitative analysis of the pine community, based on one 0.06 ha rectangular plot, yielded: for trees (*Pinus* only species) 5 - cm (2-in.) dbh and greater, 83 trees/ha; total basal area, 5.8 m²/ha; frequency, 21%; mean canopy height, 19.7 m (range 17-24 m); mean canopy cover 30%. Shrubs covered 15% of the ground area, dominant species (followed by importance value) being *Sabal* (154) and *Serenoa repens* (46). Five most important understory herbaceous species, based on importance value were *Rhynchospora divergens* (33), *Paaspalum monostachyum* (23), *Panicum caeruleascens* (21), *Schizachyrium* (18), and *Dichromena latifolia* (11). Quantitative analysis of the prairie community, based on one 0.06 ha rectangular plot, yielded: five most important species (followed by importance value) were *Schizachyrium* (37), *Rhynchospora microcarpa* (23), *Muhlenbergia filipes* (22), *Pluchea rosea* (17), and *Centella asiatica* (14). **Edge:** Similar habitat on all sides. **Topography:** Flat. **Elevation:** mean 1 m. **Weather:** Skies clear 3 visits, 5-25% (cloud formation) 2 visits, 95-100% 3 visits; wind calm 5 visits, 5-10 mph on last 3 visits; temperature mean 18.6°C, range 11.1-25.6°C; precipitation: none (5.6 cm recorded for the period 1-8 to 1-29-80); humidity: mean 93%, range 99-64%. Data taken at Oasis Ranger Station located within the Preserve. **Coverage:** Jan. 8-9, 12-13, 22-23, 28-29; 0715-0930 EST. Total man-hours: 14.0. **Count:** Yellow-rumped Warbler, 30 (75, 30); E. Meadowlark, 12 (30, 12); Tree Swallow, 10 (25, 10); Com. Grackle, 10; Boat-tailed Grackle, 7 (18, 7); Red-bellied Woodpecker, 4 (10, 4); Red-cockaded Woodpecker, 4; Brown-headed Nuthatch, 3 (8, 3); Red-winged Blackbird, 3; House Wren, 2 (5, 2); E. Bluebird, 2; Pine Warbler, 2; Am. Kestrel, 1 (3, 1); Com.

Flicker, 1; Am. Robin, 1; Loggerhead Shrike, 1; Palm Warbler, 1; Com. Yellowthroat, 1; Rufous-sided Towhee, 1; Great Blue Heron, +; Little Blue Heron, +; White Ibis, +, Blue-winged Teal, +; Turkey Vulture, +, Black Vulture, +; Merlin, +; Killdeer, +, Com. Snipe, +; Downy Woodpecker, +, Yellow-throated Warbler. **Average Total:** 96 birds (240/km², 97/100 acres). **Remarks:** Total species, 30. On Jan. 13, a Red-bellied Woodpecker (male) was excavating a cavity. Bluebirds (paired) were also noted during the period checking out cavities for nesting. Com. Grackles were displaying on the last 2 visits; one individual was carrying nest material into a pine snag. The average count of 4 Red-cockaded Woodpeckers actually represents a population of 7 for the area. Two groups of cavity trees (= colony) are located within the plot. Three birds comprised the clan (members of a colony) inhabiting the northern colony and 4 birds the southern colony, during the census period. Other notable species observed in close proximity to the plot included the Bald Eagle, Osprey, and Sandhill Crane.—*GARY A. PATTERSON and WILLIAM B. ROBERTSON, JR., (Vegetation analysis by Lance Gunderson and Regina Rochefort). National Park Service, South Florida Research Center, Homestead, FL 33030.*

35. SLASH PINE - CYPRESS MOSAIC

—**Location:** Florida; Collier Co., Big Cypress National Preserve; 25°59'30"N, 80°55'10"W, "N of Fifty Mile Bend" Quadrangle, USGS. **Continuity:** New. **Size:** 40 ha = 98.8 acres (square, 632.5 x 632.5 m, measured). **Description of Area:** See *AB* 34:1:61-62 (1980). **Weather:** Skies clear 4 of the 8 visits, 25-50% (mean) cloud formation on the other 4 (range 5-95%); Wind: calm; Temp.: mean 13°C, range 7-21°; Precip.: None (0.9 cm recorded for the period 12/26/79 to 1/21/80), Humidity: mean 91%, range 100-62%. Data gathered at Oasis Ranger Station located within the Preserve. **Coverage:** Dec. 26-28, Jan. 2, 11, 16-17, 21; 0700-0940 EST. Total hours: 17.75. **Count:** Yellow-rumped Warbler, 73 (183, 74); Tree Swallow, 24 (60, 24), Palm Warbler, 15 (38, 15); Com. Grackle, 10 (25, 10); White Ibis, 9 (23, 9); Am. Robin, 8 (20, 8); Red-bellied Woodpecker, 7 (18, 7), Pine Warbler, 7; Brown-headed Nuthatch, 6 (15, 6); E. Bluebird, 6; Bobwhite, 5 (13, 5), House Wren, 5; Com. Yellowthroat, 5, Lesser Scaup, 4 (10, 4); Blue-gray Gnatcatcher 4; E. Meadowlark, 3 (8, 3); Red-winged Blackbird, 3; Blue-winged Teal, 2 (5, 2); Red-shouldered Hawk, 2; Red-cockaded Woodpecker, 2; Com. Crow, 2; Carolina Wren, 2; Louisiana Heron, 1 (3, 1); Killdeer, 1; Belted Kingfisher, 1; Com. Flicker, 1; Yellow-bellied Sapsucker, 1; Downy Woodpecker, 1; Great Crested Flycatcher, 1; Tufted Titmouse, 1; Cardinal, 1; Great Egret, +; Great Blue Heron, +; Little Blue Heron, +; Green Heron, +; Turkey Vulture, +; Black Vulture, +; Am. Kestrel, +, Barred Owl, +; Pileated Woodpecker, +; E. Phoebe, +; Mockingbird, +; White-eyed Vireo, +; Black-and-white Warbler, +, Boat-tailed Grackle, +; Rufous-sided Towhee, +; Grasshopper Sparrow +. **Average Total:** 213 birds (533/km², 216/100 acres). **Remarks:** Total species, 47. Thirty percent of the plot (confined to the pine community)

burned during the first week of December Palm Warblers were observed foraging on the ground in the burned area and seemed to prefer this over the unburned pine area. Red-shouldered Hawks began breeding during the census period throughout the Preserve; a newly-built nest found on Jan. 1 produced young in early March. Bluebirds and Red-bellied Woodpeckers were also observed constructing nests. Migration of robins through the Preserve was reflected in highly variable numbers with 52 observed on the first visit and only 9 on the following 7 visits. The Red-winged Blackbirds were migrants observed on 2 of the visits, a flock of 12 females. Tree Swallows are highly mobile winter residents in the Preserve, numbers varying from a few to flocks of 1000's. Scattered individuals were observed only on the first 4 visits. The White Ibis, a permanent resident, moves throughout the area in small numbers during the winter. The average count of 9 included a flock of 49 using the area during one visit. The average count of 5 Bobwhites represented a covey of 12 observed on 4 visits. The Red-cockaded Woodpeckers are permanent residents, their cavity trees (= colony) being located within the boundaries of the plot. Other studies indicated that 3 birds comprised the clan (members of a colony) during this period, an increase of one from the 1979 breeding season (see *AB* 34:61-62, 1980). Carolina Wrens started singing on the fifth visit with 11 of the 12 contacts during the last 4 visits being singing contacts; only 2 contacts (non-singing) were made on the first 4 visits.—*GARY A. PATTERSON and WILLIAM B. ROBERTSON, JR., National Park Service, South Florida Research Center, Homestead, FL 33030.*

36. MIXED MESOPHYTIC WOODS, FIELDS, AND BRUSH.—**Location:** Tennessee, Putnam Co., about 5 mi WNW of Monterey, in Barnes Hollow to NW of Lee Knob; 36°9'45"N, 85°22' W, Monterey Quadrangle, USGS. **Continuity:** Established 1978; 3 years. **Size:** 30 ha = 74 acres. **Description of Area:** See *AB* 32:80 (1978) and 33:79 (1979). **Food:** Dogwoods and wild grapes with heavy fruit crops, exhausted by late December. Tulip-tree, sumacs, Sycamore, Poison Ivy, Japanese Honeysuckle, Broomsedge, and perennial forbs had good to excellent fruit crops. Some acorns (most devoured by grackles before count period); very few Red Cedar fruits. Mixed birdseed (sunflower, millet, milo mostly) put out Dec. 8-16 and Jan 12-March. **Water:** Usually available; several species seen at uncovered cistern on S side of house when all other local sources froze. **Weather:** Dec. and Jan. (until 30th) relatively mild; Feb. relatively cold (except Feb 21-23 and 27-28); coldest weather (about 0° F) Mar. 2. A few snows, none more than 2-3 in. Temperatures on count trips 15°-57°. **Coverage:** Nov. 30; Dec. 4-6, 8-9, 14-16; Jan. 12, 16, 20, 25-26, 31; Feb. 2, 4-5, 8-9, 19. Total, 21 trips between 0640 and 1704, CST, mostly in the a.m. Total hours: 62. **Count:** Starling, 23 (77, 31); Purple Finch, 19 (63, 26), Field Sparrow, 14 (47, 19); Am. Robin, 11 (37, 15); Cardinal, 9 (30, 12); White-throated Sparrow, 9; Dark-eyed Junco, 5 (17, 7); Cedar Waxwing, 3 (10, 4); Rufous-sided Towhee, 3; Red-bellied Woodpecker, 2 (7, 3); Blue Jay, 2; Carolina Chickadee, 2; Tufted

Titmouse, 2, E Bluebird, 2, Am Goldfinch, 2, Song Sparrow, 2, Com Flicker, 1 (3, 1), Pileated Woodpecker, 1; Hairy Woodpecker, 1; Downy Woodpecker, 1; Com. Crow, 1; White-breasted Nuthatch, 1; Winter Wren, 1; Carolina Wren, 1; Brown Thrasher, 1; Yellow-rumped Warbler, 1; Red-tailed Hawk, +; Am. Kestrel, +; Ruffed Grouse, +; Yellow-bellied Sapsucker, +; E. Phoebe, +; Brown Creeper, +; House Wren, +; Hermit Thrush, +; Golden-crowned Kinglet, +; Ruby-crowned Kinglet, +; Red-winged Blackbird, +; Rusty Blackbird, +; Fox Sparrow, +; Swamp Sparrow, +. **Average Total:** 120 birds (401/km², 162/100 acres). **Remarks:** Total species, 40. Seven species (Red-bellied Woodpecker, Carolina Chickadee, Tufted Titmouse, Cardinal, towhee, junco, White-throated Sparrow) were noted on all 21 trips; 5 species (Downy Woodpecker, jay, Purple Finch, Field Sparrow, Song Sparrow) were noted on 20 trips. The average total for Nov. 30—Dec. 16 was 164 birds; that for Jan. 12—Feb. 19 was 89 birds. Six species (sapsucker, Hermit Thrush, kinglets, Rusty Blackbird, Fox Sparrow) were seen only before January; the Swamp Sparrow was seen only in February. Starling numbers peaked at 300± on Dec. 9; feeding mostly on dogwood (as were robins, waxwings, bluebirds, Purple Finches, and apparently the Rusty Blackbird) while they lasted. (Even the Yellow-rumped Warbler was seen pecking the dogwood fruits!) All the seedeaters except the Swamp Sparrow were seen at the mixed birdseed. Most of the seedeaters increased somewhat this winter, especially the Cardinal, Purple Finch, towhee, and White-throated Sparrow. Declines are most marked for the two kinglets and Brown Creeper, none of which was at all frequent during the fall migration here; the junco decline may be influenced by a new feeder this winter about ½ mile N. Two displaying Am. Woodcock were heard just NW of the plot on Feb. 23 (also Mar. 6 & 10); singing Red-winged Blackbirds and a Mourning Dove also appeared during the Feb. 21-23 warm spell.—*RICHARD W. SIMMERS, JR., Route 6, Box 211-C, Cookeville, TN 38501.*

37. FLOODPLAIN WOODLAND AND FIELD.—**Location:** Ohio, Seneca Co., Heidelberg College land known as the Lewis Farm, Tiffin; along Rock Creek between Main St. and Hedges-Boyer Park; 41°05' N, 83°09' W. **Continuity:** Established 1976, 5 years. **Size:** 22.5 ha. = 55.5 acres. **Description of Area:** See *AB* 30:1055 (1976); Approximately 3 acres near Hedge-Boyer Park has been changed. A new athletic complex has been built. About an acre is now parking area and another 3 acres behind it have grown from field to trees (mainly Box-elder) which are now about 10 ft tall. About 6 acres on the W side of the area have also grown into trees. **Weather:** Colder than normal but about ½ the normal amount of snow. Temp. ranged from 5° to 40°, average 21°F. Creek was never completely frozen. **Coverage:** Jan. 5, 13, 20, 27; Feb. 11, 22, 24. Total 7 trips, averaging 85 mins, all between 0900 and 1200 EST. **Count:** Dark-eyed Junco, 22 (98, 32); House Sparrow, 20 (89, 36); Mourning Dove, 19 (85, 34); Tree Sparrow, 18 (80, 32); Song Sparrow, 6 (27, 11); Blue Jay, 4 (18, 7); Cardinal, 4; Downy Woodpecker, 3 (13, 5); Star-

ling, 2 (9, 4), Am Goldfinch, 2, Tufted Titmouse, 1 (4, 2), Brown Creeper, 1, Swamp Sparrow, 1; Belted Kingfisher, +; Horned Lark, +; White-breasted Nuthatch, + **Average Total:** 103 birds (459/km², 186/100 acres). **Remarks:** Total species, 16. Lowest number of species and lowest average total since the count began.—*JAMES COFFMAN and H. THOMAS BARTLETT (compiler), 3443 East C.R. 36, Tiffin, Ohio 44883.*

38. 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; 8 consecutive years. **Size:** 40.47 ha = 100 acres. **Description of Area:** See *AB* 26:976-977 (1972). **Weather:** Milder than the 1978-1979 winter. Temperature extremes during the count period were 8° and 72°F. Light snow Jan. 1 and Jan. 30. Severe weather occurred after the close of the count. **Coverage:** Dec. 21, 27, 1979; Jan. 4, 7, 14, 18, 24; Feb 5, 1980. One trip between 1310 and 1530, others 0745 and 1245 CST; total 24 hrs 43 min. **Count:** E. and W. meadowlark, 47 (116, 47); Red-winged Blackbird, 43 (106, 43); Tree Sparrow, 29 (72, 29); Dark-eyed Junco, 27 (67, 27); Carolina Chickadee, 17 (42, 17), Am. Robin, 14 (35, 14); Am. Goldfinch, 13 (32, 13); Song Sparrow, 12 (30, 12); Starling, 10 (25, 10); Cardinal, 9 (22, 9); Harris' Sparrow, 9; Red-bellied Woodpecker, 7 (17, 7), E Bluebird, 7; Downy Woodpecker, 6 (15, 6), Fox Sparrow, 6; Bobwhite, 5 (12, 5); Com Flicker, 5; Blue Jay, 5; White-breasted Nuthatch, 4 (10, 4); Tufted Titmouse, 3 (7, 3); Brown Creeper, 3; Rufous-sided Towhee, 2 (5, 2); Red-tailed Hawk, 1 (2, 1); Barred Owl, 1; Pileated Woodpecker, 1; Hairy Woodpecker, 1; Golden-crowned Kinglet, 1, White-crowned Sparrow, 1; White-throated Sparrow, 1; Lincoln's Sparrow, 1; Swamp Sparrow, 1; Sharp-shinned Hawk, +; Marsh Hawk, +; Great Horned Owl, +; Yellow-bellied Sapsucker, +; Mockingbird, +; Pine Siskin, +; Field Sparrow, +. **Average Total:** 292 birds (722/km², 292/100 acres) **Remarks:** Total species, 39. Open water, good seed crop and cover. Oil industry has drilled one stripper well and mowed 8 acres of marsh and 2500 ft of trails to old capped wells.—*ELLA DELAP, 409 N. Wyandotte, Dewey, OK 74029.*

39. NATURAL DECIDUOUS CREEK-BOTTOM—BRUSHY MESA URBAN PARK.—**Location:** Colorado; El Paso Co., Sondermann Park in NW Colorado Springs, 38°51'30"N, 104°51'W, Colorado Springs Quadrangle, USGS. **Continuity:** New. **Size:** 32.4 ha = 80 acres; an asymmetrical truncated triangle with the base to the east (size from park map). **Description of Area:** Although surrounded by urban development, Sondermann Park is sequestered in an open valley surrounded by alluvium-atop-shale mesas and is now relatively undisturbed, although in the past there had been landscaping, ditching, a few buildings, and other human influence in the valley. There is one small wooded intermittent creek (which flowed throughout the period), with large side draws separating brushy mesa ridges; elev 6070 to 6284 ft. The dominant creekbottom

tree is Plains Cottonwood (*Populus sargentii*), with scattered plantings of Ponderosa Pine (*Pinus ponderosa*), Blue Spruce (*Picea pungens*), Red Cedar (*Juniperus scopulorum*), Limber Pine (*Pinus flexilis*), a grove of young Chinese Elms (*Ulmus pumila*) to the SE, and some Snowberry (*Symphoricarpos orbiculatus*) thickets and exotic shrubs. *Yucca* (*Yucca glauca*) predominates on gravelly slopes, with isolated Skunkbush (*Rhus trilobata*) and some stands of Mountain Mahogany (*Cercocarpus montanus*). There are other shrubs on the mesa slopes such as Four-winged Saltbush (*Atriplex canescens*), Winterfat (*Ceratoides lanata*) and Bushy Buckwheat (*Eriogonum effusum*), as well as grasses including Blue Grama (*Bouteloua gracilis*), Little Bluestem (*Schizachyrium scoparium*), Western Wheatgrass (*Agropyron smithii*), Canada Wild-rye (*Elymus canadensis*), Side-oats Grama (*Bouteloua curtipendula*), Crested Wheatgrass (*A. cristatum*), and Tree-awn (*Aristida*); while in the disturbed flats the pioneer Burning-bush (*Kochia iranica*) dominates, together with Common Sunflower (*Helianthus annuus*) and other disclimax weeds. **Edge:** To the E, S and W beyond the valley there is residential housing, while northward is a relatively untouched continuation of the creekbottom-mesa habitat, eventually to be turned into a park. **Weather:** Although there had been early heavy fall snows in the area, the census period was relatively mild and dry, interspersed with short-lived storms and at the end of January a severe cold snap. Snowfall totaled 9.1 in. **Coverage:** Jan. 14-16, 24; Feb. 3, 17, 24, 28, Mar. 3. Total, 9 trips, both a.m. and p.m. averaging one hour each. **Count:** Dark-eyed Junco, 19 (59, 24); Black-billed Magpie, 11 (34, 14); House Finch, 9 (28, 11); Tree Sparrow, 5 (15, 6); Starling, 3 (9, 4); Com. Flicker, 2 (6, 3); Cassin's Finch, 2; Gray-headed Junco, 2; Black-capped Chickadee, 1 (3, 1); Red-tailed Hawk, +; Rock Dove, +; Downy Woodpecker, +; Scrub Jay, +; Mountain Chickadee, +; White-breasted Nuthatch, +; Brown Creeper, +; Am. Robin, +; Am. Goldfinch, +; Rufous-sided Towhee, +; Brown Towhee, +; White-throated Sparrow, +; Song Sparrow, +. **Average Total:** 54 birds (167/km², 68/100 acres). **Remarks:** Total species, 22. This newly designated city park, honoring former professor, councilman, and open-space advocate Dr. Fred Sondermann, is ecologically representative of the Front Range mesa-valley piedmont but is surrounded now by city development. The fact that half of the species were only seen once indicates considerable transient use of the area. However, adjacent Starlings and Rock Doves seldom entered the park, and House Sparrows never did. On the other hand, flickers, magpies and Tree Sparrows were mainly resident, while House Finches moved back and forth. There were two fairly distinct junco flocks, one toward the N and the other at the SE corner. Certain shrub thickets were special havens for fringilids, the Tree Sparrow favoring Skunkbush, the Cassin's Finches the Mountain Mahogany. But in general few birds frequented the brush-and-yucca slopes. The 2 male White-throated Sparrows were unusual winter visitors.—**RICHARD BEIDLEMAN (compiler), MARY ANN BARRINGER, ROBIN BINGHAM, CHRISTOPHER CARSON,**

MARGARET CREEL, MARGARET DODDS, MEREDITH McNAB, JOHN M-JER, LAURIE NASTER, ALISON PEARSON, AMY STANTON, ERWIN TURNER, AND WILLIAM UTZ (Field Zoology Class), Dept. of Biology, Colorado College, Colorado Springs, CO 80903.

40. RIPARIAN WOODLAND - WILLOW THICKETS.—**Location:** Utah; Washington Co., at mouth of Zion Canyon adjoining S boundary of Springdale; 37°09'55"N, 113°00'45"W; Zion National Park Quadrangle (Zion Canyon Section), USGS. **Continuity:** New (BBC, 1975; WB-PS, unpublished, 5 consecutive years, 1975-79). **Size:** 16.19 ha = 40 acres. **Description of Area:** See AB 29:1124-25, (1975). **Weather:** Temperature mild, with rainfall above average for the third consecutive winter. **Coverage:** Dec. 24; Jan. 1, 9, 13, 17, 23, 26, 30; 8 trips averaging 148 min, between 0900 and 1615 MST. High water in the Virgin River made 5.5 acres in the SE corner inaccessible on Jan. 9, 13 and 17. **Count:** White-crowned Sparrow, 27 (167, 68); Starling, 25 (154, 63); Dark-eyed Junco, 14 (86, 35); House Finch, 12 (74, 30); Am. Robin, 5 (31, 13); Cassin's Finch, 4 (25, 10); Am. Goldfinch, 4; Com. Merganser, 3 (19, 8); Com. Flicker, 3; Pinon Jay, 3; Rufous-sided Towhee, 3; Ruby-crowned Kinglet, 2 (12, 5); Song Sparrow, 2; Great Blue Heron, 1 (6, 3); Com. Snipe, 1; Belted Kingfisher, 1; Hairy Woodpecker, 1; Com. Raven, 1; Black-capped Chickadee, 1; Brown Creeper, 1; Bewick's Wren, 1; Canon Wren, 1; Townsend's Solitaire, 1; Yellow-rumped Warbler, 1; Pine Siskin, 1; Lesser Goldfinch, 1; Sharpshinned Hawk, +; Red-tailed Hawk, +; Am. Kestrel, +; Yellow-bellied Sapsucker, +; White-breasted Nuthatch, +; Hermit Thrush, +. **Average Total:** 120 birds (741/km², 300/100 acres). **Remarks:** Total species, 33. The average total birds was 60% above the 5-yr. average of 75; only 1975-76 was higher. Com. Flicker, Bewick's Wren, Am. Robin, Ruby-crowned Kinglet, House Finch, Rufous-sided Towhee and White-crowned Sparrow were found on all 8 trips. Pinon Jays, new this year, were present only on Jan. 17, when about 20 birds were shutting pecans from a nearby orchard to hiding places on the ridge at the SE corner of the plot. Cassin's Finch, also new this year, was seen on 2 trips.—**JEROME L. GIFFORD, P.O. Box 85, Springfield, UT 84767.**

41. MIXED HABITAT: RIPARIAN WOODLAND AND ADJACENT OAK SAVANNA.—**Location:** California; Monterey Co., Hastings Reservation, 2.5 mi E Jamesburg; 36°23'N, 121°33'W, Rana Creek Quadrangle, USGS. **Continuity:** Established 1979; 2 years. **Size:** 8.76 ha = 21.65 acres. **Description of Area:** See AB 34:35-36 (1980). An intermittent stream cuts through the length of the plot; water is usually present December through June. Riparian vegetation along the creek is bordered by grassland and savanna. At both long edges of the plot the ground starts sloping steeply, covered with mixed evergreen forest to the E and foothill woodland and some chaparral to the W. **Weather:** The creek started running in mid-Jan. During the census period temperatures ranged from 26° to 79° F. (same range

as last year) Temperatures were above normal in Dec. (mean maximum 65°, mean minimum 38° compared to 40-year means of 61° and 36°) and in Jan. (mean maximum 60°, mean minimum 38° compared to 40-year means of 60° and 34°). Precipitation was above normal in both months (5.38 in. for Dec., 4.43 in. for Jan. compared to 40-year means of 3.78 in. and 4.07 in.). Also "season-to-date" precipitation was above normal at 13.78 in. for Jan. compared to the 40-year mean of 11.04 in. **Coverage:** Dec. 18, 26-28; Jan. 19-20, 22, 27, 29; Feb. 2. Total 10 trips averaging 105 minutes each between 0755 and 1110 PST. **Count:** Golden-crowned Sparrow, 17 (194, 79); California Quail, 14 (160, 65); Ruby-crowned Kinglet, 10 (114, 46); Dark-eyed Junco, 8 (91, 37); Scrub Jay, 6 (68, 28); Plain Titmouse, 6; Brown Towhee, 6; Cedar Waxwing, 4 (46, 18); Bushtit, 3 (34, 14); Bewick's Wren, 3; Hutton's Vireo, 3, Rufous-sided Towhee, 3; Acorn Woodpecker, 2 (23, 9); Wren-tit, 2; Am. Robin, 2; Hermit Thrush, 2; Com. Flicker, 1 (11, 5); "Red-breasted" Sapsucker, 1; Nuttall's Woodpecker, 1; Steller's Jay, 1; Yellow-billed Magpie, 1; W. Bluebird, 1; Yellow-rumped Warbler, 1; Purple Finch, 1; Lesser Goldfinch, 1; Cooper's Hawk, +; Am. Kestrel, +; Anna's Hummingbird, +; Hairy Woodpecker, +; White-breasted Nuthatch, +; Starling, +; Townsend's Warbler, +; White-crowned Sparrow, +; Lincoln's Sparrow, +. **Average Total:** 100 birds (1141/km², 462/100 acres). **Remarks:** Total species, 34. The increase of Golden-crowned Sparrows from an average total of 6 in the 1978-79 season to 14 this season reflects the fact that Golden-crowneds were exceedingly scarce in the winter of 1978-79 but have returned to more normal numbers. Species seen on every trip were Scrub Jay, Bewick's Wren, Ruby-crowned Kinglet, Brown Towhee and Golden-crowned Sparrow. Species seen on only one trip were Cooper's Hawk, Am. Kestrel, Hairy Woodpecker, Starling, Townsend's Warbler, and White-crowned Sparrow.—**PAMELA L. WILLIAMS, Hastings Reservation, University of California, Star Route Box 80, Carmel Valley, CA 93924.**

42. GRASSLAND MUNICIPAL AIRPORT.—**Location:** Louisiana: Natchitoches Par., municipal airport of Natchitoches, 31°44'N, 93°06'W; Provencal Quadrangle, USGS. **Continuity:** Established 1974; 7 consecutive years, not published in 1978. **Size:** 12.15 ha = 30 acres (rectangular, 1320 x 900 ft, measured with steel tape. **Description of Area:** See AB 28:711-712 (1974). **Weather:** During the 9-day study period, day temperature highs ranged from 38° to 80° F with five count days 50° or higher. Night temperature lows ranged from 25° to 50°. Two count days were cloudy, 4 were clear. All count days had winds up to 3 on the Beaufort scale. The winter was generally warmer and milder than average. **Coverage:** February 14-15, 18-20, 22. Total six trips between 1000 and 1630, averaging 50 minutes, total hours, 5. **Count:** Savannah Sparrow, 12 (99, 40); Am. Robin 8 (66, 27); Sprague's Pipit, 5 (41, 17); E. Meadowlark, 5; LeConte's Sparrow, 2 (16, 7). **Average Total:** 32 birds (264/km², 107/100 acres). **Remarks:** Total species, 5. The average total of 264/km² in 1980 was close to the 7-year mean

of 287/km² The Savannah Sparrow average count was down and Sprague's Pipit was up in 1980. This was probably a result of late mowing of the area resulting in better habitat for the Sprague's than for the Savannah. Other birds were near their 7-year mean. The Am. Robin and Le Conte's Sparrow were observed on 5 counts and the remaining species were observed on all counts.—**CHARLIE VIERS, Dept. of Biol. Sc., Northwestern St. Univ. Louisiana, Natchitoches, LA 71457.**

43. LIVE OAK - MESQUITE BRUSH-LAND.—**Location:** Texas; Bexar Co., W. W. McAllister Park of San Antonio, 2 mi NE of San Antonio International Airport; 29°33' N, 98°27' W, Longhorn Quadrangle, USGS. Study area is along the N boundary of the park extending 660 yds ESE of Jones-Maltsberger Rd., and 220 yds SSW of the fence. **Continuity:** Established 1967: 14 consecutive years. **Size:** 12.1 ha = 30 acres, based on survey stakes along the fence and measured outward 220 yds by steel tape. **Description of Area:** See AFN 21:472 (1967). Construction of homes continued a half mile to the N but with little activity near the fence. Hikers and joggers on the main trail were the only human activities in the area. **Weather:** Rainfall was well below normal and temperature a little above normal for the autumn and winter period. The stream was dry throughout the period. **Coverage:** Jan. 5, 18, 23; Feb. 1, 10-11, 18. Total 7 trips, averaging 85 min each, between 0830 and 1211 CST. **Count:** Tufted (Black-crested) Titmouse, 8 (66, 27); Cardinal, 6 (49, 20); Rufous-sided Towhee, 6, Am. Goldfinch, 5 (41, 17); Ruby-crowned Kinglet, 3, (25, 10); Carolina Chickadee, 2 (16, 7); Bewick's Wren, 2; White-throated Sparrow, 2; Carolina Wren, 1, (8, 3); Hermit Thrush, 1; Yellow-rumped (Myrtle) Warbler, 1, Lincoln's Sparrow, 1; Am. Woodcock, +; Mourning Dove, +; Golden-fronted Woodpecker, +; Yellow-bellied Sapsucker, +; House Wren, +; Am. Robin, +; White-eyed Vireo, +; Orange-crowned Warbler, +; Pyrrhuloxia, +; Field Sparrow, +. **Average Total:** 38 birds (313/km², 127/100 acres). **Remarks:** Total species, 22. The count of Tufted (Black-crested) Titmouse was the highest ever. It seems to thrive in the largely wooded home sites nearby. The number of species was the lowest in the 14 years except for the 20 species in 1978. The number of species was only 25 in 1979 making low counts for the last 3 years. All three years have been dry; apparently the controlling factor.—**STEVEN A. HAWKINS and JAMES A. MIDDLETOWN** (compiler), *San Antonio Audubon Society, San Antonio Garden Center, 3310 N. New Braunfels, San Antonio, TX 78209.*

44. PYGMY FOREST - CHAPARRAL.—**Location:** Utah; Kane Co., E Entrance of Zion Nat'l Park; 37°14' N, 112°52'30" W; Zion Nat'l Park Quadrangle (Zion Canyon Section), USGS. **Continuity:** New (BBC, 1977-79; WB-PS; unpublished, 4 consecutive years, 1976-79). **Size:** 16.19 ha = 40 acres (440 yards square, paced.) **Description of Area:** See AB 32:96-97 (1978). **Weather:** Temperature mild, with above-average snowfall for the third consecutive winter. **Coverage:** Dec. 25; Jan. 2, 6, 9, 17, 22, 27; Feb. 1; 8

trips, averaging 128 minutes, between 1005 and 1600 MST. **Count:** Gray-headed Junco, 39 (241, 98); Dark-eyed Junco, 35 (216, 88); Am. Goldfinch, 9 (56, 23); Golden-crowned Kinglet, 7 (43, 18); Mountain Chickadee, 6 (37, 15); Plain Titmouse, 6; Scrub Jay, 5 (31, 13); Cassin's Finch, 5; Pine Siskin, 5; Rufous-sided Towhee, 5; White-breasted Nuthatch, 4 (25, 10); Hairy Woodpecker, 3 (19, 8); Steller's Jay, 3; Ruby-crowned Kinglet, 2 (12, 5); Com. Raven, 1 (6,3); Red-breasted Nuthatch, 1; Brown Creeper, 1; Am. Robin, 1; Hermit Thrush, 1; Townsend's Solitaire, 1; N. Shrike, 1; Yellow-rumped Warbler, 1; Bald Eagle, +; Blue Grouse, +; Mourning Dove, +; Com. Flicker, +; Lewis' Woodpecker, +; Downy Woodpecker, +; Black-capped Chickadee, +; Pygmy Nuthatch, +; Winter Wren, +; Loggerhead Shrike, +. **Average Total:** 142 birds (877/km², 355/100 acres). **Remarks:** Total species, 32. Large flocks of both junco species raised the average total number of birds to nearly equal the combined total for the previous 4 years. Highest count, 212 birds of 19 species, came on Jan. 27, after 6 in. of fresh snow had fallen during the night; 3 Mourning Doves were among the birds brought to the plot by even more snow at higher elevations.—**JEROME L. GIFFORD, P.O. Box 85, Springdale, UT 84767.**

45. DESERT SHRUB.—**Location:** Utah, Washington Co., SW corner of Zion Nat'l Park; 37°10'30" N, 113°5' W; Zion Nat'l Park Quadrangle (Zion Canyon Section), USGS. **Continuity:** New (BBC, 1974, 1979; WB-PS, unpublished, 5 consecutive years, 1975-79). **Size:** 64.75 ha = 160 acres (880 yards square). **Description of Area:** See AB 28:1044-45 (1974). **Weather:** For the third consecutive winter, rainfall was above average. Temperatures averaged 4° to 5° F. above normal. **Coverage:** Dec. 23; Jan. 7, 12, 20, 24, 28; Feb. 3, 8; 8 trips averaging 223 min, between 0950 and 1610 MST. **Count:** House Finch, 9 (14, 6); White-crowned Sparrow, 5 (8, 3); Dark-eyed Junco, 3 (5, 2); Bushtit, 2 (3, 1); Cassin's Finch, 2; Roadrunner, 1 (2, 1); Com. Flicker, 1; Com. Raven, 1; Bewick's Wren, 1; Canon Wren, 1; Ruby-crowned Kinglet, 1; Cooper's Hawk, +; Red-tailed Hawk, +; Rough-legged Hawk, +; Prairie Falcon, +; Ladder-backed Woodpecker, +; Say's Phoebe, +; Loggerhead Shrike, +; W. Meadowlark, +; Rufous-sided Towhee, +. **Average Total:** 27 birds (42/km², 17/100 acres). **Remarks:** Total species, 20. The average total was just half of the 5-year average of 54 birds, with only 1976-77 showing a lower total. Use of the plot varied with the weather, ranging from 3 birds of 2 species on Feb. 8 to 107 birds of 13 species on Jan. 20. Heaviest use came after storms in the nearby high country brought birds to the plot to feed or for protection from cold winds. No birds were found on all 8 trips; Bewick's Wren was seen on 6, and Com. Flicker, Ruby-crowned Kinglet and White-crowned Sparrow were present on 5.—**JEROME L. GIFFORD, P.O. Box 85, Springdale, UT 84767.**

46. BAJADA DESERT SHRUB.—**Location:** Arizona; Pima Co., Red Hills Information Center, Tucson Mountain Unit, Saguaro

Nat'l Monument, 32°15' N, 111°12' W, Avra Quadrangle, USGS **Continuity:** New. **Size:** 8.9 ha = 22 acres. An irregular triangle, surrounding the Information Center, bounded on the N by Javelina Wash and on the S by a line 400 ft S of Kinney Road. Measured by weighing map pieces. **Description of Area:** An upper bajada Sonoran desert scrub community on the W side of the Tucson Mountains. The Information Center, a parking lot and 2 residences are in the area which is bisected by Kinney Road. The bajada vegetation was censused in representative 10 m radius circles and wash edges by linear surveys. The bajada sub-stratum was 80% small gravel, 10% plant stems, 5% medium rocks and 5% plant litter. The canopy cover is 25%, composed primarily of Triangle Bursage (*Franseria deltoidea*) 40%, Fluffgrass (*Tridens pulchellus*) 10%, Jojoba (*Simmondsia chinensis*) 10%, Ocotillo (*Fouquieria splendens*) 10%, Creosotebush (*Larrea tridentata*) 5%, Foothill Paloverde (*Cercidium microphyllum*) 5%, Engelmann Pricklypear (*Opuntia engelmannii*) 3%, Buckhorn Cholla (*Opuntia acanthocarpa*) 3%, and Saguaro (*Cereus giganteus*) about 200 plants 2 m or taller in the plot. The wash edge canopy cover is 70%, composed of Jojoba 32%, Foothill Paloverde 30%, Catclaw Acacia (*Acacia greggii*) 20%, Triangle Bursage 7%, Creosotebush 3%, Desert Ragweed (*Franseria ambrosioides*) 3% and Wolfberry (*Lycium berlandieri*) 3%. **Edge:** A sandstone hill rises E of the plot and bajada continues on the other sides. **Topography:** The bajada slopes to the SW from 785 m (2580 ft) to 765 m (2520 ft) within the plot. **Weather:** The period was sunny, warm and dry with temperatures ranging from 3 to 20° C (38-68°F). Less than 10 mm (0.4 in) of rain fell. **Water:** A small man-made pool adjoins the Information Center. **Coverage:** Quantitative figures are based on complete surveys on Nov. 30; Dec. 7-8, 25, 31; Jan. 4-5, 12 and Feb. 1; Averaging 2 hrs each in the a.m. Twelve nights were spent in the area listening for owls. **Count:** Gambel's Quail, 24 (270, 109); Black-throated Sparrow, 8 (90, 36); Mourning Dove, 5 (56, 23); Curve-billed Thrasher, 4 (45, 18); Cactus Wren, 3 (34, 14); Brown Towhee, 3; Gila Woodpecker, 2 (22, 9); Verdin, 2; House Finch, 2; Say's Phoebe, 1 (11, 5); Black-tailed Gnatcatcher, 1; Screech Owl, +; Great Horned Owl, +, Com. Flicker, +; Ladder-backed Woodpecker, +; Ruby-crowned Kinglet, +; Phainopepla, +; Loggerhead Shrike, +; House Sparrow, +; Cardinal, +. **Average Total:** 55 birds (618/km², 250/100 acres). **Remarks:** Total, 20 species. The quail, thrashers, towhees and Gila Woodpeckers fed heavily at several seed feeders around the Information Center and residences. The House Sparrow was seen only on Mar. 1. Mammals seen in the area were: Coyote (*Canis latrans*), Javelina (*Pecari angulatus*), Black-tailed Jackrabbit (*Lepus californicus*), Desert Cottontail (*Sylvilagus auduboni*), Rock Squirrel (*Citellus variegatus*) and Yuma Antelope Ground Squirrel (*Ammospermophilus harrisi*). Nests of several Whitethroat Woodrats (*Neotoma albigula*) were seen as were tracks of Mule Deer (*Odocoileus hemionus*)—**JOAN C. TWEIT and ROBERT C. TWEIT, 3810 North Romero Rd., #23, Tucson, AZ 85705.**

47. SONORAN DESERT CREOSOTE SCRUB.—**Location:** Arizona; Pinal Co., predominantly on the S ½ of NW ¼, Sec. 16, T-3S, R-6E, 33°10'N, 111°45'W, Chandler Heights Quadrangle, USGS. **Continuity:** New. **Size:** 10.1 ha = 25 acres (5 x 5 acres, surveyed). **Description of Area:** The dominant shrubs are Creosotebush (*Larrea tridentata*) and Brittle-bush (*Encelia farinosa*). The dominant trees are Mesquite (*Prosopis juliflora*), Ironwood (*Olneya tesota*) and Catclaw Acacia (*Acacia greggii*). The conspicuous cacti are Saguaro (*Cereus giganteus*), Organ Pipe (*Cereus thurberi*), Red-flowering Hedgehog (*Echinocereus triglochidiatus*), Buckhorn Cholla (*Opuntia ananthocarpa*), Barrel Cactus (*Echinocactus acanthodes*) and Teddy-bear Cholla (*Opuntia bigelovii*). From W to E across the area, density of cacti increases and density of shrubs decreases. There is also an increase in species diversity and wider spacing between plants. A quantitative survey of the vegetation using the line intercept method (Canfield, R. 1941. *J. Forestry* 39: 388-394) gave the following results, with the numbers following each species indicating relative frequency, relative density and per cent cover: Brittle-bush, 42, 45, 22; Creosotebush, 20, 31, 19; Teddy-bear Cholla, 18, 8, 5; Saguaro, 7, 3, 3; Ironwood, 3, 4, 5; Buckhorn Cholla, 3, 2, 1; Barrel Cactus, 3, 2, 1; Hedgehog, 3, 2, 1; Mesquite, 1, 1, 2; Catclaw Acacia, 1, 1, 1; Jojoba (*Simmondsia chinensis*), 1, 1, 1. Bare ground and rock comprised 39% of sampled area. Average stem density was 1100 stems/acre. **Edge:** Bordered on all sides by similar vegetation. **Topography:** Relatively open desert valley bordered by foothills on N and S. Elevation 1358-1378 ft. **Coverage:** Feb. 20, 23, 26, 28; Mar. 2, 5, 8, 11; 0800-1300 and 1500-1830. Total hours, 25. **Census:** Mourning Dove, 30 (297, 120); Gambel's Quail, 17 (168, 68); Starling, 5 (49, 20); Cactus Wren, 3 (30, 12); Curve-billed Thrasher, 2 (20, 8); Rufous-winged Sparrow, 2; Verdin, 1 (10, 4); Black-throated Sparrow, 1; Am. Kestrel, +; Band-tailed Pigeon, +; White-winged Dove, +; Gila Woodpecker, +; Williamson's Sapsucker, +; Bendire's Thrasher, +; Black-tailed Gnatcatcher, +; White-crowned Sparrow, +. **Average Total:** 61 birds (603/km², 244/100 acres). **Remarks:** Total species, 16. The large number of Mourning Doves was probably attributable to use of the area as a roost. Usually 30-40 were seen but once 200 were on the area. Several interesting species seen just off the study area may have foraged on the area during non-census periods. These included Golden Eagle, 2; Marsh Hawk, 2; Yellow-billed Cuckoo, 1; Roadrunner, 1; Great Horned Owl, 1; Anna's Hummingbird, 1, Com. (Gilded) Flicker, 5; Mockingbird, 1. My thanks to Dr. Calvin Cink for his guidance in setting up the study area, censusing it and completing the vegetation survey. This study was completed as part of a Jan. interterm independent study in desert ecology.—**ROBERT KENNEDY, Biology Dept. Baker University, Baldwin City, KS 66006 and 930 S Dobson #23, Mesa, AZ 85202.**

48. GRASSLAND WITH VERNAL POOLS.—**Location:** California; Placer Co., 1.1 mi E of US 80 in the city of Roseville, bounded by McLaren Dr. and Rocky Ridge

Rd. The plot is on the Maidu Regional Park site, 38°44'N, 121°15'W, Citrus Heights Quadrangle, USGS. **Continuity:** New. **Size:** 10.03 ha = 24.79 acres (rectangular, 300 X 400 yds measured). **Description of Area:** Typical of open grassland areas of the Central Valley. Terrain consists of hillocks and depressions overlying hardpan. Vernal pools are scattered throughout the study area in depressions. Area is treeless with typical grassland species covering mounds, primarily Soft Chess (*Bromus mollis*), Wild Oats (*Avena fatua*), and Cheat Grass (*Bromus tectorum*). The pools are dominated by plants adapted to moist environments such as Popcorn Flower (*Plagiobothrys stipitatus*) and Quillwort (*Isoetes* sp.). **Elevation:** 130 ft. **Weather:** Temperatures ranged from 7°C (45°F) to 18° (65°F) during the counts. Precipitation was normal for the month. **Coverage:** Jan. 3-7, 14, 16, 20. Total, 10 trips; 2 a.m., 2 mid-day, 6 p.m., average 75 min each. **Count:** W. Meadowlark, 29 (289, 117); Sage Sparrow, 27 (269, 109); Red-tailed Hawk, 1 (10, 4); Am. Kestrel, +; Say's Phoebe, +; Yellow-billed Magpie, +. **Average Total:** 57 birds (568/km², 230/100 acres). **Remarks:** Total species, 6. Black-tailed Jackrabbits (*Lepus californicus*) were seen on 5 of the 10 trips. Yellow-billed Magpies were seen feeding in the area on only 2 trips, but are common in the tracts surrounding the plot. Sage Sparrow and W. Meadowlark were observed on all counts. Thanks to Roseville Parks Department for use of Environmental Impact Reports of the area.—**PAUL S. JOHANSEN, Dept. of Biology, Cal. St. Univ., Long Beach and 1407 Vinmar Ct., Roseville, CA 95678.**

49. COASTAL SCRUB.—**Location:** California; Marin Co., 4 mi NW of Bolinas and 0.5 mi inside the S boundary of Point Reyes Nat'l Seashore; 37°55'N, 122°45'W, Bolinas Quadrangle, USGS. **Continuity:** Previously censused in winter of 1971-72; BBCs intermittent since 1971. **Size:** 8.1 ha = 20 acres. **Description of Area:** See AB 25:1003-1004 (1971). **Weather:** Partly cloudy skies (10-80% cloud cover) prevailed on 61% of the census mornings; the remainder of the days were clear (27%), overcast (9%), or foggy (3%). Winds were SW at 2-6 mph on most mornings. Morning temperatures ranged from 25 to 58°F and the total rainfall for the period Dec. 1, 1979-Mar. 15, 1980 was 24.82 in. This winter was slightly wetter and cooler than normal; for the same period in 1978-79, a.m. temperatures ranged from 32 to 61°F and the total rainfall was 19.17 in. **Coverage:** Jan. 21, 24, 28-30; Feb. 2, 4, 6, 9, 11-12, 22-23, 27-29; Mar. 4-6, 8-10; 0730-1230. Total hours: 50. **Count:** Pine Siskin, 10 (124, 50); White-crowned Sparrow, 8 (99, 40); Wrenit, 7 (86, 35); Ruby-crowned Kinglet, 5 (62, 25); Rufous-sided Towhee, 4 (49, 20); Bushtit, 3 (37, 15); Song Sparrow, 3; Red-tailed Hawk, 2 (25, 10); Scrub Jay, 2; Bewick's Wren, 2; Turkey Vulture, 1 (12, 5); Anna's Hummingbird, 1; Com. Flicker, 1; Com. Raven, 1; Hermit Thrush, 1; Cooper's Hawk, +; Marsh Hawk, +; Osprey, +; Am. Kestrel, +; California Quail, +; Allen's Hummingbird, +; Steller's Jay, +; Am. Robin, +; Rufous-crowned Sparrow, +; Fox Sparrow, +. **Average Total:** 51 birds (630/km², 255/100 acres). **Remarks:** Total species, 25.

Although the census area was covered more thoroughly this winter than in 1971-72, a lower density of birds was determined. This reduction could reflect an overall lower population density during 1979-80, or the fact that the 1971-72 count was conducted earlier in the winter (late Dec. and early Jan.). As it is known that a nearly 50% mortality rate occurred in color-banded adult White-crowned Sparrows on this and the 2 disturbed Coastal Scrub census plots during the 1979-80 winter, it is not unreasonable to assume rather high mortality for other census species as well. This high mortality, which could account for the lower densities found in 1979-80, may have been caused by the early October and November rains that allowed seeds to germinate earlier than normal, thus lowering the total seed availability for the rest of the winter. Contribution No. 221, PRBO.—**TAD THEIMER, DAVE DESANTE, KATHY KEANE, DAVID SHERMAN, and SHARON WHISLER. Point Reyes Bird Observatory, 4990 Shoreline Hwy., Stinson Beach, CA 94970.**

50. DISTURBED COASTAL SCRUB A.—**Location:** California; Marin Co., 3.5 mi NW of Bolinas and just inside the S boundary of Point Reyes Nat'l Seashore; 37°55'N, 122°45'W, Bolinas Quadrangle, USGS. **Continuity:** New (1980); (BBCs intermittent since 1972). **Size:** 4.7 ha = 11.6 acres. **Description of Area:** See AB 26: 987-988 (1972). **Weather:** See Coastal Scrub, No. 49. **Coverage:** Dec 3-4, 21; Jan. 19-22, 24-25, 28-29; Feb. 1-2, 7-9, 22-24, 27-29; Mar. 4, 7; 0730-1230. Total hours: 63. **Count:** Bushtit, 36 (767, 310); Pine Siskin, 14 (298, 121); White-crowned Sparrow, 14; Song Sparrow, 9 (192, 78); Ruby-crowned Kinglet, 8 (170, 69); Wrenit, 7 (149, 60); White-throated Swift, 5 (106, 43); Bewick's Wren, 5; Am. Robin, 4 (85, 34); Golden-crowned Sparrow, 4; Band-tailed Pigeon, 3 (64, 26); Scrub Jay, 3; California Quail, 2 (43, 17); Com. Flicker, 2; Hermit Thrush, 2; Turkey Vulture, 1 (21, 9); Red-tailed Hawk, 1; Am. Kestrel, 1; Anna's Hummingbird, 1; Chestnut-backed Chickadee, 1; Rufous-sided Towhee, 1; White-tailed Kite, +; Cooper's Hawk, +; Red-shouldered Hawk, +; Marsh Hawk, +; Mourning Dove, +; Allen's Hummingbird, +; Black Phoebe, +; Tree Swallow, +; Steller's Jay, +; Com. Raven, +; Water Pipit, +; Townsend's Warbler, +; House Finch, +; Lesser Goldfinch, +; Brown Towhee, +; Dark-eyed Junco, +; Fox Sparrow, +. **Average Total:** 124 (2641/km², 1069/100 acres). **Remarks:** Total species, 38. On-going color banding data provided additional information relevant to this census. White-crowned Sparrows had a higher incidence of mortality this winter than in previous winters (see Coastal Scrub Study, No. 49). Bushtits were divided into 2 distinct flocks; while both foraged in the same areas no overlap of individuals was recorded. The following numbers of known color marked individuals were believed to occur throughout the census period: Scrub Jay, 4; Wrenit, 10; Song Sparrow, 12; and White-crowned Sparrow, 15. Discrepancies in these totals and census totals can be attributed to low detectability of birds during inclement weather. Both Band-tailed Pigeons and White-throated Swifts were seen only on one occasion in large flocks. Steller's Jay, Chestnut-

backed Chickadee, Townsend's Warbler, and Dark-eyed Junco were recorded utilizing the coniferous forest bordering this plot. Such a forest edge is absent in Disturbed Coastal Scrub B, accounting for the differences in the total number of species between the plots. Contribution No. 222, PRBO—GEOFF GEUPEL, DAVE DeSANTE, and BRIAN PENDLETON, Point Reyes Bird Observatory, 4990 Shoreline Hwy., Stinson Beach, CA 94970.

51. DISTURBED COASTAL SCRUB B.—**Location:** California; Marin Co., 3.5 mi NW of Bolinas and 0.16 mi inside the S boundary of Point Reyes Nat'l Seashore; 37°55'N, 122°45'W, Bolinas Quadrangle, USGS. **Continuity:** New (1980); (BBCs intermittent since 1971). **Size:** 8.1 = 20 acres. **Description of Area:** See AB 25:1002-1003 (1971). **Weather:** See Coastal Scrub, No. 49. **Coverage:** Jan. 19, 24-25, 29; Feb. 7-9, 19-20, 28, 0730-1230. Total hours: 40. **Count:** Bushtit, 16 (198, 80); White-crowned Sparrow, 9 (111, 45); Am. Robin, 8 (99, 40); Ruby-crowned Kinglet, 8; Song Sparrow, 8; Pine Siskin, 6 (74, 30); Bewick's Wren, 4 (49, 20); Wren, 3 (37, 15); Red-tailed Hawk, 2 (25, 10); Hermit Thrush, 2; Turkey Vulture, 1 (12, 5); Am. Kestrel, 1; California Quail, 1; Com. Flicker, 1; Scrub Jay, 1; Com. Raven, 1; Lesser Goldfinch, 1; Rufous-sided Towhee, 1; Brown Towhee, 1; Golden-crowned Sparrow, 1; Fox Sparrow, 1; Sharp-shinned Hawk, +; Cooper's Hawk, +; Marsh Hawk, +; Allen's Hummingbird, +; Black Phoebe, +; Tree Swallow, +; W. Bluebird, +; Water Pipit, +; Yellow-rumped Warbler, +. **Average Total:** 77 (951/km², 385/100 acres). **Remarks:** Total species, 30. An on-going study of color-banded resident birds indicated that 1979-80 winter mortality was higher for White-crowned Sparrows than in previous years. Reasons for this are cited in the Coastal Scrub study, No. 49. Other factors that affected mortality included the generally cooler and wetter winter of 1979-80. Inclement weather conditions persisted from Feb. 16-29 and it was after this that several individuals disappeared. Accipiters also accounted for some mortality; in one case, a male Cooper's Hawk was caught in a Potter's trap along with a White-crowned Sparrow. The known number of color-banded White-crowned Sparrows on this plot was 13.5. The lower recorded mean of 9 may be a result of the secretive habits of this species during Jan. and Feb. Differences between this plot and Disturbed Coastal Scrub A, study No. 50, are cited in the latter study. Contribution No. 223, PRBO.—JANET KJELMYR, DAVE DeSANTE and JOE BUCHANAN, Point Reyes Bird Observatory, 4990 Shoreline Hwy., Stinson Beach, CA 94970.

52. SOFT CHAPARRAL.—**Location:** California; San Bernadino Co., approximately 1 mi E of Mountain Home Village and 5 mi W of Forest Falls. The plot is on the S side of Highway 38 between mileposts 12.93 and 13.49. It follows a dirt road approximately 1/8 to 1/4 mi S of the highway. **Continuity:** New. **Size:** 8.1 ha = 20 acres (941.8 x 91.4 m, estimated by pacing and using mileage posts). **Description of Area:** Typical soft chaparral with total ground cover ranging from 80 to

100% California Buckwheat (*Eriogonum fasciculatum*) made up 70% of this cover, Interior Live Oak (*Quercus wislizenii*) 15%, *Eriodictyon trichocalyx* 5-10%, White Sage (*Salvia apiana*) and Manzanita (*Arctostaphylos glauca*) less than 5%. There are a few individuals of Chamise (*Adenostoma fasciculatum*). Most shrubs were under 2m, the manzanita, oaks and various *Opuntia* spp. reached 4.5 m. Plant names from McMinn, H. 1974, An illustrated manual of California shrubs and Munz, P.A. 1974, A flora of Southern California. This vegetation analysis was determined using the Braun-Blanquet relevé method (Muller-Dombois and Ellenberg, 1974., Aims and methods of vegetation ecology.) Signs of human disturbance include the dirt road, a telephone pole line, and a burned down house. **Topography:** Elevation 4000 ft. The area is part of a canyon floor. **Water:** Forest Falls stream flows to the S of the plot and several additional small creeks flow through the plot. **Food:** Many of the oaks had acorns, and mistletoe (*Phoradendron* sp.) parasitized many of the oaks as well. **Weather:** During the 3-week study period the temperature ranged from 38 to 80°F. The average high was 68°, the average low was 45°. There were numerous rainstorms with total precipitation at 10.41 in. Weather data from Mill Creek Ranger Station on Highway 38 at 3000 ft. Temperatures on study area were probably cooler. **Coverage:** Feb. 1, 3, 6, 8, 11, 24. Total 6 trips, 4 in late afternoon (1530-1730) and 2 in the morning (0800-1000). Average visit lasted 45 min. **Count:** Anna's Hummingbird, 5 (62, 25); Bushtit, 5; Scrub Jay, 4 (49, 20); W. Bluebird, 4; House Finch, 4; Rufous-sided Towhee, 4; California Quail, 2 (25, 10); Com. Flicker, 2; Nuttall's Woodpecker, 1; (12, 5); Plain Titmouse, 1; Wren, 1; Bewick's Wren, 1; California Thrasher, 1; Ruby-crowned Kinglet, 1; Brown Towhee, 1; Golden-crowned Sparrow, 1; Red-tailed Hawk, +; Black Phoebe, +; Phainopepla, +; Yellow-rumped Warbler, +; Savannah Sparrow, +; Dark-eyed Junco, +; White crowned Sparrow, +. **Average Total:** 38 birds (469/km², 190/100 acres). **Remarks:** Total species, 23. One Red-tailed Hawk was seen foraging over the area on 2 trips. The California Quail were seen in small flocks on 3 trips. Two Com. Ravens were seen flying over the area once. Density of Bewick's Wrens was determined by listening for their song and hence the estimate is probably low. California Thrashers were probably more common than estimates show because they were heard just off the area on several trips. One female Phainopepla was seen on two days in the area of heavy *Phoradendron* parasitism.—KARLA KRAMER, Dept. of Biology, California St. University, Fullerton and 551 El Cabrillo, Placentia, CA 92670.

53. MIXED UPLAND HABITAT AND SWAMP.—**Location:** Connecticut; Fairfield Co., Newtown, intersection of Rte. 34 and Zoar Rd.; 41°24'10"N, 73°14'10"W, Derby Quadrangle, USGS. **Continuity:** Established 1968; 8 intermittent years. **Size:** 14.2 ha = 35 acres (irregular, greatest dimensions 653 x 354 yds, surveyed). **Description of Area:** See AFN 22:714-715 (1968). Disregard 1968 coordinates. **Weather:** Temperature during count hours ranged from 10° to 50°F. Wind SW to

NW and once NE, calm 3 days, light breeze to 12 mph on 5 days. Partly cloudy 2 days, overcast 3 days, clear 3 days. No snow cover on 7 trips, 2-3 in. on one trip. **Coverage:** Dec 23, 29; Jan. 15, 30; Feb. 6, 14, 20, 27. Total 8 trips, between 0745 and 1240, averaging 1 hr each. **Count:** Com. Crow, 3 (21, 9); Black-capped Chickadee, 2 (14, 6); Hairy Woodpecker 1 (7, 3); Downy Woodpecker, 1, White-breasted Nuthatch, 1; E. Bluebird, 1, Cardinal, 1; Dark-eyed Junco, 1; Red-tailed Hawk, +; Blue Jay, +; Tufted Titmouse, +; Brown Creeper, +; Am. Robin, +, Golden-crowned Kinglet, +. **Average Total:** 11 birds (78/km², 31/100 acres). **Remarks:** Total species, 14, The Downy Woodpecker and the White-breasted Nuthatch were seen on every trip except 2. The Red-tailed Hawk, E. Bluebird, Com. Crow, Tufted Titmouse, Brown Creeper and Golden-crowned Kinglet were seen on only one trip. Many of the birds in this study plot feed at nearby feeders—LEON L. BARKMAN, Western Connecticut Bird Club, P.O. Box 542, Woodbury, CT 06798.

54. CAT-TAIL MARSH.—**Location:** New York; St. Lawrence Co., 2 mi. NW of Canton, NE end of Upper and Lower Lakes Wildlife Mgt. Area; 1 mi. SW of Rte 68, 44°37'N, 75°14'W, Canton Quadrangle, USGS. **Continuity:** Established 1978, 2 years (no census in 1979). **Size:** 6.9 ha = 17 acres **Description of Area:** See AB 33:103 (1979) Quantitative survey of vegetation (7 samples): No trees; 71 shrub stems per acre (alder), frequency 28%, ground cover 26% (cat-tail), frequency 100%; no canopy **Weather:** Warmer and drier than usual. Ice cover from Dec. 28 through Mar. **Coverage:** Dec. 30-31; Feb. 5; Mar. 13, 15. Total 5 visits, averaging 2 hrs each. Total hours: 10 **Count:** No birds. **Remarks:** This count makes an interesting contrast with Breeding Bird Censuses on the same plot. Tracks of White-footed Mouse, E. Cottontail, and fox and one scat (fox?) seen on ice. Several active muskrat houses in plot, but no signs of raptor activity. S. Tewkesbury and G. Whitbeck performed vegetation analyses.—KENNETH L. CROWELL, Dept. of Biology, St Lawrence Univ., Canton, NY 13617.

55. LAGOON.—**Location:** Virginia; Arlington Co., Roaches Run Waterfowl Sanctuary, Arlington, 38°52'N, 77°02'30"W, Alexandria Quadrangle, USGS. **Continuity:** Established 1968, 12 intermittent years. **Size:** 23.5 ha = 58 acres. **Description of Area:** See AB 27:691 (1973). **Weather:** The sky was clear on 6 trips, partly cloudy on 2 trips, and overcast on 4 trips. Temperatures ranged from 28° to 52°F. Water was completely open except on Feb. 2-7 when it was mostly frozen. **Coverage:** Dec. 20, 24, 29; Jan. 2, 6, 10, 14, 19, 24, 27; Feb. 2, 7. Total: 12 trips, totalling 11.9 hours, between 0840 and 1540 **Count:** Ring-billed Gull, 102 (435, 176); Herring Gull, 44 (187, 76); Mallard, 32 (136, 55), Great Black-backed Gull, 28 (119, 48); Pintail, 11 (47, 19); Am. Wigeon, 11; Com Merganser, 7 (30, 12); Com. Snipe, 5 (21, 9), Pied-billed Grebe, 2 (9, 4); Great Blue Heron, 2; Killdeer, 2; Black Duck, 1 (4, 2); Belted Kingfisher, 1; Gadwall, +; Com. Goldeneye, +. **Average Total:** 248 birds (1057/km², 428/100 acres). **Remarks:** Total species, 15

There was a 14% decrease from last year's average total population, mainly as a result of decreases in Mallard (53%) and Pintail (78%; 2nd lowest average recorded). Balancing these decreases were the following increases: 155% in Great Black-backed Gull and 19% in Ring-billed Gull (both record high averages). Killdeer and snipe were present throughout the winter for the first time since 1976. The Gadwall was a new species for these counts.—*PAUL W. WOODWARD, 4117 Virginia St., Fairfax, VA 22030.*

56. BARRIER BEACH AND SALT-WATER 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 Jetty Area: 30° 25' N, 81° 25' W, Mayport Quadrangle, USGS. **Continuity:** Established 1978, 3 years. **Size:** 212.5 ha = 525 acres (Two triangles, one 5900 x 6400 x 5300 ft, the other 5300 x 5000 x 3400 ft, calculated from USGS map). **Description of Area:** See AB 33: 47 (1979). **Water:** Since we began the study, the inlet has filled in dramatically with sand blown from the dunes which are under constant attack from dune buggies, campers, vehicles, and thousands of marching feet. Salt marsh vegetation is gaining a foothold in some parts of the inlet. In the near future, we expect to see the area go from an open estuary to a salt marsh. We estimated that at low tide about 20% of the area is covered with water, as opposed to 40% when the study began. **Weather:** Temperatures ranged from 25° to 82° F. Monthly averages were below normal: 1.1° in Dec., 1.3° in Jan., and 5.1° in Feb. (Weather data from Jacksonville Int'l Airport, 15 mi inland.) **Coverage:** Dec. 2, 16, 25, 29, 31; Jan. 6, 12; Feb. 3, 9, 16, 18, 24 Total, 12 trips, from 0810 to 1540, on all tides, averaging 3 hrs each. Census methods similar to previous years. **Count:** Herring Gull, 222 (104, 42); Royal Tern, 207 (97, 39); Black Skimmer, 200 (94, 38); Dunlin, 174 (82, 33); Laughing Gull, 95 (45, 18); Semipalmated Plover, 89 (42, 17); Ring-billed Gull, 78 (37, 15); Sanderling, 67 (32, 13); W. Sandpiper, 58 (27, 11); Great Black-backed Gull, 53 (25, 10); Brown Pelican 40 (19, 8); Short-billed Dowitcher, 40; Ruddy Turnstone, 35 (16, 7); Savannah Sparrow, 26 (12, 5); Red Knot, 25 (12, 5); Forster's Tern, 19 (9, 4); Red-breasted Merganser, 17 (8, 3); Black-bellied Plover, 16 (8, 3); Willet, 9 (4, 2); Lesser Scaup, 8 (4, 2); Piping Plover, 8; "peep" 8; Double-crested Cormorant, 7 (3, 1), Bonaparte's Gull, 7; Caspian Tern, 6 (3, 1), Wilson's Plover, 5 (2, 1); Marbled Godwit 4 (2, 1); Horned Grebe, 3 (1, 1); Killdeer, 2 (1, +); Sandwich Tern, 2; Red-winged Blackbird, 2; Com. Merganser, 1; Turkey Vulture, 1, Am. Kestrel, 1; Clapper Rail, 1; Am. Oystercatcher, 1; Long-billed Curlew, 1; Purple Sandpiper, 1; Semipalmated Sandpiper, 1, Mourning Dove, 1; Com. Grackle, 1; Vesper Sparrow, 1; Snow Bunting, 1; Com. Loon, +; Gannet, +; Great Blue Heron, +; Little Blue Heron, +; Great Egret, +; Snowy Egret, +; Wood Stork, +; Canvasback, +; Greater Scaup, +; Hooded Merganser, +; Sharp-shinned Hawk, +; Red-tailed Hawk, +; Marsh Hawk, +;

Osprey, +, Com Snipe, +, Least Sandpiper, +; Am. Avocet, +; Glaucous Gull, +; Burrowing Owl, +; Belted Kingfisher, +; Yellow-rumped Warbler, +; Palm Warbler, +; Com. Yellowthroat, +; E. Meadowlark, +; Boat-tailed Grackle, +; Lapland Longspur, +. **Average Total:** 1544 (727/km², 294/100 acres). **Remarks:** Total species; 69. The average total has declined 3 years in a row, from 2349 in 1978, to 2156 in 1979 to 1544 in 1980. Species that exhibit a steady downward trend are Lesser Scaup, Black-bellied Plover, Dunlin, Forster's Tern, and Black Skimmer. Red-breasted Merganser numbers were the highest in three years. The presence of increased numbers of Marbled Godwits probably results from the washing away of the Bird Islands in Nassau Sound, 5 nautical mi N, where they wintered in past years. The low numbers of Black Skimmers may result from the failure of breeding colonies on these same islands, since we know from color banding studies that at least some of the skimmers that fledged from these colonies formerly wintered in the study area. On the other hand, numbers of Royal Terns were up, despite local breeding failure, pointing to the fact that the Royals that winter in the study area do not fledge locally. Color bands observed on Royals in the study area indicate that many of them fledge from colonies in Virginia and North Carolina.—*JOSEPH WILSON, 2635 Oak Summit Dr., Jacksonville, FL 32211, and ROBERT W. LOFTIN (compiler), University of North Florida, Box 17074, Jacksonville, FL 32216.*

57. FARM WITH PONDS.—**Location:** Utah; Washington Co., Springdale Town (Springdale Development Corp. properties); 37° 10' N, 113° 00' W, Zion Nat'l Park Quadrangle (Zion Canyon Section), USGS. **Size:** 10.52 ha = 26 acres. **Continuity:** New (BBC, 1976-78; WB-PS, unpublished, 5 consecutive years, 1975-79). **Description of Area:** See AB 31:79 (1977). **Weather:** Rainfall was above average for the third consecutive winter. Dec. and Jan. temperature averaged 4° to 5° F. above normal. **Coverage:** Dec. 20; Jan. 3, 8, 10, 19, 25-26, 31; Feb. 2, 11, 24; 11 trips averaging 135 minutes, between 1005 and 1605 MST. **Count:** Starling, 51 (485, 196); Dark-eyed Junco, 15 (143, 58); Red-winged Blackbird, 13 (124, 50); White-crowned Sparrow, 11 (105, 42); Ring-necked Duck, 7 (67, 27); Com. Flicker, 7; Cassin's Finch, 6 (57, 23); Am. Robin, 5 (48, 19); Rufous-sided Towhee, 5; Mallard, 4 (38, 15); Virginia Rail, 4; Water Pipit, 4; House Finch, 4; Green-winged Teal, 2, (19, 8); Am. Wigeon, 2; Com. Snipe, 2; Ruby-crowned Kinglet, 2; Song Sparrow, 2; Great Blue Heron, 1 (10, 4); Redhead, 1; Com. Merganser, 1; Sora, 1; Belted Kingfisher, 1; Hairy Woodpecker, 1; Black-capped Chickadee, 1; Long-billed Marsh Wren, 1; Yellow-rumped Warbler, 1; House Sparrow, 1; Brewer's Blackbird, 1; Lincoln's Sparrow, 1; N. Shoveler, +; Sharp-shinned Hawk, +; Red-tailed Hawk, +; Rough-legged Hawk, +; Merlin, +; Am. Kestrel, +; Am. Coot, +; Downy Woodpecker, +; Black Phoebe, +; Scrub Jay, +; Com. Raven, +; Brown Creeper, +; Hermit Thrush, +; Townsend's Solitaire, +; Orange-crowned Warbler, +; Gray-headed Junco, +. **Average Total:** 158 birds (1502/km², 608/100 acres). **Remarks:** Total

species, 46 The species total matched the 5-year average of 46.2. Average total birds was down slightly from the previous average of 172.4. Only Virginia Rail and Rufous-sided Towhee were found on all 11 trips, Com. Flicker was present on 10. Com Merganser, Water Pipit, Orange-crowned Warbler and Cassin's Finch were new this year. The pipits were seen only on Jan. 25, when a flock of 40 fed in an alfalfa field.—*LOUISE EXCELL, JEROME L. GIFFORD (compiler), P.O. Box 85, Springdale, UT 84767.*

58. LAKE IN CITY PARK.—**Location:** British Columbia; Trout Lake, in John Hendry Park, Vancouver. **Continuity:** New. **Size:** lake, 4.5 ha = 11.1 acres (374 m X 230 m), shoreline, 862 m = 0.536 mile. **Description of Area:** Trout Lake is a shallow, eutrophic lake with mean depth 1.3 m (4.3 ft) and maximum depth only 2.0 m (6.4 ft). The shoreline is mainly low and swampy, with occasional clumps of Hardhack (*Spiraea douglasii*) and cat-tail (*Typha latifolia*), except for a sandy swimming beach at the S end. (Aquatic plants were not identified.) John Hendry Park, an area of 26.8 ha (66.2 acres) surrounding the lake, is mainly lawns, with a few large, scattered Black Cottonwoods (*Populus balsamifera* ssp. *trichocarpa*) and other large trees. Between Aug. and Oct. 1979, an area at the NE corner of the lake was dredged out to a water depth of 0.6 m (2.0 ft), as part of a plan to develop a small marsh and adjacent nature center. This dredged area was also censused, and is included in the dimensions given above. **Weather:** Temperatures averaged 33° F. in Jan. (3° F. below normal), but were well above normal in Dec. and Feb.; Jan. was dry, but both Dec. and Feb. were very wet, with Dec. recording 11.2 in. of precipitation, the second highest on record (data from Vancouver International Airport, 7 mi SW of study area). Temperatures during surveys ranged from 28° F. on Jan. 7 to 59° F. on Mar. 1. Skies were clear on 3 days, partly cloudy on 1, and overcast on 6. The lake was mostly frozen on Jan. 7, 23, and 29, with only 1%, and overcast on 6. The lake was mostly frozen on Jan. 7, 23, and 29, with only 1% of water open on the 29th. **Coverage:** Nov. 24; Dec. 8, 24; Jan. 7, 16, 23, 29; Feb. 12, 21; Mar. 1. Total, 10 trips between 1020 and 1600 (all but 2 between 1300 and 1600), averaging 64 min. each. **Count:** Lake: Am. Wigeon, 218 (4853, 1964), Mallard, 13 (289, 117); Glaucous-winged Gull, 11 (245, 99); N. Shoveler, 9 (200, 81), Am. Coot, 9; Com. Merganser, 8 (178, 72), Green-winged Teal, 7 (156, 63); California Gull, 3 (67, 27); Thayer's Gull, 2 (45, 18), Mew Gull, 2; Pied-billed Grebe, 1 (22, 9), Hooded Merganser, 1; Ring-billed Gull, 1, Double-crested Cormorant, +; Canada Goose, +; Pintail, +; Eur. Wigeon, +, Greater Scaup, +; Com. Goldeneye, +, Ruddy Duck, +. **Shoreline:** Northwestern Crow, 4 (5 per km., 7 per mile); Killdeer, 1 (1,1); Rock Dove, 1; Starling, 1; Great Blue Heron, +; Com. Snipe, +; Brewer's Blackbird, +. **Average Total:** Lake, 288 birds (6411/km², 2595/100 acres); **Shoreline,** 7 birds (8/km, 13/mile). **Remarks:** Species total, 27. Assignment of species to "lake" or "shoreline" was sometimes arbitrary; for ex-

ample, the wigeon and coots spent much of each day grazing on the lawns, and the herons and crows sometimes perched on a diving platform in the lake. Landbirds such as Rock Doves and Starlings were counted only when foraging right at the water's edge. Fish-eating birds were attracted by introduced populations of rainbow trout (*Salmo gairdneri*), brown bullhead (*Ictalurus nebulosus*), and black crappie (*Pomoxis nigromaculatus*). The trout were wiped out by low dissolved-oxygen levels in late Dec., and mergansers and cormorants disappeared from the lake after mid-Jan. Gulls used the lake mainly in Jan. when it was largely ice-covered; these included up to 15 California Gulls, normally a rare bird in winter in the Vancouver area. Thanks to Stephen R. Cripps of the Vancouver Parks Board for providing a copy of a biological consultant's report on Trout Lake, from which many of the above data were taken.—WAYNE C. WEBER, 303-9153 Saturna Drive, Burnaby, B.C., Canada V3J 7K1.

59. DIKED COASTAL SALT MARSH.—**Location:** California; Humboldt Co., within 1 mile E of Eureka; 40°47'30"N, 124°07'30"W, Arcata South Quadrangle, USGS. **Continuity:** New, however area was used as a BBC plot in 1979. **Size:** Entire property: 7.87 ha = 19.46 acres; study area: 5 ha = 12.4 acres. The entire property was censused, but the study area is the part that will be changed when saltwater is allowed to reenter. Census numbers refer to the entire property. **Description of Area:** See AB 34:100-101 (1980). These additional grasses have been keyed out since the description was published: Velvet Grass (*Holcus lanatus*), Beard Grass (*Polypogon monspeliensis*), Italian Ryegrass (*Lolium multiflorum*), Hairgrass (*Deschampsia caespitosa*). Plant names follow Philip A. Munz, *A California Flora*, 1959. **Weather:** Most days were overcast or with light drizzle. Temperatures varied from 25° to 60°F. **Coverage:** Jan. 29, 31; Feb. 2-3, 5, 9-10, 14; 0830-1200. Each trip averaged 1½ hours for a total of 12 hours. **Count:** W. Meadowlark, 11 (140, 57); Starling, 9 (114, 46); Yellow-rumped Warbler, 6 (76, 31); Am. Coot, 4 (51, 21); Long-billed Marsh Wren, 4; Savannah Sparrow, 4; Song Sparrow, 4; Water Pipit, 3 (38, 15); Am. Robin, 2 (25, 10); W. Grebe, 1 (13, 5); Pied-billed Grebe, 1; Great Egret, 1; Snowy Egret, 1; White-tailed Kite, 1; Marsh Hawk, 1; Killdeer, 1; Belted Kingfisher, 1; Com. Flicker, 1; Black Phoebe, 1; Horned Grebe, +; Great Blue Heron, +; Bufflehead, +; White-winged Scoter, +; Red-breasted Merganser, +; Sharp-shinned Hawk, +; Red-tailed Hawk, +; Peregrine Falcon (imm.), +; Am. Kestrel, +; Com. Snipe, +; Greater Yellowlegs, +; gull sp., +; Bonaparte's Gull, +; Short-eared Owl, +; Com. Crow, +; Chestnut-backed Chickadee, +; Ruby-crowned Kinglet, +; Red-winged Blackbird, +; Dark-eyed Junco, +; Lincoln's Sparrow, + **Average Total:** 57 birds (724/km², 292/100 acres). **Remarks:** Total species, 39. Species seen on all 8 trips included Marsh Hawk, Long-billed Marsh Wren, Savannah Sparrow and Song Sparrow. Black Phoebe was seen on all but one trip. All the '+' species were seen once only, except the heron, kestrel, and Lincoln's Sparrow, 2 each. Although this site is not homogeneous in

habitat, it is of interest because of the salt marsh restoration which is planned for it. Part of the existing dike will be breached in the summer of 1980 to allow saltwater to reenter the central 12.4 acres. In preparation for this breaching, the area was diked in August, 1979 to separate the existing freshwater marsh from saltwater intrusion and also to build up older existing dikes. This resulted in loss of about two-thirds of the edge vegetation existing at the time of the last breeding bird census in June, 1979. Special thanks to Dave Claycomb for identifying the grasses. This study was funded by the U.S. Fish and Wildlife Service, Co-operative Field Research Station, Arcata, California.—SANDRA L. JACOBSON, P.O. Box 171, Arcata, CA 95521.

60. INTERTIDAL MUDFLAT ON LARGE BAY.—**Location:** California; Alameda Co., the E shore of S. San Francisco Bay 200 to 800 m S of Hayward Landing, 37°38'N, 122°9'W, San Leandro Quadrangle, USGS. **Continuity:** New. **Size:** 31.1 ha = 76.8 acres; shape roughly square, boundaries marked by tall PVC pipes mostly placed by boat but the 600m E boundary surveyed with tape and compass along levee, as was the 523m N boundary extending due W across mudflat. The 620m W and 488m S boundaries "measured" by plane table methods from these 2 surveyed boundaries. **Description of Area:** Entire plot consists of bay water, varying from traces to about 8 feet deep through tidal cycles, over a substrate of soft mud. An interrupted N-S row of small rocks protrudes from the mud for about 250m at about 350m from the E edge of the gently sloping mudflat. No vegetation except a film of diatoms and occasional small masses of tide-drifted algae and fragments of eelgrass or saltmarsh plants. **Adjacent habitat:** Similar intertidal mudflat to S and N for over 20 km, with a sewage effluent channel about 150m N of plot and the Hayward Landing peninsula beyond this (see AB 34:37); open shallow bay for 21 km to W, several hundred meters of which has exposed mud bottom at the lowest (minus) tides; along the N 100m of the E boundary a pickleweed (*Salicornia virginica*) marsh is above a 3-6 dm abrupt mud bank, with two small coves ending in muddy sand beaches; a low N-S dike continues through this marsh from the 4-5m wide levee constituting the remainder of the E boundary, with broken concrete along W face of this levee adjacent to the plot; long-abandoned salt evaporators to the E of this levee were reconstructed between Sept. 1979 and Apr.-May 1980 as a new tide-flat-saltmarsh area, but the outer levee was unbroken during the present census and served as observation route for all counts. **Tidal cycle:** Tides ranged from +8.6 to -1.2 ft during the count period, with greatest amplitude on Jan. 17-18. Mean lower low water (0 tide level) is near the west boundary of the plot. No mudflat is exposed in the plot when the tide is above +4.5 ft. Seven counts were carried out at tides of this level or higher, and 8 when tides were low enough to expose from 15 to 67% of the mudflat at mid-point of the count. **Food:** Presumably similar to that we reported (AB 34:37) for a plot overlapping the present one on the N but including the effluent channel; studies in progress by others

on the present plot and the new tidal area E of it will provide data on invertebrates and fish in future years. **Weather:** In general, milder than normal. Cloud cover varied from 0 (on 6 counts) to 100% (3 counts), averaging 40%; sunrise to sunset cloud cover in Dec., Jan., and Feb. averaged 56, 63, and 77%, respectively. Wind on counts variable, mostly between SE, W and NW, from 2 to 12 mph (0 on 5 counts). Temperature during counts varied from about 41 to 63°F (average higher than 1979); monthly means were 2.3°F above normal in Dec., 3.9° above in Jan., and 4.9° above in Feb. Light rain fell during only one count (Jan. 11); but rain of 1/10 inch or more was recorded on 7 days in Dec. and 8 days in Jan. (totals of 4.79 and 3.16 in., or 1.22 in. above and 0.87 in. below normal), with only traces thence through Feb. 11. Specific weather data from Oakland International Airport, 10 km NNW. **Coverage:** Dec 3, Jan. 11, 22; Feb. 4, 8 (2 counts), 9, 11; total of 8 counts at low tide levels with 15 to 67% of mudflat exposed, for 35 to 80 minutes each (average 47) and varying in times from 0730 to 1715. Also, Dec. 11, 28; Jan. 4, 14, 28, 31, Feb. 11; total of 7 counts at tide levels above 4.5 ft., with 0% of mudflat exposed, for 15 to 60 min each (average 29), from 0700 to 1250. **Count I** (average of 8 ebb or low tide counts): Dunlin, 670 (2155, 872); W. Sandpiper, 264 (849, 344); Marbled Godwit, 253 (814, 329); Willet, 66 (212, 86); Ruddy Duck, 38 (122, 49); scaup sp., 30 (97, 39); Black-bellied Plover 25 (80, 33); dowitcher sp., 20 (64, 26); Least Sandpiper, 11 (35, 14); Pintail, 10 (32, 13); Long-billed Curlew, 4 (13, 5); gull sp., (probably mostly Ring-billed) 4; W. Grebe, 3 (10, 4); Am. Wigeon, 3; Snowy Egret, 2 (6, 3); Bufflehead, 2; Short-billed Dowitcher, 2, Am. Avocet, 2; Ring-billed Gull, 2; Great Egret, 1 (3, 1); Glaucous-winged Gull, 1, Killdeer, 1; Herring Gull, 1; Starling, 1, Horned Grebe, +; Double-crested Cormorant, +; Great Blue Heron, +; Black-necked Stilt, +; Ruddy Turnstone, +, Red Knot, +; W. Gull, +; California Gull, +, Mew Gull, +. **Average Total:** 1417 birds (4559/km², 1845/100 acres). **Count II** (average of 7 high tide counts): Ruddy Duck, 68 (219, 89); scaup sp., 37 (119, 48); Surf Scoter, 9 (29, 12); W. Grebe, 7 (23, 9); Am. Wigeon, 2 (6, 3); Bufflehead, 2; Lesser Scaup, 2; Horned Grebe, 1 (3, 1); Snowy Egret, 1; Pintail, 1; Greater Scaup, 1; Com. Loon, +; Red-throated Loon, +; Double-crested Cormorant, +; White-winged Scoter, +; Glaucous-winged Gull, +; California Gull, +; Ring-billed Gull, +. **Average Total:** 131 birds (421/km², 171/100 acres). **Remarks:** Species totals: 32 + on Count I, 17 on Count II, or 37 on I and II combined. The number of species on individual trips ranged from 10 to 20 + on Count I, when significant shorebird feeding areas were exposed, and 5 to 11 + on Count II, when no areas were exposed. Combining Counts I and II is considered less meaningful since difficulties of scheduling coverages prevented enough counts at intermediate and very low tide levels to portray an average bird population for the entire tide cycle as was done on several previous counts (see AFN 19:427, 20 477, and AB 34:37). The rank order of decreasing abundance of the top 10 species from the present 15 counts (I and II combined) is: Dunlin, W. Sandpiper, Marbled Godwit, Ruddy

Duck, Willet, scaup sp., Black-bellied Plover, dowitcher sp., Pintail, and W Grebe. This differs from the previous year's sequence (on the plot just to N) chiefly by greater relative abundance of Dunlins and lower of W. Sandpipers and dowitchers, and particularly in the lower numbers of scaups and other ducks. The latter were more frequently disturbed by workmen and construction equipment on the levee along the E boundary and they retreated offshore or to N or S beyond the plot. The W. Sandpipers were apparently in lower average density in the present plot because it lacks the sewage effluent, a focal point of their foraging. Shorebirds in general tended to concentrate toward the N edge of the present plot, perhaps in response to that outflow, 150m N. Canvasbacks, lacking this year within the plot although sparse in the vicinity, have declined steadily in the area for 10 years despite apparent prime feeding habitat. Studies on the present plot are continuing year round as well as on the 220 acre tidal flat and developing marsh area to the E. These studies are supported in part by a grant from the U.S.F.&W.S., monitoring birds and other ecological changes associated with this largest restoration of a tidal area in San Francisco Bay.—*CHRISTOPHER W. SWARTH and HOWARD L. COGSWELL, Dept. of Biological Sciences, Calif. State University, Hayward, CA 94542.*

COASTAL WETLANDS, LONG BEACH, CALIFORNIA

Like much of the coastal area of Southern California the tidal wetlands of Long Beach have undergone extensive alteration and development. Much of the remaining open areas adjacent to these wetlands will probably be developed in the very near future with possible influences on the neighboring aquatic environments. Accordingly inventories are being made of the biological resources of these wetlands to update our current knowledge of these areas (Reish, D.J., 1968 Marine Life of Alamitos Bay). The following three Winter Bird-Population Studies were made for three components of these contiguous and interconnected wetlands: Alamitos Bay, the Long Beach Marine Stadium, and Colorado Lagoon. The Los Cerritos Wetlands, connected to the Marine Stadium by way of the Los Cerritos Channel, was surveyed in 1976 (James, R., 1976 *AB* 30:1069). Sims Pond, an isolated non-tidal wetland has not been surveyed.

61. COASTAL BAY—Location: California, Los Angeles Co., Long Beach, Alamitos Bay 33°45'N, 118°07'W. **Continuity:** New. **Size:** 18.21 ha = 45 acres. **Description of Area:** The bay forms an almost complete circle around the island of Naples. The small portion of the island not edged by the bay is adjacent to the Marine Stadium. The bay opens to the Pacific Ocean at its SE corner where it is widest. The E and W portions of the bay are narrower. The shoreline is heavily populated and includes many boat docks. Along the W side of the bay is a long stretch of bathing beach. **Food:** mainly fish, molluscs, and other intertidal invertebrates. **Weather:** During the survey, the weather was generally clear and warm, except for a 5-day

rainy period. The average temperature was 54° F and the precipitation was 2.17 in. **Coverage:** Jan. 13, 19-20, 22, 26-27; Feb. 2-3. Eight trips of 2-3 hr duration. Seven trips were in the late morning (0900-1200); one trip was from 1330 to 1530. **Count:** Surf Scoter, 350 (1922, 778); W. Grebe, 24 (132, 53); California Gull, 18 (99, 40); Sanderling, 15 (82, 33); Ring-billed Gull, 12 (66, 27); Willet, 8 (44, 18); Mallard, 6 (33, 13); Marbled Godwit, 6; W. Gull, 6; Eared Grebe, 5 (27, 11); Forster's Tern, 5; Horned Grebe, 2 (11, 4); Pied-billed Grebe, 2; Black-bellied Plover, 2; Red-throated Loon, 1 (5, 2); Green Heron, 1; W. Sandpiper, 1; Double-crested Cormorant, +; White-winged Scoter, +; Spotted Sandpiper, +; Ruddy Turnstone, +; Bonaparte's Gull, +; Caspian Tern, +. **Average Total:** 464 birds (2548/km², 1031/100 acres). **Remarks:** Total species, 23. Surf Scoter was the most abundant species noted; on any one day, from 189 to 465 were seen. Eared and W. grebes, Mallards, Surf Scoters, California and Ring-billed gulls, and Forster's Terns were seen on all 8 trips. Pied-billed Grebes, Sanderlings, Marbled Godwits, Willets and W. Gulls were noted 6 or more times. On the upper reaches of the W arm of the bay near the Marine Stadium a single Green Heron was seen on 4 occasions.—*JANET VIERHELLER and TOM HARRINGTON, Dept. Biology, Calif. St. Univ., Long Beach, CA 90840.*

62. TIDAL CHANNEL-RECREATION

AREA.—Location: California; Los Angeles Co., Long Beach, L. B. Marine Stadium. 33° 45' N. 118° 07' W. **Continuity:** New. **Size:** 15.33 ha = 37.88 acres (500 x 3300 ft). **Description of Area:** A straight tidal channel used mostly by water skiers, racing boats, and crew teams, connected by one culvert to Colorado Lagoon, and by 2 channels to Alamitos Bay. Shoreline mostly rip-rap rock. **Food:** mainly fish and invertebrates, especially molluscs. **Weather:** See Study No. 61. **Coverage:** Dec. 29; Jan. 1, 6, 13, 19-20, 22, 24, 26-27. Ten trips of approximately 1 hour duration. Eight trips in mid-morning (0800-1100) and 2 early afternoon trips (1300-1500). **Count:** Surf Scoter, 54 (352, 143); California Gull 12 (78, 32); W. Grebe, 11 (72, 29); Ring-billed Gull, 6 (39, 16); Willet, 3 (20, 8); Ruddy Turnstone, 3; Forster's Tern, 3; Eared Grebe, 2 (13, 5); Pied-billed Grebe, 2; Spotted Sandpiper, 2; W. Gull, 2; White-winged Scoter, 1 (7, 3); Sanderling, 1; Least Sandpiper, 1; Arctic Loon, +; Red-throated Loon, +; Horned Grebe, +; Double-crested Cormorant +; Mallard, +; Semipalmated Plover, +; Snowy Plover, +; Black-bellied Plover, +; Marbled Godwit, +; W. Sandpiper, +; Heermann's Gull, +; Belted Kingfisher, +. **Average Total:** 103 birds (672/km², 272/100 acres). **Remarks:** Total species, 26. The Belted Kingfisher was noted 3 times near the inlet from the Colorado Lagoon. The Surf Scoter was the most abundant species and was seen on all 10 trips. W. Grebes were also seen on 10 trips and Spotted Sandpipers on 9. Twice, large flocks of California Gulls were seen which accounted for 98 of the 115 individuals recorded; the species was noted on 8 trips.—*TOM HARRINGTON and JANET VIERHELLER, Dept. Biology, Calif. St. Univ., Long Beach, CA 90840.*

63. TIDAL LAGOON-PARK—Location: California, Los Angeles Co., Long Beach, Colorado Lagoon, 33°45'N, 118°07'W. **Continuity:** New. **Size:** 8.09 ha = 20.0 acres. **Description of Area:** A slightly U-shaped tidal lagoon with one culvert outlet into the Marine Stadium. On the N it is bordered by a golf course, on the E by houses, and on the S and W by roads. Trees near the houses overhang the water. The lagoon is used as a swimming and recreation area for youngsters, particularly in the summer months. Two docks are present, one of which crosses the narrow portion of the lagoon. **Food:** Mainly fish, algae and invertebrates. **Weather:** See Study No. 61. **Coverage:** Dec. 29; Jan. 1, 6, 13, 17, 19, 22, 26-27. Ten trips of approximately 1 hour duration. Seven trips before 1000 and 3 trips during (1400-1600). **Count:** Am. Coot, 66 (815, 330); Lesser Scaup, 13 (161, 65); California Gull, 12 (148, 60); Mallard, 11 (136, 55); W. Sandpiper, 9 (111, 45); Red-breasted Merganser, 8 (99, 40); Ring-billed Gull, 8; Pied-billed Grebe, 3 (37, 15); Willet, 3; Eared Grebe, 2 (25, 10); Sanderling, 2; Double-crested Cormorant, 1 (12, 5); Snowy Egret, 1; Black-bellied Plover, 1; Spotted Sandpiper, 1; W. Gull, 1; Horned Grebe, +; W. Grebe, +; Semipalmated Plover, +; Marbled Godwit, +; Belted Kingfisher, +. **Average Total:** 142 birds (1754/km², 710/100 acres). **Remarks:** Total species, 21. The W Sandpipers were all seen in one flock early in the morning on Jan. 20. The Belted Kingfisher was noted twice by the outlet to the Marine Stadium and was undoubtedly the same individual recorded in that count area (No. 62) as well. The Am. Coots were seen in groups of 60 or more on all trips.—*TOM HARRINGTON and JANET VIERHELLER, Dept. Biology, Calif. St. Univ., Long Beach, CA 90840.*

64. CAT-TAIL TULE MARSH.—Loca-

tion: California; San Diego Co., Kit Carson Park in Escondido; 33°04'N, 117°03'W, Escondido Quadrangle, USGS. **Continuity:** New (BBC, 1979). **Size:** 2.79 ha = 6.89 acres. **Description of Area:** See *AB* 34:100 (1980). **Weather:** Temperatures averaged warmer than normal (Jan., +5.2°F above average, Feb., +6.8°F). Rainfall was extremely heavy; the Jan.-Feb. total was 19.55 in above average for the period. **Coverage:** Jan 12, 19, 26; Feb. 2, 11, 17, 23; Mar. 1, 0700-1500 PST. Total hours: 7.5. **Count:** Song Sparrow, 19 (681, 276); Com Yellowthroat, 13 (466, 189); White-crowned Sparrow, 6 (215, 87); Bushtit, 5 (179, 73); Red-winged Blackbird, 5; Virginia Rail, 2 (72, 29); Com. Snipe, 1 (36, 15); Long-billed Marsh Wren, 1; Loggerhead Shrike, 1; Yellow-rumped Warbler, 1; Savannah Sparrow, 1; Red-shouldered Hawk, +; Am Kestrel, +; Mourning Dove, +; Black Phoebe, +; Bewick's Wren, +; W Meadowlark, +; Am. Goldfinch, +; Lincoln's Sparrow, +. **Average Total:** 55 birds (1972/km², 798/100 acres). **Remarks:** Total species, 19. Census began after the onset of the winter rains. Several hundred Red-winged Blackbirds, which utilized the marsh during Nov. and Dec., dispersed after the rains began. Three of the 4 breeding species of the previous spring were recorded (Com Yellowthroat, Red-winged Blackbird, Song Sparrow).—*KENNETH L. WEAVER, 1339*

WINTER BIRD POPULATIONS IN
MINNESOTA SHELTERBELTS

The following seven studies were conducted in shelterbelts at the Rosemount Agricultural Experiment Station, University of Minnesota, located in Dakota County, Minnesota. Each shelterbelt was initially censused in 1979 (see *AB* 34:38-39, 1980). Mean minimum temperature during census periods was 13°F (range-15 to 33°F), and snow depth ranged from 1 to 7 in. Coverage of all shelterbelts was Dec. 26-27; Jan. 4, 9, 18, 23, 25; Feb. 1, 8, 15, 18, 22, 27, 29; Mar. 5. Total trips per shelterbelt were 15, all between 0730 and 1100 and averaging 14 to 39 min per shelterbelt. A total of 13 species was seen at the Rosemount Station in winter 1979 (see *AB* 34:38-39, 1980) compared to 16 in winter 1980. Species recorded only in winter 1979 included Gray Partridge and Brewer's Blackbird; species recorded only in winter 1980 included Mourning Dove, Brown Creeper, Cedar Waxwing, Cardinal, and Am. Goldfinch. This study was supported by funds from the Agricultural Experiment Station of the University of Minnesota, the Graduate School of the University of Minnesota, the National Rifle Association of America, and the Max McGraw Wildlife Foundation.—*RICHARD H. YAHNER, Dept. of Entomology, Fisheries and Wildlife, Univ. of Minnesota, St. Paul, MN 55108.*

65. MATURE (1946) FOUR-ROW BELT.—**Location:** Minnesota; Dakota Co., Univ. of Minn. Rosemount Agricultural Experiment Sta., Poultry Section, 0.8 mi S of County Rd. 42; 44°43'N, 93°03'W, Coates Quadrangle, USGS. **Size:** 0.698 ha = 1.724 acres (14.0 x 498.4m, measured). **Description of Area:** See *AB* 34:38 (1980). **Count:** Dark-eyed Junco, 3 (430, 174); House Sparrow, 2 (287, 116); Ring-necked Pheasant, 1 (143, 58); Cedar Waxwing, 1; Great Horned Owl, +, Downy Woodpecker, +; Blue Jay, +; Am. Goldfinch, +. **Average Total:** 7 birds (1003/km², 406/100 acres). **Remarks:** Total species, 8. The number of species seen per trip ranged from 1 to 5 and the number of individuals was 1 to 20. A pair of Great Horned Owls nested in the shelterbelt for the second consecutive year (See *AB* 34:71-72, 1980); the clutch was destroyed by an unknown cause approximately 1 week after the nest was constructed.

66. MATURE (1948) FIVE-ROW BELT.—**Location:** Minnesota; Dakota Co., Univ. of Minn. Rosemount Agricultural Experiment Sta., North Beef Section, 0.5 mi S of County Rd 42; 44°44'N, 93°05'W, Coates Quadrangle, USGS. **Size:** 0.706 ha = 1.744 acres (21.0 x 336.0 m, measured). **Description of Area:** See *AB* 34:38 (1980). **Count:** House Sparrow, 20 (2934, 1147); Starling, 6 (850, 344); Dark-eyed Junco, 2 (283, 115); Blue Jay, 1 (142, 57); Mourning Dove, +; Com. Crow, +. **Average Total:** 29 birds (4109/km², 1663/100 acres). **Remarks:** Total species, 6. Average number of House Sparrows seen per trip decreased from 48 per trip in 1979, whereas average number of Starlings seen per trip increased from 2 per trip in 1979 (see *AB* 34:38, 1980). The number of species

observed per trip ranged from 1 to 5 and the number of individuals was 3 to 115. Spilled grain in areas proximal to the shelterbelt contributed to the high average number of birds seen per trip.

67. MATURE (1949) EIGHT-ROW BELT.—**Location:** Minnesota, Dakota Co., Univ. of Minn. Rosemount Agricultural Experiment Sta., Sewage Section, 3.7 mi S of County Rd 42; 44°41'N, 93°05'W, Coates Quadrangle, USGS. **Size:** 0.373 ha = 0.921 acres (23.0 x 162.0 m, measured). **Description of Area:** See *AB* 34:38 (1980). **Count:** Hairy Woodpecker, +; Blue Jay, +; Black-capped Chickadee, +; House Sparrow, +. **Average Total:** 1 bird (268/km², 108/100 acres). **Remarks:** Total species, 4. The number of species seen per trip ranged from 0 to 2 and the number of individuals was 0 to 6.

68. MATURE (1951) THREE-ROW BELT.—**Location:** Minnesota, Dakota Co. Univ. of Minn. Rosemount Agricultural Experiment Sta., Forestry Section, 1.5 mi S of County Rd 42; 44°43'N, 93°06'W, Coates Quadrangle, USGS. **Size:** 0.324 ha = 0.802 acres (14.8 x 219.2 m, measured). **Description of Area:** See *AB* 34:39 (1980). **Count:** Am. Goldfinch, 5 (1541, 623); Dark-eyed Junco, 3 (924, 374); Ring-necked Pheasant, 1 (308, 125); Black-capped Chickadee, 1; Downy Woodpecker, +. **Average Total:** 10 birds (3081/km², 1247/100 acres). **Remarks:** Total species, 5. A flock of 60 Am. Goldfinches observed during one census in the shelterbelt contributed to the high average number of birds seen per trip. The number of species seen per trip ranged from 0 to 5 and the number of individuals was 0 to 75.

69. IMMATURE (1961) NINE-ROW BELT.—**Location:** Minnesota; Dakota Co., Univ. of Minn. Rosemount Agricultural Experiment Sta., Agricultural Engineering Section, 1.5 mi S of County Rd 42; 44°43'N, 93°05'W, Coates Quadrangle, USGS. **Size:** 0.787 ha = 1.944 acres (26.7 x 294.6 m, measured). **Description of Area:** See *AB* 34:39 (1980). **Count:** Dark-eyed Junco, 1 (127, 51); Ring-necked Pheasant, +; Blue Jay, +; Com. Crow, +; Black-capped Chickadee, +; Brown Creeper, +; Cardinal, +; Am. Goldfinch, +; Tree Sparrow, +. **Average Total:** 1 bird (127/km², 51/100 acres). **Remarks:** Total species, 9. The number of species seen per trip ranged from 0 to 4 and the number of individuals was 0 to 14.

70. IMMATURE (1966) FOUR-ROW BELT.—**Location:** Minnesota, Dakota Co., Univ. of Minn. Rosemount Agricultural Experiment Sta., Plant Pathology Section, 2.6 mi S of County Rd 42; 44°41'N, 93°06'W, Coates Quadrangle, USGS. **Size:** 0.298 ha = 0.737 acres (13.0 x 229.3 m, measured). **Description of Area:** See *AB* 34:39 (1980). **Count:** House Sparrow, 1 (335, 137); Ring-necked Pheasant, +; Downy Woodpecker, +; Am. Goldfinch, +; Dark-eyed Junco, +. **Average Total:** 1 bird (335/km², 137/100 acres). **Remarks:** Total species, 5. The number of species seen per trip ranged from 0 to 2 and the number of individuals was 0 to 8.

71. IMMATURE (1974) THREE-ROW

BELT.—**Location:** Minnesota, Dakota Co., Univ. of Minn. Rosemount Agricultural Experiment Sta., Swine Sheep Section, 0.4 mi S of County Rd 42; 44°44'N, 93°05'W, Coates Quadrangle, USGS. **Size:** 0.208 ha = 0.514 acres (10.3 x 202.2 m, measured). **Description of Area:** See *AB* 34:39 (1980). **Count:** Am. Goldfinch, 1 (481, 195). **Average Total:** 1 bird (481/km², 195/100 acres). **Remarks:** Total species, 1. Wintering birds seldom use this shelterbelt; 8 Am. Goldfinches seen during a single census were the only birds observed in the shelterbelt during the 15 winter censuses, and a single House Sparrow was the only bird observed in winter 1979 (see *AB* 34:39, 1980).

72. FLOODPLAIN FOREST AND CULTIVATED BOTTOMLAND.—**Location:** New York; N of and adjacent to Scio, Allegany Co., 42°10'N, 77°59'W, Wellsville Quadrangle, USGS. **Continuity:** Established 1971; 9 intermittent years (1978 omitted). **Size:** 51.8 ha = 128 acres. **Description of Area:** See *AB* 25:644-645 (1971). Six large cottonwoods harvested for fuel, a half-dozen small willow shoots cut down by beavers, and slightly more forest edge plowed. Cultivated area: 75 acres hay; 13 acres fresh plowing, utilized for grit. **Food:** In abundance: fruit of box-elder; fair; squirrels, mice, voles and sumac; scarce: rabbits and weed seeds, absent: wild grapes, corn gleanings and top dressings. **Weather:** Outstanding for the winter was the drought of snow, the cover averaging less than one inch (2.5 cm) for the 39-day study period and precipitation for Jan. totaling 1.8 in. (4.6 cm) below normal. Although Jan. temperatures were unexceptional, those for Dec. averaged 3.7° F (2° C) higher than usual, and Lake Erie, 60 mi NW of Scio, froze Jan. 28, over 3 weeks late. Mean for start of trips was 19.6° F (-6.9° C) with winds light and sky overcast. The Genesee River remained open, and slough pools were ice-bound for only the 2 final trips. (Weather data by courtesy of Ed Curtis, Wellsville Water and Light, and WIVB-TV, Buffalo.) **Coverage:** Dec. 29; Jan. 4, 8, 17, 19, 21, 29; Feb. 5. Eight trips, averaging 83 min each, between 0800 and 1230 EST. Total 11.1 hrs. **Count:** Evening Grosbeak, 29 (56, 23); House Finch, 14 (27, 11); Com. Crow, 10 (19, 8); Rock Dove, 5 (10, 4); Black-capped Chickadee, 3 (6, 2); House Sparrow, 3; Tree Sparrow, 3; Blue Jay, 2 (4, 2); Great Blue Heron, 1 (2, 1); Com. Merganser, 1; Ring-billed Gull, 1; Mourning Dove, 1; Great Horned Owl, 1; White-breasted Nuthatch, 1; Am. Goldfinch, 1; Song Sparrow, 1; Green-winged Teal, +, Herring Gull, +; Belted Kingfisher, +, Downy Woodpecker, +; Starling, +. **Average Total:** 77 birds (149/km², 60/100 acres). **Remarks:** Comparing this year with '71 - '79 average (in parentheses): Total species, 21 (27); Per trip: Total birds, 77 (197), Com. Crow, 10 (99), and excluding both Com. Crow and Snow Bunting, 67 (94). The Com. Crow was seen on every trip, the Evening Grosbeak on 7 and the House Finch on 2. The Great Horned Owls were reported 2 evenings by Lloyd Fuller. Black Ducks (22) appeared downriver but not on the plot. Despite unusually favorable weather conditions, the bird population continues low. This scarcity is attributed to hedgerowless farm

practices, further encroachment on cover, and a generally poor food crop other than from the open waters. Thanks to Charles Maybee, for permission to use the property.—*VIVIAN MILLS PITZRICK, Amity Lake, Belmont, NY 14813.*

73. CORNFIELD, IA.—Location: Maryland, McKee-Beshers W. M. A., Montgomery Co., 39°04'15"N, 77°23'42"W, Sterling Quadrangle, USGS. **Continuity:** Established 1975, 6 consecutive years. **Size:** 16.1 ha = 39.8 acres. **Description of Area:** 1978: See *AB* 29:784 (1975). This winter the area consisted of 8 E-W strips of various crops and natural vegetation. Number in parentheses is the width of the strip. From S, these strips were (1) weedy strip mainly of Small White Aster (*Aster vimineus*), Horsetweed (*Erigeron canadensis*), Bristlegrass (*Setaria* sp.), and thistle (*Cirsium* sp.) (80 yds); (2) Soybean (*Glycine max*) stubble (49 yds); (3) weedy strip of Small White Aster and Horsetweed with some Evening Primrose (*Oenothera biennis*), Early Goldenrod (*Solidago juncea*), and Giant Ragweed (*Ambrosia trifida*) (12 yds); (4) Winter Wheat (*Triticum* sp.) (46 yds); (5) weedy strip of Small White Aster, Evening Primrose, Early Goldenrod, and Horsetweed (76 yds); (6) Winter Wheat (45 yds); (7) same as 5 (16 yds); and (8) soybean stubble (44 yds). **Weather:** 1978: The sky was clear on 4 trips, partly cloudy on 2 trips, and overcast on 2 trips. Temperatures ranged from 22°–36°F. Snow and ice covered the area from Jan. 25 to Feb. 15. **Coverage:** Jan. 5, 12, 25, 30; Feb. 1, 3, 10, 15. Total, 8 trips, between 0920 and 1150. Total hours: 7.1. **Count:** Starling, 3 (19, 8); Bobwhite, 1 (6, 3); Cardinal, 1; Am. Goldfinch, 1; Savannah Sparrow, 1; Dark-eyed Junco, 1; Tree Sparrow, 1; White-throated Sparrow, 1; Marsh Hawk, +; Downy Woodpecker, +; Com. Crow, +; Song Sparrow, +. **Average Total:** 10 birds (62/km², 25/100 acres). **Remarks:** Total species, 12. Average number of birds decreased 64.5% from last winter. Noticeable species decreases were Cardinal (4 to 1), Savannah Sparrow (3 to 1), Dark-eyed Junco (5 to 1), Tree Sparrow (6 to 1), and Song Sparrow (6 to +). Birds were never common, but they were especially scarce after snow and ice covered the field.

74. CORNFIELD, IB.—Description of Area: 1979: This winter the area consisted of 12 E-W strips of crops and natural vegetation. From S, these strips were (1) weedy strip of Small White Aster, Horsetweed, Giant Ragweed, Jimsonweed (*Datura stramonium*), Com. Mullein (*Verbascum thapsus*), lespedezas (*L. bicolor* and *cuneata*), and Silver Maple (*Acer saccharinum*) and Box-elder (*A. negundo*) saplings (8 yds); (2) Soybean stubble (49 yds); (3) weedy strip of Small White Aster and Early Goldenrod (11 yds); (4) Winter Wheat (45 yds); (5) same as 3 (8 yds); (6) Winter Wheat stubble with Fall Panic-grass (*Panicum dichotomiflorum*), Horsetweed, and Jimsonweed (45 yds); (7) same as 3 (11 yds); (8) Soybean stubble (42 yds); (9) weedy strip of mainly Early Goldenrod (10 yds); (10) Winter Wheat stubble with Fall Panic-grass, Jimsonweed, Bristlegrass, and at the E end, Swamp Smartweed (*Polygonum coccineum*) (41 yds); (11)

same as 3 (13 yds), and (12) Winter Wheat (45 yds). **Weather:** 1979. The sky was clear on 4 trips, partly cloudy on 1 trip, and overcast on 3 trips. Temperatures ranged from 15° to 41°F. There was a light covering of snow on Jan. 23 and Feb. 2 and 5 in. to 18 in. from Feb. 9–23. **Coverage:** 1979: Dec. 23; Jan. 4, 11, 23; Feb. 2, 9, 15, 23. Total, 8 trips, between 0850 and 1020, totaling 6.1 hours. **Count:** Red-winged Blackbird, 10 (62, 25); Tree Sparrow, 7 (43, 18); Brown-headed Cowbird, 6 (37, 15); Savannah Sparrow, 6; Starling, 3 (19, 8); Rusty Blackbird, 3; Field Sparrow, 3; White-throated Sparrow, 3; Song Sparrow, 2 (12, 5); Bobwhite, 1 (6, 3); Cardinal, 1; Dark-eyed Junco, 1; Marsh Hawk, +; Tufted Titmouse, +; Winter Wren, +; Swamp Sparrow, +. **Average Total:** 46 birds (286/km², 116/100 acres). **Remarks:** Total species 16. Average number of birds increased 336% from last winter. A large portion of this increase resulted from brief visits of blackbird flocks on Jan. 4 and Feb. 2. The biggest individual changes were Savannah Sparrow (1 to 6), Tree Sparrow (1 to 7), White-throated Sparrow (1 to 3), and Song Sparrow (+ to 2). Only 7 birds were seen on Feb. 15 and none on Feb. 23 when 12–18 in. of snow covered the area.

75. CORNFIELD, IC.—Description of Area: 1980: This winter the area consisted of 10 E-W strips of crops and natural vegetation. From S, these strips were (1) weedy strip of Small White Aster, Early Goldenrod, Evening Primrose, lespedezas, and Box-elder and Silver Maple saplings (13 yds); (2) Winter Wheat (55 yds); (3) weedy strip mainly of Small White Aster and Early Goldenrod (12 yds); (4) Winter Wheat stubble with Jimsonweed, Bristlegrass, Evening Primrose, and a small unidentified plant with capsules (46 yds); (5) same as 3 (13 yds); (6) Soybean stubble (45 yds); (7) weedy strip of Evening Primrose, Small White Aster, Swamp Smartweed, Early Goldenrod, and Horsetweed with some Bristlegrass and Giant Ragweed (73 yds); (8) Soybean stubble (43 yds); (9) weedy strip of Early Goldenrod and Small White Aster with some Evening Primrose, Giant Ragweed, and thistle (14 yds); and (10) Winter Wheat stubble with Tickweed (*Bidens* sp.) Swamp Smartweed, Small White Aster, Evening Primrose, and Bristlegrass (55 yds). Five hedgerows, mainly of Autumn Olive (*Elaeagnus umbellata*), are now present in the field (in strips 3, 5, 7 N and S edges, and 9). Each one consists of parallel rows, 4–5 ft apart, of 6–8 ft tall olives running the entire E-W distance. Although they were planted in 1976–77 they have become conspicuous only the past 2 years. **Weather:** 1980: The sky was clear on 4 trips, partly cloudy on 2 trips, and overcast on 2 trips. Temperatures ranged from 26° to 47°F. There was a 3–4 in. snow covering on Jan. 7. **Coverage:** 1980: Dec. 23, 31; Jan. 7, 15, 22, 29; Feb. 5, 14. Total, 8 trips, between 0850–1025, totaling 5.8 hours. **Count:** White-throated Sparrow, 5 (31, 13); Carolina Chickadee, 4 (25, 10); Tufted Titmouse, 3 (19, 8); Tree Sparrow, 3; E. Meadowlark, 2 (12, 5); Savannah Sparrow, 2; Song Sparrow, 2; Cardinal, 1 (6, 3); Am. Goldfinch, 1; Marsh Hawk, +; Ring-necked Pheasant, +; Downy Woodpecker, +; Com. Yellowthroat, +. **Average Total:** 23 birds (143/km²,

58/100 acres) **Remarks:** Total species, 13. Average number of birds decreased 52% from last winter, mainly because of the absence of Starlings and blackbirds. Species decreases included Savannah Sparrow (6 to 2) and Tree Sparrow (7 to 3). Meadowlarks were present for the first time since 1976. Chickadees and titmice fed in the olive hedgerows throughout the winter. This is the first time these hedgerows have affected the wintering population.—*PAUL W. WOODWARD, 4117 Virginia St., Fairfax, Va 22030.*

76. CORNFIELD, IIA.—Location: Maryland; Montgomery Co., McKee-Beshers W. M. A., 39°04'43"N, 77°23'37"W, Sterling Quadrangle, USGS. **Continuity:** Established 1975; 6 consecutive years. **Size:** 23.8 ha = 58.9 acres. **Description of Area:** 1978: See *AB* 29:784–785 (1975). This winter the area consisted of 10 E-W strips of crops and natural vegetation. Number in parentheses is the width of the strip. From S, these strips were (1) weedy strip of mainly Small White Aster (*Aster vimineus*), Evening Primrose (*Oenothera biennis*), and on the E end, Swamp Smartweed (*Polygonum coccineum*) (71 yds); (2) Winter Wheat (*Triticum* sp.) (67 yds); (3) Fescue grass (*Festuca* sp.) and Broomsedge (*Andropogon virginicus*) (24 yds); (4) Winter Wheat stubble with a dense covering of Fall Panic-grass (*Panicum dichotomiflorum*), Swamp Smartweed, Evening Primrose, Bristlegrass (*Setaria* sp.), and scattered Jimsonweed (*Datura stramonium*) (67 yds); (5) weedy strip of Small White Aster and Early Goldenrod (*Solidago juncea*) (15 yds); (6) Soybean (*Glycine max*) stubble (49 yds); (7) Fescue grass, Broomsedge, and scattered Evening Primrose (44 yds); (8) Soybean stubble (50 yds); (9) Winter Wheat stubble with Fall Panic-grass, Small White Aster, Swamp Smartweed, Evening Primrose, and Jimsonweed (50 yds); and (10) weedy strip of mainly Small White Aster and Evening Primrose (111 yds). **Weather:** 1978: The sky was clear on 5 trips, partly cloudy on 1, and overcast on 2. Temperatures ranged from 16° to 39°F. Snow and ice covered the area from Jan. 23 to Feb. 13. **Coverage:** 1978: Jan. 6, 11, 23, 28; Feb. 1, 3, 8, 13. Total: 8 trips, between 0845 and 1200, totaling 9.3 hours. **Count:** Dark-eyed Junco, 19 (80, 32); Am. Goldfinch, 4 (17, 7); Savannah Sparrow, 4; Tree Sparrow, 4; Field Sparrow, 4; Song Sparrow, 3 (13, 5); White-throated Sparrow, 2 (8, 3); Marsh Hawk, 1 (4, 2); Com. Crow, 1; Carolina Chickadee, 1; Water Pipit, 1; Cardinal, 1; Swamp Sparrow, 1; Downy Woodpecker, +; Tufted Titmouse, +. **Total:** 46 birds (193/km², 78/100 acres) **Remarks:** Species total, 15. Average number of birds decreased 53% from last winter. Notable species decreases were E. Meadowlark (3 to 0), Savannah Sparrow (13 to 4), Dark-eyed Junco (41 to 19), White-throated Sparrow (7 to 2), Swamp Sparrow (14 to 1), and Song Sparrow (8 to 3). Birds did not decrease after snow covered the area.

77. CORNFIELD, II B.—Description of Area: 1979: This winter the area consisted of 10 E-W, strips of crops and natural vegetation. From S, these strips were (1) Soybean stubble (67 yds); (2) weedy strip of mainly Small White Aster and Evening Primrose (9

yds), (3) Winter Wheat stubble with a fairly dense growth of Fall Panic-grass and Swamp Smartweed (60 yds); (4) Fescue grass and Broomsedge (25 yds); (5) Winter Wheat (57 yds); (6) weedy strip of Swamp Smartweed, Evening Primrose, Small White Aster, Early Goldenrod, and Horsetweed (*Erigeron canadensis*) (57 yds); (7) Fescue grass and Broomsedge (25 yds); (8) weedy strip of Swamp Smartweed, Small White Aster, Horsetweed, Evening Primrose, and Tickseed Sunflower (*Bidens* sp.) (120 yds); (9) Soybean stubble (72 yds); and (10) weedy strip of lespedezas (*L. bicolor* and *cuneata*) and Small White Aster (5 yds). **Weather:** 1979: The sky was clear on 6 trips and overcast on 2 trips. Temperatures ranged from 4° to 37°F. There was a light covering of snow on Jan. 16 and Feb. 2. From Feb. 11-24 several in. of snow covered the area. On Feb. 18 and 24 the snow was covered with ice. **Coverage:** 1979: Dec. 26, Jan. 9, 16, 27; Feb. 2, 11, 18, 24. Total, 8 trips, between 0835 and 1045, totaling 8.4 hours. **Count:** Am. Goldfinch, 14 (59, 24); Brown-headed Cowbird, 13 (55, 22); Field Sparrow, 7 (29, 12); Dark-eyed Junco, 5 (21, 9), Savannah Sparrow, 4 (17, 7); Song Sparrow, 4; Com. Crow, 2 (8, 3); House Finch, 2; Tree Sparrow, 1 (4, 2); White-throated Sparrow, 1; Sharp-shinned Hawk, +; Marsh Hawk, +; Bobwhite, +; E. Bluebird, +; Cardinal, +; Grasshopper Sparrow, +; Swamp Sparrow, +. **Total:** 53 birds (222/km², 90/100 acres). **Remarks:** Total species, 17. Average number of birds increased 23% from last winter, mainly because of the presence of a large flock of cowbirds on Dec. 26. Important individual changes were Am. Goldfinch (4 to 14), Dark-eyed Junco (19 to 5), Tree Sparrow (4 to 1), and Field Sparrow (4 to 7). The heavy snow and ice cover in mid-and late Feb. evidently had an adverse effect on the birds because only 11 were recorded on Feb. 18 and none on Feb. 24. Remains of several birds killed by hawks were found on Feb. 24.

78. CORNFIELD, IIC.—Description of Area: 1980: This winter the area consisted of 11 E-W strips of crops and natural vegetation. From S, these strips were (1) Winter Wheat (53 yds); (2) weedy strip of mainly Small White Aster, Evening Primrose, and Swamp Smartweed with some Horsetweed and Early Goldenrod (22 yds); (3) Soybean stubble (60 yds); (4) Fescue grass and Broomsedge with Evening Primrose, Early Goldenrod, Small White Aster, Tickseed Sunflower, and thistle (*Cirsium* sp.) (22 yds); (5) Winter Wheat stubble with Fall Panic-grass, Swamp Smartweed, a sunflower (*Helianthus* sp.), a small unidentified plant with capsules (57 yds); (6) weedy strip of mainly Small White Aster and Evening Primrose with some Early Goldenrod (53 yds); (7) Fescue grass and Broomsedge with much Small White Aster, Evening Primrose, and Tickseed Sunflower (44 yds); (8) Soybean stubble (88 yds); (9) weedy strip of mainly Small White Aster with some Evening Primrose and Early Goldenrod (20 yds); (10) Winter Wheat (67 yds); and (11) weedy strip of lespedezas, Small White Aster, Evening Primrose, and Early Goldenrod (8 yds). Five hedgerows of Autumn Olive (*Elaeagnus umbellata*) and Tartarian Honeysuckle (*Lonicera tatarica*) or cherry trees (*Prunus*

sp.) are now present in the field. Each one consists of a single row of 6-10 ft tall olives running the entire E-W distance and a parallel row, 4-5 ft away of either honeysuckle (4, 7) or cherry trees (strip 9) or olives and cherry trees (S edge of strip) or more olives (strip 2). Although they were planted in 1976-77 these hedgerows have only become conspicuous the past 2 years. **Weather:** 1980: The sky was clear on 5 trips and overcast on 3. Temperatures ranged from 20° to 39°F. There was a light covering of snow on Jan. 4 and 10. **Coverage:** 1980: Dec. 20, 28; Jan. 4, 10, 17, 24; Feb. 3, 12. Total, 8 trips, between 0835 and 1005, totaling 6.3 hours. **Count:** Field Sparrow, 16 (67, 27); Song Sparrow, 10 (42, 17); Am. Goldfinch, 7 (29, 12); Tree Sparrow, 5 (21, 8); E. Bluebird, 4 (17, 7); Starling, 4; House Finch, 4; Dark-eyed Junco, 3 (13, 5); E. Meadowlark, 2 (8, 3); Bobwhite, 1 (4, 2); Com. Crow, 1; Tufted Titmouse, 1; Cardinal, 1; Savannah Sparrow, 1; White-throated Sparrow, 1; Carolina Chickadee, +; Mockingbird, +; Swamp Sparrow, +. **Average Total:** 61 birds (256/km², 104/100 acres). **Remarks:** Species total, 18. Average number of birds increased 9% from last winter. Notable individual changes were Am. Goldfinch (14 to 7), Savannah Sparrow (4 to 1), Dark-eyed Junco (5 to 3), Tree Sparrow (1 to 5), Field Sparrow (7 to 15), and Song Sparrow (4 to 8). Meadowlarks were present for the first time since 1977. A flock of bluebirds fed in the olive hedgerows from Dec. 20 to Jan. 4, resulting in the highest average ever for this species. House Finches, which appeared for the first time last year, were restricted to these hedgerows. This was the first winter these hedgerows affected the count results.—PAUL W. WOODWARD, 4117 Virginia St., Fairfax, Va. 22030.

79. ABANDONED TURF FIELD.—Location: Maryland; Montgomery Co., McKee-Beshers W. M. A., 39°04'32"N, 77°23'18"W, Sterling Quadrangle, USGS. **Continuity:** Established 1976; 5 consecutive years. **Size:** 6.3 ha = 15.6 acres. **Description of Area:** See AB 29:1140 (1975). **Weather:** 1978: The sky was clear on 6 trips, partly cloudy on 3, and overcast on 1. Temperatures ranged from 18° to 32°F. Area was covered with snow and ice from Jan. 23 to Feb. 10. There were patches of snow present on the other 4 trips. **Coverage:** 1978: Jan. 5, 11-12, 23, 28, 30; Feb. 1, 8, 10, 13. Total, 10 trips, between 0955 and 1245, totaling 4.7 hours. **Count:** Am. Goldfinch, 6 (95, 38); Tree Sparrow, 6; Dark-eyed Junco, 2 (32, 13); Marsh Hawk, +; Carolina Chickadee, +; Field Sparrow, +. **Average Total:** 14 birds (222/km², 90/100 acres). **Remarks:** Total species, 6. Average total population was the same as last winter. Notable individual changes were Am. Goldfinch (1 to 6), Dark-eyed Junco (8 to 2), and Tree Sparrow (4 to 6). Almost all (96.5%) of the birds recorded were seen on Jan. 5 and 23, when flocks of goldfinches, juncos, and Tree Sparrows were feeding in the field. **Weather:** 1979: The sky was clear on 7 trips and overcast on 3. Temperatures ranged from 4° to 37°F. There was little or no snow cover from Dec. 26 to Feb. 5, but from Feb. 11 to 24 there was 5 to 12 in. of snow and some ice covering the area. **Coverage:** 1979: Dec. 26; Jan. 9, 11, 16, 23,

27, Feb. 5, 11, 18, 24. Total, 10 trips, between 0840 and 1110, totaling 4 hours. **Count:** Com. Grackle, 50 (792, 321), Am. Goldfinch, 3 (48, 19); Tree Sparrow, 3, Field Sparrow, 1 (16, 6); Savannah Sparrow, +, Dark-eyed Junco, +. **Average Total:** 57 birds (903/km², 365/100 acres). **Remarks:** Total species, 6. Average total population increased 307% from last winter because of the presence of a flock of 500 grackles along the field edge on Jan. 23. Otherwise, last winter's 3 common species decreased: Am. Goldfinch (6 to 3), Dark-eyed Junco (2 to +), and Tree Sparrow (6 to 3). **Weather:** 1980: The sky was clear on 5 trips, partly cloudy on 2, and overcast on 3. Temperatures ranged from 22° to 47°F. There was a light snow covering on Jan. 7, 10, and Feb. 3. **Coverage:** 1980 Dec. 23, 31; Jan. 4, 7, 10, 15, 17, 24; Feb. 3, 12. Total, 10 trips, between 0935 and 1100, totaling 3.4 hours. **Count:** Dark-eyed Junco, 11 (174, 71); Field Sparrow, 4 (63, 26), E. Meadowlark, 2 (32, 13); Cardinal, 1 (16, 6), White-throated Sparrow, 1; Ring-necked Pheasant, +; Am. Goldfinch, +; Tree Sparrow, +. **Average Total:** 19 birds (301/km², 122/100 acres). **Remarks:** Total species, 8. Average total population decreased 38 birds this winter. Important individual changes were E. Meadowlark (0 to 2; first records since 1976), Com. Grackle (50 to 0), Am. Goldfinch (3 to +), Dark-eyed Junco (+ to 11), Tree Sparrow (3 to +), and Field Sparrow (1 to 4). Birds fed in this field irregularly, as 82% of the birds recorded were seen on 2 trips.—PAUL W. WOODWARD, 4117 Virginia St., Fairfax, Va. 22030.

WINTER BIRD COMMUNITIES OF SELECTED AREAS IN TORONTO

The Toronto Bird Observatory is initiating a program to study the bird communities of Toronto's natural areas. The following seven WB-PSs represent the first phase of this project. These studies will provide a data base with which to compare the complexity, diversity and density of bird communities of specific areas. Thus, the relative importance and uniqueness of certain avian communities can be assessed.

The study areas presented here all occupy river valleys bordered by residential areas. The plots differ considerably in degree of spatial heterogeneity (*i.e.*, habitat patchiness), in both the horizontal and vertical components. That is, they vary in the number of different habitat patches available to birds, and the amount of habitat provided at different heights in the canopy and understory. The plots also differ in distance from the urban core, volume of human disturbance, and degrees of isolation from other natural areas.

Methods were standardized slightly more than WB-PS instructions suggest. Virtually all counts took place between 0730 and 1230, with the majority between 0900 and 1100. Counts during unfavorable weather were avoided (*i.e.*, extremely cold temperatures, high winds, and heavy precipitation).

Mean diversity per count was calculated for each plot using the Shannon-Wiener Index (H'). Mean evenness or equitability (J') was also calculated, using the formula $J' = H' / (\ln(\text{No. of species}))$.

The weather of the winter of 1979-80 was mild and equable. Temperatures were warmer than in the recent past, though not much higher than 20-year averages. Mean temperatures (°C) with 20-year averages in parentheses: Nov. 5.4 (4.8); Dec. 0.3 (-1.8); Jan. -3.6 (-4.4); Feb. -5.7 (-4.4). Total snowfall was extremely low, and during November and December considerable rain occurred, removing what snow cover did exist. Total snowfall (cm) for the winter months was (20-year averages in parentheses): Nov. 0.8 (10.2); Dec. 56.3 (28.7); Jan. 10.8 (37.1); Feb. 14.9 (33.3). Probably because of the favorable weather, more southerly wintering species remained through the winter; many winter finches were uncommon or absent.—PAUL SMITH, 69 Northumberland St., Guelph, Ontario.

80. CITY RAVINE I.—Location: Ontario; Toronto, Cedarvale Ravine, from Heath Street to Cedarvale Park. 43°43'N, 79°25'W. Continuity: New, BBC in 1979. Size: 20.0 ha = 49.4 acres. Description of Area: See AB 34:64, Census 77. Weather: Temperature ranged from -13°C to +2°C; 5 clear days, 1 overcast, 2 snowy. Coverage: Jan 6, 10, 19, 27, 30; Feb. 3, 10, 17; 0930-1130. Total hours, 16. Count: Starling, 25 (125,50); Mourning Dove, 9 (45, 18); House Sparrow, 7 (35, 14); Dark-eyed Junco, 6 (30, 12); Blue Jay, 4 (20, 8); Black-capped Chickadee, 4; Cardinal, 4; Song Sparrow, 3 (15, 6); Downy Woodpecker, 2 (10, 4); Com. Crow, 2; Am. Robin, 2; White-breasted Nuthatch, 1 (5, 2); Winter Wren, 1; Brown Thrasher, 1; Hairy Woodpecker, +; Red-breasted Nuthatch, +. Average Total: 71 birds (355/km², 142/100 acres). Remarks: Total species, 16. All but the following were seen on 6 or more trips; Winter Wren on 4 trips, House Sparrow on 4, Brown Thrasher on 2, Red-breasted Nuthatch and Hairy Woodpecker on 1. The highest daily count for Dark-eyed Junco was 17; Cardinal, 9; chickadee, 9; Blue Jay, 8. These species are probably underestimated in the final average. This population forages in the ravine as well as on food supplied in feeders throughout the neighbourhood. Average diversity (H') per count was 1.967 and average evenness (J') was 0.807.—DONNA C. KNAUBER, 112 College St., Toronto, Ontario M6C 3P2.

81. CITY RAVINE II.—Location: Ontario, Toronto, Chatsworth Ravine, from Duplex Avenue to Glenview Public School. 43°43'15"N, 79°24'30"W. Continuity: New. Size: 4.4 ha = 10.9 acres. Determined from aerial photograph using a planimeter. Description of Area: The N slope is heterogeneous with very high density of low, woody vegetation; great variation in the vegetation height; and few older trees but numerous young trees. The S slope has more mature forest, with less human disturbance. The canopy height is relatively uniform, shrub density is moderate, ground cover is minimal and there are many older trees as well as young ones. The bottomland is occupied by a stream, several walking paths, a small field and an even smaller marsh. The most important tree species are (relative densities in parentheses): Black Cherry (*Prunus serotina*) (16%); Sugar Maple (*Acer saccharum*) (12%); willow (*Salix sp.*) (9%); White Pine (*Pinus strobus*) (9%); Manitoba Maple

(*Acer negundo*) (6%); White Ash (*Fraxinus americana*) (6%); Hemlock (*Tsuga canadensis*) (6%); apple, (*Malus sp.*) (6%). Abundant shrub and sapling species are: Staghorn Sumac (*Rhus typhina*); Choke Cherry (*Prunus virginiana*); Sugar Maple; Norway Maple (*Acer platanoides*); Black Cherry; Alternate-leaved Dogwood (*Cornus alternifolia*). Common herbaceous species include: Jewelweed (*Impatiens biflora*); Zig Zag Goldenrod (*Solidago flexicaulis*); Avens (*Geum sp.*); goldenrods (*Solidago spp.*). Edge: Bordered on both sides by a well-treed residential area. Topography: The ravine is 320 m in length, running E-W. The width varies between 130 and 170 m. Elevation at the valley floor is 137 m. Weather: Mean temperature during counts, -4.7°C. Extremes +3° and -12°. Snow cover was minimal. Five clear days and 2 overcast. Coverage: Jan. 8, 16, 23, 26-27, 30; Feb. 20. Total: 7 trips, all between 0900 and 1140, averaging 45 min each. Count: Starling, 4 (91, 37); Dark-eyed Junco, 3 (68, 28); Mourning Dove, 2 (45, 18); House Sparrow, 2; Downy Woodpecker, 1 (23, 9); Blue Jay, 1; Black-capped Chickadee, 1; Cardinal, 1; Com. Crow, +; White-breasted Nuthatch, +. Average Total: 15 birds (340/km², 138/100 acres). Remarks: Total species, 10. The frequencies of occurrence (number of counts observed) of the above species are (in the same order): 7, 5, 6, 5, 3, 4, 3, 7, 1, 1. Average diversity (H') per count was 1.61 and average evenness (J') was 0.904.—DIANE ULSTER and PAUL SMITH (compiler), 69 Northumberland St., Guelph, Ontario.

82. CITY RAVINE III.—Location: Ontario; Toronto, Rosedale Valley Ravine, from Bayview Avenue to Mount Pleasant Road. 43°40'25"N, 79°22'10"W. Continuity: New. Size: 19.4 ha = 47.9 acres, measured from aerial photograph using a planimeter. Description of Area: A two-lane road occupies the bottom of the ravine, with lawn extending a short distance from the road's edge. Most of the slopes are wooded, with the exception of a cemetery occupying part of one slope and an apartment building, part of another. The wooded areas are somewhat heterogeneous with Manitoba Maple (*Acer negundo*) and Crack Willow (*Salix fragilis*) dominating a couple of sites and the bulk being mixed hardwood forest. Four large plots (~7% of total area) were sampled by another study group. The most important tree species are listed, followed by their Importance Values: White Ash, *Fraxinus americana* (59); Norway Maple, *Acer platanoides* (55); Red Oak, *Quercus rubra* (41); Manitoba Maple (30); Basswood, *Tilia americana* (26); Sugar Maple, *Acer saccharum* (25). The canopy cover is frequently interrupted and consequently the understory is well-developed and dominated by the following species (in order of contribution to total shrub cover): Witch Hazel, *Hamamelis virginiana*; Choke Cherry, *Prunus virginiana*; Purple-flowering Raspberry, *Rubus odoratus*; Black Raspberry, *Rubus occidentalis*; Cranberry Viburnum, *Viburnum opulus*. Total shrub cover was 19% of the sampled area. Ground cover is fairly dense (~10 plants/m²). The most important species are: Zig Zag Goldenrod, *Solidago flexicaulis*; Garlic Mustard, *Alliaria officinalis*; *Poa*

pratensis, False Solomon's Seal, *Smilacina racemosa*. Edge: Bordered one side by a well-vegetated neighborhood, the other side by a main arterial road and a cemetery. Topography: The ravine is 1555 m in length, running SE-NW. The width varies between 200 and 85 m. Elevation at the valley floor varies between 96 and 80 m. Weather: Mean temperature during counts, -4.3°C. Extremes, 5° and -12°. Five clear days, 3 partly cloudy. Snow cover was minimal, 4 days bare and 4 with a trace. Coverage: Dec. 29; Jan. 13, 21, 26, 28; Feb. 2, 17, 27. Total: 8 trips, all between 0800 and 1300, averaging 100 min each. Count: Black-capped Chickadee, 5 (26, 10); Mourning Dove, 3 (15, 6); Downy Woodpecker, 2 (10, 4); White-breasted Nuthatch, 2; Cardinal, 2; Blue Jay, 1 (5, 2); Starling, 1; House Sparrow, 1; Red-tailed Hawk, +; Great Horned Owl, +; Com. Crow, +; Golden-crowned Kinglet, +. Average Total: 17 birds (88/km², 35/100 acres). Remarks: Total species, 12. The frequencies of occurrence (number of counts observed) of the above species are (in the same order): 8, 3, 5, 7, 7, 4, 5, 4, 2, 1, 1, 2. This plot had the lowest total density of all those studied. Average diversity (H') per count was 1.538 and average evenness (J') 0.871.—PAUL SMITH, 69 Northumberland St., Guelph, Ontario.

83. CITY RAVINE IV.—Location: Ontario, Park Drive Ravine, from the Don Valley to Mt. Pleasant Road; 43°40'0"N, 79°22'30"W. Continuity: New. Size: 19.6 ha = 48.4 acres. Description of Area: The slopes of the valley are well wooded, the woods extending down to the bottomland and throughout the ravine. A small gambioned stream runs the length of the valley with a streamside plant community developing on its edges. The central swath between the N and S slopes, although not wooded, is unmown and provides good 'edge' habitat. There is a small field at one end of the ravine and a small marsh at the other. The wooded slopes are fairly homogeneous in species composition. Five large plots (~10% of total area) were sampled by another study group. The most important tree species are listed, followed by their Importance Values (in parentheses): White Ash, *Fraxinus americana* (73); Sugar Maple, *Acer saccharum* (43); Beech, *Fagus grandifolia* (36); Manitoba Maple, *A. negundo* (20); Red Oak, *Quercus rubra* (19); Norway Maple, *A. platanoides* (15); White Oak *Q. alba* (12). The understory is fairly well developed and is dominated by the following species (in order of contribution to total shrub cover): Witch Hazel, *Hamamelis virginiana*; Cranberry Viburnum, *Viburnum opulus*; Choke Cherry, *Prunus virginiana*; Purple-flowering Raspberry, *Rubus odoratus*; Alternate-leaved Dogwood, *Cornus alternifolia*. Total shrub cover was 15% of the total sampled area. Ground cover is very low on the N-facing slopes (~3 plants/m²) and much higher on the S-facing slopes (~20 plants/m²). The most important species are: Garlic Mustard, *Alliaria officinalis*; Zig Zag Goldenrod, *Solidago flexicaulis*; Enchanter's Nightshade, *Circaea quadrifida*; Yellow Avens, *Geum aleppicum*. Edge: Bordered on both sides by well-vegetated neighborhoods with large homes. Topography: The ravine is 1020 m in length,

running SE-NW. The width varies between 280 and 105m. Elevation at the valley floor varies between 94 and 82 m. **Weather:** Mean temperature during counts, -3.4°C. Extremes, +3° and -9°. Five overcast days, 3 clear. Snow cover was at most patchy on the days of the counts. **Coverage:** Dec. 27; Jan. 3, 13, 22; Feb. 17-18, 19, 21. Total: 8 trips, all between 0800 and 1130, averaging 90 min each. **Count:** Black-capped Chickadee, 5 (26, 10); Am. Goldfinch, 5; Song Sparrow, 4 (20, 8), Downy Woodpecker, 3 (15, 6); White-breasted Nuthatch, 3; Cardinal, 3; Blue Jay, 2 (10, 4); Starling, 2; Dark-eyed Junco, 2; House Sparrow, 1 (5, 2); Black Duck, +; Red-tailed Hawk, +; Com. Crow, +; Hermit Thrush, +; White-throated Sparrow, +. **Average Total:** 30 birds (153/km², 62/100 acres). **Remarks:** Total species, 15. The frequencies of occurrence (number of counts observed) of the above species are (in the same order): 8, 3, 7, 8, 8, 7, 8, 3, 3, 4, 1, 1, 3, 1. Average diversity (H') was 1.851 and average evenness (J') 0.891.—**PAUL SMITH, 69 Northumberland St., Guelph, Ontario.**

84. CITY RAVINE V.—Location: Ontario; Toronto, Upper Gerrard Ravine, from Gerrard Street to Merrill Bridge Road; 43°40'40"N, 79°19'0"W. **Continuity:** New. **Size:** 5 ha = 12.4 acres, measured from aerial photograph using a planimeter. **Description of Area:** A small, predominantly (80%) wooded ravine with a stream running its length. The northern third is separated from the rest by railway tracks. Human disturbance is evident in much of the ravine. The canopy cover is patchy and the canopy height is quite variable (0 to 23 m). The most abundant older trees are Red Oak (*Quercus rubra*), Sugar Maple (*Acer saccharum*) and Beech (*Fagus grandifolia*). The younger trees consist of these species as well as willows (*Salix* sp.), Manitoba Maple (*A. negundo*) and White Ash (*Fraxinus americana*). The relative densities of the major tree species are: Red Oak, 31%; Willow, 18; Beech, 15; Sugar Maple, 15; Manitoba Maple, 7; White Birch (*Betula papyrifera*), 4. The understory density is somewhat patchy, varying from low to moderate. The major species are: Witch Hazel (*Hamamelis virginiana*), White Ash, Manitoba Maple, Sugar Maple, Beech, Norway Maple (*A. platanoides*). Ground cover is quite variable because of the disturbed nature of the ravine. The most important species are Jewelweed (*Impatiens biflora*), Enchanter's Nightshade (*Circaea quadriflora*), Coltsfoot (*Tussilago farfara*), Zig Zag Goldenrod (*Solidago flexicaulis*), goldenrods (*Solidago* spp.), Poison Ivy (*Rhus radicans*), False Solomon's Seal (*Smilacina racemosa*). **Topography:** The ravine is 670 m long, running SW-NE. The width varies between 120 and 30 m. Elevation at the valley floor varies from 90 to 110 m. **Edge:** Bordered on all sides by areas of high density single-family dwellings. **Weather:** Mean temperature during counts, -3°C. Extremes, 3° and -12°. Snow cover was minimal. **Coverage:** Jan. 14-15, 19, 23, 30; Feb. 7. Total, 6 trips, all between 0900 and 1200, averaging 40 min each. **Count:** Starling, 7 (140, 57); House Sparrow, 4 (80, 32), Blue Jay, 3 (60, 24); Black-capped Chickadee, 2 (40, 16); White-breasted Nuthatch, 2; Cardinal, 2; Downy Woodpecker, 1

(20, 8), Com. Crow, 1, Hermit Thrush, +. **Average Total:** 22 birds (440/km², 178/100 acres). **Remarks:** Total species, 9. The frequencies of occurrence (number of counts observed) of the above species are (in the same order): 5, 5, 6, 3, 5, 6, 4, 4, 1. Average diversity (H') per count was 1.589 and average evenness (J') 0.865. This plot had the highest density of all those studied.—**DIANA BANVILLE, JEAN MacDONALD and PAUL SMITH (compiler), 69 Northumberland St., Guelph, Ontario.**

85. CITY PARK WITH MATURE FOREST.—Location: Ontario; Toronto, Sherwood Park, between Mt. Pleasant Road on the W, Bayview Avenue on the E, Blythwood Road on the N and Mount Hope Cemetery on the S. 43° N, 79°23' W. **Continuity:** New. **Size:** 18.5 ha = 45.7 acres. Measured from aerial photograph using a planimeter. **Description of Area:** The park is made up of approximately 12.2 ha of mature forest and 6.4 ha of grassy parkland. The W half of the park is mostly open with tree cover on the steep slopes. The E half is solid stand of forest. A point-quarter sample (19 sampling points) of the forested area, revealed that White Pine (*Pinus strobus*), Am. Beech (*Fagus grandifolia*) and Sugar Maple (*Acer saccharum*) are the dominant trees. Total tree density (greater than 10 cm dbh), 305/ha; total basal area, 55 sq m/ha; mean diameter of trees, 43.5 cm ± 20.0(SD). Relative density, relative dominance and relative frequency of the major tree species are given in that order: White Pine (25, 27, 20); Am. Beech (20, 29, 20); Sugar Maple (18, 16, 16); Hemlock (*Tsuga canadensis*) (9, 10, 4); White Ash (*Fraxinus americana*) (8, 7, 8); Red Oak (*Quercus rubra*) (5, 10, 8); White Oak (*Q. alba*) (4, 5, 4). The total shrub and sapling density (taller than 140 cm), 4100/ha. Dominant understory species are given with their respective relative density and relative frequency: Sugar Maple (29, 19); Choke Cherry (*Prunus virginiana*) (22, 23); and Witch Hazel (*Hamamelis virginiana*) (16, 13). **Topography:** An L-shaped ravine with slopes varying from steep to moderate, elevation 125m at the lowest part of the stream to 155 m at the top of the slope. **Edge:** About one-quarter is cemetery, 2 small portions are extensions of the ravine to the N and E. The remainder is the yards of surrounding residential area. **Water:** A fast flowing stream runs the length of the plot, except for a 400m section diverted into a culvert. **Food:** The adjoining cemetery is heavily planted with mountain-ash (*Sorbus*) and supported a large population of robins and Cedar Waxwings throughout the previous winter. The trees were all stripped this year, before the study began, and no robins or waxwings were seen. There are several feeding stations in the yards surrounding the plot. **Weather:** This was the most open winter Toronto in the writer's memory (45 yrs). The ground was usually bare and never had more than 2 cm of snow during the study period. Temperatures varied from -13° to 0° C. **Coverage:** Jan. 5, 13, 19-20, 25-27; Feb. 2-3, 10. Total, 10 trips, all between 0703 and 0903, averaging 85 min. in length. **Count:** Dark-eyed Junco, 9 (49, 20); Starling, 6 (32, 13); Black-capped Chickadee, 5 (27, 11); Mourning Dove, 3 (16, 6);

Mallard, 2 (11, 4), Downy Woodpecker, 2, Com. Crow, 2; White-breasted Nuthatch, 2; Cardinal, 2; Pileated Woodpecker, 1 (5, 2) Blue Jay, 1; Brown Creeper, 1; House Sparrow, 1; Am. Goldfinch, 1; Com. Flicker, +, Hairy Woodpecker, + Red-breasted Nuthatch, +. **Average Total:** 38 birds (205/km², 83/100 acres). **Remarks:** Total species, 17. Crow and Downy Woodpecker were noted on all trips; the Dark-eyed Junco, Black-capped Chickadee, White-breasted Nuthatch, Starling and Cardinal on 9 trips, the Mourning Dove, Blue Jay and Brown Creeper on 6. Average diversity (H') was 2.018 and average evenness (J') 0.863. Botanical sampling was done with the assistance of Paul Smith.—**GEORGE M FAIRFIELD, 332 Sheldrake Blvd., Toronto, Ontario MAP 2B8.**

86. SUBURBAN RIVER VALLEY WITH WOODS AND FIELD.—Location: Ontario, Toronto, on N side of Finch Ave. E, between Bayview Ave. and Leslie St. 43°47'30"N, 79°22'40"W. **Continuity:** New. **Size:** 20 ha = 49.4 acres. Approximately rectangular (about 520 x 410 m). **Description of Area:** The vegetation of the plot is very heterogeneous and is undergoing secondary succession. There are fields, woods, marshes and a small pine plantation. The vegetation was sampled using the point-quarter method (21 sampling points). The overall tree density (>10 cm dbh) is 43/ha, with 460/ha in the wooded areas and 19/ha in the more open areas. Average tree size is 21.6 cm (dbh) ± 14.7. The most important tree species are given here with their relative density, relative dominance and relative frequency in parentheses after the name: apple (*Malus* sp.) (17, 23, 14), Manitoba Maple (*Acer negundo*) (18, 13, 17), Crack Willow (*Salix fragilis*) (7, 32, 10), hawthorn (*Crataegus* sp.) (13, 7, 12); Scot's Pine (*Pinus sylvestris*) (19, 8, 4); Balsam Poplar (*Populus balsamifera*) (10, 4, 8), Hemlock (*Tsuga canadensis*) (4, 7, 6), Am Elm (*Ulmus americana*) (5, 1, 8); Basswood (*Tilia americana*) (4, 1, 6). The overall shrub density (taller than 1.4 m, i.e. height of outstretched arms) is 125/ha, with 3340/ha in the woods and 48/ha in the open areas. The most important shrubs and saplings are listed followed by their respective relative density and relative frequency: Manitoba Maple (25, 23); hawthorn (12, 12); Am. Elm (10, 10), Choke Cherry (*Prunus virginiana*) (7, 8), Balsam Poplar (6, 4); Black Locust (*Robinia pseudoacacia*) (6, 4). Canopy cover is low with a mean of 41% ± 42% (SD); in the woods it is 85 ± 13, while in the open areas it is 8 ± 16. Ground cover is quite high, 69% ± 39% (36 ± 34, woods; 94 ± 20, open). **Topography:** Flat in center, with slopes on E and W sides. Elevation, 133-150 m. **Edge:** The plot is bounded by residential streets on the E and W, by a hydro corridor on the N and by a heavily used, paved road on the S. **Water:** The E. Don River flows S. through the plot; it remained partly open all winter. The 2 cat-tail marshes became frozen by early Jan. **Food:** Natural food, including rotting apples and berries was in good supply. There are several backyard feeders along the edges of the plot. **Weather:** During the counts, snow cover did not exceed 2 in., the temperature ranged from 8° to 40°F. **Coverage:** Dec. 30; Jan. 6, 13, 27; Feb. 2, 10,

17, 23 **Total:** 8 trips, all between 0900 and 1400 averaging 110 min. each. **Count:** Black-capped Chickadee, 9 (45, 18); Mallard, 5 (25, 10), Am. Robin, 5; Ring-necked Pheasant, 4 (20, 8); Rock Dove, 3 (15, 6); House Sparrow, 3; Cardinal 3; Dark-eyed Junco, 3; Mourning Dove, 2 (10, 4); Blue Jay, 2; Com. Crow, 2; Cedar Waxwing, 2; Starling, 2; Downy Woodpecker, 1 (5, 2); White-breasted Nuthatch, 1; Song Sparrow, 1; Black Duck, +, Red-tailed Hawk, +; Belted Kingfisher, +, Hairy Woodpecker, +; Am. Goldfinch, + **Average Total:** 48 birds (240/km², 97/100 acres). **Remarks:** Total species, 21. Species noted on every trip were Blue Jay, Black-capped Chickadee, House Sparrow and Cardinal; present on 7 trips were Ring-necked Pheasant, Am. Robin and Dark-eyed Junco. The Cedar Waxwings were in a flock that was seen only once. Presumably because of the paucity of snow and availability of natural food, the feeders were virtually ignored. Average diversity (H') on this plot was 2.281 and average evenness (J') was 0.895 —DONALD E. BURTON 4 Donna Ct., Willowdale, Ontario M2M 2C8.

87. URBAN MOBILE HOME PARKS.—

Location: Arizona; Pima Co., Tucson, Westward Ho and Tucson Mobile Estates; 32°15'30"N, 111°W; Jaynes and Tucson North Quadrangles, USGS. **Continuity:** New **Size:** 16.2 ha = 40 acres (square, measured on topographic map). **Description of Area:** The parks, which replaced cotton fields about 17 years ago, contain about 300 mobile homes and 3 houses. Mulberry trees (*Morus alba*), 438, planted at that time are now about 5 to 8 m high. Landscaping of the areas around homes ranges from a few well-watered lawns to many gravel-covered areas with cacti. The only common shrub is *Pyracantha*, about 130 bushes. **Edge:** The area is surrounded by other mobile parks, a grassy school grounds, storage and industrial areas and a wide street. **Topography:** The area is flat at an elevation of 700 m (2300 ft). **Weather:** The period was sunny, warm and dry with temperatures averaging near normal and less than 10 mm (0.4 in.) of rain. Few nights were below 3°C. (38°F.) and most highs were near 20°C. (68°F.) **Coverage:** Quantitative figures are based on complete surveys on Dec. 19; Jan. 3, 10, 13, 17; and Feb. 4; about 0830 to 1030. Some additional species are from partial surveys. The figure for House Finch is from trapping and banding at the author's home within the census area and is 3 times the average observed number. **Count:** House Sparrow, 65 (402, 163), Inca Dove, 59 (364, 148); House Finch, 56 (346, 140); Great-tailed Grackle, 14 (86, 35), Mockingbird, 5 (31, 13); W. Meadowlark, 5; Am. Robin, 4 (25, 10); Rock Dove, 1 (6, 3), White-winged Dove, 1; Mourning Dove, 1; Gila Woodpecker, 1; Verdin, 1; Cactus Wren, 1; Curve-billed Thrasher, 1; Starling, 1; Yellow-rumped Warbler, 1; Bronzed Cowbird, 1; Cardinal, 1; Am. Kestrel, +; Killdeer, +; Com. Flicker, +; Ladder-backed Woodpecker, +; Loggerhead Shrike, +; White-crowned Sparrow, +. **Average Total:** 219 birds (1353/km², 548/100 acres). **Remarks:** Total, 24 species. The 3 most common species and Bronzed Cowbirds were constant attenders at 4 main seed feeders in the parks. House Finches also

fed at hummingbird feeders. Robins were seen only on 2 dates in mid-Jan., visiting well-watered lawns. A Roadrunner was seen in the area before the start of the census. Trapping and banding suggested that House Finches fed throughout the parks while Inca Doves were faithful to smaller territories.—JOAN C. TWEIT and ROBERT C. TWEIT, 3810 North Romero Rd., #23, Tucson AZ 85705.

88. SUBURBAN NATURE CENTER.—

Location: California; Los Angeles Co., Nature Center, Long Beach. Bounded on N by Spring St., S by Willow St., E by Long Beach Tree Farm, W by San Gabriel River. 33°47'N, 118°08'W. **Continuity:** Established 1971; 6 years. **Size:** 34.4 ha = 85 acres (rectangular, ½ mile by ¼ mile). **Description of Area:** See AB 25:656 (1971). **Weather:** Night temperatures went down to 46°F, but usually around 55°; day temperatures were up to 78°F but usually around 65°. There was approximately 1.5-2.0 in. of rain. **Coverage:** Jan. 21, 23, 25-28, 30; Feb. 1. Total 8 trips, all between 0800 and 1100, averaging 150 min. each. **Count:** Am. Goldfinch, 155 (451, 182); Cedar Waxwing, 110 (320, 129); Am. Wigeon, 91 (265, 107); Bushtit, 37 (108, 44); Lesser Goldfinch, 34 (99, 40); Mallard, 16 (47, 19); Yellow-rumped Warbler, 15 (44, 18); White-crowned Sparrow, 15; Mockingbird, 14 (41, 16); House Finch, 14; Song Sparrow, 12 (35, 14); Anna's Hummingbird, 9 (26, 11); N. Shoveler, 8 (23, 9); Am. Robin, 7 (20, 8); Gadwall, 6 (17, 7); Am. Coot, 6; Com. Yellowthroat, 6; Blue-gray Gnatcatcher, 6; Com. Flicker, 5 (15, 6); Black Phoebe, 5; Starling, 5; Green-winged Teal, 4 (12, 5); Canvasback, 4; Loggerhead Shrike, 4; Mourning Dove, 3 (9, 4); Hermit Thrush 3; Ruddy Duck, 2 (6, 2); Scrub Jay, 2; House Wren, 2; Ruby-crowned Kinglet, 2; Purple Finch, 2; Pied-billed Grebe, 1 (3, 1); Double-crested Cormorant, 1; Cooper's Hawk, 1; Red-tailed Hawk, 1; Com. Crow, 1; Red-breasted Nuthatch, 1; Snowy Egret, +; Black-crowned Night Heron, +; Am. Bittern, +; Pintail, +; Cinnamon Teal, +; Ring-necked Duck, +; Turkey Vulture, +; Sharp-shinned Hawk, +; Am. Kestrel, +; Com. Gallinule, +; Caspian Tern, +; Rock Dove, +; Spotted Dove, +; Belted Kingfisher, +; House Sparrow, +; Red-winged Blackbird, +; Indigo Bunting, +; Green-tailed Towhee, +; Rufous-sided Towhee, +; Dark-eyed Junco, +; Chipping Sparrow, +; Fox Sparrow, +; Lincoln's Sparrow, +; Brazilian Cardinal, +; **Average Total:** 610 (1773/km², 718/100 acres). **Remarks:** Total species, 61. Temporal changes in the vegetation could be a factor in the increase in numbers of several species *i.e.* Am. Goldfinch, Cedar Waxwing and Lesser Goldfinch, all of which I saw on each trip. With the increase in size and density of vegetation over the years I noticed an increase in both the diversity and numbers of birds. This corresponds to the changes in numbers in previous censuses. Most noticeable this year was the large quantity of Sycamore and *Pyracantha* fruits. I wish to thank Dorothy Rypka for her help.—TIM PEDDICORD, Dept. of Biology, Calif. St. Univ., Long Beach, 3650 Walnut Ave., Long Beach, CA 90807.

89. SUBURBAN PARK.—Location: California; Los Angeles Co., El Dorado Park, Area II, 33°49'N, 118°05'W, Los Alamitos Quadrangle, USGS. **Continuity:** Established 1978, see AB 32:48 (1978). 2 years. **Size:** 365 ha = 157 acres, (from park plans), enlarged to area of 1979 Breeding Bird Census plot - AB 33:88 (1979). **Description of Area:** About 60% open park grassland (*Bermuda grass*, *Cynodon dactylon*) with two small lakes (2.1 and 5.3 acres) centrally located and connected by a stream of 0.25 acres. Species comprising 100% of the total number of trees in sample plots ("Arms-Length Rectangle Method", Rice and Penfound, 1955, *Ecology* 38:660-661) are: Canary Island Pine (*Pinus canariensis*) 19%; Cottonwood (*Populus deltoides*) 9.6%; Modesto Ash (*Fraxinus velutina*) 9.2%; White Alder (*Alnus rhombifolia*) 8.4%; Evergreen Ash (*Fraxinus uhdei*) 8.2%; Italian Stone Pine (*Pinus pinea*) 8.2%; California Sycamore (*Platanus racemosa*) 7.2%; Southern Live Oak (*Quercus virginiana*) 5.8%; Aleppo Pine (*Pinus halepensis*) 5.8%; California Pepper (*Schinus molle*) 4.5%; Silk Tree (*Albizia julibrissin*) 4.2%; Red Ironbark Eucalyptus (*Eucalyptus sideroxyloides*) 3.5%; Bailey Acacia (*Acacia baileyana*) 2.2%; Coast Live Oak (*Quercus agrifolia*) 2.1%; Silk Oak (*Grevillea robusta*) 0.9%; Jacaranda (*Jacaranda acutifolia*) 0.8%; Brazil Pepper Tree (*Schinus terebinthifolia*) 0.2%; Monterey Pine (*Pinus radiata*) 0.2%; Holm Holly Oak (*Quercus ilicifolia*) 0.02%. Trees by diameter size class: A (7-15 cm) 22%, B (15-23 cm) 25%, C (23-31 cm) 25%, D (31-39 cm) 22%, E (39-45 cm) 6%. Average ht. 8.1 m. and dbh 22.1 cm, with little closed canopy. Shrubs are few in number and serve primarily as cosmetic fence cover or as brief hedges. Those present are (in decreasing abundance): cotoneaster (*C. parneyi* and *dammeri*), Japanese Viburnum (*V. japonicum*), Japanese Pittosporum (*P. tobira*), Bottle Brush (*Callistemon minimalis*), Privet (*Ligustrum lucidum*), Mahonia (*Berberis aquifolium*), and three species of holly (*Ilex cornuta*, *I. x altaclarensis* cv. 'hendersonii', *I. x altaclarensis* cv. 'wilsonii'). **Weather:** Winter temperatures (Nov.-Dec.) ranged from a low of 32° to a high of 82°F; neither extreme persisted for more than a few days. Temperatures during the 2 week count period ranged from 40° to 72°F, with a mean of 57.8°. Five in. of rain fell in the preceding week. Additional rainfall in Jan. raised our year to date total to 8.18 in., about normal. **Coverage:** Jan. 12-15, 19, 20-23. Total hours, 27. Plot coverage was managed alternately by truck, bicycle, and/or on foot. **Count:** Am. Coot, 124 (195, 79); Starling, 60 (94, 38); Mallard, 38 (60, 24); Com. Crow, 28 (44, 18); Am. Wigeon, 26 (41, 17); Ring-billed Gull, 17 (27, 11), Mourning Dove, 14 (22, 9); Lesser Goldfinch, 14; Yellow-rumped Warbler, 13 (20, 8); Domestic (White) Mallard, 13; Water Pipit, 8 (13, 5); Muscovy Duck, 7 (11, 4), House Sparrow, 7; Marbled Godwit, 6 (9, 4), Domestic (Chinese) Goose, 5 (8, 3); Ruddy Duck, 3 (5, 2); Loggerhead Shrike, 3; Hut-ton's Vireo, 3; Com. (Red-shafted) Flicker, 2 (3, 1); Pied-billed Grebe, 1 (2, 1); Am. Kestrel, 1; Whimbrel, 1; Anna's Hummingbird, 1; Black Phoebe, 1; Scrub Jay, 1, W. Meadowlark, 1; Snowy Egret, +; Wood Duck, +; Red-shouldered Hawk, +; Long-

billed Curlew, +, Caspian Tern, +, Belted Kingfisher, +; **Average Total:** 398 birds (626/km², 254/100 acres). **Remarks:** Total species, 32. Birds seen flying over the study plot included gulls (Ring-billed and others — often too high to identify) ranging from a few to several hundred that normally scavenge along the adjacent San Gabriel River course to the shore (4 mi away). The largest concentrations of gulls, and godwits (on the ground) were noted when the grasslands were saturated with rainwater, otherwise few if any were present.—**JAMES and EDITH RONDEAU, Calif. State Univ. Long Beach, and 1200 Temple, Apt. C., Long Beach, CA 90804.**

90. URBAN AREA FARM.—Location: California; Los Angeles Co., N Long Beach; Paul's Dairy. **Continuity:** New. **Size:** 3.24 ha = 8 acres. **Description of Area:** Study area is a working dairy farm in an otherwise completely urbanized area. The dairy has a total of 14 acres of which 6 are rented out; only 8 were surveyed. The dairy is a rectangular plot with its long axis oriented E-W. This can be divided into two areas. The western 2/3 consists of a series of open corrals, bounded by 4-ft. wood rail fencing. There is no vegetation in this area. The substrate is hard packed dirt and dry cow dung. The only structures are 4 open hay barns which stand about thirty feet. Water is available through self-filling troughs, one in each corral. The prominent feature of this area is the dairy herd. The E 1/3 has less open area., 2 residences and a milk-processing building. Vegetation consists of a tall eucalyptus tree (approx. 40 ft), several citrus trees (< 30 ft), several pepper trees (approx. 25 ft), and numerous shrubs all less than 5 ft. **Edge:** Bounded on all sides by industrial facilities and residential housing. **Weather:** Weather was variable during count, from 80°F and clear to 65° and overcast. Approximately 1 in. of rain fell during this count. **Coverage:** Jan. 22-24; Feb. 2, 3(2), 5; total, 7 trips between 0800 and 1600 PST, each lasting about 45 min. **Count:** Brewer's Blackbird, 161 (4973, 2013); House Sparrow, 144 (4448, 1800); Starling, 82 (2533, 1025); Rock Dove, 36 (1112, 450); Tricolored Blackbird, 31 (958, 388); Spotted Dove, 8 (247, 100); Com. Crow, 4 (124, 50); Brown-headed Cowbird, 2 (62, 25); Mourning Dove, 1 (31, 13); Am. Kestrel, +; Ring-billed Gull, +; California Gull, +; Com. Raven, +. **Average Total:** 469 birds (14,486/km², 5863/100 acres). **Remarks:** Total species, 13. Sparrows stayed apart from the other birds and fed in and around the trees and buildings. The Starlings and blackbirds foraged out in the corrals picking through the manure in mixed flocks. The

presence of the cows did not seem to bother the birds in any way.—**BRAD R. BLOOD, Dept. of Biology, Calif. State University, Long Beach, CA 90840 and 16615 Indiana Ave., Paramount, CA 90723.**

91. URBAN WOODLAND PARK.—Location: California; Los Angeles Co., Long Beach. Recreation Park, bordered by 7th and 10th Sts on S and N, by Park Ave. and a Municipal Golf Course W and E; bisected by Federation Dr., which extends from 10th to 7th St. **Continuity:** Established 1978, 2 years. **Size:** Approximately 13.5 ha = 33.5 acres. **Description of Area:** See AB 33:52-53 (1979). **Weather:** Mean temperature extremes were 68°-49°F during the study period; approx. 3 in. of rain were recorded at Long Beach Airport, located 3 mi NNE of plot. **Coverage:** Dec. 12, 14, 20; Jan. 10, 31; Feb. 5, 7. Total of 7 trips, all between 0800 and 1200, averaging 90 min each. **Count:** Yellow-rumped Warbler, 97 (715, 290); House Finch, 48 (354, 143); Anna's Hummingbird, 33 (243, 99); House Sparrow, 30 (221, 90); Dark-eyed (Oregon) Junco, 22 (162, 66); Am. Goldfinch, 21 (155, 63); Spotted Dove, 15 (111, 45); Cedar Waxwing, 15; White-crowned Sparrow, 12 (89, 36); Mourning Dove, 11 (81, 33); Ruby-crowned Kinglet, 9 (66, 27); Rock Dove, 8 (59, 24); Starling, 8; Dark-eyed (Slate-colored) Junco, 2 (15, 6); Com. Flicker, 1 (7, 3); Scrub Jay, 1; Com. Crow, 1; Mockingbird, 1; Hermit Thrush, 1; Orange-crowned Warbler, 1; Cooper's Hawk, +; Red-tailed Hawk, +; Am. Kestrel, +; Bushtit, +; Am. Robin, +; Nashville Warbler, +; Townsend's Warbler, +; N. (Bullock's) Oriole, +; W. Tanager, +; Chipping Sparrow, +. **Average Total:** 337 birds (2496/km², 1006/100 acres). **Remarks:** Total species, 29 plus additional race. Wintering warblers, orioles and tanagers all closely associated with flowering *Eucalyptus* trees.—**JONATHAN L. ATWOOD, Department of Biology, University of California, Los Angeles, CA 90024.**

92. URBAN NATURE CENTER.—Location: California; Orange Co., Shipley Nature Center, Huntington Beach 33°42'13"N, 118° 25' W; Seal Beach Quadrangle, USGS. **Continuity:** Established 1976; 2 years. **Size:** 7.3 ha = 18 acres (from city park dept. figures); broadly rectangular. **Description of Area:** See AB 30:1074 (1976). **Food:** Abundant food supply consisted of seeds of grass and trees, insects, fish, frogs, cottontails, and small rodents. Bird seed and sugar water were supplied daily in 3 feeders. **Weather:** Generally mild winter. Late Jan. received steady, heavy rains, ceasing the night of Jan. 30.

Humidity varied from light fog to very dry, desert conditions, with hazy to full sun every day. Average temperature during the study period was 65°F. with a range of 57° to 72° **Coverage:** Jan. 31; Feb. 1-2, 3 (2), 6 (2), 7 (2), 9. Total, 10 trips, averaging 108 min. each. Trip times varied greatly between 0920 and 1700. **Count:** House Finch, 32 (439, 178), White-crowned Sparrow, 22 (302, 122); Song Sparrow, 14 (192, 78); Anna's Hummingbird, 12 (165, 67); Yellow-rumped Warbler, 11 (151, 61); Lesser Goldfinch, 11; Cedar Waxwing, 9 (124, 50); House Sparrow, 9, Bushtit, 8 (110, 44); Ruby-crowned Kinglet, 6 (82, 33); Mourning Dove, 3 (41, 17); Orange-crowned Warbler, 3; Am. Coot, 2 (27, 11), Com. Flicker, 2; Blue-gray Gnatcatcher, 2, Red-winged Blackbird, 2; Pied-billed Grebe, 1 (14, 6); Mallard, 1; Cooper's Hawk, 1; Am Kestrel, 1; Ring-necked Pheasant, 1; Sora, 1, Black Phoebe, 1; Black-throated Gray Warbler, 1; Green Heron, +; Cinnamon Teal, +, Red-tailed Hawk, +; Spotted Dove, +, Bewick's Wren, +; Com. Yellowthroat, +, N. (Bullock's) Oriole, +; Savannah Sparrow, +. **Average Total:** 156 birds (2142/km², 867/100 acres). **Remarks:** Total species, 32. The slight increase in the populations of sparrows, House Finches, and Anna's Hummingbird could be a result of the 2 feeders of sugar water and one seed feeder kept filled by the park's naturalist (the pheasants and doves feed there also). The grass is no longer mowed, allowing Song Sparrows to be less disturbed, perhaps influencing their 55% increase since 1976. A group of White Alder (*Alnus rhombifolia*) and California Sycamore (*Platanus racemosa*), approximately 15 ft tall, are the only trees planted since 1976 that have had any major influence on bird activity. They serve as shelter and food for various passerines and as a favorite roost of the Cooper's Hawks. The pond is high this winter, extending well into the marsh, which has grown very dense. The Red-tailed Hawk was seen twice. The Savannah Sparrow, Cinnamon Teal, female oriole, and Green Heron were observed on single trips only. One Black-throated Gray Warbler, believed to be the same individual, was seen on each trip. The pheasants were seen on 5 trips in groups of 1-4. Red-winged Blackbirds were sighted 5 times in small flocks of 9-10 or 1-2 individuals in the marsh. The young pine forest (up to 15 ft tall) is as yet insignificant in determining what species are present. There is very little human activity associated with that area of the park. Mammals observed include cottontail, coyote, gopher, field mouse, opossum, and domestic cat.—**MARY K. ALLAN, Dept. of Biology, Calif. State Univ., Long Beach and 501 1/2 Walnut Ave., Huntington Beach, Ca. 92648.**