

WINTER BIRD POPULATION STUDY: 1990

Habitat	State/ Prov.	Compiler	Plot Size (ha)	Ind. per 40 ha	Num. spp.	Hr obs.	Yr study
Broadleaf Forest							
1. Mixed Upland Broadleaf Forest	DC	S.A. Briggs	14.2	354	37	58.4	31
2. Oak-Maple Bottomland	MA	L.E. Taylor	6.7	74	13	10.0	9
3. Mature Deciduous Floodplain Forest	MD	D. Gauthey	17.8	213	36	37.9	39
4. Upland Second-growth Oak-Hickory Forest	MS	H. Moore	10.0	546	33	22.1	2
5. Isolated Beech-Maple Woods	NY	D.J. Smith	13.5	106	18	14.0	2
6. Young White Ash-Red Maple Forest On Lake Shore	NY	G.R. Maxwell	16.2	225	25	10.0	4
7. Riparian Deciduous Forest	OH	E.J. Tramer	18.0	275	31	22.5	2
8. River Floodplain-Broadleaf Forest	OH	W.E. McGill	18.0	83	26	9.4	1
9. Black Willow-White Ash Forest	ON	M.F.C. Clark	13.0	42	13	12.0	7
10. Oak-Hickory Gallery Forest	VA	C.W. Ziegenfus	13.4	156	31	26.3	1
Needleleaf Forest							
11. Mature Red Spruce Forest	ME	T.P. Skaling	16.0	38	12	25.4	1
12. Ponderosa Pine-Douglas Fir Forest	MT	T.H. Rogers	11.2	48	8	23.1	14
13. Upland Scotch Pine Plantation	NY	E.W. Brooks	9.3	205	16	11.0	6
Broadleaf/Needleleaf Forest							
14. Mixed Pine and Deciduous Forest	IN	D. Webster	14.5	106	29	24.0	7
15. Maple-Pine-Oak Second-growth Forest	MA	W.E. Davis, Jr.	11.8	31	11	12.0	14
16. Upland Mixed Pine-Spruce-Hardwood Plantation	NY	E.W. Brooks	16.6	113	13	16.5	16
17. Coniferous-Deciduous Forest	ON	M.F.C. Clark	9.2	137	13	13.3	5
18. Mixed Oak-Pine Forest I	PA	D.A. Gross	6.0	318	15	9.4	11
19. Mixed Oak-Pine Forest II	PA	D.A. Gross	11.05	136	23	12.3	11
20. Mature Deciduous-Coniferous Forest With Stream	TN	S.J. Stedman	10.2	393	46	14.8	1
21. Second-growth Broadleaf-Coniferous Forest	WA	D. Smith	21.5	128	22	13.8	3

WINTER BIRD POPULATION STUDY: 1990 (Continued)

Habitat	State/ Prov.	Compiler	Plot Size (ha)	Ind. per 40 ha	Num. sp.	Hr obs.	Yr study
Mixed Habitat (Forest/Non-forest)							
22. Suburban Cemetery	AL	T.A. Imhof	15.0	824	42	18.0	10
23. Plains Riverbottom Woodland, Ponds and Marshes	CO	R.G. Beidleman	28.3	360	47	24.0	1
24. Floodplain Forest and Cultivated Bottomland	NY	V.M. Pitzrick	51.8	46	24	8.4	19
25. Field, Ridge, and Shrubby Trees	ON	M.F.G. Clark	6.6	282	20	12.9	5
26. Urban Park	SC	S.D. Tindall, Jr.	25.9	524	38	24.0	3
Non-forested wetlands							
27. Coastal Freshwater Marsh	CA	J. Kelly	10.5	670	50	10.2	5
28. Coastal Riparian and Cattail-Bulrush Marsh	CA	J. Evens	17.5	13,331	77	22.7	1
29. Barrier Beach and Saltwater Estuary	FL	R.W. Loftin	213.0	629	71	23.8	13
Shrubland							
30. Mesquite-Hackberry Dominated Canyon	AZ	J.C. Tweit	11.2	403	40	11.2	2
31. Subdivision With Mesquite Trees	AZ	J.C. Tweit	13.2	756	31	8.5	1
Successional Field							
32. Abandoned Upland Pasture	NY	V.M. Pitzrick	8.0	77	17	4.8	7
Cultivated							
33. Mature Citrus Orchard	FL	F.E. Lohrer	13.7	239	24	19.8	2
34. Mixed Croplands	PA	P.W. Schwalbe	40.5	350	11	5.3	8

1. MIXED UPLAND BROADLEAF FOREST**BOSQUE MIXTO DE HOJA ANCHA DE ALTURA**

SHIRLEY A. BRIGGS

7605 Honeywell Lane
Bethesda, Maryland 20814

Location: District of Columbia; Washington; Glover-Archbold Park; 38° 55'N, 77° 5'W; Washington West Quadrangle, USGS. **Continuity:** Established 1960; 31 yr. **Size:** 14.2 ha. **Description of Plot:** See *Aud. Field Notes* 14:502-503 (1960). **Weather:** Mean temperature 6.7°C (range -2.0-13°C). The study began after one of the coldest Dec. on record, and took place during a Jan. and Feb. of record high temperatures. **Coverage:** 58.4 h; 18 visits (17 morning, 1 afternoon): 2, 6, 7, 11, 14, 16, 27, 28 Jan.; 4, 15, 17, 18, 19, 28 Feb.; 6 Mar. **Count:** Carolina Chickadee, 21.7 ind./visit (18 visits); Tufted Titmouse, 14.8 (18); American Crow, 12.4 (18); House Finch, 10.7 (17); Red-bellied Woodpecker, 8.6 (18); White-breasted Nuthatch, 7.1 (18); Carolina Wren, 6.4 (16); Downy Woodpecker, 5.9 (18); Mourning Dove, 5.9 (18); European Starling, 4.5 (14); Northern Cardinal, 3.7 (15); White-throated Sparrow, 3.4 (13); American Robin, 2.5 (9); Dark-eyed Junco, 2.4 (13); House Sparrow, 2.2 (10); American Goldfinch, 1.9 (11); Rock Dove, 1.3 (8); Blue Jay, 1.2 (9); Northern Flicker, 1.2 (13); Hairy Woodpecker, 1.1 (9); Northern Mockingbird, 0.9 (8); Golden-crowned Kinglet, 0.7 (6); Common Grackle, 0.7 (6); Ring-billed Gull, 0.6 (4); Pileated Woodpecker, 0.6 (10); Ruby-crowned Kinglet, 0.6 (6); Rufous-sided Towhee, 0.6 (8); Song Sparrow, 0.6 (6); Brown Creeper, 0.4 (5); Red-tailed Hawk, 0.2 (4); Black Vulture, 0.2 (2); Sharp-shinned Hawk, 0.2 (3); Yellow-rumped Warbler, 0.2 (2); Canada Goose, 0.1 (1); Mallard, 0.1 (1); Winter Wren, 0.1 (1); Herring Gull, 0.1 (1). **Total:** 37 species; 126 ind./visit (354 ind./40 ha). **Remarks:** Despite record cold in Dec., no unusual shifts in numbers or species were found. House finches have gradually increased since first report in 1970. Purple Finches were absent, but have always been erratic. Robin count was raised by one encounter with a winter flock of 28. **Other Observers:** Anne Beal, Mary D'Imperio, Ann Feather, Olive Holbrook, Jane J. Whitaker.

2. OAK-MAPLE BOTTOMLAND**BOSQUE DE ROBLE-ARCE EN TIERRAS BAJAS**

LEE E. TAYLOR

28 Bellington Street
Arlington, Massachusetts 02174

Location: Massachusetts; Middlesex Co.; Waltham; Metropolitan State Hospital; 42° 24'N, 71° 12'W; Lexington Quadrangle, USGS. **Continuity:** Established 1982; 9 yr. **Size:** 6.7 ha. **Description of Plot:** See *Am. Birds* 37:31-32 (1983). **Weather:** Mean temperature -4.5°C (range -15-4°C). Coldest Dec. on record. Snow cover slightly below average. **Coverage:** 10 h; 11 visits (mornings): 23, 24, 29 Dec.; 1, 6, 13, 15, 20, 27, 28 Jan.; 11 Feb. **Count:** Tufted Titmouse, 3.6 ind./visit (9 visits); Black-capped Chickadee, 3.1 (5); White-breasted Nuthatch, 1.9 (9); Downy Woodpecker, 1.0 (6); White-throated Sparrow, 0.8 (4); Blue Jay, 0.5 (2); Hairy Woodpecker, 0.4 (3); American Robin, 0.3 (2); American Tree Sparrow, 0.3 (2); Eastern Screech Owl, 0.2 (1); Brown Creeper, 0.2 (2); Northern Mockingbird, 0.2 (2); Northern Flicker, 0.1 (1). **Total:** 13 species; 12.5 ind./visit (74 ind./40 ha). **Remarks:** Two Eastern Screech-Owls were heard before daylight on 11 Feb.

3. MATURE DECIDUOUS FLOODPLAIN FOREST

BOSQUE DECIDUO MADURO INUNDABLE

DICK GAUTHEY

6603 Reynard Drive
Springfield, Virginia 22152

Location: Maryland; Montgomery Co.; Glen Echo; Cabin John Island; 38° 58'N, 77° 8'W; Falls Church Quadrangle, USGS. **Continuity:** Established 1947; 39 intermittent yr. **Size:** 17.8 ha. **Description of Plot:** See *Aud. Field Notes* 2:155-156 (1948). **Weather:** After the second coldest Dec. on record, the count period was the warmest on record. There was no snow cover, and water on the plot was open throughout the census period. Temperatures were above freezing on each trip. **Coverage:** 37.9 h; 11 visits (mornings): first visit 6 Jan., last visit 13 Feb. **Count:** Carolina Chickadee, 31.6 ind./visit (11 visits); Tufted Titmouse, 7.5 (10); American Crow, 6.9 (8); Downy Woodpecker, 6.2 (11); Carolina Wren, 4.6 (10); American Robin, 4.1 (3); Red-bellied Woodpecker, 3.0 (11); American Goldfinch, 2.8 (6); Golden-crowned Kinglet, 2.7 (9); Cedar Waxwing, 2.5 (2); White-breasted Nuthatch, 2.3 (10); Northern Cardinal, 2.2 (8); American Black Duck, 2.0 (4); Mallard, 1.9 (5); Pileated Woodpecker, 1.7 (10); House Finch, 1.7 (3); European Starling, 1.6 (8); Brown Creeper, 1.5 (9); Hairy Woodpecker, 1.5 (10); Barred Owl, 0.9 (9); Song Sparrow, 0.9 (5); White-throated Sparrow, 0.8 (4); Common Merganser, 0.5 (1); Winter Wren, 0.5 (4); Canada Goose, 0.4 (1); Wood Duck, 0.4 (2); Sharp-shinned Hawk, 0.4 (3); Northern Flicker, 0.4 (3); Turkey Vulture, 0.2 (1); Mourning Dove, 0.2 (2); Red-tailed Hawk, 0.1 (1); American Kestrel, 0.1 (1); Belted Kingfisher, 0.1 (1); Yellow-bellied Sapsucker, 0.1 (1); Ruby-crowned Kinglet, 0.1 (1); Northern Mockingbird, 0.1 (1). **Total:** 36 species; 94.6 ind./visit (213 ind./40 ha). **Remarks:** The 36 species were the highest ever recorded. The total number ind./trip, excluding European Starling (93), was well above average. Ducks regularly used water on the plot for the first time. **Other Observers:** John Eliot, Robert Finkelstein, Dick Homan, Letty Limbach.

4. UPLAND SECOND-GROWTH OAK-HICKORY FOREST

BOSQUE SECUNDARIO ROBLE-NOGAL DE ALTURAS

HAL MOORE

1 Lakeside Drive
Vicksburg, Mississippi 39180

Location: Mississippi; Warren Co.; Vicksburg; Lake Park Tract; 32° 14'N, 90° 49'W; Big Black Miss Quadrangle, USGS. **Continuity:** Established 1988; 2 yr. **Size:** 10.0 ha. **Description of Plot:** See *J. Field Ornithol.* 61 (suppl.):8 (1990). **Weather:** Mean temperature: 8.1°C (range -5-17°C). Coldest day of yr on 16 Dec. Temperatures became increasingly moderate after that date. **Coverage:** 22.1 h; 12 visits (10 morning, 2 afternoon); 11, 13, 14, 15, 16, 20 Dec.; 8, 9, 10, 11, 16, 22 Jan. **Count:** Red-bellied Woodpecker, 20.0 ind./visit (12 visits); Tufted Titmouse, 15.3 (12); Carolina Wren, 11.3 (10); Carolina Chickadee, 8.7 (12); Purple Finch, 8.1 (7); White-throated Sparrow, 8.0 (12); Yellow-rumped Warbler, 7.9 (10); Hermit Thrush, 7.3 (12); American Robin, 6.7 (11); American Goldfinch, 6.3 (9); Cedar Waxwing, 5.0 (3); Blue Jay, 4.0 (10); American Crow, 3.3 (11); Downy Woodpecker, 3.2 (11); Ruby-crowned Kinglet, 3.1 (10); Eastern Bluebird, 3.0 (9); Northern Cardinal, 2.9 (11); Yellow-bellied Sapsucker, 2.2 (12); Pileated Woodpecker, 1.9 (10); Common Grackle, 1.4 (3); Golden-crowned Kinglet, 1.3 (10); Red-shouldered Hawk, 1.3 (7); Red-headed Woodpecker, 1.3 (10); Northern Flicker, 1.3 (9); Rufous-sided Towhee, 0.7 (4); Eastern Phoebe, 0.6 (4); Brown Thrasher, 0.6 (4); Dark-eyed Junco, 0.6 (3); Hairy Woodpecker, 0.2 (2); Black Vulture, 0.1 (1); Turkey Vulture, 0.1 (1); American Woodcock, 0.1 (1); Fox Sparrow, 0.1 (1). **Total:** 33 species; 136.4 ind./visit (546 ind./40 ha). **Remarks:** Both species of vultures were searching plot for food. Black Vultures have been observed roosting on area.

5. ISOLATED BEECH-MAPLE WOODS**BOSQUE AISLADO DE HAYA-ARCE****DONALD J. SMITH***Cornell Laboratory of Ornithology
159 Sapsucker Woods Road
Ithaca, New York 14850*

Location: New York; Tompkins Co.; Ithaca; Sapsucker Woods (West); 42° 29'N, 76° 27'W; Ithaca East Quadrangle, USGS. **Continuity:** Established 1989; 2 yr. **Size:** 13.5 ha. **Description of Plot:** See *J. Field Ornithol.* 61 (suppl.):37-38 (1990). **Weather:** Mean temperature 0.4°C (range -4-11°C). Ground had little or no snow cover. **Coverage:** 14 h; 10.0 visits (morning): 18, 20, 21, 23, 25, 27 Jan.; 3, 6, 8, 14 Feb. **Count:** Black-capped Chickadee, 17.3 ind./visit (10 visits); White-breasted Nuthatch, 6.2 (10); Downy Woodpecker, 3.3 (10); American Goldfinch, 1.7 (4); Tufted Titmouse, 1.6 (7); Pine Siskin, 1.3 (4); Brown Creeper, 1.1 (5); American Crow, 0.8 (4); Hairy Woodpecker, 0.4 (4); Red-breasted Nuthatch, 0.4 (3); Golden-crowned Kinglet, 0.4 (2); Northern Flicker, 0.3 (3); Pileated Woodpecker, 0.3 (2); Blue Jay, 0.2 (2); Sharp-shinned Hawk, 0.1 (1); Cooper's Hawk, 0.1 (1); Red-bellied Woodpecker, 0.1 (1); House Finch, 0.1 (1). **Total:** 18 species; 35.7 ind./visit (106 ind./40 ha).

6. YOUNG WHITE ASH-RED MAPLE FOREST ON LAKE SHORE**BOSQUE JOVEN DE FRESNO BLANCO-ARCE ROJO EN ORILLAS DE LAGOS****GEORGE R. MAXWELL***RD 1 Box 179C
Red Creek, New York 13143*

Location: New York; Wayne Co.; Fair Haven; Metzger Road - Blind Sodus Bay; 43° 20'N, 76° 44'W; Oswego Quadrangle, USGS. **Continuity:** Established 1987; 4 yr. **Size:** 16.2 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (suppl.):17 (1989). **Weather:** Mean temperature 4.2°C (range -4-10°C). Snow cover on five of the 10 trips ranged in depth from 3 to 30 cm. **Coverage:** 10 h; 10 visits (7 morning, 3 afternoon); 1, 2, 3, 4, 25, 29 Jan.; 1, 8, 20, 22 Feb. **Count:** House Finch, 16.2 ind./visit (10 visits); Canada Goose, 14.0 (3); House Sparrow, 10.3 (10); Mourning Dove, 8.9 (9); Black-capped Chickadee, 7.2 (10); American Goldfinch, 5.3 (10); Northern Cardinal, 4.1 (10); American Tree Sparrow, 3.3 (10); Dark-eyed Junco, 2.7 (10); Ring-billed Gull, 2.6 (6); American Crow, 2.5 (9); Blue Jay, 2.2 (9); White-breasted Nuthatch, 1.9 (10); Cedar Waxwing, 1.9 (3); Tufted Titmouse, 1.8 (10); Downy Woodpecker, 1.4 (8); Pine Siskin, 1.4 (6); European Starling, 0.8 (2); Evening Grosbeak, 0.8 (2); Red-bellied Woodpecker, 0.5 (5); Hairy Woodpecker, 0.4 (3); Northern Flicker, 0.3 (2); Brown-headed Cowbird, 0.3 (1); Belted Kingfisher, 0.1 (1); Song Sparrow, 0.1 (1). **Total:** 25 species; 91.0 ind./visit (225 ind./40 ha). **Other Observers:** J. Bettinger, S. Crandall, A. Giddings, T. Higginbotham, M. Maxwell, M. Nguyen, W. Rosene, A. Theenhaus. **Acknowledgments:** Thanks to my ornithology class for their assistance.

7. RIPARIAN DECIDUOUS FOREST**BOSQUE DECIDUO RIVEREÑO****ELLIOT J. TRAMER***Department of Biology
University of Toledo
Toledo Ohio 43606*

Location: Ohio; Lucas Co.; Waterville; Old Canal Lands; 41° 27'N, 83° 46'W; Grand Rapids Quadrangle, USGS. **Continuity:** Established 1989; 2 yr. **Size:** 18.0 ha. **Description**

of Plot: See *J. Field Ornithol.* 61 (suppl.):43 (1990). **Weather:** Mean temperature 0.6°C (range -7–10°C). **Coverage:** 22.5 h; 9 visits (8 morning, 1 afternoon); 25 Dec.; 3, 7, 24, 27, 31 Jan., 10, 16, 21 Feb. **Count:** Mourning Dove, 22.1 ind./visit (9 visits); Dark-eyed Junco, 12.8 (9); American Goldfinch, 12.6 (9); Cedar Waxwing, 11.1 (2); House Finch, 8.9 (9); American Crow, 6.8 (3); Downy Woodpecker, 6.1 (9); White-breasted Nuthatch, 5.2 (9); Tufted Titmouse, 4.8 (9); Black-capped Chickadee, 4.4 (9); Blue Jay, 4.2 (9); American Robin, 4.0 (6); European Starling, 3.7 (7); Northern Cardinal, 3.0 (9); House Sparrow, 2.4 (7); Carolina Wren, 2.1 (9); Brown Creeper, 1.6 (9); Hairy Woodpecker, 1.2 (9); Golden-crowned Kinglet, 1.1 (6); Yellow-rumped Warbler, 1.0 (7); Red-bellied Woodpecker, 0.9 (8); Red-breasted Nuthatch, 0.9 (7); Song Sparrow, 0.8 (5); American Tree Sparrow, 0.6 (1); Cooper's Hawk, 0.3 (3); Red-tailed Hawk, 0.3 (3); Great Horned Owl, 0.2 (1); Northern Flicker, 0.2 (1); Pine Siskin, 0.2 (1); Red-shouldered Hawk, 0.1 (1); Bohemian Waxwing, 0.1 (1). **Total:** 31 species; 123.8 ind./visit (275 ind./40 ha). **Remarks:** Ten species were new to the plot. The following species increased in abundance by at least 50%: Blue Jay, Carolina Wren, Dark-eyed Junco, American Goldfinch. The abundance of Hairy Woodpeckers, Brown Creepers, Golden-crowned Kinglet, and House Finches decreased significantly.

8. RIVER FLOODPLAIN–BROADLEAF FOREST

BOSQUE INUNDABLE DE HOJA ANCHA

WILLIAM E. MCGILL

12 East Warren
Lebanon, Ohio 45036

Location: Ohio; Warren Co.; Oregonia; Caesar Creek State Nature Preserve; 39° 29'N, 84° 6'W; Oregonia Quadrangle, USGS. **Continuity:** New. **Size:** 18.0 ha. **Description of Plot:** See *J. Field Ornithol.* 61 (suppl.):42 (1990). **Weather:** Mean temperature 2.4°C (range -12.2–11.1°C). Very cold Dec., with Jan. and Feb. temperatures above average. **Coverage:** 9.4 h; 10 visits (8 morning, 2 afternoon); 17 Dec.; 11, 21, 26 Jan.; 1, 4, 11, 19, 25, 26 Feb. **Count:** American Robin, 10.3 ind./visit (4 visits); Mallard, 5.7 (3); Carolina Chickadee, 4.6 (10); European Starling, 2.7 (1); Northern Cardinal, 2.7 (8); Downy Woodpecker, 1.6 (10); White-breasted Nuthatch, 1.2 (8); Red-bellied Woodpecker, 1.1 (7); Blue Jay, 1.1 (5); Tufted Titmouse, 1.0 (5); American Black Duck, 0.8 (2); Golden-crowned Kinglet, 0.8 (5); American Crow, 0.6 (4); Hairy Woodpecker, 0.4 (4); Carolina Wren, 0.4 (2); Cedar Waxwing, 0.4 (1); Great Horned Owl, 0.3 (3); Pileated Woodpecker, 0.3 (3); Yellow-rumped Warbler, 0.3 (1); Pied-billed Grebe, 0.2 (2); Northern Flicker, 0.2 (2); Brown Creeper, 0.2 (2); Song Sparrow, 0.2 (2); White-throated Sparrow, 0.2 (1); Canada Goose, 0.1 (1); Mourning Dove, 0.1 (1). **Total:** 26 species; 37.5 ind./visit (83 ind./40 ha). **Remarks:** Carolina Wrens were absent between 11 Jan. and 25 Feb.

9. BLACK WILLOW–WHITE ASH FOREST

BOSQUE DE SAUCE NEGRO–FRESNO BLANCO

MICHAEL F.G. CLARK

27 Skyline Drive
Dundas, Ontario L9H 3S3

Location: Ontario; Municipality of Hamilton-Wentworth; Dundas; Cootes Paradise; 43° 16'N, 79° 56'W. **Continuity:** Established 1984; 7 yr. **Size:** 13.0 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (suppl.):9 (1989). **Weather:** Temperatures were consistently low during visits, ranging from -13°C (26 Dec.) to 0°C (1 Jan.). **Coverage:** 12 h; 8 visits (4 morning, 4 afternoon); 16, 26 Dec.; 1, 13, 20, 27 Jan.; 3 Feb.; 5 Mar. **Count:** Black-capped Chickadee, 5.9 ind./visit (6 visits); European Starling, 1.5 (1); Brown Creeper, 1.3 (3);

Downy Woodpecker, 1.1 (6); White-breasted Nuthatch, 1.1 (4); American Goldfinch, 0.9 (2); Northern Cardinal, 0.8 (2); American Crow, 0.4 (1); Common Merganser, 0.2 (1); Great Blue Heron, 0.1 (1); Red-tailed Hawk, 0.1 (1); Golden Eagle, 0.1 (1); Snowy Owl, 0.1 (1). **Total:** 13 species; 13.6 ind./visit (42 ind./40 ha). **Remarks:** Very cold Dec. plus early snow cover may have discouraged some overwintering species. Both the total count (109 birds) and the number of species were the second lowest for the past 7 yr. The heaviest plot user, Black-capped Chickadee, was, at 47 birds, far below the 75.4 average for the previous 6 yr. Plot use for all bark foragers was down 59.2% from the 6-yr average. Swamp Sparrow, Winter Wren and Song Sparrow were not found on the plot for the third yr in a row. Golden Eagle and Snowy Owl were new plot species.

10. OAK-HICKORY GALLERY FOREST

BOSQUE TIPO GALERIA ROBLE-NOGAL

CHARLES W. ZIEGENFUS & CRAIG S. BUTERBAUGH

*Biology Department
James Madison University
Harrisonburg, Virginia 22807*

Location: Virginia; Rockingham Co.; Harrisonburg; James Madison University Arboretum; 38° 26'N, 78° 52'W; Harrisonburg Quadrangle, USGS. **Continuity:** New. **Size:** 13.4 ha. **Description of Plot:** Starting at N edge, an oak-hickory forest covers a gentle S facing slope and passes through a gallery forest with an intermittent stream terminating in an artificial pond, and continues to the southern edge through more oak and hickory along a slightly steeper facing N slope. A small parking lot and visitor's center is located in the NE section. A narrow service road separates the gallery forest from the southern oak-hickory stand. A loop trail covers the entire oak-hickory stand on the N facing slope. **Edge:** The N edge abuts a fallow field ca 40 ha. The S edge is a continuation of the oak-hickory forest. The E edge borders a fallow field containing utility lines, and an area with brambles and honeysuckle. The W edge borders a 24-m wide road. **Topography and Elevation:** A gentle S facing slope and steeper N facing slope are bisected by an intermittent stream and pond. Minimum elevation 411 m, maximum 427 m. **Weather:** Mean temperature 4.8°C (range -16–21°C). Coldest Dec. in last 20 yr, Jan. and Feb. were slightly warmer than average. Snow cover averaged 15 cm (range 0–24 cm) for 30 d in Dec. and early Jan. **Coverage:** 26.3 h; 19 visits (16 morning, 3 afternoon): 17, 21, 28 Dec.; 3, 10, 15, 18, 21, 23, 28, 30 Jan.; 7, 8, 15, 16, 20, 22 Feb.; 1, 10 Mar. **Count:** Dark-eyed Junco, 22.8 ind./visit (18 visits); Tufted Titmouse, 3.9 (17); American Crow, 3.3 (15); Purple Finch, 2.8 (10); Blue Jay, 2.3 (13); Carolina Chickadee, 2.1 (16); Golden-crowned Kinglet, 1.8 (7); Red-bellied Woodpecker, 1.5 (18); White-breasted Nuthatch, 1.5 (13); Carolina Wren, 1.3 (15); Downy Woodpecker, 1.3 (14); Northern Cardinal, 1.2 (15); American Goldfinch, 0.9 (2); American Robin, 0.8 (5); Pileated Woodpecker, 0.7 (11); European Starling, 0.6 (2); Mourning Dove, 0.6 (2); Brown Creeper, 0.3 (4); Song Sparrow, 0.3 (5); White-throated Sparrow, 0.3 (2); Common Grackle, 0.3 (1); Eastern Bluebird, 0.2 (2); Rufous-sided Towhee, 0.2 (2); Sharp-shinned Hawk, 0.2 (3); Hairy Woodpecker, 0.2 (3); Turkey Vulture, 0.1 (2); Red-shouldered Hawk, 0.1 (2); Red-tailed Hawk, 0.1 (2); Northern Mockingbird, 0.1 (2); Rock Dove, 0.1 (1); Northern Flicker, 0.1 (1). **Total:** 31 species; 52.1 ind./visit (156 ind./40 ha). **Remarks:** Weed seeds and wild berries were abundant. Mast crop of acorns and hickory nuts was the heaviest in the past 10 yr. **Acknowledgments:** Special thanks to Norlyn L. Bodkin, Director of Arboretum, for permission to census study area, and for supplying information on the vegetation.

11. MATURE RED SPRUCE FOREST

BOSQUE MADURO DE ABETOS ROJOS

THOMAS P. SKALING

10 Cumberland Street
Brunswick, Maine 04011

Location: Maine; Somerset Co.; West Forks; Boise Cascade Tract; 45° 25'N, 70° 10'W; Pierce Pond Quadrangle, USGS. **Continuity:** New. **Size:** 16.0 ha. **Description of Plot:** See *J. Field Ornithol.* 61 (suppl.):57 (1990). **Weather:** Mean temperature -10.8°C (range -21–0°C). This season offered the most dramatic temperature shift ever recorded in the 100+ yr of record keeping in the region. December 1989 was the coldest on record with an average daily temperature of -17°C (8°C below normal). Above normal temperatures in Jan. and Feb. made this season the sixth warmest on record. Snow cover on plot ranged from 30 cm on the first visit to 76 cm on the last. **Coverage:** 25.4 h; 10 visits (all morning): 12, 13, 30 Dec.; 11, 25, 27 Jan.; 8, 21, 22, 24 Feb. **Count:** Black-capped Chickadee, 3.1 ind./visit (9 visits); Red-breasted Nuthatch, 2.6 (10); Boreal Chickadee, 2.5 (8); Downy Woodpecker, 2.0 (9); White-winged Crossbill, 1.4 (6); Pine Grosbeak, 1.0 (2); Hairy Woodpecker, 0.7 (5); Golden-crowned Kinglet, 0.7 (5); Blue Jay, 0.6 (4); Ruffed Grouse, 0.5 (4); Northern Goshawk, 0.2 (2); Pileated Woodpecker, 0.1 (1). **Total:** 12 species; 15.4 ind./visit (38 ind./40 ha).

12. PONDEROSA PINE-DOUGLAS FIR FOREST

BOSQUE DE PINO PONDEROSA-PINABETE DE DOUGLAS

THOMAS H. ROGERS

E. 10820 Maxwell
Spokane, Washington 99206

Location: Montana; Spokane Co.; Dishman; Dishman Hills Natural Area; 47° 39'N, 117° 17'W; Spokane Quadrangle, USGS. **Continuity:** Established 1975; 14 yr. **Size:** 11.2 ha. **Description of Plot:** See *Am. Birds* 30:1051-1052 (1976). **Weather:** Mean temperature 1.3°C (range -1–4°C). Mild for this locality. Ground mostly bare of snow, but 63.5 cm on 2 and 16 Feb., and 10.2 cm on 21 Feb. **Coverage:** 23.1 h; 11.0 visits (mornings): 15, 22, 29 Dec.; 5, 12, 19, 26 Jan.; 2, 12, 16, 21 Feb. **Count:** Red-breasted Nuthatch, 7.8 ind./visit (11 visits); Red Crossbill, 2.1 (10); Pine Grosbeak, 1.1 (4); American Robin, 1.0 (2); Ruffed Grouse, 0.6 (7); Common Raven, 0.4 (3); Pygmy Nuthatch, 0.3 (1); House Finch, 0.2 (1). **Total:** 8 species; 13.5 ind./visit (48 ind./40 ha). **Remarks:** Plot had good crop of Ponderosa Pine cones.

13. UPLAND SCOTCH PINE PLANTATION

PLANTACIÓN EN ALTURA DE PINO ESCOCÉS

ELIZABETH W. BROOKS

1435 Waterwells Road
Alfred Station, New York 14803

Location: New York; Allegany Co.; Alfred; Foster Plantation; 42° 7'N, 77° 45'W; Andover Quadrangle, USGS. **Continuity:** Established 1984; 6 intermittent yr. **Size:** 9.3 ha. **Description of Plot:** See *Aud. Field Notes* 23:743-744 (1969). **Weather:** Mean temperature -1.3°C (range -12–10°C). **Coverage:** 11 h; 8.0 visits (5 morning, 3 afternoon): 14, 27 Dec.; 2, 6, 9, 16, 19, 24 Jan. **Count:** Black-capped Chickadee, 14.1 ind./visit (8 visits); Evening Grosbeak, 8.5 (4); White-winged Crossbill, 6.4 (5); Pine Siskin, 6.2 (3); Cedar Waxwing, 5.2 (2); Red-breasted Nuthatch, 2.0 (8); Ruffed Grouse, 1.4 (6); Golden-crowned Kinglet,

1.3 (5); Blue Jay, 1.1 (7); Brown Creeper, 0.4 (2); Downy Woodpecker, 0.2 (2); American Crow, 0.2 (1); Purple Finch, 0.2 (2); Sharp-shinned Hawk, 0.1 (1); Pine Grosbeak, 0.1 (1); American Goldfinch, 0.1 (1). **Total:** 16 species; 47.7 ind./visit (205 ind./40 ha). **Remarks:** Record numbers of Cedar Waxwing, Red-breasted Nuthatch, and Evening Grosbeak were observed. High numbers of White-winged Crossbill and Pine Siskin, which were new to the plot, reflect spectacular winter finch yr. American Goldfinch, Pine Grosbeak, American Crow, and Sharp-shinned Hawk also were new to the plot. **Acknowledgments:** Thanks to Susan Kelleher, Alfred University biology student, for assistance with field work. Appreciation to Phil Foster and Cynthia Clements for permission to use the study area.

14. MIXED PINE AND DECIDUOUS FOREST

BOSQUE MIXTO DE PINOS Y DE ARBOLES DEIDUOS

DAN WEBSTER

*Hanover College
Hanover, Indiana 47243*

Location: Indiana; Jefferson Co.; Hanover; 38° 42'N, 85° 35'W; Kent Quadrangle, USGS. **Continuity:** Established 1977; 7 yr. **Size:** 14.5 ha. **Description of Plot:** See *Am. Birds* 32: 27-28 (1978). Almost half of the large pines are dead and standing or have fallen. **Weather:** Mean temperature -1°C (range -16-8°C). Temperatures severe in Dec, but mild in Jan. and Feb. Snow cover during most of Dec., but none after 1 Jan. **Coverage:** 24 h; 8 visits (mornings); 20, 27 Dec.; 10, 19, 22, 30 Jan.; 7, 10 Feb. Three additional afternoon/evening visits for owls; 1 Jan.; 8, 28 Feb. **Count:** Tufted Titmouse, 4.5 ind./visit (8 visits); Golden-crowned Kinglet, 3.5 (7); Blue Jay, 3.4 (7); Carolina Chickadee, 3.0 (7); Northern Cardinal, 2.4 (7); Red-bellied Woodpecker, 2.1 (7); Yellow-rumped Warbler, 2.1 (5); American Crow, 2.0 (7); Red-breasted Nuthatch, 1.9 (5); Cedar Waxwing, 1.8 (2); White-throated Sparrow, 1.5 (7); Downy Woodpecker, 1.4 (7); Red-headed Woodpecker, 1.3 (6); Pileated Woodpecker, 1.0 (7); White-breasted Nuthatch, 1.0 (3); Brown Creeper, 0.9 (4); Rufous-sided Towhee, 0.8 (4); Northern Flicker, 0.6 (4); Hairy Woodpecker, 0.6 (3); Carolina Wren, 0.5 (4); Eastern Bluebird, 0.5 (2); American Robin, 0.4 (3); American Goldfinch, 0.4 (1); Mourning Dove, 0.2 (2); Yellow-bellied Sapsucker, 0.2 (2); European Starling, 0.2 (2); Northern Saw-whet Owl, 0.1 (1); Dark-eyed Junco, 0.1 (1); Purple Finch, 0.1 (1). **Total:** 29 species; 38.5 ind./visit (106 ind./40 ha). **Remarks:** A fresh Great Horned Owl pellet contained remains of rabbit. A Northern Saw-whet Owl was heard during night visits. **Other Observers:** Dwight Chamberlain, Richard Davis, and Marcus Webster.

15. MAPLE-PINE-OAK SECOND-GROWTH FOREST

BOSQUE SECUNDARIO DE ARCE-PINO-ROBLE

WILLIAM E. DAVIS, JR.

*College of Basic Studies
Boston University
Boston, Massachusetts 02215*

Location: Massachusetts; Norfolk Co.; Foxboro; Town of Foxboro conservation land, off Willow and E. sts.; 42° 4'N, 71° 12'W; Mansfield Quadrangle, USGS. **Continuity:** Established 1977; 14 yr. **Size:** 11.8 ha. **Description of Plot:** See *Am. Birds* 31:50-51 (1977). **Weather:** Mean temperature 0.1°C (range -8.3-10°C). Ground bare or with patchy snow on nine trips; snow cover on other trips ranged from 5.1 to 12.7 cm. Weather data for Boston, about 30 km N (U.S. National Weather Service): for Dec., Jan. and Feb. temperature departures from normal were -6.7, 3.8, and 1.9°C, respectively; rainfall equivalent departures from normal were -9.3, -0.5, and -0.2 cm, respectively. **Coverage:** 12 h; 12 visits (mornings): 3, 13, 18, 19 Dec.; 11, 20, 26, 27 Jan.; 2, 7, 11, 17 Feb. **Count:** Black-capped Chickadee, 3.1 ind./visit (10 visits); Tufted Titmouse, 1.8 (7); Blue Jay, 1.1 (3); American Crow, 1.0

(4); White-breasted Nuthatch, 0.4 (3); Downy Woodpecker, 0.3 (4); Dark-eyed Junco, 0.2 (2); Hairy Woodpecker, 0.2 (2); Brown Creeper, 0.2 (2); Red-tailed Hawk, 0.1 (1); Hermit Thrush, 0.1 (1). **Total:** 11 species; 9.2 ind./visit (31 ind./40 ha). **Remarks:** The values for ind./visit and ind./40 ha include eight unidentified individuals. The largest mixed species foraging flock contained four chickadees, two titmice, and a Downy Woodpecker.

16. UPLAND MIXED PINE-SPRUCE-HARDWOOD PLANTATION

PLANTACIONES MEXTAS DE PINO-ABETO MADERAS DURAS EN ALTURA

ELIZABETH W. BROOKS

1435 Waterwells Road
Alfred Station, New York 14803

Location: New York; Allegany Co.; Alfred; Philips Creek State Reforestation Tract; 42° 8'N, 77° 45'W; Andover Quadrangle, USGS. **Continuity:** Established 1974; 16 intermittent yr. **Size:** 16.6 ha. **Description of Plot:** See *Am. Birds* 28:699-700 (1974). **Weather:** Mean temperature -0.1°C (range -10-9°C). Dec. was 6°C colder than normal, while Jan. was warmer than normal. Total snowfall in Dec. and Jan. (80.7cm) was about average. **Coverage:** 16.5 h; 9 visits (8 morning, 1 afternoon): 13, 18, 30 Dec.; 3, 7, 14, 23 Jan.; 1 Feb. **Count:** Black-capped Chickadee, 17.7 ind./visit (9 visits); Red-breasted Nuthatch, 14.1 (9); White-winged Crossbill, 4.9 (7); Pine Siskin, 2.3 (2); Golden-crowned Kinglet, 1.9 (9); Blue Jay, 1.8 (9); Evening Grosbeak, 1.4 (4); Brown Creeper, 1.1 (7); Downy Woodpecker, 0.9 (6); White-breasted Nuthatch, 0.3 (2); Ruffed Grouse, 0.2 (2); American Robin, 0.2 (2); Purple Finch, 0.1 (1). **Total:** 13 species; 47.0 ind./visit (113 ind./40 ha). **Remarks:** Highest number of Red-breasted Nuthatches ever recorded; record high numbers of Pine Siskin and White-winged Crossbill reflect good winter for finches. An unidentified owl (prob. Barred) was observed briefly on 2 visits. **Acknowledgments:** Thanks to Rick Walker of the Alfred Cooperative Weather Station and to Susan Kelleher, Alfred University Biology student, for assistance with field work.

17. CONIFEROUS-DECIDUOUS FOREST

BOSQUE DE CONÍFEROS-DECIDUO

MICHAEL F.G. CLARK

27 Skyline Drive
Dundas, Ontario L9H 3S3

Location: Ontario; Municipality of Hamilton-Wentworth; Dundas; 43° 14'N, 80° 2'W. **Continuity:** Established 1986; 5 yr. **Size:** 9.2 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (suppl.):11 (1989). **Weather:** Temperatures ranged from -16 to 2°C; snow cover averaged 13.2 cm for most of the study period. **Coverage:** 13.3 h; 8 visits (4 morning, 4 afternoon): 23, 30 Dec.; 5, 20 Jan.; 3, 10, 17, 24 Feb. **Count:** Black-capped Chickadee, 21.8 ind./visit (8 visits); White-breasted Nuthatch, 2.2 (6); Brown Creeper, 1.4 (5); Downy Woodpecker, 1.0 (5); Blue Jay, 0.9 (2); Golden-crowned Kinglet, 0.9 (3); Northern Cardinal, 0.9 (4); Red-breasted Nuthatch, 0.6 (2); Pine Siskin, 0.6 (2); Ruffed Grouse, 0.5 (2); Hairy Woodpecker, 0.2 (2); Dark-eyed Junco, 0.2 (1); Unid. hawk, 0.1 (1); American Goldfinch, 0.1 (1). **Total:** 13 species; 31.5 ind./visit (137 ind./40 ha). **Remarks:** Chickadees continue to dominate this plot with their highest totals yet (174), comprising 69.3% of total plot users. As expected, the number of bark foragers eclipsed all other feeding groups (225; 89.6% of total birds). Overall totals were second highest over five yr, and species total equalled the high for two other yr. Although there was fairly heavy snow on the 24 Feb. visit, 27 birds were noted as well as a large flock of Tundra Swans overhead flying NW.

18. MIXED OAK-PINE FOREST I

BOSQUE MIXTO DE ROBLE-PINO I

DOUGLAS A. GROSS

*Ecology III, RD1**Susquehanna SES Biological Laboratory
Berwick, Pennsylvania 18603*

Location: Pennsylvania; Luzerne Co.; Wapwallopen; Council Cup Forest; 41° 04'N, 76° 07'W; Sybertsville Quadrangle, USGS. **Continuity:** Established 1980; 11 yr (first published in 1989). **Size:** 6.0 ha. **Description of Plot:** See *Am. Birds* 33:70 (1979). **Weather:** Mean temperature -4.5°C (range -12-7°C). **Coverage:** 9.4 h; 7 visits (mornings); 20, 27 Dec.; 9, 19, 31 Jan.; 13, 26 Feb. **Count:** Pine Siskin, 22.8 (7); Black-capped Chickadee, 6.7 (6); Golden-crowned Kinglet, 4.1 (6); American Goldfinch, 4.0 (4); Tufted Titmouse, 2.6 (6); White-breasted Nuthatch, 1.8 (5); Downy Woodpecker, 1.1 (7); Dark-eyed Junco, 1.1 (1); American Crow, 0.8 (2); Brown Creeper, 0.7 (4); Common Redpoll, 0.7 (1); Hairy Woodpecker, 0.4 (3); Red-breasted Nuthatch, 0.3 (2); Ring-necked Pheasant, 0.1 (1); Great Horned Owl, 0.1 (1). **Total:** 15 species; 47.7 ind./visit (318 ind./40 ha). **Remarks:** Two flocks of Pine Siskins (112 and 46 birds) inflated the total density to the highest ever observed in the plot. Chickadee population rebounded after its lowest level during previous winter. During this mild winter, many residents foraged outside the plot, especially on staghorn sumac berries. **Acknowledgments:** Thanks to Pennsylvania Power and Light Company for supporting this study.

19. MIXED OAK-PINE FOREST II

BOSQUE MIXTO DE ROBLE-PINO II

DOUGLAS A. GROSS

*Ecology III, RD1**Susquehanna SES Biological Laboratory
Berwick, Pennsylvania 18603*

Location: Pennsylvania; Luzerne Co.; Berwick; TR419 Forest; 41° 05'N, 76° 08'W; Berwick Quadrangle, USGS. **Continuity:** Established 1980; 11 yr (first published in 1989). **Size:** 11.05 ha. **Description of Plot:** See *Am. Birds* 33:70 (1979). **Weather:** Mean temperature 1.3°C (range -12-7°C). **Coverage:** 12.3 h; 7 visits (mornings): 21 Dec.; 5, 16, 30 Jan.; 9, 21, 27 Feb. **Count:** Black-capped Chickadee, 5 ind./visit (7 visits); Golden-crowned Kinglet, 4.8 (7); Pine Siskin, 4.8 (1); Wild Turkey, 4.1 (2); Tufted Titmouse, 3 (7); Northern Cardinal, 2 (3); Dark-eyed Junco, 2 (4); American Crow, 1.6 (3); White-breasted Nuthatch, 1.4 (5); Common Redpoll, 1.4 (1); Downy Woodpecker, 1.3 (5); Brown Creeper, 0.8 (4); American Goldfinch, 0.8 (3); Blue Jay, 0.7 (3); Red-breasted Nuthatch, 0.7 (4); Red-tailed Hawk, 0.6 (4); Ruffed Grouse, 0.8 (3); Carolina Wren, 0.8 (2); White-throated Sparrow, 0.4 (2); Hairy Woodpecker, 0.3 (2); Eastern Screech-Owl, 0.1 (1); Pileated Woodpecker, 0.1 (1); Song Sparrow, 0.1 (1). **Total:** 23 species; 37.5 ind./visit (136 ind./40 ha). **Remarks:** A flock of 28 Wild Turkeys passed through the plot during one count. However, according to witness accounts and frequently observed tracks, they visited the plot regularly, often with deer. During this mild winter, many residents foraged outside the plot, especially on staghorn sumac berries. **Acknowledgments:** Thanks to Pennsylvania Power and Light Company for supporting this study.

20. MATURE DECIDUOUS-CONIFEROUS FOREST WITH STREAM

BOSQUE MADURO DECIDUO-Y-DE CONIFEROS CON ARROYO

STEPHEN J. & BARBARA H. STEDMAN

2675 Lakeland Drive
Cookeville, Tennessee 38501

Location: Tennessee; Putnam Co.; Cookeville; Old Cookeville Filtration Plant; 36° 8'N, 85° 27'W; Cookeville East Quadrangle, USGS. **Continuity:** New. **Size:** 10.2 ha. **Description of Plot:** Old-growth, mainly deciduous trees on slopes. Includes a 1 ha cedar glade with exposed rock, one large and several small gorge areas with waterfalls, an old planted *Pinus taeda* stand (1 ha), and a brushy area around an abandoned building that was once the city waterworks. Several old log roads and footpaths provide access to the plot. Forest canopy mainly closed; shrub and ground cover moderately thick. A quantitative vegetation survey following the method described by F.C. James and H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727-736) yielded the following results: Trees 7.6 cm dbh and over, based on five 0.04 ha circular plots, 186/ha; total basal area, 10.3 m²/ha. Species comprising 100% of the total number of trees [figures after each give trees/ha, relative density (%), relative dominance (%), and frequency (%), in that sequence]: American Beech 28, 15, 15, 60; dead trees 27, 14, 5, 60; Flowering Dogwood 24, 12, 5, 60; Northern Red Oak 23, 12, 10, 60; American Elm 15, 8, 6, 100; Loblolly Pine 15, 8, 15, 20; Eastern Red Cedar 10, 6, 6, 40; Yellow Poplar 9, 5, 15, 60; Eastern Redbud 7, 4, 1, 40; Red Maple 5, 2, 4, 40; Mockernut Hickory 4, 2, 2, 40; Carolina Buckthorn 4, 2, 0.2, 20; White Ash 3, 1, 0.6, 40; Common Persimmon 2, 1, 0.2, 20; Shagbark Hickory 2, 1, 2, 60; Slippery Elm 2, 1, 0.3, 40; Umbrella Magnolia 2, 1, 0.4, 20; Black Walnut 2, 1, 0.4, 40; White Basswood 1, 0.5, 0.1, 20; Virginia Pine 1, 0.5, 0.1, 20; Yellow Buckeye 1, 0.5, 0.3, 20; American Sycamore 1, 0.5, 0.1, 20. Trees by diameter size class [figures after each give trees/ha, relative density (%), basal area (m²/ha), and relative dominance (%), in that sequence]: A (7.6-15.2 cm) 94, 50, 22, 11; B (15.2-22.9 cm) 41, 22, 28, 14; C (22.9-38.1 cm) 38, 20, 70, 34; D (38.1-53.3 cm) 10, 5, 40, 19; E (53.3-58.6 cm) 2, 1.5, 17, 8; F (68.6-83.8 cm) 0, 0, 0, 0; G (83.8-101.6 cm) 0, 0.5, 13, 6; H (> 101.6 cm) 1, 1, 16, 8. Shrub stems/ha 4480; ground cover, 60%; canopy cover, 78%; average canopy height, 27 m (range 24-29 m). **Edge:** Same as the study plot on the E, N, and W for about 10-30 m, grading to a brushy edge and pasture on the E, N, and NW, a secondary road on the SW, and the mouth of the stream and lakeside on the S. **Water:** Numerous springs drain into a small, short stream that terminates in the Falling Water River, dammed to form the lake known locally as City Lake or East Lake. Wet weather puddles occur in the old log roads. **Topography and Elevation:** Steep, wooded slopes with small gorges containing waterfalls and a small stream. Minimum elevation 289 m, maximum 329 m. **Weather:** Mean temperature 2.4°C (range -8-11°C). Dec. much colder than average; Jan. warmest on record with little accumulation of snow; Feb. warmer than average with little snowfall, but considerable rain. **Coverage:** 14.8 h; 10 visits (mornings): 17, 21 Dec.; 15, 23, 30 Jan.; 6, 12, 18, 20, 25 Feb. **Count:** House Finch, 29.7 ind./visit (10 visits); Yellow-rumped Warbler, 16.8 (10); Tufted Titmouse, 5.9 (10); Northern Cardinal, 5.7 (10); Carolina Chickadee, 5.2 (10); European Starling, 4.9 (7); Rock Dove, 3.1 (5); Carolina Wren, 3.0 (10); Song Sparrow, 2.9 (10); Blue Jay, 2.6 (10); Downy Woodpecker, 1.8 (9); Mourning Dove, 1.6 (8); Purple Finch, 1.5 (5); American Goldfinch, 1.4 (9); White-breasted Nuthatch, 1.3 (10); Pine Siskin, 1.1 (8); Golden-crowned Kinglet, 1.0 (5); Field Sparrow, 1.0 (2); Eastern Bluebird, 0.9 (6); American Robin, 0.9 (7); Red-winged Blackbird, 0.7 (5); Belted Kingfisher, 0.6 (6); Red-bellied Woodpecker, 0.5 (4); Northern Flicker, 0.5 (4); Eastern Phoebe, 0.5 (5); White-throated Sparrow, 0.5 (3); American Woodcock, 0.4 (2); Winter Wren, 0.4 (4); Rufous-sided Towhee, 0.4 (4); Swamp Sparrow, 0.4 (3); American Black Duck, 0.3 (1); Red-shouldered Hawk, 0.3 (3); Yellow-bellied Sapsucker, 0.3 (2); American Crow, 0.3 (2); Hermit Thrush, 0.3 (3); Wood Duck, 0.2 (1); Cedar Waxwing, 0.2 (1); Brown-headed Cowbird, 0.2 (2); Green-backed Heron, 0.1 (1); Canvasback, 0.1 (1); Common Snipe, 0.1 (1); Hairy Woodpecker, 0.1 (1); Pileated Woodpecker, 0.1 (1); Brown Creeper, 0.1 (1); Ruby-crowned Kinglet, 0.1 (1); Pine Warbler, 0.1

(1). **Total:** 46 species; 100 ind./visit (393 ind./40 ha). **Remarks:** Excellent nut crop this yr; berry and fruit crop good. Extremely cold Dec. caused die-off or departure of Eastern Phoebe, which did not return until Feb. Warm Feb. may have caused early arrival of summer residents (e.g., Green-backed Heron, Pine Warbler), suggesting that, in the future, the WBPS for this plot should be completed by mid-Feb.

21. SECOND-GROWTH BROADLEAF-CONIFEROUS FOREST

BOSQUE SECUNDARIO DE HOJA ANCHA-CONÍFEROS

DORY SMITH

120 Olympic View Avenue S.
Sequim, Washington 98382

Location: Washington; Clallam Co.; Sequim; Dungeness Recreation Area; 48° 8'N, 123° 12'W; Dungeness Quadrangle, USGS. **Continuity:** Established 1988; 3 yr. **Size:** 21.5 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (suppl.):18 (1989). **Weather:** Mean temperature 3.5°C (range 0–6°C). **Coverage:** 13.8 h; 8 visits (mornings): 26 Dec.; 3, 11, 17, 26 Jan.; 12, 16, 22 Feb. **Count:** Golden-crowned Kinglet, 33.7 ind./visit (8 visits); Chestnut-backed Chickadee, 6.6 (7); Pine Siskin, 5.0 (1); Song Sparrow, 4.2 (8); Ruby-crowned Kinglet, 3.9 (8); Rufous-sided Towhee, 3.2 (8); Dark-eyed Junco, 2.5 (3); Black-capped Chickadee, 1.6 (6); Bushtit, 1.3 (1); Bewick's Wren, 1.3 (5); Winter Wren, 1.3 (5); Fox Sparrow, 1.3 (6); Varied Thrush, 0.8 (2); American Robin, 0.6 (2); Mourning Dove, 0.4 (1); Cooper's Hawk, 0.2 (2); Steller's Jay, 0.2 (2); Red-breasted Nuthatch, 0.2 (2); Ring-necked Pheasant, 0.1 (1); Downy Woodpecker, 0.1 (1); Northern Flicker, 0.1 (1); Purple Finch, 0.1 (1). **Total:** 22 species; 68.9 ind./visit (128 ind./40 ha).

22. SUBURBAN CEMETERY

CEMETERIO SUB-URBANO

THOMAS A. IMHOF

1036 Pike Road
Birmingham, Alabama 35218

Location: Alabama; Jefferson Co.; Birmingham; Oakland Cemetery; 33° 29'N, 86° 54'W; Bessemer Quadrangle, USGS. **Continuity:** Established 1978; 10 intermittent yr. **Size:** 15.0 ha. **Description of Plot:** See *Am. Birds* 34:18-19 (1980). **Weather:** Mean temperature 6.4°C (range -2.2–20°C). Severe, unprecedented cold 20–25 Dec. with temperatures falling below -18°C twice. Temperatures for Dec. through Feb. above normal with few days below 0°C. **Coverage:** 18 h; 18.0 visits (16 morning, 2 evening): 1, 5, 7, 14, 26, 29 Dec.; 2, 8, 11, 17, 22, 30 Jan.; 3, 8, 19, 26, 27, 28 Feb. **Count:** Common Grackle, 82.4 ind./visit (18 visits); American Robin, 41.2 (17); House Finch, 35.8 (18); European Starling, 22.2 (18); Rock Dove, 20.9 (18); House Sparrow, 14.6 (18); Mourning Dove, 14.4 (18); Blue Jay, 11.1 (18); Northern Cardinal, 9.6 (18); White-throated Sparrow, 8.6 (18); Northern Mockingbird, 6.8 (18); Red-winged Blackbird, 5.6 (8); Cedar Waxwing, 5.2 (4); Rufous-sided Towhee, 4.7 (18); Northern Flicker, 3.4 (16); American Crow, 2.4 (15); Yellow-rumped Warbler, 2.1 (14); Carolina Chickadee, 2.0 (17); Dark-eyed Junco, 2.0 (3); Tufted Titmouse, 1.8 (16); Red-bellied Woodpecker, 1.5 (15); Ruby-crowned Kinglet, 1.4 (13); Yellow-bellied Sapsucker, 1.2 (14); Brown-headed Cowbird, 1.1 (1); Carolina Wren, 0.9 (12); Brown Thrasher, 0.8 (8); Golden-crowned Kinglet, 0.8 (8); Rusty Blackbird, 0.8 (6); Field Sparrow, 0.7 (6); Red-tailed Hawk, 0.5 (9); Downy Woodpecker, 0.5 (9); American Goldfinch, 0.3 (3); Song Sparrow, 0.3 (5); Killdeer, 0.2 (1); American Kestrel, 0.2 (3); Red-headed Woodpecker, 0.2 (3); Eastern Phoebe, 0.1 (2); Brown Creeper, 0.1 (2); Northern Harrier, 0.1 (1); House Wren, 0.1 (1); Eastern Bluebird, 0.1 (1); Purple Finch, 0.1 (1). **Total:** 42 species; 308.9 ind./visit (824 ind./40 ha). **Remarks:** As many as 50% of the birds were observed in a small area 30.4 m on either side of the residential lot-cemetery boundary. Only those blackbirds observed feeding on plot were counted.

23. PLAINS RIVERBOTTOM WOODLAND, PONDS AND MARSHES

LLANOS EN LA BASE DEL RIO, CHARCAS Y ANEGADOS

RICHARD G. BEIDLEMAN

*Department of Biology
Colorado College
Colorado Springs, Colorado 80903*

Location: Colorado; El Paso Co.; Widefield; Fountain Creek Regional Park; 38° 43'N, 104° 43'W; Fountain Quadrangle, USGS. **Continuity:** New. **Size:** 28.3 ha. **Description of Plot:** A disturbed cottonwood-willow river bottom with much exotic vegetation. **Water:** There are several gravel ponds and connecting channels, as well as a natural pond, marshes, and Fountain Creek. **Edge:** Open fields border to the E and W. The riverbottom woodland continues to the S. Sewage lagoons and a newly-developed county park containing woodlands and ponds border to the N. **Topography and Elevation:** A flat site on the high plains at 1707 m elevation. **Weather:** Mean temperature 8.3°C (range 2–16°C). Relatively mild and dry winter, with bodies of water rarely frozen. **Coverage:** 24 h; 13 visits (3 morning, 10 afternoon): 31 Dec.; 6, 7, 11, 14, 21, 26, 30 Jan.; 4, 11, 18, 26 Feb.; 5 Mar. **Count:** Canada Goose, 55.7 ind./visit (11 visits); European Starling, 48.0 (12); Mallard, 43.9 (13); Red-winged Blackbird, 17.9 (10); Green-winged Teal, 15.3 (12); Black-billed Magpie, 11.8 (13); White-crowned Sparrow, 7.2 (10); American Tree Sparrow, 5.8 (11); American Goldfinch, 5.5 (7); Dark-eyed Junco, 5.2 (10); American Wigeon, 5.0 (9); Song Sparrow, 4.8 (13); Black-capped Chickadee, 4.2 (13); House Finch, 3.9 (10); Killdeer, 3.2 (8); Pine Siskin, 2.5 (3); Northern Flicker, 2.1 (12); Rock Dove, 1.8 (9); Gadwall, 1.5 (6); Red-tailed Hawk, 1.2 (13); American Coot, 1.1 (10); Pied-billed Grebe, 1.0 (10); Great Blue Heron, 1.0 (6); American Crow, 0.6 (5); Water Pipit, 0.6 (4); Lesser Scaup, 0.5 (3); Belted Kingfisher, 0.5 (7); Canvasback, 0.5 (1); Common Merganser, 0.4 (4); Mountain Chickadee, 0.2 (3); American Robin, 0.2 (2); Chinese Goose, 0.2 (1); Greylag Goose, 0.2 (1); Cinnamon Teal, 0.2 (1); Northern Shoveler, 0.2 (1); Downy Woodpecker, 0.2 (2); Hairy Woodpecker, 0.2 (2); Common Raven, 0.2 (2); Bufflehead, 0.1 (1); Rough-legged Hawk, 0.1 (1); Golden Eagle, 0.1 (1); American Kestrel, 0.1 (1); Virginia Rail, 0.1 (1); Ring-billed Gull, 0.1 (1); White-breasted Nuthatch, 0.1 (1); Brown Creeper, 0.1 (1); Winter Wren, 0.1 (1). **Total:** 47 species; 255 ind./visit (360 ind./40 ha). **Remarks:** This diversified area is part of the new Fountain Creek County Park. Both residents and transients were encountered during the mild dry winter period. **Other Observers:** Reba E. Beidleman

24. FLOODPLAIN FOREST AND CULTIVATED BOTTOMLAND

BOSQUE INUNDABLE Y TIERRAS CULTIVADAS

VIVIAN MILLS PITZRICK

*Amity Lake
Belmont, New York 14813*

Location: New York; Allegany Co.; Scio; Maybee Plot; 42° 10'N, 77° 59'W; Wellsville Quadrangle, USGS. **Continuity:** Established 1971; 19 yr. **Size:** 51.8 ha. **Description of Plot:** See *Am. Birds* 25:644-645 (1971). **Weather:** Mean temperature: 0.85°C (range -9.4–10°C). Temperatures averaged 4°C below normal for Dec. and 8.3°C above normal for Jan. Snow or heavy crust covered the ground on the first four trips, but the ground was bare for the remainder. **Coverage:** 8.4 h; 8 visits (morning); 11, 16 Dec.; 3, 6, 10, 15, 17, 20 Jan. **Count:** Rock Dove, 9.6 ind./visit (3 visits); Mourning Dove, 7.7 (5); Evening Grosbeak, 6.5 (4); American Tree Sparrow, 5.4 (6); American Black Duck, 4.9 (5); American Goldfinch, 3.9 (8); American Crow, 3.6 (8); Black-capped Chickadee, 2.5 (7); House Finch, 2.4 (5); European Starling, 2.2 (7); Blue Jay, 2.0 (8); Mallard, 1.5 (3); Dark-eyed Junco, 1.3 (4); Downy Woodpecker, 1.1 (6); Pine Siskin, 1.1 (2); House Sparrow, 0.9 (4); Pileated Wood-

pecker, 0.6 (4); White-breasted Nuthatch, 0.5 (3); Golden-crowned Kinglet, 0.4 (1); Northern Cardinal, 0.4 (3); Belted Kingfisher, 0.2 (2); Great Blue Heron, 0.1 (1); Common Merganser, 0.1 (1); Brown Creeper, 0.1 (1). **Total:** 24 species; 59.1 ind./visit (46 ind./40 ha). **Remarks:** Comparing 1990 results with 1971–1989 average (in parentheses): Total species, 24 (26); mean ind./visit 59 (166); American Crow 4 (58); and excluding crow and Snow Bunting, 55 (109). This was the best count of Black Ducks since 1976. Other waterfowl, except Mallards, were scarce. With the exception of the Black Ducks, Pileated Woodpeckers, Brown Creeper, and Golden-crowned Kinglets, the otherwise mediocre bird population this yr again may be attributed to few feeders nearby and the lack of corn gleanings and top dressings. **Acknowledgments:** Thanks to Raymond Pitzrick for standing by with transportation and to Calvin Maybee for permission to use his property.

25. FIELD, RIDGE, AND SHRUBBY TREES

CAMPOS, COLINAS Y ARBUSTOS

MICHAEL F.G. CLARK

27 Skyline Drive
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Location: Ontario; Municipality of Hamilton-Wentworth; Dundas; 43° 15'N, 79° 54'W. **Continuity:** Established 1986; 5 yr. **Size:** 6.6 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (suppl.):14 (1989). **Weather:** Trip temperatures ranged from -9°C (9 Dec.) to 7°C (3 Jan.). **Coverage:** 12.9 h; 8 visits (4 morning, 4 evening): 9, 28 Dec.; 3, 13, 27 Jan.; 10, 17 Feb.; 3 Mar. **Count:** Cedar Waxwing, 12.8 ind./visit (4 visits); House Finch, 6.5 (7); American Tree Sparrow, 6.0 (8); Black-capped Chickadee, 5.6 (7); Dark-eyed Junco, 5.1 (5); Northern Cardinal, 4.5 (8); American Crow, 1.8 (5); American Goldfinch, 1.5 (3); White-breasted Nuthatch, 0.9 (3); American Robin, 0.4 (2); Ruffed Grouse, 0.2 (2); Blue Jay, 0.2 (1); Sharp-shinned Hawk, 0.1 (1); Red-tailed Hawk, 0.1 (1); Downy Woodpecker, 0.1 (1); Hairy Woodpecker, 0.1 (1); Brown Creeper, 0.1 (1); Golden-crowned Kinglet, 0.1 (1); Bohemian Waxwing, 0.1 (1); Purple Finch, 0.1 (1). **Total:** 20 species; 46.5 ind./visit (282 ind./40 ha). **Remarks:** Shrubs, brambles, and other low-medium growth appeared to be even denser than last yr, accounting in part, perhaps, for record plot numbers. Plot totals and number of species were highest for the five study yr. The overall total (372 birds) was far above the 153.8 mean for the previous 4 yr. Replacing the American Tree Sparrow as heaviest plot user for the first time, the 102 Cedar Waxwings were likely attracted by the abundance of fruit. Granivores still dominated, but were down to 51.1% of the total birds. Frugivores rose to 28.5% of the total; 15 waxwings were observed in 1985–1986. Two species have increased notably in the last 3 yr: Northern Cardinal from three to 36 birds, and House Finch from 0 to 52. Sharp-shinned Hawk, Golden-crowned Kinglet, Purple Finch, and Bohemian Waxwing were new to the plot.

26. URBAN PARK

PARQUE URBANO

STEPHEN D. TINDALL, JR. & DENNIS M. FORSYTHE

Department of Biology
The Citadel
Charlestown, South Carolina 29409

Location: South Carolina; Charleston Co.; Charleston; Hampton Park; 32° 48'N, 79° 58'W; Charleston Quadrangle, USGS. **Continuity:** Established 1970; 3 yr. **Size:** 25.9 ha. **Description of Plot:** A quantitative vegetation survey following the method described by F.C. James and H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727-736) yielded the following results: Trees, > 7.6 cm dbh, based on 10 0.04 ha circular samples, 54/ha; total basal area 5.7 m²/ha. Species comprising 100% of the total number of trees [figures after each give

number of trees/ha, relative density (%), relative dominance, frequency, in that order]: Live Oak 10, 18, 21, 30; Red cedar 7, 14, 37, 20; Water Oak 7, 14, 22, 20; Laurel Oak 2, 5, 7, 10; Cabbage Palmetto 5, 9, 6, 20; Camellia 5, 9, 2, 10; Dogwood 5, 9, 2, 10; Crape Myrtle 12, 23, 2, 10. Trees by diameter size class [figures after each class give number of trees/ha, relative density (%), basal area in square meters/ha, relative dominance]: A (7.6–15.2 cm) 17, 32, 0.2, 3; B (15.2–22.9 cm) 10, 18, 0.3, 5; C (22.9–38.1 cm) 5, 9, 0.4, 6; D (38.1–53.3 cm) 12, 23, 2.1, 36; E (53.3–68.6 cm) 10, 18, 2.8, 50. Shrub stems/ha 877. The principal shrub stems consist of Azalea; Bridal Wreath; Floribundia Rose. Ground cover 90.5%. The herb layer consists mainly of grasses (*Poaceae*); White Clover; Henbit. Canopy cover 13.5%; Average canopy height 15 m (range 12–21 m). **Edge:** The study area is bounded on the E by similar park habitat, on the W by the Citadel campus, likewise a park-like area, and on the N and S by residential areas. **Topography and Elevation:** The plot is flat, elevation 4.5 m. **Weather:** Mean temperature 9.5°C (range -1.1–21.1°C). Rainfall during the 83-d study period was 19.2 cm (from National Weather Service). **Coverage:** 24 h; 12.0 visits (9 morning, 3 afternoon): 14, 18, 21 Dec.; 4, 12, 19, 26 Jan.; 2, 9, 18, 28 Feb.; 7 Mar. **Count:** Ring-billed Gull, 136 ind./visit (12 visits); European Starling, 45.4 (12); Rock Dove, 29.2 (12); Common Grackle, 21.0 (8); Mourning Dove, 14.8 (12); American Robin, 14.7 (12); Northern Flicker, 14.4 (12); Blue Jay, 10.7 (12); Fish Crow, 8.2 (11); Boat-tailed Grackle, 7.3 (12); Northern Mockingbird, 6.5 (12); Brown Thrasher, 5.7 (12); Northern Cardinal, 4.4 (10); Killdeer, 3.0 (5); White-throated Sparrow, 2.7 (7); Red-bellied Woodpecker, 2.3 (12); Brown-headed Cowbird, 2.2 (5); Dark-eyed Junco, 2.2 (7); Yellow-rumped Warbler, 1.8 (7); House Sparrow, 1.7 (7); Rufous-sided Towhee, 1.3 (8); Downy Woodpecker, 0.8 (7); Double-crested Cormorant, 0.4 (5); Red-tailed Hawk, 0.4 (4); Yellow-bellied Sapsucker, 0.4 (4); White Ibis, 0.3 (2); Carolina Wren, 0.3 (2); Ruby-crowned Kinglet, 0.3 (3); Fox Sparrow, 0.2 (2); Herring Gull, 0.2 (2); Blue-gray Gnatcatcher, 0.2 (1); Gray Catbird, 0.2 (1); Solitary Vireo, 0.2 (2); Brown Pelican, 0.1 (1); Turkey Vulture, 0.1 (1); Loggerhead Shrike, 0.1 (1); Orange-crowned Warbler, 0.1 (1); Northern Oriole, 0.1 (1). **Total:** 38 species; 339 ind./visit (524 ind./40 ha). **Remarks:** The park lost 70 trees with a dbh > 61 cm during Hurricane Hugo (pers. com. T. Hudson, City of Charleston 7 Nov. 1989). **Acknowledgments:** We wish to thank the personnel of City of Charleston Parks Department for survey information and park access. This study was conducted as partial fulfillment for a senior research project (S.D.T.).

27. COASTAL FRESHWATER MARSH

PANTANO COSTANERO DE AGUA DULCE

JOHN KELLY

Cypress Grove Preserve

P.O. Box 808

Marshall, California 94940

Location: California; Marin Co.; Marshall; Livermore Marsh; 38° 10'N, 122° 54'W; To-males Quadrangle, USGS. **Continuity:** Established 1986; 5 yr. **Size:** 10.5 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (suppl.):64 (1989). **Weather:** Mean temperature 8.3°C (range 6.6–10°C). **Coverage:** 10.2 h; 8 visits (mornings): 25 Jan.; 1, 7, 14, 21, 22, 25, 28 Feb. **Count:** Canvasback, 48.9 ind./visit (8 visits); Ruddy Duck, 20.5 (8); Red-winged Blackbird, 17.8 (8); Marsh Wren, 13.3 (8); Black-crowned Night-Heron, 10.4 (7); American Coot, 10.0 (7); Song Sparrow, 8.5 (8); Bufflehead, 3.6 (8); Golden-crowned Sparrow, 3.1 (5); Cinnamon Teal, 2.9 (3); Wrentit, 2.9 (8); American Wigeon, 2.5 (6); Ruby-crowned Kinglet, 2.5 (8); California Quail, 2.4 (1); Black Phoebe, 2.4 (8); Anna's Hummingbird, 2.2 (7); Yellow-rumped Warbler, 2.2 (6); Common Yellowthroat, 1.6 (8); Swamp Sparrow, 1.6 (5); Hermit Thrush, 1.5 (5); Mallard, 1.4 (4); Common Snipe, 1.3 (5); Pied-billed Grebe, 1.1 (6); Northern Flicker, 1.1 (6); Tree Swallow, 1.1 (1); American Robin, 0.9 (3); Ring-necked Duck, 0.8 (1); Allen's Hummingbird, 0.8 (2); Scrub Jay, 0.6 (4); Fox Sparrow, 0.6 (3); Lincoln's Sparrow, 0.6 (4); Bushtit, 0.5 (2); Snowy Egret, 0.5 (3); Virginia Rail, 0.5 (3); Common Goldeneye, 0.4 (2); Northern Harrier, 0.4 (2); California Towhee, 0.4

(2); Gadwall, 0.2 (1); Sora, 0.2 (2); Killdeer, 0.2 (1); Belted Kingfisher, 0.2 (2); House Finch, 0.2 (1); Common Moorhen, 0.1 (1); Great Blue Heron, 0.1 (1); Turkey Vulture, 0.1 (1); Cooper's Hawk, 0.1 (1); Chestnut-backed Chickadee, 0.1 (1); Hutton's Vireo, 0.1 (1); Orange-crowned Warbler, 0.1 (1); Pine Siskin, 0.1 (1). **Total:** 50 species; 176 ind./visit (670 ind./40 ha). **Remarks:** Black-crowned Night-Herons (max. 16) and ca 1000 Red-winged and Tricolored Blackbirds roosted in the lower marsh. Counts of Red-winged Blackbirds represent individual males exhibiting early territorial behavior. Canvasbacks (max. 60) exhibited local movement between Livermore Marsh and Abbott's Lagoon, 4 km to the S. All Common Yellowthroats observed were males. Marsh Wrens occupied all areas of the marsh, but breed only in the lower third. **Acknowledgments:** Susan Kelly provided valuable assistance in summarizing the results. This work was supported by Chevron U.S.A., Inc. San Francisco, CA, and by Audubon Canyon Ranch, Stinson Beach, CA.

28. COASTAL RIPARIAN AND CATTAIL-BULRUSH MARSH

ANIGADO DE ENEAS-"BULRUSH" COSTANERO RIVEREÑO

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Location: California; Marin Co.; Point Reyes Station; Olema Marsh; 38° 4'N, 122° 49'W; Point Reyes Quadrangle, USGS. **Continuity:** New. **Size:** 17.5 ha. **Description of Plot:** Approximately 75% brackish to fresh water marsh; 25% riparian thicket at the confluence of Bear Valley Creek and Lagunitas Creek. The vegetation of the study plot is estimated as percent cover: *Typha latifolia/Scirpus* sp. 56%; *Salix* sp./*Alnus* sp. 20%; open water 9%; upland grassland 9%; salt marsh 6%. **Water:** A slow-running stream (Bear Valley Creek) borders the W side of the marsh, separating it from the riparian thicket. The stream joins Lagunitas Creek only after passing through a 1.2 x 2.4 m culvert. During extreme high tides or winter rain, the fresh marsh "backs up" flooding ca 75% of the area. **Edge:** The plot is bounded to the W by evergreen forest of Coast Live Oak and Douglas fir; to the E by short, grazed, annual grassland, and to the N by a road which serves to block the free flow of water between the site and Lagunitas Creek. **Topography and Elevation:** Low-lying marsh bordered to the E by a low (2-3 m elevation) berm, a slip fault that defines the San Andreas Fault. **Weather:** Mean temperature 10°C (range -3.8-18.3°C). Generally cold and dry with the onset of winter rains, which normally begin in Nov., delayed until Jan. Early morning cold may have contributed to low detection rate for smaller passerines, especially Marsh Wren. **Coverage:** 22.7 h; 8 visits (mornings): 7, 16, 30 Dec.; 10, 23 Jan.; 2, 15, 23 Feb.; 3 evening visits to estimate blackbirds and owls. **Count:** Red-winged Blackbird, 5000 ind./visit (8 visits); Brewer's Blackbird, 500 (8); Pine Siskin, 39.4 (7); Song Sparrow, 37.1 (8); Purple Finch, 25.9 (8); American Robin, 25.8 (8); Virginia Rail, 20.1 (8); Golden-crowned Sparrow, 17.0 (8); Marsh Wren, 13.3 (8); Bushtit, 12.6 (6); Chestnut-backed Chickadee, 9.8 (8); California Quail, 9.1 (6); Ruby-crowned Kinglet, 8.8 (8); Fox Sparrow, 8.1 (8); Yellow-rumped Warbler, 6.9 (8); House Finch, 6.6 (4); Scrub Jay, 6.4 (8); Hermit Thrush, 5.6 (8); Swamp Sparrow, 5.6 (8); White-crowned Sparrow, 5.4 (6); Acorn Woodpecker, 5.0 (8); Varied Thrush, 4.0 (7); California Towhee, 3.9 (7); American Coot, 3.7 (6); Rufous-sided Towhee, 3.4 (7); European Starling, 3.0 (5); Wrentit, 2.7 (7); Common Yellowthroat, 2.7 (7); Sora, 2.6 (7); Tree Swallow, 2.5 (2); Mallard, 2.2 (2); Northern Flicker, 2.1 (6); Dark-eyed Junco, 2.1 (2); Bewick's Wren, 2.0 (7); Steller's Jay, 1.9 (5); Downy Woodpecker, 1.8 (7); Winter Wren, 1.8 (7); Plain Titmouse, 1.5 (7); Nuttall's Woodpecker, 1.4, (8); Black Phoebe, 1.4 (8); Hutton's Vireo, 1.4 (7); Red-shouldered Hawk, 1.2 (8); Mourning Dove, 1.1 (4); Anna's Hummingbird, 0.9 (6); Cinnamon Teal, 0.9 (2); Gadwall, 0.9 (1); Lincoln Sparrow, 0.8 (6); Green-winged Teal, 0.8 (3); Hairy Woodpecker, 0.8 (3); Great Blue Heron, 0.6 (5); Sharp-shinned Hawk, 0.6 (5); White-throated Sparrow, 0.6 (5); House Sparrow, 0.6 (3); Pied-billed Grebe, 0.5 (4); Red-tailed Hawk, 0.5 (2); American Kestrel, 0.5 (4); Townsend's Warbler, 0.5 (3); Cooper's Hawk, 0.4 (3); Black-crowned Night-Heron, 0.4 (1); American Wigeon, 0.4 (1); Common Snipe, 0.4 (1); Green-backed Heron, 0.2 (2);

American Bittern, 0.2 (2); Allen's Hummingbird, 0.2 (2); Brown Creeper, 0.2 (2); Wood Duck, 0.2 (1); Lesser Goldfinch, 0.2 (1); Bufflehead, 0.1 (1); Ruddy Duck, 0.1 (1); Osprey, 0.1 (1); Long-eared Owl, 0.1 (1); Northern Saw-whet Owl, 0.1 (1); Belted Kingfisher, 0.1 (1); Red-breasted Sapsucker, 0.1 (1); Least Flycatcher, 0.1 (1); Orange-crowned Warbler, 0.1 (1); American Goldfinch, 0.1 (1). **Total:** 77 species; 5,832.5 ind./visit (13,331 ind./40 ha). **Remarks:** The Least Flycatcher is an extremely rare visitor to this region. Details are on file with the regional editors of *Am. Birds*. Blackbirds use the marsh as a night roost. Because of the vast flocks, numbers were estimated by hundreds as the flocks arrived or departed at dawn. Tricolored Blackbirds may have been overlooked in the flocks. Approximately 12 male Red-winged Blackbirds were present on territories throughout the census period. As the marshy area is colonized by willows we expect an increase in riparian species and a decrease in marsh dependent species, particularly Marsh Wrens. Marsh Wren population levels have decreased progressively over the five yr of the study, though this may be due to drought as well as changes in habitat. Other marsh dependent species Virginia Rail, Song Sparrow (*M. melodia gouldii*) remain at constant levels, while Red-winged Blackbirds apparently are on the increase. **Acknowledgments:** This work was supported by Chevron, U.S.A., Inc., San Francisco, California, and Audubon Canyon Ranch, Inc. Phyllis Faber for help with plant transects and analysis, John Kelly for design and statistical help, and Skip Schwartz, general manager of ACR for ongoing support.

29. BARRIER BEACH AND SALTWATER ESTUARY

ESTUARIOS DE AGUA SALADA Y PLAYAS DE BARRERA

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Location: Florida; Duval Co.; Mayport; North Jetties Area; 30° 25'N, 81° 25'W; Mayport Quadrangle, USGS. **Continuity:** Established 1977; 13 yr. **Size:** 213.0 ha. **Description of Plot:** See *Am. Birds* 33:47-48 (1979). **Water:** At high tide 50% of area is covered by salt water; at low tide about 30% is covered, the rest being exposed mud flats, sand bars, and beach. **Edge:** Between the barrier beach and the estuary is a line of unstable dunes more or less covered with salt-loving forbs. At the base of the hook are a few cabbage palms. Near one edge there is a brackish marsh with Sea Ox-eye, Spartina, and Juncus. Since the study started 12 yr ago, the marsh has spread out and the inlet has shallowed. At the start about 70% of the area was covered with water at high tide. **Weather:** Mean temperature 16.3°C (range 7.7–22.7°C). **Coverage:** 23.8 h; 8 visits (afternoons; 4 low tide, 2 high tide, 2 half tide); 1, 10 Dec.; 1, 14, 21, 28 Jan.; 17, 25 Feb. **Count:** Herring Gull, 1233 ind./visit (8 visits) Ring-billed Gull, 531 (8); Laughing Gull, 248 (8); Black Skimmer, 189 (6); Dunlin, 150 (8); Sanderling, 127 (8); Western Sandpiper, 127 (8); Short-billed Dowitcher, 81.6 (8); Royal Tern, 72.7 (8); Lesser Scaup, 69.2 (3); Brown Pelican, 52.6 (8); Ruddy Turnstone, 48.0 (8); Double-crested Cormorant, 47.4 (8); Yellow-rumped Warbler, 46.6 (8); Forster's Tern, 44.9 (8); Great Black-backed Gull, 44.6 (8); Red-breasted Merganser, 41.4 (8); Semipalmated Plover, 33.4 (7); Common Grackle, 30.8 (8); Red Knot, 22.9 (4); Black-bellied Plover, 21.8 (8); Northern Gannet, 16.1 (4); Red-winged Blackbird, 6.7 (6); European Starling, 6.1 (6); Bonaparte's Gull, 5.7 (6); Willet, 5.0 (8); Horned Grebe, 4.1 (7); Mourning Dove, 4.0 (7); American Goldfinch, 3.7 (1); Great Egret, 3.5 (5); Savannah Sparrow, 3.0 (5); Song Sparrow, 2.7 (8); Snowy Egret, 2.4 (4); Piping Plover, 2.2 (5); Caspian Tern, 1.9 (6); Rufous-sided Towhee, 1.9 (7); Common Ground-Dove, 1.6 (2); Northern Cardinal, 1.6 (7); Northern Mockingbird, 1.5 (6); Clapper Rail, 1.4 (3); Palm Warbler, 1.0 (2); Loggerhead Shrike, 0.9 (5); Great Blue Heron, 0.8 (4); Little Blue Heron, 0.8 (2); Belted Kingfisher, 0.8 (5); Tricolored Heron, 0.6 (3); Sandwich Tern, 0.6 (2); Osprey, 0.5 (2); Common Loon, 0.4 (3); Turkey Vulture, 0.4 (2); Northern Harrier, 0.4 (3); American Kestrel, 0.4 (3); Killdeer, 0.4 (3); Gray Catbird, 0.4 (2); Wilson's Plover, 0.2 (2); American Oystercatcher, 0.2 (1); Lesser Black-backed Gull, 0.2 (2); Carolina Wren,

0.2 (1); Surf Scoter, 0.1 (1); Bufflehead, 0.1 (1); Hooded Merganser, 0.1 (1); Red-tailed Hawk, 0.1 (1); Greater Yellowlegs, 0.1 (1); Long-billed Curlew, 0.1 (1); Marbled Godwit, 0.1 (1); Northern Flicker, 0.1 (1); Fish Crow, 0.1 (1); House Wren, 0.1 (1); Ruby-crowned Kinglet, 0.1 (1); Swamp Sparrow, 0.1 (1); Boat-tailed Grackle, 0.1 (1). **Total:** 71 species; 3350 ind./visit (629 ind./40 ha). **Remarks:** Both Herring and Ring-billed Gulls were at an all-time high, but Laughing Gulls were down (248 vs. 420, the 12-yr mean). Semipalmated Plovers were down (33 vs. 90), as were Royal Terns (73 vs. 229), Brown Pelicans (53 vs. 96), and Dunlin (150 vs. 250). Short-billed Dowitchers were up (82 vs. 68), as were Red-breasted Mergansers (41 vs. 27). Sanderling, Western Sandpiper, Ruddy Turnstone, Double-crested Cormorant, Forster's Tern, and Great Black-backed Gull were present in numbers that were very close to the 12-yr mean. **Other Observers:** Robert Richter and Jim Wheat.

30. MESQUITE-HACKBERRY DOMINATED CANYON

CAÑON DOMINADO POR MESQUITA-HACKBERRY

JOAN C. & ROBERT C. TWEIT

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Tucson, Arizona 85712

Location: Arizona; Pima Co.; Oro Valley; Sutherland Wash; 32° 26'N, 110° 54'W; Oro Valley Quadrangle, USGS. **Continuity:** Established 1985; 2 yr. **Size:** 11.2 ha. **Description of Plot:** A broad, shallow canyon and old floodplain, the bottom of which is dominated by Mesquite, ca 4 m in height, and Netleaf Hackberry. Arizona Ash and China Berry also are found in the canyon bottom. The ground cover under the Mesquite is mostly introduced grasses from grazing and the Mesquite are probably second-growth. The W slope of the canyon has Saguaros and Yellow Paloverde. **Edge:** To the W, the bajada beyond the canyon is covered with plants of the Saguaro-Paloverde community, while to the E the bajada has grasses, Mesquite, and the occasional cacti. **Topography and Elevation:** The canyon bottom drops from 840 to 825 m. The canyon sides rise 15 m. **Weather:** The weather was much drier this yr then in 1984-1985, when the wash flowed all winter. Water was present only on the Feb. visit. **Coverage:** 11.2 h; 8 visits (all morning): 6, 22 Dec.; 6, 10, 15, 24, 30 Jan.; 23 Feb. **Count:** Dark-eyed Junco, 13.9 ind./visit (8 visits); Canyon Towhee, 12.3 (8); White-crowned Sparrow, 10.6 (8); House Finch, 8.4 (8); Gambel's Quail, 8.1 (7); Verdin, 7.2 (8); Chipping Sparrow, 6.9 (6); Northern Cardinal, 5.4 (8); Gila Woodpecker, 4.7 (8); Ruby-crowned Kinglet, 4.2 (8); Phainopepla, 3.0 (8); Cactus Wren, 2.9 (5); Bewick's Wren, 2.9 (8); Hermit Thrush, 2.2 (5); Abert's Towhee, 2.2 (7); Ladder-backed Woodpecker, 2.1 (7); Western Bluebird, 2.0 (2); Curve-billed Thrasher, 2.0 (7); Black-tailed Gnatcatcher, 1.4 (6); Black-throated Sparrow, 1.3 (4); Crissal Thrasher, 1.3 (6); Rock Wren, 1.1 (5); Canyon Wren, 1.1 (7); Green-tailed Towhee, 1.1 (6); Northern Flicker, 0.6 (3); Yellow-rumped Warbler, 0.5 (4); Anna's Hummingbird, 0.5 (2); Greater Roadrunner, 0.4 (2); American Robin, 0.4 (1); Mourning Dove, 0.2 (1); Northern Beardless-Tyrannulet, 0.2 (2); Scrub Jay, 0.2 (1); White-breasted Nuthatch, 0.2 (2); Townsend's Solitaire, 0.2 (1); Pyrrhuloxia, 0.2 (2); Black Phoebe, 0.1 (1); Black-chinned Sparrow, 0.1 (1); Cooper's Hawk, 0.1 (1); Gray Flycatcher, 0.1 (1); Rufous-crowned Sparrow, 0.1 (1). **Total:** 40 species; 112.9 ind./visit (403 ind./40 ha). **Remarks:** Since the 1984-1985 census, a small area at one edge of the plot has been cleared for a parking lot. The average number of birds per visit decreased from 133 in 1984-85, a wet winter following a wet summer and fall, to 113 this yr, a winter with average rainfall. 1989 was drier than the preceding 6 yr. The 4 most common species in 1984-85 decreased in number by at least 30%, while the numbers of Canyon Towhee, White-crowned Sparrow and Verdin increased. Rufous-sided Towhees were not detected this yr and the number of Green-tailed Towhees was down by more than 60%. The total number of species also decreased from 48 to 40.

31. SUBDIVISION WITH MESQUITE TREES

SUBDIVISION CON ARBOLES DE MESQUITA

JOAN C. & ROBERT C. TWEIT

3116 N. Willow Creek Drive

Tucson, Arizona 85712

Location: Arizona; Pima Co.; Tucson; Hill Farm Subdivision; 32° 16'N, 110° 53'W; Mt. Lemmon Quadrangle, USGS. **Continuity:** New. **Size:** 13.2 ha. **Description of Plot:** The subdivision contains 104 houses with a 1-ha pond in the center. Previously, the land was a farm with irrigation ditches with large cottonwoods bordering them as well as remnant mesquites from the original "bosque." The area is about 0.4 km from Rillito Creek, a major drainage channel in the Tucson Basin. The subdivision contains about 1.6 km of roadway. **Edge:** The plot is bordered on the N by another subdivision, on the W by a subdivision and a horse farm with several ponds, on the S by a road with horse pastures across it and on the E by a small wash with mesquite trees. **Topography and Elevation:** The plot slopes gently to the N. **Weather:** Temperatures during census period were about average for the area, but rainfall (4.3 cm) was below average. **Coverage:** 8.5 h; 8 visits (7 morning, 1 afternoon): 25 Nov.; 7, 16 Dec.; 9, 17, 20, 26 Jan.; 24 Feb.; 16 visits for waterfowl and waders between 8 Dec. and 12 Mar. **Count:** Mallard, 72.7 ind./visit (16 visits); House Sparrow, 60.4 (8); Mourning Dove, 39.5 (8); House Finch, 18.4 (8); European Starling, 17.8 (8); Gila Woodpecker, 4.7 (8); White-crowned Sparrow, 3.7 (6); Inca Dove, 3.4 (7); Great-tailed Grackle, 3.0 (7); Yellow-rumped Warbler, 2.9 (8); Northern Flicker, 2.6 (8); Verdin, 2.5 (8); American Wigeon, 2.1 (5); Anna's Hummingbird, 1.9 (7); Cactus Wren, 1.9 (6); Ruby-crowned Kinglet, 1.5 (5); Abert's Towhee, 1.5 (7); Gambel's Quail, 1.4 (4); Northern Mockingbird, 1.4 (5); Green-Winged Teal, 1.1 (7); Northern Cardinal, 1.1 (6); Curve-billed Thrasher, 1.0 (5); Green-backed Heron, 0.8 (8); Pyrrhuloxia, 0.6 (4); Say's Phoebe, 0.5 (3); Red-crested Pochard, 0.4 (3); White-breasted Nuthatch, 0.2 (1); Phainopepla, 0.2 (2); White-winged Dove, 0.1 (1); Greater Roadrunner, 0.1 (1); Ladder-backed Woodpecker, 0.1 (1). **Total:** 31 species; 249.5 ind./visit (756 ind./40 ha). **Remarks:** Most food in the area was provided by the residents at feeders or on the ground. Pet cats were a hazard for the birds. The area will be interesting to follow as the trees grow. The composition of the land bird population is intermediate between native mesquite areas and developments with primarily exotic vegetation.

32. ABANDONED UPLAND PASTURE

PASTIZAL DE ALTURAS ABANDONADO

VIVIAN MILLS PITZRICK

Amity Lake

Belmont, New York 14813

Location: New York; Allegany Co.; Scio; Saunders Plot; 42° 13'N, 77° 59'W; Wellsville North Quadrangle, USGS. **Continuity:** Established 1984; 7 yr. **Size:** 8.0 ha. **Description of Plot:** See *Am. Birds* 39:119 (1985). **Weather:** Mean temperature -2°C (range -11.1-7.2°C). Temperature averaged 4°C below normal for Dec., and 8.3°C above normal for Jan. The intermittent stream was open for all but one trip, and the ground was covered with snow on all but two trips. **Coverage:** 4.8 h; 8 visits: 8, 9, 29, Dec.; 8, 12, 16, 18, 24 Jan. **Count:** House Finch, 2.9 ind./visit (2 visits); Black-capped Chickadee, 2.4 (4); Evening Grosbeak, 1.6 (6); Northern Cardinal, 1.3 (5); Pine Siskin, 1.3 (1); American Tree Sparrow, 1.1 (2); Purple Finch, 1.0 (4); Blue Jay, 0.9 (5); American Goldfinch, 0.9 (2); American Robin, 0.8 (5); Downy Woodpecker, 0.2 (2); American Crow, 0.2 (1); Eastern Bluebird, 0.2 (1); Dark-eyed Junco, 0.2 (1); Mourning Dove, 0.1 (1); Cedar Waxwing, 0.1 (1); White-throated Sparrow, 0.1 (1). **Total:** 17 species; 15.4 ind./visit (77 ind./40 ha). **Remarks:** Although the number of species was 2.3 above the cumulative average, the total bird population was the lowest ever. There were no new species and none appeared on every

visit. **Acknowledgments:** Thanks to Gail and Victor Funk for permission to use their property.

33. MATURE CITRUS ORCHARD

CULTIVOS DE CITROSAS

FRED E. LOHRER

Archbold Biological Station

Box 2057

Lake Placid, Florida 33852

Location: Florida; Highlands Co.; Lake Placid; Buck Island Ranch citrus grove; 27° 8'N, 81° 12'W; Brighton NW Quadrangle, USGS. **Continuity:** Established 1989; 2 yr. **Size:** 13.7 ha. **Description of Plot:** See *J. Field Ornithol.* 61 (suppl.):20 (1990). **Weather:** Mean temperature 14.6°C (range 11.1–18.3°C). **Coverage:** 19.8 h; 10.0 visits (mornings): 19, 20, 21 Dec.; 4, 10, 11, 12, 16, 20, 21 Jan. **Count:** Palm Warbler, 24.9 ind./visit (10 visits); Yellow-rumped Warbler, 19.4 (10); Northern Cardinal, 13.6 (10); Mourning Dove, 2.9 (10); American Crow, 2.7 (5); Blue-gray Gnatcatcher, 2.5 (10); Eastern Phoebe, 2.2 (8); Chipping Sparrow, 1.9 (3); Blue Jay, 1.7 (7); Ruby-crowned Kinglet, 1.7 (8); White Ibis, 1.6 (4); White-eyed Vireo, 1.3 (4); Red-shouldered Hawk, 1.2 (6); House Wren, 1.1 (7); Brown Thrasher, 0.8 (5); Great Egret, 0.5 (5); Common Ground-Dove, 0.5 (4); Hooded Merganser, 0.4 (2); Belted Kingfisher, 0.3 (3); American Robin, 0.3 (2); Orange-crowned Warbler, 0.2 (2); Red-bellied Woodpecker, 0.1 (1); Gray Catbird, 0.1 (1); Red-winged Blackbird, 0.1 (1). **Total:** 24 species; 82.0 ind./visit (239 ind./40 ha). **Remarks:** During summer 1989 the steep banks and water in the ditches in the grove were scraped clean of vegetation. This eliminated habitat used by Swamp Sparrows and Common Yellowthroats the previous winter, but made the ditches more attractive this winter to Ciconiiforms, mergansers, kingfishers, phoebes, and Palm Warblers. Ten of the 12 Red-shouldered Hawks were identified as immatures. Thrashers and vireos were not detected in Dec. The vocalizations of thrashers, vireos, and cardinals increased in Jan., but not to levels sustained in Feb.-May (see BBC # 98, this issue). In this habitat, winter counts for these cryptic species, as well as for kinglets, probably underestimate actual numbers. **Acknowledgments:** This is contribution No. 2 from the John D. MacArthur Agro-ecology Research Center of Archbold Biological Station.

34. MIXED CROPLANDS

CULTIVOS MIXTOS

GLENNA P. & PAUL W. SCHWALBE

546 Wilson Street

Jersey Shore, Pennsylvania 17740

Location: Pennsylvania; Clinton Co.; Avis; South Avis Fields; 41° 10'N, 77° 17'W; Jersey Shore Quadrangle, USGS. **Continuity:** Established 1983; 8 yr. **Size:** 40.5 ha. **Description of Plot:** See *Am. Birds* 38:56-57 (1984). **Weather:** Mean temperature 2.5°C (range -3.3–13.9 cm); Ground mostly bare on all except one trip. **Coverage:** 5.3 h; 10 visits (7 morning 3 afternoon): 26 Dec.; 2, 4, 10, 16, 18, 22, 27, 30 Jan.; 5 Feb. **Count:** Horned Lark, 171 ind./visit (8 visits); Rock Dove, 95.2 (8); European Starling, 66.4 (5); Snow Bunting, 20.1 (7); American Crow, 0.4 (2); Lapland Longspur, 0.4 (2); Red-tailed Hawk, 0.2 (2); Rough-legged Hawk, 0.2 (2); Northern Harrier, 0.1 (1); American Kestrel, 0.1 (1); Ring-billed Gull, 0.1 (1). **Total:** 11 species; 354 ind./visit (350 ind./40 ha). **Remarks:** As was true last yr, the number of Rock Doves is real, but misleading. They seem to be using the fields for daytime roosting, courtship, and feeding.