

BREEDING BIRD CENSUS: 1993

Habitat	State/ Prov.	Compiler	Plot Size (ha)	Terr. per 40 ha	Num. sp./ spp.	Hrs obs.	Yr Study
Broadleaf Forests							
1. Northern Oak Woodland	CA	J.D. Petersen	16.0	81	22	14.0	4
2. Riparian Woodland	CA	K.L. Weaver	11.7	595	35	17.3	5
3. Western Sycamore Woodland with Scattered Oaks	CA	D. Riensche	15.9	292	37	53.8	4
4. Willow Riparian Woodland and Edge	CA	D. Riensche	8.1	249	20	33.0	2
5. Mixed Hardwood Poletimber	CT	A. Magee	8.5	459	37	14.0	27
6. Oak-Hardwood Forest	CT	M. Didek	15.8	222	24	26.3	6
7. Second-growth Hardwood Forest	CT	A. Magee	10.1	436	45	15.5	27
8. Central Hardwood Forest with Scattered Pine	DC	M.E. D'Imperio	26.3	120	24	64.2	45
9. Mixed Upland Broadleaf Forest	DC	S.A. Briggs	14.2	821	41	140.6	35
10. Mesic Hammock with Needle Palm Understory	FL	G. Sprandel	10.5	118	14	22.6	1
11. White Alder-Black Locust-Hackberry Riparian	ID	C. Bradford	5.3	181	17	26.1	3
12. Mature Deciduous Floodplain Forest	MD	D. Gauthey	7.6	395	24	78.0	42
13. Upland Tuliptree-Maple-Oak Forest	MD	G.E. Einem	11.9	439	27	69.5	13
14. Mixed Upland Hardwood Forest I	MI	P.S. Reaman	20.9	152	21	28.7	2
15. Mixed Upland Hardwood Forest II	MI	P.S. Reaman	20.9	122	14	22.6	2
16. Mixed Upland Hardwood Forest III	MI	P.S. Reaman	20.9	198	22	27.6	2
17. Mixed Upland Hardwood Forest IV	MI	P.S. Reaman	20.9	149	16	26.7	2
18. Old-growth Woods and Swamp Forest	MI	L.R. Knapp	28.3	294	46	24.3	5
19. Bottomlands Hardwood Forest	MN	R. Swanson	12.2	408	30	40.2	1
20. Maple-Basswood Forest	MN	R.D. Huffman	13.4	287	21	17.9	2
21. Upland Second-growth Oak-Hickory Forest	MS	H. Moore	10.0	632	36	24.5	5
22. Floodplain Forest	NC	H. Mueller	12.6	319	31	26.0	17
23. Mixed Deciduous Forest	NC	H. Mueller	12.6	252	29	26.2	18
24. Mature Urban Deciduous Forest I	NY	D.S. Künster	10.1	279	25	34.3	7

BREEDING BIRD CENSUS: 1993 (Continued)

Habitat	State/ Prov.	Compiler	Plot Size (ha)	Terr. per 40 ha	Num. spp.	Hrs. obs.	Yr Study
25. Young White Ash-Red Maple Forest on Lake Shore	NY	G.R. Maxwell	16.2	153	23	10.0	8
26. Appalachian Oak Forest	OH	D. Minney	10.0	282	25	21.0	1
27. Mature Broadleaf Forest	OH	C.W. Saunders	16.0	260	26	29.4	3
28. Riparian Deciduous Forest	OH	E.J. Tramer	18.0	283	34	25.7	5
29. White Oak Savannah	ON	M.F.G. Clark	10.4	425	27	17.4	1
30. Oak-Maple-Poplar Hollow	PA	L.M. Ingram	10.9	149	17	30.0	1
31. Oak-Maple Ridge-top Forest	PA	C.B. Viverette	19.3	94	15	24.2	12
32. Oak-Maple Slope Forest	PA	C.B. Viverette	16.9	116	20	23.6	12
33. Suburban Deciduous Woodlot	PA	D. Robertson	10.0	236	17	17.4	3
34. Mature Mesic Oak Forest	RI	L. Olyott	10.6	283	19	38.7	2
35. Upland Oak-Red Maple Forest	RI	W.R. Eddleman	10.1	321	25	22.2	4
36. Virgin Hardwood Swamp Forest	SC	M.R. Dawson	8.9	620	20	17.8	7
37. Mature Maple-Beech-Birch Forest	TN	L.J. Mitchell	10.2	306	13	21.6	2
38. Mesophytic Forest I	VA	M.G. Smith	6.1	361	17	11.9	7
39. Mesophytic Forest II	VA	M.G. Smith	6.1	413	17	12.9	8
Needleleaf Forests							
40. Ponderosa Pine Forest	CO	L. Hering	8.1	193	18	20.8	28
41. Longleaf Pine Flatwoods	FL	G. Sprandel	12.0	115	17	23.8	1
42. Mature Longleaf Pine Forest I	GA	L.D. Carlile	20.0	254	35	20.5	1
43. Mature Longleaf Pine Forest II	GA	L.D. Carlile	20.0	202	37	20.3	1
44. Cedar Forest	ID	S. Weller	12.3	128	27	23.0	2
45. Old-growth Forest	ID	S. Jacobson	11.3	106	16	19.4	2
46. Riparian Forest	ID	S. Weller	10.3	214	28	21.5	3
47. Heavily Thinned White Spruce Plantation	ME	J.A. Hepinstall	4.1	341	24	24.8	9
48. Mature Red Spruce Forest	ME	T.P. Skaling	16.0	164	30	24.0	5
49. Jack Pine Forest	MI	W.R. Johansen, Jr.	16.0	75	13	20.8	9
50. Upland Christmas Tree Farm	NY	E.W. Brooks	10.7	267	21	19.5	11
51. Upland Scotch Pine Plantation	NY	E.W. Brooks	9.3	198	25	11.2	25

BREEDING BIRD CENSUS: 1993 (Continued)

Habitat	State/ Prov.	Compiler	Plot Size (ha)	Terr. per 40 ha	Num. sp.	Hrs. obs.	Yr. Study
52. White Pine-White Cedar Savannah	ON	D.M. Brenner	9.3	469	38	91.8	5
53. Old-growth White Pine-Hemlock Forest	PA	J.C. Haney	18.2	199	24	23.6	1
54. Mature White Pine Forest	RI	W.R. Eddleman	10.1	307	23	19.5	4
55. Loblolly Pine Forest	SC	S. Wagner	12.2	69	14	10.8	1
56. Loblolly Pine Plantation	SC	P.A. Koehler	9.7	16	3	6.3	1
57. Longleaf-Loblolly Pine Forest	SC	P.A. Koehler	12.3	218	26	19.4	1
58. Longleaf Pine Forest	SC	J. Plissner	12.2	193	29	25.0	2
59. High Altitude Red Spruce Forest	TN	G.R. Mayfield, III	9.9	137	11	23.3	2
60. Pinyon-Juniper Woodland	UT	G.N. Salamacha	31.3	36	14	26.2	11
Broadleaf/Needleleaf Forests							
61. Grazed Oak-Pine Woodland	CA	J.G. Turner	29.7	187	24	129.6	9
62. Ungrazed Oak-Pine Woodland	CA	J.G. Turner	29.7	179	30	133.8	9
63. Ponderosa Pine-Scrub Oak Forest	CO	B.J. Freiburger	12.0	460	21	13.0	13
64. Climax Hemlock-White Pine Forest with Transition Hardwoods	CT	A. Magee	10.5	467	40	15.3	27
65. Mature Broadleaf-Coniferous Forested Wetland	CT	T. Harrington	21.5	191	30	23.0	3
66. Upland Oak and Hemlock Forest	CT	R.A. Braunfield	10.5	371	20	9.8	5
67. Young Mixed Hardwood-Conifer Stand	CT	A. Magee	8.5	435	39	13.5	16
68. Lowland Mixed Forest and Floodplain	MA	D.C. McLain	10.1	190	25	16.0	1
69. Upland Forest Interior	MA	D.C. McLain	10.1	250	24	20.0	1
70. Tamarack Bog and Hardwood	MI	J. Mullins	8.5	85	14	8.0	18
71. Upland Mixed Pine-Spruce-Hardwood Plantation	NY	E.W. Brooks	16.6	184	34	18.4	20
72. Mature Hemlock-Hardwood Forest	OH	D. Minney	10.0	482	30	22.5	3
73. Interggrading Dune-Swale Savannah	ON	G. Gibson	11.0	176	12	44.4	6
74. Hardwood Forest with Scattered Pine	PA	G.W. Grove	19.2	179	29	11.0	3
75. Mixed Oak-Pine Forest I	PA	D.A. Gross	6.0	380	27	30.0	14
76. Mixed Oak-Pine Forest II	PA	D.A. Gross	11.1	400	37	32.8	14

BREEDING BIRD CENSUS: 1993 (Continued)

Habitat	State/ Prov.	Compiler	Plot Size (ha)	Terr. per 40 ha	Num. sp.	Hrs obs.	Yr Study
77. Old-growth Beech-Hemlock Forest I	PA	J.C. Haney	12.0	450	25	18.4	1
78. Old-growth Beech-Hemlock Forest II	PA	J.C. Haney	12.0	447	31	18.7	1
79. Old-growth Hemlock-Mixed Hardwood Forest I	PA	J.C. Haney	15.0	300	23	22.9	1
80. Old-growth Hemlock-Mixed Hardwood Forest II	PA	C.P. Schaad	15.0	357	32	22.7	1
81. Remnant Old-growth Hemlock-Mixed Hardwood Forest	PA	C.P. Schaad	15.0	296	29	22.2	1
82. Mature Upland Oak-Beech-White Pine Forest	RI	W.R. Eddleman	10.2	388	28	30.7	3
83. Scrub Oak Forest with Scattered Longleaf Pine	SC	J. Plissner	12.2	108	18	22.2	1
84. Mature Deciduous-Coniferous Forest with Stream	TN	S.J. Stedman	10.2	210	42	18.1	3
85. Sloped Mixed Deciduous-Coniferous Forest	VT	F. Merrill	12.3	187	31	21.3	2
Mixed Habitats							
86. Suburban Cemetery	AL	T.A. Imhof	15.0	203	22	56.0	14
87. Mature Upper Mixed-coniferous Forest-Montane Chaparral	CA	J.G. Turner	42.3	286	42	120.4	9
88. Mixed Habitat	CT	M. Dudek	15.0	591	49	32.9	7
89. Bulrush and Cattail Marsh in Conifer Forest	MT	M.M. Bishop	40.5	326	69	30.0	19
90. Deciduous Forest with Pond and Brook	NJ	J. Brotherton	16.2	94	22	9.0	30
91. Suburban Bird Sanctuary	NY	M.E. Richard	10.8	259	29	12.5	11
92. Urban Coastal Park	NY	A. Magee	10.0	420	30	12.8	1
93. Urban Coastal Wildlife Refuge	NY	A. Magee	11.0	404	42	12.8	1
94. Disturbed Oak-Hickory, Pine Stand, Edge, and Pond	OH	A.H. Claugus	14.2	144	27	47.5	49
95. Field, Ridge, and Shrubby Trees	ON	M.F.G. Clark	6.6	803	20	15.6	5

BREEDING BIRD CENSUS: 1993 (Continued)

Habitat	State/ Prov.	Compiler	Plot Size (ha)	Terr. per 40 ha	Num. sp./ 40 ha	hrs. obs.	Yr Study
96. Sedge-Tamarack Dune Pond	ON	D.M. Brenner	10.0	302	12	63.4	3
97. Shrubby Trees, Ridge, and Woods	ON	M.F.G. Clark	7.3	301	18	12.3	4
98. Scattered Mixed Coniferous Forest in Subalpine Meadows and Spruce Bogs	OR	R.A. Hudson	32.4	40	9	13.6	21
Non-forested Wetlands							
99. Coastal Freshwater Marsh	CA	J.P. Kelly	10.5	320	18	8.8	6
100. Coastal Riparian Marsh	CA	J.G. Evans	17.5	535	50	27.9	4
101. Desert Riparian-Freshwater Marsh	CA	E.A. Cardiff	15.4	418	29	25.5	17
102. Shrubby Swamp and Sedge Hummocks	CT	A. Magee	8.1	928	28	14.3	27
103. Wetland Sedge Meadow I	NE	G. Lingle	16.2	62	7	7.0	11
104. Wetland Sedge Meadow II	NE	G. Lingle	16.2	62	8	6.7	10
105. Intertidal Salt Marsh	NY	C.D. Aquila	40.9	45	12	26.3	2
106. Intertidal Salt Marsh II	NY	C.D. Aquila	57.3	43	20	31.5	1
107. Sedge-Rush Swale I	ON	G. Gibson	9.3	30	4	16.1	4
108. Sedge-Rush Swale II	ON	G. Gibson	9.3	28	5	16.2	2
Shrublands							
109. Coastal Scrub	CA	M. Noel	8.1	257	15	279.5	19
110. Disturbed Coastal Scrub A	CA	C. Hickey	4.7	281	20	333.0	19
111. Disturbed Coastal Scrub B	CA	T. Mader	8.1	222	21	306.5	20
112. Mojave Yucca-Staghorn Cholla Desert Scrub II	CA	L. LaPré	20.0	25	11	20.6	2
113. Big Sagebrush Exclosure	ID	J. Doremus	25.0	63	4	31.3	2
114. Winterfat Exclosure	ID	J. Doremus	16.2	44	2	18.3	2
115. Pinyon-Juniper Scrub	UT	A. Nettell	20.0	43	9	20.4	3
Tundra							
116. Wet Coastal Plain Tundra I	AK	R. Suydam	33.0	61	11	60.0	8
117. Wet Coastal Plain Tundra II	AK	M. Wesselmann	36.0	69	12	72.6	8
118. Wet Coastal Plain Tundra III	AK	M. Johnson	36.0	50	11	60.1	4
119. Wet Coastal Plain Tundra IV	AK	K. Bagne	36.0	51	11	54.0	1

BREEDING BIRD CENSUS: 1993 (Continued)

Habitat	State/ Prov.	Compiler	Plot Size (ha)	Terr. per 40 ha	Num. sp.	Hrs obs.	Yr Study
Grasslands							
120. Coastal Prairie	CA	J.P. Kelly	31.0	37	11	7.7	6
121. Valley Grassland II	CA	K. Hamann	40.4	48	4	10.3	1
122. Tallgrass Prairie I	IA	P.E. Lowther	16.0	68	17	5.1	10
123. Tallgrass Prairie II	IA	P.E. Lowther	65.7	61	21	6.7	10
124. Tallgrass Prairie III	IA	P.E. Lowther	44.8	75	26	7.9	10
125. Canyon Bluebunch Grassland	ID	C. Bradford	7.5	48	5	24.4	2
126. Kentucky Bluegrass Prairie	ND	D.H. Johnson	4.8	25	8	2.9	22
127. Mixed Prairie I	ND	D.H. Johnson	10.0	92	12	7.1	22
128. Mixed Prairie II	ND	D.H. Johnson	6.1	36	9	3.0	22
129. Mixed Prairie III	ND	D.H. Johnson	6.1	13	5	3.3	22
130. Mixed Prairie IV	ND	D.H. Johnson	6.1	59	13	3.5	22
131. Mixed Prairie V	ND	D.H. Johnson	6.1	26	6	3.7	22
132. Subirrigated Grassland	NE	G. Lingle	16.2	36	6	5.9	11
133. Subirrigated Native Hay	NE	G. Lingle	16.2	49	6	5.4	11
134. Tallgrass Prairie Remnant	OH	D. Minney	44.0	180	12	21.0	4
Successional Fields							
135. Grassland-Shrub Plot	MN	R.D. Huffman	65.9	231	26	39.1	2
136. Abandoned Upland Pasture	NY	V.M. Fitzrick	8.0	645	27	25.4	10
137. Abandoned Pasture Scrubland	ON	B. Murphy	9.0	420	26	20.0	12
138. Clear-cut-Longleaf Pine Regeneration	SC	S. Wagner	25.0	142	27	18.1	2
139. Old Pasture Shrub with Hedgerows and Seasonal Wet Area	VT	F. Merrill	11.1	196	31	24.5	1
Cultivated							
140. Conventional Dairy Farm	PA	R.C. Keller	23.1	127	33	17.0	3

1. NORTHERN OAK WOODLAND

ARBOLADA DE ROBLE NORTEÑO

JOHN D. PETERSEN

13935 Highway 12
Glen Ellen, California 95442

Location: California; Sonoma Co.; Glen Ellen; Bouvierie Ranch; 38°22'N, 122°30'W; Glen Ellen Quadrangle, USGS. **Continuity:** Established 1990; 4 yr. **Size:** 16.0 ha. **Description of Plot:** See *J. Field Ornithol.* 62 (Suppl.):32 (1991). **Weather:** Mean start temp., 10.2°C (range 7–16°C). There was above normal rainfall continuing well into spring (late April), after five years of drought conditions. **Coverage:** 14.0 h; 10 visits (1 sunrise); 25 March; 7, 14, 21, 28 April; 5, 12, 19, 26 May; 2 June. **Census:** Orange-crowned Warbler, 5.5 (14); Warbling Vireo, 4.0 (10); Plain Titmouse, 2.0; Black-throated Gray Warbler, 2.0; Chipping Sparrow, 2.0; Dark-eyed Junco, 2.0; Acorn Woodpecker, 1.5; Ash-throated Flycatcher, 1.5; Solitary Vireo, 1.5; Anna's Hummingbird, 1.0; Nuttall's Woodpecker, 1.0; Western Wood-Pewee, 1.0; Pacific-slope Flycatcher, 1.0; White-breasted Nuthatch, 1.0; House Wren, 1.0; Western Bluebird, 1.0; American Robin, 1.0; Scrub Jay, 0.5; Bushtit, 0.5; Northern Mockingbird, 0.5; European Starling, 0.5; California Towhee, 0.5. **Total:** 22 species; 32.5 territories (81/40 ha). **Visitors:** Cooper's Hawk, Red-shouldered Hawk, Red-tailed Hawk, Mourning Dove, Great Horned Owl, Northern Flicker, Western Kingbird, Tree Swallow, Violet-green Swallow, Steller's Jay, American Crow, Lark Sparrow, House Finch, Lesser Goldfinch. **Remarks:** Foliage and insects were prolific because of the abundance of rainfall, which may have resulted in increased nesting success. **Acknowledgments:** This work was supported by Audubon Canyon Ranch, Stinson Beach, CA, as part of the monitoring of an oak regeneration project.

2. RIPARIAN WOODLAND

BOSQUE RIVEREÑO

KENNETH L. WEAVER

1113 Senwood Way
Fallbrook, California 92028

Location: California; San Diego Co.; Fallbrook; 33°25'N, 117°14'W; Temecula Quadrangle, USGS. **Continuity:** Established 1989; 5 yr. **Size:** 11.7 ha. **Description of Plot:** See *Am. Birds* 38:105 (1984) and *J. Field Ornithol.* 63 (Suppl.):35 (1992). Floodwaters swept the entire plot in both January and February. The stream channel was widened from 3 m to 30 m. In the process, extensive areas supporting woodland were cut clear to bedrock. Three ha of woods were eliminated, including nearly all trees on the W bank. Very little understory survived on the E bank immediately following the floods, but this area was rapidly revegetating by the start of the study period. Open water and bare sandbars increased in area from < 1 ha last year to approximately 3.5 ha this year. **Weather:** Mean start temp., 16.6°C (range 12–23°C). Temperatures were near normal for the study period. Rainfall was below average following an exceptionally wet winter. **Coverage:** 17.3 h; 9 visits (6 sunrise, 3 sunset); 16, 17, 24 April; 1, 10, 16, 31 May; 6, 12 June. **Census:** Song Sparrow, 23.0 (79); Yellow Warbler, 16.0 (55); Common Yellowthroat, 16.0; Yellow-breasted Chat, 15.0 (51); House Wren, 14.0 (48); Bushtit, 13.0 (44); Western Wood-Pewee, 10.0 (34); Lesser Goldfinch, 8.0 (27); Black-chinned Hummingbird, 7.0 (24); Nuttall's Woodpecker, 6.0 (21); Black-headed Grosbeak, 6.0; Rufous-sided Towhee, 6.0; Black Phoebe, 4.0 (14); House Finch, 4.0; Mourning Dove, 3.0 (10); Plain Titmouse, 3.0; Warbling Vireo, 3.0; Common Ground-Dove, 2.0; Downy Woodpecker, 2.0; Ash-throated Flycatcher, 2.0; Orange-crowned Warbler, 2.0; Brown-headed Cowbird, 2.0; Mallard, 1.0; Killdeer, 1.0; Northern Flicker, 1.0; Scrub Jay, 1.0; Bewick's Wren, 1.0; Wrentit, 1.0; Northern Oriole, 1.0; Pacific-slope Flycatcher, +; Northern Rough-winged Swallow, +; Cliff

Swallow, +; Common Raven, +; Swainson's Thrush, +; California Towhee, +. **Total:** 35 species; 174.0 territories (595/40 ha). **Visitors:** Great Blue Heron, Red-shouldered Hawk, Red-tailed Hawk, California Quail, Anna's Hummingbird, Costa's Hummingbird, Phainopepla, Hutton's Vireo. **Remarks:** Although the habitat was drastically altered by flooding, bird populations showed less change than might be expected. The opening up of the canopy and the increase in brushy areas was followed by increases in a number of species including Song Sparrow (up 8 males from last year), Common Yellowthroat (+5), House Wren (+4), and Yellow-breasted Chat (+3); Bewick's Wren and California Towhee were also present. The greatest decreases were noted among species attracted to thick vegetation: Mourning Dove (down 8 males from last year), Pacific-slope Flycatcher (down from 5 last year to + this year), Orange-crowned Warbler (-4), and Yellow Warbler (-4). Open water and sandbar habitat proved attractive for Black Phoebe (+3), a pair of Mallards, and the first Killdeer recorded for the plot. In all, four species were lost and six were gained, for a net increase of two species over last year while total territories increased by five. **Acknowledgments:** This study is supported by the Palomar Audubon Society.

3. WESTERN SYCAMORE WOODLAND WITH SCATTERED OAKS

ARBOLEDAS DE HIGUERA DE SICOMORO CON ROBLES DISPERSOS

DAVE RIENSCHE

*East Bay Regional Park District
Coyote Hills Regional Park
8000 Patterson Ranch Road
Fremont, California 94536*

Location: California; Alameda Co.; Livermore; Sycamore Grove Park (Nature Area); 37°38'N, 121°46'W; Livermore Quadrangle, USGS. **Continuity:** Established 1990; 4 yr. **Size:** 15.9 ha.

Description of Plot: See *J. Field Ornithol.* 62 (Suppl.):33–34 (1991). **Weather:** Mean start temp., 11.4°C (range 7–20°C). The 6-yr drought has ended. Rainfall was 157% of normal. Temperature and cloud conditions were normal for the season. **Coverage:** 53.8 h; 14 visits (13 sunrise, 1 sunset); 8, 19, 29 March; 2, 9, 18, 27 April; 2, 7, 12, 17, 22, 30 May; 8 June. Maximum number of observers/visit, 4. **Census:** European Starling, 39.0 (98; 39N,5FL); Plain Titmouse, 6.0 (15; 3N,12FL); Nuttall's Woodpecker, 5.5 (14; 4N,5FL); Bushtit, 5.0 (13; 21FL); Bewick's Wren, 5.0 (1N,5FL); Mourning Dove, 4.0 (10; 1FL); Anna's Hummingbird, 4.0 (1N); Rufous-sided Towhee, 3.5 (9; 1N,1FL); Scrub Jay, 3.0 (8; 2N,3FL); White-breasted Nuthatch, 3.0 (2N,5FL); Lesser Goldfinch, 3.0 (1N); Mallard, 2.0 (2N,12FL); Black-shouldered Kite, 2.0 (2N); California Quail, 2.0; Acorn Woodpecker, 2.0 (2N); Western Wood-Pewee, 2.0; Ash-throated Flycatcher, 2.0 (1N); Tree Swallow, 2.0 (1N); Western Bluebird, 2.0 (1N); California Towhee, 2.0 (1N,3FL); Dark-eyed Junco, 2.0 (3FL); Wilson's Warbler, 1.0; Wood Duck, 1.0; Turkey Vulture, 1.0; Red-shouldered Hawk, 1.0 (1N,3FL); American Kestrel, 1.0 (1N); Wild Turkey, 1.0 (1N); Barn Owl, 1.0; Downy Woodpecker, 1.0; Black Phoebe, 1.0 (3FL); Chestnut-backed Chickadee, 1.0; House Wren, 1.0 (5FL); Warbling Vireo, 1.0; Red-winged Blackbird, 1.0 (2N,3FL); Brown-headed Cowbird, 1.0; House Finch, 1.0 (1N); Killdeer, + (1FL). **Total:** 37 species; 116.0 territories (292/40 ha). **Visitors:** Belted Kingfisher, Pacific-slope Flycatcher, Northern Mockingbird, Loggerhead Shrike, Orange-crowned Warbler, Black-headed Grosbeak, Northern Oriole. **Remarks:** Both human interference with stream flow and a bacterial infection continue to aid in the decline of western sycamores on the plot. The number of European Starling nests was similar to last year. A number of species showed increases in the numbers of territories and fledglings; possibly due to the above average precipitation. The following species showed increases over past years: California Quail, Nuttall's Woodpecker, Plain Titmouse, Bushtit, Bewick's Wren, Rufous-sided Towhee, California Towhee, and Red-winged Blackbird. Three species were holding territories for the first time since the census began: Black-shouldered Kite, Barn Owl, and House Wren. **Other Observers:** Mary Richards, Adele Carroll, Dorcey Hadley, Neal Houlding. **Acknowledgments:** The Livermore Area Recreation and Park District staff who kindly arranged access to the park.

4. WILLOW RIPARIAN WOODLAND AND EDGE

ARBOLADO DE SAUCE RIVEREÑO Y BORDE

DAVE RIENSCHÉ

East Bay Regional Park District

Coyote Hills Regional Park

8000 Patterson Ranch Road

Fremont, California 94536

Site Number: CA9292061. **Location:** California; Alameda Co.; Fremont; Coyote Hills Regional Park; 37°34'N, 122°5'W; Newark Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 8.1 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):35 (1993). Due to the decline of riparian woodland habitat on the S boundary of the plot, the East Bay Regional Park District enhanced the wetland area by cleaning and dredging the stream to permit a year-round water flow. The depth of the stream which flows through the plot is now 1.0–1.6 m deeper. This restoration activity resulted in the temporary loss of 5% of the riparian woodland canopy. **Weather:** Mean start temp., 11.3°C (range 8–14°C). The 6-yr drought in California has ended. Rainfall was 144% of normal. **Coverage:** 33.0 h; 15 visits (15 sunrise); 1, 9, 24, 25, 30 March; 3, 12, 20, 29 April; 4, 11, 15, 28 May; 2, 12 June. Maximum number of observers/visit, 5. **Census:** Song Sparrow, 13.5 (67; 1N,4FL); Bushtit, 5.0 (25; 3N,8FL); Bewick's Wren, 4.0 (20; 2N); Marsh Wren, 4.0 (1N,3FL); Common Yellowthroat, 3.5 (17; 1N,4FL); Wilson's Warbler, 2.5; California Towhee, 2.5 (1N); Scrub Jay, 2.0 (2N,2FL); European Starling, 2.0 (2N,4FL); Rufous-sided Towhee, 2.0 (1N); Brown-headed Cowbird, 2.0; Pied-billed Grebe, 1.0; Mallard, 1.0 (6FL); Gadwall, 1.0 (1N); Mourning Dove, 1.0; Anna's Hummingbird, 1.0 (1N); Downy Woodpecker, 1.0 (1N,2FL); Chestnut-backed Chickadee, 1.0 (3FL); Tree Swallow, 0.5; Black-shouldered Kite, +. **Total:** 20 species; 50.5 territories (249/40 ha). **Visitors:** Green Heron, Black-crowned Night-Heron, Canada Goose, Northern Harrier, Common Moorhen, American Coot, Barn Owl, Nuttall's Woodpecker, Pacific-slope Flycatcher, Black Phoebe, Violet-green Swallow, Swainson's Thrush, American Robin, Northern Mockingbird, Orange-crowned Warbler, Yellow Warbler, Yellow-breasted Chat, Black-headed Grosbeak, Red-winged Blackbird, Northern Oriole. **Remarks:** The approximate 100% increase in Marsh Wren and Common Yellowthroat territories as compared to last year may be due to the above normal rainfall which provided a lush seasonal wetland edge. **Other Observers:** Adele Carroll, Maggie Clark, Ed Moore, Pat Moore, Marty Morrow, Penni Savage, Carolyn Uyemura, Steve Wiley. **Acknowledgments:** The East Bay Regional Park District who kindly provided time to work on the project.

5. MIXED HARDWOOD POLETIMBER

BOSQUE MIXTO MADERERO

ANDREW MAGEE

White Memorial Conservation Center

Litchfield, Connecticut 06759

Site Number: CT1265009. **Location:** Connecticut; Litchfield Co.; Litchfield; White Memorial Foundation-Wheeler Hill; 41°42'N, 73°13'W; Litchfield Quadrangle, USGS. **Continuity:** Established 1965; 27 yr. **Size:** 8.5 ha. **Description of Plot:** See *Aud. Field Notes* 19:609–610 (1965) and *J. Field Ornithol.* 64 (Suppl.):36 (1993). **Weather:** Mean start temp., 20.1°C (range 13–27°C). The average minimum and maximum temperatures recorded at our weather station in both May (7°C, 23°C) and June (12°C, 26°C) were closer to our 9-yr averages than last year's low figures. Precipitation in May (2.2 cm) was the lowest we have recorded for this month in nine years, but in June (10.8 cm) it was about average. **Coverage:** 14.0 h; 7 visits (2 sunrise, 3 sunset); 6 May; 6, 9, 15, 17, 30 June. **Census:** Wood Thrush, 11.0 (52); Ovenbird, 11.0; Red-eyed Vireo, 7.0 (33); American Redstart, 7.0; Veery, 6.0 (28); Common Yellowthroat, 5.5 (26); Black-capped Chickadee, 5.0 (24); Black-and-white Warbler, 5.0; Rufous-sided Towhee, 5.0; Gray Catbird, 4.0 (19); Blue-winged Warbler, 4.0; Chestnut-sided Warbler,

4.0; Blue Jay, 3.0 (14); Downy Woodpecker, 2.0; American Crow, 2.0; House Wren, 2.0; American Robin, 2.0; Northern Cardinal, 2.0; Brown-headed Cowbird, 2.0; Tufted Titmouse, 1.5; Rose-breasted Grosbeak, 1.5; Northern Flicker, 1.0; Eastern Phoebe, 1.0; White-breasted Nuthatch, 1.0; Barred Owl, 0.5; Great Crested Flycatcher, 0.5; Song Sparrow, 0.5; Common Grackle, 0.5; Sharp-shinned Hawk, +; Cooper's Hawk, +; Broad-winged Hawk, +; Wild Turkey, +; Red-bellied Woodpecker, +; Hairy Woodpecker, +; Eastern Wood-Pewee, +; Fish Crow, +; Scarlet Tanager, +. **Total:** 37 species; 97.5 territories (459/40 ha). **Remarks:** The conversion of this plot from an abandoned hillside pasture to a second-growth hardwood forest continues. Ovenbird reached a new high of 11.0 territorial males and Downy Woodpecker reached a new high of 2.0. Gray Catbird, for many years the most abundant species, declined to its lowest number since 1965. Wood Thrush experienced the greatest increase in number of territories from last year (4.0). A Song Finder was used to lower the frequency and thus improve the detection of high-pitched bird sounds. **Acknowledgments:** Gordon Loery of the White Memorial Conservation Center wrote up the report.

6. OAK-HARDWOOD FOREST

BOSQUE DE ROBLE-MADERAS DURAS

MIKE DUDEK

*Miles Wildlife Sanctuary
95 West Cornwall Road
Sharon, Connecticut 06069*

Site Number: CT2787001. **Location:** Connecticut; Litchfield Co.; Sharon; Miles Wildlife Sanctuary; 41°53'N, 73°24'W; Sharon Quadrangle, USGS. **Continuity:** Established 1986; 6 yr. **Size:** 15.8 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (Suppl.):26 (1989). **Weather:** Mean start temp., 14.8°C (range 4–27°C). **Coverage:** 26.3 h; 12 visits (9 sunrise, 3 sunset); 3, 8, 11, 13, 15, 17, 19, 20, 22, 24, 26, 30 June. **Census:** Ovenbird, 11.0 (28); Wood Thrush, 9.5 (24); Yellow-bellied Sapsucker, 8.0 (20); Red-eyed Vireo, 8.0; Eastern Wood-Pewee, 7.5 (19); Scarlet Tanager, 6.5 (16); Black-and-white Warbler, 4.5 (11); Blue Jay, 3.0 (8); Winter Wren, 3.0; Rufous-sided Towhee, 3.0; Downy Woodpecker, 2.5; Veery, 2.5; Hairy Woodpecker, 2.0; Northern Flicker, 2.0; Brown Creeper, 2.0; Hermit Thrush, 2.0; Black-throated Blue Warbler, 2.0; Rose-breasted Grosbeak, 2.0; Tufted Titmouse, 1.5; White-breasted Nuthatch, 1.5; Ruby-throated Hummingbird, 1.0; Pileated Woodpecker, 1.0; American Robin, 1.0; Black-capped Chickadee, 0.5. **Total:** 24 species; 87.5 territories (222/40 ha). **Visitors:** American Crow, Cedar Waxwing, Yellow-throated Vireo, Blue-winged Warbler, American Redstart, Louisiana Waterthrush, Red-winged Blackbird, Northern Oriole. **Other Observers:** Melanie Schaldach, Brian Hopkins, Selena Carroll, Beth O'Donnell. **Acknowledgments:** Miles Wildlife Sanctuary.

7. SECOND-GROWTH HARDWOOD FOREST

BOSQUE SECUNDARIO DE MADERAS DURAS

ANDREW MAGEE

*White Memorial Conservation Center
Litchfield, Connecticut 06759*

Site Number: CT2765006. **Location:** Connecticut; Litchfield Co.; Morris; White Memorial Foundation; 41°42'N, 73°12'W; Litchfield Quadrangle, USGS. **Continuity:** Established 1965; 27 yr. **Size:** 10.1 ha. **Description of Plot:** See *Aud. Field Notes* 19:590–591 (1965) and *J. Field Ornithol.* 64 (Suppl.):37–38 (1993). **Weather:** Mean start temp., 17.6°C (range 13–25°C). The average minimum and maximum temperatures recorded at our weather station in both May (7°C, 23°C) and June (12°C, 26°C) were closer to our 9-yr averages than last year's low figures. Precipitation in May (2.2 cm) was the lowest we have recorded for this month in nine years, but in June (10.8 cm) it was about average. **Coverage:** 15.5 h; 7 visits (2 sunrise); 6 May; 5, 7, 8, 16, 17 June; 1 July. **Census:** Ovenbird, 13.0 (51); Red-eyed Vireo, 12.0 (48); Veery, 11.0 (44); Wood Thrush, 8.5 (34); American Redstart, 8.0 (32); Downy Woodpecker, 4.0 (16);

Chestnut-sided Warbler, 3.5 (14); Eastern Wood-Pewee, 3.0 (12); Black-capped Chickadee, 3.0; American Robin, 3.0; Blue-winged Warbler, 3.0; Common Yellowthroat, 3.0; Scarlet Tanager, 3.0; Rufous-sided Towhee, 3.0; Song Sparrow, 3.0; Rose-breasted Grosbeak, 2.5; Northern Flicker, 2.0; Tufted Titmouse, 2.0; White-breasted Nuthatch, 2.0; Blue-gray Gnatcatcher, 2.0; Gray Catbird, 2.0; Black-and-white Warbler, 2.0; Brown-headed Cowbird, 2.0; Hairy Woodpecker, 1.0; Eastern Phoebe, 1.0; Blue Jay, 1.0; American Crow, 1.0; Cooper's Hawk, 0.5; Red-tailed Hawk, 0.5; Pileated Woodpecker, 0.5; Great Crested Flycatcher, 0.5; Red-breasted Nuthatch, 0.5; Brown Creeper, 0.5; Cedar Waxwing, 0.5; Solitary Vireo, 0.5; Yellow-throated Vireo, 0.5; Blackburnian Warbler, 0.5; Common Grackle, 0.5; Sharp-shinned Hawk, +; Northern Goshawk, +; Broad-winged Hawk, +; Great Horned Owl, +; Barred Owl, +; Hermit Thrush, +; Northern Oriole, +. **Total:** 45 species; 110.0 territories (436/40 ha). **Remarks:** Both the number of species and the total number of territories were below last year's highs but still above average. Most of the common species either declined in numbers from last year or remained unchanged except American Redstart which increased from 4.0 to 8.0 territorial males; higher than any year since 1971. A Song Finder was used to lower the frequency and thus improve the detection of high-pitched bird sounds. **Acknowledgments:** Gordon Loery of the White Memorial Conservation Center wrote up the report.

8. CENTRAL HARDWOOD FOREST WITH SCATTERED PINE

BOSQUE CENTRAL DE MADERAS DURAS CON PINOS DISPERSOS

MARY E. D'IMPERIO

4000 Cathedral Avenue NW, #106B
Washington, DC 20016-5249

Location: District of Columbia; Washington; Rock Creek Park; 38°57'N, 77°3'W; Washington West Quadrangle, USGS. **Continuity:** Established 1948; 45 yr. **Size:** 26.3 ha. **Description of Plot:** See Aud. *Field Notes* 2:153-154 (1948). **Weather:** Mean start temp., 17.8°C (range 4-29°C). Some drizzle or fog during three visits. **Coverage:** 64.2 h; 42 visits (21 sunrise, 16 sunset); 28, 31 March; 4, 7, 8, 12, 15, 17, 18, 21, 23, 25, 28 April; 1, 2, 6, 8, 9, 10, 11, 14, 22, 23, 27, 29 May; 2, 6, 9, 11, 12, 16, 19, 20, 26, 27 June; 4 July. **Census:** Red-eyed Vireo, 11.5 (17); Carolina Wren, 6.0 (9); Wood Thrush, 6.0; Red-bellied Woodpecker, 5.0 (8); Tufted Titmouse, 5.0; Carolina Chickadee, 4.5 (7); Veery, 4.0 (6); Eastern Wood-Pewee, 3.5 (5); American Crow, 3.0 (5); White-breasted Nuthatch, 3.0; Blue-gray Gnatcatcher, 3.0; Ovenbird, 3.0; Northern Cardinal, 3.0; Acadian Flycatcher, 2.5; Rufous-sided Towhee, 2.5; Downy Woodpecker, 2.0; Hairy Woodpecker, 2.0; Northern Flicker, 2.0; Pileated Woodpecker, 2.0; Scarlet Tanager, 2.0; Eastern Phoebe, 1.0; American Robin, 1.0; Hooded Warbler, 1.0; Eastern Screech-Owl, 0.5. **Total:** 24 species; 79.0 territories (120/40 ha). **Visitors:** Mourning Dove, Great Crested Flycatcher, Blue Jay, Gray Catbird, Brown Thrasher, Yellow-throated Vireo, American Redstart, Worm-eating Warbler, Common Grackle, Brown-headed Cowbird. **Remarks:** Blue-gray Gnatcatchers were breeding for the first time since at least 1985. Red-eyed Vireo and Wood Thrush numbers increased, and Veeries maintained their recent high level. **Other Observers:** Bob Ford, Tom Plant.

9. MIXED UPLAND BROADLEAF FOREST

BOSQUE MIXTO DE HOJA ANCHA DE ALTURAS

SHIRLEY A. BRIGGS

7605 Honeywell Lane
Bethesda, Maryland 20814

Site Number: DC1060009. **Location:** District of Columbia; Washington; Glover-Archbold Park; 38°55'N, 77°5'W; Washington West Quadrangle, USGS. **Continuity:** Established 1959; 35 yr. **Size:** 14.2 ha. **Description of Plot:** See Aud. *Field Notes* 14:502-503 (1960). **Weather:** Mean start temp., 19.5°C (range 4-24°C). The average temperatures in April (12.7°C), May (19.7°C), and June (24.1°C) were all near normal levels. The average temperature in July

(28.4°C), was much higher than usual; it was the hottest July on record. Total precipitation for April and May was 17.8 cm; for June and July it was 7.8 cm. Source: NOAA data from National Airport. **Coverage:** 140.6 h; 45 visits (34 sunrise, 3 sunset); 7, 8, 11, 12, 13, 17, 19, 20, 23, 24, 27, 28, 29 April; 1, 3, 6, 10, 15, 17, 21, 22, 27, 30 May; 5, 9, 10, 13, 16, 23, 28, 29 June; 3, 4, 7, 11, 15, 18 July. **Census:** Carolina Wren, 34.0 (96; 5FL); Northern Cardinal, 28.5 (80); Gray Catbird, 26.5 (75; 1N, 2FL); Tufted Titmouse, 20.0 (56; 2FL); Carolina Chickadee, 19.5 (55; 1N); Veery, 18.5 (52; 1FL); Red-bellied Woodpecker, 17.0 (48); Red-eyed Vireo, 15.0 (42); Rufous-sided Towhee, 12.5 (35); Acadian Flycatcher, 10.0 (28); Northern Flicker, 9.0 (25); Downy Woodpecker, 7.0 (20); Wood Thrush, 7.0; White-breasted Nuthatch, 6.0 (17); Blue-gray Gnatcatcher, 6.0; American Robin, 6.0; Hairy Woodpecker, 5.0 (14); American Crow, 4.5 (13; 8FL); Blue Jay, 4.0 (11); Great Crested Flycatcher, 3.5 (10); American Redstart, 3.0 (8); Ovenbird, 3.0; Brown-headed Cowbird, 3.0; European Starling, 2.5 (1N, 5FL); Common Yellowthroat, 2.5; Mourning Dove, 2.0; Eastern Wood-Pewee, 2.0 (1FL); Common Grackle, 2.0; House Finch, 2.0; Wood Duck, 1.5; House Sparrow, 1.5; Mallard, 1.0; Chimney Swift, 1.0; Ruby-throated Hummingbird, 1.0; Pileated Woodpecker, 1.0; House Wren, 1.0; Scarlet Tanager, 1.0; Song Sparrow, 1.0; Red-tailed Hawk, + (1FL); Eastern Phoebe, +; Northern Mockingbird, +. **Total:** 41 species; 291.5 territories (821/40 ha). **Visitors:** Black-crowned Night-Heron, Turkey Vulture, Osprey, Red-shouldered Hawk, Ring-billed Gull, Rock Dove, Yellow-billed Cuckoo, Eastern Kingbird, Fish Crow, Eastern Bluebird, White-eyed Vireo, Yellow-throated Vireo, Hooded Warbler, Chipping Sparrow, Northern Oriole, American Goldfinch. **Remarks:** The total number of territorial males exceeded last year's record of 281.5, perhaps reflecting even more complete coverage. Most species totals remained consistent with last year. Veery numbers are again higher than Wood Thrush, about as they were in the late 1980s. Compare with the remarks for the 1992 census. A research project of the Smithsonian Migratory Bird Center, using this plot among others, focussed on nesting success. Their report may be available to supplement this study. We note nests and young when we find them, but we make no special effort to find nests and follow their progress, which might lead to disturbance in a public park. The Smithsonian research took special precautions to avoid this. **Other Observers:** Mary D'Imperio, Ann Feather, Tom Plant.

10. MESIC HAMMOCK WITH NEEDLE PALM UNDERSTORY

MESIC HAMMOCK CON SOTOBOSQUE DE PALMAS

GARY SPRANDEL

*Florida Game and Fresh Water Fish Commission
Bureau of Nongame Wildlife
Route 7, Box 3055
Quincy, Florida 32351*

Site Number: FL0393023. **Location:** Florida; Gadsden Co.; Quincy; Joe Budd WMA-Zone G; 30°29'N, 84°32'W; Lake Talquin Quadrangle, USGS. **Continuity:** New. **Size:** 10.5 ha. **Description of Plot:** A rectangular plot, tapered at one end (250 × 400 m). The closed canopy is dominated by swamp chestnut oak, water oak, and American hornbeam, estimated to be between 31 and 60 years of age. Mean canopy height, 17 m (range 10–22 m). The understory is dominated by needle palm and red maple. The ground cover is dominated by grass, sedge, and needle palm. There are some ephemeral pools during the breeding season. **Edge:** Less than 25% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat < 25 ha in size. Hardwoods surround the plot, but without the needle palm understory. One side is bordered by a thicket, another by a river. **Topography and Elevation:** The plot is level. Minimum elevation 24 m, maximum 24 m. **Weather:** Mean start temp., 20.2°C (range 11–29°C). The spring was drier than normal. **Coverage:** 22.6 h; 13 visits (11 sunrise, 2 sunset); 8, 19 April; 2, 6, 7, 9, 22, 27, 31 May; 6, 13, 23 June; 5 July. **Census:** Acadian Flycatcher, 6.0 (23; 1N, 3FL); Red-eyed Vireo, 5.0 (19); Hooded Warbler, 4.0 (15); Yellow-billed Cuckoo, 3.5 (13); Red-bellied Woodpecker, 2.5; Carolina Wren, 2.5; Pileated Woodpecker, 1.5; Tufted Titmouse, 1.5; White-eyed Vireo, 1.5; Northern Cardinal, 1.5; Kentucky Warbler, 1.0; Downy Woodpecker, 0.5; Hairy Woodpecker, +; Wood Thrush, +. **Total:**

14 species; 31.0 territories (118/40 ha). **Visitors:** Red-shouldered Hawk, Barred Owl, Ruby-throated Hummingbird, Great Crested Flycatcher, Yellow-throated Vireo. **Remarks:** Carolina Wren and Red-eyed Vireo were singing on the last visit; possibly second nestings. Pileated Woodpecker was more evident during the two evening visits. **Other Observer:** Doug Runde. **Acknowledgments:** The plot was established as a trial in 1992 by Doug Runde, with assistance from Kevin Enge. Many thanks to Doug Runde for training and advice, and to Kevin Enge for help with habitat classification.

11. WHITE ALDER-BLACK LOCUST-HACKBERRY RIPARIAN

BOSQUE RIVEREÑO DE ALISO BLANCO-ACACIA NEGRA—"HACKBERRY"

CAROL BRADFORD

1561 Bethany Road
Kendrick, Idaho 83537-9705

Site Number: ID6591059. **Location:** Idaho; Idaho Co.; Lucile; China Creek; 45°33'N, 116°18'W; Lucile Quadrangle, USGS. **Continuity:** Established 1991; 3 yr. **Size:** 5.3 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):39–40 (1992). **Weather:** Mean start temp., 11.7°C (range 9–16°C). The weather was unseasonably cool, and wetter than normal. **Coverage:** 26.1 h; 10 visits (10 sunrise); 19 May; 3, 5, 8, 14, 17, 19, 24, 25, 30 June. **Census:** Red-eyed Vireo, 3.0; Northern Flicker, 2.0; Cedar Waxwing, 2.0 (2N); Warbling Vireo, 2.0 (1N); Yellow Warbler, 2.0 (1N); Lazuli Bunting, 2.0; Mourning Dove, 1.0; Belted Kingfisher, 1.0; Western Wood-Pewee, 1.0; Black-capped Chickadee, 1.0; American Robin, 1.0; MacGillivray's Warbler, 1.0; Yellow-breasted Chat, 1.0; Western Tanager, 1.0; Brown-headed Cowbird, 1.0; Northern Oriole, 1.0; American Goldfinch, 1.0. **Total:** 17 species; 24.0 territories (181/40 ha). **Visitor:** Chipping Sparrow.

12. MATURE DECIDUOUS FLOODPLAIN FOREST

BOSQUE DECIDUO MADURO INUNDABLE

DICK GAUTHHEY

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 1946; 42 yr. **Size:** 7.6 ha. **Description of Plot:** See *Aud. Field Notes* 1:212–213 (1947). A rectangular plot (180 × 525 m) with a closed canopy dominated by American sycamore (57% relative cover), box elder (9%), black walnut (8%), and white ash (7%), estimated to be greater than 100 years of age. Mean canopy height, 32 m (range 20–40 m). The nearly continuous understory is dominated by pawpaw (66% relative cover), spicebush (17%), and box elder (6%). The ground cover is dominated by broad-leaved waterleaf and mayapple during May and June, and by wild ginger and golden ragwort later in the summer. The ground cover was near 100% in May, but only 57% in late June and July. There is one stream with a maximum width of 10 m and a maximum depth of 1 m. **Edge:** Up to 75% of the plot's perimeter is bordered by the same habitat. The plot is part of a linear tract along the Potomac River. **Topography and Elevation:** The plot is nearly level with a slope of < 5%. Minimum elevation 15 m, maximum 18 m. **Weather:** Mean start temp., 12.5°C (range 3–21°C). **Coverage:** 78.0 h; 26 visits (15 sunrise); 6, 9, 14, 17, 20, 25, 28, 30 April; 1, 2, 6, 7, 8, 9, 10, 14, 18, 27, 31 May; 6, 12, 13 June. Maximum number of observers/visit, 4. **Census:** European Starling, 8.0 (42; 8N); Carolina Chickadee, 7.0 (37; 3N, 1FL); Tufted Titmouse, 6.0 (32; 1FL); Carolina Wren, 6.0 (5FL); Blue-gray Gnatcatcher, 6.0 (2N); Acadian Flycatcher, 5.0 (26); Red-eyed Vireo, 5.0; Northern Cardinal, 5.0 (1FL); Northern Parula, 4.0 (21); Red-bellied Woodpecker, 3.0 (16; 1N); Downy Woodpecker, 3.0 (1N); Wood Duck, 2.0; Great Crested Flycatcher, 2.0; Yellow-throated Warbler, 2.0; Prothonotary Warbler, 2.0; Ruby-throated Hummingbird, 1.0; Hairy Woodpecker, 1.0; Northern Flicker, 1.0; Pileated Woodpecker, 1.0; Eastern Wood-Pewee, 1.0; American Crow, 1.0; Song

Sparrow, 1.0; Brown-headed Cowbird, 1.0; Northern Oriole, 1.0. **Total:** 24 species; 75.0 territories (395/40 ha). **Visitors:** Barred Owl, Brown Creeper, American Robin, Common Grackle, House Finch. **Remarks:** The plot was inaccessible during most of April due to high water; resulting in a non-vegetated inland edge of plot in May. Robins used this area for feeding and established three territories just off the plot (robins have never nested on the plot). A pair of Brown Creepers were seen courtship feeding on 1 May and visiting a potential nest site on 7 May, but they were not seen again (creepers nested 1974–84). There has been little change in neotropical migrants in the last 12 years, except Northern Parula averaged 2.5 territories 1980–86 and 5.0 since. **Other Observers:** John Eliot, Dick Homan, Stephen Jones, Letty Limbach, Eric Powell, Carol Sattler.

13. UPLAND TULIPTREE–MAPLE–OAK FOREST

BOSQUE DE ALAMO–ARCE–ROBLE DE ALTURAS

GERALD E. EINEM

11442 High Hay Drive
Columbia, Maryland 21044

Site Number: MD1071036. **Location:** Maryland; Howard Co.; Columbia; Middle Patuxent Environmental Area; 39°12'N, 76°54'W; Clarksville Quadrangle, USGS. **Continuity:** Established 1971; 13 yr. **Size:** 11.9 ha. **Description of Plot:** See *Am. Birds* 25:971 (1971) and *J. Field Ornithol.* 64 (Suppl.):39–40 (1993). **Weather:** Mean start temp., 16.8°C (range 2–29°C). Temperature and precipitation departures, respectively, from the 30-yr means for: April, −0.5°C, +1.5 cm; May, +0.9°C, −0.15 cm; June, −0.2°C, −2.82 cm; July, +1.8°C, −5.03 cm. Source: Baltimore-Washington International Airport. **Coverage:** 69.5 h; 23 visits (21 sunrise, 2 sunset); 28, 30 April; 3, 7, 8, 10, 15, 17, 19, 26 May; 1, 4, 6, 10, 12, 14, 17, 20, 23, 26, 30 June; 7, 13 July. **Census:** Wood Thrush, 21.0 (71; 4N, 4FL); Red-eyed Vireo, 18.0 (61); Northern Cardinal, 11.5 (39); Red-bellied Woodpecker, 11.0 (37); Ovenbird, 10.0 (34); Acadian Flycatcher, 8.0 (27); Hooded Warbler, 8.0; Downy Woodpecker, 7.0 (24); Scarlet Tanager, 6.5 (22); Tufted Titmouse, 5.0 (17); White-breasted Nuthatch, 4.0 (13); Carolina Chickadee, 3.5 (12); Eastern Wood-Pewee, 3.0 (10); Veery, 3.0; Kentucky Warbler, 3.0; Blue Jay, 2.0; Northern Parula, 1.5; American Redstart, 1.5; Yellow-throated Vireo, 1.0; Brown-headed Cowbird, 1.0; Gray Catbird, 0.5; Rufous-sided Towhee, 0.5; Yellow-billed Cuckoo, +; Pileated Woodpecker, +; White-eyed Vireo, +; Common Yellowthroat, +; Indigo Bunting, +. **Total:** 27 species; 130.5 territories (439/40 ha). **Visitors:** Red-shouldered Hawk, Mourning Dove, Barred Owl, Hairy Woodpecker, Northern Flicker, American Crow, Carolina Wren, Blue-gray Gnatcatcher, Yellow-throated Warbler, Black-and-white Warbler, Worm-eating Warbler, Common Grackle. **Remarks:** Of the four Wood Thrush nests, one had four fledglings, one had three eggs when first seen but only empty shells on the second visit, and two (where the contents could not be observed) had adults sitting on them. New urban development continues at a very rapid pace outside of the Middle Patuxent Environmental Area. An area of new construction is about one-quarter of a mile from the plot. At times, the sound of construction equipment made hearing avian vocalizations difficult.

14. MIXED UPLAND HARDWOOD FOREST I

BOSQUE MIXTO DE MADERAS DURAS DE ALTURAS I

PETER S. REAMAN & MARGARET HART

Whitefish Point Bird Observatory
H.C. 48, Box 115
Paradise, Michigan 49768

Site Number: MI2892103. **Location:** Michigan; Chippewa Co.; Strong's Corner; Big Dave Tract, Hiawatha National Forest; 46°27'N, 84°57'W; McNearney Lake Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 20.9 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):40–41 (1993). **Weather:** Mean start temp., 12.5°C (range 6–21°C). **Coverage:** 28.7

h; 8 visits (7 sunrise, 1 sunset); 4, 5, 18, 19, 25, 27, 30 June; 1 July. **Census:** Ovenbird, 17.5 (33); Least Flycatcher, 16.0 (31); Red-eyed Vireo, 14.0 (27); Black-throated Green Warbler, 8.0 (15); Rose-breasted Grosbeak, 4.5 (9); Yellow-bellied Sapsucker, 3.0 (6); Black-throated Blue Warbler, 3.0; Eastern Wood-Pewee, 2.5; Veery, 2.5; Scarlet Tanager, 2.5; Hermit Thrush, 1.5; Downy Woodpecker, 1.0; Swainson's Thrush, 1.0; American Robin, 1.0; Tennessee Warbler, 1.0; Purple Finch, 0.5; Blue Jay, +; Black-capped Chickadee, +; Brown Creeper, +; Wood Thrush, +; Cedar Waxwing, +. **Total:** 21 species; 79.5 territories (152/40 ha). **Visitors:** Red-tailed Hawk, Pileated Woodpecker, Great Crested Flycatcher, Black-and-white Warbler, American Redstart. **Remarks:** This plot was used concurrently as a mist-netting site for the Monitoring Avian Productivity and Survivorship (MAPS) project. **Acknowledgments:** We thank A. Byrne, J. LaCroix, and D. Evers for assisting with field work.

15. MIXED UPLAND HARDWOOD FOREST II

BOSQUE MIXTO DE MADERAS DURAS DE ALTURAS II

PETER S. REAMAN & MARGARET HART

*Whitefish Point Bird Observatory
H.C. 48, Box 115
Paradise, Michigan 49768*

Site Number: MI2892104. **Location:** Michigan; Chippewa Co.; Strong's Corner; McNearney Lake Plot, Hiawatha National Forest; 46°26'N, 84°57'W; McNearney Lake Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 20.9 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):41 (1993). **Weather:** Mean start temp., 14.7°C (range 10–20°C). **Coverage:** 22.6 h; 8 visits (8 sunrise); 8, 18, 21, 24, 26, 30 June; 7, 9, July. **Census:** Red-eyed Vireo, 15.5 (30); Ovenbird, 15.5; Black-throated Green Warbler, 12.5 (24); Black-throated Blue Warbler, 8.0 (15); Hermit Thrush, 2.5; Scarlet Tanager, 2.0; Yellow-bellied Sapsucker, 1.0; Hairy Woodpecker, 1.0; Eastern Wood-Pewee, 1.0; Least Flycatcher, 1.0; Black-capped Chickadee, 1.0; Swainson's Thrush, 1.0; American Redstart, 1.0; Rose-breasted Grosbeak, 1.0. **Total:** 14 species; 64.0 territories (122/40 ha). **Visitor:** Veery. **Acknowledgments:** We thank A. Byrne and J. LaCroix for assisting with field work.

16. MIXED UPLAND HARDWOOD FOREST III

BOSQUE MIXTO DE MADERAS DURAS DE ALTURAS III

PETER S. REAMAN

*Whitefish Point Bird Observatory
H.C. 48, Box 115
Paradise, Michigan 49768*

Site Number: MI2892105. **Location:** Michigan; Chippewa Co.; Raco; Pendills Lake, Hiawatha National Forest; 46°26'N, 84°47'W; Pendills Lake Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 20.9 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):42 (1993). **Weather:** Mean start temp., 14.8°C (range 10–20°C). **Coverage:** 27.6 h; 8 visits (8 sunrise); 13, 25, 27 June; 1, 2, 6, 8, 10 July. **Census:** Red-eyed Vireo, 18.0 (34); Ovenbird, 18.0; Least Flycatcher, 15.0 (29); Black-throated Green Warbler, 11.0 (21); Black-throated Blue Warbler, 7.5 (14); Veery, 6.0 (11); Brown Creeper, 5.5 (11); American Redstart, 4.0 (8); Winter Wren, 3.0 (6); American Robin, 3.0; Eastern Wood-Pewee, 2.0; Hermit Thrush, 2.0; Mourning Warbler, 2.0; Yellow-bellied Sapsucker, 1.0; Downy Woodpecker, 1.0; Hairy Woodpecker, 1.0; Pileated Woodpecker, 1.0; Red-breasted Nuthatch, 1.0; Swainson's Thrush, 1.0; White-throated Sparrow, 0.5; Magnolia Warbler, +; Scarlet Tanager, +. **Total:** 22 species; 103.5 territories (198/40 ha). **Visitors:** American Woodcock, Northern Flicker, Black-capped Chickadee, Ruby-crowned Kinglet, Cedar Waxwing, Solitary Vireo, Chestnut-sided Warbler, Blackburnian Warbler, Black-and-white Warbler, Rose-breasted Grosbeak. **Remarks:** This plot was used concurrently as a mist-netting site for the Monitoring Avian Productivity and Survivorship

(MAPS) project. **Acknowledgments:** I thank J. Buecking and J. LaCroix for assisting with field work.

17. MIXED UPLAND HARDWOOD FOREST IV

BOSQUE MIXTO DE MADERAS DURAS DE ALTURAS IV

PETER S. REAMAN & MARGARET HART

Whitefish Point Bird Observatory

H.C. 48, Box 115

Paradise, Michigan 49768

Site Number: MI2892106. **Location:** Michigan; Chippewa Co.; Strong's Corner; Piatt Lake Plot, Hiawatha National Forest; 46°25'N, 84°58'W; McNearney Lake Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 20.9 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):42-43 (1993). **Weather:** Mean start temp., 12.5°C (range 7-18°C). **Coverage:** 26.7 h; 8 visits (8 sunrise); 10, 11, 18, 22, 26, 30 June; 2, 7 July. **Census:** Red-eyed Vireo, 24.0 (46); Ovenbird, 22.0 (42); Black-throated Green Warbler, 16.5 (32); Eastern Wood-Pewee, 2.0; Veery, 2.0; Swainson's Thrush, 2.0; Black-throated Blue Warbler, 2.0; Yellow-bellied Sapsucker, 1.5; Hermit Thrush, 1.5; Least Flycatcher, 1.0; Black-capped Chickadee, 1.0; Scarlet Tanager, 1.0; Rose-breasted Grosbeak, 1.0; Red-breasted Nuthatch, 0.5; Barred Owl, +; Downy Woodpecker, +. **Total:** 16 species; 78.0 territories (149/40 ha). **Visitor:** Brown Creeper. **Remarks:** This plot was used concurrently as a mist-netting site for the Monitoring Avian Productivity and Survivorship (MAPS) project. **Acknowledgments:** We thank A. Byrne, J. LaCroix, and M. Teesdale, for assisting with field work.

18. OLD-GROWTH WOODS AND SWAMP FOREST

BOSQUES VIEJOS Y BOSQUES PANTANOSOS

LEAH R. KNAPP, DVM

815 Jones Street

Marshall, Michigan 49068

Location: Michigan; Calhoun Co.; Fredonia Township; Jenney Woods Preserve; 42°14'N, 85°3'W; **Continuity:** Established 1989; 5 yr. **Size:** 28.3 ha. **Description of Plot:** See *J. Field Ornithol.* 61 (Suppl.):36 (1990) and 63 (Suppl.):45 (1992). **Weather:** Mean start temp., 20.3°C (range 14-26°C). May and June temperatures were somewhat below normal. There was one short period of drought (about three weeks without rain) sandwiched between periods of above average rain. **Coverage:** 24.3 h; 8 visits (3 sunrise, 2 sunset); 10, 22, 28, 31 May; 6, 10, 13, 23 June. **Census:** Song Sparrow, 23.0 (33); Common Yellowthroat, 14.0 (20); Tufted Titmouse, 12.0 (17; 1N, 6FL); Northern Cardinal, 10.0 (14; 1FL); Eastern Wood-Pewee, 9.0 (13); Veery, 9.0; Yellow Warbler, 9.0; Red-eyed Vireo, 8.0 (11); American Robin, 7.0 (10); Blue Jay, 6.0 (8; 1FL); Gray Catbird, 6.0; Black-capped Chickadee, 5.0 (7; 5FL); Cedar Waxwing, 5.0; Scarlet Tanager, 5.0; Rose-breasted Grosbeak, 5.0; Brown-headed Cowbird, 5.0; American Goldfinch, 5.0; Blue-winged Warbler, 4.0 (6); Indigo Bunting, 4.0; Wild Turkey, 3.0 (4); Downy Woodpecker, 3.0 (1FL); Acadian Flycatcher, 3.0; Great Crested Flycatcher, 3.0; White-breasted Nuthatch, 3.0 (2FL); House Wren, 3.0; Blue-gray Gnatcatcher, 3.0; Yellow-throated Vireo, 3.0; American Redstart, 3.0; Common Grackle, 3.0 (6FL); Turkey Vulture, 2.0; Ring-necked Pheasant, 2.0; Ruby-throated Hummingbird, 2.0; Red-bellied Woodpecker, 2.0; Hairy Woodpecker, 2.0 (1N); Willow Flycatcher, 2.0; American Crow, 2.0 (2FL); Wood Thrush, 2.0; Ovenbird, 2.0; Red-winged Blackbird, 2.0; Cooper's Hawk, 1.0; Red-tailed Hawk, 1.0; Northern Bobwhite, 1.0; Yellow-billed Cuckoo, 1.0; Great Horned Owl, 1.0; Northern Flicker, 1.0; Northern Oriole, 1.0. **Total:** 46 species; 208.0 territories (294/40 ha). **Remarks:** The plot continues to be relatively undisturbed, with very few human visitors. Because of all the rain we had this year, water levels in the swampy areas were up considerably, as was the level of the stream. Areas that are normally dry to spongy by June, still had water over them.

Insects, especially mosquitoes, were more abundant than during any of the four previous censuses.

19. BOTTOMLANDS HARDWOOD FOREST

BOSQUE DE MADERAS DURAS INUNDABLE

RICHIE SWANSON

178 Latsch Island
Box 1265

Winona, Minnesota 55987

Site Number: MN1793105. **Location:** Minnesota; Winona Co.; Rollingstone Township; Crooked Slough Woods; 44°6'N, 91°44'W; Winona West Quadrangle, USGS. **Continuity:** New. **Size:** 12.2 ha. **Description of Plot:** A square plot (350 × 350 m) with a closed canopy of mature eastern cottonwood and silver maple covering 90% of the plot. Mean canopy height, 22 m (range 5–25 m). The understory includes box elder, black willow, and black ash. Stinging nettle is the primary ground cover. A seasonal drainage (1–5 m wide) runs through the E end of the plot; approximately 50% is covered by cottonwood and maple canopy and 50% is open. Approximately 50% of the nettles withered due to flooding. **Edge:** More than 95% of the plot's perimeter is bordered by the same habitat. Part of the N edge (50 m) is bordered by drainage. The high canopy runs 500 m N of the drainage, then is bordered by willow marsh. Streams are 300 m from the SW corner and > 1,000 m from the NW corner. The Mississippi River is 1,500 m E of the plot. **Topography and Elevation:** The plot is essentially level, but proximity to drainage affects period and level of inundation. Elevation 220 m. **Weather:** Mean start temp., 11.3°C (range 4–19°C). Mean temperatures (normal in parentheses): May, 15.0°C (15.2°C); June, 19.0°C (19.1°C); July, 21.9°C (23.0°C). Precipitation (normal in parentheses): May, 13.5 cm (8.3 cm); June, 27.0 cm (9.8 cm); July, 9.3 cm (9.5 cm). River level on each visit day (at 8:00 AM): 27.12 cm, 27.63 cm, 28.53 cm, 27.54 cm, 36.66 cm, 41.64 cm, 41.46 cm, 42.12 cm. The normal mean river level for May, June, and July is 16.35 cm. Sources: U.S. Weather Station, La Crosse, WI and U.S. Army Corps of Engineers, Mississippi River Dam 5A, Fountain City, WI. **Coverage:** 40.2 h; 8 visits (8 sunrise); 26 May; 3, 6, 12, 21 June; 10, 12, 14 July. **Census:** Red-eyed Vireo, 13.0 (43); American Robin, 12.0 (39); Northern Oriole, 9.5 (31); Brown-headed Cowbird, 8.0 (26); House Wren, 7.5 (25); Great Crested Flycatcher, 6.5 (21); American Redstart, 6.5; Song Sparrow, 6.0 (20); Common Yellowthroat, 5.5 (18); Eastern Wood-Pewee, 5.0 (16); Blue-gray Gnatcatcher, 4.0 (13); Gray Catbird, 4.0; Northern Cardinal, 4.0; Rose-breasted Grosbeak, 4.0; Blue Jay, 3.5 (11); Yellow-bellied Sapsucker, 3.0 (10); Northern Flicker, 2.5; Wood Duck, 2.0; Red-bellied Woodpecker, 2.0; Downy Woodpecker, 2.0; Hairy Woodpecker, 2.0; Black-capped Chickadee, 2.0; White-breasted Nuthatch, 2.0; Brown Creeper, 2.0; Yellow-billed Cuckoo, 1.0; Barred Owl, 1.0; Pileated Woodpecker, 1.0; Yellow-throated Vireo, 1.0; Warbling Vireo, 1.0; Indigo Bunting, 1.0. **Total:** 30 species; 124.5 territories (408/40 ha). **Visitors:** Red-headed Woodpecker, Black-throated Green Warbler, Ovenbird, Northern Waterthrush, Scarlet Tanager, Red-winged Blackbird, Common Grackle. **Remarks:** Less than 10% of the plot was under water during the first four visits, but > 80% was under 0.5–3.5 m of water after 21 June. The last four visits were made in waders and by canoe. The slosh of plastic against water and the bumping of the canoe against floating dead wood and other debris, reduced detectability during those visits. Before inundation there were 63 Northern Oriole contacts; there were only 14 after inundation. A flock of > 100 Common Grackles visited the plot on 21 June, in the high canopy. Greater than 100 Common Grackles and > 50 Red-winged Blackbirds visited during the last three visits. If the blackbirds affected contacts with orioles, the other high-canopy nester remained constant. Red-eyed Vireo contacts were 41 during visits 1–4, and 49 during visits 5–8. There were 20 contacts with Rose-breasted Grosbeak during visits 1–4, two during visit five, and none after that. One Song Sparrow cluster was established entirely after inundation, and all previous Song Sparrow territories continued to be represented by singing males after inundation. Gray Catbirds sang short, quiet songs after inundation. There were 22 Gray Catbird contacts during visits 1–4, and 12 during visits 5–8. All catbird territories

were represented by contacts during visits 5–6; two were represented by contacts during visits 7–8. There were 41 Common Yellowthroat contacts during visits 1–4, and 10 during visits 5–8. No yellowthroat contacts were made in three separate territories during the last three visits. **Acknowledgments:** Thanks to Upper Mississippi River Wildlife Refuge, Bob Drieslein and Winona Office, for access and information.

20. MAPLE-BASSWOOD FOREST

BOSQUE DE ARCE-TILO AMERICANO

RONALD D. HUFFMAN

6930 West Shore Drive
Weidman, Michigan 48893

Site Number: MN2091071. **Location:** Minnesota; Becker Co.; Rochert; Tamarac National Wildlife Refuge; 46°57'N, 95°34'W; Height of Land Lake Quadrangle, USGS. **Continuity:** Established 1991; 2 yr. **Size:** 13.4 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.): 46 (1992). During February 1991, prior to the first census, 2.1 ha of the plot was sheared. This area is now dense quaking aspen and American hazel, averaging 2–3 m tall. **Weather:** Mean start temp., 16.3°C (range 11–24°C). Frequent rains, high winds, and cool temperatures occurred during the breeding season. Mean temperature for June was 15.8°C (normal is 17.9°C). Precipitation for June was 16.6 cm (normal is 10.5 cm). Source: Tamarac NWR annual report. **Coverage:** 17.9 h; 8 visits (3 sunrise); 10, 14, 16, 21, 23 June; 2, 7, 10 July. **Census:** Red-eyed Vireo, 25.0 (75); Ovenbird, 15.0 (45); Chestnut-sided Warbler, 12.0 (36); Great Crested Flycatcher, 6.5 (19); Indigo Bunting, 6.0 (18); White-breasted Nuthatch, 5.0 (15); Least Flycatcher, 4.0 (12); Scarlet Tanager, 4.0; Chipping Sparrow, 3.0 (9); Golden-winged Warbler, 2.5; American Redstart, 2.5; Eastern Wood-Pewee, 1.5; Black-throated Green Warbler, 1.5; Ruby-throated Hummingbird, 1.0; Red-headed Woodpecker, 1.0; Black-capped Chickadee, 1.0; Yellow-throated Vireo, 1.0; Yellow Warbler, 1.0; Common Yellowthroat, 1.0; Song Sparrow, 1.0; Veery, 0.5. **Total:** 21 species; 96.0 territories (287/40 ha). **Visitors:** Black-billed Cuckoo, Barred Owl, Yellow-bellied Sapsucker, Downy Woodpecker, Alder Flycatcher, Eastern Phoebe, Eastern Kingbird, Blue Jay, American Crow, Red-breasted Nuthatch, House Wren, American Robin, Gray Catbird, Cedar Waxwing, Northern Parula, Pine Warbler, Black-and-white Warbler, Rose-breasted Grosbeak, Brown-headed Cowbird, Northern Oriole, American Goldfinch. **Remarks:** Most species on the plot had a slight increase in the number of territories over 1991. Seven species used the aspen regeneration portion of the plot: Chestnut-sided Warbler (9.0 territories), Indigo Bunting (6.0), Golden-winged Warbler (2.5), American Redstart (1.5), Yellow Warbler (1.0), Common Yellowthroat (1.0), and Song Sparrow (1.0). **Other Observer:** Kathy Middleton. **Acknowledgments:** I thank Kathy Middleton for her assistance in all phases of this census.

21. 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 Area; 32°14'N, 90°49'W; Big Black Quadrangle, USGS. **Continuity:** Established 1989; 5 yr. **Size:** 10.0 ha. **Description of Plot:** See *J. Field Ornithol.* 61 (Suppl.):8–9 (1990). **Weather:** Mean start temp., 16.1°C (range 11–20°C). Good conditions during visits. Most days were clear with little or no wind. **Coverage:** 24.5 h; 12 visits (12 sunrise); 27 April; 5, 6, 14, 15, 16, 20, 22, 24, 27, 28, 30 May. **Census:** Red-eyed Vireo, 15.0 (60); Northern Cardinal, 15.0; Tufted Titmouse, 14.0 (56); Acadian Flycatcher, 13.0 (52); Carolina Wren, 13.0; Red-bellied Woodpecker, 12.0 (48); White-eyed Vireo, 12.0; Kentucky Warbler, 7.0 (28); Hooded Warbler, 7.0; Wood Thrush, 6.0 (24); Yellow-billed Cuckoo, 4.0 (16); Yellow-throated Vireo, 4.0; Carolina Chickadee, 3.0 (12); Prothonotary

Warbler, 3.0; Summer Tanager, 3.0; Downy Woodpecker, 2.0; Blue Jay, 2.0; American Crow, 2.0; American Redstart, 2.0; Swainson's Warbler, 2.0; Brown-headed Cowbird, 2.0; Red-shouldered Hawk, 1.0; Broad-winged Hawk, 1.0; Barred Owl, 1.0; Ruby-throated Hummingbird, 1.0; Belted Kingfisher, 1.0; Hairy Woodpecker, 1.0; Pileated Woodpecker, 1.0; Eastern Phoebe, 1.0; Great Crested Flycatcher, 1.0; Fish Crow, 1.0; Blue-gray Gnatcatcher, 1.0; Northern Parula, 1.0; Louisiana Waterthrush, 1.0; Orchard Oriole, 1.0; Northern Oriole, 1.0. **Total:** 36 species; 158.0 territories (632/40 ha).

22. FLOODPLAIN FOREST

BOSQUE INUNDABLE

HELMUT & NANCY MUELLER

Department of Biology

CB# 3280, Coker Hall

*The University of North Carolina at Chapel Hill
Chapel Hill, North Carolina 27599-3280*

Location: North Carolina; Orange Co.; Chapel Hill; Big Oak Woods; 35°53'N, 79°0'W; Chapel Hill Quadrangle, USGS. **Continuity:** Established 1977; 17 yr. **Size:** 12.6 ha. **Description of Plot:** See *Am. Birds* 32:63 (1978) and *J. Field Ornithol.* 63 (Suppl.):47 (1992). **Weather:** All visits were done on mornings with seasonally normal temperatures, no rain, and very little or no wind. **Coverage:** 26.0 h; 12 visits (7 sunrise); 1, 7, 8, 10, 19, 21, 25, 28, 29 May; 3, 9, 20 June. Maximum number of observers/visit, 3. **Census:** Red-eyed Vireo, 21.0 (67); Acadian Flycatcher, 10.0 (32); Carolina Wren, 9.0 (29; FL); Tufted Titmouse, 7.0 (22; 1N,FL); Blue-gray Gnatcatcher, 7.0; Carolina Chickadee, 5.5 (17; FL); Kentucky Warbler, 5.0 (16); Hooded Warbler, 5.0; Northern Cardinal, 5.0 (1N); Red-bellied Woodpecker, 3.5 (11); Wood Thrush, 3.0 (10); Summer Tanager, 2.5; Yellow-billed Cuckoo, 2.0; Ruby-throated Hummingbird, 2.0; Downy Woodpecker, 2.0 (FL); White-breasted Nuthatch, 2.0; Ovenbird, 2.0; Great Crested Flycatcher, 1.5; Yellow-throated Vireo, 1.5; Red-headed Woodpecker, 1.0 (1N); Hairy Woodpecker, 1.0; Northern Parula, 1.0; Yellow-throated Warbler, 1.0; Wood Duck, +; Red-shouldered Hawk, +; Barred Owl, +; Chimney Swift, +; Pileated Woodpecker, +; Blue Jay, +; American Crow, +; Brown-headed Cowbird, +. **Total:** 31 species; 100.5 territories (319/40 ha). **Visitors:** Indigo Bunting, Common Grackle, American Goldfinch. **Other Observers:** M.R. Elden, T. Hass, C. Heller, J. Hole, S. Kulp, W. Lancaster, R.H. Wiley.

23. MIXED DECIDUOUS FOREST

BOSQUE MIXTO DECIDUO

HELMUT & NANCY MUELLER

Department of Biology

CB# 3280, Coker Hall

*The University of North Carolina at Chapel Hill
Chapel Hill, North Carolina 27599-3280*

Location: North Carolina; Orange Co.; Chapel Hill; Botanical Garden Research Area; 35°54'N, 79°1'W; Chapel Hill Quadrangle, USGS. **Continuity:** Established 1976; 18 yr. **Size:** 12.6 ha. **Description of Plot:** See *Am. Birds* 31:41 (1977). **Weather:** All visits were done on mornings with seasonally normal temperatures, no rain, and very little or no wind. **Coverage:** 26.2 h; 12 visits (6 sunrise); 1, 7, 8, 10, 11, 21, 25, 27, 29 May; 3, 9, 20 June. Maximum number of observers/visit, 3. **Census:** Red-eyed Vireo, 11.0 (35); Tufted Titmouse, 7.0 (22; FL); Carolina Wren, 7.0 (FL); Carolina Chickadee, 5.5 (17; FL); Blue-gray Gnatcatcher, 4.5 (14); Northern Cardinal, 4.5; Acadian Flycatcher, 4.0 (13); Hooded Warbler, 4.0; Wood Thrush, 3.5 (11); Yellow-billed Cuckoo, 3.0 (10); Ovenbird, 3.0; Summer Tanager, 3.0; Red-bellied Woodpecker, 2.5; Downy Woodpecker, 2.5; White-breasted Nuthatch, 2.5; Scarlet Tanager, 2.5; Mourning Dove, 2.0; Ruby-throated Hummingbird, 2.0; Pine Warbler, 2.0; Kentucky Warbler, 1.5; Hairy Woodpecker, 1.0; Northern Flicker, 1.0; Red-shouldered Hawk, +; Red-

tailed Hawk, +; Pileated Woodpecker, +; Blue Jay, + (FL); American Crow, +; Northern Parula, +; Brown-headed Cowbird, +. **Total:** 29 species; 79.5 territories (252/40 ha). **Visitors:** Northern Bobwhite, Chimney Swift, Black-and-white Warbler, American Redstart, Louisiana Waterthrush, Common Grackle, American Goldfinch. **Other Observers:** T. Hass, C. Heller, J. Hole, S. Kulp, R.H. Wiley.

24. MATURE URBAN DECIDUOUS FOREST I

BOSQUE DECIDUO MADURO URBANO I

DAVID S. KÜNSTLER

*City of New York Dept. of Parks & Recreation
Van Cortlandt and Pelham Bay Parks Administrator's Office
1 Bronx River Parkway
Bronx, New York 10462*

Site Number: NY0989093. **Location:** New York; Bronx Co.; New York City; Hunter Island, Pelham Bay Park; 40°52'N, 73°47'W; Mount Vernon Quadrangle, USGS. **Continuity:** Established 1987; 7 yr. **Size:** 10.1 ha. **Description of Plot:** See *J. Field Ornithol.* 61 (Suppl.):38–39 (1990). **Weather:** Mean start temp., 19.6°C (range 12–24°C). Temperature for April was 12.4°C (1.1°C above average), for May it was 19.4°C (2.3°C above average), and for June it was 24.3°C (1.8°C above average). Precipitation in April was 11.7 cm (1.9 cm above average), in May it was 4.5 cm (6.0 cm below average), and in June it was 3.1 cm (5.1 cm below average). **Coverage:** 34.3 h; 9 visits (1 sunset); 20 April; 11, 25, 28 May; 2, 11, 18, 24 June; 7 July. **Census:** Common Yellowthroat, 15.5 (61); Gray Catbird, 13.0 (51); Carolina Wren, 5.0 (20); Rufous-sided Towhee, 5.0; American Robin, 4.0 (16; 1N); European Starling, 3.0 (12; 3N); Indigo Bunting, 3.0; Wood Thrush, 2.5 (1FL); Downy Woodpecker, 2.0 (1FL); House Wren, 2.0; Northern Cardinal, 2.0; Northern Oriole, 2.0 (1N,1FL); Hairy Woodpecker, 1.5 (1N); Great Crested Flycatcher, 1.5; Red-bellied Woodpecker, 1.0 (1N); Northern Flicker, 1.0 (1N); Tufted Titmouse, 1.0; White-breasted Nuthatch, 1.0; Yellow Warbler, 1.0; Song Sparrow, 1.0; Red-winged Blackbird, 1.0; Brown-headed Cowbird, 1.0 (1FL); Ring-necked Pheasant, 0.5; Great Horned Owl, + (1N,2FL); American Crow, +. **Total:** 25 species; 70.5 territories (279/40 ha). **Visitors:** Wild Turkey, Mourning Dove, Eastern Wood-Pewee, Eastern Kingbird, Blue Jay, Black-capped Chickadee, Veery, Red-eyed Vireo, American Redstart, Common Grackle, House Finch. **Remarks:** This was only the second year that an Eastern Wood-Pewee territory could not be identified. Carolina Wren was not only present, but common, for the second consecutive year after a long series of mild winters. American Robin had its most abundant year. There was proof of nesting activity for 16 species. The Brown-headed Cowbird fledgling was raised by Yellow Warblers. This is the last year for this census. A more detailed report summarizing all seven years of this census, will soon be available upon request from the author. Emphasis will be on habitat preferences. **Acknowledgments:** Thanks to Robert A. Bealin and Linda P. Dockeray for their support.

25. YOUNG WHITE ASH-RED MAPLE FOREST ON LAKE SHORE

BOSQUE JOVEN DE FRESCO BLANCO-ARCE ROJO EN ORILLAS DE LAGOS

GEORGE R. MAXWELL

*RD1, Box 179C
Red Creek, New York 13143*

Site Number: NY1686026. **Location:** New York; Wayne Co.; Fair Haven; Metzger Road; 43°20'N, 76°44'W; Oswego Quadrangle, USGS. **Continuity:** Established 1986; 8 yr. **Size:** 16.2 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):49–50 (1993). **Weather:** Mean start temp., 14.3°C (range 10–19°C). The mean start temp. was about the same as last year, but 3.4°C lower than in 1991. **Coverage:** 10.0 h; 10 visits (8 sunrise, 1 sunset); 21, 22, 23, 24, 25, 27, 28, 29, 30 June; 1 July. **Census:** Yellow Warbler, 10.0 (25); American Robin, 6.0 (15); House Wren, 4.0 (10); Gray Catbird, 4.0; Northern Cardinal, 4.0; Song Sparrow, 4.0; Red-

winged Blackbird, 4.0; Wood Thrush, 3.0 (7); American Redstart, 3.0; Cedar Waxwing, 2.0; Red-eyed Vireo, 2.0; Common Yellowthroat, 2.0; Common Grackle, 2.0; Northern Oriole, 2.0; House Finch, 2.0; Mourning Dove, 1.0; Tree Swallow, 1.0; Black-capped Chickadee, 1.0; Vee-ry, 1.0; Warbling Vireo, 1.0; Ovenbird, 1.0; Scarlet Tanager, 1.0; American Goldfinch, 1.0. **Total:** 23 species; 62.0 territories (153/40 ha). **Visitors:** Ruffed Grouse, Ruby-throated Hummingbird, Belted Kingfisher, Downy Woodpecker, Northern Flicker, Pileated Woodpecker, Blue Jay, American Crow, White-breasted Nuthatch, Yellow-throated Vireo, Nashville Warbler, Black-throated Blue Warbler, Rose-breasted Grosbeak, House Sparrow.

26. APPALACHIAN OAK FOREST

BOSQUE DE ROBLE DE LOS APALACHES

DAVE MINNEY

*The Nature Conservancy, Ohio
1504 West First Avenue
Columbus, Ohio 43212*

Site Number: OH1593017. **Location:** Ohio; Adams Co.; Lynx; Rieveschl Plot; 38°46'N, 83°26'W; Concord Quadrangle, USGS. **Continuity:** New. **Size:** 10.0 ha. **Description of Plot:** A rectangular plot (350 × 450 m) with a closed canopy estimated to be between 61 and 100 years of age. The forest cover is mature xeric oak-hickory forest dominated by chestnut oak, pignut hickory, Virginia pine, and several other oak species. The understory and shrub layer, although very sparse on some of the steeper slopes, is generally well developed and variable. Greenbrier, sourwood, and red maple dominate more exposed sites, while American elm is present on less exposed areas. The ground cover is light, consisting of woodland grasses, sedges, and forbs, with the exception of scattered, dense patches of low blueberry and huckleberry on more exposed areas. A quantitative vegetation survey based on the method described by F.C. James & H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727–736) yielded the following results: Trees, 7.6 cm diameter and over, based on 6 0.04-ha circular samples, 402/ha; total basal area 15.6 m²/ha. Species comprising 90% of the total number of trees [figures after each are trees/ha, and importance value derived from density + relative dominance + frequency]: chestnut oak, 252, 160; Virginia pine, 39, 27; pignut hickory, 39, 26; scarlet oak, 20, 24; black gum, 10, 11; sourwood, 10, 7. Trees by diameter size class [figures after each are trees/ha, relative density (%), basal area in m²/ha, and relative dominance (%)]: A (7.6–15.2 cm) 114, 28, 1.1, 3; B (15.2–22.9 cm) 69, 17, 1.9, 6; C (22.9–38.1 cm) 143, 35, 10.7, 34; D (38.1–53.3 cm) 64, 16, 10.7, 34; E (53.3–68.6 cm) 10, 2, 2.9, 9; F (68.6–83.8 cm) none; G (83.8–102 cm) none; H (> 102 cm) 5, 1, 4.0, 13. Shrub stems/ha, 169,510. Ground cover, 55%. Canopy cover, 68%; average canopy height, 17.4 m (range 13.5–23 m). **Edge:** Bordered on all sides by forest of similar type and age structure. The forest becomes more mesic downslope where tuliptree and sugar maple become more prevalent. The plot lies within a tract of similar habitat > 500 ha. **Topography and Elevation:** The plot is situated on a S-running ridgeline and a S-facing slope of > 16%. The terrain is rugged and the relief is in the form of very steep wooded slopes. Minimum elevation 238 m, maximum 342 m. **Weather:** Mean start temp., 17.9°C (range 10–24°C). Mean temperature for May was 1.0°C below normal, precipitation was 1.5 cm below normal. Mean temperature for June and early July was normal, precipitation was 2.2 cm above normal. Strong wind on final visit affected detectability. **Coverage:** 21.0 h; 8 visits (6 sunrise); 25, 28 May; 2, 10, 14, 24, 30 June; 6 July. **Census:** Ovenbird, 11.0 (44); Red-eyed Vireo, 10.5 (42; 1N); Eastern Wood-Pewee, 10.0 (40); Worm-eating Warbler, 5.0 (20); Wood Thrush, 4.5 (18); Brown-headed Cowbird, 4.0 (16); Hooded Warbler, 3.0 (12); Summer Tanager, 3.0; Scarlet Tanager, 2.5; White-breasted Nuthatch, 2.0; Carolina Wren, 2.0; Yellow-throated Vireo, 2.0; Mourning Dove, 1.0; Red-bellied Woodpecker, 1.0; Downy Woodpecker, 1.0; Hairy Woodpecker, 1.0; Great Crested Flycatcher, 1.0; Blue Jay, 1.0; Tufted Titmouse, 1.0; Blue-gray Gnatcatcher, 1.0; Pine Warbler, 1.0; Black-and-white Warbler, 1.0; Northern Cardinal, 1.0; Wild Turkey, +; Carolina Chickadee, +. **Total:** 25 species; 70.5 territories (282/40 ha). **Visitors:** Black-billed Cuckoo, Pileated Woodpecker, Cedar Waxwing, Indigo Bunting. **Remarks:** Part of this plot was censused in 1989 and 1990,

but results were not published because of the small plot size. The size was increased to 10.0 ha this year. The vegetation data were collected in 1989 by Peter Whan and Dave Minney. **Acknowledgments:** Cincinnati Museum of Natural History, and The Ohio Chapter of The Nature Conservancy.

27. MATURE BROADLEAF FOREST

BOSQUE DE HOJA ANCHA MADURA

CHARLES W. SAUNDERS*, STEVE PELIKAN & DAVID STYER

*5561 Carlsbad Court
Fairfield, Ohio 45014

Site Number: OH1591043. **Location:** Ohio; Hamilton Co.; Harrison; Miami Whitewater Forest; 39°15'N, 84°46'W; Hoover Quadrangle, USGS. **Continuity:** Established 1991; 3 yr. **Size:** 16.0 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):52 (1992). A quantitative vegetation survey based on the method described by F.C. James & H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727–736) was conducted in mid-October and yielded the following results: Trees, 7.6 cm diameter and over, based on 6 0.04-ha circular samples, 482/ha; total basal area 50.4 m²/ha. Species comprising 90% of the total number of trees [figures after each are trees/ha, relative density (%), relative dominance (%), and frequency (%)]: sugar maple, 363, 75, 34, 100; white oak, 20, 4, 15, 50; American beech, 20, 4, 11, 33; white ash, 17, 3, 14, 33; standing dead, 17, 3, 3, 67. Trees by diameter size class [figures after each are trees/ha, relative density (%), basal area in m²/ha, and relative dominance (%)]: A (7.6–15.2 cm) 217, 45, 2.0, 4; B (15.2–22.9 cm) 49, 10, 1.4, 3; C (22.9–38.1 cm) 79, 16, 5.8, 12; D (38.1–53.3 cm) 62, 13, 10, 20; E (53.3–68.6 cm) 32, 7, 9.4, 19; F (68.6–83.8 cm) 25, 5, 11, 22; G (83.8–102 cm) 17, 3, 11, 22; H (> 102 cm) 0, 0, 0. Shrub stems/ha, 29,600. Ground cover, 37%; canopy cover, 94%; average canopy height, 30 m (range 27–33 m). **Weather:** Mean start temp., 16.6°C (range 10–22°C). **Coverage:** 29.4 h; 10 visits (10 sunrise); 29, 30 May; 5, 6, 12, 13, 19, 20, 27 June; 3 July. **Census:** Wood Thrush, 15.5 (39; 4FL); Red-eyed Vireo, 9.5 (24); Northern Cardinal, 7.0 (18; 1FL); Red-bellied Woodpecker, 6.5 (16; 1N,2FL); Tufted Titmouse, 6.5 (10FL); White-breasted Nuthatch, 6.0 (15; 2FL); Downy Woodpecker, 5.0 (13; 2N,3FL); Scarlet Tanager, 5.0; Eastern Wood-Pewee, 4.5 (11; 1FL); Northern Flicker, 4.0 (10; 2N,2FL); Blue Jay, 4.0; Carolina Chickadee, 4.0; Brown-headed Cowbird, 4.0 (2FL); Acadian Flycatcher, 3.5 (9); Hairy Woodpecker, 2.5 (1N); Carolina Wren, 2.5; American Robin, 2.5 (2FL); Rose-breasted Grosbeak, 2.5 (1FL); Blue-gray Gnatcatcher, 2.0; Kentucky Warbler, 2.0; Hooded Warbler, 2.0; Pileated Woodpecker, 1.0; Great Crested Flycatcher, 1.0 (1N); Yellow-billed Cuckoo, 0.5; Louisiana Waterthrush, 0.5; Red-tailed Hawk, +. **Total:** 26 species; 104.0 territories (260/40 ha). **Visitors:** Ruby-throated Hummingbird, American Crow, Gray Catbird, Yellow-throated Vireo, Ovenbird, Summer Tanager, Indigo Bunting, Common Grackle, American Goldfinch. **Remarks:** One cowbird was raised by a Wood Thrush, another by an Acadian Flycatcher. **Other Observer:** Allen Walls. **Acknowledgments:** We thank John Klein and the Hamilton County Park District for the use of the land, and Joanne Olman for help with the quantitative vegetation survey.

28. RIPARIAN DECIDUOUS FOREST

BOSQUE RIVEREÑO DECIDUO

ELLIOT J. TRAMER

Department of Biology
The University of Toledo
Toledo, Ohio 43606

Site Number: OH1689033. **Location:** Ohio; Lucas Co.; Waterville; Old Canal Lands; 41°28'N, 83°46'W; Grand Rapids Quadrangle, USGS. **Continuity:** Established 1989; 5 yr. **Size:** 18.0 ha.

Description of Plot: See *J. Field Ornithol.* 61 (Suppl.):43 (1990). In late February 1993, park maintenance workers cut down about 35 dead snags bordering the towpath that runs the

length of the plot. This removed an estimated 10% of the basal area of standing dead trees.

Weather: Mean start temp., 17.1°C (range 8–23°C). No temperature or moisture extremes occurred during the study period. May was generally cool and dry until the last week when rainfall increased. Early June was cool, but temperatures were normal later in the month. June was rainy and early July was warm. Source: U.S. Weather Bureau, Toledo Express Airport.

Coverage: 25.7 h; 9 visits (2 sunrise); 15, 22 May; 1, 6, 12, 24 June; 1, 4, 11 July. **Census:** American Robin, 16.5 (37; N,FL); Gray Catbird, 10.0 (22); Song Sparrow, 10.0 (FL); House Wren, 9.0 (20; N,FL); Northern Cardinal, 8.0 (18; N); Warbling Vireo, 7.0 (16); Common Grackle, 6.0 (13; N,FL); Wood Thrush, 5.0 (11); Northern Oriole, 5.0 (N,FL); Carolina Wren, 4.0 (9; FL); Mourning Dove, 3.0 (7; N); Downy Woodpecker, 3.0 (FL); Eastern Wood-Pewee, 3.0; Tufted Titmouse, 3.0; European Starling, 3.0 (N); American Redstart, 3.0; Indigo Bunting, 3.0; Red-winged Blackbird, 3.0 (N); Northern Flicker, 2.0 (N); Blue Jay, 2.0 (N); White-breasted Nuthatch, 2.0; Cedar Waxwing, 2.0; Red-eyed Vireo, 2.0; Yellow Warbler, 2.0; Brown-headed Cowbird, 2.0; Wood Duck, 1.0 (FL); Ruby-throated Hummingbird, 1.0; Red-bellied Woodpecker, 1.0; Hairy Woodpecker, 1.0; Great Crested Flycatcher, 1.0; Tree Swallow, 1.0 (N); Black-capped Chickadee, 1.0; Rose-breasted Grosbeak, 1.0; American Goldfinch, 1.0. **Total:** 34 species; 127.5 territories (283/40 ha). **Visitors:** Cooper's Hawk, Eastern Kingbird, Blue-gray Gnatcatcher, Common Yellowthroat, Scarlet Tanager, Rufous-sided Towhee, Orchard Oriole. **Remarks:** Over the five years of this census, most species appear to be holding their own, including neotropical migrants. Cavity-nesting birds had 30.5 territories last year and 28 this year, so the snag removal had little or no effect on the avifauna.

29. WHITE OAK SAVANNAH

SAVANA DE ROBLE BLANCO

MICHAEL F.G. CLARK

27 Skyline Drive
Dundas, Ontario L9H 3S3

Site Number: ON2893110. **Location:** Ontario; Municipality of Muskoka; Torrance; Southwood Shield Plateau; 44°56'N, 79°30'W. **Continuity:** New. **Size:** 10.4 ha. **Description of Plot:** A rectangular plot; part of an extensive Canadian Shield plateau which is bordered by lower, largely forested areas. Much of the plateau has the appearance of open savannah-type parkland, interspersed with clusters and strips (usually small) of woods, and a patchwork of mostly small-to-medium ponds and wetlands (including several bogs) in the shield depressions. The plot itself contains four small wetlands (one bog and three swamps) totalling approximately 0.8 ha. These wetlands and the numerous pockets of deciduous and mixed woods (many quite dense), provide a variety of microhabitats and considerable edge. A road bisects the plot. A quantitative vegetation survey based on the method described by F.C. James & H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727–736) yielded the following results: Trees, 7.6 cm diameter and over, based on 6 0.04-ha circular samples, 186/ha; total basal area 4.3 m²/ha. Species comprising 100% of the total number of trees [figures after each are trees/ha, relative density (%), relative dominance (%), and frequency (%)]: standing dead, 47, 26, 34, 83; white oak, 43, 23, 36, 83; red oak, 28, 15, 12, 83; red maple, 24, 13, 7, 33; quaking aspen, 24, 13, 5, 33; white pine, 12, 6, 3, 33; large-toothed aspen, 8, 4, 3, 17. Trees by diameter size class [figures after each are trees/ha, relative density (%), basal area in m²/ha, and relative dominance (%)]: A (7.6–15.2 cm) 119, 64, 1.1, 26; B (15.2–22.9 cm) 40, 21, 1.1, 26; C (22.9–38.1 cm) 28, 15, 2.1, 48. Shrub stems/ha, 1,833, dominated by standing dead (40%) and quaking aspen (17%), but also including meadowsweet, white birch, red maple, white oak, pin cherry, and others. Ground cover, 86%, composed of (estimated from 5 circles) grasses (30%), moss-lichen (21%), ferns (19%), bare shield-road (9%), herbs (9%), assorted saplings (6%), peat moss (4%), and common juniper, etc. (4%). Canopy cover, 17%; mean canopy height, 7.9 m (range 6–10 m). **Edge:** The plot is bordered on all sides by similar habitat. There is a medium-sized pond at the bottom of a steep slope near the SW corner, and extensive low-lying forest a short distance from most of the SW edge. A very large pond is located near the N corner. **Topography and Elevation:** The plot is nearly level, with a few

moderately raised areas of shield, a tiny gully, and some lower wetland pockets in the shield depressions. Average elevation 244 m. **Weather:** Mean start temp., 22.1°C (range 12–29°C). Mean temperature for May through July was very close to the 31-yr average of 15.1°C. Precipitation was 34% (2.8 cm) above the 31-yr average of 8.2 cm. Source: Environment Canada. **Coverage:** 17.4 h; 8 visits (3 sunset); 22 May; 18 June; 5, 6, 7, 8, 9 July. **Census:** Song Sparrow, 14.0 (54); Yellow Warbler, 12.5 (48); Field Sparrow, 12.0 (46); Least Flycatcher, 10.5 (40); Common Yellowthroat, 8.5 (33); American Robin, 8.0 (31); Chipping Sparrow, 7.0 (27); Cedar Waxwing, 5.5 (21); Vesper Sparrow, 4.0 (15); Northern Flicker, 2.5; House Wren, 2.5; Eastern Bluebird, 2.5; Brown Thrasher, 2.5; Warbling Vireo, 2.5; Rufous-sided Towhee, 2.5; Veery, 2.0; Gray Catbird, 2.0; Purple Finch, 2.0; Common Nighthawk, 1.0; Yellow-bellied Sapsucker, 1.0; Red-eyed Vireo, 1.0; American Redstart, 1.0; Brown-headed Cowbird, 1.0; American Goldfinch, 1.0; Yellow-throated Vireo, 0.5; Chestnut-sided Warbler, 0.5; Red-winged Blackbird, 0.5. **Total:** 27 species; 110.5 territories (425/40 ha). **Visitors:** Turkey Vulture, Killdeer, Mourning Dove, Downy Woodpecker, Hairy Woodpecker, Eastern Phoebe, Great Crested Flycatcher, Black-capped Chickadee, Red-breasted Nuthatch, White-breasted Nuthatch, Hermit Thrush, European Starling, Rose-breasted Grosbeak, Indigo Bunting, Common Grackle. **Remarks:** Insect numbers (black flies and mosquitoes) stayed unusually high well into July, likely because of above average rainfall. Sparrows were the dominant breeders (5 species, 36% of territories), followed by warblers (4, 20%), thrushes (3, 11%), and flycatchers (1, 10%).

30. OAK-MAPLE-POPLAR HOLLOW

BOSQUE DE ROBLE-ARCE-ALAMO HUECO

LINDA M. INGRAM

Nolde Forest Environmental Education Center

R.D. #1, Box 392

Reading, Pennsylvania 19607

Site Number: PA1093123. **Location:** Pennsylvania; Berks Co.; Reading; Nolde Forest, Buck Hollow; 40°17'N, 75°57'W; Reading Quadrangle, USGS. **Continuity:** New. **Size:** 10.9 ha. **Description of Plot:** A rectangular plot (274 × 396 m) with a closed canopy dominated by tuliptree, yellow birch, and American beech, estimated to be between 31 and 60 years of age. Mean canopy height, 18 m (range 9–20 m). The patchy understory is dominated by white spruce, red maple, and American beech. The ground cover is dominated by leaf litter. There is one ephemeral stream with a maximum diameter of 0.8 m and a maximum depth of 0.2 m. **Edge:** Over 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat > 500 ha in size. **Topography and Elevation:** The plot has an uneven slope of 6–10% grade. Minimum elevation 170 m, maximum 201 m. **Weather:** Mean start temp., 14.2°C (range 10–23°C). There was fog and drizzle during the 19 May visit. **Coverage:** 30.0 h; 18 visits (18 sunrise); 17, 18, 19, 21, 22, 23, 27 May; 2, 3, 8, 10, 16, 17, 18, 23, 24, 27, 30 June. **Census:** Ovenbird, 7.0 (26); Wood Thrush, 6.0 (22); Tufted Titmouse, 4.5 (17); Red-eyed Vireo, 4.5 (1N); Veery, 3.5 (13); Eastern Wood-Pewee, 2.5; Blue Jay, 2.0; Black-capped Chickadee, 2.0; Red-bellied Woodpecker, 1.5; American Crow, 1.5; Scarlet Tanager, 1.5; Northern Cardinal, 1.5; Downy Woodpecker, 1.0; Northern Flicker, 0.5; White-breasted Nuthatch, 0.5; American Robin, 0.5; Pileated Woodpecker, +. **Total:** 17 species; 40.5 territories (149/40 ha).

31. OAK-MAPLE RIDGE-TOP FOREST

BOSQUE DE ROBLE-ARCE DE TOPE DE COLINAS

CATHERINE B. VIVERETTE

Hawk Mountain Sanctuary

Route 2, Box 191

Kempton, Pennsylvania 19529

Site Number: PA1382312. **Location:** Pennsylvania; Berks Co.; Eckville; Owl's Head; 40°44'N, 75°50'W; New Ringgold Quadrangle, USGS. **Continuity:** Established 1982; 12 yr. **Size:** 19.3

ha. **Description of Plot:** See *Am. Birds* 37:55 (1983). **Weather:** Mean start temp., 12.3°C (range 7–22°C). **Coverage:** 24.2 h; 11 visits (11 sunrise); 29 April; 2, 11, 22, 23, 28, 30 May; 6, 19, 26 June; 14 July. **Census:** Ovenbird, 12.0 (25); Common Yellowthroat, 5.0 (10); Black-capped Chickadee, 4.0 (8); Rufous-sided Towhee, 4.0; Scarlet Tanager, 3.5 (7); Great Crested Flycatcher, 3.0 (6); Blue Jay, 3.0; Ruffed Grouse, 2.0; Wood Thrush, 2.0; Indigo Bunting, 2.0; Hermit Thrush, 1.5; Downy Woodpecker, 1.0; Red-eyed Vireo, 1.0; Brown-headed Cowbird, 1.0; Eastern Wood-Pewee, 0.5. **Total:** 15 species; 45.5 territories (94/40 ha). **Visitors:** Mourning Dove, Hairy Woodpecker, Northern Flicker, Common Raven, Tufted Titmouse, Brown Creeper, American Robin, Cedar Waxwing, Black-and-white Warbler, American Redstart, Rose-breasted Grosbeak, Common Grackle, American Goldfinch. **Other Observers:** Rudy Keller, Kerry Grim, Rick Wiltraut, Doug Wood. **Acknowledgments:** Hawk Mountain Sanctuary contribution number 16.

32. OAK-MAPLE SLOPE FOREST

BOSQUE DE ROBLE-ARCE DE LADERAS

CATHERINE B. VIVERETTE

Hawk Mountain Sanctuary

Route 2, Box 191

Kempton, Pennsylvania 19529

Site Number: PA1382313. **Location:** Pennsylvania; Berks Co.; Eckville; River of Rocks; 40°45'N, 75°50'W; New Ringgold Quadrangle, USGS. **Continuity:** Established 1982; 12 yr. **Size:** 16.9 ha. **Description of Plot:** See *Am. Birds* 37:55 (1983). **Weather:** Mean start temp., 16.0°C (range 8–23°C). **Coverage:** 23.6 h; 10 visits (10 sunrise); 28 April; 9, 15, 21, 30 May; 8, 12, 23 June; 10, 12 July. **Census:** Ovenbird, 7.5 (18); Eastern Wood-Pewee, 5.0 (12); Red-eyed Vireo, 5.0; Scarlet Tanager, 4.0 (9); Great Crested Flycatcher, 3.5 (8); American Crow, 3.0 (7); Downy Woodpecker, 2.5; Black-capped Chickadee, 2.5; Tufted Titmouse, 2.5; Wood Thrush, 2.5; Blue Jay, 2.0; Brown-headed Cowbird, 2.0; Red-bellied Woodpecker, 1.0; Northern Flicker, 1.0; Pileated Woodpecker, 1.0; Eastern Phoebe, 1.0; Black-and-white Warbler, 1.0; Rose-breasted Grosbeak, 1.0; Hairy Woodpecker, 0.5; Northern Cardinal, 0.5. **Total:** 20 species; 49.0 territories (116/40 ha). **Visitors:** Mourning Dove, Black-billed Cuckoo, Great Horned Owl, White-breasted Nuthatch, Blue-gray Gnatcatcher, Indigo Bunting, American Goldfinch. **Other Observers:** Doug Wood, Rudy Keller, Kerry Grim, Rick Wiltraut. **Acknowledgments:** Hawk Mountain Sanctuary contribution number 15.

33. SUBURBAN DECIDUOUS WOODLOT

RODAL DECIDUO SUBURBANO

DAVID ROBERTSON & ROBERT CAREY

Pennypack Watershed Association

2955 Edge Hill Road

Huntingdon Valley, Pennsylvania 19006-5099

Site Number: PA1091004. **Location:** Pennsylvania; Montgomery Co.; Bryn Athyn; Papermill Road Woods (South); 40°9'N, 75°3'W; Hatboro Quadrangle, USGS. **Continuity:** Established 1991; 3 yr. **Size:** 10.0 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):62 (1992). **Weather:** Mean start temp., 19.6°C (range 12–26°C). **Coverage:** 17.4 h; 8 visits (5 sunrise); 28 May; 7, 8, 11, 14, 16, 24 June; 2 July. **Census:** Carolina Wren, 7.0 (28); Wood Thrush, 6.0 (24); Gray Catbird, 6.0; Red-eyed Vireo, 5.0 (20); Tufted Titmouse, 4.0 (16); Veery, 4.0; Northern Cardinal, 4.0; Red-bellied Woodpecker, 3.0 (12); Blue Jay, 3.0; American Robin, 3.0 (1N); Rufous-sided Towhee, 3.0; Downy Woodpecker, 2.0 (1N); Eastern Wood-Pewee, 2.0; Black-capped Chickadee, 2.0; White-breasted Nuthatch, 2.0; Brown-headed Cowbird, 2.0; Northern Flicker, 1.0. **Total:** 17 species; 59.0 territories (236/40 ha). **Other Observers:** Mary Robertson, Tom Tague.

34. MATURE MESIC OAK FOREST

BOSQUE MESICO MADURO DE ROBLE

LESLIE OLYOTT

97 Shun Pike

North Scituate, Rhode Island 02857

Site Number: RI1291065. **Location:** Rhode Island; Kent Co.; Coventry Center; Parker Woodland; 41°44'N, 71°43'W; Coventry Center Quadrangle, USGS. **Continuity:** Established 1991; 2 yr. **Size:** 10.6 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):62–63 (1992). **Weather:** Mean start temp., 21.2°C (range 18–29°C). June mean temperature (18.9°C) was near normal (18.3°C), as was the July mean temperature (21.8°C; normal 21.4°C). June precipitation (3.8 cm) was much below normal (9.5 cm). July precipitation (10.6 cm) was slightly above normal (8.3 cm). Source: University of Rhode Island weather station, Kingston, RI. **Coverage:** 38.7 h; 14 visits (12 sunrise, 2 sunset); 13, 17, 18, 19, 21, 22 June; 7, 8, 9, 11, 14 July. **Census:** Ovenbird, 9.5 (36); Wood Thrush, 9.0 (34; 2N, 2FL); Tufted Titmouse, 7.0 (26); Veery, 6.0 (23); Worm-eating Warbler, 6.0 (1N, 2FL); Hermit Thrush, 5.5 (21); Red-eyed Vireo, 5.5; Rufous-sided Towhee, 5.5; Eastern Wood-Pewee, 4.5 (17); Black-capped Chickadee, 3.5 (13); Black-and-white Warbler, 3.0 (11); Downy Woodpecker, 2.0; American Redstart, 2.0; Scarlet Tanager, 2.0; White-breasted Nuthatch, 1.5; Rose-breasted Grosbeak, 1.5; Northern Flicker, 1.0; Blue Jay, +; Brown-headed Cowbird, +. **Total:** 19 species; 75.0 territories (283/40 ha). **Visitors:** Barred Owl, Great Crested Flycatcher, American Crow, Gray Catbird, Cedar Waxwing, Chestnut-sided Warbler, Common Yellowthroat. **Other Observers:** Deborah J. Knauss, Rachel M. Landry. **Acknowledgments:** Thanks to David Rodrigues and the Audubon Society of Rhode Island for permission to use the site.

35. UPLAND OAK-RED MAPLE FOREST

BOSQUE DE ROBLE-ARCE ROJO DE ALTURAS

WILLIAM R. EDDLEMAN

Department of Natural Resources Science

210B Woodward Hall

University of Rhode Island

Kingston, Rhode Island 02881

Site Number: RI1290087. **Location:** Rhode Island; Washington Co.; Peace Dale; Hazard Tract; 41°27'N, 71°29'W; Narragansett Pier Quadrangle, USGS. **Continuity:** Established 1990; 4 yr. **Size:** 10.1 ha. **Description of Plot:** See *J. Field Ornithol.* 62 (Suppl.):47–48 (1991). **Weather:** Mean start temp., 17.5°C (range 8–23°C). May mean temperature (14.9°C) was slightly above normal (13.4°C). June mean temperature (18.9°C) was near normal (18.3°C), as was the July mean temperature (21.8°C; normal 21.4°C). May precipitation (2.9 cm) was much below normal (11.0 cm), as was the June precipitation (3.8 cm; normal 9.5 cm). July precipitation (10.6 cm) was slightly above normal (8.3 cm). Source: University of Rhode Island weather station, Kingston, RI. **Coverage:** 22.2 h; 12 visits (11 sunrise, 1 sunset); 15, 29, 31 May; 12, 18, 19, 20, 26, 29 June; 1, 7, 13 July. **Census:** Veery, 10.0 (40; 1FL); Ovenbird, 9.0 (36); Tufted Titmouse, 7.0 (28; 2FL); Rufous-sided Towhee, 7.0 (1FL); Gray Catbird, 6.0 (24; 2FL); Great Crested Flycatcher, 5.5 (22; 1N); Black-and-white Warbler, 4.5 (18); Northern Cardinal, 4.5 (1N); Black-capped Chickadee, 3.5 (14; 2FL); Downy Woodpecker, 3.0 (12; 1FL); Eastern Wood-Pewee, 3.0 (1FL); Wood Thrush, 3.0 (1FL); Carolina Wren, 2.5; Scarlet Tanager, 2.0 (1FL); Red-bellied Woodpecker, 1.5; Blue Jay, 1.5; White-breasted Nuthatch, 1.5; House Wren, 1.5 (2FL); Red-eyed Vireo, 1.0; Pine Warbler, 1.0; Common Yellowthroat, 1.0; Rose-breasted Grosbeak, 1.0; Broad-winged Hawk, 0.5 (1N); American Crow, +; Brown-headed Cowbird, +. **Total:** 25 species; 81.0 territories (321/40 ha). **Visitors:** Mourning Dove, Barred Owl, Ruby-throated Hummingbird, American Robin, Blue-winged Warbler, American Redstart, Common Grackle, Northern Oriole. **Remarks:** This plot was used as a mist-netting site for the Monitoring Avian Productivity and Survivorship (MAPS) project. Contribution #2891

of the College of Resource Development, University of Rhode Island, with support from the Rhode Island Agricultural Experiment Station. **Other Observer:** Julie Swistak.

36. VIRGIN HARDWOOD SWAMP FOREST

BOSQUE PANTANOSO VIRGEN DE MADERAS DURAS

MICHAEL R. DAWSON

Francis Beidler Forest

336 Sanctuary Road

Harleyville, South Carolina 29448

Location: South Carolina; Berkeley Co.; Harleyville; Francis Beidler Forest Sanctuary; 33°13'N, 80°20'W; Pringleton Quadrangle, USGS. **Continuity:** Established 1979; 7 yr. **Size:** 8.9 ha. **Description of Plot:** See *Am. Birds* 34:50 (1980). The plot continues to recover from the damage done by Hurricane Hugo in 1989. In portions of the plot, 50–75% of the canopy was lost. Conditions are increasingly scrubby and brushy with the increase in sunlight at the forest floor. **Weather:** Mean start temp., 19.3°C (range 16–24°C). Temperatures were normal. Rainfall for April through June was 18.4 cm below normal. The swamp water level dropped 99 cm during the 3-month period. Source: sanctuary records. **Coverage:** 17.8 h; 10 visits (8 sunrise); 3, 13, 17, 21, 27, 28, 31 May; 1, 3, 11 June. **Census:** Blue-gray Gnatcatcher, 40.0 (180); Carolina Wren, 17.0 (76); Prothonotary Warbler, 12.0 (54); Northern Cardinal, 10.0 (45); Red-bellied Woodpecker, 9.5 (43); Tufted Titmouse, 9.5; White-breasted Nuthatch, 7.0 (31); Great Crested Flycatcher, 6.0 (27); White-eyed Vireo, 6.0; Downy Woodpecker, 4.0 (18); Carolina Chickadee, 3.0 (13); Red-eyed Vireo, 3.0; Acadian Flycatcher, 2.5; Pileated Woodpecker, 2.0; Yellow-billed Cuckoo, 1.5; Red-headed Woodpecker, 1.5; Yellow-throated Warbler, 1.5; Summer Tanager, 1.0; Yellow-throated Vireo, 0.5; Indigo Bunting, 0.5. **Total:** 20 species; 138.0 territories (620/40 ha). **Visitors:** Red-shouldered Hawk, Barred Owl, Northern Parula, Pine Warbler, Kentucky Warbler, Common Yellowthroat, Hooded Warbler, Brown-headed Cowbird. **Remarks:** In 1979, the first year this plot was censused, Northern Parulas were the most common species with 33 territories. They have shown a steady decline over the years, until this year when there were no distinguishable territories for the first time. **Other Observer:** Norman L. Brunswig.

37. MATURE MAPLE-BEECH-BIRCH FOREST

BOSQUE MADURO DE ARCE-HAYA-ABEDUL

Laura J. MITCHELL

Cherokee National Forest

P.O. Box 2010

Cleveland, Tennessee 37312

Site Number: TN2392102. **Location:** Tennessee; Monroe Co.; Whigg Ridge, Cherokee National Forest; 35°19'N, 84°2'W; Big Junction Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 10.2 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):57–58 (1993). **Weather:** Mean start temp., 13.9°C (range 10–21°C). Fog and leaf drip are frequent at this elevation and have some effect on detectability. **Coverage:** 21.6 h; 10 visits (7 sunrise, 3 sunset); 17, 18, 19, 26, 27 May; 16, 17, 18, 22 June; 14 July. **Census:** Ovenbird, 27.0 (106; 3FL); Dark-eyed Junco, 20.0 (78; 8FL); Veery, 13.0 (51; 1FL); Solitary Vireo, 11.0 (43; 1FL); Chestnut-sided Warbler, 2.0; Black-throated Blue Warbler, 1.5; Blackburnian Warbler, 1.0; Ruffed Grouse, 0.5 (5FL); Northern Bobwhite, 0.5; Hairy Woodpecker, 0.5; Red-eyed Vireo, 0.5; Rufous-sided Towhee, 0.5; American Crow, +. **Total:** 13 species; 78.0 territories (306/40 ha). **Visitors:** Pileated Woodpecker, Carolina Chickadee, Winter Wren, kinglet species, American Robin, Canada Warbler, Scarlet Tanager, Rose-breasted Grosbeak. **Remarks:** The snowstorm of 12–14 March may have had an impact on the survival of permanent residents. There was a Barred Owl territory adjacent to the plot. Notable flyovers included Chimney Swift and Broad-winged Hawk. A Northern Saw-whet Owl was detected 26 May within 0.4 km

of the plot. A Golden-winged Warbler was detected 14 July just outside of the NE corner of the plot. Three timber sales (clear-cuts) were completed in the vicinity of the plot in 1992. The average size of opening is 9.5 ha. Sale units are located 793 m to the N, 244 m to the W, and 366 m to the SW of the plot. No additional timber sales are planned in the area. I did not conduct evening visits later in the season; this may have contributed to the apparent drop in Veery territories. **Acknowledgments:** I acknowledge the financial and logistical support of the USDA Forest Service, Cherokee National Forest.

38. MESOPHYTIC FOREST I

BOSQUE MESOFITICO I

MICHAEL G. SMITH

*Route 3, Box 301
Elkton, Virginia 22827*

Site Number: VA1083031. **Location:** Virginia; Green Co.; Elkton; Pocosin Cabin Plot; 38°24'N, 78°29'W; Fletcher Quadrangle, USGS. **Continuity:** Established 1987; 7 yr. **Size:** 6.1 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (Suppl.):32–33 (1989). **Weather:** Mean start temp., 14.9°C (range 3–26°C). Precipitation was below average, and temperatures were extremely variable during the study period. **Coverage:** 11.9 h; 11 visits (8 sunrise, 3 sunset); 23, 24, 25, 26, 29 May; 1, 2, 7, 8, 9, 11 June. **Census:** American Redstart, 12.5 (82); Veery, 4.5 (30); Red-eyed Vireo, 4.5; Eastern Wood-Pewee, 4.0 (26); Ovenbird, 4.0; Indigo Bunting, 4.0; Rose-breasted Grosbeak, 3.5 (23); Rufous-sided Towhee, 3.5; Cerulean Warbler, 3.0 (20); Scarlet Tanager, 2.5; Wood Thrush, 2.0; Hooded Warbler, 2.0; Canada Warbler, 2.0; Acadian Flycatcher, 1.0; Yellow-throated Vireo, 1.0; Least Flycatcher, 0.5; Chestnut-sided Warbler, 0.5. **Total:** 17 species; 55.0 territories (361/40 ha). **Visitors:** Ruby-throated Hummingbird, Downy Woodpecker, Eastern Phoebe, Great Crested Flycatcher, Common Raven, chickadee species, Winter Wren, American Robin, Gray Catbird, Cedar Waxwing, Solitary Vireo, Black-throated Blue Warbler, Blackburnian Warbler, Black-and-white Warbler, Worm-eating Warbler, Chipping Sparrow. **Remarks:** Least Flycatcher returned to the plot after a 6-yr absence. The following are deviations from the 7-yr mean number of territories: Veery –33%, Acadian Flycatcher –20%, and Hooded Warbler –15%. Indigo Bunting territories increased 89% over the 6-yr mean. **Acknowledgments:** Thanks to Elwood Fisher and others for the plot layout and vegetation survey. Thanks also to the personnel of the Shenandoah National Park for their cooperation in the study.

39. MESOPHYTIC FOREST II

BOSQUE MESOFITICO II

MICHAEL G. SMITH

*Route 3, Box 301
Elkton, Virginia 22827*

Site Number: VA1087013. **Location:** Virginia; Green Co.; Elkton; Pocosin Mission Plot; 38°24'N, 78°29'W; Fletcher Quadrangle, USGS. **Continuity:** Established 1983; 8 yr. **Size:** 6.1 ha. **Description of Plot:** See *Am. Birds* 38:76–77 (1984). **Weather:** Mean start temp., 15.1°C (range 4–24°C). Precipitation was below average, and temperatures were extremely variable during the study period. **Coverage:** 12.9 h; 11 visits (8 sunrise, 3 sunset); 23, 24, 25, 26, 29 May; 1, 2, 7, 8, 9, 11 June. **Census:** American Redstart, 15.0 (98); Ovenbird, 9.0 (59); Red-eyed Vireo, 6.5 (43); Veery, 5.0 (33); Wood Thrush, 4.5 (30); Cerulean Warbler, 4.0 (26); Rufous-sided Towhee, 4.0 (3FL); Eastern Wood-Pewee, 3.0 (20); Indigo Bunting, 3.0; Acadian Flycatcher, 2.0; Scarlet Tanager, 2.0; chickadee species, 1.0; Downy Woodpecker, 1.0; Hairy Woodpecker, 1.0; Black-throated Blue Warbler, 1.0; Hooded Warbler, 1.0; Ruffed Grouse, +. **Total:** 17 species; 63.0 territories (413/40 ha). **Visitors:** Ruby-throated Hummingbird, Downy Woodpecker, Pileated Woodpecker, Common Raven, White-breasted Nuthatch, American Robin, Cedar Waxwing, Yellow-throated Vireo, Black-and-white Warbler, Worm-

eating Warbler, Kentucky Warbler, Rose-breasted Grosbeak. **Remarks:** The following are deviations from the 7-yr mean number of territories: Veery –25%, Acadian Flycatcher –20%, and Hooded Warbler –20%. The number of Rufous-sided Towhee territories was 35% over the 5-yr mean. **Acknowledgments:** Thanks to Elwood Fisher and others for the plot layout and vegetation survey. Thanks also to the personnel of the Shenandoah National Park for their cooperation in the study.

40. PONDEROSA PINE FOREST

BOSQUE DE PINO PONDEROSA

LOUISE HERING

*1055 Adams Circle, Apt. 1118
Boulder, Colorado 80303*

Location: Colorado; Boulder Co.; Boulder; Enchanted Mesa; 39°50'N, 105°16'W; Boulder Quadrangle, USGS. **Continuity:** Established 1954; 28 yr. **Size:** 8.1 ha. **Description of Plot:** See *Aud. Field Notes* 8:372 (1954) and *J. Field Ornithol.* 64 (Suppl.):61 (1993). **Weather:** Mean start temp., 15.5°C (range 6–24°C). There was 50% snow cover during the first visit. **Coverage:** 20.8 h; 12 visits (6 sunrise); 14, 22, 29 April; 7, 14, 20 May; 1, 7, 13, 19, 30 June; 3 July. **Census:** Pygmy Nuthatch, 8.0 (40; 8N); Chipping Sparrow, 4.5 (22; 1N); Hammond's Flycatcher, 4.0 (20; 1N); Western Wood-Pewee, 3.0 (15); American Robin, 3.0 (2N); Mountain Chickadee, 2.5; Solitary Vireo, 2.0; Rufous-sided Towhee, 2.0; House Finch, 2.0; Mourning Dove, 1.0; Broad-tailed Hummingbird, 1.0; Hairy Woodpecker, 1.0; Violet-green Swallow, 1.0 (1N); White-breasted Nuthatch, 1.0; House Wren, 1.0; Western Tanager, 1.0; Pine Siskin, 1.0; Northern Flicker, +. **Total:** 18 species; 39.0 territories (193/40 ha). **Visitors:** Common Poorwill, Downy Woodpecker, Steller's Jay, Red-breasted Nuthatch, Brown Creeper, Western Bluebird, Virginia's Warbler, Yellow-rumped Warbler, Black-headed Grosbeak, Dark-eyed Junco, Brown-headed Cowbird, Red Crossbill, Lesser Goldfinch, Evening Grosbeak. **Other Observers:** Barbara Beall, Vera Evanson.

41. LONGLEAF PINE FLATWOODS

PLANICIE DE PINO DE HOJA LARGA

GARY SPRANDEL

*Florida Game and Fresh Water Fish Commission
Bureau of Nongame Wildlife
Route 7, Box 3055
Quincy, Florida 32351*

Site Number: FL0393022. **Location:** Florida; Gadsden Co.; Midway; Joe Budd WMA-Zone D; 30°28'N, 84°30'W; Lake Talquin Quadrangle, USGS. **Continuity:** New. **Size:** 12.0 ha. **Description of Plot:** A rectangular plot (200 × 600 m) that is winter-burned on a 3-yr rotation; last burned in the winter of 1992. The open canopy is dominated by longleaf pine, water oak, and sweetgum. The average age of the longleaf pine is 50 years, based on tree ring data. Mean canopy height, 19 m (range 8–23 m). The actual amount of longleaf pine is < 12 ha, as there is a titi thicket, and a hardwood stringer along an ephemeral stream. The understory is dominated by saw palmetto, wax myrtle, and bracken fern. The ground cover is dominated by shiny blueberry, wiregrass, and running oak. **Edge:** Greater than 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat 51–100 ha in size. On the NE edge, the adjacent area was unburned. **Topography and Elevation:** The plot is level. Minimum elevation 37 m, maximum 37 m. **Weather:** Mean start temp., 16.9°C (range 8–30°C). The spring was drier than normal, and the ephemeral stream was dry early. **Coverage:** 23.8 h; 13 visits (11 sunrise, 2 sunset); 22 March; 1, 7, 22, 29 April; 2, 5, 15, 23, 29 May; 4, 11, 12 June. **Census:** Red-bellied Woodpecker, 5.0 (17); Bachman's Sparrow, 4.5 (15; 4FL); Pine Warbler, 3.5 (12); Summer Tanager, 3.5; Rufous-sided Towhee, 3.0 (10; 2FL); Eastern Wood-Pewee, 2.5; Carolina Chickadee, 2.0 (2FL); Tufted Titmouse,

2.0; Carolina Wren, 2.0; Northern Cardinal, 2.0; Pileated Woodpecker, 1.5; Great Crested Flycatcher, 1.5; Northern Flicker, 1.0; Blue Jay, 0.5; Yellow-billed Cuckoo, +; White-eyed Vireo, +; Common Yellowthroat, +. **Total:** 17 species; 34.5 territories (115/40 ha). **Visitors:** Wood Duck, Red-shouldered Hawk, Wild Turkey, Northern Bobwhite, Mourning Dove, Great Horned Owl, Barred Owl, Hairy Woodpecker, American Crow, Fish Crow, Brown-headed Nuthatch, Blue-gray Gnatcatcher, Yellow-throated Vireo, Brown-headed Cowbird. **Remarks:** Common Yellowthroat and White-eyed Vireo were on the edge of the plot in shrub habitat. Two of the three Rufous-sided Towhee territories were associated with the titi thicket. All Northern Cardinals were associated with the titi thicket and the hardwood stringer. Louis Sprandel mapped 8 snags with cavities, 5 snags without cavities, and 13 short, dead trees without cavities. **Other Observers:** Doug Runde, Louis Sprandel. **Acknowledgments:** The plot was established as a trial in 1992 by Doug Runde, with assistance from Kevin Enge. Many thanks to Doug Runde for training and advice, and to Kevin Enge for help with habitat classification.

42. MATURE LONGLEAF PINE FOREST I

BOSQUE DE PINO DE HOJA LARGA MADURO I

LAWRENCE D. CARLILE

Tall Timbers Research Station

Route 1, Box 678

Tallahassee, Florida 32312-9712

Site Number: GA0493114. **Location:** Georgia; Thomas Co.; Thomasville; Wade Tract; 30°45'N, 84°0'W; Pine Park and Thomasville Quadrangles, USGS. **Continuity:** New. **Size:** 20.0 ha. **Description of Plot:** See WBPS #15. This 20-ha plot contains a portion of the plot described in *J. Field Ornithol.* 60 (Suppl.):70 (1989). The plot was relocated due to a change in fire management regime. **Weather:** Mean start temp., 19.7°C (range 13–23°C). Mean end temp., 25°C (range 18–29°C). All visits were conducted on mornings with little or no cloud cover and little or no wind. **Coverage:** 20.5 h; 10 visits (10 sunrise); 28 April; 7, 11, 21 May; 8, 15, 25, 30 June; 16 July; 2 August. **Census:** Rufous-sided Towhee, 15.5 (31; 1N,3FL); Common Yellowthroat, 14.5 (29; 1FL); Red-headed Woodpecker, 9.5 (19); Bachman's Sparrow, 8.5 (17); Northern Bobwhite, 7.5 (15); Blue Grosbeak, 6.0 (12); Mourning Dove, 4.5 (9); Eastern Wood-Pewee, 4.0 (8); Blue Jay, 4.0; White-breasted Nuthatch, 4.0; Gray Catbird, 4.0; Red-bellied Woodpecker, 3.5 (7); Brown-headed Cowbird, 3.5; Great Crested Flycatcher, 3.0 (6); Brown-headed Nuthatch, 3.0; Pine Warbler, 3.0; Northern Flicker, 2.5; Eastern Kingbird, 2.5; Yellow-breasted Chat, 2.5; Indigo Bunting, 2.5; Eastern Meadowlark, 2.5; Orchard Oriole, 2.5; Tufted Titmouse, 2.0; Carolina Wren, 2.0 (1N); Northern Cardinal, 2.0; Red-cockaded Woodpecker, 1.5 (1N,3FL); Loggerhead Shrike, 1.5 (1N,3FL); Wood Duck, 1.0; Common Ground-Dove, 1.0; Common Nighthawk, 1.0; Eastern Bluebird, 1.0; Brown Thrasher, 1.0; Pileated Woodpecker, +; Northern Mockingbird, +; Summer Tanager, +. **Total:** 35 species; 127.0 territories (254/40 ha). **Visitors:** Downy Woodpecker, Hairy Woodpecker, Purple Martin, Blue-gray Gnatcatcher, European Starling, Yellow-throated Vireo, Common Grackle. **Remarks:** A cluster of Red-cockaded Woodpecker cavity trees (including one nest tree) was located on the plot, and three other Red-cockaded Woodpecker clans foraged regularly on the plot. Gray Catbirds were included in a Wade Tract BBC for the first time; they were associated with a titi stringer that bisects the plot. Common Yellowthroats were also closely associated with the titi stringer. Purple Martins were listed as visitors because they foraged over the plot and also perched in snags that could be considered suitable nesting sites. Red-headed Woodpeckers were seen chasing three European Starlings from a snag with numerous woodpecker cavities and excavations. **Acknowledgments:** Thanks to R. Todd Engstrom for advice and to the Wade family for permission to work on their property.

43. MATURE LONGLEAF PINE FOREST II

BOSQUE DE PINO DE HOJA LARGA MADURO II

LAWRENCE D. CARLILE

Tall Timbers Research Station

Route 1, Box 678

Tallahassee, Florida 32312-9712

Site Number: GA0493113. **Location:** Georgia; Thomas Co.; Thomasville; Wade Tract; 30°45'N, 84°0'W; Pine Park and Thomasville Quadrangles, USGS. **Continuity:** New. **Size:** 20.0 ha. **Description of Plot:** See WBPS #16. This 20-ha plot contains a portion of the plot described in *J. Field Ornithol.* 60 (Suppl.):70 (1989). The plot was relocated due to a change in fire management regime. This plot was prescribed burned on 15 June. **Weather:** Mean start temp., 19.6°C (range 12–23°C). Mean end temp., 24°C (range 17–30°C). All visits were conducted on mornings with skies clear to partly cloudy and little or no wind. **Coverage:** 20.3 h; 10 visits (10 sunrise); 27, 30 April; 5, 12 May; 3, 14, 16, 22 June; 12, 29 July. **Census:** Bachman's Sparrow, 9.5 (19; 1N); Rufous-sided Towhee, 8.5 (17); Blue Grosbeak, 6.0 (12); Red-headed Woodpecker, 5.5 (11); Northern Cardinal, 5.5 (1N); Common Yellowthroat, 5.0 (10); Eastern Wood-Pewee, 4.5 (9; 2FL); Northern Bobwhite, 4.0 (8; 3N); Mourning Dove, 3.5 (7); Great Crested Flycatcher, 3.5; Red-bellied Woodpecker, 3.0 (6); Northern Flicker, 3.0 (1N); Brown-headed Nuthatch, 3.0 (1N); Pine Warbler, 3.0 (3FL); Brown-headed Cowbird, 3.0; White-breasted Nuthatch, 2.5; Eastern Meadowlark, 2.5; Common Ground-Dove, 2.0 (1N); Tufted Titmouse, 2.0 (1N); Gray Catbird, 2.0 (2N); Brown Thrasher, 2.0 (1N); Yellow-breasted Chat, 2.0; Orchard Oriole, 2.0; Wood Duck, 1.5; Eastern Kingbird, 1.5; Carolina Wren, 1.5; Summer Tanager, 1.5; Indigo Bunting, 1.5; Red-cockaded Woodpecker, 1.0 (1N, 3FL); Blue Jay, 1.0 (1FL); Eastern Bluebird, 1.0 (2N); Loggerhead Shrike, 1.0 (1FL); White-eyed Vireo, 1.0; Yellow-throated Vireo, 1.0; Common Nighthawk, +; Downy Woodpecker, +; Northern Mockingbird, +. **Total:** 37 species; 101.0 territories (202/40 ha). **Visitors:** Ruby-throated Hummingbird, Purple Martin, Carolina Chickadee, Blue-gray Gnatcatcher, Northern Parula, Red-winged Blackbird, Common Grackle. **Remarks:** A cluster of Red-cockaded Woodpecker cavity trees (including one nest tree) was located on the plot, and three other Red-cockaded Woodpecker clans foraged regularly on the plot. All Northern Bobwhite nests were discovered after they had burned in a 15 June prescribed fire. One Common Nighthawk nest with two eggs was found on blackened ground just off the plot a week after the fire. Ground and shrub-nesting species (Bachman's Sparrow, e.g.) continued to sing after the fire, even though nesting habitat was virtually destroyed. Pine Warblers regularly foraged on the ground after the fire. Gray Catbirds were included in a Wade Tract BBC for the first time; they were associated with scrubby growth on the edge of an ephemeral pond. **Acknowledgments:** Thanks to R. Todd Engstrom for advice and to the Wade family for permission to work on their property.

44. CEDAR FOREST

BOSQUE DE CEDRO

SUSAN WELLER

27955 Canyon Road

Cataldo, Idaho 83810

Site Number: ID6492039. **Location:** Idaho; Bonner Co.; Sagle; Gamble Lake; 48°13'N, 116°23'W; Talache Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 12.3 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):62 (1993). **Weather:** Mean start temp., 14.6°C (range 11–21°C). Temperatures were cooler than in 1992. Precipitation was higher than in 1992. **Coverage:** 23.0 h; 11 visits (8 sunrise, 3 sunset); 17, 20, 21, 31 May; 2, 4, 27, 28, 29 June. **Census:** Swainson's Thrush, 4.0 (13; 4N, 7FL); Townsend's Warbler, 3.0 (10); Red-naped Sapsucker, 2.0; Hammond's Flycatcher, 2.0; Black-capped Chickadee, 2.0; Golden-crowned Kinglet, 2.0; Yellow-rumped Warbler, 2.0; Chipping Sparrow, 2.0; Brown-headed

Cowbird, 2.0; Winter Wren, 1.5; Cooper's Hawk, 1.0; Vaux's Swift, 1.0; Rufous Hummingbird, 1.0; Hairy Woodpecker, 1.0; Pileated Woodpecker, 1.0; Cordilleran Flycatcher, 1.0; Tree Swallow, 1.0; Chestnut-backed Chickadee, 1.0; Red-breasted Nuthatch, 1.0; Brown Creeper, 1.0; American Robin, 1.0; Varied Thrush, 1.0; Solitary Vireo, 1.0; Red-eyed Vireo, 1.0; MacGillivray's Warbler, 1.0; Western Tanager, 1.0; Dark-eyed Junco, 1.0. **Total:** 27 species; 39.5 territories (128/40 ha). **Visitors:** Ruffed Grouse, Northern Flicker, Gray Jay, Pygmy Nuthatch, Cedar Waxwing, Orange-crowned Warbler, Nashville Warbler, Black-headed Grosbeak, Red Crossbill. **Other Observers:** Steven Wesley Boyd, Rich Landers, Scott Robinson, Kenneth Strom. **Acknowledgments:** Work was performed under contract for the U.S. Bureau of Land Management in Coeur d'Alene, Idaho.

45. OLD-GROWTH FOREST

BOSQUE DE EDAD AVANSADA

SANDRA JACOBSON & SCOTT ROBINSON

*Bureau of Land Management
1808 North Third Street
Coeur d'Alene, Idaho 83814*

Site Number: ID6492037. **Location:** Idaho; Boundary Co.; Bonner's Ferry; Farnham Forest; 48°50'N, 116°26'W; Farnham Peak Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 11.3 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):62–63 (1993). **Weather:** Mean start temp., 13.7°C (range 8–16°C). The weather was generally cooler and wetter than last year. **Coverage:** 19.4 h; 7 visits (6 sunrise, 1 sunset); 28 May; 7, 11, 21 June; 3, 6, 7, July. **Census:** Golden-crowned Kinglet, 4.0 (14); Swainson's Thrush, 4.0; Townsend's Warbler, 4.0; Chestnut-backed Chickadee, 3.0 (11); Red-breasted Nuthatch, 3.0; Brown Creeper, 2.0; Winter Wren, 2.0; Western Tanager, 1.5; Vaux's Swift, 1.0; Red-naped Sapsucker, 1.0; Hairy Woodpecker, 1.0; Pileated Woodpecker, 1.0; Black-headed Grosbeak, 1.0; Hammond's Flycatcher, 0.5; American Robin, 0.5; Nashville Warbler, 0.5. **Total:** 16 species; 30.0 territories (106/40 ha). **Visitors:** Mourning Dove, Northern Flicker, Steller's Jay, Yellow-rumped Warbler, Wilson's Warbler, Dark-eyed Junco. **Other Observers:** Michelle McCammon, Rhonda Byers, Wendy Howes.

46. RIPARIAN FOREST

BOSQUE RIVEREÑO

SUSAN WELLER
27955 Canyon Road
Cataldo, Idaho 83810

Site Number: ID6491103. **Location:** Idaho; Shoshone Co.; Pinehurst; Pine Creek; 47°26'N, 116°17'W; Twin Crags Quadrangle, USGS. **Continuity:** Established 1991; 3 yr. **Size:** 10.3 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):65–66 (1992). **Weather:** Mean start temp., 10.0°C (range 3–19°C). Temperatures were cooler than in 1992. Precipitation was higher than in 1992. **Coverage:** 21.5 h; 11 visits (10 sunrise, 1 sunset); 10, 11, 12, 18, 27, 29 May; 8, 9, 17, 21 June; 1 July. **Census:** Hammond's Flycatcher, 4.0 (16); Swainson's Thrush, 4.0; Orange-crowned Warbler, 3.0 (12); Townsend's Warbler, 3.0; MacGillivray's Warbler, 3.0; Song Sparrow, 3.0; Brown-headed Cowbird, 3.0; Cordilleran Flycatcher, 2.0; Black-capped Chickadee, 2.0; Chestnut-backed Chickadee, 2.0; Winter Wren, 2.0; Golden-crowned Kinglet, 2.0; American Robin, 2.0; Solitary Vireo, 2.0; Warbling Vireo, 2.0; Yellow Warbler, 2.0; Western Tanager, 2.0; Black-headed Grosbeak, 2.0; Ruffed Grouse, 1.0; Rufous Hummingbird, 1.0; Northern Flicker, 1.0 (1N,2FL); Violet-green Swallow, 1.0; Red-breasted Nuthatch, 1.0; Brown Creeper, 1.0; Varied Thrush, 1.0; Red-eyed Vireo, 1.0; Chipping Sparrow, 1.0; Dark-eyed Junco, 1.0. **Total:** 28 species; 55.0 territories (214/40 ha). **Visitors:** Steller's Jay, Lincoln's Sparrow, Red Crossbill. **Other Observer:** Gregory R. Weller. **Acknowledgments:** Work was

performed under contract for the U.S. Bureau of Land Management in Coeur d'Alene, Idaho.

47. HEAVILY THINNED WHITE SPRUCE PLANTATION

PLANTACION ENTRESACADA DE ABETO BLANCO

JEFFREY A. HEPINSTALL

143 Lincoln Street
Old Town, Maine 04468

Site Number: ME2785032. **Location:** Maine; Penobscot Co.; Old Town; University Forest, Block C-4; 44°57'N, 68°41'W; Orono Quadrangle, USGS. **Continuity:** Established 1985; 9 yr. **Size:** 4.1 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (Suppl.):44 (1989) and 61 (Suppl.): 58 (1990). The plot is a plantation begun in the 1920s, with some naturally occurring white pine. Two-thirds of the plot was cut during the winter of 1989–90; larger trees and much of the understory were removed. A quantitative vegetation survey based on the method described by F.C. James & H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727–736), conducted in Aug. 1993, yielded the following results: Trees, 7.6 cm diameter and over, 102/ha. Species [figures after each are relative density (%) and relative dominance (%)]: balsam fir, 43.9, 22.6; red maple, 17.8, 9.6; eastern hemlock, 11.5, 11.8; white spruce, 10.8, 13.1; eastern white pine, 8.9, 36.6; northern white cedar, 3.2, 1.4; quaking aspen, 2.5, 1.7; black oak, 1.3, 3.2. The majority of eastern white pine are in the D size class (38.1–53.3 cm); white spruce are in C (22.9–38.1 cm); balsam fir and red maple are in A (7.6–15.2 cm). The current understory is < 3 m high. Shrub stems/ha, 3,300, composed primarily of red maple, eastern hemlock, balsam fir, and *Rubus* species. Ground cover, 27%, composed primarily of grasses and *Sphagnum* species. Canopy cover, 57%; average canopy height, 24 m (range 21–27 m). **Weather:** Mean start temp., 8.2°C (range 6–10°C). The mean May temperature in Maine was 12.5°C; mean June temperature was 17.2°C. Both were above long-term averages. Precipitation for both months was also above the long-term average. Source: *The Guillemot*, newsletter of the Sorrento Scientific Society, Bar Harbor, ME. **Coverage:** 24.8 h; 13 visits (11 sunrise); 14, 15, 17, 21, 24, 27, 28 May; 3, 8, 15, 23, 25 June; 1 July. Maximum number of observers/visit, 8. **Census:** Northern Parula, 4.0 (39); Solitary Vireo, 3.0 (29); Black-capped Chickadee, 2.0; Red-eyed Vireo, 2.0; Magnolia Warbler, 2.0; Blackburnian Warbler, 2.0; Ovenbird, 2.0; Canada Warbler, 2.0; White-throated Sparrow, 2.0; Eastern Wood-Pewee, 1.0; Great Crested Flycatcher, 1.0; Red-breasted Nuthatch, 1.0; Golden-crowned Kinglet, 1.0; Veery, 1.0; Hermit Thrush, 1.0; Nashville Warbler, 1.0; Chestnut-sided Warbler, 1.0; Yellow-rumped Warbler, 1.0; Black-throated Green Warbler, 1.0; Pine Warbler, 1.0; Black-and-white Warbler, 1.0; American Redstart, 1.0; Common Yellowthroat, 1.0; Yellow-bellied Sapsucker, +. **Total:** 24 species; 35.0 territories (341/40 ha). **Visitors:** Downy Woodpecker, Hairy Woodpecker, Least Flycatcher, Blue Jay, American Crow, Brown Creeper, Ruby-crowned Kinglet, Wood Thrush, American Robin, Gray Catbird, Cedar Waxwing, Tennessee Warbler, Cape May Warbler, Black-throated Blue Warbler, Bay-breasted Warbler, Rose-breasted Grosbeak, Brown-headed Cowbird, Purple Finch, House Finch, American Goldfinch. **Other Observers:** Juliet Mankowsky, Norman Famous, students in WLM 260 (Field Ornithology) at the University of Maine.

48. MATURE RED SPRUCE FOREST

BOSQUE MADURO DE ABETOS ROJOS

THOMAS P. SKALING

10 Cumberland Street
Brunswick, Maine 04011

Site Number: ME2889052. **Location:** Maine; Somerset Co.; Upper Enchanted Township; Boise Cascade Tract; 45°25'N, 70°10'W; Enchanted Pond Quadrangle, USGS. **Continuity:** Established 1989; 5 yr. **Size:** 16.0 ha. **Description of Plot:** See *J. Field Ornithol.* 61 (Suppl.):57

(1990). **Weather:** Mean start temp., 11.4°C (range 5–19°C). Conditions during the six-week study period were slightly cooler and drier than long-term averages. The average daily temperature was 14.6°C or 1.1°C below normal. Total precipitation was 13.2 cm or 0.5 cm below the long-term average. Source: on-site instruments and the Northeast Regional Climate Center, Cornell University. **Coverage:** 24.0 h; 8 visits (8 sunrise); 28 May; 5, 13, 24, 28, 30 June; 7, 10 July. **Census:** Golden-crowned Kinglet, 5.0 (13); Solitary Vireo, 5.0; Magnolia Warbler, 5.0; Yellow-rumped Warbler, 5.0; Red-breasted Nuthatch, 4.0 (10); Winter Wren, 4.0; Brown Creeper, 3.0 (8); Hermit Thrush, 3.0; Blackburnian Warbler, 3.0; Dark-eyed Junco, 2.5; Yellow-bellied Sapsucker, 2.0; Yellow-bellied Flycatcher, 2.0; Black-capped Chickadee, 2.0; Swainson's Thrush, 2.0; Northern Parula, 2.0; Bay-breasted Warbler, 2.0; Hooded Merganser, 1.0; Sharp-shinned Hawk, 1.0; Downy Woodpecker, 1.0; Hairy Woodpecker, 1.0; Gray Jay, 1.0; Blue Jay, 1.0; Boreal Chickadee, 1.0; Nashville Warbler, 1.0; Black-throated Blue Warbler, 1.0; Black-throated Green Warbler, 1.0; Common Yellowthroat, 1.0; Canada Warbler, 1.0; White-throated Sparrow, 1.0; Common Grackle, 1.0. **Total:** 30 species; 65.5 territories (164/40 ha). **Visitors:** Ruffed Grouse, Belted Kingfisher, Pileated Woodpecker, Common Raven, Pine Siskin, Evening Grosbeak. **Acknowledgments:** I thank Boise Cascade for their continued assistance and interest in this project.

49. JACK PINE FOREST

BOSQUE DE PINO DE JACK

WALTER R. JOHANSEN, JR.

Whitefish Point Bird Observatory

H.C. 48, Box 115

Paradise, Michigan 49768

Site Number: MI2885037. **Location:** Michigan; Chippewa Co.; Paradise; Whitefish Point; 46°45'N, 85°6'W; Vermilion SE & Sheldrake Quadrangles, USGS. **Continuity:** Established 1985; 9 yr. **Size:** 16.0 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (Suppl.):45 (1989). **Weather:** Mean start temp., 12.8°C (range 5–16°C). **Coverage:** 20.8 h; 8 visits (8 sunrise); 6, 10, 11, 12, 13, 18, 26, 27 June. **Census:** Nashville Warbler, 6.5 (16); Black-throated Green Warbler, 6.5; Ovenbird, 4.5 (11); Yellow-rumped Warbler, 3.5 (9); Hermit Thrush, 3.0 (8; 1N); Chipping Sparrow, 2.5 (1N); Pine Warbler, 1.5; Red-breasted Nuthatch, 1.0; Brown Creeper, 1.0; Least Flycatcher, +; Black-capped Chickadee, +; Solitary Vireo, +; Blackburnian Warbler, +. **Total:** 13 species; 30.0 territories (75/40 ha). **Visitors:** Common Nighthawk, Eastern Wood-Pewee, Yellow-bellied Flycatcher, American Crow, Common Raven. **Other Observer:** Frances M. Danek.

50. UPLAND CHRISTMAS TREE FARM

FINCAS DE ARBOLES DE NAVIDAD DE ALTURAS

ELIZABETH W. BROOKS

1435 Waterwells Road

Alfred Station, New York 14803

Site Number: NY2483108. **Location:** New York; Allegany Co.; Andover; Kent Christmas Tree Farm; 42°10'N, 77°50'W; Andover Quadrangle, USGS. **Continuity:** Established 1983; 11 yr. **Size:** 10.7 ha. **Description of Plot:** See *Am. Birds* 38:91 (1984). **Weather:** Mean start temp., 24.6°C (range 15–30°C). The average daily temperatures in May (12.9°C), June (20.3°C), and July (20.9°C) were above the 57-yr averages. Precipitation in May (3.23 cm) and July (5.00 cm) was near normal, but June precipitation (6.35 cm) was twice the normal amount. Source: Alfred Cooperative Weather Station. **Coverage:** 19.5 h; 10 visits (1 sunset); 15 April; 2, 8, 15, 23, 30 June; 7, 14, 23 July; 7 August. **Census:** Chipping Sparrow, 18.0 (67; 16N, 40FL); Song Sparrow, 15.0 (56; 4N, 11FL); Cedar Waxwing, 7.0 (26; 8N, 5FL); Field Sparrow, 4.0 (15; 3N, 10FL); Purple Finch, 3.5 (13; 1N, 1FL); American Robin, 3.0 (11; 3N, 2FL); Yellow-rumped Warbler, 3.0 (4N, 7FL); American Goldfinch, 3.0 (2N, 5FL); Savannah Sparrow, 2.5; Grass-

hopper Sparrow, 2.0; Bobolink, 2.0; American Woodcock, 1.0; Mourning Dove, 1.0; Eastern Kingbird, 1.0 (1N,3FL); Brown Thrasher, 1.0; Rufous-sided Towhee, 1.0; Red-winged Blackbird, 1.0; Brown-headed Cowbird, 1.0; House Finch, 1.0; Vesper Sparrow, 0.5; Common Yellowthroat, +. **Total:** 21 species; 71.5 territories (267/40 ha). **Visitors:** Black-billed Cuckoo, Horned Lark, Northern Mockingbird, Chestnut-sided Warbler. **Remarks:** Chipping Sparrow, Yellow-rumped Warbler, and American Goldfinch numbers were at record highs. Mourning Dove was new to the plot. **Acknowledgments:** Appreciation to Tom and Kathy Kent for permission to conduct the study on their land, and to Rick Walker for weather data.

51. UPLAND SCOTCH PINE PLANTATION

PLANTACION DE PINO ESCOCES EN ALTURAS

ELIZABETH W. BROOKS

*1435 Waterwells Road
Alfred Station, New York 14803*

Site Number: NY2470024. **Location:** New York; Allegany Co.; Alfred; Foster Plantation; 42°7'N, 77°45'W; Andover Quadrangle, USGS. **Continuity:** Established 1969; 25 yr. **Size:** 9.3 ha. **Description of Plot:** See *Aud. Field Notes* 23:743–744 (1969) and *Am. Birds* 38:38 (1984). **Weather:** Mean start temp., 23.9°C (range 13–32°C). See BBC #50 for summary. **Coverage:** 11.2 h; 8 visits (1 sunset); 7 April; 1, 7, 14, 23, 29 June; 6, 13 July. **Census:** Common Yellowthroat, 7.0 (30); Chipping Sparrow, 6.0 (26; 1N); American Robin, 4.0 (17; 1N); Song Sparrow, 4.0; Magnolia Warbler, 3.0 (13); Blue Jay, 2.0; Cedar Waxwing, 2.0 (1N); Yellow-rumped Warbler, 2.0; Indigo Bunting, 2.0; Rufous-sided Towhee, 2.0; Ruffed Grouse, 1.0; American Woodcock, 1.0; Mourning Dove, 1.0; Alder Flycatcher, 1.0; Black-capped Chickadee, 1.0; Gray Catbird, 1.0; Nashville Warbler, 1.0; Field Sparrow, 1.0; Dark-eyed Junco, 1.0; Brown-headed Cowbird, 1.0; Purple Finch, 1.0; American Goldfinch, 1.0; Red-breasted Nuthatch, +; Solitary Vireo, +; Ovenbird, +. **Total:** 25 species; 46.0 territories (198/40 ha). **Visitors:** Eastern Kingbird, Chestnut-sided Warbler, Mourning Warbler, Northern Cardinal. **Remarks:** Red-breasted Nuthatch was new to the plot. **Acknowledgments:** Appreciation to Phil Foster and Cynthia Clements for permission to conduct the study on their land.

52. WHITE PINE-WHITE CEDAR SAVANNAH

SAVANA DE PINO BLANCO-CEDRO BLANCO

DAWN M. BRENNER

*Long Point Bird Observatory
P.O. Box 160
Port Rowan, Ontario N0E 1M0*

Location: Ontario; Municipality of Haldimand-Norfolk; Port Rowan; Long Point National Wildlife Area; 42°33'N, 80°7'W; Gravelly Bay Quadrangle, DEMR. **Continuity:** Established 1973; 5 yr. **Size:** 9.3 ha. **Description of Plot:** See *Am. Birds* 28:1018–1019 (1974) and *J. Field Ornithol.* 63 (Suppl.):69–70 (1992). The plot contains rolling sand dunes along the S side, but much of it occupies low rolling sand dunes and is mostly swampy. The dominant trees are white pine, eastern white cedar, and tamarack. Wild red raspberry is the most common shrub in the swampy areas. The dunes are dominated by patches of common juniper and scattered dune grasses, especially little bluestem. Canopy cover measured in 1992 was 26.5%, based on 10 vegetation profile readings above 2 m at each of 20 sampling points. The ground cover estimate was 75%, based on readings below 1 m. Vegetation profile estimates in 1992, based on 10 line intersect readings at each of 20 sampling points were: <0.5 m, 67%; 0.5–1 m, 34%; 1–2 m, 8.5%; 2–5 m, 14.5%, >5 m, 17.5%. The number of shrub stems/ha in 1993, based on counts in 10, 1x10 m quadrats was 69,200 compared with 39,000 in 1991. Size class distribution: <0.5 m, 43,000; 0.5–1 m, 25,200; 1–2 m, 900; >2 m, 100 (compared with 28,200; 10,400; 400; 0 in 1991). Shrub species in order of total abundance: common juniper 16,000 stems <0.5 m, 11,600 stems 0.5–1 m, 600 stems 1–2 m, 0 stems >2 m; wild

red raspberry 19,100, 5600, 0, 0; eastern red cedar 2800, 4200, 200, 0; swamp rose 22,300, 2500, 0, 0; snowberry 1200, 800, 0, 0; sweetbrier 700, 400, 100, 0; riverbank grape 800, 100, 0, 0; choke cherry 100, 0, 0, 0; white birch 0, 0, 0, 100. Changes from 1991 include an increase in the abundance of wild red raspberry (from 10,100 to 24,700 stems/ha) and a decrease in the abundance of snowberry (4600 to 2000). Changes of 5% or more between 1992 and 1993 in the mean estimated cover for ground layer species, based on 10, 1x1 m quadrats include the presence of a moss cover of about 10% where moss was not recorded in 1992. **Weather:** Mean start temp., 16.7°C (range 10–24°C). Mostly clear, warm, some fog, light and variable winds. **Coverage:** 91.8 h; 23 visits (14 sunrise, 4 sunset); 22, 24, 27, 30 May; 2, 4, 7, 9, 10, 11, 12, 14, 19, 20, 22, 23, 25, 26, 28, 29 June; 2 July. Maximum number of observers/visit, 3. **Census:** House Wren, 27.5 (118; 11N); Gray Catbird, 6.0 (26; 1N); Common Yellowthroat, 5.5 (24; 1N,1FL); Chipping Sparrow, 5.5 (3N,11FL); Northern Oriole, 5.5 (1N,3FL); Song Sparrow, 5.0 (22); Tree Swallow, 4.5 (19; 5N); Mourning Dove, 4.0 (17); Rufous-sided Towhee, 3.5 (15; 1N); Field Sparrow, 3.5; Whip-poor-will, 3.0 (13; 2N); Eastern Wood-Pewee, 3.0 (1N); Red-winged Blackbird, 3.0 (3FL); Great Crested Flycatcher, 2.5 (1FL); Black-capped Chickadee, 2.5 (4FL); Cedar Waxwing, 2.0 (2N); Brown-headed Cowbird, 2.0 (2FL); Eastern Kingbird, 1.5; European Starling, 1.5 (2N); Northern Cardinal, 1.5 (1N); Yellow-billed Cuckoo, 1.0; Chuck-will's-widow, 1.0; Downy Woodpecker, 1.0 (1N); Northern Flicker, 1.0 (1N); Least Flycatcher, 1.0 (1N); Blue Jay, 1.0; Red-breasted Nuthatch, 1.0; Brown Creeper, 1.0; Carolina Wren, 1.0; White-eyed Vireo, 1.0 (1N); Red-eyed Vireo, 1.0; Magnolia Warbler, 1.0; Blackburnian Warbler, 1.0; Common Grackle, 1.0 (1FL); Mallard, 0.5 (1N); American Robin, 0.5; Brown Thrasher, 0.5; Yellow Warbler, 0.5. **Total:** 38 species; 109.0 territories (469/40 ha). **Visitors:** Green Heron, Killdeer, Chimney Swift, Ruby-throated Hummingbird, Purple Martin, Blue-winged Warbler, Tennessee Warbler, Nashville Warbler, Yellow-rumped Warbler, Black-throated Green Warbler, Yellow-throated Warbler, Black-and-white Warbler, Canada Warbler, Rose-breasted Grosbeak, House Finch, American Goldfinch. **Remarks:** The coverage includes 21.8 hours that were spent searching for nests. This study is part of a long-term project designed to monitor the response of vegetational and breeding bird communities to a reduction in deer browsing at Long Point, Lake Erie. **Other Observers:** Peter Burke, Lisa Enright, Dave Pickett. **Acknowledgments:** Thanks to Paul Prior, Lisa Enright, Craig Potter, and Peter Jones for helping to stake the plot, and to Jon McCracken for proofing the data. I thank Jane Bowles and Michael Bradstreet for measuring vegetation parameters on 20 June 1993.

53. OLD-GROWTH WHITE PINE–HEMLOCK FOREST

BOSQUE DE EDAD AVANSADA DE PINO BLANCO–PICEA

J. CHRISTOPHER HANEY & CHARLES P. SCHAADT

Wildlife Technology Program

School of Forest Resources

The Pennsylvania State University

DuBois, Pennsylvania 15801

Site Number: PA2493081. **Location:** Pennsylvania; Clarion Co.; Cooksburg; Hillside Tract; 41°20'N, 79°13'W; Cooksburg Quadrangle, USGS. **Continuity:** New. **Size:** 18.2 ha. **Description of Plot:** An irregularly-shaped plot (shortest side 130 m, longest 700 m) with a closed canopy dominated by eastern hemlock and eastern white pine. A quantitative vegetation survey based on the method described by F.C. James & H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727–736) yielded the following results: Trees, 7.6 cm diameter and over, based on 15 randomly-placed 0.04-ha circular samples, 417/ha; total basal area 43.0 m²/ha. Species comprising 100% of the total number of trees [figures after each are trees/ha, relative density (%), basal area in m²/ha, relative dominance (%), and frequency (%)]: eastern hemlock, 290, 70, 30.3, 70, 100; eastern white pine, 5, 1, 1.8, 4, 20; black birch, 48, 12, 1.6, 4, 80; American beech, 32, 8, 1.2, 3, 47; red maple, 2, 0.5, 0.5, 1, 7; white oak, 2, 0.5, 0.5, 1, 7; yellow birch, 3, 1, < 0.1, < 0.5, 20; standing dead, 29, 6, 6.9, 15, 60. Trees by diameter size class [figures after each are trees/ha, relative density (%), basal area in m²/ha, and relative dominance (%)]:

A (7.6–15.2 cm) 213, 51, 2.2, 5; B (15.2–22.9 cm) 42, 10, 1.2, 3; C (22.9–38.1 cm) 47, 11, 3.4, 8; D (38.1–53.3 cm) 32, 8, 5.2, 12; E (53.3–68.6 cm) 55, 13, 16.1, 37; F (68.6–83.8 cm) 22, 5, 9.9, 23; G (83.8–101.6 cm) 3, 1, 2.3, 5; H (> 101.6 cm) 3, 1, 2.8, 7. Shrub stems/ha, 1,350, dominated by great rhododendron, American beech, black birch, eastern hemlock, and witch-hazel. Ground cover, < 5%, dominated by ferns and true mosses. Canopy cover, 97%; average canopy height, 34.5 m (range 20–44 m). There are several permanent streams with a maximum width of > 3 m and a maximum depth of 0.7 m. **Edge:** Up to 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat 51–100 ha in size. **Topography and Elevation:** The plot has a W-facing slope of 11–16% grade. Minimum elevation 378 m, maximum 440 m. **Weather:** Mean start temp., 12.7°C (range 4–21°C). Temperature and precipitation departures, respectively, from the 30-yr means for: May, daily high –0.4°C, daily low –0.9°C, –6.3 cm; June, daily high –1.3°C, daily low –0.8°C, –3.9 cm. Source: DuBois-Jefferson Co. Regional Airport. **Coverage:** 23.6 h; 10 visits (7 sunrise, 2 sunset); 17, 19, 21, 23, 26, 28 May; 3, 10, 15, 19 June. Maximum number of observers/visit, 3. **Census:** Blackburnian Warbler, 15.0 (33); Black-throated Green Warbler, 11.0 (24); Solitary Vireo, 8.0 (18; 1N); Magnolia Warbler, 8.0; Dark-eyed Junco, 8.0 (1FL); Red-eyed Vireo, 4.0 (9); Chipping Sparrow, 4.0; Pine Siskin, 4.0; Blue Jay, 3.0 (7; 1N); Black-capped Chickadee, 3.0; Red-breasted Nuthatch, 3.0; American Robin, 3.0 (2FL); Scarlet Tanager, 3.0; Brown Creeper, 2.0; Winter Wren, 2.0; Hermit Thrush, 2.0; Mourning Dove, 1.0 (2FL); Northern Saw-whet Owl, 1.0; Pileated Woodpecker, 1.0; Swainson's Thrush, 1.0; Wood Thrush, 1.0; Pine Warbler, 1.0; Purple Finch, 1.0; Louisiana Waterthrush, 0.5. **Total:** 24 species; 90.5 territories (199/40 ha). **Visitors:** Great Blue Heron, Mallard, Common Merganser, Broad-winged Hawk, Great Horned Owl, Barred Owl, Chimney Swift, Belted Kingfisher, Downy Woodpecker, Hairy Woodpecker, Northern Flicker, Eastern Wood-Pewee, Acadian Flycatcher, Eastern Phoebe, Barn Swallow, American Crow, Common Raven, White-breasted Nuthatch, Veery, Cedar Waxwing, Ovenbird, Rose-breasted Grosbeak, Common Grackle, Brown-headed Cowbird, American Goldfinch. **Remarks:** The local region was free of any notable insect pest outbreaks (i.e., gypsy moth, elm spanworm) this year. **Other Observer:** Jocelyn Smreker. **Acknowledgments:** Jason Lydic conducted vegetation analyses. We thank Larry Lentz, Jeffrey Sowl, and David Wright all of the Center for Rural Pennsylvania, Carl Schlenchner at Cook Forest State Park, and David deCalesta at Allegheny National Forest, USFS, for logistics and access. This plot is part of a study of old-growth forest supported by The Pennsylvania State University CES Research and Development Fund, the DuBois Educational Foundation, and the Center for Rural Pennsylvania.

54. MATURE WHITE PINE FOREST

BOSQUE MADURO DE PINO BLANCO

WILLIAM R. EDDLEMAN

*Department of Natural Resources Science
210B Woodward Hall
University of Rhode Island
Kingston, Rhode Island 02881*

Site Number: RI1290086. **Location:** Rhode Island; Washington Co.; West Kingston; Marion Eppley Wildlife Sanctuary; 41°30'N, 71°35'W; Slocum Quadrangle, USGS. **Continuity:** Established 1990; 4 yr. **Size:** 10.1 ha. **Description of Plot:** See *J. Field Ornithol.* 62 (Suppl.):54–55 (1991). **Weather:** Mean start temp., 7.9°C (range 5–15°C). Light rain during one visit. May mean temperature (14.9°C) was slightly above normal (13.4°C). June mean temperature (18.9°C) was near normal (18.3°C). May precipitation (2.9 cm) was much below normal (11.0 cm), as was the June precipitation (3.8 cm; normal 9.5 cm). Source: University of Rhode Island weather station, Kingston, RI. **Coverage:** 19.5 h; 12 visits (12 sunrise); 1, 2, 8, 9, 22, 23, 28, 31 May; 4, 5, 7, 12 June. **Census:** Ovenbird, 18.5 (73); Pine Warbler, 12.0 (48); Gray Catbird, 6.0 (24); Black-capped Chickadee, 5.5 (22); Rufous-sided Towhee, 4.5 (18); Red-breasted Nuthatch, 4.0 (16); Tufted Titmouse, 3.5 (14); Hermit Thrush, 2.5; Black-throated

Green Warbler, 2.5; Great Crested Flycatcher, 2.0; Veery, 2.0; Common Yellowthroat, 2.0; Eastern Wood-Pewee, 1.5; Blue Jay, 1.5; American Crow, 1.5; House Wren, 1.5; Brown-headed Cowbird, 1.5; Downy Woodpecker, 1.0; Northern Flicker, 1.0; Eastern Phoebe, 1.0 (3FL); White-breasted Nuthatch, 1.0; American Robin, 1.0; Northern Cardinal, +. **Total:** 23 species; 77.5 territories (307/40 ha). **Visitors:** Sharp-shinned Hawk, Black-billed Cuckoo, Barred Owl, Brown Creeper, Black-and-white Warbler, Common Grackle. **Remarks:** Common Yellowthroats were associated with the bog openings on the plot. Contribution #2892 of the College of Resource Development, University of Rhode Island, with support from the Rhode Island Agricultural Experiment Station. **Other Observers:** David and Nancy Clayton. **Acknowledgments:** Thanks to Patrick Dorcas and the Audubon Society of Rhode Island for permission to use the site and for continued support of the census program.

55. LOBLOLLY PINE FOREST

BOSQUE DE PINO LOBLOLLY

STEVEN WAGNER*, JONATHAN PLISSNER*, SIDNEY GAUTHREAUX, JR.* &
WILLIAM JARVIS

*Department of Biological Sciences
Clemson University
Clemson, South Carolina 29634-1903

Site Number: SC0493100. **Location:** South Carolina; Barnwell Co.; Martin; Savannah River Site; 33°11'N, 81°34'W; Girard NE Quadrangle, USGS. **Continuity:** New. **Size:** 12.2 ha. **Description of Plot:** A rectangular plot (350 × 400 m) in a 34-yr-old stand located in the SE section of the Savannah River Site. The closed canopy is dominated by loblolly pine. There are also 2–3 clumps of water oaks with maximum heights below the canopy of loblolly pine, and some sweetgum. Mean canopy height, 18 m (range 6–20 m). The minimal understory is dominated by sweetgum, wax myrtle, and red maple. The sparse ground cover is dominated by muscadine, yellow jessamine, and gooseberry. **Edge:** At least 60% of the plot's perimeter is bordered by the same habitat, and the plot is part of a stand 48.2 ha in size. The SE edge is bordered by a Forest Service road on an old railroad bed with similar habitat across the road. The SW corner is bordered by a road and hardwoods with a small stream located across the road. **Topography and Elevation:** The plot is nearly level with a slope of < 5%. Minimum elevation 73 m, maximum 82 m. **Weather:** Mean start temp., 18.8°C (range 15–22°C). Average daily temperatures were 21.1°C in May (normal is 22.5°C) and 25.6°C in June (normal is 25.7°C). For January through June, total precipitation was 1.32 cm above average; however, May and June totals were 9.22 cm below normal. Measurable precipitation was recorded on six days in May and seven in June. Source: SRTC Environmental Technology Section. **Coverage:** 10.8 h; 10 visits (9 sunrise, 1 sunset); 5, 11, 18, 19, 20, 26 May; 3, 11, 17, 25 June. **Census:** Pine Warbler, 7.0 (23; 4FL); Great Crested Flycatcher, 3.0 (10); Summer Tanager, 2.5; Eastern Wood-Pewee, 2.0; Red-headed Woodpecker, 1.0; Red-bellied Woodpecker, 1.0; Tufted Titmouse, 1.0; Brown-headed Nuthatch, 1.0; Carolina Wren, 1.0; Rufous-sided Towhee, 1.0; Northern Cardinal, 0.5; Northern Flicker, +; Indigo Bunting, +; Brown-headed Cowbird, +. **Total:** 14 species; 21.0 territories (69/40 ha). **Visitors:** Wood Duck, Mourning Dove, Downy Woodpecker, Acadian Flycatcher, Purple Martin, Blue Jay, Carolina Chickadee, Blue-gray Gnatcatcher, Red-eyed Vireo, American Goldfinch. **Remarks:** Logging activity to remove wind fall loblolly pines began prior to the 11 June visit and was completed by the 25 June visit. However, no logging activity occurred during the census visits. **Acknowledgments:** We thank the Department of Energy and the Savannah River Forest Station of the U.S. Forest Service for financial support and access to the area.

56. LOBLOLLY PINE PLANTATION

PLANTACION DE PINO LOBLOLLY

PAUL A. KOEHLER

National Audubon Society

4542 Silver Bluff Road

Jackson, South Carolina 29831

Site Number: SC0493134. **Location:** South Carolina; Aiken Co.; Jackson; Silver Bluff Plantation Sanctuary; 33°19'N, 81°52'W; Jackson Quadrangle, USGS. **Continuity:** New. **Size:** 9.7 ha.

Description of Plot: A rectangular plot (244 × 396 m) located near the SW corner of the sanctuary, which is a mosaic comprising 935 ha of upland pine and mixed pine-hardwood sites, 182 ha of hardwood bottomland, 131 ha of farmland, and 26 ha of open lakes and ponds. The closed canopy is dominated by loblolly pine (99%). Mean canopy height, 15 m (range 15–15 m). There is no understory. The ground cover is dominated by trumpet-creepers (95%). The plot is managed for timber production with considerations for wildlife and aesthetics. A logging road cuts through the NW corner of the plot for a distance of 206 m. The loblolly pine to the S of the road was planted in 1978, while the loblolly pine to the N of the road was planted in 1979. The entire plot was fourth-row thinned in 1992, with additional cull trees taken from amongst the rows. Scattered hardwoods (mostly oaks and sweetgum) are found along the N side of the road, and a 0.1-ha log deck is positioned midway on the N side of the road. The area was prescribed burned in 1990, and will continue to be burned at 3–5 year intervals. **Edge:** More than 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat < 25 ha in size. The land loses elevation quickly 100 m to the S of the plot, forming a hardwood bottomland. **Topography and Elevation:** The plot is nearly level, with a slope of < 5%. Minimum elevation 35 m, maximum 37 m. **Weather:** Mean start temp., 23.5°C (range 17–35°C). The mean temperature for May was 0.95°C below normal. The total rainfall during the study period was 4.85 cm below normal. Sources: U.S. National Weather Service, Augusta, and Silver Bluff Plantation Sanctuary rain gauge. **Coverage:** 6.3 h; 6 visits (3 sunrise, 3 sunset); 2, 5, 10, 20, 26 May; 3 June. **Census:** Summer Tanager, 2.0; Pine Warbler, 1.0; Northern Cardinal, 1.0. **Total:** 3 species; 4.0 territories (16/40 ha). **Visitors:** Eastern Wood-Pewee, Blue Jay, American Crow, Carolina Chickadee, Tufted Titmouse. **Remarks:** The paucity of bird species and individuals seemed to justify fewer than the recommended visits. The Northern Cardinal territory was centered around five hardwood trees clustered within the loblolly pines. The Pine Warbler territory was established along the logging road. **Acknowledgments:** The assistance of Michael Dawson, assistant manager at National Audubon Society's Francis Beidler Forest Sanctuary, is gratefully acknowledged. His counsel as to procedures for establishing census areas and conducting census routes was invaluable, as was his aid in interpreting data.

57. LONGLEAF-LOBLOLLY PINE FOREST

BOSQUE DE PINO LOBLOLLY-HOJA LARGA

PAUL A. KOEHLER

National Audubon Society

4542 Silver Bluff Road

Jackson, South Carolina 29831

Site Number: SC0493133. **Location:** South Carolina; Aiken Co.; Jackson; Silver Bluff Plantation Sanctuary; 33°19'N, 81°51'W; Jackson Quadrangle, USGS. **Continuity:** New. **Size:** 12.3 ha.

Description of Plot: A square plot (351 × 351 m) located near the center of the sanctuary, which is a mosaic comprising 935 ha of upland pine and mixed pine-hardwood sites, 182 ha of hardwood bottomland, 131 ha of farmland, and 26 ha of open lakes and ponds. The open canopy is dominated by loblolly pine (68%), longleaf pine (31%), and various oak species (1%). Mean canopy height, 31.3 m (range 26–37 m). The understory is dominated by gallberry (45%), sweetgum (20%), and wax myrtle (15%). The ground cover is dominated

by bracken fern (45%) and huckleberry (30%). The plot is managed for timber production with considerations for wildlife and aesthetics. Three logging roads divide the plot into four distinct areas which are prescribe burned on an (usually) alternating basis every 2–5 years. The fire has profound effects upon the composition, extent, and height of the ground cover and understory. Attempts are made to keep dead standing trees. The largest hardwoods are found along the logging roads, along one drainage ditch in the SW portion of the plot, and on the edges of the more persistent ephemeral ponds. While standing water may cover nearly 25% of the plot at the beginning of the study period, that percentage shrinks to nearly 0% by the end of the study period. The average age of the mature longleaf pine is 43 years while that of the mature loblolly pine is 55 years. The logging roads separate the relatively pure stands of longleaf pine from the loblolly pine. **Edge:** More than 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat < 25 ha in size. **Topography and Elevation:** The plot is nearly level, with a slope of < 5%. Minimum elevation 38 m, maximum 40 m. **Weather:** Mean start temp., 22.4°C (range 6–32°C). The mean temperature for May was 0.95°C below normal. The total rainfall during the study period was 6.10 cm below normal. Sources: U.S. National Weather Service, Augusta, and Silver Bluff Plantation Sanctuary rain gauge. **Coverage:** 19.4 h; 10 visits (5 sunrise, 5 sunset); 24, 28 April; 5, 8, 12, 23, 29, 30 May; 2, 3 June. **Census:** Rufous-sided Towhee, 10.0 (33); Carolina Wren, 6.0 (20); Eastern Wood-Pewee, 5.0 (16); Pine Warbler, 5.0; Summer Tanager, 4.0 (13); Indigo Bunting, 4.0; Red-headed Woodpecker, 3.0 (10); Great Crested Flycatcher, 3.0; Carolina Chickadee, 3.0; Blue-gray Gnatcatcher, 3.0; Red-bellied Woodpecker, 2.0 (1N); Tufted Titmouse, 2.0; Yellow-throated Vireo, 2.0; Yellow-breasted Chat, 2.0; Northern Cardinal, 2.0; Wild Turkey, 1.0 (1N); Northern Bobwhite, 1.0; Mourning Dove, 1.0; Yellow-billed Cuckoo, 1.0; Pileated Woodpecker, 1.0; White-breasted Nuthatch, 1.0; Wood Thrush, 1.0; Gray Catbird, 1.0; Prairie Warbler, 1.0; Common Yellowthroat, 1.0; White-throated Sparrow, 1.0. **Total:** 26 species; 67.0 territories (218/40 ha). **Visitors:** Wood Duck, Red-tailed Hawk, Downy Woodpecker, Blue Jay, American Crow, Fish Crow, White-eyed Vireo, Red-eyed Vireo, Prothonotary Warbler. **Remarks:** A Wild Turkey nest with 13 eggs was discovered destroyed by an unknown predator on 5 May. **Acknowledgments:** The assistance of Michael Dawson, assistant manager at National Audubon Society's Francis Beidler Forest Sanctuary, is gratefully acknowledged. His counsel as to procedures for establishing census areas and conducting census routes was invaluable, as was his aid in interpreting data.

58. LONGLEAF PINE FOREST

BOSQUE DE PINO DE HOJA-LARGA

JONATHAN PLISSNER*, STEVEN WAGNER*, SIDNEY GAUTHREAUX, JR.* &
WILLIAM JARVIS

*Department of Biological Sciences

Clemson University

Clemson, South Carolina 29634-1903

Site Number: SC0492034. **Location:** South Carolina; Aiken Co.; New Ellenton; Savannah River Site; 33°22'N, 81°34'W; New Ellenton SE Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 12.2 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):68–69 (1993). A controlled burn of the understory during the previous winter altered the ground cover habitat from last year. This year the ground cover was equally dominated by poison oak and sassafras, each accounted for approximately 30% of the relative cover. Gooseberry provided another 10%. The canopy and mid-story were largely unchanged, although no persimmon was noted this year. **Weather:** Mean start temp., 19.3°C (range 9–30°C). Average daily temperatures were 21.1°C in May (normal is 22.5°C) and 25.6°C in June (normal is 25.7°C). For January through June, total precipitation was 1.32 cm above average; however, May and June totals were 9.22 cm below normal. Measurable precipitation was recorded on six days in May and seven in June. Source: SRTC Environmental Technology Section. **Coverage:** 25.0 h; 11 visits (9 sunrise, 2 sunset); 17, 18, 19, 20, 24, 27 May; 2, 11, 13, 14, 15 June. **Census:** Pine Warbler, 9.0 (30; 8FL); Chipping Sparrow, 6.5 (21; 3FL); Bachman's Sparrow, 5.0 (16;

2N,2FL); Brown-headed Nuthatch, 3.5 (11; 1N,1FL); Eastern Wood-Pewee, 3.0 (10; 1N,1FL); Prairie Warbler, 3.0 (1N); Eastern Bluebird, 2.5 (3N); Summer Tanager, 2.5; Indigo Bunting, 2.5; Rufous-sided Towhee, 2.5 (1N); Blue Grosbeak, 2.0; Yellow-billed Cuckoo, 1.5; Red-bellied Woodpecker, 1.5; Great Crested Flycatcher, 1.5; Carolina Chickadee, 1.5; Common Nighthawk, 1.0 (1N); Red-headed Woodpecker, 1.0; Downy Woodpecker, 1.0 (1FL); Red-cockaded Woodpecker, 1.0 (1N); Blue Jay, 1.0 (1N); Tufted Titmouse, 1.0; Carolina Wren, 1.0; Blue-gray Gnatcatcher, 1.0; Brown Thrasher, 1.0; Northern Flicker, 0.5 (1N); Pileated Woodpecker, 0.5; Yellow-throated Vireo, 0.5; Northern Cardinal, 0.5; Mourning Dove, +. **Total:** 29 species; 59.0 territories (193/40 ha). **Visitors:** Northern Bobwhite, Common Yellowthroat, Brown-headed Cowbird. **Remarks:** The numbers for most species were similar to the previous census. Significant differences were only found for a few species associated with the understory and ground cover. The plot was frequently visited by U.S. Forest Service employees who monitored breeding of Red-cockaded Woodpeckers. Two Whip-poor-wills and one Chuck-will's-widow were present on the site the night of 14 June. **Acknowledgments:** We thank the Department of Energy and the Savannah River Forest Station of the U.S. Forest Service for financial support and access to the area.

59. HIGH ALTITUDE RED SPRUCE FOREST

BOSQUE DE ABETOS ROJOS DE ALTURAS

GEORGE R. MAYFIELD, III

Route 2, Box 441
Johnson City, Tennessee 37601

Site Number: TN2392093. **Location:** Tennessee; Unicoi Co.; Unicoi; Unaka Mountain; 36°8'N, 82°18'W; Unicoi Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 9.9 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):69–70 (1993). **Weather:** Mean start temp., 14.7°C (range 9–21°C). **Coverage:** 23.3 h; 8 visits (8 sunrise); 27 May; 2, 21, 23, 30 June; 1, 7, 22 July. **Census:** Golden-crowned Kinglet, 12.0 (48); Dark-eyed Junco, 8.5 (34; 4FL); Veery, 5.5 (22); Magnolia Warbler, 2.5; Red-breasted Nuthatch, 2.0; Rufous-sided Towhee, 1.5; Carolina Chickadee, 1.0; Canada Warbler, 1.0; Ruffed Grouse, +; Gray Catbird, +; Solitary Vireo, +. **Total:** 11 species; 34.0 territories (137/40 ha). **Visitors:** Tufted Titmouse, American Robin, Cedar Waxwing. **Remarks:** Northern Saw-whet Owl, Ruby-throated Hummingbird, Blue Jay, Winter Wren, Chestnut-sided Warbler, and Rose-breasted Grosbeak all occurred regularly within 300 m of the plot. Red Crossbills occurred nearby and were seen to fly in the direction of the plot, but they were not seen on the plot during any of the visits. Pine Siskins, abundant in 1992, were notably absent the entire summer on Unaka Mountain. **Other Observer:** Scotty Myers. **Acknowledgments:** Financial support of USDA-Forest Service, Cherokee National Forest.

60. PINYON-JUNIPER WOODLAND

BOSQUE DE PIÑON-JUNIPERO

GARY N. SALAMACHA

Arches National Park
P.O. Box 907
Moab, Utah 84532

Location: Utah; Grand Co.; Moab; Devil's Garden; 38°48'N, 109°35'W; Arches National Park Quadrangle, USGS. **Continuity:** Established 1983; 11 yr. **Size:** 31.3 ha. **Description of Plot:** See *Am. Birds* 38:137–138 (1984). **Weather:** Mean start temp., 10.0°C (range 1–17°C). The mean start temp. was 1.3°C colder than last year, but normal for the time of year. During three visits the wind increased so much that two of the visits could not be completed. **Coverage:** 26.2 h; 9 visits (9 sunrise); 7, 14, 21, 28 April; 5, 13, 19, 26 May; 2 June. **Census:** House Finch, 7.0 (9; 2N); Rock Wren, 4.0 (5); Blue-gray Gnatcatcher, 4.0; Black-throated Sparrow, 4.0 (2N); Gray Vireo, 3.0 (4); Bewick's Wren, 2.0 (1N); Black-throated Gray Warbler, 2.0;

White-throated Swift, 1.0 (1N); Say's Phoebe, 1.0 (1N); Mourning Dove, +; Plain Titmouse, +; Mountain Bluebird, +; Yellow-rumped Warbler, +; Chipping Sparrow, +. **Total:** 14 species; 28.0 territories (36/40 ha). **Visitors:** Turkey Vulture, Red-tailed Hawk, American Kestrel, Black-chinned Hummingbird, Ash-throated Flycatcher, Western Kingbird, Violet-green Swallow, Scrub Jay, Pinyon Jay, Common Raven, Bushtit, Red-breasted Nuthatch, Canyon Wren, Virginia's Warbler, Western Meadowlark, Brown-headed Cowbird, Cassin's Finch. **Remarks:** A good year for all species observed on the plot. Most species were the same or increased in number of territories from last year. There were significant increases in Blue-gray Gnatcatcher (2.0 to 4.0 territories) and Rock Wren (2.0 to 4.0). A Mountain Bluebird territory was observed adjacent to the plot for the third consecutive year. Two species never recorded before, Red-breasted Nuthatch and Virginia's Warbler, were observed. The Mourning Doves arrived late so no nesting activity was observed. A Common Raven nest outside the plot was active for the sixth consecutive year. Also, a Red-tailed Hawk nest that fledged two young was observed in a different site but in the same general location. Brown-headed Cowbirds were observed on the plot but in small numbers (2–3 birds per observation). **Other Observers:** Karen McKinlay-Jones, Tara Williams, Deb Nester, Mike Nelson.

61. GRAZED OAK-PINE WOODLAND

ARBOLEDA DE ROBLE-PINO PASTADO

JENNIFER G. TURNER, SANDRA L. BLOOMFIELD & DOUGLAS A. DRYNAN

*Pacific Southwest Forest and Range Experiment Station
2081 East Sierra Avenue
Fresno, California 93710*

Location: California; Madera Co.; Coarsegold; San Joaquin Experimental Range; 37°6'N, 119°44'W; Millerton Lake West Quadrangle, USGS. **Continuity:** Established 1985; 9 yr. **Size:** 29.7 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (Suppl.):35–36 (1989). **Weather:** Mean start temp., 9.3°C (range 5–15°C). It was generally cool and breezy with no census days lost to rain. For the third year in a row it was a very wet spring, causing the intermittent streams, ponds, and wet meadows to have running water throughout the breeding season. **Coverage:** 129.6 h; 24 visits (24 sunrise); 22, 23, 30, 31 March; 2, 5, 7, 8, 13, 14, 20, 21, 23, 26, 28, 30 April. **Census:** Plain Titmouse, 26.5 (36; 22N); Bushtit, 14.5 (20; 15N); House Wren, 13.0 (18; 12N); Mourning Dove, 11.0 (15; 5N); Scrub Jay, 9.5 (13; 8N); Ash-throated Flycatcher, 8.5 (11); California Towhee, 7.0 (9; 4N); Acorn Woodpecker, 6.0 (8; 8N); House Finch, 6.0 (1N); Lesser Goldfinch, 6.0 (1N); California Quail, 5.0 (7; 1N); Anna's Hummingbird, 4.0 (5; 3N); European Starling, 4.0 (7N); White-breasted Nuthatch, 3.5 (5; 4N); Western Bluebird, 3.0 (4; 4N); Bewick's Wren, 2.0 (2N); Blue-gray Gnatcatcher, 2.0 (1N); Brown-headed Cowbird, 2.0; Nuttall's Woodpecker, 1.0; Canyon Wren, 1.0; Hutton's Vireo, 1.0 (1N); Rufous-crowned Sparrow, 1.0; American Kestrel, 0.5 (1N); Northern Flicker, 0.5. **Total:** 24 species; 138.5 territories (187/40 ha). **Visitors:** Great Blue Heron, Wood Duck, Mallard, Turkey Vulture, Cooper's Hawk, Red-tailed Hawk, Golden Eagle, Greater Roadrunner, Great Horned Owl, Northern Pygmy-Owl, Common Poorwill, Black Phoebe, Western Kingbird, Violet-green Swallow, Common Raven, Phainopepla, Red-winged Blackbird, Brewer's Blackbird, Northern Oriole, Lawrence's Goldfinch. **Remarks:** This plot had 27 nest boxes, 15 of which were used this year. All boundary territories were computed as 0.5 territories. **Acknowledgments:** This effort is part of a study of bird monitoring techniques being conducted by Dr. Jared Verner, USDA Forest Service.

62. UNGRAZED OAK-PINE WOODLAND

ARBOLEDA DE ROBLE-PINO NO PASTADO

JENNIFER G. TURNER, SANDRA L. BLOOMFIELD & DOUGLAS A. DRYNAN

*Pacific Southwest Forest and Range Experiment Station
2081 East Sierra Avenue
Fresno, California 93710*

Location: California; Madera Co.; Coarsegold; San Joaquin Experimental Range; 37°5'N, 119°43'W; Millerton Lake West Quadrangle, USGS. **Continuity:** Established 1985; 9 yr. **Size:**

29.7 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (Suppl.):34–35 (1989). **Weather:** Mean start temp., 9.4°C (range 4–13°C). It was generally cool and breezy with no census days lost to rain. For the third year in a row it was a very wet spring, causing the intermittent streams, ponds, and wet meadows to have running water throughout the breeding season. **Coverage:** 133.8 h; 24 visits (24 sunrise); 22, 23, 30, 31 March; 2, 5, 7, 8, 13, 14, 20, 21, 23, 26, 28, 30 April. **Census:** Plain Titmouse, 20.5 (28; 23N); Bushtit, 12.0 (16; 10N); House Wren, 11.0 (15; 10N); Scrub Jay, 10.5 (14; 10N); Mourning Dove, 8.5 (11; 3N); California Towhee, 8.0 (11; 3N); House Finch, 7.0 (9; 1N); Acorn Woodpecker, 6.0 (8; 5N); Lesser Goldfinch, 6.0 (1N); Ash-throated Flycatcher, 5.5 (7); California Quail, 5.0 (7); Bewick's Wren, 3.5 (5; 3N); White-breasted Nuthatch, 3.0 (4; 2N); Western Bluebird, 3.0 (3N); Brown-headed Cowbird, 3.0; Anna's Hummingbird, 2.5 (5N); California Thrasher, 2.5 (2N); European Starling, 2.5 (6N); Red-winged Blackbird, 2.5 (2N); Northern Oriole, 2.0 (2N); Red-tailed Hawk, 1.0 (2N); Killdeer, 1.0 (1N); Long-eared Owl, 1.0 (1N); Nuttall's Woodpecker, 1.0 (2N); Black Phoebe, 1.0 (3N); Western Kingbird, 1.0 (1N); Violet-green Swallow, 1.0 (1N); Great Horned Owl, 0.5 (1N); Northern Flicker, 0.5; Canyon Wren, 0.5 (1N). **Total:** 30 species; 133.0 territories (179/40 ha). **Visitors:** Great Blue Heron, Wood Duck, Mallard, Turkey Vulture, Cooper's Hawk, American Kestrel, Greater Roadrunner, Common Poorwill, Hairy Woodpecker, Common Raven, Blue-gray Gnatcatcher, American Robin, Phainopepla, Hutton's Vireo, Brewer's Blackbird, Lawrence's Goldfinch. **Remarks:** This plot had 30 nest boxes, 20 of which were used this year. All boundary territories were computed as 0.5 territories. **Acknowledgments:** This effort is part of a study of bird monitoring techniques being conducted by Dr. Jared Verner, USDA Forest Service.

63. PONDEROSA PINE-SCRUB OAK FOREST

BOSQUE DE PINO PONDEROSA-MATORRAL DE ROBLE

BRIAN J. FREIBURGER, JOHN W. OBRINGER & JAMES S. KENT

HQ USAFA/DFB

US Air Force Academy, Colorado 80840

Location: Colorado; El Paso Co.; Colorado Springs; USAFA Breeding Bird Survey; 38°57'N, 104°50'W; Pikeview Quadrangle, USGS. **Continuity:** Established 1980; 13 yr. **Size:** 12.0 ha.

Description of Plot: See *J. Field Ornithol.* 62 (Suppl.):56–57 (1991) and 63 (Suppl.):73 (1992). **Weather:** Mean start temp., 10.1°C (range 3–21°C). Mean high and low temperatures for May were 19°C and 5°C (10-yr averages are 18°C and 6°C). Total precipitation for May was 5.79 cm (10-yr average is 2.23 cm). Mean high and low temperatures for June were 24°C and 8°C (10-yr averages are 24°C and 10°C). Total precipitation for June was 6.40 cm (10-yr average is 5.60 cm). Mean high and low temperatures for July were 27°C and 11°C (10-yr averages are 27°C and 13°C). Total precipitation for July was 6.25 cm (10-yr average is 6.25 cm). Source: base weather center, USAF Academy airfield. **Coverage:** 13.0 h; 10 visits (10 sunrise); 28 May; 1, 4, 7, 9, 11, 14, 16, 18, 23 June. Maximum number of observers/visit, 3.

Census: Chipping Sparrow, 22.0 (73); Pine Siskin, 18.0 (60; 1N,2FL); Western Wood-Pewee, 16.0 (53; 1N,3FL); Rufous-sided Towhee, 11.0 (37); Broad-tailed Hummingbird, 10.0 (33); Lesser Goldfinch, 10.0; American Robin, 9.0 (30; 1N); Solitary Vireo, 8.0 (27); House Finch, 8.0; Brown-headed Cowbird, 7.0 (23); Mountain Chickadee, 4.0 (13); Pygmy Nuthatch, 3.0 (10; 2N,2FL); Western Bluebird, 3.0 (1N,4FL); White-breasted Nuthatch, 2.0 (3FL); Sharp-shinned Hawk, 1.0; Great Horned Owl, 1.0; Violet-green Swallow, 1.0; Steller's Jay, 1.0; Black-capped Chickadee, 1.0 (1N); Western Tanager, 1.0; Song Sparrow, 1.0. **Total:** 21 species; 138.0 territories (460/40 ha). **Visitors:** Mourning Dove, Common Nighthawk, Northern Flicker, American Crow, Common Grackle, Red Crossbill. **Remarks:** Yellow-rumped Warbler and Turkey Vulture were observed during the census but could not be included as breeders or visitors. There were also a number of mule deer (*Odocoileus hemionus*) and Abert squirrels (*Sciurus aberti*) seen in the plot. Temperatures and precipitation were not factors in this year's census since they were so close to the 10-yr averages. However, high and gusty winds that occurred on a few census days did decrease the number of sightings on those mornings

as compared to relatively calm mornings, possibly affecting the final number of territorial species. **Other Observer:** Herbert J. Finch.

64. CLIMAX HEMLOCK-WHITE PINE FOREST WITH TRANSITION HARDWOODS

BOSQUE CLIMAX DE PICEA-PINO BLANCO EN TRANSICION A MADERAS DURAS

ANDREW MAGEE

*White Memorial Conservation Center
Litchfield, Connecticut 06759*

Site Number: CT2765008. **Location:** Connecticut; Litchfield Co.; Litchfield; White Memorial Foundation-Catlin Woods; 41°43'N, 73°12'W; Litchfield Quadrangle, USGS. **Continuity:** Established 1965; 27 yr. **Size:** 10.5 ha. **Description of Plot:** See *Aud. Field Notes* 19:594-595 (1965). The vegetation was resurveyed in 1990 but the results have not been published. **Weather:** Mean start temp., 18.0°C (range 10-25°C). The average minimum and maximum temperatures recorded at our weather station in both May (7°C, 23°C) and June (12°C, 26°C) were closer to our 9-yr averages than last year's low figures. Precipitation in May (2.2 cm) was the lowest we have recorded for this month in nine years, but in June (10.8 cm) it was about average. **Coverage:** 15.3 h; 9 visits (3 sunrise, 3 sunset); 5, 6, May; 5, 6, 9, 16, 30 June. **Census:** Black-throated Green Warbler, 17.0 (65); Blackburnian Warbler, 17.0; Ovenbird, 13.0 (50); Veery, 10.0 (38); Red-eyed Vireo, 9.0 (34); Solitary Vireo, 7.0 (27); Brown Creeper, 6.0 (23); Scarlet Tanager, 5.0 (19); Red-breasted Nuthatch, 3.0 (11); Wood Thrush, 3.0; Black-and-white Warbler, 3.0; Downy Woodpecker, 2.0; Eastern Wood-Pewee, 2.0; Blue Jay, 2.0; American Crow, 2.0; Black-capped Chickadee, 2.0; Pine Warbler, 2.0; Brown-headed Cowbird, 2.0; Purple Finch, 2.0; Northern Cardinal, 1.5; Sharp-shinned Hawk, 1.0; Mourning Dove, 1.0; Hairy Woodpecker, 1.0; Pileated Woodpecker, 1.0; Great Crested Flycatcher, 1.0; White-breasted Nuthatch, 1.0; Hermit Thrush, 1.0; American Robin, 1.0; Yellow-rumped Warbler, 1.0; Northern Waterthrush, 1.0; Common Yellowthroat, 1.0; Gray Catbird, 0.5; Cedar Waxwing, 0.5; Cooper's Hawk, +; Northern Goshawk, +; Red-shouldered Hawk, +; Broad-winged Hawk, +; Red-tailed Hawk, +; Great Horned Owl, +; Barred Owl, +. **Total:** 40 species; 122.5 territories (467/40 ha). **Remarks:** The number of species was about average but the total number of territorial males was the highest in the 27-yr history of this census. Three of the five species with the largest increases from last year—Blackburnian Warbler (+8.0 territories), Black-throated Green Warbler (+5.0), and Solitary Vireo (+5.0)—are partial to forests that include conifers. The other two species with large increases were Brown Creeper (+6.0) and Ovenbird (+4.0). This was the second consecutive year of dramatic increases for Black-throated Green Warbler and Blackburnian Warbler. We did not find comparable increases on three other woodland plots with no conifers or only very young ones. This supports last year's suggestion that conifer-nesting species may be moving into Catlin Woods from nearby areas where hemlocks are dying. A Song Finder was used to lower the frequency and thus improve the detection of high-pitched bird sounds. **Acknowledgments:** Gordon Loery of the White Memorial Conservation Center wrote up the report.

65. MATURE BROADLEAF-CONIFEROUS FORESTED WETLAND

BOSQUE MADURO DE ARBOLES DE HOJA ANCHA-CONIFEROS

TOM HARRINGTON

*30 South Windham Road
Willimantic, Connecticut 06226*

Site Number: CT1291035. **Location:** Connecticut; Hartford Co.; Manchester; Oak Grove Nature Center; 41°46'N, 72°30'W; Manchester Quadrangle, USGS. **Continuity:** Established 1991; 3 yr. **Size:** 21.5 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):74 (1992). **Weather:** Mean start temp., 10.7°C (range 4-18°C). Temperatures in May were about 1°C above

normal, in June they were almost exactly normal (-0.1°C). Precipitation in May was 47% of normal, 64% of which came on 31 May. Precipitation in June was 74% of normal. **Coverage:** 23.0 h; 10 visits (10 sunrise); 6, 9, 15, 23, 26, 30 May; 5, 7, 12, 13 June. **Census:** European Starling, 11.0 (20; 11N,7FL); Tufted Titmouse, 9.0 (17; 6FL); American Robin, 8.0 (15; 1N); Blue Jay, 7.0 (13; 2N,2FL); Common Grackle, 7.0 (1N,16FL); Black-capped Chickadee, 6.0 (11; 7FL); Gray Catbird, 6.0; Northern Cardinal, 5.5 (10; 6FL); Red-winged Blackbird, 5.0 (9; 1N,1FL); Northern Flicker, 4.0 (7; 3N); House Wren, 3.0 (6); Veery, 3.0; Brown-headed Cowbird, 3.0 (2FL); Mourning Dove, 2.0; Red-bellied Woodpecker, 2.0; Downy Woodpecker, 2.0; Eastern Phoebe, 2.0 (4N,3FL); American Crow, 2.0; Wood Thrush, 2.0; Song Sparrow, 2.0; Northern Oriole, 2.0; Belted Kingfisher, 1.0; Hairy Woodpecker, 1.0; Great Crested Flycatcher, 1.0; White-breasted Nuthatch, 1.0; Red-eyed Vireo, 1.0; Blue-winged Warbler, 1.0; Common Yellowthroat, 1.0; House Finch, 1.0; American Goldfinch, 1.0. **Total:** 30 species; 102.5 territories (191/40 ha). **Visitors:** Great Blue Heron, Canada Goose, Wood Duck, Mallard, Chimney Swift, Eastern Wood-Pewee, Tree Swallow, Blue-gray Gnatcatcher, Northern Mockingbird, Cedar Waxwing, Yellow Warbler, American Redstart, Ovenbird, Louisiana Waterthrush, Scarlet Tanager, Rose-breasted Grosbeak, Rufous-sided Towhee, Chipping Sparrow, House Sparrow. **Remarks:** Although Wood Ducks were seen on four visits (including courtship behavior), there was no evidence of nesting. Three male Ovenbirds were present and singing in their normal areas, but they disappeared after 23 May.

66. UPLAND OAK AND HEMLOCK FOREST

BOSQUE ROBLE Y PICEA DE ALTURAS

ROBERT A. BRAUNFIELD

Box 84

Hadlyme, Connecticut 06439

Site Number: CT1289097. **Location:** Connecticut; Middlesex Co.; Salem; Strong Woodland, Burnham Brook Preserve; $41^{\circ}27'N$, $72^{\circ}19'W$; Hamburg Quadrangle, USGS. **Continuity:** Established 1989; 5 yr. **Size:** 10.5 ha. **Description of Plot:** See *J. Field Ornithol.* 61 (Suppl.):49-50 (1990). **Weather:** Mean start temp., 11.8°C (range 7- 18°C). The mean start temp. was cooler than the mean of 15°C for the previous four censuses. The rainfall total of 8 cm for May and June was well below the mean of 18.3 cm for the previous four years. **Coverage:** 9.8 h; 8 visits (8 sunrise); 26, 29 May; 8, 11, 13, 19, 21, 23 June. **Census:** Red-eyed Vireo, 24.0 (91); Ovenbird, 20.0 (76); Wood Thrush, 6.5 (25); Black-and-white Warbler, 6.0 (23); Black-throated Green Warbler, 5.0 (19); Worm-eating Warbler, 5.0; Hermit Thrush, 4.5 (17); Eastern Wood-Pewee, 4.0 (15); Tufted Titmouse, 4.0; Scarlet Tanager, 4.0; Black-capped Chickadee, 3.0 (11); Acadian Flycatcher, 2.0; American Crow, 2.0; Blue-gray Gnatcatcher, 2.0; Eastern Phoebe, 1.0; Blue Jay, 1.0; Veery, 1.0; Yellow-throated Vireo, 1.0; Cerulean Warbler, 1.0; Northern Cardinal, 0.5. **Total:** 20 species; 97.5 territories (371/40 ha). **Visitors:** Red-bellied Woodpecker, American Robin, Rose-breasted Grosbeak, Common Grackle, Brown-headed Cowbird. **Acknowledgments:** Dr. Robert Askins and Dr. Richard Goodwin.

67. YOUNG MIXED HARDWOOD-CONIFER STAND

BOSQUE JOVEN-MIXTO DE MADERAS DURAS/RODAL DE CONIFEROS

ANDREW MAGEE

White Memorial Conservation Center
Litchfield, Connecticut 06759

Site Number: CT2778262. **Location:** Connecticut; Litchfield Co.; Morris; White Memorial Foundation; $41^{\circ}42'N$, $73^{\circ}10'W$; Litchfield Quadrangle, USGS. **Continuity:** Established 1978; 16 yr. **Size:** 8.5 ha. **Description of Plot:** See *Am. Birds* 33:72 (1979). **Weather:** Mean start temp., 21.1°C (range 17- 26°C). The average minimum and maximum temperatures recorded at our weather station in both May (7°C , 23°C) and June (12°C , 26°C) were closer to our 9-yr averages than last year's low figures. Precipitation in May (2.2 cm) was the lowest we have

recorded for this month in nine years, but in June (10.8 cm) it was about average. **Coverage:** 13.5 h; 7 visits (1 sunrise, 1 sunset); 5, 6 May; 7, 8, 9, 16, 30 June. **Census:** Red-eyed Vireo, 11.0 (52); Ovenbird, 9.0 (42); Veery, 7.0 (33); Gray Catbird, 7.0; American Redstart, 6.5 (31); Wood Thrush, 5.0 (24); Scarlet Tanager, 4.0 (19); Black-capped Chickadee, 3.0 (14); Blue-winged Warbler, 3.0; Chestnut-sided Warbler, 3.0; Black-and-white Warbler, 3.0; Rose-breasted Grosbeak, 3.0; Yellow-bellied Sapsucker, 2.5; Blue Jay, 2.0; American Robin, 2.0; Louisiana Waterthrush, 2.0; Common Yellowthroat, 2.0; Brown-headed Cowbird, 2.0; Eastern Wood-Pewee, 1.5; Ruffed Grouse, 1.0; American Woodcock, 1.0; Barred Owl, 1.0; Ruby-throated Hummingbird, 1.0; Downy Woodpecker, 1.0; Hairy Woodpecker, 1.0; Eastern Phoebe, 1.0; Great Crested Flycatcher, 1.0; American Crow, 1.0; Tufted Titmouse, 1.0; White-breasted Nuthatch, 1.0; Blue-gray Gnatcatcher, 1.0; Red-breasted Nuthatch, 0.5; Yellow-rumped Warbler, 0.5; Blackburnian Warbler, 0.5; Northern Oriole, 0.5; Northern Goshawk, +; Broad-winged Hawk, +; Black-throated Green Warbler, +; Purple Finch, +. **Total:** 39 species; 92.5 territories (435/40 ha). **Remarks:** Both the number of species and the total number of territorial males were slightly above the numbers recorded before the clear-cutting of the plantation red pines in the winter of 1978–79. The species composition was also very similar. Four of the top six species, those with five or more territorial males, are now the same as in 1978. Blackburnian Warbler and Solitary Vireo, which require large conifers, have dropped out of the 1978 top six and have been replaced by Gray Catbird and American Redstart. Red-eyed Vireo was the most common nesting species for the third consecutive year. A Song Finder was used to lower the frequency and thus improve the detection of high-pitched bird sounds. **Acknowledgments:** Gordon Loery of the White Memorial Conservation Center wrote up the report.

68. LOWLAND MIXED FOREST AND FLOODPLAIN

BOSQUE MIXTO DE TIERRAS BAJAS–PLANICIE INUNDABLE

DAVID C. McLAIN

*Massachusetts Audubon Society
Arcadia Wildlife Sanctuary
127 Combs Road
Easthampton, Massachusetts 01027*

Site Number: MA1293107. **Location:** Massachusetts; Hampshire Co.; Northampton; Arcadia Wildlife Sanctuary; 42°17'N, 72°39'W; Easthampton Quadrangle, USGS. **Continuity:** New. **Size:** 10.1 ha. **Description of Plot:** The plot contains sections of floodplain, coniferous, deciduous, and mixed forests. The canopy cover is mostly dense (>75%), dominated by red maple (27%); white pine (18%); red oak, white oak, scarlet oak, and black oak (18%). There is dense shrub cover of mountain laurel, blueberry, and sassafras in some places, but sparse shrub cover in other places. Ground cover also varies from dense to sparse. **Edge:** Bordered on the N and S by similar habitat, on the W by dense, young woodland, and on the E by the Mill River. **Topography and Elevation:** The plot is mostly flat, sloping at E end toward the river. Elevation 43 m. **Weather:** No data provided. **Coverage:** 16.0 h; 8 visits; 25, 28 May; 3, 12, 17, 26, 29 June; 1 July. **Census:** Ovenbird, 9.5 (38); Scarlet Tanager, 7.0 (28); Blue Jay, 6.0 (24); Veery, 4.5 (18); Black-capped Chickadee, 3.0 (12); Hermit Thrush, 3.0; Tufted Titmouse, 2.0; White-breasted Nuthatch, 2.0; Great Crested Flycatcher, 1.5; Wood Thrush, 1.5; Hairy Woodpecker, 1.0; Pileated Woodpecker, 1.0; Eastern Wood-Pewee, 1.0; Brown Creeper, 1.0; American Robin, 1.0; Pine Warbler, 1.0; Louisiana Waterthrush, 1.0; Northern Oriole, 1.0; Downy Woodpecker, +; Red-breasted Nuthatch, +; Red-eyed Vireo, +; Common Yellowthroat, +; Rose-breasted Grosbeak, +; Song Sparrow, +; Brown-headed Cowbird, +. **Total:** 25 species; 48.0 territories (190/40 ha). **Visitors:** Great Blue Heron, Ruffed Grouse (with young), Belted Kingfisher, Northern Flicker, Black-and-white Warbler, American Goldfinch. **Remarks:** Data from three unpublished censuses conducted in 1975, 1991, and 1992, are available. Ovenbird continues to decline, though it is still the most abundant species. Large declines occurred in Red-eyed Vireo, Black-capped Chickadee, Tufted Titmouse, and

Eastern Wood-Pewee, resulting in 11 fewer territories than in 1992 and 15 fewer than in 1991. Scarlet Tanager numbers recovered after falling last year.

69. UPLAND FOREST INTERIOR

INTERIOR DE BOSQUE DE ALTURA

DAVID C. McLAIN

Massachusetts Audubon Society

Arcadia Wildlife Sanctuary

127 Combs Road

Easthampton, Massachusetts 01027

Site Number: MA1293106. **Location:** Massachusetts; Hampshire Co.; Williamsburg; Graves Farm Wildlife Sanctuary; 42°23'N, 72°42'W; Williamsburg Quadrangle, USGS. **Continuity:** New. **Size:** 10.1 ha. **Description of Plot:** The plot is mixed forest with two wet openings and several treefall gaps. The canopy cover is moderate, dominated by red maple and sugar maple (33.4%); eastern hemlock (22.8%); black birch (12.1%); white pine (11.0%); and snags (8.8%). The sparse shrub cover is mostly made up of mountain laurel, witch-hazel, and tree saplings. Ground cover, 45%. There are two small streams. **Edge:** Surrounded by similar forest. **Topography and Elevation:** The plot slopes slightly uphill from W to E. Elevation 202 m. **Weather:** No data provided. **Coverage:** 20.0 h; 8 visits (8 sunrise); 27 May; 2, 5, 15, 19, 24, 30 June. **Census:** Ovenbird, 18.0 (71); Red-eyed Vireo, 9.0 (36; N); Veery, 6.0 (24; N); Black-capped Chickadee, 3.0 (12; N); Black-and-white Warbler, 3.0 (N); Scarlet Tanager, 3.0 (N); Black-throated Blue Warbler, 2.5; Black-throated Green Warbler, 2.5; Wood Thrush, 2.0; Yellow-rumped Warbler, 2.0 (FL); Blackburnian Warbler, 2.0; Eastern Wood-Pewee, 1.5; Red-breasted Nuthatch, 1.5; Yellow-bellied Sapsucker, 1.0 (N); Blue Jay, 1.0; Brown Creeper, 1.0; Hermit Thrush, 1.0 (FL); Solitary Vireo, 1.0 (N); Louisiana Waterthrush, 1.0; Downy Woodpecker, 0.5; Hairy Woodpecker, 0.5 (N); Pileated Woodpecker, +; White-breasted Nuthatch, +; Brown-headed Cowbird, +. **Total:** 24 species; 63.0 territories (250/40 ha). **Visitors:** Ruffed Grouse, Northern Bobwhite, Black-billed Cuckoo, Yellow-bellied Flycatcher, Eastern Phoebe, Tufted Titmouse. **Remarks:** Cowbirds were present but not common. The male bobwhite singing on 19 June was probably a released bird. Other notables included the Yellow-bellied Flycatcher and Black-billed Cuckoo.

70. TAMARACK BOG AND HARDWOOD

PANTANO DE TAMARAK-MADERAS DURAS

JAMES MULLINS

2558 Locust Lane

Stevensville, Michigan 49127

Location: Michigan; Berrien Co.; Stevensville; Grand Mere State Park; 42°0'N, 86°33'W; Bridgman Quadrangle, USGS. **Continuity:** Established 1976; 18 yr. **Size:** 8.5 ha. **Description of Plot:** See *Am. Birds* 30:1049 (1976). **Weather:** No data provided. **Coverage:** 8.0 h. **Census:** Red-eyed Vireo, 3.0; Eastern Wood-Pewee, 2.0; Wood Thrush, 2.0; Red-bellied Woodpecker, 1.0; Hairy Woodpecker, 1.0; Blue Jay, 1.0; Tufted Titmouse, 1.0; White-breasted Nuthatch, 1.0; Veery, 1.0; American Robin, 1.0; Ovenbird, 1.0; Canada Warbler, 1.0; Scarlet Tanager, 1.0; Northern Cardinal, 1.0. **Total:** 14 species; 18.0 territories (85/40 ha).

71. UPLAND MIXED PINE-SPRUCE-HARDWOOD PLANTATION

PLANTACION MIXTA DE PINO-ABETO-MADERAS DURAS EN ALTURAS

ELIZABETH W. BROOKS

1435 Waterwells Road

Alfred Station, New York 14803

Site Number: NY2474107. **Location:** New York; Allegany Co.; Ward; Phillips Creek State Forestation Tract; 42°8'N, 77°45'W; Andover Quadrangle, USGS. **Continuity:** Established

1974; 20 yr. **Size:** 16.6 ha. **Description of Plot:** See *Am. Birds* 28:699–700 (1974) and *J. Field Ornithol.* 63 (Suppl.):79–80 (1992). **Weather:** Mean start temp., 15.3°C (range 8–30°C). See BBC #50 for summary. **Coverage:** 18.4 h; 9 visits (2 sunrise, 1 sunset); 24 April; 2, 16, 30 May; 6, 13, 21, 28 June; 6 July. **Census:** Magnolia Warbler, 11.0 (27); Blackburnian Warbler, 8.0 (19); Black-throated Green Warbler, 7.0 (17); Golden-crowned Kinglet, 6.0 (14); Dark-eyed Junco, 6.0; Yellow-rumped Warbler, 4.0 (10); Black-capped Chickadee, 3.0 (7); Red-breasted Nuthatch, 3.0; Brown Creeper, 3.0; Purple Finch, 3.0; Solitary Vireo, 2.5; Blue Jay, 2.0; American Robin, 2.0; Ovenbird, 2.0; American Crow, 1.5 (1N,2FL); Common Yellowthroat, 1.5; Chipping Sparrow, 1.5; Wild Turkey, 1.0; House Wren, 1.0 (1N,6FL); Wood Thrush, 1.0; Cedar Waxwing, 1.0; Song Sparrow, 1.0; Brown-headed Cowbird, 1.0; Red Crossbill, 1.0; Veery, 0.5; Hermit Thrush, 0.5; Red-eyed Vireo, 0.5; Chestnut-sided Warbler, 0.5; Indigo Bunting, 0.5; Red-shouldered Hawk, +; Broad-winged Hawk, +; Ruffed Grouse, +; Barred Owl, +; Pileated Woodpecker, +. **Total:** 34 species; 76.5 territories (184/40 ha). **Visitors:** Hairy Woodpecker, Great Crested Flycatcher, Winter Wren, Scarlet Tanager, Pine Siskin. **Remarks:** A pair of Red Crossbills, a new species for the plot, were present from 20 January to 13 June, with at least one juvenile present on the latter date. Black-throated Green Warbler continues to decline, while Magnolia Warbler and Blackburnian Warbler remain fairly constant. Yellow-rumped Warbler continues a slow increase from its average of 1.2 territories during 1974–78, to 4.0 territories this year. Damage from the 1991 ice storm and logging in the 4.9-ha section of red pine, may have contributed to the continuing decline in Black-throated Green Warblers.

72. MATURE HEMLOCK-HARDWOOD FOREST

BOSQUE DE MADERAS DURAS-Y PICEA MADURA

DAVE MINNEY

2315 Wickline Road
Beaver, Ohio 45613

Site Number: OH2291008. **Location:** Ohio; Hocking Co.; Gibsonville; Hood Hollow Plot; 39°30'N, 82°34'W; South Bloomingville Quadrangle, USGS. **Continuity:** Established 1990; 3 yr. **Size:** 10.0 ha. **Description of Plot:** See *J. Field Ornithol.* 62 (Suppl.):85 (1991). **Weather:** Mean start temp., 18.5°C (range 12–29°C). Mean average temp. for May was normal, precipitation was 6.2 cm below normal. Mean average temp. for June was normal, precipitation was 1.35 cm below normal. Source: National Weather Service, Chillicothe. **Coverage:** 22.5 h; 8 visits (7 sunrise, 1 sunset); 7, 9, 16, 18, 23, 27 June; 1, 5 July. **Census:** Acadian Flycatcher, 20.0 (80); Ovenbird, 14.5 (58; 1N); Wood Thrush, 11.0 (44; 2N); Red-eyed Vireo, 10.0 (40); Black-throated Green Warbler, 7.0 (28); Worm-eating Warbler, 6.5 (26); Brown-headed Cowbird, 6.0 (24; 1FL); Eastern Phoebe, 5.0 (20); Black-and-white Warbler, 5.0; Scarlet Tanager, 5.0; Louisiana Waterthrush, 4.5 (18; 3FL); Hooded Warbler, 4.0 (16); Northern Parula, 3.0 (12); Carolina Chickadee, 2.0; White-breasted Nuthatch, 2.0; Carolina Wren, 2.0; Magnolia Warbler, 2.0; Ruffed Grouse, 1.0 (8FL); Wild Turkey, 1.0; Ruby-throated Hummingbird, 1.0; Red-bellied Woodpecker, 1.0; Hairy Woodpecker, 1.0; Pileated Woodpecker, 1.0; Blue Jay, 1.0; Tufted Titmouse, 1.0; Hermit Thrush, 1.0; Kentucky Warbler, 1.0; Northern Cardinal, 1.0; Turkey Vulture, +; Yellow-billed Cuckoo, +. **Total:** 30 species; 120.5 territories (482/40 ha). **Visitors:** Black-billed Cuckoo, Downy Woodpecker, Northern Flicker, Great Crested Flycatcher, Solitary Vireo, Yellow-throated Vireo. **Remarks:** The cowbird fledgling was being fed by a Red-eyed Vireo. **Acknowledgments:** Bill and Jane Ann Ellis, and Crane Hollow, Inc.

73. INTERGRADING DUNE-SWALE SAVANNAH

SAVANA CON GRADIENTE DE DUNA A CIENAGA

GRAEME GIBSON

Long Point Bird Observatory
P.O. Box 160

Port Rowan, Ontario N0E 1M0

Location: Ontario; Municipality of Haldimand-Norfolk; Port Rowan; Long Point National Wildlife Area; 42°33'N, 80°4'W; Gravelly Bay Quadrangle, DEMR. **Continuity:** Established

1965; 6 yr. **Size:** 11.0 ha. **Description of Plot:** See *Aud. Field Notes* 19:630 (1965) and *J. Field Ornithol.* 63 (Suppl.):82-83 (1992). The plot contains a mixture of low dunes and swales, with dune grasses such as little bluestem on the dunes and nut rush, beak rush, and spike rush in the swales. While the dune vegetation is patchy and sparse, the swale vegetation forms an almost complete cover except where there is standing water. The dominant canopy trees are eastern cottonwood and eastern red cedar. Shrubs include scattered individuals of eastern red cedar, riverbank grape, and common juniper on the dunes, and Kalm's St. John's-wort in the swales. Canopy cover measured in 1992 was 2.5%, based on 10 vegetation profile readings above 2 m at each of 20 sampling points. The ground cover estimate was 59%, based on readings below 1 m. Vegetation profile estimates in 1992, based on 10 line intersect readings at each of 20 sampling points were: <0.5 m, 56.5%; 0.5-1 m, 9%; 1-2 m, 1.5%; 2-5 m, 2%, >5 m, 0.5%. The number of shrub stems/ha in 1993, based on counts in 10, 1x10 m quadrats was 99,300 compared with 21,700 in 1991. Size class distribution: <0.5 m, 90,800; 0.5-1 m, 7700; 1-2 m, 500; >2 m, 300 (compared with 20,000; 1200; 500; 0 in 1991). Shrub species in order of total abundance: Kalm's St. John's-wort 76,500 stems <0.5 m, 7200 stems 0.5-1 m, 0 stems 1-2 m, 0 stems >2 m; riverbank grape 13,100, 300, 0, 0; eastern red cedar 0, 200, 500, 300; sweetbrier 9, 0, 0, 0; poison ivy 1, 0, 0, 0; cherry 1, 0, 0, 0; common juniper 1, 0, 0, 0. Significant changes from 1991 include a four-fold increase in the abundance of Kalm's St. John's-wort stems < 0.5 m tall, a ten-fold increase in the number of Kalm's St. John's-wort stems 0.5-1 m tall, and an increase in the number of stems of riverbank grape from 800 to 13,400. Changes of 5% or more between 1992 and 1993 in the mean estimated cover for ground layer species, based on 10, 1x1 m quadrats include a 44% increase in moss cover. Beak rush had an 8.75% cover in 1992, but was not recorded in 1993. **Weather:** Mean start temp., 13.0°C (range 5-19°C). Generally fairly warm, some cloud cover and haze, light variable winds. **Coverage:** 44.4 h; 13 visits (10 sunrise); 27, 28 May; 1, 3, 7, 8, 11, 13, 15, 19, 22, 27 June; 2 July. **Census:** Tree Swallow, 13.5 (49; 14N); Red-winged Blackbird, 9.0 (33; 4N); Chipping Sparrow, 4.0 (15; 2N); Song Sparrow, 4.0 (1N); Eastern Kingbird, 3.5 (13; 2N); Brown Thrasher, 3.0 (11; 2N); Common Grackle, 3.0 (3N); European Starling, 2.5 (3N); Killdeer, 2.0 (2N); Field Sparrow, 2.0 (1N); Spotted Sandpiper, 1.0; American Robin, 1.0 (1N). **Total:** 12 species; 48.5 territories (176/40 ha). **Visitors:** Mallard, American Woodcock, Mourning Dove, Belted Kingfisher, Northern Flicker, Purple Martin, Blue Jay, Eastern Bluebird, Northern Mockingbird, Cedar Waxwing, Bobolink, Brown-headed Cowbird, Northern Oriole, House Finch. **Remarks:** The coverage includes 7.8 hours that were spent searching for nests. Tree Swallows using nest boxes accounted for 3.5 territories. This study is part of a long-term project designed to monitor the response of vegetational and breeding bird communities to a reduction in deer browsing at Long Point, Lake Erie. **Other Observers:** Dawn Brenner, Dave Pickett. **Acknowledgments:** Thanks to Dawn Brenner and Peter Burke for supervision, Peter Jones and Dawn Brenner for staking the plot, and to Jon McCracken for proofing the data. I thank Michael Bradstreet and Jane Bowles for measuring vegetation parameters on 21 June 1993.

74. HARDWOOD FOREST WITH SCATTERED PINE

BOSQUE DE MADERAS DURAS CON PINOS DISPERSOS

GREGORY W. GROVE

Route 1, Box 483
Petersburg, Pennsylvania 16669

Site Number: PA1391026. **Location:** Pennsylvania; Huntingdon Co.; McAlevy's Fort; Stone Valley Recreation Area; 40°40'N, 77°55'W; Pine Grove Mills Quadrangle, USGS. **Continuity:** Established 1991; 3 yr. **Size:** 19.2 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.): 84 (1992). **Weather:** Mean start temp., 12.1°C (range 2-20°C). **Coverage:** 11.0 h; 8 visits (8 sunrise); 20, 23, 25, 29 May; 5, 10, 17, 19 June. **Census:** Ovenbird, 16.0 (33); Common Yellowthroat, 11.0 (23); Red-eyed Vireo, 10.0 (21); Great Crested Flycatcher, 4.0 (8); Scarlet Tanager, 4.0; Rufous-sided Towhee, 4.0; Black-capped Chickadee, 3.0 (6); Wood Thrush, 3.0; Indigo Bunting, 3.0; Brown-headed Cowbird, 3.0; Eastern Wood-Pewee, 2.0; Blue Jay, 2.0;

Tufted Titmouse, 2.0; Brown Creeper, 2.0; Blue-gray Gnatcatcher, 2.0; Gray Catbird, 2.0; Golden-winged Warbler, 1.5; Northern Cardinal, 1.5; Ruffed Grouse, 1.0; Yellow-billed Cuckoo, 1.0; Red-bellied Woodpecker, 1.0; Northern Flicker, 1.0; Red-breasted Nuthatch, 1.0; Carolina Wren, 1.0; American Robin, 1.0; Worm-eating Warbler, 1.0; Chipping Sparrow, 1.0; Pine Warbler, 0.5; Song Sparrow, 0.5. **Total:** 29 species; 86.0 territories (179/40 ha). **Visitors:** Wild Turkey, Mourning Dove, Black-billed Cuckoo, Downy Woodpecker, Pileated Woodpecker, Acadian Flycatcher, White-breasted Nuthatch, Solitary Vireo, Northern Parula, Black-throated Blue Warbler, Blackburnian Warbler, American Redstart, Hooded Warbler, Northern Oriole, American Goldfinch.

75. MIXED OAK–PINE FOREST I

BOSQUE MIXTO DE ROBLE–PINO I

DOUGLAS A. GROSS

Susquehanna SES Environmental Laboratory

R.R. 1, U.S. Route 11

Berwick, Pennsylvania 18603

Site Number: PA1377204. **Location:** Pennsylvania; Luzerne Co.; Wapwallopen; Council Cup Forest; 41°4'N, 76°7'W; Sybertsville Quadrangle, USGS. **Continuity:** Established 1977; 14 yr. **Size:** 6.0 ha. **Description of Plot:** See *Am. Birds* 33:70 (1979). **Weather:** Mean start temp., 10.2°C (range 6–22°C). Late spring and summer were dry. Many plants were stressed by drought in July. Precipitation was 62% below average in May and 54% below average in June. Source: NOAA station in Avoca. **Coverage:** 30.0 h; 10 visits (9 sunrise); 13 April; 6, 14, 24 May; 2, 7, 15, 22 June; 1, 8 July. **Census:** Black-capped Chickadee, 7.0 (47; 10FL); Ovenbird, 6.5 (43; 4FL); Red-eyed Vireo, 5.0 (33); Eastern Wood-Pewee, 4.5 (30; 1N); Scarlet Tanager, 4.5 (2N,1FL); Tufted Titmouse, 4.0 (27; 6FL); Brown-headed Cowbird, 4.0 (1FL); Downy Woodpecker, 2.0 (2FL); Hairy Woodpecker, 2.0 (1N,2FL); Blue Jay, 2.0 (3FL); Wood Thrush, 2.0 (1N); Cedar Waxwing, 2.0; Great Crested Flycatcher, 1.5; American Robin, 1.5 (3FL); Rose-breasted Grosbeak, 1.5 (1N); White-breasted Nuthatch, 1.0 (1FL); Brown Creeper, 1.0 (1N); Black-and-white Warbler, 1.0; Rufous-sided Towhee, 1.0; Ruffed Grouse, 0.5 (10FL); Pileated Woodpecker, 0.5; American Crow, 0.5 (3FL); Northern Cardinal, 0.5; Indigo Bunting, 0.5; Northern Oriole, 0.5 (2FL); Northern Flicker, +; Eastern Kingbird, +. **Total:** 27 species; 57.0 territories (380/40 ha). **Visitors:** Mourning Dove, Chimney Swift, Cliff Swallow, Barn Swallow, Solitary Vireo, Worm-eating Warbler, Chipping Sparrow, House Finch, American Goldfinch. **Remarks:** Three potential nest predators are common in the plot: red squirrel, gray squirrel, and eastern chipmunk. The cowbird fledgling was with an Indigo Bunting. Nearby chainsaw noise provided sound interference during three visits. **Acknowledgments:** Pennsylvania Power and Light Company provided support for this study. Sharon Harrall assisted with data management.

76. MIXED OAK–PINE FOREST II

BOSQUE MIXTO DE ROBLE–PINO II

DOUGLAS A. GROSS

Susquehanna SES Environmental Laboratory

R.R. 1, U.S. Route 11

Berwick, Pennsylvania 18603

Site Number: PA1377205. **Location:** Pennsylvania; Luzerne Co.; Beach Haven; TR419 Forest, Pennsylvania Power and Light Co.; 41°5'N, 76°9'W; Berwick Quadrangle, USGS. **Continuity:** Established 1977; 14 yr. **Size:** 11.1 ha. **Description of Plot:** See *Am. Birds* 33:70 (1979). **Weather:** Mean start temp., 11.6°C (range 7–20°C). Late spring and summer were dry. Most plants were suffering from drought stress in late June and July. Precipitation was 62% below average in May and 54% below average in June. Source: NOAA station in Avoca. **Coverage:** 32.8 h; 10 visits (10 sunrise); 14 April; 7, 17, 27 May; 3, 10, 16, 23 June; 13, 28 July. **Census:**

Red-eyed Vireo, 11.0 (40; 1N); Tufted Titmouse, 8.0 (29; 7FL); Scarlet Tanager, 7.5 (27); Blue-gray Gnatcatcher, 7.0 (25); American Redstart, 6.5 (23; 1N); Ovenbird, 6.5 (1N); Eastern Wood-Pewee, 6.0 (22); Wood Thrush, 6.0 (4N,3FL); Cedar Waxwing, 5.5 (20); Hooded Warbler, 5.0 (18; 1N); Downy Woodpecker, 4.5 (16; 2N,2FL); Black-capped Chickadee, 4.0 (14; 6FL); Brown-headed Cowbird, 4.0; Northern Cardinal, 3.5 (13; 1N); Blue Jay, 3.0 (11; 5FL); Rose-breasted Grosbeak, 3.0; Indigo Bunting, 2.5 (6FL); Northern Flicker, 2.0 (1N); Carolina Wren, 2.0 (2FL); Worm-eating Warbler, 2.0; Gray Catbird, 1.5 (1FL); Ruffed Grouse, 1.0; Great Horned Owl, 1.0 (1N,2FL); Great Crested Flycatcher, 1.0; American Crow, 1.0 (2FL); White-breasted Nuthatch, 1.0 (1FL); Brown Creeper, 1.0 (1N); Yellow-throated Vireo, 1.0; Chestnut-sided Warbler, 1.0; Northern Oriole, 1.0 (2FL); Pileated Woodpecker, 0.5; House Wren, 0.5; Red-tailed Hawk, +; Hairy Woodpecker, +; American Robin, + (2FL); Blackburnian Warbler, +; Common Yellowthroat, +. **Total:** 37 species; 111.0 territories (400/40 ha). **Visitors:** Turkey Vulture, Sharp-shinned Hawk, Eastern Kingbird, Cliff Swallow, Barn Swallow, Fish Crow, Golden-winged Warbler, Yellow Warbler, Black-and-white Warbler, Rufous-sided Towhee, Field Sparrow, Song Sparrow, Common Grackle, House Finch, American Goldfinch. **Remarks:** Two potential predators, gray squirrel and eastern chipmunk, were common in the plot. The Great Horned Owls used an old Red-tailed Hawk nest. **Acknowledgments:** Pennsylvania Power and Light Company provided support for this study. Sharon Harrall assisted with data management.

77. OLD-GROWTH BEECH–HEMLOCK FOREST I

BOSQUE DE EDAD AVANSADA DE BEECH–PICEA I

J. CHRISTOPHER HANEY & CHARLES P. SCHAADT

Wildlife Technology Program

School of Forest Resources

The Pennsylvania State University

DuBois, Pennsylvania 15801

Site Number: PA2493083. **Location:** Pennsylvania; McKean Co.; Ludlow; Tionesta Tract I; 41°39'N, 78°57'W; Ludlow Quadrangle, USGS. **Continuity:** New. **Size:** 12.0 ha. **Description of Plot:** A rectangular plot (300 × 400 m) with a closed canopy dominated by eastern hemlock and American beech, within the Tionesta Scenic and Research Natural Areas (1,675 ha) in Allegheny National Forest. The largest tract of old-growth forest between the Adirondacks and Great Smokey Mountains; free from fires and large-scale human disturbance for at least 300 years. A quantitative vegetation survey based on the method described by F.C. James & H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727–736) yielded the following results: Trees, 7.6 cm diameter and over, based on 12 randomly-placed 0.04-ha circular samples, 348/ha; total basal area 33.0 m²/ha. Species comprising 100% of the total number of trees [figures after each are trees/ha, relative density (%), basal area in m²/ha, relative dominance (%), and frequency (%)]: eastern hemlock, 137, 40, 18.1, 55, 100; American beech, 177, 51, 12.5, 38, 100; red maple, 10, 3, 0.9, 3, 33; yellow birch, 10, 3, 0.4, 1, 33; black birch, 2, 1, 0.3, 1, 8; standing dead, 10, 3, 0.7, 2, 42. Trees by diameter size class [figures after each are trees/ha, relative density (%), basal area in m²/ha, and relative dominance (%)]: A (7.6–15.2 cm) 190, 54, 1.9, 6; B (15.2–22.9 cm) 15, 4, 0.4, 1; C (22.9–38.1 cm) 44, 13, 3.2, 10; D (38.1–53.3 cm) 54, 16, 8.9, 27; E (53.3–68.6 cm) 23, 7, 6.7, 20; F (68.6–83.8 cm) 17, 5, 7.6, 23; G (83.8–101.6 cm) 6, 2, 4.2, 13. Shrub stems/ha, 20,666, dominated by American beech. Ground cover, approximately 10%, dominated by wood-sorrel, goldthread, ferns, true mosses, and regenerating American beech. Canopy cover, 94%; average canopy height, 31.7 m (range 26–38 m). There is one permanent stream and one intermittent stream with maximum width of 1.0 m and maximum depth of 0.4 m. **Edge:** More than 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat > 500 ha in size. **Topography and Elevation:** The plot has a S-facing slope of 6–10% grade. Minimum elevation 543m, maximum 585m. **Weather:** Mean start temp., 11.6°C (range 3–18°C). Temperature and precipitation departures, respectively, from the 30-yr means for: May, daily high –0.4°C, daily low –0.9°C, –6.3 cm; June, daily high –1.3°C, daily low –0.8°C, –3.9 cm.

Source: DuBois-Jefferson Co. Regional Airport. **Coverage:** 18.4 h; 8 visits (4 sunrise, 1 sunset); 26, 30 May; 2, 6, 8, 9, 11, 13, 18 June. One visit was split between two days. **Census:** Blackburnian Warbler, 45.0 (150; 1N); Magnolia Warbler, 15.0 (50); Red-eyed Vireo, 13.0 (43); Swainson's Thrush, 9.0 (30); Solitary Vireo, 8.0 (27); Black-throated Green Warbler, 8.0; Dark-eyed Junco, 6.0 (20); Scarlet Tanager, 5.0 (17); Black-capped Chickadee, 3.0 (10); Hooded Warbler, 3.0; Rose-breasted Grosbeak, 3.0; Chipping Sparrow, 3.0; Acadian Flycatcher, 2.0; Red-shouldered Hawk, 1.0; Barred Owl, 1.0 (2FL); Hairy Woodpecker, 1.0; Blue Jay, 1.0; Red-breasted Nuthatch, 1.0; Winter Wren, 1.0; Hermit Thrush, 1.0; Cedar Waxwing, 1.0; Black-throated Blue Warbler, 1.0; American Redstart, 1.0; Purple Finch, 1.0; Pine Siskin, 1.0. **Total:** 25 species; 135.0 territories (450/40 ha). **Visitors:** Turkey Vulture, Black-billed Cuckoo, Chimney Swift, Yellow-bellied Sapsucker, Pileated Woodpecker, Least Flycatcher, Great Crested Flycatcher, American Crow, Common Raven, Tufted Titmouse, White-breasted Nuthatch, American Robin, Indigo Bunting. **Remarks:** Both canopy and understory trees on this plot were severely defoliated by an exceptionally severe outbreak of elm spanworm (*Ennomos subsignarius*), a native insect. Attacking mostly American beech, these "inchworms" can cause growth loss, reduction in mast crops, and eventually tree death. Songbirds (cuckoos, vireos, and wood warblers) were observed consuming large numbers of larvae and using webbing threads for nest construction (Red-eyed Vireo). As a consequence of defoliation, canopy cover was somewhat sparser than typical for old-growth forest (compare with plots at Cook Forest State Park, PA). **Other Observer:** Jocelyn Smreker. **Acknowledgments:** Jason Lydic conducted vegetation analyses. We thank Larry Lentz, Jeffrey Sowl, and David Wright all of the Center for Rural Pennsylvania, Carl Schlentner at Cook Forest State Park, and David deCalesta at Allegheny National Forest, USFS, for logistics and access. This plot is part of a study of old-growth forest supported by The Pennsylvania State University CES Research and Development Fund, the DuBois Educational Foundation, and the Center for Rural Pennsylvania.

78. OLD-GROWTH BEECH-HEMLOCK FOREST II

BOSQUE DE EDAD AVANSADA DE BEECH-PICEA II

J. CHRISTOPHER HANEY & CHARLES P. SCHAADT

Wildlife Technology Program

School of Forest Resources

The Pennsylvania State University

DuBois, Pennsylvania 15801

Site Number: PA2493084. **Location:** Pennsylvania; McKean Co.; Ludlow; Tionesta Tract II; 41°39'N, 78°56'W; Ludlow Quadrangle, USGS. **Continuity:** New. **Size:** 12.0 ha. **Description of Plot:** A rectangular plot (300 × 400 m) with a closed canopy dominated by eastern hemlock and American beech, within the Tionesta Scenic and Research Natural Areas (1,675 ha) in Allegheny National Forest. The largest tract of old-growth forest between the Adirondacks and Great Smokey Mountains; free from fires and large-scale human disturbance for at least 300 years. A quantitative vegetation survey based on the method described by F.C. James & H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727–736) yielded the following results: Trees, 7.6 cm diameter and over, based on 12 randomly-placed 0.04-ha circular samples, 460/ha; total basal area 37.5 m²/ha. Species comprising 100% of the total number of trees [figures after each are trees/ha, relative density (%), basal area in m²/ha, relative dominance (%), and frequency (%)]: eastern hemlock, 179, 39, 14.0, 37, 100; American beech, 215, 47, 15.1, 40, 100; black cherry, 8, 2, 1.9, 5, 17; black birch, 8, 2, 1.4, 4, 25; yellow birch, 15, 3, 1.1, 3, 42; red maple, 10, 2, 0.4, 1, 33; standing dead, 24, 4, 3.7, 9, 67. Trees by diameter size class [figures after each are trees/ha, relative density (%), basal area in m²/ha, and relative dominance (%)]: A (7.6–15.2 cm) 269, 58, 2.8, 7; B (15.2–22.9 cm) 27, 6, 0.8, 2; C (22.9–38.1 cm) 27, 6, 2.0, 5; D (38.1–53.3 cm) 77, 17, 12.7, 34; E (53.3–68.6 cm) 50, 11, 14.6, 39; F (68.6–83.8 cm) 10, 2, 4.8, 13. Shrub stems/ha, 24,618, dominated by American beech. Ground cover, approximately 10%, dominated by wood-sorrel, goldthread, ferns, true mosses, and regenerating American beech. Canopy cover, 93%; average canopy height, 31.7

m (range 27–37 m). There is one intermittent stream with a maximum width of 0.5 m and a maximum depth of 0.3 m. **Edge:** More than 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat > 500 ha in size. **Topography and Elevation:** The plot is nearly level, with a SW-facing slope of < 5% grade. Minimum elevation 547m, maximum 560m. **Weather:** Mean start temp., 11.6°C (range 3–20°C). Temperature and precipitation departures, respectively, from the 30-yr means for: May, daily high –0.4°C, daily low –0.9°C, –6.3 cm; June, daily high –1.3°C, daily low –0.8°C, –3.9 cm. Source: DuBois-Jefferson Co. Regional Airport. **Coverage:** 18.7 h; 8 visits (5 sunrise, 1 sunset); 30 May; 2, 3, 6, 8, 9, 13, 18 June. **Census:** Blackburnian Warbler, 40.0 (133); Magnolia Warbler, 15.0 (50); Red-eyed Vireo, 13.0 (43); Swainson's Thrush, 8.0 (27); Dark-eyed Junco, 8.0 (1N); Solitary Vireo, 7.0 (23); Black-throated Green Warbler, 6.0 (20); Scarlet Tanager, 5.0 (17); Black-capped Chickadee, 4.0 (13); Hermit Thrush, 4.0 (1N); Red-shouldered Hawk, 2.0; Acadian Flycatcher, 2.0; Blue Jay, 2.0; Cedar Waxwing, 2.0; Hooded Warbler, 2.0; Barred Owl, 1.0; Yellow-bellied Sapsucker, 1.0; Hairy Woodpecker, 1.0; Pileated Woodpecker, 1.0; White-breasted Nuthatch, 1.0 (1N); Brown Creeper, 1.0; Winter Wren, 1.0; Black-throated Blue Warbler, 1.0; American Redstart, 1.0; Rose-breasted Grosbeak, 1.0; Chipping Sparrow, 1.0; Purple Finch, 1.0; Red-tailed Hawk, 0.5; Olive-sided Flycatcher, 0.5; Golden-crowned Kinglet, 0.5; Indigo Bunting, 0.5. **Total:** 31 species; 134.0 territories (447/40 ha). **Visitors:** Great Blue Heron, Chimney Swift, Downy Woodpecker, Eastern Wood-Pewee, American Crow, Common Raven, Tufted Titmouse, Ovenbird, Pine Siskin. **Remarks:** Both canopy and understory trees on this plot were severely defoliated by an exceptionally severe outbreak of elm spanworm (*Ennomos subsignarius*), a native insect. Attacking mostly American beech, these "inchworms" can cause growth loss, reduction in mast crops, and eventually tree death. Songbirds (cuckoos, vireos, and wood warblers) were observed consuming large numbers of larvae and using webbing threads for nest construction (Red-eyed Vireo). As a consequence of defoliation, canopy cover was somewhat sparser than typical for old-growth forest (compare with plots at Cook Forest State Park, PA). **Other Observer:** Jocelyn Smreker. **Acknowledgments:** Jason Lydic conducted vegetation analyses. We thank Larry Lentz, Jeffrey Sowl, and David Wright all of the Center for Rural Pennsylvania, Carl Schlentner at Cook Forest State Park, and David deCalesta at Allegheny National Forest, USFS, for logistics and access. This plot is part of a study of old-growth forest supported by The Pennsylvania State University CES Research and Development Fund, the DuBois Educational Foundation, and the Center for Rural Pennsylvania.

79. OLD-GROWTH HEMLOCK-MIXED HARDWOOD FOREST I

BOSQUE DE EDAD AVANSADA Y MIXTO DE PICEA-MADERAS DURAS I

J. CHRISTOPHER HANEY & CHARLES P. SCHAADT

*Wildlife Technology Program
School of Forest Resources
The Pennsylvania State University
DuBois, Pennsylvania 15801*

Site Number: PA2493079. **Location:** Pennsylvania; Clarion and Forest Cos.; Cooksburg; Cathedral Stand; 41°21'N, 79°13'W; Cooksburg Quadrangle, USGS. **Continuity:** New. **Size:** 15.0 ha. **Description of Plot:** A square plot (387 × 387 m) with a closed canopy dominated by eastern hemlock, American beech, black birch, northern red oak, and black cherry. A quantitative vegetation survey based on the method described by F.C. James & H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727–736) yielded the following results: Trees, 7.6 cm diameter and over, based on 12 randomly-placed 0.04-ha circular samples, 644/ha; total basal area 35.5 m²/ha. Species comprising 100% of the total number of trees [figures after each are trees/ha, relative density (%), basal area in m²/ha, relative dominance (%), and frequency (%)]: eastern hemlock, 485, 75, 19.2, 54, 100; American beech, 87, 14, 5.4, 15, 92; black birch, 33, 5, 2.9, 8, 50; northern red oak, 2, 0.3, 1.0, 3, 8; black cherry, 2, 0.3, 0.6, 2, 17; red maple, 8, 1, 0.4, 1, 33; standing dead, 24, 4, 6.0, 17, 58. Trees by diameter size class [figures after each are trees/ha, relative density (%), basal area in m²/ha, and relative dominance (%)]: A (7.6–

15.2 cm) 448, 70, 4.6, 13; B (15.2–22.9 cm) 44, 7, 1.2, 4; C (22.9–38.1 cm) 81, 13, 5.9, 17; D (38.1–53.3 cm) 17, 3, 2.7, 8; E (53.3–68.6 cm) 31, 5, 9.1, 26; F (68.6–83.8 cm) 17, 3, 7.6, 21; G (83.8–101.6 cm) 6, 1, 4.2, 12. Shrub stems/ha, 2,902, dominated by American beech and red maple. Ground cover, < 5%, dominated by ferns and true mosses. Canopy cover, 98%; average canopy height, 32.6 m (range 24–44 m). There is one intermittent stream with a maximum width of 0.5 m and a maximum depth of 0.2 m. **Edge:** More than 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat 51–100 ha in size. **Topography and Elevation:** The plot has a W-facing slope of 6–10% grade. Minimum elevation 455 m, maximum 488 m. **Weather:** Mean start temp., 11.8°C (range 2–20°C). Temperature and precipitation departures, respectively, from the 30-yr means for: May, daily high –0.4°C, daily low –0.9°C, –6.3 cm; June, daily high –1.3°C, daily low –0.8°C, –3.9 cm. Source: DuBois-Jefferson Co. Regional Airport. **Coverage:** 22.9 h; 10 visits (4 sunrise, 2 sunset); 17, 19, 20, 21, 25, 26 May; 2, 10, 15, 19 June. **Census:** Blackburnian Warbler, 23.0 (61); Black-throated Green Warbler, 20.0 (53); Magnolia Warbler, 16.0 (43); Solitary Vireo, 9.0 (24); Red-eyed Vireo, 7.0 (19); Black-capped Chickadee, 4.0 (11); Red-breasted Nuthatch, 4.0; Hermit Thrush, 4.0; Scarlet Tanager, 4.0; Acadian Flycatcher, 3.0 (8); Swainson's Thrush, 3.0; Dark-eyed Junco, 3.0; Brown-headed Cowbird, 3.0; Brown Creeper, 2.0; Barred Owl, 1.0; Pileated Woodpecker, 1.0; Blue Jay, 1.0; White-breasted Nuthatch, 1.0; Pine Warbler, 1.0; Chipping Sparrow, 1.0; Northern Saw-whet Owl, 0.5; Tufted Titmouse, 0.5; Purple Finch, 0.5. **Total:** 23 species; 112.5 territories (300/40 ha). **Visitors:** Canada Goose, Common Merganser, Cooper's Hawk, Red-shouldered Hawk, Chimney Swift, Hairy Woodpecker, Tree Swallow, Barn Swallow, American Crow, Wood Thrush, American Robin, Cedar Waxwing, Chestnut-sided Warbler, Black-throated Blue Warbler, Rose-breasted Grosbeak, Common Grackle, Pine Siskin, American Goldfinch. **Remarks:** The local region was free of any notable insect pest outbreaks (i.e., gypsy moth, elm spanworm) this year. **Other Observer:** Jocelyn Smreker. **Acknowledgments:** Jason Lydic conducted vegetation analyses. We thank Larry Lentz, Jeffrey Sowl, and David Wright all of the Center for Rural Pennsylvania, Carl Schlechner at Cook Forest State Park, and David deCalesta at Allegheny National Forest, USFS, for logistics and access. This plot is part of a study of old-growth forest supported by The Pennsylvania State University CES Research and Development Fund, the DuBois Educational Foundation, and the Center for Rural Pennsylvania.

80. OLD-GROWTH HEMLOCK–MIXED HARDWOOD FOREST II

BOSQUE DE EDAD AVANSADA Y MIXTO DE PICEA–MADERAS DURAS II

CHARLES P. SCHAADT & J. CHRISTOPHER HANEY

Wildlife Technology Program

School of Forest Resources

The Pennsylvania State University

DuBois, Pennsylvania 15801

Site Number: PA2493080. **Location:** Pennsylvania; Clarion Co.; Cooksburg; Seneca Stand; 41°20'N, 79°13'W; Cooksburg Quadrangle, USGS. **Continuity:** New. **Size:** 15.0 ha. **Description of Plot:** A square plot (387 × 387 m) with a closed canopy dominated by eastern hemlock, American beech, red maple, white oak, and eastern white pine. A quantitative vegetation survey based on the method described by F.C. James & H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727–736) yielded the following results: Trees, 7.6 cm diameter and over, based on 12 randomly-placed 0.04-ha circular samples, 631/ha; total basal area 42.5 m²/ha. Species comprising 100% of the total number of trees [figures after each are trees/ha, relative density (%), basal area in m²/ha, relative dominance (%), and frequency (%)]: eastern hemlock, 346, 55, 25.3, 59, 100; American beech, 65, 10, 8.0, 19, 92; red maple, 15, 2, 2.7, 6, 50; white oak, 6, 1, 1.9, 4, 25; eastern white pine, 6, 1, 1.8, 4, 25; black cherry, 2, 0.3, 0.3, 1, 8; cucumbertree, 2, 0.3, 0.1, 0.2, 8; standing dead, 189, 30, 10.4, 24, 17. Trees by diameter size class [figures after each are trees/ha, relative density (%), basal area in m²/ha, and relative dominance (%)]: A (7.6–15.2 cm) 362, 57, 3.7, 9; B (15.2–22.9 cm) 73, 12, 2.1, 5; C (22.9–38.1 cm) 94, 15, 6.8, 16; D (38.1–53.3 cm) 48, 8, 7.9, 19; E (53.3–68.6 cm) 29, 5, 8.5, 20; F

(68.6–83.8 cm) 19, 3, 8.6, 20; G (83.8–101.6 cm) 2, 0.3, 1.4, 3; H (> 101.6 cm) 4, 1, 3.6, 8. Shrub stems/ha, 2,614, dominated by red maple, American beech, and eastern hemlock. Ground cover, < 5%, dominated by ferns and true mosses. Canopy cover, 99%; average canopy height, 33.5 m (range 27–41 m). **Edge:** More than 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat 51–100 ha in size. **Topography and Elevation:** The plot is nearly level, with a W-facing slope of < 5% grade. Minimum elevation 470 m, maximum 491 m. **Weather:** Mean start temp., 13.3°C (range 6–21°C). Temperature and precipitation departures, respectively, from the 30-yr means for: May, daily high –0.4°C, daily low –0.9°C, –6.3 cm; June, daily high –1.3°C, daily low –0.8°C, –3.9 cm. Source: DuBois-Jefferson Co. Regional Airport. **Coverage:** 22.7 h; 10 visits (7 sunrise, 2 sunset); 18, 19, 20, 21, 25, 26 May; 4, 8, 17 June; 5 July. Maximum number of observers/visit, 3. **Census:** Blackburnian Warbler, 30.0 (80); Magnolia Warbler, 17.0 (45); Black-throated Green Warbler, 17.0 (2N); Solitary Vireo, 12.0 (32; 2N); Red-eyed Vireo, 10.0 (27); Hermit Thrush, 6.0 (16); Acadian Flycatcher, 4.0 (11); Scarlet Tanager, 4.0; Chipping Sparrow, 4.0; Purple Finch, 4.0; Black-capped Chickadee, 3.0 (8); Dark-eyed Junco, 3.0 (1FL); Blue Jay, 2.0; Red-breasted Nuthatch, 2.0; Golden-crowned Kinglet, 2.0; Brown-headed Cowbird, 2.0; Barred Owl, 1.0 (2FL); Hairy Woodpecker, 1.0; Tufted Titmouse, 1.0; White-breasted Nuthatch, 1.0; Brown Creeper, 1.0; Wood Thrush, 1.0; Black-throated Blue Warbler, 1.0; Pine Warbler, 1.0; Pileated Woodpecker, 0.5; Eastern Wood-Pewee, 0.5; Swainson's Thrush, 0.5; American Robin, 0.5; Black-and-white Warbler, 0.5; Canada Warbler, 0.5; Rose-breasted Grosbeak, 0.5; Pine Siskin, 0.5. **Total:** 32 species; 134.0 territories (357/40 ha). **Visitors:** Great Blue Heron, Broad-winged Hawk, Wild Turkey, Mourning Dove, Red-headed Woodpecker, Great Crested Flycatcher, American Crow, Common Raven, Chestnut-sided Warbler, Yellow-rumped Warbler, Common Grackle, American Goldfinch. **Remarks:** The local region was free of any notable insect pest outbreaks (i.e., gypsy moth, elm spanworm) this year. **Other Observers:** Jason Lydic, Jocelyn Smreker, Joe Tomcho, Amy Berwick. **Acknowledgments:** Jason Lydic conducted vegetation analyses. We thank Larry Lentz, Jeffrey Sowl, and David Wright all of the Center for Rural Pennsylvania, Carl Schleentner at Cook Forest State Park, and David deCalesta at Allegheny National Forest, USFS, for logistics and access. This plot is part of a study of old-growth forest supported by The Pennsylvania State University CES Research and Development Fund, the DuBois Educational Foundation, and the Center for Rural Pennsylvania.

81. REMNANT OLD-GROWTH HEMLOCK-MIXED HARDWOOD FOREST

REMANENTE DE BOSQUE DE EDAD AVANSADA DE PICEA-MADERAS DURAS MIXTAS

CHARLES P. SCHAADT & J. CHRISTOPHER HANEY

Wildlife Technology Program
School of Forest Resources
The Pennsylvania State University
DuBois, Pennsylvania 15801

Site Number: PA2493082. **Location:** Pennsylvania; Clarion Co.; Cooksburg; Swamp Tract; 41°24'N, 79°13'W; Marienville West Quadrangle, USGS. **Continuity:** New. **Size:** 15.0 ha. **Description of Plot:** A square plot (387 × 387 m) with a closed canopy dominated by eastern hemlock and a variety of northern hardwoods. A quantitative vegetation survey based on the method described by F.C. James & H.H. Shugart, Jr. (1970. *Aud. Field Notes* 24:727–736) yielded the following results: Trees, 7.6 cm diameter and over, based on 12 randomly-placed 0.04-ha circular samples, 631/ha; total basal area 29.6 m²/ha. Species comprising 100% of the total number of trees [figures after each are trees/ha, relative density (%), basal area in m²/ha, relative dominance (%), and frequency (%)]: eastern hemlock, 415, 66, 14.9, 50, 100; black cherry, 19, 3, 2.6, 9, 25; red maple, 29, 5, 2.4, 8, 58; northern red oak, 12, 2, 2.1, 7, 33; yellow birch, 33, 5, 1.4, 5, 50; American beech, 50, 8, 1.3, 4, 50; black ash, 12, 2, 1.2, 4, 25; cucumber tree, 2, 0.3, 0.2, 1, 8; bitternut hickory, 2, 0.3, 0.2, 1, 8; standing dead, 56,

8, 3.5, 13, 92. Trees by diameter size class [figures after each are trees/ha, relative density (%), basal area in m²/ha, and relative dominance (%)]: A (7.6–15.2 cm) 358, 57, 3.7, 12; B (15.2–22.9 cm) 83, 13, 2.4, 8; C (22.9–38.1 cm) 127, 20, 9.3, 31; D (38.1–53.3 cm) 42, 7, 6.8, 23; E (53.3–68.6 cm) 12, 2, 3.6, 12; F (68.6–83.8 cm) 8, 1, 3.8, 13. Shrub stems/ha, 3,931, dominated by American beech and eastern hemlock. Ground cover, approximately 10%, dominated by sensitive and cinnamon ferns, rice cutgrass, and true mosses. Canopy cover, 92%; average canopy height, 23.8 m (range 17–34 m). There is one stream with a maximum width of 1.2 m and a maximum depth of 0.5 m, and there are some ephemeral pools. **Edge:** Up to 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat 26–50 ha in size. **Topography and Elevation:** The plot is nearly level, with a SW-facing slope of < 5% grade. Minimum elevation 472 m, maximum 475 m. **Weather:** Mean start temp., 13.3°C (range 2–22°C). Temperature and precipitation departures, respectively, from the 30-yr means for: May, daily high –0.4°C, daily low –0.9°C, –6.3 cm; June, daily high –1.3°C, daily low –0.8°C, –3.9 cm. Source: DuBois-Jefferson Co. Regional Airport. **Coverage:** 22.2 h; 10 visits (4 sunrise, 2 sunset); 17, 19, 20, 23, 25, 27 May; 7, 10, 17 June; 5 July. Maximum number of observers/visit, 3. **Census:** Black-throated Green Warbler, 16.0 (43); Blackburnian Warbler, 15.0 (40); Magnolia Warbler, 13.0 (35); Red-eyed Vireo, 11.0 (29); Solitary Vireo, 10.0 (27; 2FL); Hermit Thrush, 7.0 (19; 1N); Dark-eyed Junco, 6.0 (16; 1N); Black-capped Chickadee, 4.0 (11; 1N); Tufted Titmouse, 3.0 (8); Brown Creeper, 3.0; Scarlet Tanager, 3.0; Brown-headed Cowbird, 3.0; Winter Wren, 2.0; Red-shouldered Hawk, 1.0; Ruby-throated Hummingbird, 1.0; Hairy Woodpecker, 1.0; Pileated Woodpecker, 1.0; Acadian Flycatcher, 1.0; Great Crested Flycatcher, 1.0; Blue Jay, 1.0; Red-breasted Nuthatch, 1.0; White-breasted Nuthatch, 1.0; Black-and-white Warbler, 1.0; Ovenbird, 1.0; Common Yellowthroat, 1.0; Rose-breasted Grosbeak, 1.0; Song Sparrow, 1.0; Cedar Waxwing, 0.5; Hooded Warbler, 0.5. **Total:** 29 species; 111.0 territories (296/40 ha). **Visitors:** Great Blue Heron, Turkey Vulture, Wild Turkey, Killdeer, Common Nighthawk, Downy Woodpecker, Eastern Wood-Pewee, American Crow, Golden-crowned Kinglet, Chestnut-sided Warbler, American Redstart, Common Grackle, Purple Finch, Pine Siskin, American Goldfinch. **Remarks:** The local region was free of any notable insect pest outbreaks (i.e., gypsy moth, elm spanworm) this year. **Other Observers:** Jeff Hartzell, Jason Lydic, Jocelyn Smreker, Joe Tomcho, Amy Berwick. **Acknowledgments:** Jason Lydic conducted vegetation analyses. We thank Larry Lentz, Jeffrey Sowl, and David Wright all of the Center for Rural Pennsylvania, Carl Schlentner at Cook Forest State Park, and David deCalesta at Allegheny National Forest, USFS, for logistics and access. This plot is part of a study of old-growth forest supported by The Pennsylvania State University CES Research and Development Fund, the DuBois Educational Foundation, and the Center for Rural Pennsylvania.

82. MATURE UPLAND OAK-BEECH-WHITE PINE FOREST

BOSQUE MADURO DE ROBLE-HAYA-PINO BLANCO EN ALTURAS

WILLIAM R. EDDLEMAN

Department of Natural Resources Science

210B Woodward Hall

University of Rhode Island

Kingston, Rhode Island 02881

Site Number: RI1291062. **Location:** Rhode Island; Kent Co.; West Greenwich; Escoheag; 41°36'N, 71°46'W; Voluntown Quadrangle, USGS. **Continuity:** Established 1991; 3 yr. **Size:** 10.2 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):84–85 (1992). Construction of a second house began in April, on the N edge of the plot. **Weather:** Mean start temp., 13.5°C (range 6–18°C). Light precipitation during two visits and fog during one visit. May mean temperature (14.9°C) was slightly above normal (13.4°C). June mean temperature (18.9°C) was near normal (18.3°C). May precipitation (2.9 cm) was much below normal (11.0 cm), as was the June precipitation (3.8 cm; normal 9.5 cm). Source: University of Rhode Island weather station, Kingston, RI. **Coverage:** 30.7 h; 12 visits (11 sunrise, 1 sunset); 6, 13, 27 May; 2, 15, 16, 17, 20, 21, 23, 29 June. **Census:** Ovenbird, 20.5 (80; 2N, 2FL); Red-eyed Vireo, 17.5

(69; 1FL); Wood Thrush, 8.0 (31; 1FL); Veery, 7.0 (27); Eastern Wood-Pewee, 4.0 (16); Tufted Titmouse, 4.0 (1N,4FL); Hermit Thrush, 4.0; Scarlet Tanager, 4.0; Pine Warbler, 3.5 (14; 1N); American Redstart, 3.5; Downy Woodpecker, 3.0 (12); Acadian Flycatcher, 2.5; Great Crested Flycatcher, 2.0; White-breasted Nuthatch, 2.0; Black-throated Green Warbler, 2.0; Rufous-sided Towhee, 2.0; Hairy Woodpecker, 1.5 (2FL); Black-capped Chickadee, 1.5; Red-bellied Woodpecker, 1.0; Eastern Phoebe, 1.0; Black-and-white Warbler, 1.0; Common Yellowthroat, 1.0; Northern Cardinal, 1.0; Chipping Sparrow, 1.0; Blue Jay, 0.5; Pileated Woodpecker, +; American Crow, +; Brown-headed Cowbird, +. **Total:** 28 species; 99.0 territories (388/40 ha). **Visitors:** Red-shouldered Hawk, Black-billed Cuckoo, American Robin, Hooded Warbler. **Remarks:** Contribution #2890 of the College of Resource Development, University of Rhode Island, with support from the Rhode Island Agricultural Experiment Station. **Other Observers:** Veronica Hinds, Ellen Unruh. **Acknowledgments:** Thanks to Thomas E. Armstrong of the Rhode Island Department of Environmental Management for permitting use of the site.

83. SCRUB OAK FOREST WITH SCATTERED LONGLEAF PINE

MATORRAL DE ROBLE CON PINOS DE HOJA LARGA DISPERSOS

JONATHAN PLISSNER*, STEVEN WAGNER*, SIDNEY GAUTHREAUX, JR.* &
WILLIAM JARVIS

*Department of Biological Sciences
Clemson University

Clemson, South Carolina 29634-1903

Site Number: SC0493102. **Location:** South Carolina; Aiken Co.; Williston; Savannah River Site; 33°22'N, 81°30'W; New Ellenton SE Quadrangle, USGS. **Continuity:** New. **Size:** 12.2 ha. **Description of Plot:** A square plot (350 × 350 m) located in the NE corner of the Savannah River Site and maintained by the U.S. Forest Service. The open canopy is dominated by turkey oak, longleaf pine, and bluejack oak, estimated to be between 31 and 60 years of age. The mature longleaf pines are scattered throughout, rising well above the oak canopy. Mean canopy height, 7 m (range 5–15 m). The uniformly dense understory is dominated by turkey oak, sparkleberry, and dwarf post oak. The variable ground cover is dominated by gooseberry and dwarf huckleberry in the S and W portions of the plot, and by patches of bracken fern in the E half. Ground cover is sparsely distributed in much of the N section. The substrate is xeric and sandy, with no streams or standing water present. **Edge:** The plot is bordered on all sides by similar habitat, although a clear-cut area is present across a woods road running tangential to the SW corner. An 18-ha Department of Energy set aside area borders the W edge. The plot lies within a tract of similar habitat 26–50 ha in size. **Topography and Elevation:** The plot is nearly level with a S-facing slope of < 5%. Minimum elevation 93 m, maximum 108 m. **Weather:** Mean start temp., 18.5°C (range 11–30°C). Average daily temperatures were 21.1°C in May (normal is 22.5°C) and 25.6°C in June (normal is 25.7°C). For January through June, total precipitation was 1.32 cm above average; however, May and June totals were 9.22 cm below normal. Measurable precipitation was recorded on six days in May and seven in June. Source: SRTC Environmental Technology Section. **Coverage:** 22.2 h; 11 visits (9 sunrise, 2 sunset); 10, 11, 12, 17, 18, 25 May; 3, 10, 14, 15, 16 June. **Census:** Pine Warbler, 5.5 (18; 3FL); Great Crested Flycatcher, 3.5 (11; 1N); Summer Tanager, 3.5; Ovenbird, 2.5; Mourning Dove, 2.0; Yellow-billed Cuckoo, 2.0; Blue Jay, 2.0 (1FL); Tufted Titmouse, 2.0; Pileated Woodpecker, 1.5; Carolina Chickadee, 1.5; Blue-gray Gnatcatcher, 1.5; Wood Thrush, 1.5; Red-bellied Woodpecker, 1.0; Brown Thrasher, 1.0 (1N); Black-and-white Warbler, 1.0; Northern Cardinal, 1.0; Downy Woodpecker, + (1FL); Red-eyed Vireo, +. **Total:** 18 species; 33.0 territories (108/40 ha). **Visitors:** Red-shouldered Hawk, Red-tailed Hawk, Wild Turkey, Ruby-throated Hummingbird, Northern Flicker, American Crow, Brown-headed Nuthatch, Brown-headed Cowbird. **Acknowledgments:** We thank the Department of Energy and the Savannah River Forest Station of the U.S. Forest Service for financial support and access to the area.

84. 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

Site Number: TN1491015. **Location:** Tennessee; Putnam Co.; Cookeville; City Lake Natural Area (Old Cookeville Filtration Plant); 36°8'N, 85°27'W; Cookeville East Quadrangle, USGS. **Continuity:** Established 1991; 3 yr. **Size:** 10.2 ha. **Description of Plot:** See *J. Field Ornithol.* 62 (Suppl.):17 (1991) and 63 (Suppl.):18–19 (1992). The habitat outside the W boundary of the plot included an area of about 4 ha of mature deciduous woods; they were clear-cut in late June creating more fragmentation. Within the plot, a few large trees around the water treatment building were cut in preparation for work to cover the treatment basins with a picnic area. The vegetation under the power line on the plot has grown to a height of 2–4 m since it was cut in 1990. **Weather:** Mean start temp., 15.3°C (range 8–23°C). Late May and all of June were hotter than normal. Rainfall in late May was normal, but in June it was about one-half the monthly average. **Coverage:** 18.1 h; 12 visits (12 sunrise); 11, 23, 27, 30 May; 1, 3, 4, 6, 8, 10 June; 2, 18 July. **Census:** Northern Cardinal, 7.0 (27; 2N, 1FL); European Starling, 4.0 (16; 3N, 2FL); Tufted Titmouse, 3.0 (12; 2FL); Carolina Wren, 3.0 (2FL); Carolina Chickadee, 2.5 (2FL); Rock Dove, 2.0; Downy Woodpecker, 2.0; Eastern Phoebe, 2.0; Song Sparrow, 2.0 (1FL); Red-winged Blackbird, 2.0 (1N, 1FL); Brown-headed Cowbird, 2.0 (1FL); Wood Duck, 1.5 (13FL); Blue Jay, 1.5; Wood Thrush, 1.5 (2FL); American Robin, 1.5; Kentucky Warbler, 1.5; Indigo Bunting, 1.5; Common Grackle, 1.5 (3FL); Mourning Dove, 1.0; Red-bellied Woodpecker, 1.0; American Crow, 1.0 (1N, 3FL); Gray Catbird, 1.0 (1N, 1FL); Red-eyed Vireo, 1.0; Louisiana Waterthrush, 1.0; Rufous-sided Towhee, 1.0; Broad-winged Hawk, 0.5 (1N, 1FL); Belted Kingfisher, 0.5; Hairy Woodpecker, 0.5; Northern Flicker, 0.5; White-breasted Nuthatch, 0.5; Brown Thrasher, 0.5; Yellow-throated Vireo, 0.5; Yellow-throated Warbler, 0.5; Pine Warbler, 0.5; Green Heron, +; Ruby-throated Hummingbird, +; Pileated Woodpecker, +; Eastern Wood-Pewee, +; Great Crested Flycatcher, +; Tree Swallow, +; White-eyed Vireo, +; Common Yellowthroat, +. **Total:** 42 species; 53.5 territories (210/40 ha). **Visitors:** Great Blue Heron, Chimney Swift, Northern Rough-winged Swallow, Blue-gray Gnatcatcher, Worm-eating Warbler, Ovenbird, Northern Oriole, House Finch. **Remarks:** Conversion of the area for public uses continued this summer, though only a slight decline in the number of species resulted. The number of territories actually increased from last year, almost to the level of 1991.

85. SLOPED MIXED DECIDUOUS–CONIFEROUS FOREST BOSQUE DE PENDIENTE MIXTO DE DECIDUO–CONIFEROS

FRED MERRILL

Vermont Conservation Biology
RR#1, Box 565
Woodstock, Vermont 05091

Site Number: VT2791010. **Location:** Vermont; Windsor Co.; Pomfret; High Pastures Road; 43°37'N, 72°30'W; Quechee Quadrangle, USGS. **Continuity:** Established 1991; 2 yr. **Size:** 12.3 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):87–88 (1992). **Weather:** Mean start temp., 12.0°C (range 3–18°C). Temperature and precipitation departures, respectively, from the 30-yr means for: May, 0°C, –5.54 cm; June, –1.5°C, +3.29 cm; July, +0.2°C, –4.32 cm. Source: Fairbanks Museum reporting station, Cavendish, VT. **Coverage:** 21.3 h; 9 visits (9 sunrise); 2, 11, 21, 27 May; 5, 26 June; 4, 11, 25 July. **Census:** Ovenbird, 6.5 (21; 1N, 2FL); Red-eyed Vireo, 5.5 (18); Black-capped Chickadee, 5.0 (16); Black-throated Green Warbler, 4.0 (13); Dark-eyed Junco, 4.0; Hermit Thrush, 3.5 (11); Veery, 2.0; Wood Thrush, 2.0; Black-and-white Warbler, 2.0; Rose-breasted Grosbeak, 2.0; Ruffed Grouse, 1.5; Hairy Woodpecker, 1.5; Black-throated Blue Warbler, 1.5; Scarlet Tanager, 1.5; Brown-headed Cowbird, 1.5; Yel-

low-bellied Sapsucker, 1.0; Downy Woodpecker, 1.0; Eastern Wood-Pewee, 1.0; Blue Jay, 1.0; White-breasted Nuthatch, 1.0; American Robin, 1.0; Solitary Vireo, 1.0; Chestnut-sided Warbler, 1.0; Magnolia Warbler, 1.0; Yellow-rumped Warbler, 1.0; White-throated Sparrow, 1.0; Barred Owl, 0.5; Northern Flicker, 0.5; Pileated Woodpecker, 0.5; Great Crested Flycatcher, 0.5; Common Yellowthroat, 0.5. **Total:** 31 species; 57.5 territories (187/40 ha). **Visitors:** Broad-winged Hawk, Ruby-crowned Kinglet, Cedar Waxwing, Nashville Warbler, Blackburnian Warbler, American Redstart, Evening Grosbeak. **Acknowledgments:** Weather data from Ray Fitzgibbons, CUPS, Cavendish, Vermont.

86. SUBURBAN CEMETERY

CEMENTERIO SUBURBANO

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; 14 yr. **Size:** 15.0 ha. **Description of Plot:** See *Am. Birds* 34:18–19 (1980) and *J. Field Ornithol.* 63 (Suppl.): 88–89 (1992). Cemetery owners eliminated a small amount (< 10 m) of hedgerow. Two to five mature trees are cut yearly; some, mostly American elm but a few red oak, die because of a circulatory disease. Nearly all evergreens, especially pine, juniper, and privet, suffered serious damage during a March snowstorm. **Weather:** Mean start temp., 17.7°C (range 9–25°C). On 12–13 March, Birmingham received 43 cm of snow. Temperatures dropped to –18°C with 80 kph winds during the storm. The snow melted by 16 March, but most flowering and fruiting were one to four weeks behind normal for the rest of the year. June and July were hot and dry. As of 1 September, Birmingham had a rainfall deficiency of 36 cm. **Coverage:** 56.0 h; 23 complete visits (14 sunrise, 1 sunset); 8, 17, 28 March; 1, 8, 11, 19, 25, 29 April; 1, 8, 16, 24, 31 May; 4, 11, 14, 19, 27, 28 June; 4, 10, 31 July. The hours of coverage includes approximately 100 partial visits of about 20 minutes each. **Census:** Northern Cardinal, 10.0 (27; 3N,10FL); House Sparrow, 10.0 (3N,20FL); Northern Mockingbird, 6.0 (16; 3N,10FL); Blue Jay, 5.0 (13; 2N,5FL); Rufous-sided Towhee, 5.0 (4FL); House Finch, 5.0 (1N,12FL); Mourning Dove, 4.0 (11; 3N,3FL); American Robin, 4.0 (4N,10FL); European Starling, 4.0 (2N,6FL); Brown Thrasher, 3.5 (9; 1N,2FL); Brown-headed Cowbird, 3.0 (8; 2FL); Northern Flicker, 2.0 (1N,2FL); Great Crested Flycatcher, 2.0 (2FL); American Crow, 2.0 (2N,3FL); Carolina Wren, 2.0 (1FL); Gray Catbird, 2.0 (1FL); Red-bellied Woodpecker, 1.5 (1N,2FL); Downy Woodpecker, 1.0 (1FL); Eastern Wood-Pewee, 1.0; Carolina Chickadee, 1.0 (2FL); Tufted Titmouse, 1.0 (2FL); Common Grackle, 1.0 (1FL). **Total:** 22 species; 76.0 territories (203/40 ha). **Visitors:** American Kestrel, Killdeer, Rock Dove, Common Nighthawk, Chimney Swift, Red-headed Woodpecker, White-breasted Nuthatch, White-eyed Vireo, Yellow-throated Vireo, American Goldfinch. **Remarks:** The observer lives on a corner of the plot, so part of the plot is observed daily for varying amounts of time. The increase in the total number of territories of Northern Cardinal, Northern Mockingbird, Rufous-sided Towhee, Gray Catbird, and Blue Jay, may explain the big drop in American Robin territories and slight drop in House Finch. But how? Certainly not by a shortage of fruit, possibly by antagonism among species.

87. MATURE UPPER MIXED-CONIFEROUS FOREST—MONTANE CHAPARRAL

BOSQUE MADURO MIXTO DE CONIFEROS Y CHAPARRAL MONTANO

JENNIFER G. TURNER, DOUGLAS A. DRYNAN & ROLF B. MILLER

Pacific Southwest Forest and Range Experiment Station
2081 East Sierra Avenue
Fresno, California 93710

Location: California; Fresno Co.; Shaver Lake; 37°5'N, 119°14'W; Huntington Lake SW Quadrangle, USGS. **Continuity:** Established 1985; 9 yr. **Size:** 42.3 ha. **Description of Plot:** See 1985

BBC report. In the fall of 1992, two small houses were built on the bottom of the plot. No one lived in these buildings during the study period, so their impact was minimal. **Weather:** Mean start temp., 7.1°C (range 0–13°C). The study period was delayed by one week due to heavy snow conditions. After the snow melted, no census days were lost to rain or snow. **Coverage:** 120.4 h; 24 visits (24 sunrise); 24, 26, 27, 28 May; 2, 3, 7, 8, 10, 11, 15, 16, 21, 22, 24, 25 June. **Census:** Dark-eyed Junco, 29.5 (28; 26N); Hermit Warbler, 25.5 (24; 3N); Golden-crowned Kinglet, 23.0 (22; 7N); Fox Sparrow, 17.5 (17; 1N); Hammond's Flycatcher, 15.0 (14; 22N); Dusky Flycatcher, 15.0 (13N); Red-breasted Nuthatch, 14.5 (14; 15N); MacGillivray's Warbler, 11.5 (11; 6N); Solitary Vireo, 10.5 (10; 6N); Warbling Vireo, 10.5 (6N); Brown Creeper, 9.5 (9; 4N); Yellow-rumped Warbler, 9.0 (9; 6N); Mountain Chickadee, 8.0 (8; 7N); Purple Finch, 5.5 (5; 1N); Nashville Warbler, 5.0 (5; 1N); Western Tanager, 5.0 (1N); Hermit Thrush, 4.5 (4; 2N); American Robin, 3.0 (3; 3N); Cassin's Finch, 3.0 (3N); Pacific-slope Flycatcher, 2.5; Steller's Jay, 2.5; Black-headed Grosbeak, 2.5 (2N); Mountain Quail, 1.5 (1N); White-headed Woodpecker, 1.5 (1N); Townsend's Solitaire, 1.5 (1N); Rufous-sided Towhee, 1.5; Band-tailed Pigeon, 1.0; Calliope Hummingbird, 1.0; Red-breasted Sapsucker, 1.0 (2N); Winter Wren, 1.0 (2N); Chipping Sparrow, 1.0; Brown-headed Cowbird, 1.0; Sharp-shinned Hawk, 0.5 (1N); Cooper's Hawk, 0.5 (1N); Northern Pygmy-Owl, 0.5; Hairy Woodpecker, 0.5; Northern Flicker, 0.5 (1N); Pileated Woodpecker, 0.5; Western Wood-Pewee, 0.5; Common Raven, 0.5 (1N); Green-tailed Towhee, 0.5; Lincoln's Sparrow, 0.5. **Total:** 42 species; 249.5 territories (236/40 ha). **Visitors:** Northern Goshawk, Red-tailed Hawk, Spotted Owl, Olive-sided Flycatcher, Wilson's Warbler, Pine Siskin, Evening Grosbeak. **Remarks:** All boundary territories were computed as 0.5 territories. The plot was divided into two parts, and each complete census required two visits. We made 24 visits or 12 complete censuses. **Acknowledgments:** This effort is part of a study of bird monitoring techniques being conducted by Dr. Jared Verner, USDA Forest Service.

88. MIXED HABITAT

HABITAT MIXTO

MIKE DUDEK

*Miles Wildlife Sanctuary
95 West Cornwall Road
Sharon, Connecticut 06069*

Location: Connecticut; Litchfield Co.; Sharon; Miles Wildlife Sanctuary; 41°53'N, 73°24'W; Sharon Quadrangle, USGS. **Continuity:** Established 1986; 7 yr. **Size:** 15.0 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (Suppl.):66–67 (1989). **Weather:** Mean start temp., 14.7°C (range 3–29°C). **Coverage:** 32.9 h; 12 visits (9 sunrise, 3 sunset); 2, 7, 10, 12, 14, 16, 18, 19, 21, 23, 25, 28 June. **Census:** Gray Catbird, 19.0 (51); American Robin, 18.0 (48); Red-winged Blackbird, 12.0 (32); Veery, 11.0 (29); Common Yellowthroat, 10.0 (27); Cedar Waxwing, 9.0 (24); House Finch, 8.0 (21); Chestnut-sided Warbler, 7.5 (20); Northern Oriole, 7.5; American Redstart, 7.0 (19); Song Sparrow, 6.0 (16); American Goldfinch, 6.0; Eastern Phoebe, 5.0 (13); Wood Thrush, 5.0; Blue-winged Warbler, 5.0; Rose-breasted Grosbeak, 5.0; Swamp Sparrow, 5.0; Mourning Dove, 4.5 (12); Red-eyed Vireo, 4.5; Tree Swallow, 4.0 (11); Barn Swallow, 4.0; Black-and-white Warbler, 4.0; Chipping Sparrow, 4.0; Wood Duck, 3.0 (8); Least Flycatcher, 3.0; Black-capped Chickadee, 3.0; Tufted Titmouse, 3.0; Eastern Bluebird, 3.0; Warbling Vireo, 3.0; Scarlet Tanager, 3.0; Common Grackle, 3.0; Purple Finch, 3.0; Blue Jay, 2.5; Eastern Kingbird, 2.0; House Wren, 2.0; Northern Cardinal, 2.0; Rufous-sided Towhee, 2.0; Brown-headed Cowbird, 2.0; Canada Goose, 1.0; Hooded Merganser, 1.0; Ruffed Grouse, 1.0; Chimney Swift, 1.0; Ruby-throated Hummingbird, 1.0; Red-bellied Woodpecker, 1.0; Downy Woodpecker, 1.0; Northern Flicker, 1.0; Great Crested Flycatcher, 1.0; Brown Creeper, 1.0; European Starling, 1.0. **Total:** 49 species; 221.5 territories (591/40 ha). **Visitors:** Great Blue Heron, Mallard, Turkey Vulture, Osprey, Black-billed Cuckoo, Belted Kingfisher, Hairy Woodpecker, Eastern Wood-Pewee, White-breasted Nuthatch, Blue-gray Gnatcatcher, Northern Mockingbird, Brown Thrasher, Northern Parula, Black-throated Blue Warbler, Ovenbird,

Louisiana Waterthrush. **Other Observers:** Melanie Schaldach, Brian Hopkins, Selena Carroll, Beth O'Donnell. **Acknowledgments:** Miles Wildlife Sanctuary.

89. BULRUSH AND CATTAIL MARSH IN CONIFER FOREST

CIENAGAS DE ENEAS EN BOSQUE DE CONIFERAS

MARCELLA M. BISHOP

750 Rocky Point Road
Polson, Montana 59860

Location: Montana; Lake Co.; Polson; Safe Harbor Marsh; 47°35'N, 114°9'W; Wild Horse Island Quadrangle, USGS. **Continuity:** Established 1975; 19 yr. **Size:** 40.5 ha. **Description of Plot:** See *Am. Birds* 31:84–85 (1977). **Weather:** Mean start temp., 16.9°C (range 11–22°C). Exceptionally rainy, cold spring and summer with few very warm days. **Coverage:** 30.0 h; 7 visits (5 sunrise, 2 sunset); 26, 30 May; 6, 7, 13, 26 June; 12 July. Maximum number of observers/visit, 3. **Census:** Yellow-headed Blackbird, 43.0 (42; 9N,15FL); Red-winged Blackbird, 26.0 (26; 1N,6FL); Marsh Wren, 18.0 (18; 6N,3FL); Song Sparrow, 15.0 (15; 2FL); Common Yellowthroat, 14.0 (14); Tree Swallow, 12.0 (12; 2N); Pine Siskin, 12.0; Willow Flycatcher, 10.0 (10; 2N); Redhead, 8.0 (8); Western Wood-Pewee, 8.0 (1N); Red-breasted Nuthatch, 8.0; Cedar Waxwing, 8.0 (10FL); MacGillivray's Warbler, 8.0 (2FL); Dark-eyed Junco, 8.0; Mallard, 7.0 (7; 12FL); Canada Goose, 6.0 (6; 3N,8FL); Black-capped Chickadee, 6.0; Swainson's Thrush, 6.0; Violet-green Swallow, 5.0 (5); American Robin, 5.0 (2N,2FL); Ring-necked Duck, 4.0 (4; 3FL); Mourning Dove, 4.0; Calliope Hummingbird, 4.0 (1N); Barn Swallow, 4.0; Mountain Chickadee, 4.0; Brown-headed Cowbird, 4.0; Pied-billed Grebe, 3.0 (3; 5FL); Wood Duck, 3.0 (1N,12FL); Common Goldeneye, 3.0 (12FL); Common Merganser, 3.0 (3FL); Osprey, 3.0 (3N,5FL); Ruffed Grouse, 3.0; Northern Flicker, 3.0 (1N); Hammond's Flycatcher, 3.0; Cordilleran Flycatcher, 3.0; Chipping Sparrow, 3.0; Cassin's Finch, 3.0; Great Blue Heron, 2.0; Canvasback, 2.0; Sora, 2.0; Black Tern, 2.0; Ruby-crowned Kinglet, 2.0; Townsend's Solitaire, 2.0; Orange-crowned Warbler, 2.0; Yellow Warbler, 2.0; Yellow-rumped Warbler, 2.0; Western Tanager, 2.0; Rufous-sided Towhee, 2.0; Cooper's Hawk, 1.0; Northern Goshawk, 1.0; American Coot, 1.0; Spotted Sandpiper, 1.0; Common Nighthawk, 1.0; Downy Woodpecker, 1.0; Hairy Woodpecker, 1.0; Pileated Woodpecker, 1.0; Olive-sided Flycatcher, 1.0; Dusky Flycatcher, 1.0; Common Raven, 1.0; Hermit Thrush, 1.0; Varied Thrush, 1.0; Nashville Warbler, 1.0; Wilson's Warbler, 1.0; Black-headed Grosbeak, 1.0; American Goldfinch, 1.0; Bald Eagle, 0.5; Northern Harrier, 0.5; Red-tailed Hawk, 0.5; Ring-billed Gull, +. **Total:** 69 species; 330.5 territories (326/40 ha). **Remarks:** This year the plot was also used as a mist-netting site for the Monitoring Avian Productivity and Survivorship (MAPS) project by unaffiliated personnel. There were 9 point counts and 10 mist nets established on the S end of the marsh. Ten species previously recorded on this plot, but not recorded this year during the BBC, were detected by the MAPS project. They were: American Kestrel, Killdeer, Rufous Hummingbird, Pygmy Nuthatch, Warbling Vireo, Red-eyed Vireo, Townsend's Warbler, American Redstart, Red Crossbill, and Evening Grosbeak. Two additional species not previously recorded on this plot were also detected by the MAPS project. They were Least Flycatcher and House Wren. This puts the total number of species found on the plot this year by all observers at 81, and indicates the unique species diversity at this Nature Conservancy site.

90. DECIDUOUS FOREST WITH POND AND BROOK

BOSQUE DECIDUO CON CHARCA Y ARROYO

JOHN BROTHERTON

249 East Crescent Avenue
Mahwah, New Jersey 07430

Site Number: NJ1064032. **Location:** New Jersey; Bergen Co.; Mahwah; Campgaw Mountain Reservation; 41°4'N, 74°11'W; Ramsey and Ramapo Quadrangles, USGS. **Continuity:** Estab-

lished 1964; 30 yr. **Size:** 16.2 ha. **Description of Plot:** See *Aud. Field Notes* 19:623–624 (1965). **Weather:** Mean start temp., 12.9°C (range 8–18°C). **Coverage:** 9.0 h; 9 visits (9 sunrise); 18, 20, 25, 27 May; 1, 3, 8, 10, 15 June. Maximum number of observers/visit, 6. **Census:** Veery, 4.0 (10); Ovenbird, 4.0; Gray Catbird, 3.0 (7); Red-eyed Vireo, 3.0; Red-bellied Woodpecker, 2.0; Downy Woodpecker, 2.0; Black-capped Chickadee, 2.0; Tufted Titmouse, 2.0; Wood Thrush, 2.0; Scarlet Tanager, 2.0; Northern Flicker, 1.0; Eastern Wood-Pewee, 1.0; Great Crested Flycatcher, 1.0; Eastern Kingbird, 1.0; Tree Swallow, 1.0; Blue Jay, 1.0; White-breasted Nuthatch, 1.0; American Robin, 1.0; Louisiana Waterthrush, 1.0; Common Yellowthroat, 1.0; Northern Cardinal, 1.0; Common Grackle, 1.0. **Total:** 22 species; 38.0 territories (94/40 ha). **Visitors:** Green Heron, Canada Goose, Mallard, Mourning Dove, Pileated Woodpecker, Eastern Phoebe, American Crow, House Wren, European Starling, Yellow-throated Vireo, Chestnut-sided Warbler, Rose-breasted Grosbeak, Rufous-sided Towhee, Red-winged Blackbird, House Finch. **Other Observers:** J. Bristow, N. Bristow, S. Gall, D. Schwenker, K. Sjolander, J. White, J. Worrall.

91. SUBURBAN BIRD SANCTUARY

SANTUARIO DE AVES SUBURBANO

MARY E. RICHARD

Theodore Roosevelt Sanctuary, Inc.

134 Cove Road

Oyster Bay, New York 11771

Location: New York; Nassau Co.; Oyster Bay; Theodore Roosevelt Memorial Bird Sanctuary; 40°52'N, 73°30'W; Hicksville Quadrangle, USGS. **Continuity:** Established 1983; 11 yr. **Size:** 10.8 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):91–92 (1992). **Weather:** Mean start temp., 21.8°C (range 10–29°C). **Coverage:** 12.5 h; 8 visits (7 sunrise, 1 sunset); 21 May; 4, 11, 16, 25, 30 June; 8, 14 July. Maximum number of observers/visit, 3. **Census:** Gray Catbird, 10.0 (37); American Robin, 8.0 (30; 2N); Chipping Sparrow, 4.5 (17; 1N); Common Grackle, 4.5 (2N); Mourning Dove, 4.0 (15); House Wren, 4.0 (3N); House Sparrow, 4.0 (2N); Tufted Titmouse, 3.0 (11); House Finch, 3.0; Red-bellied Woodpecker, 2.5 (2N); Northern Cardinal, 2.5; Black-capped Chickadee, 2.0; White-breasted Nuthatch, 2.0; American Crow, 1.5 (1N); Wood Thrush, 1.5; Downy Woodpecker, 1.0; Northern Flicker, 1.0 (1N); Eastern Wood-Pewee, 1.0; Blue Jay, 1.0; Carolina Wren, 1.0; Northern Mockingbird, 1.0; European Starling, 1.0 (1N); Red-eyed Vireo, 1.0; Ovenbird, 1.0; Orchard Oriole, 1.0 (1N, IFL); Northern Oriole, 1.0 (1N); American Goldfinch, 1.0; Cedar Waxwing, 0.5; Scarlet Tanager, 0.5. **Total:** 29 species; 70.0 territories (259/40 ha). **Visitors:** Rock Dove, American Redstart, Canada Warbler, Rufous-sided Towhee. **Other Observers:** Susan M. Sauer, Michael Brust, Brad Grosvenor, Andrew Orgonik, Jodi Heisler, Ben Getting, Dimir Marusic.

92. URBAN COASTAL PARK

PARQUE URBANO COSTANERO

ANDREW MAGEE, JOSEPH ROMAN* & DAVID BURG*

**New York City Audubon Society*

71 West 23rd Street

New York, New York 10010

Site Number: NY0993124. **Location:** New York; Queens Co.; Far Rockaway; Bayswater Point State Park; 40°36'N, 73°48'W; Far Rockaway Quadrangle, USGS. **Continuity:** New. **Size:** 10.0 ha. **Description of Plot:** An irregularly-shaped plot (shortest side 150 m, longest 700 m). Bayswater Point State Park is a coastal strip located in a heavily urbanized area. The NW portion of the site was a former estate and private school. Concrete sea walls, walkways, and one structure are present. Many are decaying and are being removed as part of ongoing restoration of the park. In the same vicinity, there are cleared areas and some unattended cultivated trees and shrubs. In addition to this urban influence, a variety of natural com-

munities are found on the preserve. There is a small freshwater wetland that has developed over recently disturbed land, and there are some ephemeral pools during the breeding season. Along the shore, smooth cord-grass and groundsel-trees are established. On the NE part of the site, abandoned xeric fields are dominated by switchgrass and bayberry. Of special note is an oak forest community just N of the center of the park. It is the only native oak forest left on Jamaica Bay, and in addition to the more common oaks (white oak, pin oak, and black oak) it contains at least one post oak. Mean canopy height, 10 m (range 8–15 m). Other understory plants on the plot include shining sumac, common elder, and Virginia creeper. Other ground cover plants include reed grass and showy goldenrod. This plot description was prepared from a 1992 vegetation study by Andrew Geller of Queens College.

Edge: Less than 25% of the plot's perimeter is bordered by the same habitat. Facing Jamaica Bay, the area is isolated from similar habitats by roads and an extensive residential area.

Topography and Elevation: The plot is nearly level, with a slope of < 5%. Minimum elevation 0 m, maximum 4 m. **Weather:** Mean start temp., 25°C (range 18–30°C). Both June and July were hotter and drier than usual. The average temperature in Central Park for June was 22.9°C (0.9°C above normal); for July it was 26.8°C (1.9°C above normal). Precipitation for June was 3.8 cm (5.5 cm below normal); for July it was 4.3 cm (6.7 cm below normal). Source: National Oceanic and Atmospheric Administration. **Coverage:** 12.8 h; 8 visits (1 sunrise, 1 sunset); 19, 20 June; 1, 2, 13, 15, 21, 26 July. Maximum number of observers/visit, 3. **Census:**

Red-winged Blackbird, 15.0 (60); House Finch, 11.0 (44); Gray Catbird, 10.0 (40); Yellow Warbler, 8.0 (32); Common Yellowthroat, 8.0; Mourning Dove, 6.0 (24); Song Sparrow, 5.0 (20); House Sparrow, 5.0; European Starling, 4.0 (16); Northern Cardinal, 4.0; Northern Mockingbird, 3.0 (12); Willow Flycatcher, 2.0; Eastern Kingbird, 2.0; Carolina Wren, 2.0; American Robin, 2.0; Brown Thrasher, 2.0; Common Grackle, 2.0; Brown-headed Cowbird, 2.0; American Goldfinch, 2.0; Green Heron, 1.0; American Black Duck, 1.0; Mallard, 1.0; Ring-necked Pheasant, 1.0; Clapper Rail, 1.0; Killdeer, 1.0; American Crow, 1.0; Fish Crow, 1.0; Blue-winged Warbler, 1.0; Willet, 0.5; Boat-tailed Grackle, 0.5. **Total:** 30 species; 105.0 territories (420/40 ha). **Visitors:** Double-crested Cormorant, Great Egret, Snowy Egret, Black-crowned Night-Heron, Glossy Ibis, Osprey, Northern Harrier, American Oystercatcher, Laughing Gull, Herring Gull, Great Black-backed Gull, Common Tern, Forster's Tern, Barn Swallow. **Remarks:** The New York City Audubon Society manages the park for the New York State Office of Parks, Recreation, and Historic Preservation, which owns the site. Local bird species are returning as the native vegetation continues to transform the preserve. The Clapper Rail was observed among the *Phragmites* at the N end of the plot, and the Blue-winged Warbler was seen along the edge of the woodland at the center of the park. **Other Observer:** Noah Burg. **Acknowledgments:** This study was funded by a grant from the Harbor Estuary Program via the Hudson River Foundation.

93. URBAN COASTAL WILDLIFE REFUGE

REFUGIO DE VIDA SILVESTRE URBANO COSTANERO

ANDREW MAGEE, JOSEPH ROMAN* & DAVID BURG*

*New York City Audubon Society
71 West 23rd Street
New York, New York 10010

Site Number: NY0993125. **Location:** New York; Queens Co.; Far Rockaway; Dubos Point Wildlife Refuge; 40°36'N, 73°48'W; Far Rockaway Quadrangle, USGS. **Continuity:** New. **Size:** 11.0 ha. **Description of Plot:** An irregularly-shaped plot (shortest side 800 m, longest 1600 m). Dubos Point is a coastal peninsula located in an urban area. In a relatively small parcel, a variety of communities are found, including beach hermland, maritime grassland, and woodland. Three types of salt marsh are established: smooth cord-grass, salt meadow grass, and a succulent forb community. Together they compose one of the only tidal wetlands with high marsh in New York City that is accessible by foot. There are some ephemeral pools during the breeding season. Part of the plot contains a woodland with a closed canopy dominated by black cherry, tree of heaven, and quaking aspen. Mean canopy height, 10 m (range 8–15

m). Understory plants on the plot include bayberry, shining sumac, and seaside goldenrod. Reed grass is also present. This plot description was prepared from a 1992 vegetation study by Andrew Greller of Queens College. **Edge:** Less than 25% of the plot's perimeter is bordered by the same habitat. The peninsula is surrounded by Jamaica Bay, with the Jamaica Bay Wildlife Refuge located to the N. Most of the adjacent barrier beach, however, has been developed. Dubos point is bordered by a road and residential and industrial sites. **Topography and Elevation:** The plot is nearly level. Minimum elevation 0 m, maximum 3 m. **Weather:** Mean start temp., 25.1°C (range 18–34°C). Both June and July were hotter and drier than usual. The average temperature in Central Park for June was 22.9°C (0.9°C above normal); for July it was 26.8°C (1.9°C above normal). Precipitation for June was 3.8 cm (5.5 cm below normal); for July it was 4.3 cm (6.7 cm below normal). Source: National Oceanic and Atmospheric Administration. **Coverage:** 12.8 h; 7 visits (1 sunrise, 1 sunset); 12, 19, 20, 21 June; 1, 2, 13 July. Maximum number of observers/visit, 3. **Census:** Red-winged Blackbird, 19.0 (69); Song Sparrow, 16.0 (58); Willet, 10.0 (36); Gray Catbird, 8.0 (29); Common Yellowthroat, 7.0 (25); House Finch, 6.0 (22); Seaside Sparrow, 5.0 (18); American Robin, 3.0 (11); European Starling, 3.0; Yellow Warbler, 3.0; Sharp-tailed Sparrow, 3.0; Mourning Dove, 2.5; Northern Mockingbird, 2.5; Green Heron, 2.0; Mallard, 2.0; American Oystercatcher, 2.0; Willow Flycatcher, 2.0; Brown-headed Cowbird, 2.0; American Goldfinch, 2.0; House Sparrow, 2.0; American Black Duck, 1.0; Ring-necked Pheasant, 1.0; Laughing Gull, 1.0; Northern Flicker, 1.0; Carolina Wren, 1.0; Northern Cardinal, 1.0; Great Egret, 0.5; Killdeer, 0.5; Common Tern, 0.5; Rock Dove, 0.5; Black-billed Cuckoo, 0.5; Brown Thrasher, 0.5; Snowy Egret, +; Black-crowned Night-Heron, +; Glossy Ibis, +; Gadwall, +; Herring Gull, +; Forster's Tern, +; Eastern Kingbird, +; American Crow, +; Fish Crow, +; Common Grackle, +. **Total:** 42 species; 111.0 territories (404/40 ha). **Visitors:** Double-crested Cormorant, Cattle Egret, Osprey, Great Black-backed Gull, Least Tern, Barn Swallow. **Remarks:** This small parcel of land is largely former wetland filled with clean local sand dredge spoil more than thirty years ago. Of note at this site are numbers of breeding shorebirds and high-marsh sparrows. The New York City Audubon Society, in a unique relationship with the city government, is undertaking stewardship of the site, including long-term monitoring studies such as this census. Willets, American Oystercatchers, Seaside Sparrows, and Sharp-tailed Sparrows were observed exhibiting nesting behavior. However, no confirmed nestlings were viewed. Several sparrows of both species were observed carrying food in their bills. **Other Observers:** Noah Burg, Nadine Romany, Chuhung Chin, Yau Ping Leung, Elizabeth Michaelson. **Acknowledgments:** This study was funded by a grant from the Harbor Estuary Program via the Hudson River Foundation.

94. DISTURBED OAK-HICKORY, PINE STAND, EDGE, AND POND

FORMACION PERTURBADA DE ROBLE-NOGAL, RODAL DE PINO, BORDE Y CHARCA

A.H. CLAUGUS* & MR. AND MRS. CHARLES HOWARD, SR.

*228 South Lake Street
Carey, Ohio 43316

Site Number: OH2237200. **Location:** Ohio; Licking Co.; Hickman; Camp Falling Rock; 40°11'N, 82°19'W; Newark Quadrangle, USGS. **Continuity:** Established 1937; 49 yr. **Size:** 14.2 ha. **Description of Plot:** See *Bird Lore* 39:379–380 (1937). In 1991 there were just over 600 trees 30 cm or more in diameter. Two trees were downed this year: a red maple (20 cm in diameter) and a white oak (15 cm in diameter). The former was in the upland zone, so now the high canopy is reduced; the latter was on the major N–S edge, resulting in different edge conditions. **Weather:** Mean start temp., 18.4°C (range 10–28°C). The first half of February was mild; the second half was much cooler and stormy, extending into March. April was normal and the first half of May was mild. The weather during the breeding season (late May through July) was lacking in significant effects upon breeding bird densities. However, it was very hot and dry from 19 July through August. **Coverage:** 47.5 h; 8 visits (1 sunrise); 8, 20, 26, 31 May; 5, 15, 16 June; 4 September. **Census:** Red-eyed Vireo, 6.0 (17; 2N); Scarlet

Tanager, 6.0; Eastern Wood-Pewee, 3.0 (8); Acadian Flycatcher, 3.0 (1N); Wood Thrush, 3.0 (1N); Ruby-throated Hummingbird, 2.0; Red-bellied Woodpecker, 2.0; Downy Woodpecker, 2.0; Eastern Phoebe, 2.0 (1N); Tufted Titmouse, 2.0 (3FL); White-breasted Nuthatch, 2.0; House Wren, 2.0 (1N); Northern Cardinal, 2.0 (1N); Canada Goose, 1.0 (3FL); Turkey Vulture, 1.0 (1N); Mourning Dove, 1.0 (1N); Hairy Woodpecker, 1.0; Blue Jay, 1.0 (3FL); American Crow, 1.0 (2FL); Carolina Chickadee, 1.0 (3FL); Carolina Wren, 1.0; Blue-gray Gnatcatcher, 1.0; American Robin, 1.0 (1N); Gray Catbird, 1.0; Chipping Sparrow, 1.0 (1N,2FL); Brown-headed Cowbird, 1.0; Northern Oriole, 1.0. **Total:** 27 species; 51.0 territories (144/40 ha). **Visitors:** Great Blue Heron, Green Heron, Wood Duck, Sharp-shinned Hawk, Red-tailed Hawk, Sichuan Pheasant, Ruffed Grouse, Wild Turkey, Eastern Screech-Owl, Great Horned Owl, Pileated Woodpecker, Barn Swallow, Eastern Bluebird, Cedar Waxwing, Song Sparrow, Common Grackle, House Sparrow. **Remarks:** Failure to find evidence for the breeding of Great Crested Flycatcher, Ovenbird, Kentucky Warbler, Pileated Woodpecker, Yellow-throated Vireo, Song Sparrow, and Cerulean Warbler, along with reductions in Red-eyed Vireo, Wood Thrush, Eastern Wood-Pewee, House Wren, and American Robin numbers, brought the density and diversity of this census to an all-time low, except for the first few years of the census. Several of the species are neotropical migrants. The question is, can the losses be attributed to changes in the wintering grounds or are they mostly due to local conditions? Both factors seem to be involved. Eastern Ohio was apparently well represented with warblers and other species this year, but they were almost lacking in the census area. The heat in August came too late to affect the density and diversity of breeding birds, but it did very noticeably decrease the number of birds which should have been present, including fledglings. Mosquitoes were no problem, nor were other insects much in evidence. Mushrooms were scarce, but the vegetation was much healthier than in the previous two summers.

Acknowledgments: Mr. and Mrs. Howard, Sr.; scouts and leaders; Central Ohio Boy Scout Council executives, who continued permission to use the census area.

95. FIELD, RIDGE, AND SHRUBBY TREES

CAMPOS, COLINAS Y ARBUSTOS

MICHAEL F.G. CLARK

27 Skyline Drive
Dundas, Ontario L9H 3S3

Location: Ontario; Municipality of Hamilton-Wentworth; Dundas; Dundas Valley Plot 1; 43°15'N, 79°54'W. **Continuity:** Established 1989; 5 yr. **Size:** 6.6 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (Suppl.):14 (1989) and 64 (Suppl.):88-89 (1993). **Weather:** Mean start temp., 17.8°C (range 13-22°C). Mean temperature for April through July was very close to the 31-yr average of 14.5°C. Precipitation was 21% (1.6 cm) above the 7.6 cm mean for the study period. Source: Environment Canada. **Coverage:** 15.6 h; 8 visits (4 sunset); 24 April; 1, 15, 30 May; 6, 14, 26 June; 1 July. **Census:** Yellow Warbler, 40.0 (242); Gray Catbird, 22.5 (136); Song Sparrow, 20.5 (124); Northern Cardinal, 7.0 (42); Field Sparrow, 6.5 (39); American Goldfinch, 6.0 (36); Blue-winged Warbler, 4.5 (27); Common Yellowthroat, 4.0 (24); American Robin, 3.0 (18); Indigo Bunting, 3.0; Northern Oriole, 3.0; Cedar Waxwing, 2.0; Chestnut-sided Warbler, 2.0; Red-winged Blackbird, 2.0; Northern Flicker, 1.5; Eastern Kingbird, 1.0; Black-capped Chickadee, 1.0; House Wren, 1.0; Rufous-sided Towhee, 1.0; Brown-headed Cowbird, 1.0. **Total:** 20 species; 132.5 territories (803/40 ha). **Visitors:** Mourning Dove, Blue Jay, American Crow, Brown Thrasher, Red-eyed Vireo, American Redstart, Yellow-breasted Chat, Rose-breasted Grosbeak, Eastern Meadowlark, Common Grackle, Orchard Oriole. **Remarks:** The total number of territorial males was 2.4 above the 4-yr average of 130.1. The total number of breeding species was 2.0 below the 4-yr mean. The total number of territories of the three most common breeders, Yellow Warbler, Gray Catbird, and Song Sparrow, remained stable (83.0 territories, 63% of the total). Possibly because of successional changes on this plot, flycatchers have decreased from 8.5 territories to 1.0 territory over five years; blackbirds (5 species) are down from 14.5 to 6.0 territories; and warblers (5 species) have increased from 34.5 to 50.5 territories.

96. SEDGE-TAMARACK DUNE POND

DUNA DE ESPARGANIO-LARICE AMERICANO

DAWN M. BRENNER

Long Point Bird Observatory

P.O. Box 160

Port Rowan, Ontario N0E 1M0

Location: Ontario; Municipality of Haldimand-Norfolk; Port Rowan; Long Point National Wildlife Area; 42°33'N, 80°10'W; Little Creek Ridges Quadrangle, DEMR. **Continuity:** Established 1978; 3 yr. **Size:** 10.0 ha. **Description of Plot:** See *Am. Birds* 33:103–104 (1979) and *J. Field Ornithol.* 63 (Suppl.):93–94 (1992). An open pond occupies most of the area (70%) of this plot, with a steep sand dune to the S, and to the N, a tamarack swamp gradually rising to a dune. Dominant trees are tamarack and red ash. Shrubs include wild red raspberry, water-willow, and buttonbush. Canopy cover measured in 1992 was 3%, based on 10 vegetation profile readings above 2 m at each of 20 sampling points. The ground cover estimate was 83.5%, based on readings below 1 m. Vegetation profile estimates in 1992, based on 10 line intersect readings at each of 20 sampling points were: <0.5 m, 74%; 0.5–1 m, 56%; 1–2 m, 20%; 2–5 m, 3%; >5 m, 0.5%. The number of shrub stems/ha in 1993, based on counts in 10, 1x10 m quadrats was 28,300 compared with 24,000 in 1991. Size class distribution: <0.5 m, 18,600; 0.5–1 m, 8200; 1–2 m, 1300; >2 m, 200 (compared with 10,200; 12,600; 1100; 0 in 1991). Shrub species in order of total abundance: wild red raspberry 15,000 stems <0.5 m, 6800 stems 0.5–1 m, 300 stems 1–2 m, 0 stems >2 m; water-willow 2800, 400, 0, 0; riverbank grape 800, 800, 300, 0; buttonbush 0, 200, 500, 100; sweetbrier 0, 0, 400, 0; tamarack 0, 0, 0, 100. Significant changes from 1991 include an increase in the abundance of wild red raspberry (from 11,100 to 22,100 stems/ha), and a decrease in the abundance of water-willow (10,200 to 3200). This decrease in water-willow can be partly accounted for by seasonal differences; in 1993 the stems were counted earlier in a cooler year than in 1991. Changes of 5% or more between 1992 and 1993 in the mean estimated cover for ground layer species, based on 10, 1x1 m quadrats include a 94% increase in tussock sedge, and large increases in the cover of mosses and lichens. **Weather:** Mean start temp., 12.8°C (range 5–18°C). Mostly clear, some clouds, breezy, variable winds. **Coverage:** 63.4 h; 13 visits (11 sunrise); 27 May; 1, 3, 4, 6, 8, 11, 13, 16, 17, 26, 27 June; 1 July. **Census:** Red-winged Blackbird, 41.0 (164; 17N, 22FL); Song Sparrow, 8.5 (34; 7FL); Common Yellowthroat, 6.0 (24); Tree Swallow, 5.5 (22; 4N, 19FL); Eastern Kingbird, 4.0 (16; 3N); Mourning Dove, 2.0 (1N, 3FL); Yellow Warbler, 2.0 (2N); Common Grackle, 2.0 (2N); Northern Oriole, 2.0 (1N); House Wren, 1.5; Cedar Waxwing, 1.0 (1N); Field Sparrow, + (1N). **Total:** 12 species; 75.5 territories (302/40 ha). **Visitors:** Green Heron, Canada Goose, Wood Duck, Mallard, Hooded Merganser, Killdeer, Belted Kingfisher, Northern Flicker, Great Crested Flycatcher, Northern Rough-winged Swallow, Bank Swallow, Barn Swallow, Black-capped Chickadee, American Robin, European Starling, Yellow-throated Vireo, Chipping Sparrow, Brown-headed Cowbird, House Finch, American Goldfinch. **Remarks:** The coverage includes 10.5 hours that were spent searching for nests. This study is part of a long-term project designed to monitor the response of vegetational and breeding bird communities to a reduction in deer browsing at Long Point, Lake Erie. **Other Observers:** Peter Burke, Lisa Enright. **Acknowledgments:** Thanks to Paul Prior, Rinchen Boardman, Peter Jones, Cliff Wall, Lisa Enright, and Graeme Gibson for helping to stake the plot; to Rinchen Boardman, Heidi Hargrove, Graeme Gibson, and Peter Burke for slogging through the marsh looking for Red-winged Blackbird nests; and to Jon McCracken for proofing the data. Thanks to Jane Bowles and Michael Bradstreet for measuring the vegetation parameters on 19 June 1993.

97. SHRUBBY TREES, RIDGE, AND WOODS

ARBUSTOS, COLINAS Y BOSQUES

MICHAEL F.G. CLARK

*27 Skyline Drive
Dundas, Ontario L9H 3S3*

Location: Ontario; Municipality of Hamilton-Wentworth; Dundas; Dundas Valley Plot 2; 43°14'N, 80°0'W. **Continuity:** Established 1990; 4 yr. **Size:** 7.3 ha. **Description of Plot:** See *J.*

Field Ornithol. 60 (Suppl.):14–15 (1989) and 64 (Suppl.):89 (1993). **Weather:** Mean start temp., 16.9°C (range 13–24°C). Mean temperature for April through July was very close to the 31-yr average of 14.5°C. Precipitation was 21% (1.6 cm) above average for the study period, but for May it was 29% (2.1 cm) below average and for June it was 95% (7.4 cm) above average. Source: Environment Canada. **Coverage:** 12.3 h; 8 visits (4 sunset); 29 April; 1, 16, 29 May; 12, 24 June; 16, 17 July. **Census:** Yellow Warbler, 19.5 (107); Gray Catbird, 9.0 (49); Northern Cardinal, 4.0 (22); American Goldfinch, 4.0; Field Sparrow, 3.0 (16; 1FL); Blue-winged Warbler, 2.0; Rose-breasted Grosbeak, 2.0; Song Sparrow, 2.0; Blue Jay, 1.0; Black-capped Chickadee, 1.0; House Wren, 1.0 (2FL); American Robin, 1.0; Brown Thrasher, 1.0; Red-eyed Vireo, 1.0; Chestnut-sided Warbler, 1.0; Red-winged Blackbird, 1.0; Orchard Oriole, 1.0; Common Yellowthroat, 0.5. **Total:** 18 species; 55.0 territories (301/40 ha). **Visitors:** Downy Woodpecker, Northern Flicker, White-breasted Nuthatch, Cedar Waxwing, American Redstart, Brown-headed Cowbird, Northern Oriole. **Remarks:** Breeding pair totals continue to decline; from 83.5 to 55.0 (–34%) over four years. The total of 18 species equals last year's total, and is 2.0 below the 3-yr average. Negative impacts on breeding success and species totals may have been caused by any combination of: abnormal rainfall patterns during May and June, ongoing successional changes, and the greatly intensified use of the N boundary (a former rail line recently converted to a nature-recreation path which bisects several breeding territories). Two species, Song Sparrow and Northern Oriole, have declined over four years from 10.5 to 2.0 territories and from 5.0 to 0 territories, respectively. No flycatchers bred on the plot this year; there were 6.5 territories of 4 species in 1991. The total number of territories of the two most common breeders, Yellow Warbler and Gray Catbird, remained stable (28.5 territories, 52% of the total).

98. SCATTERED MIXED CONIFEROUS FOREST IN SUBALPINE MEADOWS AND SPRUCE BOGS

BOSQUE MIXTO Y DISPERSO DE CONIFEROS EN PRADERAS SUBALPINAS Y CIENAGAS DE ABETOS

ROBERT A. HUDSON

P.O. Box 164

Independence, California 93526-0164

Location: Oregon; Grant Co.; Bates; Vinegar Hill–Indian Rock Scenic Area, Malheur National Forest; 44°45'N, 118°45'W; Desolation Butte Quadrangle, USGS. **Continuity:** Established 1973; 21 yr. **Size:** 32.4 ha. **Description of Plot:** See *Am. Birds* 27:1002–1003 (1973). **Weather:** Mean start temp., 2.3°C (range 0–4°C). Temperatures were below normal compared to previous censuses. The weather was quite wet; total precipitation was above the average of 7.98 cm for the census period. **Coverage:** 13.6 h; 9 visits (9 sunrise); 28, 30 June; 1, 5, 6, 8, 10, 11, 13 July. **Census:** White-crowned Sparrow, 9.0 (11); Chipping Sparrow, 8.0 (10); Lincoln's Sparrow, 5.0 (6); American Robin, 3.0 (4); Yellow-rumped Warbler, 2.0; Fox Sparrow, 2.0; Northern Flicker, 1.0; Red-breasted Nuthatch, 1.0; Ruby-crowned Kinglet, 1.0. **Total:** 9 species; 32.0 territories (40/40 ha). **Visitors:** Steller's Jay, Mountain Chickadee, Mountain Bluebird. **Acknowledgments:** Malheur National Forest staff.

99. COASTAL FRESHWATER MARSH

PANTANO COSTANERO DE AGUA DULCE

JOHN P. KELLY

Audubon Cypress Grove Preserve

P.O. Box 808

Marshall, California 94940

Location: California; Marin Co.; Marshall; Livermore Marsh; 38°10'N, 122°53'W; Tomales Quadrangle, USGS. **Continuity:** Established 1988; 6 yr. **Size:** 10.5 ha. **Description of Plot:** See

J. Field Ornithol. 60 (Suppl.):64 (1989). Detailed quantitative habitat data from 1993 are available from the author. **Weather:** Mean start temp., 13.0°C (range 8–17°C). Generally mild with normal temperatures. Rainfall during the 1992–93 rainy season was slightly (20%) above the 38-yr average of 71.9 cm, following six consecutive years of below-average rainfall. Significant periods of rainfall extended into April and May. Source: Audubon Canyon Ranch. **Coverage:** 8.8 h; 8 visits (1 sunrise); 13, 27 April; 12, 19, 21, 25, 27, 28 May. **Census:** Red-winged Blackbird, 23.0 (88); Song Sparrow, 18.0 (69); Marsh Wren, 12.0 (46); American Coot, 9.0 (34); Mourning Dove, 3.0 (11); Wrentit, 3.0; Pied-billed Grebe, 2.0; Mallard, 2.0; Cinnamon Teal, 2.0; Ruddy Duck, 2.0; Virginia Rail, 2.0; Allen's Hummingbird, 2.0; Scrub Jay, 1.0; Black-headed Grosbeak, 1.0; Brown-headed Cowbird, 1.0; American Goldfinch, 1.0; Northern Harrier, +; Northern Oriole, +. **Total:** 18 species; 84.0 territories (320/40 ha). **Visitors:** Great Blue Heron, Cattle Egret, Black-crowned Night-Heron, Bufflehead, Black-shouldered Kite, California Quail, Anna's Hummingbird, Belted Kingfisher, Black Phoebe, Tree Swallow, Northern Rough-winged Swallow, Cliff Swallow, Barn Swallow, Chestnut-backed Chickadee, Bushtit, Swainson's Thrush, Warbling Vireo, Common Yellowthroat, Wilson's Warbler, California Towhee, Lincoln's Sparrow, Tricolored Blackbird, Brewer's Blackbird, Purple Finch, House Finch. **Remarks:** The Allen's Hummingbird territories were all males. Swainson's Thrush may have bred on the plot, but they arrived too late in the season for adequate census coverage. A singing Common Yellowthroat was observed twice in the vicinity of a 1992 breeding territory, but it was recorded as a visitor this year. Two successful Northern Harrier nests were located in coastal prairie habitat adjacent to the study site. Mourning Dove, House Finch, and American Goldfinch were common but inadequately quantified because of non-territorial breeding behaviors. **Acknowledgments:** This project is supported by Chevron USA and Audubon Canyon Ranch, Stinson Beach, CA, as part of a larger restoration and management program. I thank Susan Kelly and Sarah Tappen for help in summarizing the results.

100. COASTAL RIPARIAN MARSH

ANEGADO RIVEREÑO COSTANERO

JULES G. EVENS* & RICHARD W. STALLCUP

*P.O. Box 839

Point Reyes, California 94956

Location: California; Marin Co.; Point Reyes Station; Olema Marsh; 38°4'N, 122°49'W; Point Reyes Quadrangle, USGS. **Continuity:** Established 1990; 4 yr. **Size:** 17.5 ha. **Description of Plot:** See *J. Field Ornithol.* 62 (Suppl.):75 (1991). The vegetation has changed in response to natural succession and an increase in rainfall during the 1992–93 rainy season. Although no quantitative vegetation sampling was conducted this year, an increase in percent cover and frequency of willows in the marsh portion of the site was apparent. The riparian strip remained fairly uniform between years, although the number of snags, and therefore nesting opportunities for woodpeckers, swallows, and starlings, increased. **Weather:** Mean start temp., 14.6°C (range 11–19°C). Precipitation during the 1992–93 rainy season was 112 cm, approximately 20% above the hundred-year average. Rainfall extended later into the spring than in normal years, with significant storms in April and May. Source: Point Reyes National Seashore. **Coverage:** 27.9 h; 8 visits (8 sunrise); 2, 12, 28 March; 8, 15 April; 1, 22, 23 May; 2 June. **Census:** Red-winged Blackbird, 47.0 (107); Marsh Wren, 46.0 (105); Song Sparrow, 33.0 (75); Virginia Rail, 16.0 (37); Common Yellowthroat, 9.5 (22); Warbling Vireo, 6.5 (15); Wilson's Warbler, 6.5; Swainson's Thrush, 5.0 (11); Orange-crowned Warbler, 5.0; Pacific-slope Flycatcher, 4.5 (10); Chestnut-backed Chickadee, 4.0 (9); Bushtit, 4.0; Black-headed Grosbeak, 3.5 (8); Western Wood-Pewee, 3.0 (7); Tree Swallow, 3.0; American Goldfinch, 3.0; Allen's Hummingbird, 2.5; California Towhee, 2.5; Purple Finch, 2.5; Mallard, 2.0; Sora, 2.0; American Coot, 2.0; Anna's Hummingbird, 2.0; Acorn Woodpecker, 2.0; Bewick's Wren, 2.0; European Starling, 2.0; Black Phoebe, 1.5; Wrentit, 1.5; Pied-billed Grebe, 1.0; Nuttall's Woodpecker, 1.0; Downy Woodpecker, 1.0; Scrub Jay, 1.0; Plain Titmouse, 1.0; Yellow Warbler, 1.0; Rufous-sided Towhee, 1.0; Pine Siskin, 1.0; Red-shouldered Hawk, 0.5; Mourning

Dove, 0.5; Steller's Jay, 0.5; American Robin, 0.5; Black-shouldered Kite, +; Barn Owl, +; Hairy Woodpecker, +; Olive-sided Flycatcher, +; Cliff Swallow, +; Barn Swallow, +; Western Bluebird, +; Hutton's Vireo, +; Brewer's Blackbird, +; Brown-headed Cowbird, +. **Total:** 50 species; 234.0 territories (535/40 ha). **Visitors:** Great Blue Heron, Great Egret, Green Heron, Sharp-shinned Hawk, Common Moorhen, Band-tailed Pigeon, Northern Pygmy-Owl, Ash-throated Flycatcher, Purple Martin, Violet-green Swallow, Northern Rough-winged Swallow, Cedar Waxwing, Yellow-rumped Warbler, Northern Oriole, House Finch. **Remarks:** We analyzed population trends of the ten most common species for the years 1985–1993. Although variance among the data was high, and therefore statistically suspect, 1993 population levels of the five marsh dependent species were each above their respective 9-yr mean. Additionally, each showed positive upward trends over the nine years with average annual increases as follows: Red-winged Blackbird (+16.6%), Song Sparrow (+9.9%), Marsh Wren (+5.4%), Virginia Rail (+21%), and Common Yellowthroat (+8.5%). Population changes of the three most common riparian associates were also positive with trend analysis revealing average annual increases of: Warbling Vireo (+10%), Swainson's Thrush (+7%), and Wilson's Warbler (+5.8%). The next most common riparian species (average of 3.0 territories each) also showed positive increases: Orange-crowned Warbler (+9.4%) and Pacific-slope Flycatcher (+23%). **Other Observers:** Terry Nordbye, Chris Wood, David Wimpfheimer. **Acknowledgments:** John Kelly, Maurice Schwartz, and Audubon Canyon Ranch, Inc. for consultation, encouragement, and support.

101. DESERT RIPARIAN–FRESHWATER MARSH

DESIERTO RIVEREÑO–PANTANO

EUGENE A. CARDIFF

*San Bernardino County Museum
2024 Orange Tree Lane
Redlands, California 92374*

Location: California; San Bernardino Co.; Morongo Valley; Big Morongo Wildlife Reserve; 34°3'N, 116°35'W; Morongo Valley Quadrangle, USGS. **Continuity:** Established 1977; 17 yr. **Size:** 15.4 ha. **Description of Plot:** See *J. Field Ornithol.* 62 (Suppl.):76 (1991) and 64 (Suppl.): 92–93 (1993). The 6 ha of the plot that burned on 27 April 1992, went through a period of extensive growth. The cottonwoods, willows, and mesquite produced dense stands of low shrubby growth from the root crowns and seedlings. Many of the large trees are dead, reducing crown habitat, and the cattail marsh area was up to 2.1 m tall. Annuals formed dense thickets in some of the open dryer areas. **Weather:** Mean start temp., 9.1°C (range 4–14°C). **Coverage:** 25.5 h; 8 visits (8 sunrise); 14, 21, 28 April; 5, 12, 19, 26 May; 1 June. Maximum number of observers/visit, 4. **Census:** House Wren, 37.0 (96); Lesser Goldfinch, 19.0 (49); European Starling, 13.0 (34); Song Sparrow, 11.0 (29); Bewick's Wren, 9.0 (23); Brown-headed Cowbird, 9.0; Common Yellowthroat, 7.0 (18); House Finch, 7.0; Yellow Warbler, 6.0 (16); Bushtit, 5.0 (13); Yellow-breasted Chat, 5.0; Costa's Hummingbird, 4.0 (10); Rufous-sided Towhee, 4.0; Virginia Rail, 3.0 (8); Spotted Dove, 3.0; Anna's Hummingbird, 3.0; Nuttall's Woodpecker, 2.0; Vermilion Flycatcher, 2.0; Ash-throated Flycatcher, 2.0; California Thrasher, 2.0; American Kestrel, 1.0; Gambel's Quail, 1.0; Mourning Dove, 1.0; Bell's Vireo, 1.0; Summer Tanager, 1.0; Hooded Oriole, 1.0; Northern Oriole, 1.0; Brown-crested Flycatcher, 0.5; Blue Grosbeak, 0.5. **Total:** 29 species; 161.0 territories (418/40 ha). **Visitors:** White-winged Dove, Black Phoebe, Scrub Jay, Common Raven, Verdin, Marsh Wren, Black-headed Grosbeak, Lazuli Bunting, California Towhee, Brewer's Blackbird, Lawrence's Goldfinch. **Remarks:** There was a remarkable recovery of breeding pairs in the burned area from last year. Last year there was very little breeding success in the burned area but this year, because of the rapid recovery and low vegetation, there were 75 breeding pairs of 19 species. House Wren and European Starling were plentiful because they took advantage of loose bark on the large dead trees for nest sites. Two pairs of Vermilion Flycatchers used the burned area for the first nest found on the plot. The Bell's Vireos nested in the new willow growth for the first time since 1983. Numbers of breeding pairs were also up over last year in the non-

burned part of the plot, possibly because of the two recent wet years producing more food. **Other Observers:** Roy and Jessie Kniffen, Dori Myers, Alice Ashbaugh, and Jolene Redvale. **Acknowledgments:** Special thanks to the San Bernardino Valley Audubon Society and the San Bernardino County Museum for supporting this study.

102. SHRUBBY SWAMP AND SEDGE HUMMOCKS

PANTANO ARBUSTIVO-MOGOTE

ANDREW MAGEE

*White Memorial Conservation Center
Litchfield, Connecticut 06759*

Location: Connecticut; Litchfield Co.; Litchfield; White Memorial Foundation-Bantam River Inlet; 41°43'N, 73°13'W; Litchfield Quadrangle, USGS. **Continuity:** Established 1965; 27 yr. **Size:** 8.1 ha. **Description of Plot:** See *Aud. Field Notes* 19:625–627 (1965). **Weather:** Mean start temp., 19.8°C (range 16–26°C). The average minimum and maximum temperatures recorded at our weather station in both May (7°C, 23°C) and June (12°C, 26°C) were closer to our 9-yr averages than last year's low figures. Precipitation in May (2.2 cm) was the lowest we have recorded for this month in nine years, but in June (10.8 cm) it was about average. Because of the dry spring, the water level in the swamp was low. **Coverage:** 14.3 h; 8 visits (1 sunrise, 5 sunset); 5, 6 May; 5, 7, 16, 17, 30 June; 1 July. **Census:** Swamp Sparrow, 42.0 (207); Red-winged Blackbird, 36.0 (178); Yellow Warbler, 24.0 (119); Common Yellowthroat, 17.0 (84); American Goldfinch, 15.0 (74); Gray Catbird, 12.0 (59); Song Sparrow, 9.0 (44); Cedar Waxwing, 8.0 (40); Willow Flycatcher, 6.0 (30); Eastern Kingbird, 4.0 (20); Mallard, 2.5; Virginia Rail, 2.0; Tree Swallow, 2.0; Veery, 2.0; American Robin, 2.0; Black-capped Chickadee, 1.0; Great Blue Heron, 0.5; Mute Swan, 0.5; Wood Duck, 0.5; American Black Duck, 0.5; Northern Flicker, 0.5; Warbling Vireo, 0.5; Northern Oriole, 0.5; Spotted Sandpiper, +; Great Horned Owl, +; Barred Owl, +; Alder Flycatcher, +; Common Grackle, +. **Total:** 28 species; 188.0 territories (928/40 ha). **Remarks:** The number of species recorded was about average but the total number of territorial males was high, probably due at least in part to the low water level in the marsh. The number of American Goldfinches established a new high and the numbers of Gray Catbirds and Cedar Waxwings equalled previous highs for the 27-yr history of this census. There were more Virginia Rails than in any year since 1987, but no Marsh Wrens for only the second time in the last five years. A Song Finder was used to lower the frequency and thus improve the detection of high-pitched bird sounds. **Acknowledgments:** Gordon Loery of the White Memorial Conservation Center wrote up the report.

103. WETLAND SEDGE MEADOW I

PANTANO DE JUNCOS I

GARY LINGLE, SHEA BERGMAN & JILL LISKE

*Platte River Trust
2550 North Diers Avenue, Suite H
Grand Island, Nebraska 68803-1214*

Location: Nebraska; Hall Co.; Doniphan; Mormon Island Crane Meadows (Plot 3); 40°47'N, 98°26'W; Alda Quadrangle, USGS. **Continuity:** Established 1981; 11 yr. **Size:** 16.2 ha. **Description of Plot:** See *Am. Birds* 36:105–106 (1982). **Weather:** Mean start temp., 20°C. Generally wet and cool. Temperature and precipitation departures, respectively, were: May, -0.9°C, -1.3 cm; June, -1.9°C, +3.1 cm. Source: U.S. National Weather Service, Grand Island. **Coverage:** 7.0 h; 9 visits (2 sunrise); 15, 16, 17, 18, 19, 21, 22, 23, 25 June. **Census:** Red-winged Blackbird, 12.0 (30; 1N); Bobolink, 8.0 (20); Brown-headed Cowbird, 4.0 (10); Grasshopper Sparrow, 1.0; Upland Sandpiper, +; Dickcissel, + (1N); Western Meadowlark, +. **Total:** 7 species; 25.0 territories (62/40 ha). **Visitors:** Mourning Dove. **Remarks:** The plot

was not grazed or burned prior to the census. There was good residual cover and standing water was present.

104. WETLAND SEDGE MEADOW II

PANTANO DE JUNCOS II

GARY LINGLE, SHEA BERGMAN & JILL LISKE

*Platte River Trust
2550 North Diers Avenue, Suite H
Grand Island, Nebraska 68803-1214*

Location: Nebraska; Hall Co.; Doniphan; Mormon Island Crane Meadows (Plot 4); 40°47'N, 98°25'W; Alda Quadrangle, USGS. **Continuity:** Established 1982; 10 yr. **Size:** 16.2 ha. **Description of Plot:** See *Am. Birds* 37:101 (1983). **Weather:** Mean start temp., 20°C. Generally wet and cool. Temperature and precipitation departures, respectively, were: May, -0.9°C, -1.3 cm; June, -1.9°C, +3.1 cm. Source: U.S. National Weather Service, Grand Island. **Coverage:** 6.7 h; 9 visits (5 sunrise); 15, 16, 17, 18, 19, 21, 22, 23, 25 June. **Census:** Red-winged Blackbird, 9.0 (22); Upland Sandpiper, 3.0 (7); Wilson's Phalarope, 3.0; Western Meadowlark, 3.0; Brown-headed Cowbird, 3.0; Bobolink, 2.0; Mallard, 1.0 (1N); Killdeer, 1.0. **Total:** 8 species; 25.0 territories (62/40 ha). **Remarks:** The plot was grazed during the census. Standing water was present.

105. INTERTIDAL SALT MARSH

ANEGADO SALOBRE INTERMAREAL

CHRISTOPHER D. AQUILA & CARL ALDERSON

*New York City Department of Parks & Recreation
Salt Marsh Restoration Group
Greenbelt Administration
200 Nevada Avenue
Staten Island, New York 10306*

Site Number: NY0992024. **Location:** New York; Richmond Co.; Staten Island; Saw Mill Creek Marsh; 40°36'N, 74°11'W; Arthur Kill Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 40.9 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):93-94 (1993). **Weather:** Mean start temp., 18.9°C (range 10-22°C). The weather was very good during all visits. However, it was noticeably more hot and humid than last year, with starting temperatures of 20°C or greater on five visits. **Coverage:** 26.3 h; 8 visits (7 sunrise); 10, 27 May; 3, 17, 23, 29 June; 1, 7 July. Maximum number of observers/visit, 3. **Census:** Marsh Wren, 10.0 (10; 1N, 1FL); Swamp Sparrow, 10.0 (1N, 2FL); Seaside Sparrow, 7.0 (7; 4FL); Sharp-tailed Sparrow, 4.0 (4; 2FL); Mallard, 3.0 (3; 1N, 7FL); Clapper Rail, 3.0 (6FL); Song Sparrow, 3.0 (1FL); Red-winged Blackbird, 2.0 (2FL); American Black Duck, 1.0 (8FL); Fish Crow, 1.0 (1N, 1FL); Common Yellowthroat, 1.0 (1N); American Goldfinch, 1.0 (1N). **Total:** 12 species; 46.0 territories (45/40 ha). **Visitors:** Canada Goose, Gadwall, Northern Harrier, Virginia Rail, Herring Gull, Belted Kingfisher, Barn Swallow, Boat-tailed grackle. **Remarks:** The colony of Seaside Sparrows we discovered last year, appears to have remained stable. The number of Sharp-tailed Sparrows was the same as last year. This is the only known nesting area on Staten Island for Seaside Sparrows, and one of only two known sites for Sharp-tailed Sparrows. We lost Canada Goose, American Woodcock, Herring Gull, and Virginia Rail from last year's list, but added Fish Crow, American Goldfinch, and American Black Duck. **Other Observers:** Howard Snyder, Andrew Bergen, Robbin Bergfors. **Acknowledgments:** Howard Snyder—Thanks for all the help you provided. We couldn't have completed the census without your vital support. An-

drew Bergen and Robbin Bergfors—Thanks for all the time and effort you both put into the census.

106. INTERTIDAL SALT MARSH II

ANEGADO SALOBRE INTERMAREAL II

CHRISTOPHER D. AQUILA & CARL ALDERSON

New York City Department of Parks & Recreation

Salt Marsh Restoration Group

Greenbelt Administration

200 Nevada Avenue

Staten Island, New York 10306

Site Number: NY0993136. **Location:** New York; Richmond Co.; Staten Island; Old Place Creek Marsh; 40°38'N, 74°11'W; Elizabeth Quadrangle, USGS. **Continuity:** New. **Size:** 57.3 ha. **Description of Plot:** A nearly rectangular plot (670 × 1006 m). The salt marsh (53 ha) has a shrub layer dominated by marsh elder and reed grass; and a nearly continuous ground cover dominated by smooth cord-grass, salt meadow grass, spike-grass, and black grass. A small area (3 ha) of second-growth deciduous woodland near the N edge of the plot has a closed canopy (mean canopy height, 10 m) dominated by tree of heaven, royal palonia, and black cherry; a patchy understory dominated by groundsel-tree and Japanese knotweed; and a ground cover dominated by Virginia creeper, poison ivy, and catbrier. A small area (1 ha) of upland scrub has an open canopy (mean canopy height, 5 m) dominated by quaking aspen, tree of heaven, and black cherry; an open understory dominated by staghorn sumac, shining sumac, and groundsel-tree; and a nearly continuous ground cover dominated by switchgrass, little bluestem, and foxtail species. A few creeks and tidal ditches flow through the plot with a maximum width of 45 m and a maximum depth of 3 m. There is one pond with a maximum diameter of 30 m and a maximum depth of 1 m. Up to 50% of the plot is covered by standing salt water during the breeding season. There is a massive bridge and highway system through the middle of the plot; the roadway is elevated over the marsh. **Edge:** Less than 25% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat 51–100 ha in size. **Topography and Elevation:** The plot is nearly level with a slope of < 5%. Minimum elevation 0 m, maximum 3 m (at a railroad bed). **Weather:** Mean start temp., 21.4°C (range 16–27°C). The weather was basically good during all visits, except 4 June which had spotty drizzle. However, it was unusually warm and humid. **Coverage:** 31.5 h; 8 visits (7 sunrise); 13, 21, 26 May; 4, 16, 24 June; 14, 16 July. Maximum number of observers/visit, 3. **Census:** Marsh Wren, 13.0 (9; 2N,2FL); Swamp Sparrow, 7.0 (5); Song Sparrow, 5.0 (3; 1N); American Black Duck, 4.0 (3; 1N,16FL); Clapper Rail, 4.0 (12FL); Mallard, 3.0 (2; 1N,11FL); Ring-necked Pheasant, 3.0 (1N); Sharp-tailed Sparrow, 3.0 (2FL); American Goldfinch, 3.0 (3N); Gadwall, 2.0 (2N,13FL); Gray Catbird, 2.0; European Starling, 2.0 (1N,1FL); Common Yellowthroat, 2.0 (1FL); Red-winged Blackbird, 2.0 (2FL); Canada Goose, 1.0 (7FL); Peregrine Falcon, 1.0 (1N,4FL); Spotted Sandpiper, 1.0 (2FL); Fish Crow, 1.0 (1N); House Wren, 1.0; Rufous-sided Towhee, 1.0. **Total:** 20 species; 61.0 territories (43/40 ha). **Visitors:** American Kestrel, Belted Kingfisher, Willow Flycatcher, Carolina Wren, American Robin, Brown Thrasher, Yellow Warbler, Northern Cardinal, Boat-tailed Grackle. **Remarks:** Human disturbance is responsible for the small areas of upland scrub and second-growth woodland. Because of these microhabitats, the breeding bird diversity was quite interesting, ranging from Peregrine Falcons on the bridge to House Wrens in the woodland to Sharp-tailed Sparrows in the marsh. Aside from the overwhelming success of the Peregrine Falcons, our most noteworthy finds were the confirmation of the second known nesting area of Sharp-tailed Sparrow on Staten Island, as well as the first confirmed nesting of Gadwall on the Staten Island mainland in 11 years. **Other Observers:** Howard Snyder, Andrew Bergen. **Acknowledgments:** Special thanks to Howard Snyder for the tremendous help he provided in conducting the census; and to Andrew Bergen who came out like a real trooper on those really hot and humid mornings and helped conduct the census.

107. SEDGE-RUSH SWALE I

ANEGADO DE ESPARGANIO-JUNQUILLOS I

GRAEME GIBSON

*Long Point Bird Observatory**P.O. Box 160**Port Rowan, Ontario N0E 1M0*

Location: Ontario; Municipality of Haldimand-Norfolk; Port Rowan; Long Point National Wildlife Area; 42°33'N, 80°7'W; Gravelly Bay Quadrangle, DEMR. **Continuity:** Established 1973; 4 yr. **Size:** 9.3 ha. **Description of Plot:** See *Am. Birds* 27:1012 (1973) and *J. Field Ornithol.* 63 (Suppl.):98-99 (1992). The plot lies in an open slack between the first and second dune ridges, and is dominated by a shallow pond occupying about 60% of the plot area. Trees are scarce, the dominant tree being eastern cottonwood. The shrub layer is very open, consisting of scattered individuals of eastern red cedar and common juniper on the dry dune ridges, and Kalm's St. John's-wort in the swales. The ground layer is dominated by wet sedge swale and standing water. Canopy cover measured in 1992 was 0%, based on 10 vegetation profile readings above 2 m at each of 20 sampling points. The ground cover estimate was 62.5%, based on readings below 1 m. Vegetation profile estimates in 1992, based on 10 line intersect readings at each of 20 sampling points were: <0.5 m, 58%; 0.5-1 m, 14%; 1-2 m, 0%; 2-5 m, 0%, >5 m, 0%. The number of shrub stems/ha in 1993, based on counts in 10, 1x10 m quadrats was 27,800 compared with 1400 in 1991. All shrubs in 1991 and 1993 were < 0.5 m tall. The only shrub species recorded in quadrats was Kalm's St. John's-wort. Changes of 5% or more between 1992 and 1993 in the mean estimated cover for ground layer species, based on 10, 1x1 m quadrats include a reduction in stonewort and beak rush. **Weather:** Mean start temp., 15.1°C (range 7-24°C). Mainly clear, warm, with variable winds. **Coverage:** 16.1 h; 10 visits (9 sunrise, 1 sunset); 30 May; 4, 10, 12, 16, 17, 21, 23, 25, 29 June. **Census:** Red-winged Blackbird, 3.5 (15; 1N); Eastern Kingbird, 1.5 (2N); Killdeer, 1.0; Spotted Sandpiper, 1.0. **Total:** 4 species; 7.0 territories (30/40 ha). **Visitors:** Mallard, Song Sparrow, Common Grackle. **Remarks:** This study is part of a long-term project designed to monitor the response of vegetational and breeding bird communities to a reduction in deer browsing at Long Point, Lake Erie. **Other Observer:** Peter Burke. **Acknowledgments:** Thanks to Dawn Brenner and Peter Burke for supervision, and to Dawn Brenner, Peter Jones, Rinchen Boardman, Heidi Hargrove, and Dave Pickett for helping to stake the plot. Thanks to Jon McCracken for proofing the data. I thank Jane Bowles and Michael Bradstreet for measuring vegetation parameters on 20 June 1993.

108. SEDGE-RUSH SWALE II

ANEGADO DE ESPARGANIO-JUNQUILLOS II

GRAEME GIBSON

*Long Point Bird Observatory**P.O. Box 160**Port Rowan, Ontario N0E 1M0*

Location: Ontario; Municipality of Haldimand-Norfolk; Port Rowan; Long Point National Wildlife Area; 42°33'N, 80°6'W; Gravelly Bay Quadrangle, DEMR. **Continuity:** Established 1991; 2 yr. **Size:** 9.3 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):99-100 (1992). The plot lies in an open slack between the first and second dune ridges, and is dominated by a shallow pond occupying about 50% of the plot area. Trees are scarce, the dominant trees being eastern cottonwood and eastern red cedar. The shrub layer is almost absent except for scattered individuals of eastern red cedar on the dunes, and Kalm's St. John's-wort in the swales. Canopy cover measured in 1992 was 0%, based on 10 vegetation profile readings above 2 m at each of 20 sampling points. The ground cover estimate was 35%, based on readings below 1 m. Vegetation profile estimates in 1992, based on 10 line intersect readings at each of 20 sampling points were: <0.5 m, 33.5%; 0.5-1 m, 3%; 1-2 m, 0.5%; 2-

5 m, 0%, >5 m, 0%. The number of shrub stems/ha in 1993, based on counts in 10, 1x10 m quadrats was 122,100 compared with 38,300 in 1991. Size class distribution: <0.5 m, 121,500; 0.5–1 m, 700; 1–2 m, 0 (compared with 34,200; 4100; 0 in 1991). Shrub species in order of total abundance: Kalm's St. John's-wort 121,200 stems <0.5 m, 700 stems 0.5–1 m; eastern red cedar 300, 0. Important changes from 1991 include an increase in the abundance of Kalm's St. John's-wort, mostly as recruitment of seedlings and small suckers. Changes of 5% or more between 1992 and 1993 in the mean estimated cover for ground layer species, based on 10, 1x1 m quadrats include a 212% increase in moss cover and a corresponding 85% decrease in the cover of nut rush. **Weather:** Mean start temp., 15.7°C (range 10–24°C). Generally clear and warm, with light variable winds. **Coverage:** 16.2 h; 11 visits (10 sunrise, 1 sunset); 30 May; 4, 9, 10, 12, 16, 17, 21, 23, 25, 29 June. **Census:** Tree Swallow, 2.0; Song Sparrow, 2.0; Killdeer, 1.0; Chipping Sparrow, 1.0; Red-winged Blackbird, 0.5. **Total:** 5 species; 6.5 territories (28/40 ha). **Visitors:** Canada Goose, Mallard, Spotted Sandpiper, Eastern Kingbird, Common Grackle. **Remarks:** Tree Swallows using nest boxes accounted for both territories. This study is part of a long-term project designed to monitor the response of vegetational and breeding bird communities to a reduction in deer browsing at Long Point, Lake Erie. **Acknowledgments:** Thanks to Dawn Brenner and Peter Burke for supervision; to Paul Prior, Dawn Brenner, and Peter Jones for staking the plot; and to Jon McCracken for proofing the data. I thank Jane Bowles and Michael Bradstreet for measuring vegetation parameters on 21 June 1993.

109. COASTAL SCRUB

MATORRAL COSTANERO

MATT NOEL, BORJA MILÁ & DENISE HARDESTY

Point Reyes Bird Observatory

4990 Shoreline Highway

Stinson Beach, California 94970

Location: California; Marin Co.; Bolinas; Palomarin Field Station; 37°56'N, 122°45'W; Bolinas Quadrangle, USGS. **Continuity:** Established 1971; 19 yr. **Size:** 8.1 ha. **Description of Plot:** See *Am. Birds* 25:1003–1004 (1971). **Weather:** Mean start temp., 15.8°C (range 2–34°C). The study period was preceded by the wettest winter and most annual precipitation since the onset of drought in 1985–86. Total rainfall for the year was 89.1 cm, with most of the rain falling between December and March. Precipitation (5.0 cm) fell on 8% of the census mornings. **Coverage:** 279.5 h; 106 visits (101 sunrise, 5 sunset). **Census:** Wrentit, 12.5 (62; 24N,15FL); Allen's Hummingbird, 7.5 (37); Bewick's Wren, 5.5 (27; 2N,2FL); Rufous-sided Towhee, 5.5 (4N,4FL); White-crowned Sparrow, 5.5 (9N,3FL); Song Sparrow, 4.5 (22; 5N,2FL); California Quail, 3.0 (15); Scrub Jay, 2.5 (1N,1FL); Bushtit, 2.0 (2N); Orange-crowned Warbler, 2.0; Brown-headed Cowbird, 1.0 (2N,2FL); Mourning Dove, 0.5; Red-tailed Hawk, +; Northern Flicker, +; Wilson's Warbler, +. **Total:** 15 species; 52.0 territories (257/40 ha). **Remarks:** The density of breeding birds on this plot decreased substantially from 1992, as the number of territories declined from 67.5 to 52.0. However, the 1992 results were anomalous when compared to the 10-yr average of 48 territories, and despite the decline, the 1993 total reflects the second highest density of breeding birds since 1972. The dramatic increase in 1992 may be related to the timeliness of rainfall (42% of the year's precipitation fell in February and March), coupled with mild spring temperatures, and the associated increase in vegetation growth and insect life. Perhaps the 1993 decline reflects a return to more typical numbers. Species with increases in density included: California Quail (increase of 50%), Bewick's Wren (38%), Scrub Jay (25%), and Allen's Hummingbird (7%, continuing a 7-yr trend). California Quail, Allen's Hummingbird, and Scrub Jay, each reached their highest recorded densities since the plot was established. Species with decreases in density included: Song Sparrow (decrease of 47% to lowest density since 1987), Wrentit (19% now equivalent to the 10-yr average), Orange-crowned Warbler (60%), and White-crowned Sparrow and Rufous-sided Towhee (each declined 21% to densities more typical of the past 10 years). Species seen in recent years but not present this year included: Chestnut-

backed Chickadee, California Towhee, Rufous-crowned Sparrow, and Purple Finch. The cowbird fledglings were from White-crowned Sparrow nests. **Other Observers:** Grant Ballard, Geoffrey R. Geupel. **Acknowledgments:** We thank the Point Reyes National Seashore for their cooperation. This is Point Reyes Bird Observatory contribution No. 624.

110. DISTURBED COASTAL SCRUB A

MATORRAL PERTURBADO A

CATHERINE HICKEY & DENISE HARDESTY

Point Reyes Bird Observatory

4990 Shoreline Highway

Stinson Beach, California 94970

Location: California; Marin Co.; Bolinas; Palomarin Field Station; 37°55'N, 122°45'W; Bolinas Quadrangle, USGS. **Continuity:** Established 1972; 19 yr. **Size:** 4.7 ha. **Description of Plot:** See *Am. Birds* 26:987-988 (1972). **Weather:** Mean start temp., 15.8°C (range 2-34°C). See BBC #109. **Coverage:** 333.0 h; 95 visits (46 sunrise, 8 sunset). **Census:** Wrentit, 7.5 (64; 12N,15FL); Song Sparrow, 4.5 (38; 11N,6FL); Allen's Hummingbird, 3.0 (26); California Quail, 2.0; Bewick's Wren, 2.0; Scrub Jay, 1.5; Orange-crowned Warbler, 1.5; Wilson's Warbler, 1.5; Rufous-sided Towhee, 1.5 (3N,3FL); White-crowned Sparrow, 1.5 (6N,3FL); Purple Finch, 1.5; Anna's Hummingbird, 1.0; Bushtit, 1.0; California Towhee, 1.0; Northern Flicker, 0.5; Steller's Jay, 0.5; American Robin, 0.5; American Goldfinch, 0.5; Red-tailed Hawk, +; Western Bluebird, +. **Total:** 20 species; 33.0 territories (281/40 ha). **Remarks:** Breeding bird density increased substantially (from 21.0 territories in 1992 to 33.0 this year), and represents the highest density recorded. The number of breeding species increased by one. Sixteen of the twenty species increased in density from last year. The number of Wrentit territories continued its upward trend since 1989, increasing 36% from 1992 to its highest density recorded on the plot. The number of Song Sparrow territories increased 29% from 1992, though the number present was the second lowest in 15 years. This increase was the first since a steady decline was noted beginning in 1984, which coincided with the onset of drought. Allen's Hummingbird territories doubled this year, returning to their 1989 peak. Bewick's Wren territories quadrupled, resulting in the highest number recorded in eight years. Both Orange-crowned Warbler and Wilson's Warbler densities increased to the highest levels recorded since the plot was established. Breeding Western Bluebirds were present for the first time since 1986, and the presence of breeding Steller's Jays was noted for the first time. Densities of American Robin, California Towhee, California Quail, Bushtit, Purple Finch, and Scrub Jay all increased slightly. Slight decreases were noted in the number of Rufous-sided Towhee and Mourning Dove territories. A substantial decrease (40%) was seen in the number of White-crowned Sparrow territories, compared with 1992. **Other Observers:** Gregor Yanega, Geoffrey R. Geupel. **Acknowledgments:** We thank the Point Reyes National Seashore for their cooperation. This is Point Reyes Bird Observatory contribution No. 623.

111. DISTURBED COASTAL SCRUB B

MATORRAL PERTURBADO B

TRACEY MADER & DENISE HARDESTY

Point Reyes Bird Observatory

4990 Shoreline Highway

Stinson Beach, California 94970

Location: California; Marin Co.; Bolinas; Palomarin Field Station; 37°55'N, 122°46'W; Bolinas Quadrangle, USGS. **Continuity:** Established 1971; 20 yr. **Size:** 8.1 ha. **Description of Plot:** See *Am. Birds* 25:1002 (1971). **Weather:** Mean start temp., 15.8°C (range 2-34°C). See BBC #109. **Coverage:** 306.5 h; 99 visits (94 sunrise, 5 sunset). **Census:** Song Sparrow, 13.0 (64; 34N,27FL); Wrentit, 9.5 (47; 22N,16FL); White-crowned Sparrow, 3.5 (17; 7N,9FL); Rufous-sided Towhee, 3.0 (15; 3N,8FL); California Quail, 2.5 (2N); Scrub Jay, 2.5 (1N); Brown-

headed Cowbird, 2.5 (1N); Allen's Hummingbird, 2.0; Orange-crowned Warbler, 2.0 (2N,4FL); Northern Flicker, 1.0; American Robin, 1.0; American Goldfinch, 1.0; Bushtit, 0.5; Western Bluebird, 0.5; California Towhee, 0.5; Red-tailed Hawk, +; Mourning Dove, +; Anna's Hummingbird, +; Bewick's Wren, +; Wilson's Warbler, +; Purple Finch, +. **Total:** 21 species; 45.0 territories (222/40 ha). **Remarks:** The breeding bird density decreased slightly (3.2%) from 1992. Last year had the second highest breeding bird density in 18 years, however, so while 1993 numbers were slightly lower, the density was still the third highest recorded in 19 years. Scrub Jay, Orange-crowned Warbler, and Brown-headed Cowbird, each reached their highest recorded densities since the study was established. Song Sparrow also had an increase in number of territories (18%) from 1992. The number of Wrentit and California Quail territories remained the same as last year; at their highest recorded densities. Species with decreases in density from 1992 included: California Towhee (decrease of 50%), White-crowned Sparrow (30%), Rufous-sided Towhee (14%), Allen's Hummingbird (33%), Western Bluebird (50%), and Bewick's Wren (decrease from 2.5 territories to +, the lowest density since they were first recorded in 1979). **Other Observers:** Geoffrey R. Geupel, Gregor Yanega, Grant Ballard. **Acknowledgments:** We thank the Point Reyes National Seashore for their cooperation. This is Point Reyes Bird Observatory contribution No. 622.

112. MOJAVE YUCCA-STAGHORN CHOLLA DESERT SCRUB II

MATORRAL DESERTICO DE "YUCCA DE MOJAVE Y STAGHORN CHOLIA" II

LARRY LAPRÉ

541 Prospect Avenue
Riverside, California 92507

Site Number: CA8392070. **Location:** California; San Bernardino Co.; Goffs; Watson Wash; 35°2'N, 115°15'W; Mid Hills Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 20.0 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):98 (1993). **Weather:** Mean start temp., 13.8°C (range 11–18°C). Temperatures were normal for the study period. Winter and spring rainfall was above average. **Coverage:** 20.6 h; 8 visits (8 sunrise); 15, 16, 17, 18, 21, 22, 23, 24 May. **Census:** Black-throated Sparrow, 4.0 (8; 6FL); Ash-throated Flycatcher, 2.0; Mourning Dove, 1.0; Costa's Hummingbird, 1.0; Ladder-backed Woodpecker, 1.0; Cactus Wren, 1.0; Bendire's Thrasher, 1.0; Gambel's Quail, 0.5 (8FL); Le Conte's Thrasher, 0.5; Scott's Oriole, 0.5; Crissal Thrasher, +. **Total:** 11 species; 12.5 territories (25/40 ha). **Visitors:** White-winged Dove, Northern Mockingbird, Loggerhead Shrike, Brown-headed Cowbird.

113. BIG SAGEBRUSH EXCLOSURE

FORMACION GRANDE DE ARTEMISA

JOHN DOREMUS

2810 Meadowbrook Drive
Boise, Idaho 83705

Site Number: ID8992086. **Location:** Idaho; Ada Co.; Snake River Birds of Prey Area; 43°18'N, 116°24'W; Initial Point Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 25.0 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):99 (1993). **Weather:** Mean start temp., 7.7°C (range -2–17°C). Temperatures were near normal; precipitation was well above the 100-yr average (double the average for most of the spring). Source: Swan Falls Dam weather station. **Coverage:** 31.3 h; 10 visits (10 sunrise); 21, 26, 27 April; 6, 12, 25 May; 1, 14, 23, 25 June. **Census:** Brewer's Sparrow, 19.5 (31); Sage Sparrow, 12.0 (19); Western Meadowlark, 7.0 (11); Mourning Dove, 1.0. **Total:** 4 species; 39.5 territories (63/40 ha). **Visitors:** Northern Harrier, Common Nighthawk, Horned Lark, Sage Thrasher, Loggerhead Shrike, Brewer's Blackbird, Brown-headed Cowbird. **Remarks:** The high precipitation increased the productivity of annual forbs and grass. Perennial grasses were more productive in biomass and seed production.

114. WINTERFAT EXCLOSURE

FORMACION "WINTERFAT"

JOHN DOREMUS

2810 Meadowbrook Drive

Boise, Idaho 83705

Site Number: ID8992087. **Location:** Idaho; Ada Co.; Snake River Birds of Prey Area; 43°12'N, 116°17'W; Wild Horse Butte Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 16.2 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):99–100. (1993). **Weather:** Mean start temp., 8.6°C (range 1–18°C). Temperatures were near normal; precipitation was double the average for most of the spring. Source: Swan Falls Dam weather station. **Coverage:** 18.3 h; 9 visits (9 sunrise); 8, 13, 15 April; 3, 17, 26 May; 8, 21 June; 6 July. **Census:** Horned Lark, 14.0 (35); Western Meadowlark, 4.0 (10). **Total:** 2 species; 18.0 territories (44/40 ha). **Visitors:** Northern Harrier, Long-billed Curlew, Mourning Dove, Burrowing Owl, Brewer's Sparrow. **Remarks:** The high precipitation increased the annual forb and grass production. Perennial grass produced abundant seeds and productivity was much higher than in 1992.

115. PINYON-JUNIPER SCRUB

MATORRAL DE PIÑON-JUNIPERO

ANDY NETTELL

Canyonlands National Park

125 West 200 South

Moab, Utah 84532

Site Number: UT8791101. **Location:** Utah; San Juan Co.; Moab; Island in the Sky Mesa; 38°21'N, 109°21'W; Monument Basin Quadrangle, USGS. **Continuity:** Established 1991; 3 yr. **Size:** 20.0 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.):102–103 (1992). **Weather:** Mean start temp., 12.1°C (range 4–18°C). A 5-yr regional drought seems to have been broken during the winter of 1992–93. **Coverage:** 20.4 h; 9 visits (9 sunrise); 11, 18, 25 April; 3, 16, 19, 25, 31 May; 2 June. **Census:** Black-throated Gray Warbler, 10.5 (21); Pinyon Jay, 3.0 (6); Plain Titmouse, 3.0; Mourning Dove, 1.0; Ash-throated Flycatcher, 1.0; Black-throated Sparrow, 1.0; Brown-headed Cowbird, 1.0; Blue-gray Gnatcatcher, 0.5; Lark Sparrow, 0.5. **Total:** 9 species; 21.5 territories (43/40 ha). **Visitors:** American Kestrel, Black-chinned Hummingbird, Olive-sided Flycatcher, Gray Flycatcher, Say's Phoebe, Violet-green Swallow, Scrub Jay, Common Raven, American Robin, House Finch. **Remarks:** A total of 27 species were seen during visits. The number of Pinyon Jay territories was low considering we had the best pine nut crop in five years. Ash-throated Flycatchers exhibited mating behavior, Lark Sparrows were observed mating, and Black-throated Gray Warblers were observed mating. Transients included: Northern Harrier, Red-breasted Nuthatch, Brown Creeper, Hermit Thrush, Yellow-rumped Warbler, MacGillivray's Warbler, and two Dark-eyed Juncos as late as 5 May. We experienced a minor invasion of 10 Yellow-rumped Warblers on 19 May. Rock Wrens were noticeably absent this year. **Other Observers:** Cheryl Fellenz, Tara Williams, Gail Lea.

116. WET COASTAL PLAIN TUNDRA I

PLANICIE CON TUNDRA COSTANERA HUMEDA I

ROBERT SUYDAM, MIA WESSELMANN, KIRSTIN BAGNE & MICHELE JOHNSON

North Slope Borough

Department of Wildlife Management

Box 69

Barrow, Alaska 99723

Location: Alaska; North Slope Borough; Barrow; 71°18'N, 156°42'W; Barrow Quadrangle, USGS. **Continuity:** Established 1975; 8 yr. **Size:** 33.0 ha. **Description of Plot:** See *Am. Birds*

29:1135–1136 (1975). Two homes are under construction approximately 50 m from the N edge of the plot. **Weather:** Mean start temp., 3.7°C (range –1–16°C). Average June temperature, 2.4°C (departure from normal +1.3°C). Average wind speed, 18.6 km/h. Bimodal wind direction, E and NE. Snow melt-off largely complete by 11 June. Source: National Weather Service, Barrow, AK. **Coverage:** 60.0 h; 11 visits (24 h of daylight); 7, 8, 9, 14, 15, 16, 17, 18, 21, 23, 29 June. **Census:** Lapland Longspur, 14.0 (17; 8N); Semipalmated Sandpiper, 11.0 (13; 9N); Red Phalarope, 7.0 (8; 7N); Pectoral Sandpiper, 6.0 (7; 2N); Dunlin, 5.0 (6; 2N); Lesser Golden-Plover, 2.0 (1N); Long-billed Dowitcher, 1.5; Northern Pintail, 1.0 (1N); Ruddy Turnstone, 1.0 (1N); Pomarine Jaeger, 1.0 (1N); Snow Bunting, 0.5. **Total:** 11 species; 50.0 territories (61/40 ha). **Visitors:** Greater White-fronted Goose, Steller's Eider, Oldsquaw, Black-bellied Plover, Western Sandpiper, White-rumped Sandpiper, Baird's Sandpiper, Glaucous Gull, Snowy Owl, Common Raven, Savannah Sparrow. **Remarks:** Aspects of the breeding systems of Pectoral Sandpipers and Red Phalaropes make the interpretation of the densities of territorial males equivocal. Pectoral Sandpiper males are promiscuous, yet territorial. We report the number of territorial males. The number of incubating females has been considered a better estimate of breeding effort (see *Am. Birds* 29:1135–1136). We found two Pectoral Sandpiper nests and suspect there were three to four additional nests based on sightings of additional females. Red Phalarope males incubate and neither the male nor female show much territoriality. Again, the number of incubating birds is considered a better estimate of breeding effort. The reported density of Red Phalaropes is based on the number of nests located. We suspect there were two to three additional Red Phalarope nests based on consistent sightings of birds in areas where nests were not found. The number of breeding Western Sandpipers and Long-billed Dowitchers is much lower than in 1992, but similar to densities during other census years (1975–80). Predators observed throughout the study period included: arctic foxes, Pomarine Jaegers, Glaucous Gulls, Snowy Owls, and Common Ravens. A Merlin was observed foraging on the plot once. High lemming densities allowed for Pomarine Jaegers to nest on the plot. Snowy Owls visited the plot regularly but did not nest in the immediate vicinity. **Acknowledgments:** This census was made possible through funding from Sandia National Laboratories, Albuquerque, NM and the North Slope Borough Department of Wildlife Management, Barrow, AK.

117. WET COASTAL PLAIN TUNDRA II

PLANICIE CON TUNDRA COSTANERA HUMEDA II

MIA WESSELMANN, ROBERT SUYDAM, MICHELE JOHNSON & KIRSTIN BAGNE

North Slope Borough

Department of Wildlife Management

Box 69

Barrow, Alaska 99723

Location: Alaska; North Slope Borough; Barrow; 71°18'N, 156°43'W; Barrow Quadrangle, USGS. **Continuity:** Established 1975; 8 yr. **Size:** 36.0 ha. **Description of Plot:** See *Am. Birds* 29:1136 (1975) and *J. Field Ornithol.* 64 (Suppl.):101–102 (1993). **Weather:** Mean start temp., 3.3°C (range –1–10°C). Average June temperature, 2.4°C (departure from normal +1.3°C). Average wind speed, 18.6 km/h. Bimodal wind direction, E and NE. Snow melt-off largely complete by 11 June. Source: National Weather Service, Barrow, AK. **Coverage:** 72.6 h; 13 visits (24 h of daylight); 7, 8, 9, 14, 15, 16, 17, 18, 21, 22, 23, 25, 28 June. **Census:** Lapland Longspur, 17.5 (19; 5N); Semipalmated Sandpiper, 12.0 (13; 5N); Pectoral Sandpiper, 9.5 (11; 6N); Dunlin, 6.0 (7; 1N); Red Phalarope, 6.0 (6N); Lesser Golden-Plover, 3.5 (4; 3N); Long-billed Dowitcher, 2.5 (1N); Snow Bunting, 1.5; Steller's Eider, 1.0 (1N); Ruddy Turnstone, 1.0; Baird's Sandpiper, 1.0 (1FL); Pomarine Jaeger, 1.0 (1N). **Total:** 12 species; 62.5 territories (69/40 ha). **Visitors:** Greater White-fronted Goose, Northern Pintail, Oldsquaw, Western Sandpiper, White-rumped Sandpiper, Common Snipe, Parasitic Jaeger, Long-tailed Jaeger, Glaucous Gull, Snowy Owl, Common Raven, White-crowned Sparrow. **Remarks:** See BBC #116 for comments about the breeding systems of Pectoral Sandpipers and Red Phalaropes. We found six Pectoral Sandpiper nests and suspect there was one additional nest

based on a sighting of an additional female. The reported density of Red Phalaropes is based on the number of nests located. We suspect there were five additional Red Phalarope nests based on consistent sightings of birds in areas where nests were not found and of birds exhibiting distraction displays. The number of breeding Western Sandpipers and Long-billed Dowitchers was much lower than in 1992, but similar to densities during other census years (1975–80). Steller's Eiders, Baird's Sandpipers, and Snow Buntings again nested on the plot after not nesting in 1992. Predators observed throughout the study period included: arctic foxes, Pomarine Jaegers, Glaucous Gulls, Snowy Owls, and Common Ravens. A Merlin was observed foraging on the plot once. High lemming densities allowed for Pomarine Jaegers to nest on the plot. Snowy Owls visited the plot regularly but did not nest in the immediate vicinity. **Acknowledgments:** This census was made possible through funding from Sandia National Laboratories, Albuquerque, NM and the North Slope Borough Department of Wildlife Management, Barrow, AK.

118. WET COASTAL PLAIN TUNDRA III

PLANICIE CON TUNDRA COSTANERA HUMEDA III

MICHELE JOHNSON, KIRSTIN BAGNE, ROBERT SUYDAM & MIA WESSELMANN

*North Slope Borough
Department of Wildlife Management
Box 69
Barrow, Alaska 99723*

Location: Alaska; North Slope Borough; Barrow; 71°18'N, 156°38'W; Barrow Quadrangle, USGS. **Continuity:** Established 1978; 4 yr. **Size:** 36.0 ha. **Description of Plot:** See *Am. Birds* 33:102 (1979). **Weather:** Mean start temp., 4.3°C (range 0–16°C). Average June temperature, 2.4°C (departure from normal +1.3°C). Average wind speed, 18.6 km/h. Bimodal wind direction, E and NE. Snow melt-off largely complete by 11 June. Source: National Weather Service, Barrow, AK. **Coverage:** 60.1 h; 12 visits (24 h of daylight); 9, 11, 14, 15, 16, 18, 21, 22, 25, 28, 29 June; 1 July. **Census:** Lapland Longspur, 16.5 (18; 8N); Pectoral Sandpiper, 8.0 (9; 4N); Dunlin, 6.5 (7; 4N); Lesser Golden-Plover, 5.5 (6; 4N); Semipalmated Sandpiper, 3.0 (3; 1N); Red Phalarope, 2.0 (2N); White-rumped Sandpiper, 1.0; Long-billed Dowitcher, 1.0; Snow Bunting, 1.0; Snowy Owl, 0.5 (1N); Pomarine Jaeger, +. **Total:** 11 species; 45.0 territories (50/40 ha). **Visitors:** Tundra Swan, Greater White-fronted Goose, Northern Pintail, Steller's Eider, Oldsquaw, Sandhill Crane, Western Sandpiper, Glaucous Gull, Common Raven, Savannah Sparrow, White-crowned Sparrow, Hoary Redpoll. **Remarks:** See BBC #116 for comments about the breeding systems of Pectoral Sandpipers and Red Phalaropes. We found four Pectoral Sandpiper nests and suspect there was one additional nest based on a sighting of an additional female. The reported density of Red Phalaropes is based on the number of nests located. We suspect there were three additional Red Phalarope nests based on consistent sightings of birds in areas where nests were not found and of birds exhibiting distraction displays. The number of breeding Lesser Golden-Plovers and Semipalmated Sandpipers was higher than in any other census year (1978–80). Northern Pintails, Steller's Eiders, and Baird's Sandpipers did not nest on the plot as they had in past years. Predators observed throughout the study period included: arctic foxes (four dens located within 5 km of the plot), Pomarine Jaegers, Glaucous Gulls, Common Ravens, and Snowy Owls. High lemming densities allowed for Snowy Owls to nest on the plot. Pomarine Jaegers nested in two locations within a km of the plot. **Acknowledgments:** This census was made possible through funding from Sandia National Laboratories, Albuquerque, NM and the North Slope Borough Department of Wildlife Management, Barrow, AK.

119. WET COASTAL PLAIN TUNDRA IV

PLANICIE CON TUNDRA COSTANERA HUMEDA IV

KIRSTIN BAGNE, MICHELE JOHNSON, MIA WESSELMANN & ROBERT SUYDAM

*North Slope Borough
Department of Wildlife Management
Box 69
Barrow, Alaska 99723*

Location: Alaska; North Slope Borough; Barrow; 71°18'N, 156°37'W; Barrow Quadrangle, USGS. **Continuity:** New. **Size:** 36.0 ha. **Description of Plot:** This plot lies mostly in low wetlands typical of moist arctic coastal plain tundra. A considerable amount of standing water remains on the plot throughout June and July in addition to numerous thaw ponds. We used a similar method to characterize the habitat as was used for plots 1, 2, and 3, see *Am. Birds* 29:1135-1136 (1975). Low-centered polygons mixed with thaw ponds 86.1%; low polygons 6.9%; mesic slope 4.2%; high-centered polygons 2.8%. **Edge:** The S edge abuts an old beach ridge elevated 1-2 m above the surrounding lowland. **Topography and Elevation:** The plot has little topographic relief. **Weather:** Mean start temp., 4.2°C (range -1-21°C). Average June temperature, 2.4°C (departure from normal +1.3°C). Average wind speed, 18.6 km/h. Bimodal wind direction, E and NE. Snow melt-off largely complete by 15 June. Source: National Weather Service, Barrow, AK. **Coverage:** 54.0 h; 12 visits (24 h of daylight); 11, 15, 16, 17, 21, 22, 23, 25, 26, 28, 29, 30 June. **Census:** Red Phalarope, 15.0 (17; 15N); Pectoral Sandpiper, 9.5 (11; 5N); Lapland Longspur, 6.0 (7); Dunlin, 5.5 (6; 1N); Long-billed Dowitcher, 3.0 (3); Lesser Golden-Plover, 2.0; Pomarine Jaeger, 2.0 (1N); Red-throated Loon, 1.0 (1N); Brant, 1.0 (1N); Semipalmated Sandpiper, 0.5; Snowy Owl, +. **Total:** 11 species; 45.5 territories (51/40 ha). **Visitors:** Tundra Swan, Greater White-fronted Goose, Northern Pintail, King Eider, Steller's Eider, Oldsquaw, Sandhill Crane, Ruddy Turnstone, White-rumped Sandpiper, Red-necked Phalarope, Parasitic Jaeger, Glaucous Gull, Common Raven, Snow Bunting. **Remarks:** See BBC #116 for comments about the breeding systems of Pectoral Sandpipers and Red Phalaropes. We found five Pectoral Sandpiper nests and suspect there were three or four additional nests based on sightings of additional females. The reported density of Red Phalaropes is based on the number of nests located. We suspect there were at least five additional Red Phalarope nests based on consistent sightings of birds in areas where nests were not found and of birds exhibiting distraction displays. Predators observed throughout the study period included: arctic foxes (four dens located within 5 km of the plot), Pomarine Jaegers, Parasitic Jaegers, Glaucous Gulls, Common Ravens, and Snowy Owls. High lemming densities allowed for Pomarine Jaegers to nest on the plot and for Snowy Owls to nest within 1 km of the plot. **Acknowledgments:** This census was made possible through funding from Sandia National Laboratories, Albuquerque, NM and the North Slope Borough Department of Wildlife Management, Barrow, AK.

120. COASTAL PRAIRIE

PRADERA COSTANERA

JOHN P. KELLY

Audubon Cypress Grove Preserve

P.O. Box 808

Marshall, California 94940

Location: California; Marin Co.; Marshall; Cypress Grove Preserve; 38°10'N, 122°54'W; Tomales Quadrangle, USGS. **Continuity:** Established 1988; 6 yr. **Size:** 31.0 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (Suppl.):56-57 (1989). Detailed quantitative habitat data from 1993 are available from the author. **Weather:** Mean start temp., 13.0°C (range 8-17°C). Generally mild with normal temperatures. Rainfall during the 1992-93 rainy season was slightly (20%) above the 38-yr average of 71.9 cm, following six consecutive years of below-average rainfall. Significant periods of rainfall extended into April and May. Source: Audubon Can-

yon Ranch. **Coverage:** 7.7 h; 8 visits (2 sunrise); 18, 27 April; 12, 19, 21, 25, 27, 28 May. **Census:** Song Sparrow, 16.0 (21); Black-shouldered Kite, 2.0; Northern Harrier, 2.0; Mourning Dove, 2.0; American Goldfinch, 2.0; Red-winged Blackbird, 1.5; American Crow, 1.0; California Towhee, 1.0; Western Meadowlark, 1.0; Allen's Hummingbird, 0.5; Northern Oriole, +. **Total:** 11 species; 29.0 territories (37/40 ha). **Visitors:** Mallard, Osprey, Anna's Hummingbird, Western Kingbird, Cliff Swallow, Barn Swallow, Scrub Jay, Bushtit, Marsh Wren, Tricolored Blackbird, Brewer's Blackbird, Brown-headed Cowbird, House Finch, Pine Siskin. **Remarks:** At least one of the two Black-shouldered Kite nests successfully fledged young. An increase of one Northern Harrier territory occurred this year as vole (*Microtus californicus*) densities increased over levels observed since 1989–90. **Acknowledgments:** This work is supported by Audubon Canyon Ranch, Stinson Beach, CA. I thank Susan Kelly and Sarah Tappen for help in summarizing the results.

121. VALLEY GRASSLAND II

YERBASAL DE VALLE II

KYLER HAMANN

6050 Portola Rd.

Atascadero, California 93422

Site Number: CA9293051. **Location:** California; San Luis Obispo Co.; San Luis Obispo; South Walters Ranch; 35°21'N, 120°45'W; San Luis Obispo Quadrangle, USGS. **Continuity:** New. **Size:** 40.4 ha. **Description of Plot:** A square plot (636 × 636 m). There are no permanent streams or ponds, but there are a few intermittent streams with a maximum width of 2 m and a maximum depth of 1 m (in a plunge pool). The plot has a nearly-continuous ground cover of annual vegetation and is used for grazing. Dominant plants are annual rye grass, wild oat, and foxtail barley. **Edge:** Greater than 75% of the plot's perimeter is bordered by the same habitat, and the plot lies within a tract of similar habitat > 500 ha in size. **Topography and Elevation:** The plot has an uneven slope facing SE with a grade of 6–10%. Minimum elevation 8m, maximum 32m. **Weather:** Mean start temp., 9.1°C (range 6–12°C). **Coverage:** 10.3 h; 8 visits (8 sunrise); 9, 12, 16, 21, 23, 28 April; 7, 10, May. **Census:** Red-winged Blackbird, 24.0 (24); Western Meadowlark, 16.0 (16; 1N); Savannah Sparrow, 6.0 (6); Mourning Dove, 2.0. **Total:** 4 species; 48.0 territories (48/40 ha). **Visitors:** Mallard, American Kestrel, Cliff Swallow, American Crow, Grasshopper Sparrow. **Remarks:** This is the second Breeding Bird Census plot in this general area. It is about two-thirds the size of the plot studied last year, and slightly fewer species were observed. **Other Observer:** Chris Wilson. **Acknowledgments:** Thanks go to Dr. Roger Gambs and California Polytechnic State University at San Luis Obispo, for advising and support, and to our wives for plot survey help.

122. TALLGRASS PRAIRIE I

PRADERA DE YERBAS ALTAS I

PETER E. LOWTHER

Field Museum of Natural History
Roosevelt Road at Lake Shore Drive
Chicago, Illinois 60605

Location: Iowa; Dickinson Co.; Milford; Iowa Lakeside Laboratory's "North 40"; 43°23'N, 95°11'W; Okoboji Quadrangle, USGS. **Continuity:** Established 1982; 10 yr. **Size:** 16.0 ha. **Description of Plot:** See *Am. Birds* 37:79 (1983). **Weather:** Mean start temp., 12.2°C (range 9–15°C). Temperatures during May and June were slightly cooler than normal (based on 20-yr mean), precipitation from March through May totalled 34.2 cm (vs normal total of 19.0 cm). Source: Iowa Lakeside Laboratory. **Coverage:** 5.1 h; 5 visits; 2, 3, 4, 5, 6 June. **Census:** Yellow Warbler, 5.0 (13; 1N); Common Yellowthroat, 4.0 (10); Song Sparrow, 3.0 (8); Red-winged Blackbird, 3.0 (4N); American Goldfinch, 3.0; Gray Catbird, 2.0 (3N); Mourning Dove, 1.0; Willow Flycatcher, 1.0; Eastern Kingbird, 1.0; Brown Thrasher, 1.0 (1N); Grass-

hopper Sparrow, 1.0; Common Grackle, 1.0 (1N); Brown-headed Cowbird, 1.0; Ring-necked Pheasant, +; Black-billed Cuckoo, +; American Robin, + (1N); Indigo Bunting, +. **Total:** 17 species; 27.0 territories (68/40 ha). **Visitors:** Blue-winged Teal, House Wren, Cedar Waxwing, Bobolink. **Acknowledgments:** R.W. Cruden, M. and J. Wehrspann at Iowa Lakeside Laboratory for logistic support and permission to census the area.

123. TALLGRASS PRAIRIE II

PRADERA DE YERBAS ALTAS II

PETER E. LOWTHER

*Field Museum of Natural History
Roosevelt Road at Lake Shore Drive
Chicago, Illinois 60605*

Location: Iowa; Dickinson Co.; Milford; Cayler Prairie; 43°24'N, 95°15'W; Okoboji Quadrangle, USGS. **Continuity:** Established 1982; 10 yr. **Size:** 65.7 ha. **Description of Plot:** See *Am. Birds* 37:79 (1983). **Weather:** Mean start temp., 11.3°C (range 9–13°C). Temperatures during May and June were slightly cooler than normal (based on 20-yr mean), precipitation from March through May totalled 34.2 cm (vs normal total of 19.0 cm). Source: Iowa Lakeside Laboratory. **Coverage:** 6.7 h; 3 visits (3 sunrise); 2, 4, 6 June. **Census:** Red-winged Blackbird, 22.0 (13); Common Yellowthroat, 11.0 (7); Grasshopper Sparrow, 11.0; Bobolink, 11.0; Sedge Wren, 8.0 (5); Western Meadowlark, 6.0 (4); Yellow-headed Blackbird, 5.0 (3); Savannah Sparrow, 4.0 (2); Swamp Sparrow, 4.0; Brown-headed Cowbird, 3.0 (2); Mourning Dove, 2.0; Eastern Kingbird, 2.0; Song Sparrow, 2.0; American Goldfinch, 2.0; Mallard, 1.0; Blue-winged Teal, 1.0; Ring-necked Pheasant, 1.0 (1N); Upland Sandpiper, 1.0; American Robin, 1.0; Yellow Warbler, 1.0; Dickcissel, 1.0. **Total:** 21 species; 100.0 territories (61/40 ha). **Remarks:** Part of the E half of the plot burned in the spring. Only one Dickcissel was on the plot during the last visit; observations after 6 June by Neil Bernstein found two by 19 June, and up to seven by the end of the month. Nests found later in June by Neil Bernstein included: one Mallard, one Grasshopper Sparrow, one Bobolink (parasitized), and one Yellow-headed Blackbird. **Acknowledgments:** State Preserves Advisory Board, Iowa Department of Natural Resources for permission to conduct the census. Neil Bernstein shared his observations.

124. TALLGRASS PRAIRIE III

PRADERA DE YERBAS ALTAS III

PETER E. LOWTHER

*Field Museum of Natural History
Roosevelt Road at Lake Shore Drive
Chicago, Illinois 60605*

Location: Iowa; Dickinson Co.; Milford; Freda Haffner Kettlehole Preserve; 43°20'N, 95°13'W; Milford Quadrangle, USGS. **Continuity:** Established 1982; 10 yr. **Size:** 44.8 ha. **Description of Plot:** See *Am. Birds* 37:79 (1983). **Weather:** Mean start temp., 10.0°C (range 7–15°C). Temperatures during May and June were slightly cooler than normal (based on 20-yr mean), precipitation from March through May totalled 34.2 cm (vs normal total of 19.0 cm). Source: Iowa Lakeside Laboratory. **Coverage:** 7.9 h; 3 visits (3 sunrise); 3, 5, 7 June. **Census:** Common Yellowthroat, 12.0 (11); Red-winged Blackbird, 12.0 (2N); Song Sparrow, 9.0 (8); Sedge Wren, 7.0 (6); Bobolink, 6.0 (5); Grasshopper Sparrow, 5.0 (4); Yellow Warbler, 4.0 (4); Western Meadowlark, 4.0; Brown-headed Cowbird, 4.0; American Goldfinch, 4.0; Willow Flycatcher, 2.0; Swamp Sparrow, 2.0; Canada Goose, 1.0 (1N); Mallard, 1.0; Blue-winged Teal, 1.0; Gray Partridge, 1.0; Sora, 1.0 (1N); Mourning Dove, 1.0; Eastern Kingbird, 1.0; American Robin, 1.0; Gray Catbird, 1.0; Brown Thrasher, 1.0; Savannah Sparrow, 1.0; Yellow-headed Blackbird, 1.0; Chipping Sparrow, 0.5; Pied-billed Grebe, +. **Total:** 26 species; 83.5 territories (75/40 ha). **Visitors:** Red-tailed Hawk, Black-billed Cuckoo, European Starling. **Remarks:** Single cowbird eggs were found in one Brown Thrasher nest, one abandoned American

Robin nest, and each of two Red-winged Blackbird nests. The N half of the plot was burned on 10 May. On 5 June, this same portion (mostly brome) was treated with RoundUp broad spectrum herbicide as part of an active management program to restore native prairie. A second spraying plus disking and reseeding occurred later in the summer. **Acknowledgments:** Iowa Field Office, The Nature Conservancy, for permission to conduct the census. Neil Bernstein shared his observations.

125. CANYON BLUEBUNCH GRASSLAND

YERBASAL DE CAÑON "BLUEBUNCH"

CAROL BRADFORD

1561 Bethany Road
Kendrick, Idaho 83537-9705

Site Number: ID6592057. **Location:** Idaho; Idaho Co.; Lucile; China Creek Range; 45°32'N, 116°18'W; Lucile Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 7.5 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):104–105 (1993). **Weather:** Mean start temp., 12.5°C (range 7–20°C). The weather was unseasonably cool, and wetter than normal. **Coverage:** 24.4 h; 9 visits (8 sunrise, 1 sunset); 20 May; 3, 7, 9, 15, 18, 23, 24, 29 June. **Census:** Western Meadowlark, 4.0 (21); Lazuli Bunting, 2.0; Say's Phoebe, 1.0; Black-billed Magpie, 1.0 (1N,6FL); Rock Wren, 1.0. **Total:** 5 species; 9.0 territories (48/40 ha). **Visitors:** Western Kingbird, Common Raven, American Goldfinch.

126. KENTUCKY BLUEGRASS PRAIRIE

PRADERA DE "YERBA-AZUL" DE KENTUCKY

DOUGLAS H. JOHNSON & MICHAEL D. SCHWARTZ

Northern Prairie Wildlife Research Center
Route 1, Box 96C
Jamestown, North Dakota 58401

Location: North Dakota; Stutsman Co.; Woodworth; 47°8'N, 99°14'W; Goldwin Quadrangle, USGS. **Continuity:** Established 1972; 22 yr. **Size:** 4.8 ha. **Description of Plot:** See *Am. Birds* 26:972 (1972). **Weather:** No data provided. **Coverage:** 2.9 h; 9 visits (3 sunrise); 29 May; 1, 2, 7, 10, 11 June. **Census:** Brown-headed Cowbird, 1.0; Blue-winged Teal, 0.5; Gadwall, 0.5; Savannah Sparrow, 0.5; Western Meadowlark, 0.5; Mallard, +; Western Kingbird, +; Eastern Kingbird, +. **Total:** 8 species; 3.0 territories (25/40 ha). **Visitors:** Northern Pintail, Northern Shoveler, American Wigeon, Swainson's Hawk, American Avocet, Upland Sandpiper, Common Yellowthroat, Clay-colored Sparrow, Bobolink, Red-winged Blackbird, American Goldfinch.

127. MIXED PRAIRIE I

PRADERA MIXTA I

DOUGLAS H. JOHNSON & MICHAEL D. SCHWARTZ

Northern Prairie Wildlife Research Center
Route 1, Box 96C
Jamestown, North Dakota 58401

Location: North Dakota; Stutsman Co.; Woodworth; 47°8'N, 99°15'W; Woodworth Quadrangle, USGS. **Continuity:** Established 1972; 22 yr. **Size:** 10.0 ha. **Description of Plot:** See *Am. Birds* 26:972 (1972). **Weather:** No data provided. **Coverage:** 7.1 h; 8 visits (4 sunrise); 29 May; 1, 2, 7, 10, 11 June. **Census:** Clay-colored Sparrow, 10.0 (40; 2N); Common Yellowthroat, 2.0; Brown-headed Cowbird, 2.0; Willow Flycatcher, 1.5; Eastern Kingbird, 1.5; Yellow Warbler, 1.5; Western Meadowlark, 1.5; Gadwall, 1.0 (1N); Gray Catbird, 1.0; American Goldfinch,

1.0; Northern Harrier, +; Song Sparrow, +. **Total:** 12 species; 23.0 territories (92/40 ha). **Visitors:** Mallard, Northern Shoveler, Red-tailed Hawk, Ring-necked Pheasant, Common Snipe, Western Kingbird, House Wren, Brown Thrasher, Bobolink. **Remarks:** The Gadwall nest contained ten eggs on 10 June. One Clay-colored Sparrow nest contained four eggs plus one cowbird egg on 7 June; the other contained four eggs on 11 June.

128. MIXED PRAIRIE II

PRADERA MIXTA II

DOUGLAS H. JOHNSON & MICHAEL D. SCHWARTZ

Northern Prairie Wildlife Research Center

Route 1, Box 96C

Jamestown, North Dakota 58401

Location: North Dakota; Stutsman Co.; Woodworth; 47°8'N, 99°15'W; Goldwin Quadrangle, USGS. **Continuity:** Established 1972; 22 yr. **Size:** 6.1 ha. **Description of Plot:** See *Am. Birds* 26:972-973 (1972). **Weather:** No data provided. **Coverage:** 3.0 h; 8 visits (4 sunrise); 29 May; 1, 2, 7, 10, 11 June. **Census:** Blue-winged Teal, 1.5; Clay-colored Sparrow, 1.5; Brown-headed Cowbird, 1.0; Mallard, 0.5; Gadwall, 0.5; Eastern Kingbird, 0.5; Killdeer, +; Song Sparrow, +; Red-winged Blackbird, +. **Total:** 9 species; 5.5 territories (36/40 ha). **Visitors:** American Bittern, Northern Pintail, Northern Shoveler, Northern Harrier, Willet, Upland Sandpiper, Mourning Dove, Western Kingbird, Common Yellowthroat, Western Meadowlark, American Goldfinch.

129. MIXED PRAIRIE III

PRADERA MIXTA III

DOUGLAS H. JOHNSON & MICHAEL D. SCHWARTZ

Northern Prairie Wildlife Research Center

Route 1, Box 96C

Jamestown, North Dakota 58401

Location: North Dakota; Stutsman Co.; Woodworth; 47°9'N, 99°14'W; Goldwin Quadrangle, USGS. **Continuity:** Established 1972; 22 yr. **Size:** 6.1 ha. **Description of Plot:** See *Am. Birds* 26:973 (1972). **Weather:** No data provided. **Coverage:** 3.3 h; 8 visits (2 sunrise); 29 May; 1, 2, 7, 10, 11 June. **Census:** Clay-colored Sparrow, 1.0; Grasshopper Sparrow, 1.0; Savannah Sparrow, +; Bobolink, +; Western Meadowlark, +. **Total:** 5 species; 2.0 territories (13/40 ha). **Visitors:** Blue-winged Teal, Northern Harrier, Upland Sandpiper, Western Kingbird, Eastern Kingbird, Song Sparrow, American Goldfinch.

130. MIXED PRAIRIE IV

PRADERA MIXTA IV

DOUGLAS H. JOHNSON & MICHAEL D. SCHWARTZ

Northern Prairie Wildlife Research Center

Route 1, Box 96C

Jamestown, North Dakota 58401

Location: North Dakota; Stutsman Co.; Woodworth; 47°8'N, 99°15'W; Woodworth Quadrangle, USGS. **Continuity:** Established 1972; 22 yr. **Size:** 6.1 ha. **Description of Plot:** See *Am. Birds* 26:973-974 (1972). **Weather:** No data provided. **Coverage:** 3.5 h; 8 visits (3 sunrise); 1, 2, 7, 10, 11 June. **Census:** Clay-colored Sparrow, 3.0 (20); Blue-winged Teal, 1.5; Eastern Kingbird, 1.0; Common Yellowthroat, 1.0; Brown-headed Cowbird, 1.0; Mallard, 0.5; Song Sparrow, 0.5; Red-winged Blackbird, 0.5; Gadwall, +; Upland Sandpiper, +; Common Snipe, +; Bobolink, +; American Goldfinch, +. **Total:** 13 species; 9.0 territories (59/40 ha). **Visi-**

tors: Green-winged Teal, Northern Pintail, Northern Shoveler, American Wigeon, Sora, Willet, Yellow Warbler, Western Meadowlark.

131. MIXED PRAIRIE V

PRADERA MIXTA V

DOUGLAS H. JOHNSON & MICHAEL D. SCHWARTZ

Northern Prairie Wildlife Research Center

Route 1, Box 96C

Jamestown, North Dakota 58401

Location: North Dakota; Stutsman Co.; Woodworth; 47°8'N, 99°14'W; Goldwin Quadrangle, USGS. **Continuity:** Established 1972; 22 yr. **Size:** 6.1 ha. **Description of Plot:** See *Am. Birds* 26:974 (1972). **Weather:** No data provided. **Coverage:** 3.7 h; 8 visits (3 sunrise); 1, 2, 7, 10, 11 June. **Census:** Clay-colored Sparrow, 3.0 (20); Eastern Kingbird, 0.5; Brown-headed Cowbird, 0.5; Upland Sandpiper, +; Brown Thrasher, +; Western Meadowlark, +. **Total:** 6 species; 4.0 territories (26/40 ha).

Visitors: Mallard, Gadwall, Northern Harrier, Swainson's Hawk, Killdeer, Black Tern, Northern Flicker, Willow Flycatcher, Gray Catbird, Yellow Warbler, Common Yellowthroat, Grasshopper Sparrow, Brewer's Blackbird, American Goldfinch.

Remarks: Portions of the plot were subjected to a prescribed burn on 1 June. A Gadwall nest with 11 eggs was found on 7 June.

132. SUBIRRIGATED GRASSLAND

PRADERA SUBIRRIGADA

GARY LINGLE, SHEA BERGMAN & JILL LISKE

Platte River Trust

2550 North Diers Avenue, Suite H

Grand Island, Nebraska 68803-1214

Location: Nebraska; Hall Co.; Doniphan; Mormon Island Crane Meadows (Plot 1); 40°47'N, 98°26'W; Alda Quadrangle, USGS. **Continuity:** Established 1981; 11 yr. **Size:** 16.2 ha. **Description of Plot:** See *Am. Birds* 36:105 (1982). **Weather:** Mean start temp., 20°C. Generally wet and cool. Temperature and precipitation departures, respectively, were: May, -0.9°C, -1.3 cm; June, -1.9°C, +3.1 cm. Source: U.S. National Weather Service, Grand Island. **Coverage:** 5.9 h; 9 visits (2 sunrise); 15, 16, 17, 18, 19, 21, 22, 23, 25 June. **Census:** Upland Sandpiper, 4.0 (10; 1N); Western Meadowlark, 4.0; Grasshopper Sparrow, 3.5 (9); Brown-headed Cowbird, 2.0; Bobolink, 1.0; Dickcissel, +. **Total:** 6 species; 14.5 territories (36/40 ha). **Visitor:** Ring-necked Pheasant. **Remarks:** The plot was grazed during the census. There was no standing water.

133. SUBIRRIGATED NATIVE HAY

PASTO NATIVO SUBIRRIGADO

GARY LINGLE, SHEA BERGMAN & JILL LISKE

Platte River Trust

2550 North Diers Avenue, Suite H

Grand Island, Nebraska 68803-1214

Location: Nebraska; Hall Co.; Doniphan; Mormon Island Crane Meadows (Plot 2); 40°47'N, 98°27'W; Alda Quadrangle, USGS. **Continuity:** Established 1981; 11 yr. **Size:** 16.2 ha. **Description of Plot:** See *Am. Birds* 36:105 (1982). **Weather:** Mean start temp., 20°C. Generally wet and cool. Temperature and precipitation departures, respectively, were: May, -0.9°C, -1.3 cm; June, -1.9°C, +3.1 cm. Source: U.S. National Weather Service, Grand Island. **Coverage:** 5.4 h; 9 visits (4 sunrise); 15, 16, 17, 18, 19, 21, 22, 23, 25 June. **Census:** Bobolink, 12.0 (30);

Grasshopper Sparrow, 3.0 (7); Brown-headed Cowbird, 3.0; Upland Sandpiper, 1.0; Western Meadowlark, 1.0; Dickcissel, +. **Total:** 6 species; 20.0 territories (49/40 ha). **Visitors:** Ring-necked Pheasant, Mourning Dove. **Remarks:** The plot was not grazed or burned prior to the census. There was good residual cover and no standing water.

134. TALLGRASS PRAIRIE REMNANT

REMANENTE DE PRADERA CON YERBAS ALTAS

DAVE MINNEY

*The Nature Conservancy, Ohio
1504 West First Avenue
Columbus, Ohio 43212*

Location: Ohio; Greene Co.; Fairborn; Huffman Prairie; 39°48'N, 84°4'W; Fairborn Quadrangle, USGS. **Continuity:** Established 1990; 4 yr. **Size:** 44.0 ha. **Description of Plot:** See *J. Field Ornithol.* 62 (Suppl.):85 (1991) and 63 (Suppl.):106–107 (1992). Approximately 19 ha in the N section of the plot burned in late March. Both swale habitats, totalling about 2.0 ha, were mowed in mid-June. Approximately 1.5 ha of non-native grassland were plowed and disced for re-seeding in late February. Runway expansion construction removed 5.8 ha of buffer (maintained field) along the N edge of the plot, leaving about 5.5 ha. **Weather:** Mean start temp., 19.1°C (range 10–29°C). Average temperature for April was 10°C (deviation from 53-yr mean was -1°C); May, 18°C (+1°C); June, 22°C (0°C); July, 25°C (+1°C). Total precipitation for April was 9.8 cm (deviation from 53-yr mean was +0.5 cm); May, 6.0 cm (-3.8 cm); June, 12.9 cm (+1.7 cm); July, 7.2 cm (-2.3 cm). Source: Wright-Patterson Air Force, Weather Squadron. **Coverage:** 21.0 h; 8 visits (5 sunrise, 3 sunset); 21, 26 May; 16, 17 June; 7, 8, 12, 13 July. **Census:** Common Yellowthroat, 41.0 (37); Song Sparrow, 35.0 (32); Bobolink, 31.0 (28); Red-winged Blackbird, 29.0 (26); American Goldfinch, 16.0 (15); Grasshopper Sparrow, 13.0 (12); Willow Flycatcher, 10.0 (9); Eastern Meadowlark, 10.0; Brown-headed Cowbird, 8.0 (7); American Robin, 3.0 (3); Indigo Bunting, 1.0; Savannah Sparrow, 0.5. **Total:** 12 species; 197.5 territories (180/40 ha). **Visitors:** Mallard, Killdeer, Eastern Kingbird, Field Sparrow, House Finch. **Remarks:** Noise from runway expansion construction probably affected detection of some singing males. Common Yellowthroat increased from 24.0 territories in 1992 to 41.0 this year, Bobolink increased from 26.0 to 31.0, and Grasshopper Sparrow increased from 8.5 to 13.0. Henslow's Sparrow was not recorded this year; all 12.0 territories recorded in 1992 were located within the 1993 burn unit. **Acknowledgments:** Wright-Patterson Air Force Base and U.S. Department of Defense.

135. GRASSLAND-SHRUB PLOT

YERBASAL Y ARBUSTOS

RONALD D. HUFFMAN

*6930 West Shore Drive
Weidman, Michigan 48893*

Site Number: MN2091072. **Location:** Minnesota; Becker Co.; Rochert; Tamarac National Wildlife Refuge; 46°58'N, 95°37'W; Height of Land Lake Quadrangle, USGS. **Continuity:** Established 1991; 2 yr. **Size:** 65.9 ha. **Description of Plot:** See *J. Field Ornithol.* 63 (Suppl.): 108–109 (1992). Extensive habitat management continues on the plot as it is gradually being converted to grassland. Sixty-two percent of the plot was burned in April 1992. In early May 1993, the entire plot was burned. As a result, aspen regeneration has been inhibited, although approximately 50% of the plot is shrubby, dominated by quaking aspen and American hazel. During the winter of 1992-93, the remaining woody stems over 7.6 cm dbh were removed from 66% of the plot. Thus, several hundred live and dead trees standing during the 1991 census were not present in 1993. **Weather:** Mean start temp., 14.6°C (range 8–24°C). Frequent rains, high winds, and cool temperatures occurred during the breeding season. Mean temperature for June was 15.8°C (normal is 17.9°C). Precipitation for June was

16.6 cm (normal is 10.5 cm). Source: Tamarac NWR annual report. **Coverage:** 39.1 h; 8 visits (6 sunrise); 17, 22, 27, 28, 29 June; 2, 12, 14 July. **Census:** Song Sparrow, 108 (66; 4N); Yellow Warbler, 62.5 (38; 1N,3FL); Common Yellowthroat, 62.0 (38); Clay-colored Sparrow, 32.0 (19); Red-winged Blackbird, 30.5 (19); Brown-headed Cowbird, 28.0 (17); Swamp Sparrow, 13.0 (8); Veery, 5.0 (3); Gray Catbird, 5.0; House Wren, 4.5 (3); Eastern Kingbird, 4.0 (2); Sora, 3.0 (2); American Robin, 3.0; Indigo Bunting, 3.0; Common Snipe, 2.0; Northern Flicker, 2.0; Great Crested Flycatcher, 2.0; Marsh Wren, 2.0; Cedar Waxwing, 2.0; Northern Harrier, 1.0; Mourning Dove, 1.0; Yellow-bellied Sapsucker, 1.0 (1N); Tree Swallow, 1.0; Red-eyed Vireo, 1.0; Chestnut-sided Warbler, 1.0; American Redstart, 1.0. **Total:** 26 species; 380.5 territories (231/40 ha). **Visitors:** Mallard, Red-tailed Hawk, Killdeer, American Woodcock, Black-billed Cuckoo, Yellow-billed Cuckoo, Chimney Swift, Ruby-throated Hummingbird, Red-headed Woodpecker, Downy Woodpecker, Hairy Woodpecker, Pileated Woodpecker, Alder Flycatcher, Least Flycatcher, Eastern Phoebe, Barn Swallow, Blue Jay, American Crow, Black-capped Chickadee, White-breasted Nuthatch, Sedge Wren, Eastern Bluebird, Scarlet Tanager, Chipping Sparrow, Field Sparrow, Evening Grosbeak. **Remarks:** Song Sparrow (+21.5 territories) and Yellow Warbler (+25.0) had large increases over the 1991 census. Eleven species that bred on the plot in 1991 no longer did so in 1993. They were all species that used the forested areas and were affected by the removal of the trees. **Other Observer:** Kathy Middleton. **Acknowledgments:** I thank Kathy Middleton for her assistance in all phases of this census.

136. 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; 10 yr. **Size:** 8.0 ha. **Description of Plot:** See *Am. Birds* 39:112 (1985) and *J. Field Ornithol.* 63 (Suppl.):109–110 (1992). **Weather:** Mean start temp., 14.0°C (range –2–29°C). Deviations from long-term averages: temperature for April through August, +2.3°C; precipitation for April through July, +2.7 cm, and for August, none. Source: Wellsville Water and Light Plant. The ice cleared from Amity Lake on 8 April, a week late. The intermittent stream was dry from 21 May. Abnormally low temperatures the latter half of May stunted the corn crop but had little adverse effect on nest success, except for Eastern Bluebird. **Coverage:** 25.4 h; 16 visits (1 sunrise, 1 sunset); 3, 7, 23 April; 16, 21, 27 May; 7, 16, 24 June; 3, 20, 26 July; 2, 9, 18, 30 August. The first three visits were in the evening, for a few minutes only, to listen for American Woodcock. Late-season nests were checked on the final visit. **Census:** Song Sparrow, 20.0 (100; 3N,6FL); Yellow Warbler, 16.0 (80); Common Yellowthroat, 11.0 (55); American Goldfinch, 10.5 (53; 5N,19FL); Alder Flycatcher, 10.0 (50); Field Sparrow, 10.0 (2N,4FL); Blue-winged Warbler, 6.0 (30); Cedar Waxwing, 5.0 (25; 2N,4FL); Chestnut-sided Warbler, 5.0; Rufous-sided Towhee, 5.0; American Woodcock, 4.0 (20); Indigo Bunting, 4.0 (3FL); Tree Swallow, 3.0 (15; 3N,16FL); Gray Catbird, 3.0; Chipping Sparrow, 3.0 (1N); Prairie Warbler, 2.0 (1N); Rose-breasted Grosbeak, 1.5; Blue Jay, 1.0; Black-capped Chickadee, 1.0 (1N); Eastern Bluebird, 1.0 (3N,2FL); American Robin, 1.0 (1N); Brown Thrasher, 1.0; Red-eyed Vireo, 1.0; Nashville Warbler, 1.0; Scarlet Tanager, 1.0; Northern Cardinal, 1.0; Purple Finch, 1.0. **Total:** 27 species; 129.0 territories (645/40 ha). **Visitors:** Ring-necked Pheasant, Black-billed Cuckoo, Downy Woodpecker, Pileated Woodpecker, Eastern Wood-Pewee, Willow Flycatcher, Eastern Phoebe, Tufted Titmouse, House Wren, Wood Thrush, European Starling, Ovenbird. **Remarks:** Species increasing in number were: Yellow Warbler (highest ever), Common Yellowthroat, and Scarlet Tanager. Species decreasing in number were: House Wren (lowest since 1986), Indigo Bunting (lowest since 1984), Rufous-sided Towhee (lowest ever), and American Goldfinch (28% below the 9-yr norm). Species missing were: Ruffed Grouse, Least Flycatcher, and Brown-headed Cowbird (present every year but one since the beginning of this study). The

number of species and number of territories were lower by 7% and 12%, respectively, from the 9-yr norm. The poor count (lowest in 7 years) may be a reflection of the lack of open water on the plot, but it strongly supports the observation of decreasing numbers of individuals for most species. Primary predators were: American Crow, raccoon, and Common Raven (stalking in a grassy area). **Acknowledgments:** Thanks to Dana Harris for weather data and to Victor and Gail Funk for permission to use the property.

137. ABANDONED PASTURE SCRUBLAND

PASTIZAL-MALEZA ABANDONADO

BILL MURPHY

*Innis Point Bird Observatory
Kanata North Postal Outlet
Box 72137
Kanata, Ontario K2K 2P4*

Location: Ontario; Municipality of Ottawa-Carleton; Kanata; Innis Point; 45°21'N, 75°54'W; Ottawa Quadrangle, NTS. **Continuity:** Established 1982; 12 yr. **Size:** 9.0 ha. **Description of Plot:** See *Am. Birds* 37:76–77 (1983). **Weather:** Mean start temp., 14.4°C (range 8–22°C). Both mean temperature and precipitation during the breeding season were at the 55-yr averages. However, June was 0.5°C cooler and had 32% (2.5 cm) more rainfall than average. **Coverage:** 20.0 h; 8 visits (8 sunrise); 30 May; 5, 24, 27, 30 June; 1, 4, 10 July. **Census:** Yellow Warbler, 16.5 (73); Song Sparrow, 11.5 (51); White-throated Sparrow, 10.0 (44); Black-capped Chickadee, 7.5 (33); American Robin, 6.5 (29); Black-and-white Warbler, 5.5 (24); Gray Catbird, 4.5 (20); Great Crested Flycatcher, 4.0 (18); Blue Jay, 3.0 (13); Cedar Waxwing, 3.0; Brown-headed Cowbird, 3.0; Northern Oriole, 3.0; Eastern Kingbird, 2.5; Scarlet Tanager, 2.0; Field Sparrow, 1.5; Ruffed Grouse, 1.0; Spotted Sandpiper, 1.0; Downy Woodpecker, 1.0; Northern Flicker, 1.0; Veery, 1.0; Red-eyed Vireo, 1.0; Ovenbird, 1.0; Common Yellowthroat, 1.0; Rose-breasted Grosbeak, 1.0; Indigo Bunting, 1.0; Chestnut-sided Warbler, 0.5. **Total:** 26 species; 94.5 territories (420/40 ha). **Visitors:** Killdeer, Mourning Dove, Black-billed Cuckoo, Ruby-throated Hummingbird, Hairy Woodpecker, Eastern Wood-Pewee, Least Flycatcher, American Crow, Red-breasted Nuthatch, White-breasted Nuthatch, House Wren, Brown Thrasher, Nashville Warbler, American Redstart, Swamp Sparrow, Red-winged Blackbird, Common Grackle, Purple Finch, American Goldfinch. **Remarks:** The long-term continuity of this census may be at risk as a result of Department of National Defence plans to use portions of the general area more intensively in the future. **Acknowledgments:** Thanks to the Department of National Defence and the Communications Research Centre for continued access to the site, and to Jack Romanow for helping to ensure consistent analysis of the count results over the years.

138. CLEAR-CUT-LONGLEAF PINE REGENERATION

REGENERACION DE FORMACION TALADA DE PINO DE HOJA-LARGA

STEVEN WAGNER*, JONATHAN PLISSNER*, SIDNEY GAUTHREAUX, JR.* &
WILLIAM JARVIS

**Department of Biological Sciences*

Clemson University

Clemson, South Carolina 29634-1903

Site Number: SC0492032. **Location:** South Carolina; Barnwell Co.; Martin; Savannah River Site; 33°9'N, 81°32'W; Girard NE Quadrangle, USGS. **Continuity:** Established 1992; 2 yr. **Size:** 25.0 ha. **Description of Plot:** See *J. Field Ornithol.* 64 (Suppl.):111 (1993). **Weather:** Mean start temp., 17.6°C (range 11–28°C). Average daily temperatures were 21.1°C in May (normal is 22.5°C) and 25.6°C in June (normal is 25.7°C). For January through June, total precipitation was 1.32 cm above average; however, May and June totals were 9.22 cm below normal.

Measurable precipitation was recorded on six days in May and seven in June. Source: SRTC Environmental Technology Section. **Coverage:** 18.1 h; 8 visits (7 sunrise, 1 sunset); 10, 12, 19, 25, 26, 27 May; 4, 10 June. **Census:** Prairie Warbler, 9.0 (14); Yellow-breasted Chat, 9.0; Indigo Bunting, 9.0; Bachman's Sparrow, 6.5 (10); Eastern Bluebird, 6.0 (10; 2N, 4FL); Northern Mockingbird, 6.0 (2FL); Rufous-sided Towhee, 5.5 (9); Orchard Oriole, 5.0 (8); Northern Bobwhite, 3.0 (5); Carolina Wren, 3.0; Brown-headed Cowbird, 3.0; Common Ground-Dove, 2.5; Red-headed Woodpecker, 2.5; Common Yellowthroat, 2.5; Blue Grosbeak, 2.5; Red-bellied Woodpecker, 1.5; Great Crested Flycatcher, 1.5; Eastern Kingbird, 1.5; Brown Thrasher, 1.5; Northern Cardinal, 1.5; Northern Flicker, 1.0; Gray Catbird, 1.0; Summer Tanager, 1.0; Field Sparrow, 1.0; Eastern Meadowlark, 1.0; Carolina Chickadee, 0.5; White-eyed Vireo, 0.5. **Total:** 27 species; 88.5 territories (142/40 ha). **Visitors:** Turkey Vulture, Red-tailed Hawk, Mourning Dove, Yellow-billed Cuckoo, Common Nighthawk, Chimney Swift, Ruby-throated Hummingbird, Downy Woodpecker, Hairy Woodpecker, Pileated Woodpecker, Eastern Wood-Pewee, Blue Jay, Fish Crow, Tufted Titmouse, Brown-headed Nuthatch, Blue-gray Gnatcatcher, Red-winged Blackbird, Common Grackle. **Acknowledgments:** We thank the Department of Energy and the Savannah River Forest Station of the U.S. Forest Service for financial support and access to the area.

139. OLD PASTURE SHRUB WITH HEDGEROWS AND SEASONAL WET AREA

PASTIZAL ARBUSTIVO DE EDAD AVANSADA CON SETO VIVO Y AREA HUMEDA ESTACIONAL

FRED MERRILL

*Vermont Conservation Biology
RR#1, Box 565
Woodstock, Vermont 05091*

Site Number: VT2793060. **Location:** Vermont; Windsor Co.; Pomfret; Austin's Pasture; 43°36'N, 72°30'W; Quechee Quadrangle, USGS. **Continuity:** New. **Size:** 11.1 ha. **Description of Plot:** See WBPS #49. **Weather:** Mean start temp., 10.8°C (range 5–15°C). Temperature and precipitation departures, respectively, from the 30-yr means for: May, 0°C, -5.54 cm; June, -1.5°C, +3.29 cm; July, +0.2°C, -4.32 cm. Source: Fairbanks Museum reporting station, Cavendish, VT. **Coverage:** 24.5 h; 10 visits (10 sunrise); 9, 11, 16, 23, 30 May; 13, 20, 27 June; 5, 18 July. **Census:** Common Yellowthroat, 6.0 (22; 4N); Chestnut-sided Warbler, 4.5 (16); Song Sparrow, 4.5 (4N); White-throated Sparrow, 4.0 (14; 2N); Willow Flycatcher, 3.0 (11); Black-capped Chickadee, 3.0; Veery, 3.0; Black-and-white Warbler, 2.5 (1N); Ruffed Grouse, 2.0; American Woodcock, 2.0; American Goldfinch, 2.0; Ruby-throated Hummingbird, 1.5; Blue Jay, 1.5; Downy Woodpecker, 1.0; Hairy Woodpecker, 1.0; Eastern Phoebe, 1.0 (1N); White-breasted Nuthatch, 1.0; American Robin, 1.0; Gray Catbird, 1.0; Cedar Waxwing, 1.0 (1N); Blue-winged Warbler, 1.0; Golden-winged Warbler, 1.0; Nashville Warbler, 1.0; Yellow-rumped Warbler, 1.0; Northern Cardinal, 1.0; Rose-breasted Grosbeak, 1.0 (2FL); Yellow-bellied Sapsucker, 0.5; Magnolia Warbler, 0.5; Indigo Bunting, 0.5; Brown-headed Cowbird, 0.5; Dark-eyed Junco, +. **Total:** 31 species; 54.5 territories (196/40 ha). **Visitors:** Mourning Dove, Northern Flicker, Least Flycatcher, Great Crested Flycatcher, Tree Swallow, Ruby-crowned Kinglet, Wood Thrush, Red-eyed Vireo, Tennessee Warbler, American Redstart, Ovenbird, Scarlet Tanager, Field Sparrow, Purple Finch. **Acknowledgments:** Weather data from Ray Fitzgibbons, CUPS, Cavendish, Vermont.

140. CONVENTIONAL DAIRY FARM

GANADERIAS CONVENCIONALES

RUDOLPH C. KELLER

*R.D. 4, Box 235
Boyertown, Pennsylvania 19512*

Location: Pennsylvania; Berks Co.; Kempton; Terry Kunkel's farm; 40°37'N, 75°53'W; Hamburg Quadrangle, USGS. **Continuity:** Established 1989; 3 yr. **Size:** 23.1 ha. **Description of**

Plot: See *J. Field Ornithol.* 61 (Suppl.):82–83 (1990). **Weather:** Mean start temp., 15.8°C (range 11–23°C). **Coverage:** 17.0 h; 8 visits (8 sunrise); 3, 9, 16, 31 May; 12, 19, 27 June; 6 July. **Census:** Indigo Bunting, 7.0 (12); Song Sparrow, 6.0 (10; 4FL); Gray Catbird, 5.0 (9; 6FL); European Starling, 5.0 (1N,FL); House Sparrow, 5.0; Barn Swallow, 4.0 (7; 6FL); American Robin, 4.0 (1N,7FL); Common Yellowthroat, 4.0 (1FL); Northern Cardinal, 4.0; House Wren, 3.0 (5; 2N,2FL); Red-winged Blackbird, 3.0 (1N,FL); Rock Dove, 2.0; Chipping Sparrow, 2.0 (3FL); Brown-headed Cowbird, 2.0; Northern Oriole, 2.0 (5FL); Ring-necked Pheasant, 1.5; Killdeer, 1.0; Mourning Dove, 1.0; Northern Flicker, 1.0; Eastern Wood-Pewee, 1.0; Willow Flycatcher, 1.0; Eastern Phoebe, 1.0 (3FL); American Crow, 1.0 (2FL); Northern Mockingbird, 1.0; Brown Thrasher, 1.0; Yellow Warbler, 1.0; Vesper Sparrow, 1.0 (1FL); Common Grackle, 1.0 (2FL); American Goldfinch, 1.0; Red-bellied Woodpecker, 0.5 (1FL); Tufted Titmouse, 0.5 (2FL); Downy Woodpecker, + (1FL); Blue Jay, + (1FL). **Total:** 33 species; 73.5 territories (127/40 ha). **Visitors:** Canada Goose, Wood Duck, Mallard, Red-tailed Hawk, Eastern Kingbird, Fish Crow, White-breasted Nuthatch, Carolina Wren, Wood Thrush, White-eyed Vireo, Red-eyed Vireo. **Remarks:** Data from 1990 and 1991 were not published, but are available. **Acknowledgments:** I want to thank Terry Kunkel for permission to use his farm for this study.