

**98. COASTAL FRESHWATER MARSH**

## PANTANO COSTANERO DE AGUA DULCE

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**Location:** California; Marin Co.; Marshall; Livermore Marsh; 38°10'N, 122°53'W; Tomales Quadrangle, USGS. **Continuity:** Established 1985; 7 yr. **Size:** 10.5 ha. **Description of Plot:** See *J. Field Ornithol.* 60 (Suppl.):54 (1989). **Weather:** Mean start temp., 8°C (range 6–11°C). Total precipitation for the census period (3.81 cm) was near the 37-yr mean of 4.81 cm (Data source, Audubon Canyon Ranch, unpubl.). 1991 was the fifth consecutive yr of below-average winter rainfall. **Coverage:** 9.1 h; 8 visits (1 sunrise); 4, 10, 18 April; 1, 10, 15, 22, 29 May. **Census:** Red-winged Blackbird, 25.0 (95); Cliff Swallow, 23.0 (88); Song Sparrow, 14.5 (55); Marsh Wren, 12.0 (46); American Coot, 5.0 (19); Mallard, 3.0 (11); Allen's Hummingbird, 3.0; Pied-billed Grebe, 2.0; Cinnamon Teal, 2.0; Ruddy Duck, 2.0; Virginia Rail, 2.0; Mourning Dove, 2.0; Wrentit, 2.0; American Goldfinch, 2.0; California Quail, 1.0; Common Yellowthroat, 1.0; Black-headed Grosbeak, 1.0; Northern Harrier, 0.5 (1N,2FL); Brown-headed Cowbird, +. **Total:** 19 species; 103 territories (392/40 ha). **Visitors:** Great Blue Heron, Snowy Egret, Black-crowned Night-Heron, Red-shouldered Hawk, Cooper's Hawk, Black-shouldered Kite, Anna's Hummingbird, Belted Kingfisher, Northern Flicker, Black Phoebe, Western Wood-Pewee, Northern Rough-winged Swallow, Barn Swallow, Tree Swallow, Violet-green Swallow, Common Bushtit, Swainson's Thrush, Wilson's Warbler, Yellow Warbler, Dark-eyed Junco, White-crowned Sparrow, Brewer's Blackbird, Northern Oriole, Purple Finch, House Finch, California Towhee. **Remarks:** A period of extremely low temperatures in late December 1990 may have caused some winter mortality in resident insectivores. Allen's Hummingbird territories were all males. The Northern Harrier laid a five-egg clutch and fledged two young. **Acknowledgments:** This project is conducted by Audubon Canyon Ranch, Stinson Beach, CA, as part of a restoration and management program. I thank Susan Kelly for help in summarizing the results.