

Predation by Short-Eared Owls on a Salicornia Salt Marsh

Author: Richard F. Johnston

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## PREDATION BY SHORT-EARED OWLS ON A SALICORNIA SALT MARSH

BY RICHARD F. JOHNSTON

THE Short-eared Owl (*Asio flammeus*) is a regular and common winter visitant to the San Francisco Bay region of California. It lives there in suitable habitat from August and September until about the first week in May. The winter populations of this owl leave in late April for northern or interior breeding grounds. Short-eared Owls may breed in the marshes around San Francisco Bay and elsewhere in the region (Grinnell and Wythe, 1927:85); however, none has been recorded doing so in recent years. All owls dealt with in this paper have been migrants or winter residents.

The study area was a part of San Pablo salt marsh, one mile north-northwest of Richmond, Contra Costa County, California. This marsh is a good example of a San Francisco Bay salt marsh (see Hinde, 1954); it is characterized by two plant associations. There is on low ground, subject to daily tidal coverage, the *Spartina* zone, characterized by extensive pure stands of *Spartina foliosa*. Short-eared Owls are uncommon in the *Spartina*. Higher ground is covered by the *Salicornia* association (Fig. 1). The dominant plants of this zone are *Salicornia ambigua*, *Grindelia cuneifolia*, and *Distichlis spicata*. *Grindelia* is a woody perennial growing along the tidal creeks, or sloughs, on the more elevated parts of the marsh. All the dominants of this zone may be found in the lower zone wherever the elevated slough banks produce higher marsh conditions. Other important plants of this association are *Frankenia grandifolia*, *Jaumea carnosa*, *Limonium commune*, *Triglochin maritima*, *Cuscuta salina*, and *Achillea millefolium*. It is in this area of the marsh that Short-eared Owls find conditions most suitable for foraging and concealment.

On the upper portion of the marsh where the tidal sloughs branch in intricate patterns the densest and tallest vegetation on San Pablo marsh is found. This is composed mainly of leafed-out *Grindelia*, but there is a varying admixture of *Distichlis* and *Salicornia*; the height reached is two to four feet. Short-eared Owls find roosting cover in daylight hours in these tangles, especially when there is stranded driftwood amongst the plants. Less frequently the owls are found in small, irregularly-shaped openings in the *Salicornia* mat or within clumps of arrowgrass (*Triglochin maritima*). Individuals of this plant commonly grow grouped in a ring shape and the owls easily find concealment within these clumps, in spite of the fact that the clumps are surrounded for tens of feet by pure *Salicornia* that is usually only about six inches high.