

LARGE-SCALE MIGRATIONS OF LAND BIRDS AT SEA OFF SOUTHERN CALIFORNIA DURING SEPTEMBER 1975

MALCOLM S. GORDON, Department of Biology, University of California, Los Angeles, California 90024

Large-scale nocturnal migratory movements of many hundreds of land birds were observed at distances of 100-400 km off the southern California mainland during the period 4-15 September 1975. These observations were made from on board the R/V *Alexander Agassiz*, of the Scripps Institution of Oceanography, La Jolla, California, in the course of a marine biological research cruise to an area just south of the San Juan Seamount (located approximately 350 km west of San Diego, California near 33°N, 121°W) 4-10 September and to the southern end of the San Clemente Basin (located 90-110 km west of northern Baja California, Mexico, in the vicinity of 32°N, 118°W) 11-15 September.

Table 1. Land birds identified at sea 100-400 km off southern California during the period 4-15 September 1975.

SPECIES	NUM- BERS	SPECIES	NUM- BERS
Great Blue Heron (<i>Ardea herodias</i>)	1	MacGillivray's Warbler (<i>Oporornis tolmiei</i>)	1
Osprey (<i>Pandion haliaetus</i>)	1	Wilson's Warbler* (<i>Wilsonia pusilla</i>)	3+
White-winged Dove (<i>Zenaida asiatica</i>)	1	American Redstart* (<i>Setophaga ruticilla</i>)	2
Mourning Dove (<i>Zenaida macroura</i>)	50+	Yellow-headed Blackbird (<i>Xanthocephalus xanthocephalus</i>)	2+
Western Kingbird (<i>Tyrannus verticalis</i>)	1	Red-winged Blackbird (<i>Agelaius phoeniceus</i>)	1
Ash-throated Flycatcher (<i>Myiarchus cinerascens</i>)	2	Brown-headed Cowbird (<i>Molothrus ater</i>)	10+
<i>Empidonax</i> flycatcher	1	Savannah Sparrow (<i>Passerculus sandwichensis</i>)	2
Horned Lark (<i>Eremophila alpestris</i>)	2	Vesper Sparrow (<i>Pooecetes gramineus</i>)	1
Cliff Swallow (<i>Petrochelidon pyrrhonota</i>)	1	Lark Sparrow* (<i>Chondestes grammacus</i>)	1
House Wren (<i>Troglodytes aedon</i>)	1	<i>Spizella</i> sparrows	5+
Orange-crowned Warbler* (<i>Vermivora celata</i>)	8+	Lincoln's Sparrow (<i>Melospiza lincolni</i>)	1
Townsend's Warbler (<i>Dendroica townsendi</i>)	2		

*One or more specimens found dead on board R/V *Alexander Agassiz*.

NOTES

The weather during the entire period of these observations was completely overcast, with 20-30 km/hr northwest winds and air temperatures in our working areas of 15°-20° C. Similar weather conditions apparently existed over the entire offshore area of southern California, from Point Conception to well south of the Mexican border.

The nightly appearances of large numbers of land birds around the ship usually began about 2300 and persisted until at least 0400. The first signs were clearly audible calls from many birds flying over the vessel, which generally was lighted by only its running lights and a few small outdoor lights. When brighter lights were turned on many groups of small birds, ranging in numbers from a few usually silent single birds to loudly calling flocks of 20 or more, would pass in and out of the outer fringes of the lighted areas. Both the calls and the visible birds appeared to be moving generally in the direction of the wind, toward the southeast. Small numbers of migratory shorebirds were mixed in with the land birds. Many of the small land birds appeared quite tired, some actually alighting on the sea surface for occasional periods of a few seconds, then taking off again.

A tiny fraction of the large numbers of migrants were specifically identified by close and unhurried observations of those few that stayed to rest on the ship and were still on board for varying periods of daylight. Twenty-three species were identified in this way, including four species later found dead on the ship's decks (Table 1).

The vast majority of the passerine species identified appeared to be juveniles. Identifiable exceptions to this were an adult male American Redstart and an adult male Red-winged Blackbird. Many of the Brown-headed Cowbirds still showed considerable down. All other species having seasonally variable plumages were in fall plumage.

Significant numbers of terrestrial insects, especially flies, moths and dragonflies, were also observed on board. The smaller of these insects helped to maintain some of the insectivorous birds for a while.

It seems possible that these large numbers of migrants took off originally from the California mainland, the farthest offshore groups perhaps in the vicinity of Point Conception and the northern Channel Islands, which are 100-150 km almost due north of our San Juan Seamount working area.

It also seems probable that large numbers of these land birds did not make it back to shore. Thus, at least for a short time and in a relatively small area of ocean, land birds made a contribution to the food supply of the deep sea.

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