

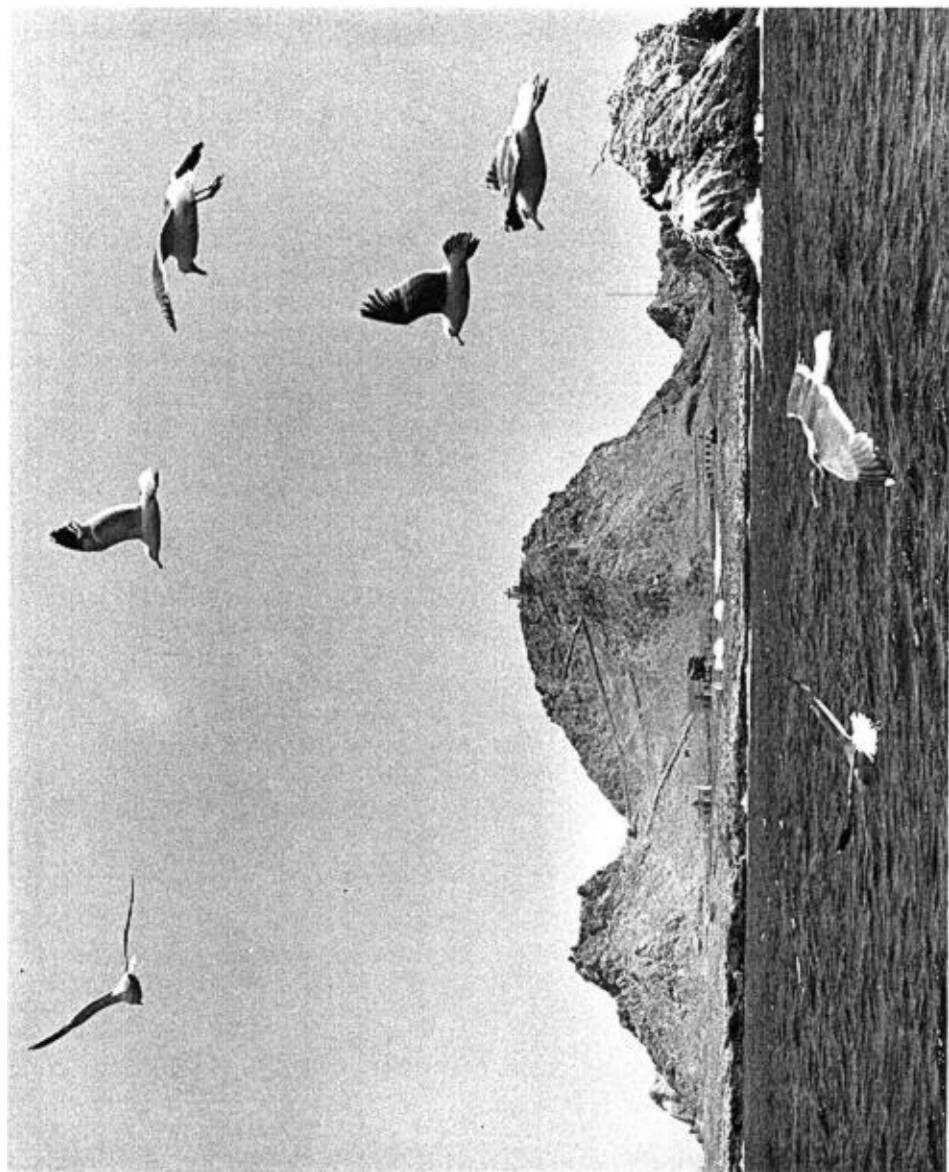
## INTRODUCTION

Since publication of MacArthur and Wilson's *The Theory of Island Biogeography* (1967), the terrestrial and freshwater avifaunas of the California islands, particularly the Channel Islands, have attracted interest among ornithologists. Investigators have sought to test and refine theories relating to the origins and degrees of endemism of the species (Johnson 1972), avian species diversity relative to habitat complexity (Power 1972, 1976), and species turnover rates as effected by certain characteristics of the islands and their avifaunas (Diamond 1969, 1971; Lynch and Johnson 1974; Jones and Diamond 1976). The South Farallon Islands have heretofore been excluded from this work. Although few land-bird species remain to nest at the Farallones, the frequencies of their visits have been intensively studied. This work measures the pool of potential colonists from which resident (breeding) avifaunas of the other California islands possibly originated, a subject not previously considered in detail.

Theoretical biogeography aside, an amazing number and variety of land and freshwater birds have visited the Farallones. At this writing, 223 of the 346 species recorded on or within 2 km of the island are typical of freshwater and terrestrial habitats. This represents quite an avifauna for a piece of land just 0.41 km<sup>2</sup> (0.16 sq. mi.) in area, and 32 km from the nearest terrestrial ecosystem. During the last 11½ years, biologists from the Point Reyes Bird Observatory (PRBO) have manned the island continuously, and every day—weather permitting—have censused the nonmarine birds. On most days during the spring and fall, traps and mist nets have been operated for the capture, diagnosis, and banding of visiting species. The present paper reports and analyzes in detail the results of the first eight years of that work and summarizes the ornithological records of past years. From this record, quantitative descriptions are made of the migratory periods of California coastal migrants, and of the rates of visitation by landbirds to an offshore California island as a function of their ecological and seasonal distribution pattern on the mainland. The breeding landbirds of the California islands are then reviewed relative to this pool of potential colonists.

As of 2 April 1976, 331 species of birds had been definitely recorded on the island or in waters within 2 km of it; 15 other species recorded in the subsequent 42-month period, to 2 October 1979, are included in the Addenda. Twenty-two of these 346 species had never before been recorded in the state of California, five of those remain unrecorded elsewhere in California, and about 74 others are extralimital on the California mainland. Details of four first records for California are published here: Gray-cheeked Thrush, Yellow-throated Warbler, Baird's Sparrow, and Cassin's Sparrow. The remaining species either breed on the island, use it for sanctuary and food during short or long periods, or are pelagic species identified from the island during their normal passage. One, the Short-tailed Albatross, is now on the verge of extinction and may never reappear. One, the Rock Dove, is feral. Two, the House Sparrow and Starling, were introduced to North America from Europe but have since reached the island under their own power. One, the California Quail, was introduced to the island and bred successfully, but is now extirpated.

Recent bird occurrences, those recorded by PRBO from 3 April 1968 to 2 April 1976, constitute the principal subject of this report. Data included were gathered



FRONTISPIECE. Southeast Farallon Island during summer 1975. This exposure, looking northeast, shows the marine terrace, Lighthouse Hill, all but two of the present buildings, the radio tower, and all of the island's trees. Photograph by Bill Parsons.

by conscientious observers (see Acknowledgments), most of whom had had experience in both banding and the identification of birds in the field and in the hand. Supplementing this information are more than 70 publications, dating from 1859, which deal with the wildlife of the Farallon Islands. In addition, Donald R. Medina visited the islands in May 1963 and collected many bird specimens which are now at the Museum of Vertebrate Zoology; PRBO also visited the islands 7–14 June and 20–26 September 1967, and banded or observed many birds. Records from these last three trips have not previously been published. The literature and unpublished data supply information on the avifauna from the mid-1800s through 1967.

In the instances of unusual or difficult-to-identify species, the consensus of at least two persons and a written description were required for acceptance of a sight record. Where only one observer was involved, a good photograph or a specimen was required. In very few instances, a single observer's sight record was accepted if the observation was accepted by the Western Field Ornithologists' California Bird Records Committee (see *Western Birds*). Identifications of such difficult-to-identify species as *Empidonax* flycatchers or certain wood warblers in immature plumage were based on the capture and keying of individuals. The library of the research station was amply stocked with literature helpful in making identifications. The birds present were recorded daily in the *Journal* of the Farallon Research Station. This and the banding records, which include measurements of difficult-to-identify species and often subspecific definitions and age differentiation, are on file at the station. In fact, Farallon data on the age ratios of several species are included in two previous reports (Ralph 1971, Stewart et al. 1974). Most of the critical specimens have been deposited in the California Academy of Sciences, San Francisco (CAS), but some have been deposited in the Museum of Vertebrate Zoology, Berkeley (MVZ), San Diego Natural History Museum (SDNHM), California State University at San Francisco, US National Museum (USNM), Academy of Natural Sciences, Philadelphia, and the Point Reyes Bird Observatory (PRBO). These specimens are listed in the Species Accounts unless previously published.

We have followed the classification and nomenclature of the American Ornithologists' Union *Check-list of North American Birds* (1957) and its supplements (1973, 1976). The exceptions are *Puffinus bulleri*, for which we used the common name, Buller's Shearwater (see Serventy et al. 1971), and *Catharacta maccormicki*, South Polar Skua (see Devillers 1977). We made no consistent attempt to include subspecific designations in this paper, but in many cases these may be found in the banding records and the Farallon *Journal*.

#### DESCRIPTION OF THE ISLANDS

The South Farallones are located just inside the edge of the continental shelf (37°42'N, 123°00'W) 43 km west of San Francisco, California (see Fig. 1). They comprise Southeast Farallon (the main island), West End, and several large, close-by rocks, in all an area of 41 ha. Maps of the South Farallones have been published by Emerson (1888), Bowman (1961), and Ainley and Lewis (1974). Some other rocks, 3 and 6 km northwest, are known respectively as Middle Farallon and the North Farallones; they are not considered further in this report.