

Final Report

SUMMARY OF  
MARINE MAMMAL AND SEABIRD SURVEYS  
OF THE SOUTHERN CALIFORNIA BIGHT AREA  
1975 - 1978

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Part III. Seabirds - Book II

Reproductive Ecology and Foraging Habits of Breeding Seabirds

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## Ashy Storm-Petrel (Oceanodroma homochroa)

### a. Introduction

The Pacific coast of the Americas have given rise to a whole host of hydrobatids, some of whose breeding ranges are exceptionally limited. Ashy Storm-Petrels, for example, breed only on the Farallon Islands in central California and in the California Channel Islands (including Islas Los Coronados) in Southern California and extreme northern Baja California. In addition, a few pairs have been found breeding on a rock just north of the Farallons (Ainley and Osborne 1972).

The Farallon Islands undoubtedly host the largest colony of breeding Ashy Storm-Petrels in the world; Ainley and Lewis (1974) estimate the population there to be only about 4000 birds. The entire world population of Ashy Storm-Petrels may number only 10,000-20,000 individuals; probably less.

### b. Historical and Present Breeding Status in the Channel Is.

#### San Miguel Island

The earliest report of Ashy Storm-Petrels nesting in the Channel Islands comes from Henshaw (in Willet 1912): "An adult from San Miguel Island (now in British Museum), was given to H. W. Henshaw by Captain Forney of the Coast Survey, who stated that the species bred on San Miguel in great numbers." Willet (1910, 1912) spent two weeks on San Miguel Is. in June 1910 and "made particular search" for Ashy Storm-Petrels on the main island, but he failed to find any. He concedes, however, that he may have overlooked them. Willet himself spent only part of one day (9 June) on Prince Is., where he was at least somewhat distracted by more conspicuous nesting species (Willet 1910: 171). One member of the Willet party, O. W. Howard, did spend several nights on Prince Is. but apparently did not find storm-petrels. However, "howling" winds that forced his prolonged stay on the islet may have also deterred storm-petrels from visiting the colony. Four specimens (LACM 20563-20566) were collected on Prince Is. in July 1950, and four more (SDNHM 30306-30308; LACM 66099) were collected there on 26 July 1961 by Don Blietz. In early July 1965, Craig and Sheppard (unpubl. notes) found three nests on Prince Is., heard and saw a number of calling birds, and estimated the population to be 400 pairs. Crossin and Brownell (1968) found small numbers of storm-petrels on both Castle Rk. and Prince Is. on 14-15 May 1968. They stated: "On Castle Rock a rough population guess estimate would be several hundred birds." On Prince Is. on the night of 15 May 1968, they heard "only a few calling birds", "but most of the island was not surveyed during nocturnal hours." The storm-petrels collected by Crossin and Brownell (op cit) at Castle Rock all had bare or defeathering brood patches, and four



## Ashy Storm-Petrel: Historical and Present Status (continued)

of their specimens came from rock crevices. (One of these specimens was subsequently identified as a Leach's Storm-Petrel, q.v.) Two weeks after the Crossin and Brownell survey, L. N. Huber (1968) made an eleven day survey of San Miguel Is. and the adjacent islets and rocks (28 May - 7 June 1968). He found a single, well-incubated egg on Castle Rk., which he presumed belonged to this species. During his visit to Prince Is., 17 specimens were collected, and one, possibly two, eggs were found. He estimated the population there to be 50-100 birds.

Present Status - From 1976-77, a total of 161 Ashy Storm-Petrels were banded on Prince Is. (Fig. III-12). Though at times fairly common, this species was by no means abundant; usually less than six or eight birds could be heard calling simultaneously. Fig. III-13 shows the location of the mist net used during both seasons. (Storm-petrels were also occasionally caught in the net used for auklets at the base of the *Opuntia* patch on the SE slope.) The majority of the night work was conducted in the area of the southeast slope, but most other parts of Prince Is. were visited at night at least once during the season. A maximum of five nests were found throughout the survey period, reflecting both the low density of this species on Prince Is. and its very secretive nesting habits. The estimated population at Prince Is. was  $300 \pm 100$  pairs. No night work was done on Castle Rk. during the project, and no signs of nesting storm-petrels were detected during two short, daylight surveys (one day each in 1976 and 1977). However, it is very likely that Ashy Storm-Petrels continued to breed there. Estimating strictly from the amount of habitat available and from Crossin and Brownell's (1968) rough guess, the population at Castle Rk. was believed to be about 100 pairs.

In 1976, evidence was obtained for the occurrence of Ashy Storm-Petrels on San Miguel Is. proper. On 24 June, three Ashy Storm-Petrels were captured in a mist net (one collected, SDNHM 39939) behind a sandy beach on the Harris Pt. side of Cuyler Harbor. All three had clear brood patches. Several others were seen flying and heard calling from the cliff area above the beach. From these observations, we infer a breeding population probably existed on the main island. Suitable habitat also existed north to Harris Pt. and in the cliff area east of Cuyler Harbor. On 25 June 1976, a probable nesting burrow with a very strong storm-petrel odor was detected on Hare Rk., adjacent to Cuyler Harbor.

There appears to have been little change in the overall status of Ashy Storm-Petrels in the San Miguel Is. area in recent historical times (with the exception of Henshaw's (in Willet 1912) second-hand account of "great numbers", which, by nature of the account, requires additional substantiation).



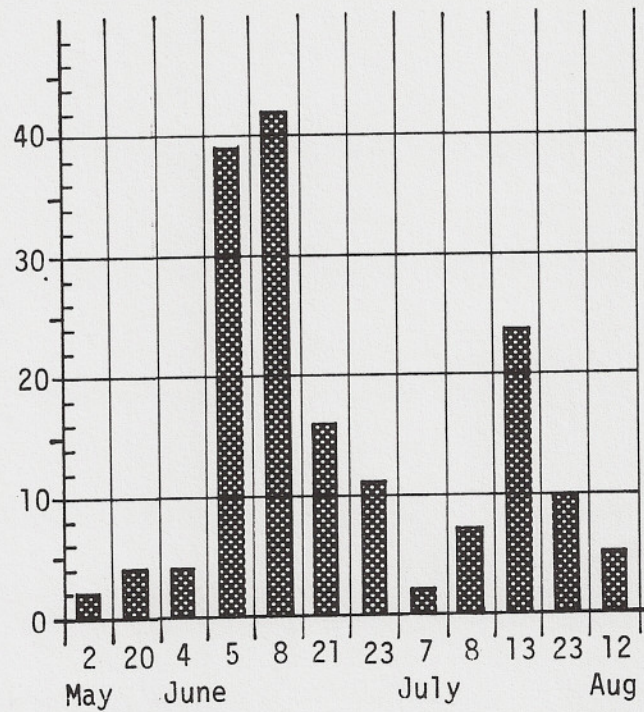


Figure III-12. Dates and numbers of Ashy Storm-Petrels captured in mist nets on Prince Island, 1976 and 1977.



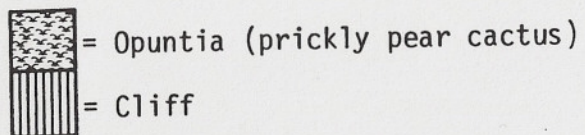
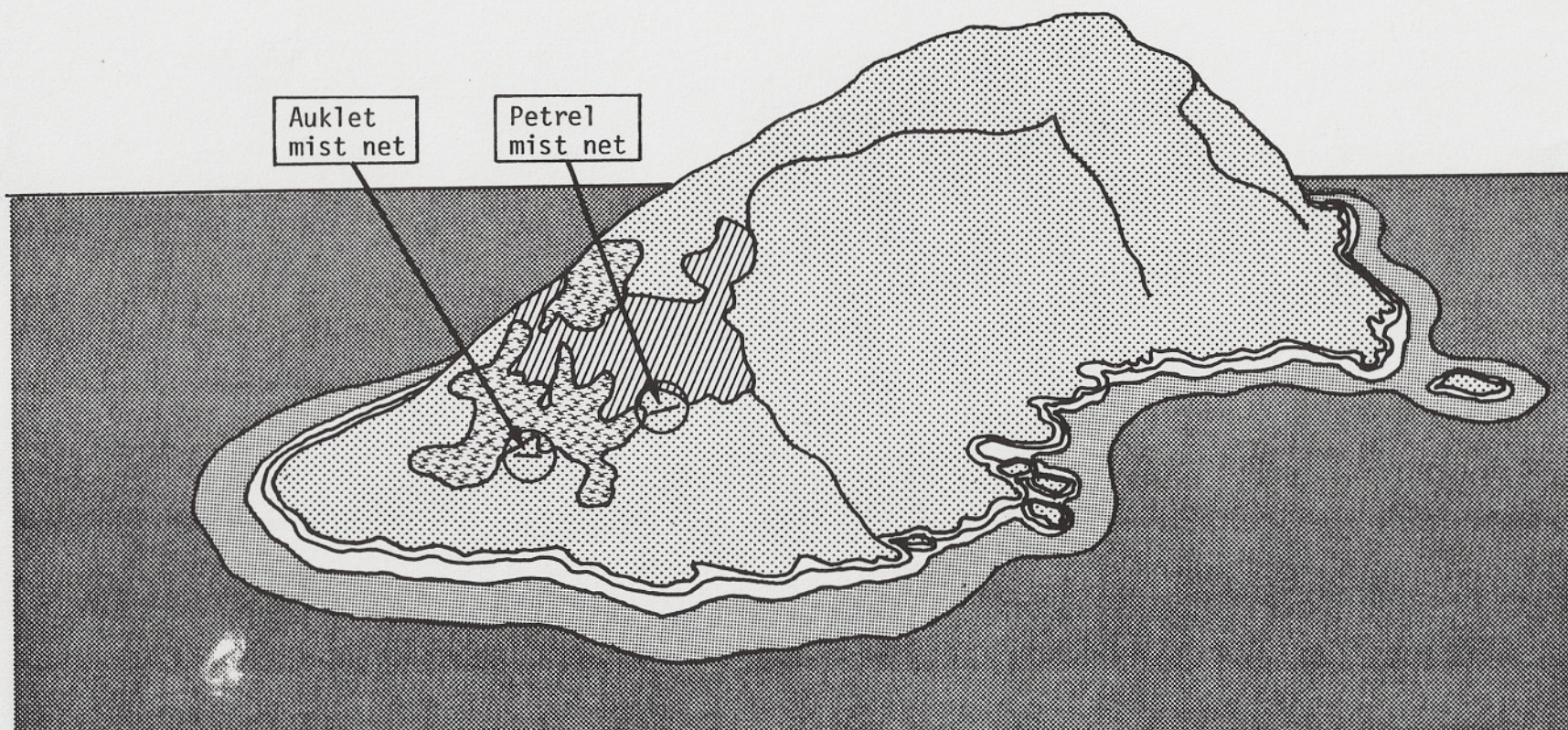


Fig. III-13 . Prince Island (San Miguel Is.):  
perspective sketch of SE and NE slopes showing  
locations of Auklet and Storm-Petrel mist nets.





## Ashy Storm-Petrel: Historical and Present Status (continued)

### Santa Rosa Island

There is no historical information concerning Ashy Storm-Petrels breeding at Santa Rosa Is., and no additional information was discovered during the course of our survey work. Santa Rosa Is. has no offshore rocks of sufficient size to support even a small contingent of storm-petrels, though the extent to which the precipitous cliffs along the north side of the island might be used remains unknown.

### Santa Cruz Island

Even though the storm-petrel population at Santa Cruz Is. appears to have been quite small, numerous records of storm-petrels exist from there. This is because Santa Cruz Is. was visited frequently by early egg collectors, who only rarely braved the trip to San Miguel Island.

The first record is of a small colony discovered in Painted Cave in 1912 (Wright and Snyder 1913); "four eggs (two WFVZ uncat.) and one small young, together with adults "(SU 9813, 8914) were collected at that time. Another set of eggs was collected there on 23 June 1913 by D. R. Dickey (WFVZ 64273). Pemberton and Peyton collected two sets on 2 June 1928 (WFVZ 2888, 73963) east of Scorpion Harbor, and Paquette (unpubl. notes in WFVZ) took three sets on 19 May 1936 from an offshore rock at Scorpion Harbor. An incubating adult (SDNHM 17248) and ten sets were collected on 17 May 1936 from a "detached rock" at Scorpion Harbor by Stephens and Badger (WFVZ 1384-1386, 27676, 30306, 30307, 30318; WFVZ uncat.; Stevens, unpubl. notes). Sixteen egg sets were taken on 23 May 1937 at Scorpion Harbor and Orizaba Harbor (Painted Cave) (WFVZ 27677, 30319-30323; WFVZ uncat.; SBM uncat.). Nineteen more sets were taken at these two localities on 22 May 1938 (WFVZ 1633-1637, 12099, 54273, 54274; WFVZ uncat.; Stevens, unpubl. notes), eight more sets on 26 May 1940, and three sets at Scorpion Harbor on 25 May 1941 (WFVZ 68360; SBCM 7097-7100; Stevens, unpubl. notes). The last report of Ashy Storm-Petrels breeding at Santa Cruz Is. was in 1949, when Stevens (unpubl. notes) collected three more egg sets (exact locality unknown). Egg collecting activities (though not necessarily nesting activity) were apparently restricted to Scorpion Rk. (just east of Scorpion Harbor) and Painted Cave.

Present Status - During this study, Ashy Storm-Petrels were found breeding on several offshore rocks along the north side of Santa Cruz Island. At Scorpion Rk., on 22 June 1976 an Ashy Storm-Petrel was found incubating an egg under a large overhanging ledge on the south side of the largest rock. This was the only nest found during a 90 min. daylight search. On the night of 25 June 1976



## Ashy Storm-Petrel: Historical and Present Status (continued)

nine Ashy Storm-Petrels were netted, measured, banded and released on the largest rock; six of these had clear brood patches. These birds may have been breeders from the adjacent rock or even the main island. The 22 June bird, still on its egg, was banded on 25 June 1976. In 1977, four nests were found on Scorpion Rk.

On Diablo Rk. immediately west of Diablo Point, the larger of the two rocks was thoroughly surveyed on foot on 15 July 1976. Four storm-petrel nests were located and presumed to belong to this species.

"Sppit" Rock (named by researchers in 1976) is the first rock west of Twin Harbors. It was briefly surveyed on 15 July 1976, and eight nests were found in the "catacombs" under the highest part of the rock. Two or three times this number could have existed there. In 1977, eight nests were found. On Gull Island, a single storm-petrel nest was found on 12 April 1977.

On the main island, two hours were spent exploring Painted Cave on 25 June 1976 with no sign of storm-petrels. It is a little unclear, however, exactly where nesting birds were found here previously (e.g. Bent 1919, refers to "the painted caves" of Santa Cruz Is., suggesting more than one location).

Population estimates for the rocks surveyed were: Scorpion Rk.-20 pairs; "Sppit" Rk.-20 pairs; Diablo Rk.-10 pairs; Gull Is.-1 pair. If, as the old Painted Cave records suggest, this species can effectively utilize cliff areas along the north side of the island, then a large amount of nesting habitat was not surveyed. We have no information as to how extensively this area was used by this species.

### Anacapa Island

There is no direct evidence that storm-petrels ever bred on Anacapa, nor was any evidence obtained during 1975-77.

### Santa Barbara Island

Prior to the present study, storm-petrels had never been found nesting at Santa Barbara Island. However, Loye Miller (1936) mentions that while anchored there in late March 1904, "dozens of Ashy Petrels" came on board the boat. Two specimens collected by Miller at Santa Barbara Is. (MVZ 6168 and 45944) are dated 10 April 1904. His notes state: "We were probably quite near a colony preparing to nest." Willet (1912:11) "made a careful search" over all of Santa Barbara Is., including what was probably Sutil Is., in June 1911 and found no trace of breeding storm-petrels. Numerous other researchers have spent nights on Santa Barbara Is. throughout the years and never noticed the presence of storm-petrels, nesting or otherwise (e.g. Grinnell 1897; Wright and Snyder 1913; Sumner 1939; Crossin and Brownell 1968; Hunt and Hunt 1974). DeLong (1967) and



## Ashy Storm-Petrel: Historical and Present Status (continued)

Chandler searched and found no storm-petrels on 20 August 1967, but they state that Don Bleitz had found them there in small numbers. Crossin and Brownell (1968) specifically mention that no storm-petrels were detected in the Landing Cove area on 11 May 1968, an area "where they had previously been recorded" (probably referring to DeLong's (op cit) information).

Present Status - During 1976 and 1977, storm-petrels of two species were found breeding at Santa Barbara Is. (see also Black Storm-Petrel). Ashy Storm-Petrels were recorded breeding on Sutil Is. just off Santa Barbara Is. for the first time in 1976. On 25 May, two nest burrows of unknown contents were located by smell. On 10 June strong petrel odors were detected in several places along the cliffs at the base of the slope on the southwest side, and a nest with an egg was also found. During mist net operations on the night of 27 June, three Ashy Storm-Petrels were captured and several others were heard calling and seen flying. A net casualty was deposited in the San Diego Natural History Museum (SDNHM 39940). On 17 July, six more birds were captured at night using the net at the same site (a pebbly beach at the base of the cliff on the southwest side). The two birds banded on 27 June were recaptured at this time also. In addition, two other individuals were heard singing. Our conservative estimate of the breeding population on Sutil Is. was 20-25 pairs. However, the extent to which the precipitous north face was used was not known.

In 1976 small numbers of storm-petrels were heard throughout the season in the Cat Canyon area, and a single (presumed Ashy) storm-petrel flew on board our boat anchored in Landing Cove on 3 May 1976. It was not until 1977, however, that it was confirmed that Ashy Storm-Petrels breed on Santa Barbara Is. proper. In 1977, 62 Ashy Storm-Petrels were banded at various locations around Santa Barbara Is.; of these, nine were recaptured. Over 90% of the birds captured had brood patches, and although only a single nest was found, it is felt that the net captures are probably indicative of the breeding population there.

In summary, the breeding population at Santa Barbara Is., including Sutil Is., was estimated to be 150 pairs. Nesting density was very low and restricted to the rocky periphery of the island. Many hours of search revealed only one good and one probable nest site on the island, and it is very possible that earlier researchers just overlooked this species.

### San Nicolas Island

Grinnell (1897) heard several unidentified storm-petrels and saw one fly by his tent at night in May 1897, but there are no actual breeding records from the island. No evidence of breeding was obtained during 1975-77. In addition, on a survey around the entire



## Ashy Storm-Petrel: Historical and Present Status (continued)

island in 1977, suitable habitat was not seen.

### San Clemente Island

On 8 April 1904, L. Miller collected an Ashy Storm-Petrel (MVZ 6167) which came aboard his ship at night while anchored just off the island. Another was collected, also aboard ship, while anchored at night near Pyramid Pt. on 30 August 1935 (Miller 1936: UCLA 32214). Holder (1910:162) says "One night at Mosquito Bay, San Clemente Is. I saw something like a big bat crawling at the entrance of my tent. It proved to be the young of the black (?) petrel, an attractive little creature, which I endeavored to save but it died the following day." There is, however, no firm evidence of Ashy Storm-Petrels ever having bred on San Clemente Island.

Present Status - No Ashy Storm-Petrels were found on San Clemente Is. in 1975-77 either by our personnel or by Public Works personnel working on the island (J. Larson, pers. comm.). Several days were spent in 1976 and 1977 in the area of Seal Cove searching for nest sites and netting and listening at night. This area was felt to contain some of the best habitat for nesting hydrobatids on the island, but no indication of occurrence was found. If any storm-petrels utilized San Clemente Is., their numbers were extremely small.

### Santa Catalina Island

There appear to be no records of storm-petrels at Santa Catalina Is. in the past, and none were found during 1975-77.

#### c. Breeding Biology

The only important studies on the breeding biology of Ashy Storm-Petrels were conducted on the Farallon Islands off San Francisco, where this species is most abundant (Ainley et al. 1974: and references therein). With the general inaccessibility and small size of the Channel Island colonies, it is doubtful that studies of this kind could be successfully undertaken in this area. Hence, no regular program was initiated to study the nesting habits and success of this species. Instead notes on observations, taken opportunistically, are summarized below.

#### Habitat

Nests were invariably found on the floors of natural cracks and crevices with eggs deposited directly onto the substrate (loose dirt, gravel or solid rock). No nests were found in excavated burrows, although these may have been used to some extent. This is in marked contrast to Leach's Storm-Petrel, which is usually described as a



## Ashy Storm-Petrel: Breeding Biology (continued)

a burrow excavator (Palmer 1962; Harris 1974).

### Phenology

Because of the nocturnal and secretive habits of storm-petrels, information on the timing of major breeding events was extremely difficult to obtain. Therefore, data gathered from all the Channel Islands during 1975-77 were combined to give the best picture of breeding phenology possible.

Individual Ashy Storm-Petrels were present at colonies from at least 17 January (1977), the earliest date that colonies were visited, until 24 August (1976), the latest date colonies were visited. Ainley et al. (1974) found Ashy Storm-Petrels on the Farallon Islands present at the colony the entire year around (though in much reduced numbers in the winter months). This was probably the case in the Channel Islands also.

The seasonal pattern of colony visitation by Ashy Storm-Petrels, as inferred from birds captured in mist nets (Fig. III-14 ), was somewhat confounded by the fact that the numbers captured depend upon weather conditions at sea (affecting foraging capability) and lunar conditions (a bright moon retarding visitation; see Crossin 1974; Palmer 1962). In both 1976 and 1977, however, prominent peaks of occurrence were recorded in June (8 June 1976 and 5 June 1977), when the highest number of birds were captured in mist nets. Ainley et al. (1974) found Ashy Storm-Petrels were most common on the Farallons in June as well.

Eggs were present from at least 7 June (1977), when a bird with a fully formed egg in its oviduct was captured on Santa Barbara Is., through 15 July (1976). Chicks were found only on 15 July 1976. Brood patch information, however, indicated that the breeding cycle was considerably more protracted than these records suggest. On the night of 17 February 1977, 22 Ashy Storm-Petrels were banded as they flew aboard our vessel, which was anchored at Yellowbanks, Santa Cruz Island. Numerous other individuals were seen but not captured. Only three captured petrels had completely feathered brood patches: the remainder had clear brood patches (eight individuals) or were in various stages of refeathering (nine individuals). Two birds appeared to be in the process of shedding brood patch down. On 22 March 1977, three Ashy Storm-Petrels captured onboard the boat at Santa Barbara Is. all had refeathering brood patches. Ainley et al. (1974) found that brood patches started refeathering two to ten days after eggs hatched. This observation was then useful in determining approximately when eggs were laid. Assuming a 44 day incubation period (Ainley et al. 1974), birds refeathering brood patches at Yellowbanks on 17 February had laid eggs in late December or early January. It is well known that bird populations at lower latitudes tend to have



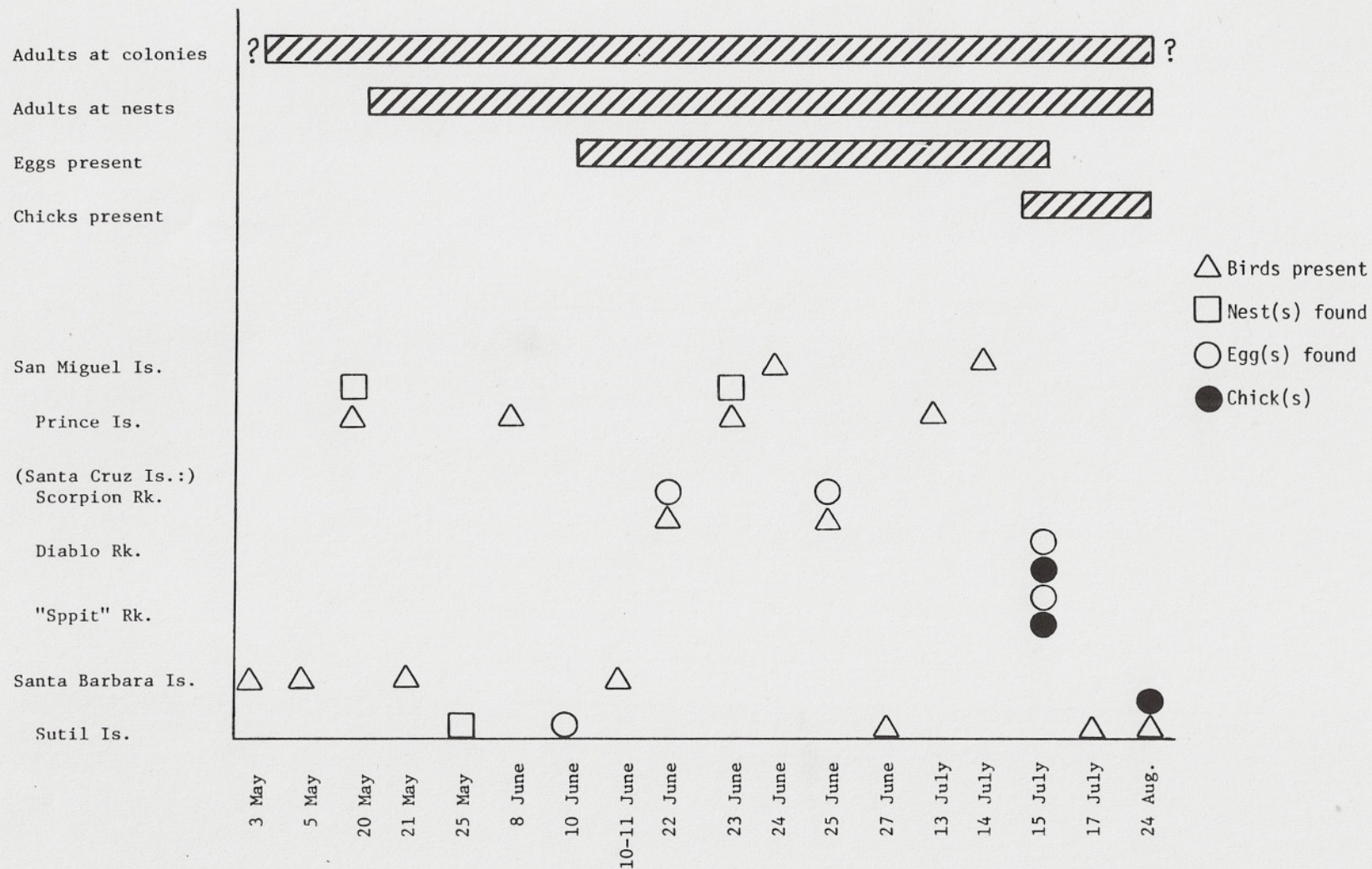


Fig. III-14. Timing of Breeding Events of Ashy Storm-Petrels, Channel Islands, 1976.



## Ashy Storm-Petrel: Breeding Biology (continued)

longer breeding seasons than conspecifics at higher latitudes. Ainley et al. (1974) have commented on the already extended breeding period of Ashy Storm-Petrels on the Farallon Islands off San Francisco, and it is possible that nesting occurs year-round on the Channel Islands.

### d. Food Habits and Foraging Areas

No data on foods or foraging areas used by Ashy Storm-Petrels were gathered during this study, except the distributional data obtained during our regular pelagic surveys. According to Ainley et al. (1974), Ashy Storm-Petrels are confined to waters just seaward of the edge of the continental shelf. They are thus found almost exclusively over the cold waters of the California Current. Foods of Ashy Storm-Petrels include small fish, cephalopods (Ainley et al. 1974) and larval stages of the spiny lobster, Panulirus (Anthony 1898).