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Resumption of Nursing in "Weaned" Hawaiian Monk Seal Pups

Doris J. Alcorn and John R. Henderson

It is not uncommon for Hawaiian monk seal (Monachus schauinslandi) pups to be nursed by mothers other than their own, and a mother may nurse two pups simultaneously (Johnson and Johnson 1978, 1981). Weaning by monk seal pups is determined to have occurred when the mother, usually emaciated from having nursed a pup for approximately five weeks without herself feeding, leaves her pup and swims to sea to feed.

However, pups already weaned from their natural mother have not been heretofore reported to resume suckling on another mother. During the spring of 1982 two such incidents were observed in the Northwestern Hawaiian Islands, one on Lisianski Island, and the other on neighboring Laysan Island. The former incident lasted only a few days, but the latter extended for an entire additional nursing period.

LISIANSKI ISLAND

At Lisianski Island in March 1982, one of us (JRH) observed a weaned male pup resumed suckling on a foster mother two days after the pup's weaning. The weaning had appeared normal, and after the mother returned from the sea, she was regularly seen the remainder of the field season. This pup had been weaned within 25 meters of its future foster mother on the same day that the foster mother pupped. For two days the female repeatedly rebuffed the weaned pup's attempts to suckle, but then acquiesced, and nursed it along with her own pup for two days.

The initial nursing period of the weened pup is not known, but it may have been considerably less than normal, as the pup was somewhat underweight and had completed only 10% of its pup molt, which is normally finished prior to weaning.

LAYSAN ISLAND

On 18 March 1982, one of us (DJA) observed a female pup during the first 1982 Laysan Island seal census. The pup was with an adult female, and was estimated to be at least two weeks old based on its black pelage and size. Thereafter, the mother-pup pair was observed daily (with the exception of two days) until the pup was weaned on 6 April. The size of the pup was normalat weaning, thus supporting the initial age estimate. The first nursing period for this pup was therefore estimated at a minimum of 33 days.

This weaned Laysan pup appeared to actively search for a mother for 7-8 days before it was adopted by an adult female whose pup had died. The weaned pup was then nursed by its foster mother for 34-45 days. The rest of this section describes the adoption, second nursing period, and second weaning of this pup.

The pup stayed at the first weaning site for three days, then moved west approximately 85 meters. At that time it was following an adult female who had temporarily lost her pup during a pup exchange. The weaned pup stayed within 1.5 meters of this female and even rested against her once, although she ignored the weaned pup and vocalized loudly. The next afternoon the female and her pup were observed to be reunited, but the weaned pup continued to follow the mother-pup pair and remained close to them for the next two days.

On 12 April the weaned pup was observed near a mother with a dead pup. The death had occurred during birth on 11 April (p.m.) or 12 April (a.m.) On 13 April the dead pup was removed for a necropsy while the mother was asleep. When the mother awoke, she vocalized while looking around, then moved toward the area of the weaned pup. Later that afternoon the mother of the dead pup was seen 18 meters east of the death site, following the weaned pup. They were together on 14 April, and on 15 April was observed.

To verify that the "weaned" pup was still with its foster mother and was suckling, observations were made daily between 15 April and 18 May., with the exception of four days. Although extensive observations were not made, the nursing activity appeared normal; the longest single nursing bout recorded was 21 min on 28 April.

The last verified nursing bout was on 17 May. The second nursing period was therefore at least 34 days, and probably extended the entire 35 days the pup and foster mother were seen together. This makes the combined number of days the pup was nursed by both mothers an estimated 67-68 days, which is about



Fig. 1. Laysan pup with foster mother; after 53 days of nursing by a natural mother, and then a foster mother, the pup was unusually large.

Photo by D. Alcorn

twice the average nursing period of 35-36 days, and much longer than the range of 27-50 days reported for monk seals on Laysan (Johnson and Johnson 1978, 1981).

This pup was moderately long a second weaning, measuring roughly 138 centimeters from nose to tail tip. However, it mainly differed from the other newly weaned pups in its immense girth (Fig. 1). When last seen on 29 June before the Laysan research camp was terminated, it was still unusually fat.

CONCLUSIONS

These two cases are unique because the pups had already been weaned before being nursed by another mother. The Laysan occurrence is of special interest because of the combined length of the nursing periods.

Several factors probably contributed to the initiation and duration of the Laysan event: (1) The pup was persistent in attempting to locate a new mother after it was first weaned; (2) it was in the right place at the right time; i.e., near a mother who had lost a pup, and (3) it did not become aggressive towards the female nursing it, unlike some Laysan pups approaching weaning age. It it not known whether the foster mother would have adopted this weaned pup if her own dead pup had not been removed for necropsy. However, the observation at Lisianski of temporary nursing of a weaned pup by a female whose own pup was alive indicates that female do not accept such pups despite the presence of the natural pup.

The fact that a nursing Hawaiian monk seal will accept a pup other than its own may have adaptive advantages. The greater fat reserves gained by the adopted Laysan pup due to extra nursing gave it an advantage in surviving the long weaning period when pups live off fat reserves while learning to catch prey. Older age at final weaning meant the pup was protected by an adult female for a extended period of time, and was more experienced, thus perhaps better able to cope with sharks, advances of adult males, or other hazards of the postweaning period. The extra two days' nursing by the Lisianski pup may have helped compensate for what was possibly an abnormally short nursing period.

There were no obvious disadvantages in these two adoption cases. However, in general it could be disadvantageous to a foster mother's natural pup if it were abandoned or received less nourishment because of a foster pup.

ACKNOWLEDGEMENTS

We wish to thank Dr. C. Whittow, Dr. Kenyon, and E. Kridler for their comments on the manuscript.

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The Arrival, Departure, and Residency of a Small Population of the Lesser Golden-Plover in Hawaii

Reynold T. Larsen¹ and C. John Ralph²

The Lesser Golden-Plover *Pluvialis dominica fulva* in Hawaii is an abundant, nonbreeding resident, and can be seen in almost any grassy area from August through April. As Johnson et al. (1981) have pointed out, relatively little is known about the timing of arrival and departure, or about the dynamics of wintering population. To help fill this gap, we present data on plovers counted over 26 months, covering two complete winters.

METHODS

Between March 1977 and May 1979, the senior author made regular counts by automobile of plovers on the lawns of a Pearl Harbor residential area and golf course. The route was approximately 3.6 km long and included the Navy-Marine golf course on Radford Drive. When possible, two to four counts were made each day. Although there was slight tendency for counts in the early morning or late evening to be slightly higher than those in the middle of the day, this was by no means consistent. In most of this analysis we averaged all the counts for each ten-day period. Although maximum daily counts might have given a truer indication of the total population, average counts better describe actual usage of the area.

RESULTS

Fall Arrival

A few individuals always spend the summer in Hawaii (Henshaw 1910, Berger 1981). However, along the count route, no birds were seen during late summer 1977. Only one bird was seen late in the summer of 1978, on July 31; it was possibly an early arrival. Therefore, the counts probably reflect actual arrivals, rather than oversummering birds.

In 1977, no counts were taken between August 6-22. On the 23rd, three birds had arrived.Numbers gradually increased until September 5, when there was a maximum of ten. Combining the counts into ten-day periods (Fig. 1) shows that about September 12 a plateau had been reached (x=9.8; S.E.=0.6).

In 1978, when continuous counts were possible, the first bird arrived on August 10, with a very gradual increase to a maximum of 14 on August 29. Ten-day average counts (Fig. 1) showed that a plateau was reached about September 2, 1978 (x=9.3; S.E.=0.6).

Winter Tenure

After the main fall arrival by early September, the average number of birds increased only slightly over the next 10-20 days. Thereafter, the population was remarkably stable for about the next 200 days. We had expected some attrition due to juvenile mortality, but this was not apparent from our data. Instead, through remarkably high survival, or from a continuing influx of birds from more peripheral areas, the population remained essentially stable during the entire winter.

Spring Departure

In contrast to the fall arrival, spring departure was accomplished rather rapidly. In 1977, most departures took place over three days: on April 22, there were 14 and 9 birds in two counts;



Figure 1. The mean number of Golden Plover (small horizontal line), standard error of the mean (solid bar), and range (vertical line) recorded on some Oahu fields by ten-day periods from March 1977 to June 1979.

on the 25th, 8 and 6; on the 26th, 5 and 5; and on the 27th, 2, 3, and 1. No birds were seen after the 30th.

In 1978, the movement was even more rapid: on April 21, there were 10, 8, 8, and 8 in four counts; on the 22nd, 6; and on the 23rd, 2 and 1.

In 1979, departure was a bit more prolonged: on April 19, there were 18 birds; on the 21st, it dropped to 9; and over the next four dyas it varied from 0 to 8 birds. Then, on the 27th, four counts were 0, 1, 0, and 1. This was the last day that plovers were present, until a lone bird appeared briefly on July 26-27, perhaps an early arrival.

Therefore, in all three years, departure took place largely during the April 20-25 period.

DISCUSSION

Comments of other authors on the spring departure have been somewhat contradictory. Henshaw (1910) stated that the plovers". .. begin to leave ... early in April, and the migration continues till at least the latter part of May (probably even later)." Johnson et al. (1981) state that departure of 95% of the birds in 1980 was between April 24 and April 30. Our data clearly confirms these latter observations.

There is greater agreement about the dates of all arrival being protracted. A few adults are the first to arrive, possibly those that are unsuccessful breeders. Henshaw (1910) and Dorst (1962) both noted that the young delay their departure from breeding grounds, thus arriving on the wintering grounds later in the Fall. The observations of Johnson et al. (1981) also indicate, though the data themselves are not presented, a strong age differential in arrival. This has been confirmed by Kinsky and Yaldwyn on Niue Island (1981). One cautionary note about "arrival" times should be made. Many of the early arrivals, and perhaps even some later ones, are probably birds that are continuing farther to the south, as was so well documented on Wake by Johnston and McFarlane (1967).

We found no comments in the literature on population dynamics in wintering plovers. Our data suggest a remarkable stability of our population. This is unexpected because one would expect the arriving fall population to be larger than can be sustained through the winter, as ecological dogma would maintain. However, there are two possible explanations for our population's stability. One is that our study area was of such quality that, as residents died, they were replaced by individuals from more peripheral habitats. This is supported by the studies of Johnson et al. (1981) showing that birds remain actively on winter territories, defending areas of presumable better quality against interlopers. Another explanation is that much of the mortality has already taken place, as this species has one of the longest (about 4000 km) migratory flights known (Dorst 1962). Both these factors may indeed be involved; but, whatever the cause, certainly plovers counf find few more salubrious wintering grounds than the grassy fields of Hawaii.

ACKNOWLEDGEMENTS

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ALOHA TO NEW MEMBERS

We welcome the following new members and encourage them to join in our activities.

Joint (National and Hawaii): Laura K.M. Badenhop, Kailua; Mari Lynn DiLullo, Kailua; Dayle Hisana, Honolulu; Herman Kuailani, Haiku; Margaret Russo, Honolulu; Mrs. Celia Y. Weisbrod, Honolulu; Roy Yoneji, Honolulu.

Kammy Wong

HELP WITH 'ELEPAIO

The September issue of the 'Elepaio will be pasted-up 25 August (Saturday) at 1415 Victoria St. #1515 beginning at 12 noon. Call Marie at 533-7530 if you are interested in helping. Everyone welcome to come and learn!

July was proclaimed "Endangered Species Protection Month" by Governor Ariyoshi. In conjunction with this occasion, The Division of Forestry and Wildlife, State of Hawaii, issued a colored poster featuring the endangered 'Alala, or Hawaiian Crow.

The poster can be obtained at the Forestry and Wildlife office on your island; you must pick them up in person, one per person.

AUGUST FIELD TRIP:

MANANA ISLAND

On 18 August (Saturday) the Sierra Club is leading a field trip to Manana (Rabbit) Island. Hawaii Audubon members are invited to go along.

Access to Manana is by permit only, and the permit restricts each field trip to an absolute upper limit of 30 people.

Manana is a small island near Makapuu Beach; it can be reached only by swimming or wading ashore from a small boat. There is no fresh water and no shade on the island. If you are not comfortable with the idea of riding in a small boat, making your way in the surf to a rocky beach, spending several hours in the hot sun, or swimming from the boat to the shore, then this trip is not for you! But, if you are willing to risk these hazards, Manana is a good place to get closeup looks at seabirds on this State Sanctuary.

You must know how to swim in order to go on this trip.

There is a small fee to pay for the boat ride. Interested persons <u>must</u> call Bev Rothenborg (947-3091) in order to get on the list and to find out where the meeting place is.

Phil Bruner, a well-known ornithologist from BYU-Hawaii, will accompany the field trip, in order to talk about the seabirds and to answer questions.

Participants should cover optical equipment with several waterproof layers of plastic, and wear sneakers or other appropriate protective footwear. You are <u>guaranteed</u> to get wet!

WAIKIKI AQUARIUM: HAWAIIAN NATIVE STREAMLIFE

The Waikiki Aquarium is sponsoring a series of Natural History lectures. The August lecture will be given by John Ford of the U.S. Fish and Wildlife Service, and Dr. Robert Kinzie of the U. H. Manoa Dept. of Zoology. They will be talking about the "Origins and Biology of Hawaiian Native Streamlife". Hawaii's freshwater streams are the home for some of the most fascinating and vulnerable creatures. This talk will also emphasize recent research on the native goby fish (o'opu).

The lecture is Wednesday, 22 August, at 7:30 p.m. in the Waikiki Aquarium foyer. A \$1.50 donation is appreciated.



AUGUST PROGRAM: BEEF JERKY, M&Ms, AND **30 THOUSAND PENQUINS**

The quest speaker for the Monday 20 August general meeting will be Dr. Barbara Siegel. Dr. Siegel is a professor at the University of Hawaii at Manoa; she has done research on organisms in "extreme" environments, such as the antarctic. Her slide show is entitled "How to Survive with Beef Jerky, M&Ms, and 30 Thousand Penquins".

PLEASE NOTE THAT THIS MEETING WILL BE AT MANOA LIBRARY on Oahu (2716 Woodlawn Dr.) at 7:30 p.m. We were unable to schedule our regular meeting place. The interested public is invited to attend.

IF NOT A MEMBER, PLEASE JOIN US

JOINT MEMBERSHIP

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Special rates for full-time students and Senior Citizens (65 years of age or older) are available. Please write for application form.

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All Local Memberships and Subscriptions are for a calendar year January through December. New Local Members and late-renewing members who send in dues through September may obtain all previous issues of 'Elepaio in that calendar year, upon request and reimbursement to the Society for mailing costs. Dues received after September are applied to membership extended through the following calendar year, but do not include previous issues of 'Elepaio in the current year.

Kauai

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		CALENDAR OF EVENTS
Aug.	18	(Sat.) Sierra Club field trip to Manana Island. See page 14 of this issue for more information.
Aug.	20	(Mon.) General meeting at the MANOA LIBRARY at 2716 Woodlawn Dr. at 7:30 p.m. Speaker is Dr. Siegel on How to Survive with Beef Jerky, M&Ms, and 30 Thousand Pen- quins. PLEASE NOTE THAT THIS IS NOT OUR USUAL OAHU MEETING PLACE.
Aug.	22	(Wed.) Board meeting at the home of Dr. Conant at 3419 E. Manoa Rd. Meeting begins at 7:00 p.m. Call 938-7439 or 948-8241 for info.

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ADDRESS CORRECTION REQUESTED

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