GENERAL NOTES

Wear and Wing Length in the Cardinal.—There are few birds in which the wing length of an individual may be determined in late fall or winter and again in the following summer (June-August). At Hillsborough, North Carolina, the Cardinal (*Richmondena cardinalis*) is such a species. Even in this species the amount of data obtainable for the summer months is rather small. I submit *estimates* of the cumulative loss of wing length for the months of April to August.

April	0.4 m.m.
May	0.4 m.m.
June	1.0 m.m.
July	2.1 m.m.
August	2.4 m.m.

There is no measurable loss through March. Since the average precision of measurement using a wing rule on a live bird is 0.5 m.m., there is no real proof of loss in April or May. This agrees with what one sees on looking at the tips of the longest primaries.—Charles H. Blake, Box 613, Hillsborough, N. C., 27278.

Roseate Tern, *Sterna dougallii*, banded on Atlantic Coast recovered on Pacific.—On August 8, 1969, I banded a nestling Roseate Tern, *Sterna dougallii*, on Great Gull Island, New York, 72° 07′ W. and 41° 12′ N. The bird was given an individual color combination consisting of three color bands along with a U. S. Fish and Wildlife Service band (742-74481: Aluminum/Blue-orange stripe/Red/Blue-orange stripe) as part of a study of post breeding dispersal of young terns to be conducted later in the season. At the time of banding, the ninth primary of the tern appeared to be two inches long and upon comparing this with measurements of the primaries of known age birds I estimated the age of this bird to be about 16 days.

On October 3, while checking for color banded terns at Milford, Connecticut, located about 125 km. west of Great Gull Island, Grace Donaldson and I read the color combination of the Roseate Tern noted above. On October 27, twenty-four days later, Mr. Jack Fredericks picked up this bird on the shore of Gorgona Island, about 28 km. off the Pacific coast of Colombia, South America. Upon receiving the report of the recovery of the Roseate Tern from the U. S. Fish and Wildlife Service, I called Mr. Fredericks who lives in Glendale, California. Mr. Fredericks had written down the color combination when he found the bird. The combination corresponded with the one we used as recorded above. Mr. Fredericks reported that the bird was alive when he picked it up, but it appeared exhausted and died a short time later.

The Roseate Tern does not normally occur on the Pacific coasts of North and South America; the present individual had apparently not found them to its liking either. It would appear from a search of the literature that this record represents the second specimen handled from the Pacific coast of North America. The species is not mentioned in the Mexican Check-list but Laurence (*Bull. U. S. Nat. Mus.* **4**, 51, 1876) lists a specimen collected by Sumichrast from Ventosa Bay, Tehuantepec, Oaxaca, Mexico. Maybe this was the basis of Bent's mistaken belief that the species winters from "Tehuantepec to Chile". No standard work on Chile mentions it.

I would like to thank Grace Donaldson, Mary LeCroy, Alan Poole and Herb Brower, all of whom participated in the color banding project.—Helen Hays, Department of Ornithology, American Museum of Natural History, New York, N. Y. 10024.

Homing by nesting Semipalmated Sandpipers displaced from Barrow, Alaska.—Successful research into avian orientation and navigation requires careful selection of species and localities. As an exploration of the value of homing behavior of nesting calidridine sandpipers of Barrow in this regard, we designed and implemented a small experiment in June 1971, as follows: five mated pairs of Semipalmated Sandpipers (*Calidris pusilla*) were captured at their nests (each

TABLE 1. DATA FOR 4 PAIRS OF *C. pusilla* USED IN HOMING EXPERIMENT

Pair	Batch	♂ Wt.	♀ Wt.	Release Difference ♂*vs.* ♀: Time	Distance	Date Capt.	Distances Returned	Time Elapsed
1	1	24.0 g	31.0 g	70 min	0 km	17 June	620, 620 km	9 or 10 da.
2	2	27.0 g	29.0 g	150 min	225 km	18 June	620, 400 km	6 or 7 da.
3	1	25.0 g	25.8 g	125 min	5 km	17 June	———	———
4	2	25.2 g	27.6 g	150 min	225 km	18 June	———	———

containir g a complete four-egg clutch) and sent south in two batches by airplane, for release at either Bettles or Fairbanks, Alaska, on the day following capture. They were transported in 4-compartment cartons, allowing release of a single bird at a time.

One of the pairs died before release, owing to airline delay. Two of the four remaining pairs returned to their territories at Barrow, as summarized in Table 1. Pair 2 actually resumed normal incubation of their nest, the four eggs of which had not been disturbed in the 10-day interval between capture and return. No single birds of the remaining two pairs of birds were seen to return, but separation of mated male and female, in time or location of release did not necessarily hinder their returning. The only difference between returning and non-returning pairs that we can detect is that the former averaged slightly heavier at capture. Differences in physiological condition at release probably also account for the longer time taken by pair 1 to return: the birds of batch 1 were held captive at higher temperatures, and without food or water for several hours longer than those of batch 2.

This study demonstrates the tendency of displaced *C. pusilla* to return to their nests or territories from considerable distances, and suggests the feasibility of using this homir g tendency in an expanded systematic study of orientation and navigation.—David W. Norton, Institute of Arctic Biology, University of Alaska College, Alaska 99701, and Uriel N. Safriel, Department of Zoology, Hebrew University, Jerusalem, Israel.

Sexing Western Sandpipers By Bill Length.—To facilitate migration studies of the Western Sandpiper (*Ereunetes mauri*) in central California we found it important to determine the sex of the Western Sandpipers that we band. Although there do not appear to be any distinctive plumage differences between the sexes, there is a mensural character, bill length, from which the sex of a large proportion of the Western Sandpipers can be determined.

The bill length, from the tip of the upper mandible to where the feathers meet the upper mandible, was measured by both authors on 140 Western Sandpipers in the collection of the Museum of Vertebrate Zoology, University of California, and on 77 thawed carcasses of Western Sandpipers killed on Bolinas Lagoon during the 1971 spring migration. Measurements were taken to the nearest 0.1 mm using dial calipers calibrated to 0.05 mm. To decrease the probability of including museum specimens that were incorrectly sexed, only adult birds collected between April 1 and August 5 were considered. The sexes of the Bolinas Lagoon birds were determined from dissection and inspection of the gonads by R. Jurek or by one of the authors (G. P.). To determine the usefulness of the bill measurement as an indicator of sex in the Western Sandpiper, the means and the standard deviations of 70 males and 70 females from the museum were calculated. From these data (see table) normal frequencies of male and female bill lengths were established (Sokal, R. R. and F. J. Rohlf, 1969. Biometry, W. H. Freeman and Company, San Francisco: 114-115).

Sex	Sample Size	Range	Mean + and − 2 Standard Errors	Standard Deviation
Male	70	20.4 – 25.5	22.58 – *22.83* – 23.08	1.03
Female	70	22.5 – 30.1	26.19 – *26.51* – 26.83	1.34

From the normal frequencies of the male and female bill lengths, we found that 93% of the males and 5% of the females have a bill length $\leq$ 24.2 mm., 90% of the females and 2% of the males have a bill length $\geq$ 24.8 mm and 5% of each sex have a bill length between 24.3 and 24.7 mm. If all birds with a bill length $\leq$ 24.2 are considered as males and $\geq$ 24.8 as females in 100 Western Sandpipers with a male to female ratio equal to unity, 46 birds will be sexed correctly as males and 45 correctly as females. Of the remaining nine birds, three will be sexed incorrectly as males, one incorrectly as a female, and five will remain unsexed.

To test whether the bill lengths of the museum specimens differed from those of the Bolinas birds, the bill lengths of 70 males from Bolinas (mean = 22.7,