

site caused a large number of the deaths among two-week-old nestlings. I removed them whenever I would find them, but I often missed a few. This parasite did not seem to bother the young Tree Swallows. I believe the use of DDT in future experiments of this type might free the nests of all parasites.

SUMMARY

1. The use of artificial nesting sites in the humid Transition Zone of western Oregon by Violet-green Swallows, *Tachycineta thalassina lepida*, and Tree Swallows, *Iridoprocne bicolor*, was studied over a period of four summers (1939 to 1942).

2. Twenty-three nesting boxes in various sites in close proximity were used.

3. Tree Swallows begin nesting sooner after arrival in the breeding area than the Violet-greens but are not as persistent.

4. Both species frequently rear two broods a season.

5. Pairs of both species require a certain amount of living space and will not tolerate intruders into their area. This is an interspecific requirement.

6. Most pairs do not use the same nesting site or locality in succeeding seasons.

7. Young birds do not seem to return to their natal homes.

8. The use of artificial nesting sites is highly successful for both species (80-85%).

9. Most nestling deaths are caused by invertebrate parasites (directly or indirectly) and predacious vertebrate marauders. (The use of DDT might eliminate the former.)

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BIRDS OF AGRIHAN

BY DONALD J. BORROR

BECAUSE of the scarcity of bird records from the northern Marianas, this brief account of the birds observed at Agrihan from July 27 to August 14, 1945, may be of some interest. The writer's visit to Agrihan was for the purpose of making a survey of the island; this survey was terminated rather abruptly, ahead of schedule, by the surrender of Japan and the writer's recall to his base at Saipan on August 14.

Agrihan is a small volcanic island in the northern Marianas, located about 200 miles north of Saipan at approximately 19° north latitude and 145° 30' east longitude. It is oval in shape, and about six miles long and four miles wide. The shore line is for the most part very rocky. The few beaches are composed of loose, black volcanic sand, and the rocks are of similar volcanic material; there is no coral rock present. Inland from a narrow coastal strip the land rises abruptly to an elevation of 3,166 feet, the highest elevation in the Marianas. The central part of the island is characterized by a series of sharp ridges alternating with steep-sided ravines, which radiate from the peaks in the center of the island to the shore line. Trees grow only on the low ground around the periphery of the island, and in some of the ravines up to an elevation of several hundred feet. Elsewhere the island is covered by a dense growth of kunai grass (*Imperata cylindrica*), a grass which grows several feet high and has very sharp-edged leaves. There are no permanent freshwater areas on the island; the ravines fill with water during a rain, but soon dry. The trees in the forest growth around the periphery of the island are mainly coconut (*Cocos nucifera*), with some breadfruit (*Artocarpus altilis*), papaya (*Carica papaya*), banana (*Musa* sp.), and other trees. The undergrowth in these wooded areas is usually very dense, and consists of vines, herbaceous plants, and ferns.

At the time of the writer's visit to Agrihan the rainfall was fairly heavy, and during a 12-day period in which a rain gauge was operating, the total rainfall was 216.2 mm.; this is at a rate of about 22 inches for a 31-day month. Temperatures ranged from 74° to 97° F., with an average of 83.5°.

The writer's observations were confined to the lower areas in the southern third of the island. A number of birds were collected, but due to circumstances beyond the writer's control all the skins were lost during the latter part of August, 1945.

The nomenclature followed is from Ernst Mayr's 'Birds of the Southwest Pacific' (The Macmillan Co., 1945). Of the twelve species of birds observed at Agrihan, at least five appeared to nest there: the White-collared Kingfisher, Micronesian Starling, Cardinal Honey-eater, Fairy Tern, and Common Noddy. There is a possibility that two other species, the Reef Heron and the White-capped Noddy, may also nest on Agrihan.

LIST OF SPECIES

WHITE-TAILED TROPIC-BIRD (*Phaethon lepturus*).—Single individuals of this species were seen on three occasions, July 29, August 5, and August 6.

PACIFIC MAN-O'-WAR (*Fregata minor*).—Two of these birds were seen on August 11, flying in a southerly direction above the southwest shore of the island.



SPOTTED BUTTON QUAIL ON GUADALCANAL. (*Upper*) GRASSLAND HABITAT. (*Lower*) STREAMSIDE ASSOCIATION SHOWING ABRUPT CHANGE FROM GRASSLAND TO FOREST. THE SPOTTED BUTTON QUAIL WAS SEEN MOST OFTEN IN THE GRASS EDGES IN THE FOREGROUND.

REEF HERON (*Demigretta sacra sacra*).—This species was seen along the rocky shore of the island on several occasions; all the individuals seen were of the gray phase.

FAIRY TERN (*Gygis alba candida*).—This is a common and fairly abundant species, and probably nests in the trees at the base of the hills. It is highly prized for food by the natives. Two specimens were collected; the stomachs contained fish.

COMMON NODDY (*Anous stolidus pileatus*).—This is a common species, and appears to nest on the island. Two colonies were found, on cliffs in the southern part of the island. A female collected on August 10 had the following measurements (in inches): length, 16.0; wing, 11.0; bill, 1.6; tail, 6.8; and tarsus, 1.1; its stomach contained fish.

WHITE-CAPPED NODDY (*Anous tenuirostris*).—On August 11 several noddies were seen along the southwestern shore of the island which appeared to be this species; they were smaller and darker than the Common Noddies, and had more white on the head.

PACIFIC GOLDEN PLOVER (*Pluvialis dominica fulva*).—Two individuals were seen on August 10, on a beach along the southwestern shore of the island.

WANDERING TATTLER (*Heteroscelus incanus*).—This species was seen along the beaches on two occasions, August 2 and August 12.

TURNSTONE (*Arenaria interpres*).—Small flocks of Turnstones were seen along the beaches on August 10 and August 11.

WHITE-COLLARED KINGFISHER (*Halcyon chloris owstoni*).—This is a common and abundant species, and probably nests on the island. Two specimens were collected; the stomachs contained grasshoppers.

MICRONESIAN STARLING (*Aplonis opacus aeneus*).—This is a common and abundant species, and probably nests on the island. One specimen was collected; its stomach contained a grasshopper.

CARDINAL HONEY-EATER (*Myzomela cardinalis saffordi*).—This is a common species, and probably nests on the island. One specimen was collected; the stomach contents were not recognizable.

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FIELD OBSERVATIONS ON THE SPOTTED BUTTON-QUAIL ON GUADALCANAL

BY ROBERT C. PENDLETON

Plate 14

MAYR (1945: 58), in his 'Birds of the Southwest Pacific,' gave a description of the Spotted Button-Quail (*Turnix maculosa*) and stated: "Most field naturalists will look in vain for these elusive birds, even in their proper habitat." He also said (op. cit.: 219): "The subspecies *salomonis* Mayr 1938 is known only from a single bird from the grasslands of Guadalcanal. The building of airfields in these grasslands may seriously have threatened the existence of this race."

While in the Medical Corps of the U. S. Navy, the writer spent eleven months on Guadalcanal. His duties consisted, mainly, of