

NOTE
Food Habits of Migrant Birds in the Mariana Islands

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Little has been reported on the food habits of migrant birds on oceanic islands and some shorebird diets are undescribed. Very little is known about the diet of Marsh Sandpipers (*Tringa stagnatilis*) and the wintering food habits of Grey-tailed Tattlers (*Tringa brevipes*) and Terek Sandpipers (*Tringa cinerea*) are still unstudied (Johnsgard 1981, Lane 1987). Most migrant species that visit the Marianas breed in Japan or the Asian mainland in highly seasonal environments that seem markedly different from small tropical islands. Hymowitz et al. (1990) suggest dispersal by migrant shorebirds as an explanation for the disjunct distribution of tetraploid perennial *Glycine* species in the region, and that shorebirds are an important disperser of some plant seeds to islands.

I present data on the habitats and stomach contents of 13 birds collected in recent years in the Commonwealth of the Northern Mariana Islands. Most of these specimens were new island collection records described in Stinson et al. (1991) and a bird records paper in preparation. Single stomach samples are of little value quantitatively but they include data that is rare for some of these species, and rare from oceanic islands. Gut samples are biased by the relative fullness of samples and the rate of passage of different foods.

The gut samples were examined with a dissecting microscope, items identified to taxonomic categories (usually Order) and the percentage of total volume of each category was visually estimated. The common and scientific names of the birds collected are followed by the specimen number (DFW = CNMI Div. of Fish & Wildlife; CRCM = Charles R. Conner Museum, Washington State University, Pullman, WA USA), the date and location of collection, and the habitat where the bird was collected.

Short-eared Owl (*Asio flammeus*): CRCM 93-572; 6 Mar 1992, Rota.

Habitat: open field at airport.

Gut contents: Orthoptera 85% (5 Tettigoniidae); Lepidoptera 10% (1 adult); Odonata? 5% (7 unknowns).

Swinhoe's Snipe (*Gallinago megala*): CRCM 93-570; 7 Nov 1991, Saipan.

Habitat: unknown.

Gut Contents: Coleoptera 93% (3 larvae); unknown Insecta 5% (1 adult); Hymenoptera 2% (1 adult).

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- Common Snipe (*Gallinago gallinago*): CRCM 91-147; 14 Dec 1989, Rota.
Habitat: muddy ditch near taro field.
Gut contents: Annelida, Oligochaeta 63% (earthworms); Diptera 16% (35 Chironomidae larvae-10%; 10 mosquito pupae-6%); grit/inorganic 8%; unknown Insecta 4% (misc. larvae); misc. seeds 5%; vegetation 2%.
- Bristle-thighed Curlew (*Numenius tahitiensis*): CRCM 90-9, 6 Oct 1989, Saipan.
Habitat: open field and rainwater pool at concrete catchment overflow near airport runway.
Gut contents: Lepidoptera 74% (32 larvae); Mollusca, Gastropoda 18% (\geq 12 snails); Orthoptera 7% (4 Acrididae); vegetation 1%.
- Marsh Sandpiper (*Tringa stagnatilis*): CRCM 90-7, 6 Oct. 1989, Saipan.
Habitat: open field and rainwater pool on concrete catchment overflow near airport runway.
Gut contents: Diptera 86% (\geq 77 Chironomidae larvae-60%; 5 mosquito pupae-26%); unknown Insecta 5%; vegetation 10% (includes 1 seed); inorganic 1%.
- Terek Sandpiper (*Tringa cinerea*): CRCM 91-141, 26 Apr 1989, Pagan.
Habitat: brackish lake shore.
Gut contents (small amount, well ground): inorganic 55%; Diptera 30% (12 pupae); Hymenoptera 9% (1 Formicidae); unknown Insecta 3%; vegetation 3% (includes 2 seeds).
- Grey-tailed Tattler (*Tringa brevipes*): DFW 456, 6 Mar 1991, Saipan.
Habitat: sandy tidal flats.
Gut contents: Crustacea, Decapoda 100% (2 *Uca* sp.).
- Grey-tailed Tattler: CRCM 93-569, 7 Mar 1991, Saipan.
Habitat: sandy tidal flats.
Gut contents: Crustacea, Decapoda 70% (*Uca* sp.); inorganic 30% (coral grit).
- Black-winged Stilt (*Himantopus himantopus*): CRCM 91-146, 12 Sep 1990, Saipan.
Habitat: flooded taro field.
Gut contents (small amount, well ground): Coleoptera 98% (larvae and pupae); vegetation 2% (roots).
- Laughing Gull (*Larus articilla*): CRCM 91-136, 9 Apr 1990, Saipan.
Habitat: semi-urban shoreline.
Gut contents: Orthoptera 50% (Blattidae); bread? (garbage) 50%.
- White-winged Tern (*Chlidonias leucopterus*): CRCM 89-3042, 6 Oct 1989, Saipan.
Habitat: airport runway, open field.
Gut contents: Orthoptera, Gryllidae 100% (11 Oecanthinae-tree crickets).

Cattle Egret (*Bubulcus ibis*): DFW 467, 7 Mar 1991, Saipan.

Habitat: grass field.

Gut contents: Reptilia, Scincidae 60% (8 *Carlia fusca*); Mammalia, Muridae 25% (1 *Mus musculus*); Orthoptera 8% (5 Acrididae); Odonata 2% (Libellulidae nymph); Coleoptera 2% (numerous small adults, 1 larvae); Arachnida, Araneae 2% (large spider); vegetation 1%; Lepidoptera < 1% (larva); Hymemoptera <1% (adults, 1 Anthophoridae, 1 unknown); Diptera <1% (pupae); Homoptera <1% (adult); Mollusca, Gastropoda <1% (5 snails).

Black-crowned Night Heron (*Nycticorax nycticorax*): CRCM 91-144, 29 Nov 1990, Rota.

Habitat: field, forest, and roadside.

Gut contents: Orthoptera 72% (2 Tettigoniidae-36%; 3 Blattidae-36%); Lepidoptera 10% (larva); misc seeds 10%; Coleoptera 5% (adults: 3 Elateridae, 1 unknown); unknown Insecta 3% (1 adult and unknown).

Migrant birds in the Marianas exploit a variety of natural and human-created habitats and food resources. Food choice is probably opportunistic, depending on availability within, and the presence of, preferred habitats. Some prey items selected, such as fiddler crabs (*Uca* sp.) eaten by the tattlers, and skinks (*Carlia fusca*) eaten by the Cattle Egret, are abundant and conspicuous where the birds were collected. Cattle Egrets are reported to eat lizards and mice elsewhere (Hancock & Kushlan 1984). Three of the gut samples contained small seeds, probably of local origin. The Short-eared Owl and Black-crowned Night Heron both fed on large insects, perhaps because they were unable to find their more typical respective prey of microtine rodents and fish and aquatic invertebrates (Ehrlich et al. 1988). The absence of significant wetlands on Rota probably affects the survival of vagrant wetland species which stop there. Glass et al. (1990) relate accounts of residents picking up emaciated ducks, perhaps unable to regain lost body mass and continue migrating. The relatively recent presence of abundant introduced species (i.e.: *Carlia*, house mice, American cockroach, various insects and plants) may allow some vagrant birds to survive that would have formerly died.

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