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## OBSERVATIONS OF BIRDS AT AN ARMY ANT SWARM IN GUERRERO, MEXICO

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Birds of various species follow army ant raids to prey upon organisms flushed by the ants (studies reviewed in Willis and Oniki, *Annu. Rev. Ecol. Syst.* 9:243-263, 1978). Here we report on birds seen at the raids of one colony of the army ant *Eciton burchelli* near Ixtapa, Guerrero, Mexico (17°40'N, 101°40'W). Our observations are of interest because no ant-following specialists occur this far northwest, and ant-following birds have seldom been studied in Mexico (Sutton, *Condor* 53:16-18, 1951 from Tamaulipas; Hardy, *Condor* 76:102-103, 1974 from Nayarit; Willis [pers. comm.] from Nayarit and Sinaloa).

We observed the ant colony and attendant birds from 08:00 to 17:00 on 24-25 January 1983. The study site was a semideciduous forest with a poorly developed understory on karst topography (elevation 250 m). The army ants conducted active raids from dawn until mid-day, and resumed from mid-afternoon until dark. No raiding activity took place during a mid-day "siesta" (see Schneirla, *Proc. Am. Philos. Soc.* 87:438-457, 1944), when the ants returned to their bivouac. To minimize disturbance of the birds, we stayed well behind or to the side of the ant swarm. The birds were foraging vigorously, and our presence did not seem to disturb them.

A total of seven species were observed feeding at the swarm over two consecutive days (see Table 1). On neither day were birds present at the swarm during the afternoon raids. Five of the six species seen one day were not present the next day, which suggests that the birds were opportunistic in their use of the ant swarms as food resources; ant-following specialists will follow a single ant swarm throughout an entire day, and over the course of many days (Willis and Oniki 1978). To the best of our knowledge, three of these species have not been previously reported at ant swarms: Lesser Ground Cuckoo, Hermit Thrush, and Wilson's Warbler. Other species of cuckoos, thrushes, and wood warblers, however have been observed at army ant swarms (Willis and Oniki 1978).

Willis and Oniki (1978) described the division of avian foraging zones around army ant swarms in Panama: a central zone (A) is richest in flushed prey and is occupied by a large dominant species; the surrounding zone (B) has

TABLE 1. Birds attending the morning raids of a colony of the army ant *Eciton burchelli*, near Ixtapa, Mexico.

Species	Status <sup>a</sup>	Number of individuals attending the raid	
		24 Jan. 1983	25 Jan. 1983
Lesser Ground Cuckoo ( <i>Morococcyx erythropygus</i> )	R	1	0
Dusky-capped Flycatcher ( <i>Myiarchus tuberculifer</i> )	R or M	0	2
Bright-rumped Attila ( <i>Attila spadiceus</i> )	R	1	0
Swainson's Thrush ( <i>Catharus ustulatus</i> )	M	3	2
Hermit Thrush ( <i>Catharus guttatus</i> )	M	2	0
Wilson's Warbler ( <i>Wilsonia pusilla</i> )	M	1	0
Fan-tailed Warbler ( <i>Euthlypis lachrymosa</i> )	R	1	0

<sup>a</sup> R = resident throughout the year, M = migrant.

fewer flushed prey and tends to be occupied by species of intermediate weight and dominance; a peripheral zone (C) is occupied by small or ground species. Although we saw no overt conflicts among species attending the ant raid, the positions and the foraging tactics of the birds differed. The Bright-rumped Attila occupied zone A, where it perched on twigs 1-3 m high and dropped to the ground to capture animals fleeing from the ants. Its prey included a gecko (approximately 10 cm in length), a large scorpion, and many spiders. The Lesser Ground Cuckoo and the Swainson's and Hermit thrushes remained on the ground in zones B and C. The Fan-tailed and Wilson's warblers perched low (less than 1 m) or hopped on the ground in zone C. Dusky-capped Flycatchers occupied zone A, where they sallied from low perches after insects and spiders on the ground. A Summer Tanager (*Piranga rubra*) perched in zone C but we did not see it take prey at the swarm.

Willis (Living Bird 5:187-231, 1966) reported that migrant birds are subordinate to resident ant-followers, as inferred from their foraging position at an ant swarm and aggressive supplantings by other birds. Over a period of four years, he documented the percentages of migrant birds at swarms of *Eciton burchelli* on Barro Colorado Island, Panama; the average percentages ranged from a high of 30% in October to near 0% in May. He suggested that further north, in the absence of specialized ant-followers, more migrants might occur at swarms of *Eciton burchelli*. The percentage of migrants at the ant raid we observed (both days combined) was indeed higher than those recorded on Barro Colorado Island by Willis (1966). Con-

sidering the Dusky-capped Flycatchers as residents (a conservative bias, since they could be either resident or migrant) the percentage of migrants was 62%, roughly twice as high as Willis's highest average migrant percentage of migrants.

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## FURTHER NOTES ON PUNA BIRD SPECIES ON THE COAST OF PERU

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Twelve species of birds from the puna zone (high altitude) of the Andes have been reported on the coast of Peru (Pearson and Plenge 1974, Hughes 1980). (The extent and character of the puna zone were described briefly by Pearson and Plenge.) I here report two additional species, neither of which has previously been recorded from the coast.

*Phoenicoparrus jamesi*. Puna Flamingo. On 27 March 1982, Elizabeth Forster and I saw a single bird at Mejía Lagoons on the coast of Depto. Arequipa. Its uniformly dark red legs were its most striking field mark but we also noted its relatively short bill and pale coloration. The bird remained at the lagoons at least until 27 July. The Puna Flamingo has a restricted range in the high Andes between southwestern Peru and the northern extremities of Chile and Argentina, frequenting saline lakes above 4,000 m. The only previous report from a relatively low latitude appears to be that of three birds found at less than 1,000 m at Orán, province of Salta, Argentina, during July 1966 (Johnson 1972).

*Recurvirostra andina*. Andean Avocet. This species has now appeared for three consecutive years at the Mejía Lagoons. I saw a single bird from 29 August to 8 September 1981 and another was found on 11 June 1982, remaining until 3 July. Yet another was located on 1 March 1983 and it was still present on 17 July; this last individual was seen by several observers, including B. Wyper, B. Wylie, J. P. Myers, T. Schulenberg, S. Allen and E. Ortiz. In all instances the avocets associated with the resident Black-winged Stilts (*Himantopus himantopus*) and frequently behaved aggressively toward them. The Andean Avocet normally inhabits saline lakes in the high Andes, ranging between central Peru and northwestern Argentina. I know of only one previous record from an altitude below the puna zone: a single bird at 330 m in the Huasco Valley, province of Atacama, Chile (Johnson 1965).

Intensified birding in recent years along the south coast of Peru—principally at Mejía—reveals that other puna zone species reach the coast more frequently than was hitherto suspected. This is borne out by the following observations:

*Podiceps occipitalis*. Silvery Grebe. On 22 May 1983, B. Wyper saw a pair of these grebes at Mejía Lagoons and I saw what were presumably the same two on 25 June and 8 July. On 10 July, three birds were present, these being seen by B. Wyper, T. Schulenberg, S. Allen, and me. The only previous sea-level sighting of this species was of a lone bird near Puerto Eten, Depto. Lambayeque, on 21 July 1978 (Schulenberg and Parker 1981).

*Fulica gigantea*. Giant Coot. On 17 July 1983, B. Wyper and I watched a Giant Coot at Mejía as it fed among a crowd of Moorhens (*Gallinula chloropus*) and other coots (*Fulica americana* and *F. ardesiaca*), appearing three times the size of the former and twice the size of the latter. This coot has been previously recorded only once at sea level, also at Mejía, where one was present between 8 December 1979 and 4 January 1980 (Hughes 1980). The vagrancy of this apparently flightless species (Fjeldsá 1981) seems particularly noteworthy.

*Charadrius alticola*. Puna Plover. Seen every year since 1979 at Mejía, with up to six individuals at a time. The records are largely from July through October. This plover has been recorded several times for the coast region of Deptos. Lima and Ica (Pearson and Plenge 1974) and the species is apparently a regular visitor in small numbers to coastal Arequipa as well.

*Cinclodes atacamensis*. White-winged Cinclodes. On 31 October 1981, I saw an individual on the banks of the river Tambo at Puente Fiscal, near Cocachacra, Depto. Arequipa, at an altitude of 160 m above sea level. The only previous coastal observation of this species was of a single bird at Mollendo, Depto. Arequipa, in January–February 1980 (Hughes 1980).

The Andean Gull (*Larus serranus*) and the Chilean Flamingo (*Phoenicopterus chilensis*) have been shown to visit the coast regularly from the puna zone, the gull widespread and the flamingo at certain favored locations, such as Paracas Bay, Depto. Ica, and Mejía, Depto. Arequipa (Pearson and Plenge 1974). The Puna Ibis (*Plegadis ridgwayi*) should now be added to the list: it occurs annually at Mejía, occasionally in flocks of 20 or more (July 1982) but more often singly or in groups of 3–6. Although I have additional Mejía records for the Puna Teal (*Anas puna*) and Andean Lapwing (*Vanellus resplendens*), these two species cannot be regarded as more than casual visitors to the coast of Peru.

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