

## SHORT COMMUNICATIONS

### JAYS AS ARMY ANT FOLLOWERS

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In the course of study of three closely related species of neotropical jays of the genus *Cyanocorax*, I found each to be active attendants of army ant swarms. Willis (Univ. of Calif. Publ. Zool., 79, 1967, and pers. comm.) does not know any corvid as even a casual follower of these swarming insects. Jays are, however, generally known for their enterprising and omnivorous feeding habits and it is perhaps predictable that, given the opportunity, they would avail themselves easily of a food supply such as that provided by the activities of the ants. The species of jays were the San Blas Jay (*C. sanblasiana*), the Yucatan Jay (*C. yucatanica*), and the Bushy-crested Jay (*C. melanocyanea*), and in my brief experiences each species was the principal attendant among several other avian species. The identity of the army ants was not determined.

In each case my observations were limited to a period of a few weeks at most, and therefore I cannot state with certainty whether swarm attendance is sporadic, regular, or seasonal. I observed Yucatan Jays daily, 6–18 April 1968 and 9–30 June 1972 near Zoh Laguna, Campeche, which is 9 miles N of Xpujil on highway 186, which crosses the base of the Yucatan Peninsula. Jays were seen attending army ants only from 6–13 April. Although ants continued to swarm daily thereafter, the jays were not seen at the swarms. I saw no ants in the rainy season of June 1972, when the jays were nesting.

Two essentially discrete flocks varying in composition between 6 and 10 birds regularly ranged over separate parts of about a square kilometer of second growth woodland and thicket, adjacent to our camp in 1968. I did not mark any of these birds for individual identification but since on one occasion about 20 jays were in attendance at a swarm of ants, I surmise that at least on these occasions the two flocks of jays sometimes came together.

Swarms of ants were always active in morning hours. On 6 April my companion, Lazlo Szijj, discovered approximately 20 jays attending a swarm, at about 06:00. At 08:45 the birds were still with the ants, as were several Melodious Blackbirds (*Dives dives*), one Barred Woodcreeper (*Dendrocolaptes certhia*), one Black-and-white Warbler (*Mniotilta varia*), two Yellowthroats (*Geothlypis trichas*), and two Hooded Warblers (*Wilsonia citrina*). No antbirds (Formicariidae) were ever noted at the swarms although the Black-faced Anthush (*Formicarius analis*) occurred in this locality.

The jays were so attentive at the swarm that one could sit within a few feet of them and the ants and seemingly not disturb the birds. They perched a few feet above the ants as they peered down for flushed insects and spiders. When a bird would suddenly drop to ground level to seize prey, it landed among the ants or swooped to a very low perch as if the

area were dangerous. It perched there only momentarily, almost dancingly, with tail up and plumage sleeked, the entire attitude very alert. Almost as prey was seized, the bird jumped backward to a safe distance of a few feet or up into the tree.

While engaged in attendance, the jays gave several vocalizations that I never heard them give in other contexts. This includes failure to hear these calls in a period of 3 years in which a flock of six birds was kept in captivity. The notes uttered were soft "conversational" calls that could not be heard more than a few meters away. I recorded them and they are reproduced spectrographically (fig. 1). The first is a hoarse "foggy bell" note; the second, a metallic clear "tin horn piping note"; the third, a guttural version of this piping note; and the fourth, a metallic "yelp." (These are not notes associated with all types of feeding; Yucatan Jays do have such general feeding calls, which I term food expectancy calls.) As I observed the context of the calls, my impression was that the jays were very excited and intensely involved in the activities of the swarm and the resulting food supply. The notes seemed to punctuate the forage attack, the seizure of prey, and in the case of the "yelp," a split-second encounter between two birds vying for the same prey object.

My captive group of jays ordinarily was not given live prey. Live mice and crickets were occasionally provided. Although these provided the stimulus of active prey trying to escape, they did not evoke the calls described above. I can offer no likely explanation of this since, except for the ants, the situations seemed to provide comparable stimuli. It is possible that a special group of vocalizations is associated only with army ant following. If this is the case, it certainly represents a kind of specialization by the jay as a swarm attendant. Willis (op. cit.), in his discussion of the vocal repertoire of the Bicolored Antbird (*Gymnopithys bicolor*), considers 13 vocal categories, one of which, "grunting," is associated with foraging, which in this species is almost exclusively at army ant swarms. Antbirds grunt in foraging when one bird approaches another; so this call, like the yelp in the jays, is one of interaction rather than foraging.

In a period 12 June–1 July 1969, I observed Bushy-crested Jays daily at Santa Maria de Ostuma, near Matagalpa, Nicaragua. On two occasions I found a group of jays at army ant swarms. On 17 June, I interrupted the event before I knew what was happening and the birds fled. On 18 June, about 08:30, I discovered six or seven jays foraging at a swarm just inside the edge of cloud forest. There were two juveniles, one first-year bird, and three or four adults. Except for a brief period when I arrived and 10 min when they moved away into the trees, the birds were in constant attendance for nearly 2 hr. They perched 1–2 m above the swarm, jumped down rapidly to grab insects, then returned to a viewing and feeding station, in the manner of the Yucatan Jays described above. They occasionally uttered a *clock-clock* social call often given in other contexts, but otherwise they were silent. Other birds at the swarm were three or four Rufous-and-white Wrens (*Thryothorus*

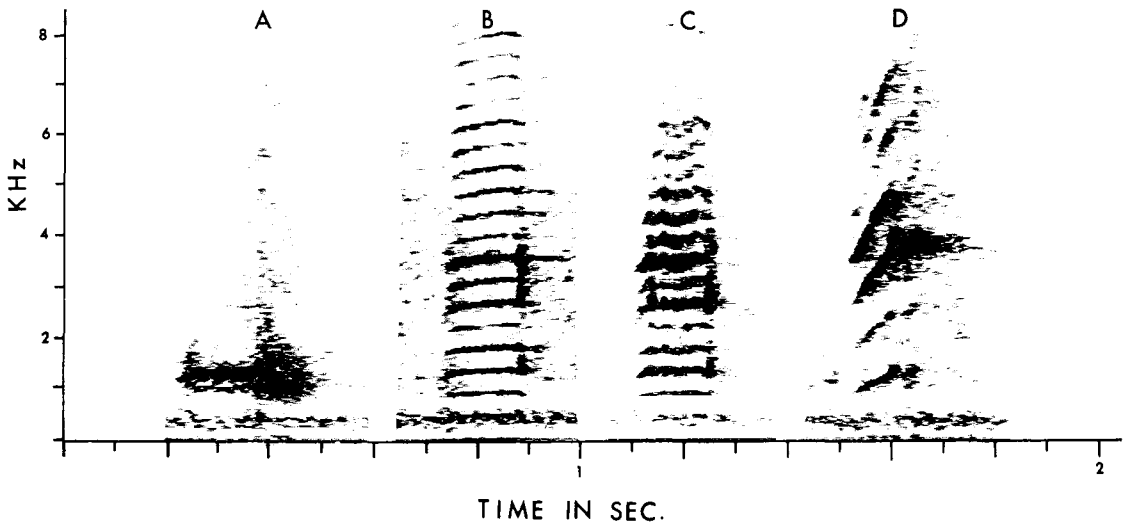


FIGURE 1. Audiospectrograms of four call notes of *Cyanocorax yucatanica* associated with attendance at swarms of army ants. A. "Foggy bell." B. Clear "Tin Horn Piping Note." C. Guttural "Tin Horn Piping Note." D. Metallic "Yelp." Technical data: recorded in the field on a Uher 4000 report tape recorder at 7.5 ips, using a parabolic reflector and an Altec 684A microphone. Analyzed on a Sona-Graph 7029A, with FL-1 and narrow band selector settings.

*rufalbus*), two Orange-billed Nightingale Thrushes (*Catharus aurantiirostris*), two Spotted-crowned Woodhewers (*Lepidocolaptes affinis*), and one White-throated Robin (*Turdus albicollis*). None of these displayed the intimacy of the jays to the swarm. They normally seized a prey object and retired from the scene to devour it before returning.

On 27 April 1968, 10 km SE of Compostela, Nayarit, México, I found a group of San Blas Jays at a swarm of ants on a hillside in dry, tropical deciduous woodland. The birds fled at my arrival; only afterward did I discover myself in the midst of an ant swarm at which they had been stationed. This is my

only evidence that this species indulges in army ant swarm attendance. Although I studied this jay in the nesting season for 2 weeks in 1970 at Las Varas, Nayarit, no ant swarms were active in that area.

*C. beecheii*, the remaining form in the four-species complex of jays, remains to be studied in any detail in the wild. It will be interesting to learn whether it shares the ant-following habit with its close relatives. It will also be instructive to know if this habit has gone unnoticed in any of the other neotropical jays.

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## THE EGG OF A COLLARED FOREST-FALCON

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In January 1968, a captive of the northern race of the Collared Forest-Falcon (*Micrastur semitorquatus naso*) in the National Zoological Park, Washington, D.C., a bird without a mate, laid two eggs on a crude assemblage of sticks and other nesting material in the temporary quarters in which it was housed for the winter season. One of the eggs was broken. The

other came to the Division of Birds in the National Museum of Natural History. The specimen is of interest as there seems to be no authentic published record of the egg in this species (see Meise, in Schönwetter, *Handbuch der Oologie*, lief. 13, p. 771, 1967).

The slightly roughened shell in the specimen is dull pale buff, spotted and washed with dull chocolate, the larger dark markings forming irregular blotches over both ends of the egg. Elsewhere, the pattern of this duller shade merges in an indistinct wash that covers much of the surface. The egg measures  $54.8 \times 43.5$  mm, and is short subelliptical in form.

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## FEEDING ASSEMBLAGES OF JAMAICAN BIRDS

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The utilization of feeding trees by birds provides an opportunity to observe and to measure the degree of

feeding overlap in a given community (Terborgh and Diamond 1970), and it also provides an opportunity to determine the importance of birds as agents of plant dispersal (Olson and Blum 1968). Although feeding assemblages have been investigated on the neotropical mainland by Diamond and Terborgh (1967), Leck (1969), and Willis (1966), little is known about the avian utilization of fruiting trees in the West Indian region, specifically on Jamaica, where this study was undertaken.