

ANTSHRIKES (AVES, FORMICARIIDAE) AS ARMY ANT FOLLOWERS

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ABSTRACT

*Antshrikes related to or in the genus *Thamnophilus* are infrequently recorded following army ants, except for moderate following by *T. (punctatus) atrinuchus* in Central America and by *Taraba major* at forest edges in Trinidad, two locations of low antbird species diversity. Apparently antshrikes depend for prey on gleaning in dense vines and foliage (in canopy, subcanopy, creekside, treefall, forest-edge, swamp, desert-scrub, or second-growth habitats) rather than sallying in more open foliage, and are unwilling to follow ants through patches of open forest understory wherever there are competitors that can use both open and dense zones.*

Neotropical large-billed antshrikes (Formicariidae) occasionally follow army ants and capture flushed arthropods (Oniki, 1975; Willis and Oniki, 1978). Here, in the sixteenth report of a series on birds seen with ants, I consider 16 species of antshrikes, all closely related to and probably congeneric with *Thamnophilus*. Among antshrikes not yet observed with ants, *Megastictus*, *Mackenziaena*, and *Biatas* also are likely to be congeneric with *Thamnophilus*. *Batara* could be maintained as a separate monotypic genus because *B. cinerea* is much larger than other antshrikes. (According to Meyer de Schauensee, 1970, the distribution of species lengths, from 5 to 14 inches, is 9-12-7-2-3-1-0-0-0-1 for antshrikes of the above genera.)

RESULTS

1. *Thamnophilus punctatus* (Slaty Antshrike) followed *Eciton burchelli* raids at Nappi Creek, Guyana (1; Oniki and Willis, 1972), Maloquinha, Brazil (1 with 2 birds), Reserva Ducke (1 with 1 bird, 4 with 2, and 1 with 3), Fazenda Três Pancadas at Ituberá, Bahia (1 with 2), and Fazenda Timbó at Santo Amaro (1 with 1, 5 with 2). Oniki (1975) has reported on records of the forest-inhabiting form *atrinuchus* in Panama and Colombia; it was observed at 524 swarms of ants (68 being *Labidus praedator*) on Barro Colorado Island, Panama, between 1960 and 1981, but ordinarily followed ants briefly or casually. Johnson (1954) also observed it following ants on Barro Colorado. The form *atrinuchus* is probably a separate species.

T. punctatus east of the Andes quiver the tail downward rapidly when

disturbed, "sing" an accelerating *cop-cop-cop-cop-op-op-op-op-op-o-o-oh* without the terminal whine of *atrinuchus*, give *caugh* "grunts" 1-3 times for alarm, call *cop* in disputes, and give a *chop-o-o-o-o-o* "rattle". A male gave food to a female at the Campina Reserve, near Manaus, 16 Sep 1972. A short-tailed young out of the nest was seen at Reserva Ducke, 11 Nov 1973, and a pair and young out of the nest there 8 Dec weighed 21.2, 20.1, and 20.3 g. A bobtailed young out of the nest 24 Nov 1974 at Santo Amaro, Bahia, gave faint *choo* calls. The *punctatus* follow ants only in sunny sand-ridge woodlands, scrub, second growth, or along forest edges, and ordinarily peck prey off lianas or trunks (5 records) 2-5 m up. Once one sallied 0.7 m upward to capture prey on a leaf. Vertical, diagonal, and horizontal perches (5-6-5 records) of low diameter (7-7-0-1-2 records from 0.5 cm diameter, by 1-cm intervals) between 0 and 5 m up (7-12-5-11-2 records, by 1-m intervals) were taken in all regions as the antshrikes hopped under leafy canopies. In such hot zones, few regular ant followers stayed with the ants, so that there were no interactions; but the antshrikes often had to desert when the ants themselves gave up raiding or scattered in shady spots.

2. *Thamnophilus bridgesi* (Black-hooded Antshrike), which replaces *atrinuchus* in the forest understory and dense forest edges in southwestern Costa Rica, followed *burchelli* for 10 min on 27 Mar 1961 at Golfito, working understory vines and bushes.

3. *Thamnophilus caerulescens* (Variable Antshrike) replaces *punctatus* in vine-tangled zones low in upland forests of southeastern South America; it is most easily distinguished from *punctatus* of lower elevations there by its behavior of occasionally lowering and raising the tail rather than quivering it. The "song" is a series of 7 or so *cah* caws. A young male at Campinas, Brazil, 26 July 1975 called *youghh* repeatedly as it followed an adult male. An adult "cawed" *cah* when I captured a bob-tailed young at Fazenda Barreiro Rico, São Paulo, 22 Feb 1976. Young males called after adults at Campinas 30 Oct 1976 (the banded adult male was still nearby in 1978) and at Fazenda Paraíso, Garça, São Paulo 18 Jan 1979. Single males briefly followed *burchelli* once at Fazenda Barreiro Rico, São Paulo, and *praedator* once on the Serra do Japi, São Paulo, and once at 1670 m in Itatiaia National Park, Rio de Janeiro. The rarity and brevity of records for *caerulescens* compared to *atrinuchus*, its counterpart across the equator, may be due to the prevalence of fire-eyes (*Pyriglena leucoptera*) over ants southeastward, or to the tendency of forest ants to move mainly in the open understory away from vine tangles.

4. *Thamnophilus amazonicus* (Amazonian Antshrike), which replaces *punctatus* in equatorial "várzeas", swamps that are seasonally or tidally flooded by sediment-laden "white waters," was briefly at 4 *burchelli* swarms (1 with 2 birds) at Belém, where it normally wanders through the understory in vine-crowded areas with or away from mixed-species flocks. The "song" at Belém is a fast, accelerating *cut ut-ut-ut-u-u-u-u-u-u-u-at*; one call is a rough *caungh*, and a male scolding a snake repeated the noise rapidly. A young male, begging with a *t-t-teu-teu-teu-teu-teu-teu-toot!* faint "song," was at swarms 30 Oct and 6 Nov 1972. Mates called *cool* back and forth, depressing their tails for each note, near another raid without going to it. Prevalence of fire-eyes (*Pyriglena leuconota*) at várzea swarms at Belém may leave little chance for *amazonicus* to descend to ants in the many open zones of the swamp understory.

5. *Thamnophilus aethiops* (White-shouldered Antshrike) of dense saplings around treefalls in forests east of the Andes, followed *burchelli* (2 birds) at Palhão, Brazil, 6 Feb 1966, as the ants passed through a treefall zone. Using

slender, low inclined or vertical saplings, on which *aethiops* clings as well as do regular ant-following antbirds, the pair deserted the swarm even before it entered the open forest understory. The usual alarm call is a sharp *cop* or a "cough," *caugh*; in disputes and alarm, the crest is raised and the tail dropped to 70° below the horizontal, then flicked upward to 20° below the horizontal as in the group of antbird genera related to *Pithys*. At Belém, the song is a slow series of 5-10 *cop* or *cow* notes.

6. *Thamnophilus murinus* (Mouse-colored Antshrike), of dense foliage in the forest midlevels and upper understory, twice was briefly at *burchelli* raids at Reserva Ducke, near Manaus, Brazil. Common both in and away from mixed bird flocks, its rarity at ant swarms contrasts markedly with forest *atrinuchus* in Panama — perhaps because more species of regular ant followers saturate swarms in forests at Reserva Ducke, or because many species of ground-living birds there reduce insect supplies in ground zones through which ants pass and keep this species well above the ground. One alarm call is a low chirr, somewhat like that of *Pithys albifrons*. The normal "song" is a nasal *cut cut cut*, *kiterk*. In a dispute at Manaus, *murinus* raised their crests and gave hollow *kowp* calls. A young out of the nest, giving *ah-ah-ah-ah* faint songs, was fed by a male there 24 Oct 1973.

7. *Thamnophilus schistaceus* (Black-capped Antshrike), which overlaps with or is allopatric to the similar species *murinus* southward and westward, briefly visited one *burchelli* swarm at Palhão, Pará, when a mixed flock passed; it sallied to the ground and waited 0.4 m up over the ants for a few minutes, like a regular ant-follower. Although common there and in several other regions where birds were watched over ants, it was not seen to follow ants otherwise.

8. *Thamnophilus palliatus* (Lined Antshrike), of dense second growth and forest edges in wet regions, followed 5 *burchelli* raids (1 with 2 birds) at Belém and 3 (1 with 2 birds) at Santo Amaro, for 30-70 minutes. At Belém, one supplanted a *Pyriglena leuconota*, but ordinarily the *palliatus* are in denser tangles than are entered by *leuconota* or (at Santo Amaro) *P. atra* and *T. punctatus*. The *palliatus* hop and peer in shady tangles 2-5 m up much of the time (in vegetation 5-10 m tall), hence abandon the ants or wait behind them every time the ants move into spaces between tangles. A male at Santo Amaro, 30 Nov 1974, fed a small hymenopteran to a female. Calls at Belém included an *ah* "caw" and a *cooo*.

9. *Thamnophilus doliatus* (Barred Antshrike) of dense second growth and forest edges in seasonally dry regions, briefly followed *burchelli* at Bacabal (Maranhão), Barreiro Rico, and Morro do Diabo (2 birds), São Paulo. A pair followed *praedator* for 30 min in the edge of savanna ("cerrado") at Brejo Januária, Minas Gerais, where one was supplanted by a Troupial (*Icterus icterus*) and by a Great Antshrike (*Taraba major*). Records ranged from roadside weeds (Bacabal) to well inside an upland woodlot (Barreiro Rico), but centered low in dense tangles even at the savanna edge. Sutton (1951) in Mexico and Slud (1964) in Costa Rica recorded it following ants. A young bird followed a male at Caracas, Venezuela, 4 Feb 1973.

10. *Cymbilaimus lineatus* (Fasciated Antshrike) followed *burchelli* raids briefly at Reserva Ducke (6, one with 2 birds), Nappi (1 with 2 birds; see Oniki and Willis, 1972), Maloquinha (1 with 2 birds), and Mitu, Vaupés, Colombia (1 with 2 birds). Normally it stays only when a mixed bird flock is nearby, for it often follows flocks from one subcanopy or forest-edge vine tangle, palm crown, or dense zone to another. One displaced a canopy-tangle antbird (*Cercomacra cinerascens*) over ants at Reserva Ducke. Disputing males

twitched their tails side to side, gave loud *pool*, *hrai*, *chack* or *cha-a-a-a-ack* notes, and ruffed up their crowns and backs. The "song" is a trogonlike *cool cool cool cool cool*. A male fed a young male out of the nest at Reserva Ducke, 2 Sep 1972.

11. *Pygiptila stellaris* (Spot-winged Antshrike) briefly followed 6 *burchelli* raids (3 with 2 birds) at Belém, descending as low as 3 and 4 m up from its normal subcanopy and upper midlevel mixed forest flocks. It normally hops along branches and terminal twigs peering at dense foliage, especially at dead leaves or debris scattered in such foliage. One tanager (*Trichothraupis penicillata*) supplanted a low *stellaris* when it got prey near ants. Loud *thuck* and *eeeeeeh* notes, twitching the tail side to side, and the large bill remind one of *lineatus*. The song of *stellaris* is a set of 3-7 fast, loud *it-it-it-eeef* phrases.

12. *Sakesphorus melanonotus* (Black-backed Antshrike), of dry scrub and woodlands, followed *praedator* in roadside weeds and scrub on the Turiamo Road, Rancho Grande National Park, Aragua, Venezuela for 2 h on 25 Jan 1973. The tail was dropped and raised repeatedly, like *caerulescens*, or wagged from side to side as the crest was raised and the white back spread as a female supplanted a trespassing female 5 times and a tanager (*Trichothraupis penicillata*) once. Coughing and *cok-ok* or *ot* notes were tape recorded by P. Schwartz. The two females and a male took low perches and sallied to the ground (5 times) or tossed leaves on it (1 time) as expertly as a regular ant follower (of which only *T. penicillata* and some woodcreepers inhabit the region).

13. *Taraba major* (Great Antshrike) followed the above *praedator* raid on the Turiamo Road and 1 raid with *doliatus* at the edge of the cerrado at Brejo Januária. It followed *burchelli* raids at forest edges or second growth at Simla, Trinidad, (10, two with 3 birds and 4 with 2), Nappi Creek, Guyana (1; see Oniki and Willis, 1972), El Tigre, Chocó, Colombia (4, one with 2 birds), Zatzayacu, Ecuador (1 with 2 birds), San Alejandro, Loreto, Peru (1 with 3 birds), Belém (6, one with 2 birds), and Santo Amaro (3). Oniki (1972) records it following ants occasionally at Belém. Regular ant followers are rare or avoid the dense vines and bushes where *major* hops, flicking its tail up from 20° below the line of the body at times. It moves rapidly, peering at nearby overhead leaves and lianas, and stays mostly 1-5 m up in vegetation to 10 m in height. In Trinidad, where regular ground-foraging antbirds are absent, it acted like a regular ant follower, sallying to the ground 19 times from low perches, clinging to peck prey on a leaf 0.9 m up, and pecking a slender stem 0.3 m up. However, it did not move to raids deep in forest despite the paucity of local ant followers. It was remarkably aggressive in Trinidad, supplanting tanagers (*Tachyphonus rufus*) 7 times, woodcreepers (*Dendrocincla fuliginosa*) 3 times, thrushes (*Turdus fumigatus*) 2 times, and other *major* 3 times. The supplanting bird often raised its crest and gave a *changh* "grunt" or "chirr."

14. *Frederickena undulatus* (Undulated Antshrike) followed a *burchelli* raid by a vine-tangled forest stream 1 h on 25 May 1962 at Umbria, Putumayo, Colombia, staying 1-4 m up in vines. Once it supplanted an antbird (*Pithys albifrons*), but it looked down to the zone of ants and antbirds very little. It persistently waggles the tail from side to side. Calls include a nasal *charr* and a long *peeeeeeh* or *peeeeeeyargh*, like the Tufted Antshrike (*Mackenziaena severa*). Restriction to dense understory or vine-tangle zones is probably the main reason *undulatus* seldom follows wandering ants.

15. *Frederickena viridis* (Black-throated Antshrike) followed a *burchelli* raid in the dense understory of forest at Reserva Ducke 50 min on 23 Apr 1973. Staying 0.2-1.5 m up, it waggled its tail from side to side, peered at

overhead fronds and leaves as well as at the ground, and darted rapidly from one perch to another. Supplanting an antbird (*Gymnopathys rufigula*) and a sally to the ground showed it could easily become an ant follower, were it not so persistent at rapidly canvassing low foliage in dense understory away from ants. The call is a nasal "chirr" like that of *undulatus* or *M. severa*.

16. *Hypoedaleus guttatus* (Spot-backed Antshrike) followed a *praedator* raid in a dense treefall zone at Boracéia, São Paulo, 55 min on 5 Sep 1977, looking about and hopping on low logs and in shrubs. It seemed unaware of ground prey, and captured 8 small prey by gleaning from limbs (4), and logs (2), or by short sallies to a trunk 1.3 m up and to a leaf 1.0 m up. Normally pairs or families of this wrenlike (*Campylorhynchus*) bird stay in dense vines in the forest subcanopy or midlevels, occasionally joining mixed-species flocks. Calls include a "chirr", a "whistled" *pseeeeh*, and "chipping" *stitt* or *stitt-stitt*; the "song" is an eerie *re-e-e-e-e-e-e-e-e-e-e* trill. At Campinas, Brazil, 3 Jan 1976, an adult fed a grown young bird. Southeastern *Mackenziaena severa* of dense understory tangles, and *M. leachii* of upland dense zones, are close relatives of this and the two preceding species but are not yet recorded with ants despite many observations not far from ant swarms.

DISCUSSION

While antshrikes are often among the commonest small insectivores of dense patches in their forested or semiwooded habitats, they are among the species least often recorded with army ants. Hilty (1974) has recorded *Thamnomphilus unicolor* with ants, but this is the only species not listed above. The main antshrike to follow ants is *T. (punctatus) atrinuchus* on Barro Colorado Island, Panama (Oniki, 1975). *T. atrinuchus* was also recorded at several ant raids in nearby Panamanian localities, where studies should be conducted to see if it follows ants less than on Barro Colorado. On that island, several species of ant-following birds have disappeared, as well as other forest-understory insectivores that might compete with *atrinuchus* (Willis, 1974).

Oniki (1975) suggested that *atrinuchus* on Barro Colorado has expanded its foraging range to use everything from ant raids on the forest floor to dense vine tangles in the subcanopy. However, *atrinuchus* is most unusual among antshrikes in using relatively open as well as dense parts of the forest understory and midlevels. It may be that *atrinuchus*, because it does not have to compete with the numerous species of Amazonian antwrens (*Myrmotherula*) and ant-catchers (*Thamnomanes*), is able to use open as well as dense understory foliage. If so, *atrinuchus* might often use ants of open understory even away from low competition with other ant followers on Barro Colorado.

T. punctatus in the Amazon follows ants fairly readily. However, it lives in semiopen sand-ridge woodlands and hot second growth where competing *Thamnomanes* are not present, and where the number of other competing ant-following antbirds and of army ants is often greatly reduced. *Taraba major* is another species that often follows the few ant colonies that move into its dense second-growth and forest-edge habitats. It was especially common and visited ants often at forest edges on Trinidad, where there were few ant-following birds. *Sakesphorus melanonotos*, of arid woodlands that lack ant followers, also seemed expert at following ants at the only raid where it was observed.

Antshrikes probably follow ants little because the ants avoid hot thickets and move from dense to open patches in the forest understory, while antshrikes

need to hop near dense foliage or vines to glean sufficient nearby prey. Antshrikes are almost never recorded sallying to distant foliage or trunks for prey, hence require dense zones. Where there are few competitors, the antshrikes move into more open parts of the understory and then are more likely to follow ants.

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