

Black-throated Antshrike preys on nests of social paper wasps in central French Guiana

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ABSTRACT: We studied predation by birds on nests of neotropical social paper wasps at the Inselberg camp of the Nouragues Reserve in Central French Guiana, a minimally-disturbed lowland rainforest habitat. Seven meters above ground, we built recording arenas and fitted them with motion-detecting video cameras. We transferred active wasp nests from surrounding forest to the arenas to film bird predators of wasps. In a video recording taken on 13 April 2010, we documented predation by a male Black-throated Antshrike, *Frederickena viridis*, on nests of *Polybia scrobalis* and *P. bistrriata*. In rapid fly-bys, the antshrike repeatedly struck the wasp nests with his beak and in the process knocked parts of the nest to the ground. After the wasps absconded, he perched next to the nest of *P. bistrriata* and fed on the wasp larvae and pupae. This predation tactic and type of prey was previously not known for *F. viridis*. Also, *F. viridis* apparently forages in higher strata of the forest than previously recorded.

KEY-WORDS: Black-throated Antshrike, predation, social wasps, *Polybia*, *Frederickena viridis*.

Social wasps have evolved nest defenses, such as stinging, biting and venom spraying that largely deter most vertebrate predators. Some Neotropical bird species have even evolved a tendency to nest near these fearsome insects in order to gain protection from other vertebrate predators, such as capuchin monkeys (Joyce 1993). Nonetheless, social wasp nests offer a valuable source of nutrition to animals capable of withstanding the defensive behaviors of the worker wasps. *Polybia* is a speciose genus of swarm-founding social wasp that builds enveloped nests attached to branches and leaves (Richards 1978, Jeanne 1991). They primarily use stinging as a means of defense against vertebrate predators.

We studied predation by birds on nests of several species of *Polybia* wasps around the Inselberg Camp within the Nouragues Reserve in French Guiana (4°05' N - 52°41' W) (McCann *et al.* 2010), a low-altitude rainforest habitat far from human settlement (Charles-Dominique 2001). In the rainy season (January-April) of 2010, we recorded bird predation on wasp nests at recording arenas (McCann *et al.* 2013) that we had constructed about 7 m above ground in three trees 100 m northeast of the camp. Each arena consisted of four crosspieces, the two upper ones of which each bearing a spring clip for the attachment of a transplanted wasp nest. We transplanted nests from surrounding forest at night to avoid losing worker wasps from the nests. We equipped the arena with four 540 TV line resolution security video cameras

(Aartech Canada, Oshawa ON, Canada) and recorded video with a 4-channel security digital video recorder (ChannelVision DVR 4C, ChannelVision Technology Costa Mesa, CA, USA) housed in a shelter within the camp. The DVR recorded video at 15 frames per second at 640 × 480 pixel resolution, with a 5-s recording buffer to record events prior to motion detection. We mounted a nest of *Polybia scrobalis* and one of *P. bistrriata* (Figure 1) in the arena for recording sessions in April 2010.

The *P. scrobalis* nest (8 cm in diameter, 5 cm high) was still attached to a large *Philodendron* leaf, and the *P. bistrriata* nest (8 cm in diameter, 7 cm high) was attached to an *Astrocaryum* palm leaf.

On the morning of 13 April 2010, a male Black-throated Antshrike, *Frederickena viridis*, attacked both wasp nests in rapid fly-by strikes (McCann 2010, online video), hitting the nests with his beak. In the attack on the *P. scrobalis* nest, which commenced at 06:38, the antshrike struck the nest from below and repeated the same type of attack 24 s later. In total, he struck the nest 5 times in this manner. These strikes correspond to the “sally-strike” sensu Remsen and Robinson (1990). Several times between strikes, he perched nearby looking at the nest. He also killed and dropped two adult wasps which appeared to be attacking him. During the last strike on the *P. scrobalis* nest at 6:40:24, a large portion of the nest fell to the ground.

At 6:49:04, the antshrike struck the *P. bistrriata*

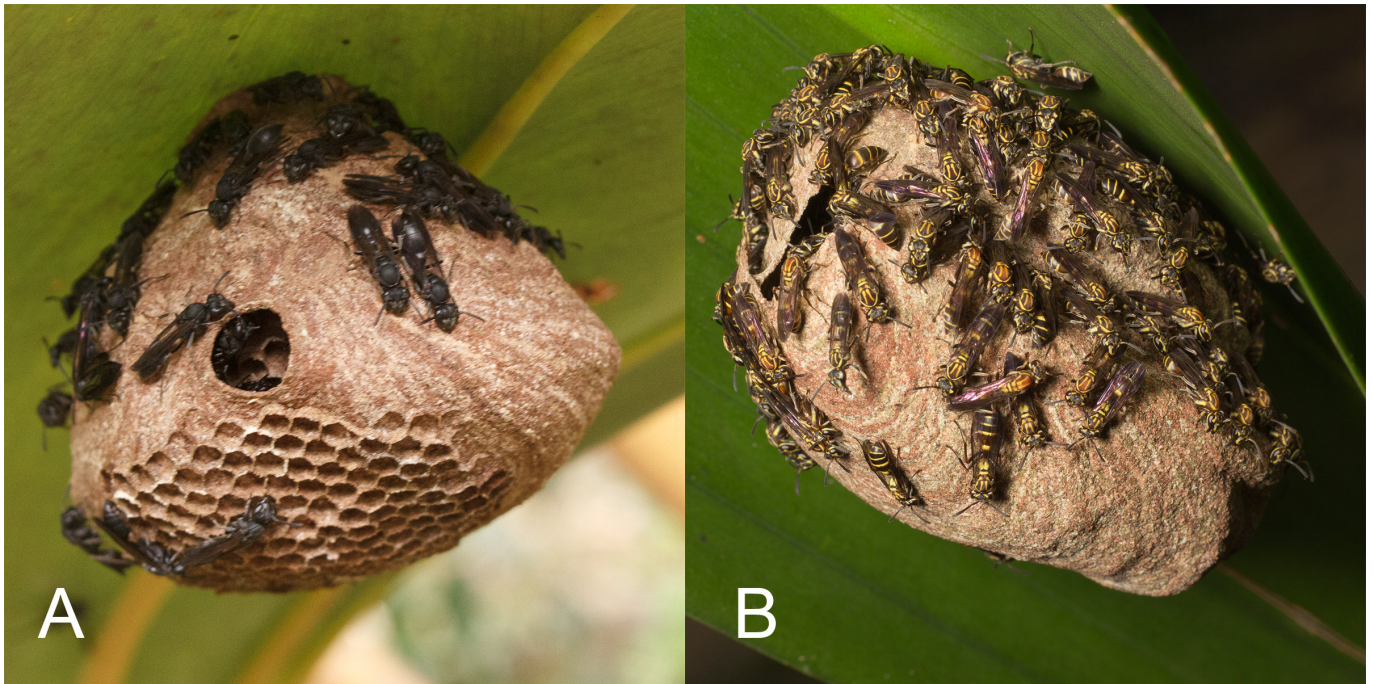


FIGURE 1. Representative photographs of nests of *Polybia scrobalis* (A) and *Polybia bistriata* (B). Nests of these species were attacked and fed upon by a male Black-chinned Antshrike *Frederickena viridis* at the Nouragues Station, French Guiana 13 April, 2010.

nest with his beak from below, and repeated the same type of attack six times between 6:49:40 and 7:19. At 7:19:14, he perched immediately adjacent to the nest, and at 7:19:25 he began to eat larvae and pupae from the remains of the nest. No adult wasps molested the antshrike at this time. The bird fed for 76 s and departed at 7:21:03. It is noteworthy that this Black-chinned Antshrike was thus foraging 7-m above the ground, which is higher than typically reported for this species (Zimmer & Isler 2003).

One hour following the antshrike's attacks, we examined the fragments of both nests that were still attached to substrate and found no remaining brood. Similarly, all the brood cells of the nest fragments on the forest floor that the antshrike had dislodged were empty, likely because the antshrike had eaten the brood after knocking the nest to the ground. Swarms of adult wasps from both nests clustered on leaves near their former nest site. These swarms of reproductive females and workers will disperse, seek new nest sites, and found new colonies, a phenomenon known as absconding (Jeanne 1991, West-Eberhard 1982). The antshrike appeared to induce the absconding response of these swarm-founding polistine wasps when it knocked their nests to the ground. Absconding behaviour of swarm-founding polistine wasps was also evident during attacks on *Polybia* nests by the Red-throated Caracara, *Ibycter americanus*, a falconid specialist predator of social wasps (McCann *et al.* 2010, 2013). Unlike the antshrike, caracaras were not attacked by *P. scrobalis* although they were attacked by *Polybia jurinei* and *Polybia affinis*.

Other Neotropical birds have also been reported to forage on wasp nests, such as American Kestrels (*Falco sparverius*), Lineated Woodpeckers (*Dryocopus lineatus*; Raw 1997), Gray-headed Kites (*Leptodon cayanensis*; Windsor 1976; and Summer Tanagers (*Piranga rubra*; Alvarez del Toro 1950). Tanagers appear to slaughter the adults before consuming the nest. The American Kestrel and Lineated Woodpeckers perch on the nest and are not attacked by their prey. Gray headed Kites appear to knock nests to the ground, or tear into nests from a nearby perch.

In conclusion, we present the first record of a Black-throated Antshrike attacking nests, and eating the brood of social wasps. Whether wasp larvae and pupae constitute regular or occasional prey items for the Black-throated Antshrike is yet to be investigated. It is possible that many other bird species may similarly exploit social wasps as prey.

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