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FORAGING BEHAVIOR OF THE WHITE-COLLARED FOLIAGE-GLEANER (*ANABAZENOPS FUSCUS*), A BAMBOO SPECIALIST

Marcos Rodrigues *, Suzana M.R. Alvares & Caio G. Machado

Departamento de Zoologia, Universidade Estadual de Campinas, C.P. 6109, Campinas, 13081, SP, Brasil.

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The White-collared Foliage-gleaner *Anabazenops fuscus* is a common ovenbird species (Furnariidae) endemic to southeastern Brazilian rain forests (Meyer de Schauensee 1970, Sick 1985). This species is found in bamboo-crowded dense undergrowth (Sick 1985, Willis 1989), and little is known about its foraging behavior and its relation with bamboo. Remsen & Parker (1984) suggest that *Anabazenops fuscus* is a regular user of dead-leaf. Our initial observations indicated that this species searches bamboo stems more than any other substrate. The aim of our study was to quantify the foraging behavior of *A. fuscus* in order to clarify this question.

METHOD AND STUDY SITE

We observed foraging behavior of *A. fuscus* for 1 year (from January 1989 to January 1990) at Fazenda Intervales (24°17'S, 48°25'W), a 38,000 ha forest reserve in Capão Bonito, southeastern Brazil, São Paulo. The area is covered by old second growth and patches of primary evergreen cloud forest. The altitudinal range is from 60 to 1100 m (Olmos 1991, Olmos & Rodrigues 1990). The observations were carried out at 900 m above sea level, where the giant climbing bamboo *Gadua angustifolia* and the smallest bamboo species of *Chusquea* and *Merostachys* grow (see details in Olmos 1991). Individual birds were followed for as long as possible, and each of the foraging maneuvers were scored as to type of substrate used (see Table 1). We recorded the first three foraging maneuvers of each bird to avoid bias in our data analysis (see Morrison *et al.* 1991). Similar data were recorded on another ovenbird, the Buff-fronted Foliage-gleaner *Philydor rufus*, for comparative analysis. We chose this species because it inhabits the same habitat as *A. fuscus* and because the genus *Anabazenops* has been verged into *Philydor* by some authors (Vaurie 1980, Willis 1989). However, this relationship has been much criticised (e.g., Sick 1985).

* *Present address:* Edward Grey Institute, Department of Zoology, South Parks Road, Oxford OX1 3PS, UK.

RESULTS AND DISCUSSION

Of 150 foraging records of *A. fuscus*, 130 (86,7%) were searched significantly in bamboo thickets ($Chi^2 = 67.3$; df = 1; $p < 0.001$; Table 1). This contrasts strongly with data for the *P. rufus* at the same study site. *P. rufus* was seen foraging in bamboo thickets only three times (Table 1). Besides this, *A. fuscus* showed a significant preference for foraging on specific substrates of the bamboo such as nodes (52.7%) and inter-nodes (20.7%) when compared to leaf and dead-leaf ($Chi^2 = 62.3$; df = 1; $p < 0.001$).

TABLE 1: Foraging bouts of *Anabazenops fuscus* and *Philydor rufus* at Fazenda Intervales, southeastern Brazil (%).

		A. fuscus	*P. rufus*
Bamboo	nodes	79 (52.7)	3 (1.25)
	inter-nodes	31 (20.7)	0
	green leaf	12 (8)	0
	dead-leaf	8 (5.3)	0
Non-bamboo	trunk		2 (0.8)
	green leaf		196 (82)
	dead-leaf		38 (15.95)
N			239

Anabazenops fuscus usually forages in dense undergrowth bamboo stalks by climbing upright along its stems, probing and snouting its bill into old and rotten nodes. They can hammer away at the internode, adopting a woodpecker-like posture until a hole is formed. Sometimes they forage upside down running the bill along the inter-nodes to remove its sheaths, where insects are usually hidden. With a short hop, they move to another bamboo stem and repeat this behavior several times. They were observed mostly in pairs or up to groups of four. *A. fuscus* is not a common attendant of the mixed species bird flocks. Machado (1991) found *A. fuscus* in only 8.7% of 388 mixed bird flocks in Fazenda Intervales.

Philydor rufus, on the contrary is a typical dead-leaf foliage gleaner. At Fazenda Intervales they forage in the canopy and forest edges in large noisy groups of up to 20 individuals. The *P. rufus* searches for insects on the leaves, clinging from the outer layers of foliage, tangles of vines and mainly probing accumulation of dead-leaves (Table 1). They also cling upside down to the sides of branches pecking at rotten twigs. The *P. rufus* was observed in 34% of 388 mixed species flocks. Although Moynihan (1962) and Munn & Terborgh (1979) refereed to *P. rufus* as attendant species in Central America and Peru respectively, Machado (1991) found that it had been one of the most important species during the formation and coesion of mixed species flocks.

Our results shows that *A. fuscus* is a bamboo specialist and not a regular user of dead-leaf as suggested by Remsen & Parker (1984). All sightings of *A. fuscus* were in patches of dense bamboo vegetation and we did not find this species in patches of primary vegetation where bamboo was absent. For instance, we did not find these species in altitudes of about 80 m in Fazenda Intervales where the Giant bamboo was absent. *A. fuscus* is restricted to dense stands of bamboo. Because the Atlantic forest of southeastern Brazil has a remarkably high bamboo diversity, one would expect a local bird community of bamboo foragers in such an area just as in southwestern Amazon (Pierpont & Fitzpatrick 1983). Some bird species of the Atlantic rain forest are apparently closely associated with bamboo thickets, such as *Campylorhamphus falcularius*, *Anabacerthia amaurotis*, *Batara cinerea*, *Mackenziana severa*, *Drymophila ferruginea* (*pers. observ.*), and *Haplospiza unicolor* (*pers. observ.*, Olmos 1991).

We do not know whether *A. fuscus* survives in small forest fragments. Scott & Brooke (1985) found this species in a forest of 1200 ha near Nova Friburgo, Rio de Janeiro. This is the only published record of this species in a relatively small forest fragment we have knowledge of. It would be important to know if this species can survive and breed in small forest fragments in order to compare possible niche shifts between different populations. We suggest that bamboo thickets are a critical habitat to *Anabazenops fuscus*.

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