

Cecropia fruits and Müllerian bodies in the diet of Chestnut-bellied Seedeater *Sporophila castaneiventris*

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Frutos de *Cecropia* sp. e corpúsculos de Müller são registrados pela primeira vez na dieta *Sporophila castaneiventris*, uma ave granívora de ampla distribuição na Amazônia. Nós observamos *S. castaneiventris* se alimentando em 10 espécies de plantas, sendo que *Cecropia* sp. (frutos e corpúsculos de Müller) foi o item mais comum, explicando por 30% das observações (17/57). Os outros 70% das observações foram divididos entre nove espécies de gramíneas. Aparentemente as espécies de *Cecropia* spp. só frutificam na época de seca nas regiões de matas inundadas de várzea, o habitat mais utilizado por *S. castaneiventris*. A época seca coincide, também, com a baixa produção de frutos pelas gramíneas, o que destaca a importância de *Cecropia* sp. na dieta de *Sporophila castaneiventris*.

Cecropia tree fruits are reported as one of the most important items in the diets of several Neotropical birds and mammals^{2–4,10,12}. Another food item provided by *Cecropia* are the Müllerian bodies, small white corpuscular structures adhering to leaves, petioles and stems of *Cecropia* trees⁸. Müllerian bodies are well known for providing food for *Azteca* ants that live in mutual association with *Cecropia*¹ and are one of the few plant structures that contain glycogen, a typical animal polysaccharide⁸. For birds, ingestion of Müllerian bodies has been reported by warblers, such as Yellow Warbler *Dendroica petechia* and Golden-crowned Warbler *Basileuterus culicivorus*^{4,11}.

Here we report *Cecropia* fruits and Müllerian bodies in the diet of Chestnut-bellied Seedeaters



Figure 1. Fruits of *Cecropia* sp. showing a fruit pecked by birds in the centre (Sérgio Henrique Borges)



Figure 2. Petiole of a young *Cecropia* leaf showing the small white Müllerian bodies. Note that the specks are all over the leaf but are concentrated at the base of the petiole (Sérgio Henrique Borges)

Sporophila castaneiventris, a granivorous species widespread in the Amazon⁷. *S. castaneiventris* is a small finch commonly found in open fields, secondary vegetation and even in cities in Amazonia^{5,9}. It prefers habitats such as floating vegetation, shrubs and small trees beside rivers⁶. We studied the feeding ecology of *S. castaneiventris* at two sites: one within a rural settlement and another near the Solimões (Amazon) River with seasonally inundated white-water floodplain vegetation (*várzea*). Both are near Manaus, Amazonas, Brazil.

During our field study, in March 1997–April 1998, we observed *S. castaneiventris* feeding on 10 plant species on 55 occasions (Macêdo *et al.* unpubl.).

Cecropia was the most common item, accounting for 32% of observations (17/55). Other species recorded in its diet including the grasses *Panicum maximum* (20%, 11/55), *Hymenachne amplexicaulis* (18%, 10/55), *Paspalum* spp. (16%, 9/55), *Digitaria* spp. (3.6%, 2/55), *Tripsacum* sp. (1.8%, 1/55), *Homolepsis* sp. (1.8%, 1/55), *Brachiaria decumbens* (1.8%, 1/55) and two unidentified taxa (5.5%, 3/55).

On nine occasions, we observed *S. castaneiventris* feeding on fruits of *Cecropia* already pecked at by other bird species, such as Blue-grey Tanager *Thraupis episcopus*, Palm Tanager *T. palmarum*, Blue-winged Parrotlet *Forpus crassirostris* and Tropical Kingbird *Tyrannus melancholicus* (Fig. 1). *S. castaneiventris* was never observed feeding on unpecked fruits, probably because they are too compact to be manipulated in its beak. Feeding behaviour of *S. castaneiventris* on *Cecropia* consists of perching in branches near the fruits, or on the fruits, and pecking them. Several interspecific encounters were observed between *S. castaneiventris* and the other species mentioned above; *S. castaneiventris* was always flushed by the other species.

We recorded ingestion of Müllerian bodies by *S. castaneiventris* on eight occasions. Initially, we considered the bird to be eating *Azteca* ants living in association with the *Cecropia*. However, more detailed observations demonstrated that it pecked the white specks adhering to young leaves, which we subsequently identified as Müllerian bodies (Fig. 2). *S. castaneiventris* perched in branches near the petioles and opened a sheath that protects the new leaves, exposing the Müllerian bodies. Six other granivorous species were recorded at the study sites: Variable Seedeater *Sporophila americana*, Lined Seedeater *S. lineola*, Orange-fronted Yellow-finch *Sicalis columbiana*, Lesser Seed-finch *Oryzoborus angolensis*, Common Waxbill *Estrilda astrild* (introduced) and Blue-black Grassquit *Volatinia jacarina*, but only *S. castaneiventris* was observed feeding in *Cecropia*.

In Brazilian Amazonia at least 15 species of *Cecropia* have been reported¹. Typical várzea species are *C. latifolia* and *C. membranaceae*, which according to Berg¹ and our pers. obs. produce fruits only in the low water season (September–January). During this period only a few grass species (*Panicum maximum* and *Digitaria* sp.) are in seed (Macêdo *et al.* unpubl.). For example, *Hymenachne amplexicaulis*, the second most important grass species in *S. castaneiventris* diet, produces seeds only in the wet season (pers. obs.). Given this situation, it is likely that *Cecropia* fruits and Müllerian bodies are important food sources for *S. castaneiventris* when grass seeds are scarce.

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