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Scientific note

The masked robber: Blue Dacnis steals nesting material from a Crested Becard nest in southeastern Brazil

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ABSTRACT: This study reports the first recorded case of nest material kleptoparasitism in the Thraupidae family, involving a Blue Dacnis (*Dacnis cayana*) and a Crested Becard (*Pachyramphus validus*) nest. Kleptoparasitism is a behavior in which one individual steals food or resources from another, and nest material kleptoparasitism specifically refers to the theft of nesting material. The Blue Dacnis successfully stole nesting material from the Crested Becard's nest without being noticed. This behavior offers advantages such as reduced effort in finding material and decreased predation risk, but also carries risks such as defense by the nest owners and the possibility of carrying pathogens. This observation expands our understanding of kleptoparasitic behaviors in Neotropical passerines.

Keywords: Atlantic Forest, *Dacnis cayana*, Nest building, *Pachyramphus validus*, Parasitism, Piracy.

RESUMO (O ladrão mascarado: Saí-azul *Dacnis cayana* (Passeriformes, Thraupidae) rouba material de nidificação de um ninho de Caneleiro-de-chapéu-preto *Pachyramphus validus* (Passeriformes, Tityridae) no sudeste do Brasil): Este estudo relata o primeiro caso registrado de cleptoparasitismo de ninho na família Thraupidae, envolvendo o saí-azul (*Dacnis cayana*) e um ninho de caneleiro-de-chapéu-preto (*Pachyramphus validus*). O cleptoparasitismo é um comportamento no qual um indivíduo rouba comida ou recursos de outro, e o cleptoparasitismo de ninho refere-se especificamente ao roubo de material de nidificação. O saí-azul roubou com sucesso material de nidificação do ninho do caneleiro-de-chapéu-preto sem ser notado. Esse comportamento oferece vantagens como redução do esforço na busca de material e diminuição do risco de predação, mas também traz riscos como a defesa dos donos do ninho e a possibilidade de carregar patógenos. Esta observação expande nossa compreensão dos comportamentos cleptoparasitários nessas espécies de aves.

Palavras-chave: Construção de ninho, Mata Atlântica, Parasitismo, Pirataria.

Kleptoparasitism (Rothschild & Clay 1952), or piracy (Källander 1977), occurs when an individual steals food or other resources from another individual in an opportunistic or aggressive way. This behavior has been described in many taxons, including marine invertebrates (Iyengar 2004), insects and arachnids (Vollrath 1984), fish (Grimm & Klinge 1996), reptiles (Cooper & Perez-Mellado 2003), birds (Brockmann & Barnard 1979), and mammals (Kruuk 1973, Brown *et al.* 2004).

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Kleptoparasitism can occur between individuals of the same species (Escrivà-Colomar & Rodríguez-Rodríguez 2016) or interspecifically (Silverino *et al.* 2017), and is a common strategy of opportunistic foraging in birds, especially in seabirds (Furness 1978, García *et al.* 2010) and raptors (McNair *et al.* 2000, Partida & Rodríguez-Estrella 2015).

A bird might exhibit strategies to maximize its success as a kleptoparasite, such as being able to track and predict its host's behavior (Krebs & Dawkins 1984); select the most appropriate one (Bélisle & Giroux 1995, Chavez-Ramirez 1995, Shealer *et al.* 1997); attack at an adequate angle (Dunn 1973, Taylor 1979) or at an appropriate distance (Thompson 1986); time it effectively (Hesp & Barnard 1989); and carry the stolen resource out quickly (Burger & Gochfeld 1979) to avoid been caught by the host (Furness 1978, Ens *et al.* 1990, Spear & Ainley 1993). Otherwise, the kleptoparasite may be able to make quick escape or counterattack when it is noticed by the host (Maxson & Bernstein 1982, Amat & Soriguer 1984). Nest material kleptoparasitism is a behavior in which a parasite steals nesting material from other birds to build its own nest. This behavior offers several advantages, such as reduced competition for limited material, easier access to high-quality material, lower energy expenditure during nest construction, and increased time available for nest guarding. Nest material kleptoparasitism might also reduce predation risk during material collectionin unfamiliar locations and decreased detection of the nest by predators or brood parasites due to fewer visits or shorter flights (Jones *et al*. 2007, Slager *et al*. 2012, Wynia & Bednarz 2021). However, nest material kleptoparasitism in Neotropical birds is still underreported in the literature (Wynia & Bednarz 2021).

On 17 November 2021, at 8:00 am (local time), in an area of flooded secondary Atlantic Forest in the Projeto Dacnis private reserve in Ubatuba, São Paulo state, Brazil (23°27'44.4"S 45°08'15.7"W), we spotted a Crested Becard (*Pachyramphus validus* Lichtenstein 1823) nest built on branches of a Toucan Fruit (*Citharexylum myrianthum* Cham.) (Verbenaceae). The female approached carrying fibrous plant material in her beak for nest construction (Figure 1A) and deposited it inside the nest. Subsequently, the male Crested Becard entered, carrying an unidentified material in its beak due to the distance (Figure 1B); it appeared to be a small caterpillar or cocoon during binocular observation. Meanwhile, a pair of Blue Dacnis (*Dacnis cayana* Linnaeus 1766) observed perched on branches nearby. As soon as the Crested Becard couple left to collect more nesting material, the Blue Dacnis couple landed just above the nest (Figure 1C). The female Blue Dacnis quickly entered, collected material, and exited (Figure 2), flying to a distance where it could not be observed. The male remained perched in the nest vicinity.

About 12 minutes later, the Crested Becard couple returned to the nest with more fibrous material, placed it inside, and went in search of more. A few seconds later, the female Blue Dacnis approached and went to the nest to plunder more material. However, the male Blue Dacnis emitted repetitive calls, possibly as an alarm to alert the Crested Becard couple's return. The female Blue Dacnis quickly left the nest, flying away with the male.

Blue Dacnis is a common species in all of Brazil and a resident species in Ubatuba, although it can migrate seasonally in certain places. It lives in pairs or small groups, joins mixed flocks, and feeds on insects, fruits, and nectar (Sick 1997, Sigrist 2013).

The nest of *D. cayana* is cup-shaped, made mainly of fibrous plant material and binding material such as cobwebs or cocoons. Only the female works on building the nest, while the male often accompanies her and stays close, but without helping with construction. However, both sexes participate in feeding the nestlings (Skutch 1962). Crested Becard is a resident/territorial species and can live in the same place for several years, defending it actively. It lives on its own or in pairs, joins mixed flocks, and feeds on insects and fruits (Sick 1997, Sigrist 2013, Mello *et al*. 2020). The nest of *P. validus* is primarily constructed with mosses and plant fibers, in a globular and closed shape, and is attached to forked branches. Both sexes work on building the nest and feeding the chicks (Whittaker & Kirwan 2008).

Kleptoparasitism is advantageous for the parasite, for it assures the acquisition of high-quality food or material previously selected by another individual (Partida & Rodríguez-Estrella 2015), and with less effort, since it uses the energy invested by the host to obtain these resources (Thompson 1986). Nest material kleptoparasitism, on the other hand, offers advantages such as a reduction in time and effort spent searching for material, easy access to suitable material, and a decrease in predation risk. However, there are risks involved, such as defense of the material by the nest owners and the possibility of carrying pathogens (Wynia & Bednarz 2021). In this case, the strategy was successful, since Blue Dacnis got the material without being noticed. Kleptoparasitism for the Thraupidae family is described by Maldonado-Coelho & Durães (2003). Nest material kleptoparasitism, however, had not yet been described for this family.

Figure 1. Female (A) and Male (B) *Pachyramphus validus* taking material to their nest. Pair of *Dacnis cayana* observing *P. validus* from nearby branches (C). Photos: Lucas Botelho

Figure 2. Female *Dacnis cayana* leaving the *Pachyramphu validus* nest with stolen material in her bill. Photo: Lucas Botelho

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