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SHORT NOTE

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INTERSPECIFIC FEEDING BY A RED-NECKED TANAGER *TANGARA CYANOCEPHALA* PAIR TO VIOLACEOUS EUPHONIA *EUPHONIA VIOLACEA* NESTLINGS

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Abstract · Interspecific feeding, the provisioning of young of another species, is a rare, non-adaptive behavior in birds. On 22 February 2025, during a birdwatching trip to the Parque Nacional da Tijuca, in the city of Rio de Janeiro, Brazil, A. Rayegani detected a Violaceous Euphonia *Euphonia violacea* nest. He observed the nest for 0.5-2 h on four days over a 14-day period. On 22, 26, and 28 February 2025, both the Euphonia parents and a pair of Red-necked Tanagers *Tangara cyanocephala* fed the three Euphonia nestlings at the nest entrance. This non-adaptive feeding by the tanagers may have been caused by the loss of their eggs or nestlings, which triggered the transfer of their misplaced parental instincts onto the Euphonia brood. Our observation is the first report of interspecific feeding in the tropics that did not involve brood parasitism and contributes to our knowledge of this non-adaptive behavior in Neotropical birds.

Resumen · A alimentação interespecífica, o fornecimento de alimento aos filhotes de outra espécie, é um comportamento raro e não adaptativo em aves. Em 22 de fevereiro de 2025, durante uma excursão de observação de aves no Parque Nacional da Tijuca, na cidade do Rio de Janeiro, Brasil, A. Rayegani detectou um ninho de gaturamo-verdadeiro *Euphonia violacea*. O ninho foi observado por períodos de 0,5 a 2 horas em quatro dias ao longo de um intervalo de 14 dias. Nos dias 22, 26 e 28 de fevereiro de 2025, tanto os pais do gaturamo-verdadeiro quanto um casal de saíras-militares *Tangara cyanocephala* foram observados alimentando os três filhotes do gaturamo-verdadeiro na entrada do ninho. Esse comportamento não adaptativo de alimentação por parte das saíras pode ter sido causado pela perda de seus próprios ovos ou filhotes, o que teria desencadeado a transferência de seus instintos parentais mal direcionados para a ninhada do gaturamo-verdadeiro. Nossa observação constitui o primeiro registro de alimentação interespecífica nos trópicos que não envolve parasitismo de ninhada, e contribui para o conhecimento desse comportamento não adaptativo em aves neotropicais.

Key Words: *Atlantic forest* · *interspecific feeding* · *nest site* · *non-adaptive behavior* · *urban forest*

INTRODUCTION

Interspecific feeding, the provisioning of young of another species, is a rare and generally non-adaptive behavior in birds (Shy 1982, Harmáčková 2021). A global review by Harmáčková (2021) compiled 186 cases involving 107 helper species from 41 families, with most records from North America and Europe. Passerellidae have been the most commonly reported helpers, with 20 reports, and only 3 previous cases of Thraupidae helpers (Harmáčková 2021). This behavior is rarely reported in the Neotropics, with only two published records from South America. One report in Brazil involved a Rufous-collared Sparrow *Zonotrichia capensis* (Passerellidae) feeding a Pale-breasted Thrush *Turdus leucomelas* (Turdidae) brood-parasitized by a Shiny Cowbird *Molothrus bonariensis* (Batisteli and Sarmento 2016). A second observation from Argentina reported an Eared Dove *Zenaida auriculata* (Columbidae) appropriating a Creamy-bellied Thrush *Turdus amaurochalinus* (Turdidae) nest, which was also parasitized by a Shiny Cowbird, and attempting to feed nestlings of both species (Segura et al. 2016). These limited observations suggest the possibility that helping in these cases may have been triggered by the presence of begging parasitic young.

Our observation involved species from two families less commonly reported for interspecific feeding, the Red-necked Tanager *Tangara cyanocephala* (Thraupidae) and the Violaceous Euphonia *Euphonia violacea* (Fringillidae). Both species are year-round residents of tropical lowland and foothill evergreen forests, secondary forests, forest edges, and in some areas, parks and gardens in eastern Brazil, northeastern Argentina, and Paraguay (Martinez 2020, Macdonald et al. 2024). Both species consume fruit and insects, with the euphonia being more frugivorous. The Red-necked Tanager typically occurs in pairs and occasionally joins mixed-species flocks; its breeding biology is almost entirely unknown in the wild, with description of only a single nest in captivity (Norgaard-Olesen 1973, Macdonald et al. 2024). The open-cup nest was constructed of grass, but a photograph of the nest shows that it included dead leaves and pieces of wood (Macdonald et al. 2024). In contrast, the breeding biology of the Violaceous Euphonia is well documented, although mainly in Trinidad and Suriname (Belcher and Smooker 1937, Haverschmidt 1968). The euphonia's nest is a spherical mass of grasses, dead leaves, and rootlets with a side entrance (Belcher and Smooker 1937, Haverschmidt 1968). There are no previous reports of interspecific feeding involving either species.

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In 2025, A. Rayegani observed a Red-necked Tanager pair feeding nestling Violaceous Euphonias along with the euphonia parents at a nest in Parque Nacional da Tijuca, located in the city of Rio de Janeiro, Brazil. He made subsequent observations to document the duration of nestling care by both species and to determine likely reproductive success. We document this unusual behavior, previous reports of similar incidences of interspecific nestling feeding, and its possible causes in this instance.

METHODS

On 22 February 2025, A. Rayegani attended a group birdwatching trip to the 40 km^2 urban forest of Parque Nacional da Tijuca within the city of Rio de Janeiro, Brazil. At 09:40 h East UTC, they discovered a Violaceous Euphonia nest (22°57'6.6"S, 43°17'14.2"W), along the main road of Estrada Major Archer in Sector A of the park, approximately 170 m from the Vista do Almirante lookout at an elevation of 620 m. The study site was in a secondary-growth Atlantic Forest, with dense evergreen vegetation, including native canopy and subcanopy trees, diverse epiphytes, and a dense understory.

Subsequently, Rayegani conducted observations of the nest on four days over a 14 day period (22 February to 7 March 2025), with each visit lasting 0.5–2 h. Observations were conducted from the ground at approximately 10 m from the nest tree. An 8 x 42 binocular was used for direct observation, and photographs and video recordings were obtained using a Nikon D7100 DSLR camera with a Nikon Nikkor 200-500 mm F/5.6e ED Vr Af-s lens mounted on a tripod. Photographs were cropped for publication, with shadows lifted and exposure adjusted in Adobe Lightroom (Version 9.0) to improve the lighting and appearance of the images, but content was not modified and original out-of-camera files were provided to journal editors. Rayegani recorded the frequency and times of feeding visits to the nest. No playback or other experimental stimuli were used while the nest was occupied.

RESULTS

The Euphonia nest consisted of a roughly spherical ball of moss, leaves, and twigs with a side entrance that is typical of the Violaceous Euphonia (Belcher and Smooker 1937, Haverschmidt 1968). The nest was 12 m high in a large (30 cm diameter at breast height) *Lamanonia ternate* (Cunoniaceae) tree (Figure 1). The nest was tucked between a broken limb and a *Tillandsia stricta* (Bromeliaceae) epiphyte.

On 22 February 2025, a member of the group first spotted a pair of Red-necked Tanagers in a nearby *Dracaena fragrans* (Asparagaceae) plant. Moments later, the male tanager ascended into the tree to feed the Euphonia nestlings (Figure 2A). Shortly after, while waiting for the tanagers to return for additional photographs, an adult male and female Violaceous Euphonia approached the same nest and fed the nestlings (Figure 3). These were the only two feedings observed during the 15 mins observation period.

The three nestlings were identical in size and appearance. Although shade within the nest ball hampered visibility, the nestlings showed a yellowish-orange gape, yellow edge, red mouth lining and yellowish-to olive green on the top of the head (Figure 2B), similar to the female Euphonias´ plumage. One of the nestlings showed yellow undersides when it rose up to beg. Thus, based on similarities to nestlings described by Collins (2006), we concluded that the nestlings were all Viola-

Figure 1. Location of the Violaceous Euphonia Euphonia violacea nest in a Lamanonia ternata tree by the main road in Parque Nacional da Tijuca, in the city of Rio de Janeiro, Brazil, 28 February 2025. Red arrow marks the location of the nest. Photo: Arian Rayegani

Figure 2. Red-necked Tanager *Tangara cyanocephala* pair feeding Violaceous Euphonia *Euphonia violacea* nestlings at a nest also tended by an Euphonia pair. A) Male tanager feeding nestlings on 22 February 2025. B) Female tanager feeding an unidentified fruit to nestlings on 26 February 2025. Note yellowish-olive plumage on the heads of the nestlings. Photos: Arian Rayegani.

ceous Euphonias.

On 26 February 2025, Rayegani returned to the nest at 07:10 h. Over 2 hours, both male and female tanagers fed the nestlings five times, while the euphonia pair fed them three times. The pairs of both species arrived with food together or shortly after one another. The nestlings responded to both sets of adults with vigorous begging. The euphonias regurgitated food for the nestlings, while the tanagers delivered food, apparently insects, in their bills. We were unable to determine how the different diets may have influenced nestling development. Rayegani observed no interactions between the adult euphonias and the tanagers, but it was clear they were aware of each other's presence. On one occasion, the male euphonia waited on an adjacent branch while the tanager finished feeding (Figure 4) before he fed the nestlings.

On 28 February 2025, at 14:00 h, Rayegani observed for 1.5 hours that only one nestling was in the nest. The tanager pair fed the nestling twice and the male euphonia fed once. The female euphonia was nearby with the male but did not go to the nest to feed. These feedings occurred during the first 20 mins of observation, after which neither pair was seen again. No fledglings were observed in the nest area.

Rayegani returned to the nest from 09:30–10:30 on 7 March 2025 and found the nest unoccupied. Neither tanagers or euphonias were observed or responded to playbacks of calls of each species near the nest. A small Euphonia group was heard but not seen 500 m from the nest. In total, Rayegani observed nestlings in the nest over 7 days, with the last observation occurring when only one nestling was present that was actively begging at the nest entrance, and appeared to be nearly fully grown (Figure 4).

Figure 3. Male (A) and female (B) Violaceous Euphonias *Euphonia violacea* feeding nestlings in a nest also fed by Red-necked Tanagers *Tangara cyanocephala,* 22 February 2025. Photo: Arian Rayegani.

Figure 4. Male Violaceous Euphonia *Euphonia violacea* perched on an adjacent branch in the background while the female Red-necked Tanager *Tangara cyanocephala* feeds the Euphonia nestlings, 26 February 2025. Photo: Arian Rayegani.

DISCUSSION

Our observation is the first record of a Red-necked Tanager pair feeding nestling Violaceous Euphonias along with the euphonia parents at a nest, and one of the few records of this behavior in the Neotropics. Interspecific feeding has been recorded across a wide range of avian taxa but remains rarely observed, particularly in South America. The two previously published cases from the continent (Batisteli and Sarmento 2016, Segura et al. 2016) involved different families and contexts; in both, the host nests were parasitized by Shiny Cowbirds, and one also involved nest appropriation (Batisteli and Sarmento 2016). In both these cases, the hosts showed marked aggression toward the helper, including attacks and repeated chases, and only a single helper was observed (Batisteli and Sarmento 2016, Segura et al. 2016). Our record differs in involving species of the family Thraupidae and Fringillidae, two helpers, and the direct provisioning of another species' nestlings alongside their biological parents, with no aggression observed between them. Both the Red-necked Tanager and Violaceous Euphonia join mixed-species flocks (Macdonald et al. 2024), which may have facilitated the acceptance of assistance, or reduced the perception of threat by the biological parents.

The reasons for the apparent adoption of Violaceous Euphonia nestlings by the Red-necked Tanagers are unknown. Shy (1982) identified eight non-exclusive reasons for interspecific feeding among birds. The most likely explanation for this behavior in the present case is that the tanagers may have been nesting nearby, their nest or brood may have been lost, and the begging by euphonia nestlings nearby may have stimulated feeding behavior. The vigorous begging we observed contrasts with the silent begging Collins (2006) reported among euphonia nestlings in Trinidad. Whether this reflects individual or regional variation or subspecies-specific differences is unclear.

Interspecific feeding appears to be a non-adaptive behavior that does not benefit helpers. Rather, it is triggered by other adaptive features, such as the strong drive to care for young, which is misplaced onto the allospecific offspring (Shy 1982, Harmáčková 2021). In this case, the tanagers derived no obvious benefit by feeding euphonia nestlings, but the euphonias presumably benefited from the tanagers' misdirected feeding. The euphonia's clutch typically consists of three or four eggs

(Belcher and Smooker 1937, Hamerschmidt 1968), but there is apparently no information on nesting success or fledging rates of the Violaceous Euphonia (Martinez 2020). The presence in the nest over at least seven days of three late-stage nestlings that appeared close to fledging, suggests the possibility that the nest was successful. Although we cannot be certain, we believe it is likely that two of the nestlings fledged between our 26 February and 28 February observations, and the last nestling fledged between our 28 February observation and the 7 March visit when the nest was empty. The Violaceous Euphonia is reported to have a 21 day nestling period (Martinez 2020), and we observed the tanager pair feeding nestlings towards the end of the nestling period, which may have contributed to the apparent reproductive success of this euphonia pair.

A notable pattern in the global dataset presented by Harmáčková (2021) is the apparent predominance of interspecific feeding in temperate regions. It is unclear whether this reflects a genuine ecological tendency, more observers and researchers in temperate regions, the difficulty of observing birds in dense tropical forest canopies, or other factors. More attention to this phenomenon in the Neotropics and other tropical regions will provide valuable comparison with observations in temperate regions, potentially uncovering links between interspecific feeding and avian diversity.

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