

Comunicaciones breves

FIRST RECORD OF A RUFOUS-BREASTED LEAFTOSSER (*SCLERURUS SCANSOR*) NESTING IN A TREE CAVITY

MARINA FERRAZ SAMPAIO^{1,2*}, PEDRO HENRIQUE KOTOVICZ², MARCELO ALEJANDRO VILLEGAS VALLEJOS¹

¹ Institute of Technology and Development, Lactec. Department of Environmental Resources. Curitiba, PR, Brazil.

² Federal University of Paraná, UFPR. Biological Sciences Sector. Curitiba, PR, Brazil.

* marinaferrazsampaio2000@gmail.com

ABSTRACT.- We report on a record of Rufous-Breasted Leaf-tosser (*Sclerurus scansor*) nesting in a tree cavity, an unprecedented finding within the Sclerurinae. An active nest was found in the state of Paraná on 31st October 2017, and was inspected on several other occasions until May 2020. In the first survey, two adults were found incubating two white eggs; on November 23rd two nestlings were found in the nest. Later, the nest was found unoccupied, but individuals were found in the vicinity of the tree, and we inferred that they included at least one of the fledglings. Our observation suggests that this species exhibits a previously unknown level of reproductive flexibility. This nest was found in a peri-urban forest remnant and may be the result of local adaptations to several environmental disturbances, such as habitat fragmentation, pressure from exotic predators, low availability of suitable sites for burrow excavation, among others.

KEYWORDS: *Cavity nesting, Neotropical birds, reproductive biology, Suboscines, urban ecology.*

RESUMEN.- PRIMER REGISTRO DEL RASPAHOJAS (*SCLERURUS SCANSOR*) ANIDANDO EN UNA CAVIDAD DE UN ÁRBOL. Reportamos el registro de anidación de Raspahojas (*Sclerurus scansor*) en una cavidad de un árbol, un hallazgo sin precedentes entre los Sclerurinae. Se encontró un nido activo en el estado de Paraná, Brasil, el 31 de octubre de 2017, y el huevo fue monitoreado en varios momentos hasta mayo de 2020. En la primera inspección se encontraron dos adultos incubando dos huevos blancos; el 23 de noviembre se encontraron dos polluelos en el nido. Posteriormente, el nido quedó desocupado, pero se vieron adultos en los alrededores, de lo que se infiere que los polluelos dispersaron con éxito. El registro se llevó a cabo en un remanente de bosque periurbano y puede representar una adaptación local debido a perturbaciones ambientales, como fragmentación del hábitat, presión de depredadores exóticos, baja disponibilidad de sitios adecuados para excavar cavidades en el suelo, entre otros.

PALABRAS CLAVE: *Anidación en cavidades, aves neotropicales, biología reproductiva, ecología urbana, Suboscines.*

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Dendrocolaptinae, Furnariinae and Sclerurinae comprise the Furnariidae family, which are Suboscine birds that stand out for some well-defined reproductive features (Sick 1997, Derryberry et al. 2011). The Sclerurinae, as some other furnariids (*Cinclodes*, *Automolus*, and others), specialize in underground cavities to nest and usually line the incubation chamber with dry rachises (Skutch 1969, Narosky et al. 1983, Fraga and Narosky 1985, de la Peña 1987, Sick 1997, Zyskowski and Prum 1999, Remsen 2003). Differently, the Dendrocolaptinae search for tree hollows to nest, mostly found at low height from the ground (Sick 1997, Marini et al. 2002, Jesus and Mikich 2009, Lombardi et al. 2010, Derryberry et al. 2011).

The Sclerurinae is composed of grassland (genus *Geositta*) and forest (genus *Sclerurus*) species, highly specialized in their respective habitats (Goerck 1997, Sick 1997, Ribon et al. 2003). Species of both genera nest in excavated cavities established in banks, a characteristic shared by some Furnariinae. In addition, Sclerurinae present other plesiomorphic morphological and genetic characteristics that are more related to Dendrocolaptinae (Sick 1997, Ohlson et al. 2013, Guzzi et al. 2016, Machado et al. 2017). Furthermore, *Sclerurus* species are not known to use tree cavities in any point throughout their life history, and even roosting was observed to be in open branches or tree roots (Els and Whitney 2011, Campos-Silva 2013). Here we report for the first time

on a nesting attempt of Rufous-Breasted Leaf-tosser (*Sclerurus scansor*) in a tree cavity, an unprecedented behavioral record within this family.

The nest was found in a forest remnant at the Mun. Fazenda Rio Grande, Paraná (25°39'15"S, 49°20'32"W; 918 msnm) on October 31st, 2017. This fragment is covered by *Araucaria* forest vegetation with an area of nearly 110 ha. The region presents few areas with exposed banks available, usually found along small streams in forested sites. Also of note are the large coverage of epiphytic plants and the occurrence of large arboreal individuals, such as *Araucaria angustifolia*, *Ocotea* spp. and other tree species typical of advanced stages of forest succession. The landscape in which the fragment is inserted is also disturbed by several anthropic impacts, due to the use of heavy machinery, vehicles, and personnel. In addition, this remnant is also frequently occupied by domestic dogs that roam freely in the area.

We found the nest with two eggs, which were not manipulated, under a substrate composed of dry petioles (Fig. 1). The tree (species unidentified) in which the cavity was found presented DBH (diameter at breast height) of 97 cm, and the hole was 89 cm above the ground. Its entrance was 12 cm high and 6 cm wide, nearly oval in shape, and the cavity was 28 cm in depth, horizontally; the egg chamber was 16 cm high and 7 cm wide (Fig. 2). Cavity measurements were taken using a measuring tape after the cavity was vacated. The nest site was located by an adult flushing from the interior of the tree cavity. This individual presented clear deceptive behavior, repeatedly emitting strong calls close to the observer and exacerbating its visibility. After we found the nest, two surveys were carried out in the same year, on November 23th, and December 8th. Surveys were also executed in 2018, on March 31th, June 30th, and September 30th. Other inspections of the cavity were carried out on several occasions between 2019 and 2020. These checks were made both on and off the reproductive season to verify if there was new evidence of cavity use.

During the second survey, on November 23rd 2017, two nestlings were found, also unmanipulated (Fig. 3). Their bodies were covered with gray pin feathers, bright yellow commissures, and the absence of erupting flight feathers. One of the nestlings was able to open its eyes in response to stimuli in the vicinity of the cavity, also emitting short begging calls. Video recordings of parental activity captured parental care behaviors of adults delivering food to nestlings (Fig.

2) and removing fecal sacs (Fig. 4). To carry out the monitoring, a Canon PowerShot Sx60 HS camera was used, mounted on a tripod approximately 1.30 m in height, facing the nest, about 15 m away from the cavity entrance. The observer set up the equipment and walked away, leaving it active in three sessions of 30 minutes each, at 06:18; 06:54 and 08:21. Other photographs and footage were taken in the region, but with the equipment at hand, and involving not only the nest, but adults in agonistic behavior.

On December 8th 2017 the nest was empty, but at least three individuals – presumably the parents and one of the fledglings – were seen in the area. Therefore, we assumed that this reproductive attempt was completed, resulting in at least one successfully fledged young. In the next survey, on March 31st 2018, new apparently predated white eggshells were found in the cavity, identified as belonging to Rufous-Breasted Leaf-tosser due to egg coloration and nest-covering pattern (dry petioles). This data, along with the known bird assemblage of the region, allow us to determine that only the Rufous-Breasted Leaf-tosser could be responsible for the nesting attempt (Sick 1997), and to suppose that a new, unsuccessful, nesting attempt was made in March. On this occasion we collected part of the nest material, and determined that its main components were leaf rachises of Mimosaceae or Fabaceae petioles. On September 30th 2018, further interventions occurred in the forest fragment with the opening of an extensive system of trails that resulted in the removal of undergrowth vegetation, including patches close to the cavity. This disorder may have affected the occupancy of the area by the species, although some individuals are still found foraging and vocalizing at the site.

On April 6th 2019, the cavity seemed to have been used for a new nest. However, the material found inside did not resemble that of Rufous-Breasted Leaf-tosser as previously observed, and we presumed that another species used this hollow in that breeding season. Surveys on June 9th, August 24th, September 28th, October 26th, November 30th, and December 24th of the same year, as well as in other surveys during 2020, did not find any evidence of use of the cavity for nesting by birds.

Rufous-Breasted Leaf-tosser, as all other known Sclerurinae, is a bird that looks for banks with exposed soil to dig cavities and establish their nests at the end of excavated galleries (Sick 1997). The record of the use of a natural tree cavity, although known to

some other groups within the Suboscines, is unprecedented for this family. However, similar cases of nesting in tree cavities have been reported in some burrow-nesting furnariids, such as some populations of Buff-winged Cinclodes (*Cinclodes fuscus*) and Dark-bellied Cinclodes (*Cinclodes patagonicus*) (Ojeda 2016, Altamirano et al. 2017). Birds are able to change their nesting sites according to a series of environmental factors, including the risk of predation and changes in microclimate conditions (Hansell 2000, Forstmeier 2001, Collias and Collias 2014). *Phylloscopus fuscatus*, for instance, changes the location and height of its nest

according to the abundance of squirrels, its local predator (Forstmeier and Weiss 2002).

Rufous-Breasted Leaf-tosser is a forest specialist bird (Goerck 1997), highly sensitive to environmental changes (Ribon et al. 2003), and occurs mainly in primary forests or conserved secondary forests (Aleixo 1999), with few records in altered environments (Willis and Oniki 2002). This level of specialization is usually indicative of species with less phenotypic plasticity (Pigliucci 2001). In addition, cavity-nesting behavior –or seeking more protected nesting sites– is also associated with taxa that demonstrate less phenotypic plasticity (Martin and Briskie 2009, Ghalambor et al. 2013).

The event reported here is evidence of a previously unknown phenotypic plasticity shown by a Sclerurinae species. Even though this record is unique, the use of a tree cavity by a single pair of Rufous-Breasted Leaf-tosser opens a path for some hypothetical suggestions, especially regarding the influence of local environmental factors on nesting behavior in this group of birds, as seen in Buff-winged Cinclodes (Ojeda 2016). The studied forest remnant is under several anthropic pressures, including its landscape context, located in a peri-urban region. Limited resources for nesting, such as the small availability of exposed soil banks and interspecific competition for suitable nest sites (e.g. with Canebrake Groundcreeper *Clibanornis dendrocolaptoides*), might also influence reproductive strategies at this locality. Finally, the area is commonly occupied by



Figure 1. Nest of Rufous-Breasted Leaf-tosser (*Sclerurus scansor*) with two unmanipulated eggs found inside the tree cavity. Mun. Fazenda Rio Grande, Paraná, 31 October 2017.



Figure 2. An adult Rufous-Breasted Leaf-tosser (*Sclerurus scansor*) bringing food to nestlings and using its tail to support itself on 23rd November 2017. Mun. Fazenda Rio Grande, Paraná (25°39'15"S and 49°20'32"W, 918 m), 31st October 2017.

roaming domestic dogs, which also increase predation pressure on nests at low height, including ground cavities accessible to dogs. In isolation or conjunction, all these factors could influence the emergence of the peculiar behavior in Rufous-Breasted Leaf-tosser reported herein. Thus, Rufous-Breasted Leaf-tosser, or even the Sclerurinae as a whole, may present higher phenotypic plasticity than currently thought; alternatively, this event may be a reflection of a recent adaptation in populations subjected to a myriad of disturbances. We encourage research and documentation of behaviors such as this, in order to improve our collective understanding of bird ecology in the Neotropics. The proper publication and discussion of isolated, unusual natural history events are inherently important to science, and can also promote further investigations of bird populations. Furthermore, we cannot exclude the importance of academics, but also of citizen scientists who have

a fundamental role in the construction of scientific knowledge (Silvertown 2009, Mamede et al. 2017).

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Figure 3. Two Rufous-Breasted Leaf-tosser (*Sclerurus scansor*) nestlings found on the second survey, on 23rd November 2017. Mun. Fazenda Rio Grande, Paraná, 31st October 2017.



Figure 4. Records of an adult removing the fecal sacs from inside the nest on 23rd November 2017. Mun. Fazenda Rio Grande, Paraná, 31st October 2017.

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