

## The nest of the Wing-banded Hornero *Furnarius figulus* in Northeastern Brazil

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**RESUMO.** O ninho do João-da-lama *Furnarius figulus* no Nordeste brasileiro. O João-da-lama *Furnarius figulus* foi encontrado em Alagoas nidificando no interior de bromeliáceas epífitas e embaixo de um telhado. Esses ninhos formavam taças rasas, de textura frouxa. Os ovos e filhotes são descritos. Nossa interpretação desses dados é que a espécie nidifica em cavidades e que o antigo registro de nidificação num oco de árvore pode ser aceito. Apesar de *F. figulus* usar para sua reprodução estruturas fechadas, assim como o resto da família, falta saber se ele também constrói fornos de barro, como os outros *Furnarius* costumam fazer.

**ABSTRACT.** In Alagoas, northeastern Brazil, we found the Wing-banded Hornero *Furnarius figulus* nesting inside epiphytic bromeliads, as well as under a house roof. Nests were loose, shallow cups. Eggs and nestlings are described. We interpret the species to be a cavity nester, and accept a previous account of its nesting in a trunk hole. Although *F. figulus* is like the rest of the family in breeding in closed structures, it remains to be seen if it also builds ovens as do all other known *Furnarius* species.

The neotropical family Furnariidae, the ovenbirds, is best known for its large number of species and the structural diversity of its nests, which have often been used as a taxonomic character. As Vaurie (1980:7) notes in his monograph, "... the most remarkable things about ovenbirds are their nests and the great attention they lavish on them... The nest seems to be another "secondary sexual character", compensating for the modesty of its architect". Vaurie uses widely this "secondary sexual character" to define generic limits in the family.

Members of the genus *Furnarius* usually build the well-known typical "ovens" which have given rise to the scientific and popular family names. Other genera build closed structures of varied forms and sizes, often using thorny twigs, or construct cup nests inside cavities in the ground or trees. Only *Spartoicoica maluroides*, which we discuss below, is known to build a cup nest in the open. It is therefore surprising that the nest of *Furnarius figulus* is a simple shallow cup made of a loose mixture of mostly plant and animal material weighing 28 g and 35 g (two nests).

*Description of the nests.* We found the first nest on April 20, 1985 (nest n<sup>o</sup> QB 225/85) near

Quebrangulo, Alagoas State, Brazil. It was located in the center of a bromeliad, well protected from sun and rain, and contained two eggs. The bromeliad grew 3 m above ground in the crown of an *Erythrina* tree in a hedge in open cultivated land, not far away from a farmer's house. The adults were present, easily identified by their characteristic song. This nest (figure 1) was a shallow oval cup, measuring 15 and 25 cm (external diameters), 8 and 10 cm (internal diameters), 8 cm (external height) and 3 cm (internal height). The outside structure of the nest consisted mostly of dry grass, cotton and other plant fiber, and some bird feathers. It was lined with abundant pieces of plastic and paper. Its general color was pale brownish yellow and its weight 28 g.

A year later, on March 30, 1986, A. S. found a new nest near the old one in the same kind of bromeliad. Two fledglings that had apparently left the nest a few days earlier were flying around in the vicinity begging food from both parents.

On the same day, A. S. found another similarly constructed nest of *F. figulus* built on the top of a house wall just under the roof. The house was not inhabited but was visited several times a day by a farm employee who said that this "João de Barro" (ovenbird) was very familiar to him and never left

the farm, always building its nest under this same roof. A. S. inspected the whole roof and found three old nests of the same kind. The new nest (n° QB 53/86) contained 1 egg but was empty on April 11, 1986. Adult birds were singing nearby.

On May 4, 1986, A. S. saw a bird fly to the same nest carrying material. The nest was being refurbished for reoccupation (n° QB 148/86). It was built with materials similar to those used in the 2 nests found in the bromeliad but in different proportions. It consisted mainly of dry grass, with a few thornless wooden twigs on the outside. Lining consisted of many chicken feathers and horse hairs and contained only a small amount of plastic. This nest produced one fledgling (see below).

*Eggs and young.* The clutch size was 2 eggs for the nests QB 225/85 and QB 148/86 (the one egg in the subsequently abandoned nest QB 53/86 probably represented an incomplete clutch).

The eggs were unmarked, white and oval shaped. Measurements and weight were 27,0 x 19,0 mm and 4,7 g, and 26,6 x 19,0 mm and 4,7 g, respectively, for each egg in nest QB 225/85, and 25,0 x 19,1 mm and 4,8 g for the egg of nest QB 53/86. Measurements were made with calipers (precision 0,1 mm) and a "Pesola" spring balance (precision 0,1 g).

Length of incubation was 20 days in nest QB 148/86 in which only 1 egg hatched. On the day of hatching (May 27, 1986), the chick weighed 3,2 g, wing length was 8,0 mm, bill was 9,9 mm long and 10,0 mm wide (measured exposed mandible at base); gape flanges were light yellow and the rest of the bill was uniformly bright orange, as was the body skin. The chick was covered with sparse down, dark gray on the head and light gray along the back, wings and sides. Both parents provided food, and the young successfully left the nest after 22 days on June 18, 1986.

#### DISCUSSION

Snethlage (1935: 540-541) described the nest of *F. figulus* from Monte Alegre and the lower Rio Maecurú, Pará State, Brazil, as a classical oven. In the region of the lower Iri (a tributary of the Xingu River), however, she identified a very young nestling of this species that her Indian assistants said they had taken in a tree hole. Since there was no clay in the region and she failed to find oven nests although the species was abundant, Snethlage concluded that the species would adapt itself to places without mud by nesting in tree holes. Snethlage herself (1935: 10) asked for more information and was uncertain whether the Indians really found the nestling in a tree hole. Vaurie (1980: 49) suggested that she may have misidentified the



Figure 1. Nest of *F. figulus* (n° QB 225/85).

nestling. Reiser (1925: 152) attributed 2 oven nests that he found at Barra do Rio Grande, Bahia State, Brazil, to *F. figulus*, but his account is not convincing and he only collected *F. rufus* there (Reiser 1910: 69).

This controversy has remained unresolved. Sick (1985: 506) states only that the species has been found in oven nests. From our Alagoas discovery, the Indian account reported from the Iri by Snethlage becomes convincing. The controversy now is whether *F. figulus* really builds ovens on occasion or Snethlage misidentified the Monte Alegre nests. We know by experience that *Furnarius* species are not easily told apart in the field, unless they are collected or their voices recorded. Although we do not know of confirmed records from the Monte Alegre region, *F. leucopus* could be present there. Snethlage (1914: 321) lists *F. minor* specimens from Monte Alegre region. It is therefore curious that she does not mention either species in her 1935 work.

Our opinion is that Snethlage did not misidentify the Iri nestling, but rather the Monte Alegre nests. The oven that she saw at Monte Alegre could have been built by *F. minor*, whose nest, incidentally, seems to be undescribed in a truly documented way, or by *F. leucopus*. Alternatively, it is possible that on occasion *F. figulus* uses abandoned ovens from other *Furnarius*, as *leucopus* does (Sick 1985: 506).

Another issue brought up by our discovery is the interpretation of open nest construction in a family where closed structures are typical. The only previously reported exception is the nest of *Spartonoica maluroides*. Vaurie (1980: 206-207) gathered detailed information from his correspondents regarding this species' nest and commented at some length, concluding that "... the open nest of *S. maluroides* is not so exceptional as it

may seem." In fact, the loose nest of this species varies in shape according to the surroundings, and the ones reduced to a small platform are constructed in rushes and grasses forming together a closed structure.

The other mention of an open nest in the family derives from a description by Hudson (in Sclater and Hudson 1888), who certainly misidentified the builder as *Cranioleuca pyrrhophia*. Although the globular nest of that species has since been correctly described, the erroneous report of Hudson has been recounted as an exception in the family's nest structure (Thomson 1964), and has been repeated (Campbell and Lack 1985) even after Vaurie (1980: 207) emphasized unfounded perpetuation of the misinformation.

With the error about *C. pyrrhophia* corrected and *S. maluroides* convincingly interpreted as a cavity nester, the nest of *F. figulus* needs to be discussed. Oven construction by *F. figulus* is still undocumented. We believe it preferable to interpret the clay ovens reported for this species as misidentifications or possible use of nests of other horneros, than to speculate on drastic changes in nest building behavior within the species. The nests we discovered do not provide a basis for considering *F. figulus* as an open nester: the bromeliad and the house roof both provided well-closed cavities where the nests were fully concealed. We accept the Indians' discovery of a nest in a trunk hole (Snethlage 1935: 541), as it confirms our concept of *F. figulus* as being a cavity nester. The use of man-made structures for nesting by various species of the burrow-dweller genus *Cinclodes* has been widely mentioned (Vaurie 1980: 34, Sick 1985: 504), and recalls the nesting of *F. figulus* under the farm roof.

The fact that this species differs so strongly from the very peculiar nest-building shown by its congeners is surprising. The use of clay for nest building is rare in birds and can be interpreted as a highly evolved adaptation, as seems to be the case in the family Sittidae (Vielliard 1978). In the Furnariidae it appears only once and shows its most

specialized and constant state known in any bird. Would one species of that lineage have secondarily lost such ability or not yet developed it? The use of abandoned ovens by *F. leucopus* can be interpreted as a step towards the use of natural or artificial cavities and the subsequent loss of clay building behavior observed in *F. figulus*. It seems unlikely that *F. figulus* has adapted to environmental constraints, as Snethlage (1985) hypothesized, for mud was plentiful at our Alagoas locality and successfully used by *F. leucopus*. More nest descriptions are needed for *F. figulus* and other poorly-known Brazilian birds to better evaluate the phylogenetic value of nest structure.

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