

## BUILDING AND INCUBATION AT A NEST OF FRILLED COQUETTES, *LOPHORNIS MAGNIFICA* (TROCHILIDAE)

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### INTRODUCTION

The Frilled Coquette (*Lophornis magnifica*, Trochilidae) is a small and sexually dimorphic hummingbird, widely distributed in Brazil from Alagoas and Espírito Santo to Rio Grande do Sul and west through Goiás to Mato Grosso (Meyer de Schauensee 1970, Teixeira *et al.* 1987). Schuchmann-Wegert & Schuchmann (1986) summarize information on the genus *Lophornis* including *L. magnifica*. Ruschi (1982) and Grantsau (1988) give illustrations and brief general information, including nesting data, without specifying the sources of their records or exact dates. Burmeister (1856) reports that a small nest with little plant down was given to his son at Lagoa Santa, Minas Gerais. The painting in Gould (according to Goeldi 1894) shows a nest. Mobbs (1972) studied foraging and other behavior in captive birds, while Sick & Pabst (1968) reported it visiting *Hibiscus* and Teixeira *et al.* (1987) in *Inga affinis*.

Greenewalt (1962) reports males weighing 2.3 g, beating the wings 58 times/s, while females weigh 2.1 g and beat the wings 52

times/s. Teixeira *et al.* (1987) reported the weight of 2.2 g for two males. Oniki (1996) found an average value of  $2.66 \pm 0.29$  g ( $n = 19$ ) using Pesola scales.

### STUDY AREA AND METHODS

On 3 September 1994, Willis found a female building a cup nest 3 m up on a twig of a Japanese plum (*Eryobotrya japonica*, Rosaceae) in the orchard at the laboratory of the Biological Reserve of Santa Lúcia (630 m elevation and 19°58'S, 40°32'W) on the Timbuí River just below Santa Teresa, Espírito Santo, Brazil. Oniki and Willis observed nest building and incubation over several days, to get direct behavioral data lacking in accounts of earlier authors.

The female seemed relatively undisturbed by quiet visitors, and observations were made with binoculars at distance of 6–8 meters from the nest. Observation took place in the following periods: 07:10–08:46 h, 09:25–10:48 h and 01:45–11:52 h on 4 September, 06:03–12:00 h on the 5th, 07:00–17:47 h on the 9th,

and 10:12–11:03 h and 11:55–13:07 h on the 11th, for a total of 21.9 hours.

## BUILDING

The lining of yellow plant down and upright-walled exterior of moss and lichens, blending with the branch covered with lichen, were fairly complete on 4 September. Visits to the nest were mostly brief, 2–10 s (median of 85 visits was 7 s) both that day and on 5 September, except for three visits noted below. Most visits were in bouts, the female flying to 6 m above the nest and to 8–10 m off, hovering down a trunk and picking off a tiny lichen, and returning to the nest after an absence of 3–7 seconds or more. Visit bouts took place in the following periods: 07:52–07:53 h (4 visits), 07:55–07:56 h (4 visits), 08:01–08:04 h (6 visits), 08:06–08:11 h (5 visits) and 08:18–08:22 h (5 visits). Between 10:37 and 10:41 h, there were 4 visits which, with a visit at 10:21 h, were the only ones in over an hour. The female sat on the nest, moved her bill down to the outside of the nest, pressing the lichen into the nest with the outside of the lower mandible, and left. On several visits, lichens were collected above Oniki.

On 5 September, bouts were at 06:31 h (4 visits), 06:34–06:35 h (4), 06:47–06:53 h (7), 06:58–07:05 h (11), 07:42–07:45 h (4) and 10:18–10:23 h (6 visits), with scattered visits between and longer intervals during some bouts. There were no visits between 09:30 and 10:14 h or between 10:23 and 12:00 h (it was sprinkling from 11:05 h onwards). At 08:04 h, the female had sat and turned for 33 s. On the 09:29 h visit, she sat for 1 min and pressed on the nest; on the 10:14 h visit, she sat on the nest for 2 minutes, turning and moving her feet, and looking about. From 09:57 to 10:00 h, she was hunting insects nearby on leaves at ends of limbs 2–5 m up,

once perching atop the tip of a leaf as the species often does.

Either when the female was arriving or leaving, the buzz of her wings was quite audible, as during occasional flights in orchard trees about the area between 07:29–07:48 h. When a mixed flock was passing, she did not visit her nest (there had been 3 visits between 07:27 and 07:29 h, plus one at 07:10 h and 07:13 h when Oniki arrived). On 5 September, she also avoided visiting the nest between 08:08 and 09:18 h as a Rufous Attila (*Attila rufus*) and other birds wandered through the orchard trees nearby (there was a visit at 08:07 h and three others between 09:18 and 09:29 h). Once, arriving from a taller tree, she descended to the nest with an irregular parachuting drop instead of a direct diagonal.

On 4 September at 10:50 h, a female had been feeding on orange blossoms about 35 m from the nest, as on 5 September at 07:25 h nearer the nest, until a male Fork-tailed Woodnymph (*Tbalurania furcata*) attacked her. At 08:34 h on 4 September, and between 06:13 and 06:31 h the day after, one female visited jaboticaba (*Myrciaria cauliflora*, Myrtaceae) flowers about 15 m from the nest. Probably it was the nesting female, but at 08:17 h on 4 September, one female chased another one near the nest. Males were seen at sugar-water feeders, some 50 m away, on both days. Once two males engaged in an aerial duel, but none came near the nest. Females only make scarce visits to the feeders in the area because of the presence of many aggressive Sombre Hummingbirds (*Aphantochroa cirrhochloris*) and other larger species. However, males sneak in even under the bills of large hummingbirds like big slow bumblebees, waving their tails up and down as they hover. At the Reserva Biológica Augusto Ruschi, females and young commonly visit the feeders despite occasional attacks by larger hummingbirds (there are however only a few Sombre Hummingbirds).

## INCUBATION

On 9 September, the female was incubating irregularly but was still bringing material and working on the nest at times, especially in the morning. She brought material only during brief visits, at 08:34 h and 08:35 h. During 6 of the other 19 visits that took place in the morning, she brought a bit of material, or worked on the nest, and sat on it for 1 to 15 min at a stay (median of 21 = 5 min). After noon, she stayed 3-38 min per session (median of 9 = 23). She was somewhat nervous, fleeing from the nest briefly each time somebody passed at a distance of 10-15 m. She was absent for 47 min, from 07:24 to 08:11 h, apparently because a Rufous Attila was building a nest in a bromeliad some 15 m away. She was absent for other periods ranging from 1 to 26 min (median of 25 intervals being 3 min). After noon, intervals varied from 2 to 28 min (median of 9 being 7), with long intervals of 22 and 28 min followed by long incubation sessions of 37 and 38 min until 16:23 h. Thereafter, there were absences of 7 and 6 min, separated by 20 min of incubation until she went to the nest at 16:56 h, one hour before dark. She was very low on the nest by 17:20 h.

On 11 September, incubation sessions varied between 10 and 16 min in duration, with absence of 3 to 7 min, except twice when the female left the nest to check Oniki. She once poked the nest edge as if building, once preened, and several times moved her feet as if turning eggs, but was generally quiet on the nest.

## DISCUSSION

The newly finished nest has vertical walls, unlike the painting in Ruschi (1982). The female presses in the lichen that she just brought from the sitting position, with the under side of the bill. With time, the nest

becomes more voluminous at the base and the rim turns a bit outward. Unlike the painting in Ruschi (1982), which shows green lichens near a whitish branch and a nest rim turning inward, the nest we watched was decorated externally with whitish-green lichens that blended in with the nest branch. Bits of this material were still being added after incubation had started.

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GENERAL BIOLOGY

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