

NESTS AND EGGS OF OLIVE-CHESTED FLYCATCHER (*MYIOPHOBUS CRYPTOXANTHUS*) IN EASTERN ECUADOR, WITH COMMENTS ON BREEDING OF BRAN-COLORED FLYCATCHER (*M. FASCIATUS*) IN WESTERN ECUADOR

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Abstract

We provide breeding information for Olive-chested Flycatcher (*Myiophobus cryptoxanthus*) and Bran-colored Flycatcher (*M. fasciatus*) from Ecuador. For *M. cryptoxanthus* we report a mean clutch size of 2.3 eggs and mean egg measurements of 17.3 x 13.1 mm. Nests were mossy cups slung between horizontal forks in low shrubs in disturbed areas. For *M. fasciatus* we report a mean clutch size of 1.9 eggs and mean egg measurements of 17.5 x 12.7 mm. Eggs were laid 48 hours apart and were incubated for 17 days before hatching. Nests were similar to those of *M. cryptoxanthus*, and nests of both species differed from nests of forest dwelling congeners.

Key words: Andes, Bran-colored Flycatcher, Ecuador, eggs, Olive-chested Flycatcher, *Myiophobus cryptoxanthus*, *Myiophobus fasciatus*, nest description.

Resumen

En este artículo publicamos información acerca de la reproducción del Mosquerito Pechioliváceo (*Myiophobus cryptoxanthus*) y del Mosquerito Pechirrayado (*M. fasciatus*) en Ecuador. Para *M. cryptoxanthus* encontramos un tamaño promedio de nidada de 2.3 huevos, los cuales medían en promedio 17.3 x 13.1 mm. Sus nidos tenían forma de taza recubierta de musgo, el cual colgaba entre ramas de pequeños arbustos en áreas perturbadas. En *M. fasciatus* encontramos un tamaño promedio de nidada de 1.9 huevos, con medidas promedio 17.5 x 12.7 mm. Los huevos fueron puestos con 48 horas de diferencia entre si, y fueron incubados 17 días antes

de eclosionar. Estos nidos fueron similares a los de *M. cryptoxanthus*. Los nidos de estas dos especies son diferentes a los de sus congéneres de bosque.

Palabras clave: Andes, Mosquerito Pechirrayado, Ecuador, huevos, Mosquerito Pechioliváceo, *Myiophobus cryptoxanthus*, *Myiophobus fasciatus*, descripción del nido.

Olive-chested Flycatcher (*Myiophobus cryptoxanthus*) and Bran-colored Flycatcher (*M. fasciatus*) represent a superspecies (Parker *et al.* 1985, Sibley & Monroe 1990) within a genus that remains poorly known both ecologically and taxonomically (Fitzpatrick 2004, Remsen *et al.* 2005). Formerly considered conspecific (Cory & Hellmayr 1927), the two species differ only slightly morphologically, share at least one type of vocalization, and are unique within *Myiophobus* spp. in using forest edge, second growth, and human-created open habitats (Parker & Parker 1982). Although Bran-colored Flycatcher nesting habits are relatively well documented (see Fitzpatrick 2004), very little is known about the breeding biology of Olive-chested Flycatcher.

Olive-chested Flycatcher occurs in east-slope Andean foothills from northeastern Ecuador to northeastern Peru, where it uses shrubby clearings, pastures, early second growth, and forest edge between 400 and 1400 m elevation (Ridgely & Greenfield 2001). Bran-colored Flycatcher, which uses similar habitat types throughout much of

South America, is rare on east-slope foothills (300-1100 m) of Ecuador, but relatively common on the west slope (up to 1500 m) (Ridgely & Greenfield 2001). Here we supplement the only detailed nest and egg description available for Olive-chested Flycatcher (Kiff *et al.* 1989; see also Skutch 1960, 1977) with quantitative information on five nests from northeastern Ecuador. We also present novel breeding data on Bran-colored Flycatcher (*M. f. crypterythrus*) from two sites in southwestern Ecuador, where the species remains little studied.

Nests and eggs of Olive-chested Flycatcher. Observations were made from February to April 2005, at elevations ranging from 1000 to 1200 m, along the Loreto-Coca Road north of Archidona (00°55' S, 77°48' W) in Napo Province, Ecuador. We discovered 5 nests, 4 with eggs and one with two older nestlings. Mean (\pm SD) clutch size was 2.3 ± 0.5 eggs ($n = 4$ nests; range 2-3 eggs). Eggs were buff colored with sparse brown to red-brown flecking, often forming a ring around the larger end (Fig. 1). Average egg measurements ($n = 7$) were 17.3 x 13.1 mm (see Table 1).



Figure 1. A nest and a representative egg (insert) of the Olive-chested Flycatcher (*Myiophobus cryptoxanthus*). February 2005, Napo Province, Ecuador. Photo by H. F. Greeney.

		Length	Width
Olive-chested Flycatcher			
Ecuador (7) ^A	This study	17.3 ± 0.2	13.1 ± 0.3
Ecuador (2)	Kiff et al. 1989	17.0 ± 0.2	12.9 ± 0.0
Ecuador (2)	Skutch 1960 ^B	16.3 ± 0.6	12.9 ± 0.3
Bran-colored Flycatcher			
Ecuador (9)	This study	17.5 ± 1.0	12.7 ± 0.5
Costa Rica (12)	Skutch 1960	17.3	13.0
Trinidad (16)	French 1991	17.7	13.2
Argentina (13)	Fraga 1983	18.0 ± 0.5	13.5 ± 0.3

Table 1. Mean (± SD where available) egg measurements (mm) of Olive-chested and Bran-colored flycatchers recorded in the current study and previous studies. ^A Location (n = number of eggs), ^B Skutch (1960) presented nesting data on “Bran-colored Flycatcher” from the Pastaza River drainage in eastern Ecuador. Based on subsequent writings (Skutch 1977), it appears that these data actually pertained to Olive-chested Flycatcher. Nevertheless, these data should be regarded with some caution.

All nests were situated beside small secondary roads in areas of high human disturbance such as pastures or plantations. Three nests were in unidentified saplings, one in *Baccaris* sp. (Asteraceae), and one in a small Urticaceae shrub. Nests were delicate cups suspended between a horizontal fork at the end of a low branch (Fig. 1). The outer portions of the nests were composed of green moss bound together with spider webs, often with a tail of unbound material hanging below the cup. Egg cups were lined with pale red-brown, dried grass inflorescences, sometimes with a few green lichens. At 2 nests the rim was attached to the horizontal

fork such that the rim was parallel to the ground and at the remaining 3 nests the distal portions of the supporting fork drooped such that the rim of the nest was angled upwards towards the fork. Nest dimensions (n = 2 nests) were: exterior diameter (measured at perpendicular angles) 8 x 8 cm; interior diameter 4.5 x 4.5 cm; outer nest depth 7.0 cm; inner (cup) depth 3.8 cm (see Table 2). The tail of material hanging below nest cups was 8.5 and 6 cm; diameter of bifurcating branches to which nests were attached was 2.5 and 4.5 mm (nest 1) and 3 and 3 mm (nest 2).

		External diameter	Internal diameter	Outer nest depth	Cup depth
Olive-chested Flycatcher					
Ecuador (1) ^A	This study	8.0 x 8.0	4.5 x 4.5	8.0	3.5
Ecuador (1)	This study	8.0 x 8.0	4.5 x 4.5	6.0	4.0
Ecuador (1)	Kiff et al. 1989	8.5 x 9.0	4.5	7.0	5.5
Bran-colored Flycatcher					
Brazil (6)	dos Anjos 1984	7.7 x 5.6 ^B	----	5.5 ^C	3.8 ^D

Table 2. Nest dimensions (cm) for individual Olive-chested Flycatcher nests, and average nest dimensions (cm) for a series of Bran-colored Flycatcher nests.

^A Location (n = number of nests), ^B Range 7.0-8.5 x 5.0-6.0 cm, ^C Range 5.0-6.0 cm, ^D Range 3.5-4.5 cm

Observations on breeding of Bran-colored Flycatcher. Observations were made at elevations of 500-700 m on the Buenaventura Biological Reserve (BBR) (03°39'S, 79°46'W) in southwestern Ecuador, located 20 km north of Piñas in El Oro Province. Further observations were made at elevations of 1600-2000 m at the Yungilla Biological Reserve (YBR) (03°13'S, 79°16'W), located 50 km southwest of Cuenca in Azuay Province. In total, 15 nests were found on these reserves (6 at BBR, 9 at YBR), which are managed by the Jocotoco Foundation. Breeding dates for Bran-colored Flycatcher (all at YBR) are as follows: building, 8-25 March (n = 3 nests); incubation, 3 March-29 April (n = 3 nests); nestlings, 2-15 April (n = 2 nests).

Mean (\pm SD) clutch size was 1.9 \pm 0.3 eggs (n = 10 nests; range 1-2 eggs). Eggs at both sites were buff with sparse brown flecking, sometimes forming a ring around the larger end (Fig. 2). Average egg measurements were 17.5 x 12.7 mm (see Table 1). One nest at BBR and two nests at YBR contained two nestlings each. At one nest at BBR, found on 2 April 2005 with two older nestlings, we observed a second clutch laid in the same nest on (or before) 29 April. We do not know the fate of either nesting attempt.

Nests were delicate cups of moss, bound with spider webs, suspended from the rim of thin horizontal forks, almost always at the

end of a branch and usually with a loose tail of moss hanging below the cup (Fig. 2). Nests were lined with pale fibers and dried grass inflorescences, usually incorporating varying amounts of fungal rhizomorphs, lichens, and treefern scales. Nests were placed 1.2 ± 0.5 m above the ground ($n = 11$; range 0.5-2.1), in a variety of tree and shrub species including *Citrus* (Rutaceae; $n = 2$), *Phyllanthus* (Euphorbiaceae; $n = 2$), *Staractinia* (Asteraceae; $n = 2$), *Barnadesia* (Asteraceae; $n = 2$), *Guadua* (Poaceae; $n = 1$), *Psidium* (Myrtaceae; $n = 1$), and an unidentified Rosaceae ($n = 1$). When placed in larger trees ($= 3$ m in height), the nests were invariably placed in a fork of the lowest branch. At three nests at BBR and one at YBR found during construction, it appeared that only one bird of the pair participated in building. At the nest at YBR, the second adult was present nearby, and on several occasions we observed it chase a female *Amazilia* Hummingbird (*Amazilia amazilia*), which was building a nest 7 m away, from the

area around the flycatcher's nest. One nest at BBR, found as an amorphous clump of moss, had the first egg laid 12 days later. The building process involved draping moss over and between the two arms of a horizontal fork until a loosely formed clump, roughly the size of the finished product, was present. A cup was then formed from above, between the two supporting forks, the structure was bound with spider webbing, and lining was added to this depression. Two nests at BBR were monitored closely during laying. At one, the first egg was laid between 10:30 and 14:00 h and the second, roughly 48 h later, between 08:30 and 14:15 h. At the other, the first egg was laid between 07:30 and 11:30 h and the second, 48 h later, between 08:30 and 11:00 h. On several occasions we observed an adult sitting on the first egg during the day prior to laying of the second, but incubation appeared limited and irregular. At one nest, incubation period was 17 days from laying of the last egg to hatching of both eggs. For additional photographs of nests and eggs of Bran-colored Flycatcher see Greeney (2005).



Figure 2. A nest and a representative egg (insert) of the Bran-colored Flycatcher (*Myiophobus fasciatus*). February 2004, El Oro Province, Ecuador. Photo by H. F. Greeney.

Conclusions

Kiff *et al.* (1989) first described the nest and eggs of the Olive-chested Flycatcher, based on a nest found at 600 m elevation on the eastern slope of the Cordillera de Cutucu, Morona-Santiago Province, in southeastern Ecuador. That nest, which was located 1.8 m above the ground in a small sapling in brushy second growth; was a suspended cup composed primarily of mosses and plant fibers, bound with spider webbing, and lined with fine plant fibers, and was thus virtually identical to nests described here. Nest dimensions were also similar to those reported in this study (see Table 2).

Skutch (1960) reported five Bran-colored Flycatcher nests from eastern Ecuador, but subsequent information suggests that these were likely Olive-chested Flycatcher nests (see Skutch 1977). Although this information should be viewed with some caution, Skutch's Olive-chested (presumably) Flycatcher nests were similar to those that we (this study) and Kiff *et al.* (1989) observed in eastern Ecuador, with respect to nest site and nest structure. Our observations of Olive-chested Flycatcher nesting show that the species breeds earlier in the year (March-April) than previous observations indicated; Skutch (1960) observed nesting from August to October, and the nest

found by Kiff *et al.* (1989) contained eggs in early August.

Our observations of Bran-colored Flycatcher nests and eggs are consistent with those of previous workers in Costa Rica (Skutch 1960), Trinidad (French 1991), Brazil (dos Anjos 1984), and Argentina (Fraga 1983). In all areas, nests were vireo-like cups suspended from a fork of a low branch or sapling, and eggs were cream-colored with a wreath of reddish-brown markings concentrated on the larger end. Egg appearance and measurements (Table 1) also appear to be similar throughout the species' range. Our observations of Bran-colored Flycatcher nests extend the known breeding season in western Ecuador from January-March (Best *et al.* 1993, Best *et al.* 1996) to late April, and indicate that some nests contain nestlings during May.

Skutch (1960) noted that his Olive-chested (presumably) Flycatcher nests were composed of more green moss than nests of Bran-colored Flycatchers in Costa Rica. Authors in Trinidad (French 1991) and Argentina (Fraga 1983) have also indicated that relatively little moss is used as nesting material by Bran-colored Flycatchers, whereas our observations and that of Kiff *et al.* (1989) further indicate that Olive-chested Flycatchers use much moss in constructing nests. Variation in the use of moss as a nesting material may

be an effect of its availability. Olive-chested Flycatchers inhabit a very humid environment at the base of the Andes, where moss is a conspicuous component of the plant community, whereas Bran-colored Flycatchers occur in humid as well as arid regions throughout their range, in which moss availability may vary greatly. Except for Olive-chested Flycatcher using more green moss as a nesting material than Bran-colored Flycatcher, all aspects of nest sites and nest form and structure appear to be extremely similar in these two species. Olive-chested Flycatcher egg measurements reported by Kiff *et al.* (1989) were similar to those that we recorded, and are similar to measurements of Bran-colored Flycatcher eggs (Table 1). Kiff *et al.* (1989) also noted that the Olive-chested Flycatcher eggs that they collected were virtually identical to Bran-colored Flycatcher eggs in the collection of the Western Foundation of Vertebrate Zoology.

Based on our observations of Olive-chested and Bran-colored flycatcher nests and eggs, as well as those of previous workers, the nesting habits of these two species are extremely similar with respect to nest site, nest form, and egg size, shape and coloration. Similar nesting habits thus support the close taxonomic relationship suggested by morphology, vocal characteristics, and habitat preferences. This information emphasizes ecological differences

among groups currently included in *Myiophobus*, and reinforces previous authors' contentions that the genus is polyphyletic and that Olive-chested and Bran-colored flycatchers may deserve a separate genus (Fitzpatrick 2004, Lanyon 1988, Remsens *et al.* 2005). Indeed, although detailed descriptions and quantitative data have yet to be presented, the nests of at least two other congeners, Handsome (*M. pulcher*) and Flavescent (*M. flavicans*) flycatchers, are mossy cups nestled into hanging moss, high above the ground inside tall forest, and thus strikingly different from those of Olive-chested and Bran-colored flycatchers (RCD pers. obs., P.R.Martin pers. com.). In conclusion, nest form and structure support the close relationship between Olive-chested and Bran-colored flycatchers and, pending future work on the nesting biology of other *Myiophobus* species, likely represent significant ecological differences between them and their current forest-dwelling congeners.

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