

## Notes on the breeding biology of Maracaibo Tody-flycatcher *Todirostrum viridanum*

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El Titirijí de Maracaibo *Todirostrum viridanum* es una especie endémica del noroeste de Venezuela (estados Falcón y Zulia), de la cual existe muy poca información sobre su historia natural. En junio del 2004, nueve nidos del Titirijí de Maracaibo fueron encontrados en los alrededores de la ciudad de Coro, estado Falcón. Aquí presentamos la primera descripción del nido de esta especie, el cual es similar al de otras especies del género *Todirostrum*. Todos los nidos estaban tejidos con fibras vegetales, y consistían en estructuras colgantes adosadas a ramas bajas de árboles, con fibras formando una cola larga por debajo de la estructura principal, y una entrada lateral protegida con un alero. Dentro de la cámara incubación, recubierta por fibras más suaves, encontramos 2–3 huevos. Un nido encontrado el 21 de noviembre del 2004 sugiere que la especie puede tener dos períodos reproductivos al año. Las breves observaciones de comportamiento realizadas indican que ambos miembros de la pareja participan en la construcción del nido.

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The genus *Todirostrum* comprises 14 species of small flycatchers restricted to the Neotropics, from south-east Mexico to northern Argentina and eastern Uruguay<sup>8</sup>. Maracaibo Tody-flycatcher *T. viridanum* has a very restricted distribution<sup>5,6</sup>, and is probably one of the rarest and least known of the genus. It is a Venezuelan endemic found from coastal Zulia, near Maracaibo (10°41'N 71°36'W), to northern Falcón, in the vicinity of Píritu (11°22'N 69°08'W), including the Paraguaná Peninsula<sup>5</sup>. Maracaibo Tody-flycatcher is a habitat specialist that favours arid scrub<sup>5,6</sup> and is considered Near Threatened due to habitat loss within its very limited range<sup>1</sup>. The natural history of Maracaibo Tody-flycatcher is very little known and no data concerning its breeding biology are available. Although a few nests have been found in the past (C. Bosque pers. comm.), no nest description or nesting information has previously been published. Here, we present the first description of nests and eggs for this species, and provide further information on its breeding habits.

### Observations

We visited several localities around the town of Coro (Table 1), in northern Falcón, during one week in June 2004. We searched for birds and nests in the surroundings of dry washes beside roads. Birds were located by voice and, once found, nearby trees were checked for nests. On 9–11 June we found nine nests, of which seven were south of Coro, along the road to La Negrita, one west of Coro on the road from Sabaneta to Pecaya, and the other east of Coro at El Carrizal. Additionally, another nest was found on 21 November 2004 in Médanos de Coro National

Park, north of Coro. When a nest was found, we attempted to record its contents and the following measurements (see Fig. 1): tree height (TH), nest height above ground (NH), total length (TL), chamber length (CL), frontal width (FW), lateral width (LW), entrance diameter (ED) and roof length (RL). We also recorded behavioural observations of individuals seen close to nests.

### Reproductive period

In June 2004, nests were found at different stages: two nests were under construction, one was completed but empty, and eggs had already been laid in three others. Of the latter, one had a clutch of two eggs and two others clutches of three. The

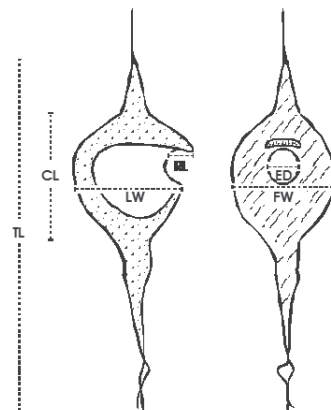


Figure 1. Diagram indicating a nest's morphometric parameters.

**Table 1.** Gazetteer of localities visited during nest searches.

Locality	Coordinates
Pecaya	11°04'N 69°51'W
Sabaneta	11°15'N 69°59'W
La Negrita	11°23'N 69°49'W
Médanos de Coro National Park	11°26'N 69°40'W
El Carrizal	11°28'N 69°32'W

**Table 2.** Measurements of Maracaibo Tody-flycatcher *Todirostrum viridanum* nests.

Measurement	Average $\pm$ SD	Range	N
TH: Estimated tree height (m)	6.48 $\pm$ 1.59	4.5–9.0	7
NH: Nest height from ground (m)	2.63 $\pm$ 0.56	1.82–3.39	8
TL: Total length (cm)	25.71 $\pm$ 3.25	22–29	7
CL: Chamber length (cm)	11.37 $\pm$ 0.95	10–13	7
FW: Frontal width (cm)	5.92 $\pm$ 0.51	5.2–6.5	6
LW: Lateral width (cm)	6.64 $\pm$ 0.57	5.9–7.3	7
ED: Entrance diameter (cm)	2.58 $\pm$ 0.30	2.35–3.1	6
RL: Roof length (cm)	3.32 $\pm$ 0.45	3.0–3.63	2

other three nests were fully constructed but could not be checked due to their height above ground. Our observations indicate that the species' breeding season extends at least from late May to early July. Breeding activity in the Paraguana Peninsula was reported mainly in May–June, but also in January–March<sup>2</sup>, suggesting the existence of two peaks per year. The nest (under construction) found by one of us (ARF) in November 2004 provides additional evidence of a second breeding period, a tactic previously unsuspected for any species of *Todirostrum*.

In most cases, whilst we were taking nest measurements, 1–2 individuals remained nearby vocalising frequently. In two cases we observed both members of the pair carrying nest materials and participating in nest building. The observation of shared nest construction is in accord with available data for closely related species<sup>4,7</sup>.

### Nesting sites and nest structure

Nests were always within a short distance of dry washes. Most of the trees with nests were Leguminosae: one was in a *Cercidium praecox*, five in *Prosopis juliflora* and one in an unidentified legume. The other three nests were constructed in a *Capparis odoratissima* (Capparidaceae), a *Jacquinia* sp. (Theophrastaceae) and an unidentified tree species. Though the height of these trees ranged from 4.5 to 9.0 m, all nests were placed lower than 3.5 m above ground (Table 2).

Nest characteristics are similar to those reported for nests of other species of *Todirostrum*, such as Common Tody-flycatcher *T. cinereum*<sup>7</sup> and Spotted Tody-flycatcher *T. maculatum*<sup>4</sup>. All nests found were alike in structure: a pendant closed nest constructed of plant fibres and suspended from a terminal twig of

a tree, with a roofed side entrance and a long dangling appendage, sometimes longer than the nesting chamber. The interior of the nest chamber was lined with soft plant materials, such as wild cotton. Measurements are presented in Table 2.

### Clutch size and egg characteristics

Mean clutch size was  $2.71 \pm 0.49$  ( $n=7$ ) and the range was 2–3 eggs (including both our and C. Bosque's observations [*in litt.*]), values similar to those reported for Common Tody-flycatcher in the Venezuelan Llanos (mean clutch size = 2.50, range 2–3,  $n=12$ )<sup>8</sup>. As nests were checked only once (both in our case and in Bosque's) there is the possibility that two-egg clutches may have been incomplete (i.e. an additional egg may have been laid subsequently).

Eggs of Maracaibo Tody-flycatcher are white (pers. obs.,  $n=1$  egg) or white with small reddish-brown spots concentrated at one end (C. Bosque *in litt.*,  $n=5$  eggs). Mean measurements are as follows: width =  $10.8 \pm 0.4$  mm (range = 10–11,  $n=6$ ) and length =  $16.2 \pm 0.4$  mm (16.0–16.9,  $n=6$ ). We determined egg measurements by grouping unpublished data provided by C. Bosque with our own.

### Conclusions

All nests we found were located in similar sites very close to dry washes and on a few tree species of those available. The close link between this endemic of xerophytic scrub highly restricted to dry washes highlights the importance of this micro-habitat to Maracaibo Tody-flycatcher. Only one of the nests reported here was found within a protected area, where habitat is relatively well preserved. Alternatively, others were found in areas near settlements. Future comparative studies focusing on the breeding biology of the species in pristine and disturbed habitats may determine whether this bird can cope with habitat modification.

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Figure 2. Breeding habitat (dry wash) of Maracaibo Tody-flycatcher *Todirostrum viridanum* along the road to La Negrita, northern Falcón (A. B. Azpiroz)



Figure 3. Maracaibo Tody-flycatcher *Todirostrum viridanum* carrying plant materials for nest construction (A. B. Azpiroz)



Figure 4. Nest of Maracaibo Tody-flycatcher *Todirostrum viridanum* under construction (A. B. Azpiroz)



Figure 5. Completed nest of Maracaibo Tody-flycatcher *Todirostrum viridanum* in a *Cercidium praecox* (A. B. Azpiroz)

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