

- DIAMOND, A. W. 1975. Biology and behavior of frigatebirds *Fregata* spp. on Aldabra Atoll. *Ibis* 117:302–323.
- GOCHFELD, M. AND J. BURGER. 1981. Age-related differences in piracy of frigatebirds from laughing gulls. *Condor* 83:79–82.
- GRANT, P. R., J. M. N. SMITH, B. R. GRANT, I. J. ABBOTT, AND L. K. ABBOTT. 1975. Finch numbers, owl predation and plant dispersal on Isla Daphne Major, Galapagos. *Oecologia* (Berl.) 19:239–257.
- HARRINGTON, B. A., R. W. SCHREIBER, AND G. E. WOOLFENDEN. 1972. The distribution of male and female Magnificent Frigatebirds (*Fregata magnificens*) along the coast of Florida. *Am. Birds* 26:927–931.
- HARRIS, M. P. 1974. A field guide to Galapagos birds. Collins, London, England.
- NELSON, J. B. 1976. The breeding biology of frigatebirds—a comparative review. *Living Bird* 14:113–155.
- VERBEEK, N. A. M. 1977. Comparative feeding ecology of Herring Gulls (*Larus argentatus*) and Lesser Black-backed Gulls (*Larus fuscus*). *Ardea* 65:25–42.
- VERNER, J. 1965. Flight behavior of the Red-footed Booby. *Wilson Bull.* 77:229–234.
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**The nest, eggs, and young of the White-whiskered Spinetail (*Synallaxis [Poecilurus] candei*).**—Ovenbirds (Furnariidae) show a remarkable diversity of nest types, and the structure and location of the nest are of taxonomic importance in this New World family (Vaurie 1980). The nest structure of *Synallaxis candei* is of particular interest because a previous account apparently is in error. The only information available to Vaurie (1980) came from a nest from Colombia described by C. J. Marinkelle, who wrote that the nest of *S. candei* is “. . . made of grass and fine twigs, with side entrance, in (a) natural cavity of (a) rotten tree at ground level” (p. 87). Vaurie was hesitant to accept such information, as the nest structure of *Synallaxis* is remarkably constant, and no species had ever been reported building a nest within a tree cavity. Nevertheless, he surmised that “. . . it is possible that this nest is an exception without precedent in the normal location of the nest in this genus” (p. 87). More recently Serna (1984) made a brief account of a nest from northern Colombia. That nest contained 2 eggs, was placed 1 m above the ground in an orange tree, was very large, and was made from twigs. We know of no other report of the nest of this species.

Further interest in the nest structure and nesting habits of *S. candei* stems from the fact that there has been uncertainty about the taxonomic affinities of this species. Todd (1917) proposed the monotypic genus *Poecilurus* for *candei*, and later authors (Peters 1951) included *kollari* and *scutatus* in *Poecilurus*. More recent reviews of furnariids (Vaurie 1971, 1980) include the genus within *Synallaxis*. Vuillemier has further suggested that all 3 species could be considered allospecies of a single superspecies (Vaurie 1980:120). *Poecilurus*, however, is still accepted in some recent works (e.g., Meyer de Schauensee and Phelps 1978). The purpose of this note is to document fully the nest of *S. candei* in an attempt to provide further information on its taxonomic relationships. In addition, we provide brief information on the eggs and young of this species, which may help in further establishing its affinities within the ovenbirds.

*S. candei* is chiefly a bird of arid regions (thornscrub) of coastal northwestern Venezuela

and northern Colombia. We made our observations in the Paraguán Peninsula (Falcon State), on the western coast of northern Venezuela, during 5 visits between October and December 1984. Long-term average precipitation in the area is about 450 mm, most of which falls between October and early January; mean annual temperature is approximately 28°C. The tree layer reaches 5–6 m and is a mixture of cacti, evergreen, and deciduous species, and has an understory largely dominated by the cactus *Opuntia wentiana*.

*S. candei* searches slowly and gleans insects and other arthropods from the ground and bark surfaces, usually below 2 m. Both sexes sing, and, like many other desert insectivores (Immelmann 1963), they retain their territories and remain paired outside the breeding season, which is mainly coincident with rainy periods (Bosque 1984). Both sexes participate in intraspecific territorial defense.

We inspected 4 nests that had eggs or young, as well as 10 nests that were not being used during our visits. The nest of *S. candei* is a bulky structure composed chiefly of dry spinescent or thorny twigs and sticks. As in all other nests of *Synallaxis*, it consists of two parts: a roughly globular egg chamber, and an entrance tube or tunnel that leads laterally into the egg chamber. In addition, large quantities of bark, sticks, and twigs are added over and around the basic structure until it is surrounded completely by a broad shell, giving the nest the appearance of a somewhat shapeless structure. Inner diameter of the egg chamber is 10–13 cm, with walls constructed entirely of interlaced twigs, most of which are thorny (e.g., *Prosopis juliflora*, *Pithecellobium dulce*, *Acacia macracantha*, *Cercidium praecox*, *Lycium nodosum*, *Randia gaumeri*, *Castela erecta*, *Croton flavens*). The bottom of the egg chamber is usually lined with the green pubescent leaves of *C. flavens*. If those are not available, the nonpubescent leaves of *C. praecox* are readily used. The use of green pubescent leaves for lining the egg chamber is also found in other *Synallaxis* (Skutch 1969, Vaurie 1980). The entrance tunnel is constructed in a similar manner to the egg chamber, but with finer (about 2–4 mm diameter) and shorter (5–12 cm) twigs. If available, the preferred material for the entrance tube is thin twigs of *L. nodosum*. The entrance hole sometimes opens into the center of a chimney-like circular rim, made of thorns of the cactus *Ritterocereus griseus*, or of finer thorny twigs of the same plant species that was used elsewhere in the structure. The entrance tube is often slightly curved, either sideways or upward at its free end, and it most commonly opens toward the upper distal end of the surrounding shell. It typically measures about 30 cm in length and has an internal diameter of about 5 to 6 cm. The egg chamber and the entrance tunnel are covered by a thick thatch of coarser and larger sticks, twigs, and pieces of bark of the same plant species used in the rest of the structure. Pieces in the thatching are piled up rather than carefully interlaced as they are in the main structure. The thatching extends laterally around the nest proper, completely surrounding it, except for the entrance hole, and forming a broad platform around which the birds can walk. Frequently, as in other *Synallaxis*, pieces of shed lizard or snake skin are added to the nest structure or the chamber lining.

Maximum external dimensions of 2 nests were 70 and 75 cm along the long axis, 35 and 48 cm along the short axis, and 30 and 35 cm deep across the egg chamber. Nests were most frequently placed on thorny shrubs (*P. juliflora*, *C. praecox*, *C. erecta*) that provided a horizontal supporting substrate. Nest height above the ground for 6 nests was 1.3–2.5 m. Birds were quite wary around the nest, and we did not observe nest construction.

Nests were used for renesting in the same season. A pair that successfully fledged 3 nestlings around 19 December had a clutch of 4 eggs on 31 December in the same nest. One parent attended the fledglings, which still begged for food, while the second incubated the eggs.

The oblong eggs have a smooth, nonglossy shell with the long axis averaging  $20.0 \pm 0.7$  mm [SD] ( $N = 7$ ) and the short axis  $15.9 \pm 0.5$  mm ( $N = 7$ ). Average egg weight, measured to the nearest 0.2 g, was  $2.5 \pm 0.1$  g ( $N = 7$ ). Egg color varied from a rich turquoise blue

to a pale or light niagara green of Ridgway's (1912) color chart. Clutch size in Paraguaná was 3–4 eggs.

One- or two-day-old nestlings have orange flesh-colored skin and legs. Down is grayish and sparse and concentrated mostly on the head, back, and wings. The bill is yellow but white at the gape, the lining of the mouth is yellow and the inner throat is red, the nails are whitish. The eyes were closed and no egg-tooth was present. Older nestlings and newly fledged birds resemble adults; however, the belly is more extensively white in young birds than in adults. Weights of 3 well-feathered nestlings (16.5, 17.0, and 17.0 g), were higher than those of 2 adult males (14.5 and 16.0 g) collected in the dry season.

The nest of *S. candei* most strongly resembles that of the Rufous-breasted Spinetail (*S. erythrothorax*) of Middle America (Skutch 1969). In both species there is a shell or platform surrounding the entrance-way, and in both the entrance opening is in the center of a circular pile of thorny twigs that is raised above the platform. According to Vaurie (1980), an entrance platform has been reported in no other *Synallaxis* except *S. erythrothorax*.

Our description of the nest of *S. candei* confirms that it is typical of *Synallaxis*, as originally suspected by Vaurie, and is in agreement with his contention that *Poecilurus* should be included in the former genus. To the best of our knowledge, there are no published descriptions of the nests of *kollari* and *scutatus*, the other 2 species included by Peters (1951) in *Poecilurus*. Descriptions of the nests of these 2 species would help in establishing the taxonomic affinities of this group within the furnariids.

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#### LITERATURE CITED

- BOSQUE, C. 1984. Structure and diversity of arid zone bird communities in Venezuela. Ph.D. diss., Univ. Washington, Seattle, Washington.
- IMMELMANN, K. 1963. Drought adaptations in Australian desert birds. *Proc. Int. Ornithol. Congr.* 13:649–657.
- MEYER DE SCHAUENSEE, R. AND W. H. PHELPS. 1978. A guide to the birds of Venezuela. Princeton Univ. Press, Princeton, New Jersey.
- PETERS, R. 1951. Check-list of birds of the world, Vol. 7. *Mus. Comp. Zool.*, Cambridge, Massachusetts.
- RIDGWAY, R. 1912. Color standards and color nomenclature. Washington, D.C.
- SERNA, M. A. 1984. Avifauna parcial de la Guajira. *Museo de Hist. Nat. Colegio de San José, Medellín, Colombia.*
- SKUTCH, A. F. 1969. Life histories of Central American birds, III. Pacific Coast Avifauna 35.
- TODD, W. E. C. 1917. New genera, species, and subspecies of South American birds. *Proc. Biol. Soc. Washington* 30:127–130.
- VAURIE, C. 1971. Classification of the ovenbirds (Furnariidae). Witherby, London, England.
- . 1980. Taxonomy and geographical distribution of the Furnariidae. *Bull. Am. Mus. Nat. Hist.* 166:1–357.

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