

Behavioural observations of pine-oak forest birds in southern Mexico

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Cotinga 12 (1999): 66–69

Se detalla en el siguiente artículo información antes no descripta sobre el comportamiento y la historia natural de siete especies de aves residentes en los bosques de pino-encino en Oaxaca. Entre otros, se registraron nuevas estrategias de alimentación para *Streptoprocne zonaris* y *Loxia curvirostra*, despliegues de vuelo en *Myadestes occidentalis* y *Oriturus superciliosus*, nueva información de nidificación para *Pachyrhamphus major* y *Myadestes occidentalis*. Es necesario obtener mayor información urgentemente para muchas de las especies de estos bosques restringidos, reconocidos como áreas prioritarias para la conservación a nivel regional.

Introduction

Pine-oak forests are restricted to cool-temperate highlands of Mesoamerica from northern Mexico to Nicaragua, and support a diverse resident avifauna. The state of Oaxaca, in southern Mexico, contains some of the largest and most pristine tracts of humid pine-oak forest, located primarily in the Sierra Madre del Sur and the Sierra Madre Occidental. The avifauna of these highlands is distinctive, with 75 species considered characteristic, and 27 completely restricted to pine-oak forests². At a regional level, protecting this habitat is regarded as a key conservation priority in Mesoamerica¹². During several years of fieldwork in this region, I and several colleagues have recorded more than 160 species in these forests, including several new records for the state, and numerous range extensions (to be published elsewhere). In addition to new distributional data, much new behavioural / natural history information has been gathered. Given the threatened status of these forests and their birds, this information is especially important, and serves to increase our collective knowledge of these species.

Localities

Most of these records came from three localities in pine-oak forests of Oaxaca:

La Cumbre: approximately 19 km south of Sola de Vega, on Highway 131 toward Juchatengo, at crest of ridge near microwave tower; elevation 2,160 m, 16°27'N 97°00'W. Transition from dry pine-oak forest to humid pine-oak, with small patch of oak-dominated cloud forest upslope.

San Antonio: on ridge crest between San Miguel Mixtepec and San Antonio Mixtepec in the Sierra de Cuatro Venados; elevation 2,600 m, 16°47'N 96°59'W. Large tract of humid pine-oak forest with several large meadows dominated by bunch grasses.

San Miguel: near 164 km marker on Highway 175, 10.4 road km south of San Miguel Suchixtepec in the Sierra de Mihuatlán; elevation 2,070 m, 16°04'N 96°30'W. Large patch of humid pine-oak forest with many small streams.



Ferruginous Pygmy-owl *Glaucidium brasilianum* (Dave Beadle)

Ferruginous Pygmy-owl *Glaucidium brasilianum*

One was observed leaving an abandoned Streak-backed Oriole *Icterus pustulatus* nest, on 23 May 1997 in oak scrub south of La Cumbre (near the 120 km marker on Highway 131). The pendulous nest was suspended 6 m above the ground from a horizontal branch of a dead tree, near a small stream. There was an active nest of *I. pustulatus* in an adjacent tree, but the abandoned nest appeared older, and was perhaps from the previous breeding season. The owl was apparently roosting inside, and on emerging, it remained at the nest entrance despite being mobbed by several birds: Long-billed Starthroat *Heliomaster longirostris*, Rufous-backed Robin *Turdus rufopalliatus* and *I. pustulatus*. The owl eventually retreated to a nearby tree, and remained hidden in the dense foliage.

White-collared Swift *Streptoprocne zonaris*

This species was common over most large patches of pine-oak forest visited, frequently in small flocks at great height. On 28 April 1998, near San Antonio, a flock of c. 50 birds was observed foraging in and



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- Figure 1. Brown-backed Solitaire *Myadestes occidentalis*, upslope from Comaltepec, Sierra de Juarez, Oaxaca, Mexico (David M. Watson)
- Figure 2. Nest of Brown-backed Solitaire *Myadestes occidentalis*, Sierra de Cuatro Venados, Oaxaca, Mexico (David M. Watson)
- Figure 3. White-throated Thrush *Turdus assimilis*, upslope from Sola de Vega, Oaxaca, Mexico. (David M. Watson / VIREO)
- Figure 4. White-throated Thrush *Turdus assimilis*, intermediate form, upslope from Sola de Vega, Oaxaca, Mexico. (David M. Watson)
- Figure 5. Striped Sparrow *Oriturus superciliosus*, display flight over grassland, atop Sierra de Cuatro Venados, Oaxaca, Mexico (David M. Watson)

around smoke from an approaching wildfire. The swifts entered the smoke, circled and fluttered for 3–4 minutes before emerging to glide off along the valley calling loudly. This sequence was repeated many times for over 1 hour. Several birds were clearly seen hawking insects, but others were apparently making no effort to feed. The species has been recorded feeding in a similar manner ahead of rainstorms¹¹, but not associated with fire or smoke.

Grey-collared Becard *Pachyramphus major*

Seen at all three localities, but never common. On 28 May 1997, L. G. Ball observed a pair foraging around bromeliad *Tillandsia* sp. flowers on a steep

slope of pine-oak forest at San Miguel. The female was observed gathering bromeliad leaves, hovering to pluck them from plants. The breeding behaviour of this poorly known species has only recently been described¹⁰. In addition, Rowley⁸ noted adults feeding three juveniles in late September, and Binford collected an adult female on 24 May with greatly enlarged follicles².

Brown-backed Solitaire *Myadestes occidentalis*
Common at most survey sites, and readily identified by voice. Although the song was occasionally given from the top of a tall, typically *Pinus* sp., tree, the full song was usually only given during a flight display, similar to Townsend's Solitaire *Myadestes*

*townsendi*³. The bird flies up from an exposed perch, typically on a steep slope, giving regular warbling call-notes while ascending 50–100 m above the forest canopy, before commencing the full song while fluttering slowly down. The rufous wing-patches are clearly visible throughout, and the tail outstretched and fanned. The bird would return to the original perch, often to repeat the performance within 10 minutes. The flight-call is loud, and audible over 1 km in calm conditions.

On 22 May 1997, a nest was found on a steep slope at La Cumbre, in a small gap between boulders, c.0.8 m from the ground. The bowl-like structure (internal diameter 78 mm) was constructed entirely of pine needles and lined with green moss. It was partially concealed by overhanging ferns and lichen, and contained three creamy white eggs (25 x 18mm, 25 x 16mm, 24 x 16mm), that were speckled heavily with chestnut-brown flecks, denser toward the blunt end. They hatched two later, and both parents fed the chicks. Another nest was found at San Antonio, on 7 June 1997, tucked behind exposed roots in an overhang beside the trail, 1.4 m above the ground. The nest cup (internal diameter 80 mm) was entirely of pine needles and lined with arborescent lichens. Two eggs were present (25 x 17mm, 26 x 18mm) and were only lightly speckled. These descriptions differ from those of Rowley⁸, who describes the nests as constructed of moss, but lined with pine needles. The two nests discussed here were examined carefully, and pine-needles clearly constituted the structure of the nest, not lining, while the moss or lichen was used solely for lining.

White-throated Thrush *Turdus assimilis*

A common breeding resident in many survey areas, and given the olive-brown dorsal coloration, were assumed to be *T. a. oaxacae* after Binford². At La Cumbre, however, several individuals were mis-netted, allowing detailed examination and close-up photographs. They were all adult, and appeared intermediate between *T. a. oaxacae* and *T. a. leucauchen* from east of the Isthmus of Tehuantepec, although Orr & Webster⁶ do not include details of tarsus or bill coloration in their diagnosis of the *oaxacae* form. The head and upperparts were greyish brown and the flanks washed olive (typical *T. a. oaxacae*), the orbital ring was bright yellow (not orange) and the bill either partially or wholly yellow (typical *T. a. leucauchen*). Given this combination of character traits, it appears that *oaxacae* and *leucauchen* may intergrade in southern Oaxaca, and indeed these forms may represent points along a cline, including *T. a. assimilis* and *T. a. lygrus* from further west.

Striped Sparrow *Oriturus superciliosus*

This poorly known species was found only in bunch-grassland atop Sierra de Cuatro Venados, where it was readily observed. Birds foraged primarily on the ground, and often perched on exposed branches for extended periods, calling regularly. A flight display was observed on several occasions, during which the bird glided from a high perch on stiff wings, with its chest slightly inflated and head tilted upwards (very similar to the display of Yellow-breasted Chat *Icteria virens*). This posture accentuates the long tail, with the rump notably paler than the dorsum. Flight displays have not been reported for this species, but are known for several other grassland sparrows⁷, e.g. Lark Bunting *Calamospiza melanocorys*.

Red Crossbill *Loxia curvirostra*

Recorded on three occasions, always in flocks of c.20 birds. In all cases, the birds were feeding in pine trees, ripping apart fascicles, and prying the scales of pinecones open. On 7 June 1997, near San Antonio, three birds were observed eating soil beside the road, behaviour well documented elsewhere in their range¹. On 21 May 1997, at La Cumbre, a flock moved from a stand of pines where they were feeding, and converged on a large oak tree, where they systematically searched bromeliads, prying the leaves apart and in some cases tearing the entire plant from the branch. Some birds actually entered the rosettes of larger bromeliads, eventually emerging and moving to the next epiphyte. They also stripped bark from the oak, but most foraging was focused on the bromeliads. This constitutes a novel feeding strategy previously unrecorded for this species¹, and may provide an important source of arthropods in the southern part of the species' range.

Conclusion

Clearly, there is still much work to be undertaken on pine-oak forest birds in Mesoamerica. The life histories of many species remain undescribed, and key information on the natural history of many species is lacking⁴. Oaxaca is a popular tourist destination, and affords easy access to some of the best remaining patches of humid pine-oak forest. As interested observers continue to visit this region, these gaps in our knowledge should hopefully be filled.

Although the primary goal of my research was to understand distributional patterns, I took many photographs, collected extensive recordings of vocalisations of more than 90 species, and recorded notes on nesting for all species encountered, most of which are not reported here. Those requiring further information on the birds discussed here, or

other pine–oak species, are welcome to contact me at the address below.

Acknowledgements

Lisa Ball contributed the observations of *P. major*, and made a significant contribution to my fieldwork. Mark Robbins assisted greatly with tips for recording bird calls, and identifications of mystery calls. This work was partially supported by an NSF grant DEB 9801587.

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