Notes on the biology of Pygmy Palm Swift *Micropanyptila furcata*

Charles T. Collins, Rodd Kelsey and Thomas P. Ryan

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El Vencejo Enano *Micropanyptila furcata* es una especie endémica del Valle de Maracaibo ubicado al noreste de Venezuela y Colombia. Con 6,68 g de masa coporal, esta especie es la más pequeña entre los vencejos de America. Los nidos son masas de plumas pegadas a las hojas de las palmas de los géneros *Roystonea* y *Copernicia*. Todos los nidos encontrados estaban en asociación cercana con actividades humanas. Las medidas y el tamaño de la puesta de huevos siguen siendo desconocidos. Los ciclos de muda y de reproducción necesitan clarificación adicional.

Pygmy Palm Swift *Micropanyptila furcata*, the smallest New World swift, is endemic to the Maracaibo Basin of north-west Venezuela and adjacent Colombia. With its deeply forked tail and small size the species is distinctive within its range. Described by G. M. Sutton[18] from two specimens collected at Guachí, Zulia state, Venezuela, it is still known from fewer than 30 specimens. Our 1995 field survey[4] as well as observations by other field workers (S. L. Hilty *in litt*. 2001) have indicated this swift is widespread in the south-eastern portion of the Maracaibo Basin, including areas in close proximity to human activities. They may even have profited from land clearance and planting of palms in and around settlements resulting in additional nest and roost sites (S. L. Hilty *in litt*. 2001). Thus we agree with Stotz *et al*.[17] and Stattersfield *et al*.[16] that, despite its restricted range, Pygmy Palm Swift has a low conservation sensitivity and does not require special protection status or active conservation efforts[4]. Most recent texts have followed David Lack's suggested inclusion of all three New World palm swifts in the genus *Tachornis*[11]; a view he later reversed[12]. As reviewed earlier[4] we retain *Micropanyptila* and *Reinarda* until there is a more detailed analysis of New World palm swift phylogenetic affinities other than just their common affinity for palms. We follow Hilty[9] in using Neotropical Palm Swift rather than Fork-tailed Palm Swift for *Reinarda squamata*. Here we supplement the few biological data currently available for the diminutive Pygmy Palm Swift.

Much of the information included here was gathered on 11–15 January 1995 during a survey in Venezuela of Pygmy Palm Swifts along Highway 1 (the Pan-American Highway) and Highway 4 from San Cristóbal, Táchira state, north to Valera, Trujillo state[4]. Seven specimens (one skin, four skeletons and two fluid specimens) were collected, along with blood samples and feather lice, on 12–13 January, 6.4 km north of Los Naranjos (Las Palmeras) on the road to Puerto Chama, Zulia state.

Although it is one of the smallest swifts in the world, prior to the collection of these specimens there was no information on the body weight of Pygmy Palm Swifts. Mass of the seven specimens collected here averaged 6.68 g (range 6.45–7.10 g, SD 0.24). The sample included three females, two males and two unsexed individuals. These weights are 27–36% lower than the mass of the other New World palm swifts, the Antillean Palm Swift *Tachornis phoenicobia* and Neotropical Palm Swift (9.3 g and 10.6 g respectively[6]). Within the Apodidae, Pygmy Palm Swift is also among the smallest species with body weights only slightly lower than those of the widespread Glossy Swiftlet *Collocalia esculenta* of south-east Asia and the south-west Pacific Ocean islands, but higher than those of Pygmy Swiftlet *C. troglodytes* of the Philippines, which averages 5.44 g (range 4.5–6.6 g, n=21)[6].

One male was in fresh plumage and one unsexed specimen was in nearly fresh plumage with the next to outermost primary three-quarters regrown and the outermost old and worn. Two other specimens were moulting, one in heavy body moult and the other in light moult. Another had newly emerged secondaries but old, unmoulted primaries. Two specimens were in worn plumage with no sign of moult. Both males had at least partially enlarged testes (3 × 5 mm and 3 × 6 mm) but all three females had regressed, granular appearing ovaries and did not appear to be in breeding condition. None of these data afford a clear picture of the timing of moult and reproduction in Pygmy Palm Swift. Frequent visits by adults to the nests that we observed (see below) may have been an indication that nest building or renovation was underway and that breeding was just about to commence. This would be in agreement with the end of the moult noted in some individuals and what appeared to be partially enlarged testes in the males, and also agrees with the observation of seven nests with young in Royal Palms *Roystonea* sp. near Caja Seca, Trujillo[9] on 4 February 2001. However, young were also being fed in a single nest in a Coconut

Figure 1. (Top) Royal Palms *Roystonea* sp., near Escalante, Mérida, Venezuela, where Pygmy Palm Swifts *Micropanyptila furcata* were nesting; (bottom left) indication of where an old nest was positioned on a fallen frond; (bottom right) close-up of nest on fallen frond (Charles T. Collins)

Figure 2. (left) Fan Palm *Copernicia* sp., 6.4 km north of Las Palmeras, Zulia, Venezuela, where Pygmy Palm Swifts *Micropanyptila furcata* were nesting; (right top and bottom) two nests on the outer side of hanging fronds (Charles T. Collins)

Palm *Cocos nucifera* near Cano Zancudo, Zulia, on 4 July 2004 (D. Ascanio & G. George *in litt*. 2009). More data are needed to clarify the periods of both moult and reproduction in Pygmy Palm Swift.

The nest of the Pygmy Palm Swift was unknown at the time of Lack's review[11] of swift nesting habits. Subsequently, H. Nicéforo María indicated that a nest he observed in Petrólea, Norte de Santander, Colombia, was located 15 m above the ground in an unidentified palm[2]. We observed multiple nests of Pygmy Palm Swifts at two principal locations. On the Pan-American Highway at Escalante, near the border of Táchira and Mérida states, we observed two groups of 7–9 and 15–16 swifts circling near a row of 10–15-m-tall Royal Palms at the entrance to Hacienda El Vegon (Fig. 1). (These palms were erroneously identified as Moriche Palms *Mauritia* sp. in Collins *et al*.[4].) Closer observation indicated that swifts were entering and exiting nests, all of which appeared to be a mass of material, mostly feathers, attached near the central rib on the underside of a hanging frond. The swifts entered one nest nine times in a five-minute period, with one remaining inside as long as four minutes. There was no indication of nest material being carried to these nests although they appeared to be freshly made. One old nest was found attached to a fallen frond (Fig. 1) and is now in the collection of the Western Foundation of Vertebrate Zoology, Camarillo, California (no. 178,542). This nest is entirely of feathers glued together with salivary cement. The variety of sizes and colours of the feathers indicate that there were multiple sources; whether kleptoptily was employed, as in the Neotropical Palm Swift[19] could not be determined. As this nest of Pygmy Palm Swift was partially crushed the details of its structure are uncertain. However, it appeared to be very similar to what has been described for Neotropical Palm Swift[12–14] and Antillean Palm Swift[3,10] with the entrance to the nest chamber being from below, near the central rib midway along the palm frond. Antillean Palm Swift nests have also been described as 'watch-pocket nests'[1] and 'half cup-shaped' including both plant fibres and feathers[8].

At the location north of Los Naranjos where specimens were collected (see above) at least 15–16 Pygmy Palm Swifts were seen circling a solitary Fan Palm *Copernicia* sp. in the middle of a grazed pasture (Fig. 2). The visible nests (Fig. 2) were attached to the mid-rib of outward-facing hanging fronds. From the number of palm swifts present and groups observed exiting the tree fronds when disturbed, 4–5 more nests were presumed to be present but concealed in the foliage. These nests also appeared to be bag-like structures with the entrance being on the underside along the central rib of the palm frond. Elsewhere, nests were described as 'a shapeless cylinder with a hole at the downward end' and glued to a frond near its tip[9].

Nests of this swift were also noted in Royal Palms at the entrance of Granaderia Morichal, 2 km north of Cano Blanco along the Pan-American Highway. Pygmy Palm Swifts were observed, during the day, near or flying up into Royal and Fan Palms at several other locations, suggesting these were also nesting sites and not just nocturnal roosts. These included a clump of Fan Palms near a busy intersection adjacent to Hosteria El Vigía in the centre of El Vigía, Mérida, and, further north, in the centre of Betijoque, Trujillo. These observations suggest that Pygmy Palm Swifts are not deterred by severe habitat alteration and human activities nearby, but they are probably dependent on large species of palms. While Royal and Fan Palms appear to be important nesting substrate, one nest has been reported in a Coconut Palm along the edge of the Pan-American Highway (D. Ascanio *in litt*. 2009).

As reported earlier[4,9], Pygmy Palm Swifts are often found circling, and presumably foraging, in the vicinity of solitary palms in open areas as well as rows of planted palms. Their flight is erratic with much zigzagging and abrupt changes in direction accompanied by a fanning of their deeply forked tail. They also inter-mix short glides with rapid shallow wingbeats. When gliding, the wings are usually held below the horizontal plane of the body. They were observed foraging low over open areas but were also seen much higher over mature forest areas and towns.

We noted Pygmy Palm Swift vocalisations to be mostly an initial series of 2–4 buzzy notes followed by a series of rapidly repeated *zee* notes. Hilty[9] described their flight vocalisations as 'a buzzy *be, beez, beez, beez-be-be-be'be'be*' accelerating and trailing off at the end.

Although its range and conservation status has recently been clarified[4] there is still much to be learned about the biology of the Pygmy Palm Swift. Its breeding season and moult cycle need to be better defined, and its egg and clutch size are still unknown. A more detailed analysis of the nest architecture of both Pygmy Palm Swift and Antillean Palm Swift would also be informative. The prey type and prey size of this species would similarly be of great interest for comparison with recent studies of other larger swifts[5,17].

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Charles T. Collins
Department of Biological Sciences, California State University, Long Beach, CA 90840, USA. E-mail: ccollins@csulb.edu.

Rodd Kelsey
Audubon California, 765 University Avenue, Suite 200, Sacramento, CA 95825, USA. E-mail: rkelsey@audubon.org.

Thomas P. Ryan
Ryan Ecological Consulting, 135 North Meridith Avenue, Pasadena, CA 91106, USA. E-mail: tryanbio@gmail.com.