

The biology of the Spot-fronted Swift in Venezuela

New information on a rare bird

Charles T. Collins

INCLUDED IN THE avifauna of South America are many very poorly known species. While some were only recently discovered and are yet unstudied, other species were described many years ago, over 100 years in some cases, and all we know about them is that which can be ascertained from a paucity of museum specimens. The swifts of the family *Apodidae* include perhaps more than their fair share of such species; two new species have been described in the last 20 years (Eisenmann and Lehmann, 1962; Collins, 1972) and several others are known from less than two dozen museum specimens from only a handful of localities. One of the rarest is the Spot-fronted Swift, *Cypseloides cherriei*, a bird recorded from only four localities and which has been observed under natural conditions in the wild by fewer than twelve observers.

The Spot-fronted Swift (Ridgway, 1893) was described from a single specimen collected by George Cherrie in Costa Rica at "Irazu", which can be presumed to mean the southern or western slopes of the Volcán de Irazú between 8000 and 10,000 feet (Carriker, 1910; Deignan, 1961). This and another specimen from Costa Rica currently in the U.S. National Museum (no date or locality indicated; not a paratype as stated by Zimmer, 1945) were long thought to be the only material of this unique and distinctively marked swift. Two previously overlooked specimens, taken on the Volcán de Irazú by C.F. Underwood on August 9, 1898, remained unreported in the collections of the British Museum (Natural History) until 1966 (Collins, 1968a). As late as 1940 the range of the species was stated to be "confined to the Volcán de Irazú in Costa Rica" (Peters, 1940:243). Thus it was astonishing that shortly afterwards a specimen of the Spot-fronted Swift, collected near San Gil, Santander,

Colombia in January 1939, appeared in a small collection of birds sent to the American Museum of Natural History for identification (Zimmer, 1945). Equally unexpected was the appearance of several individuals of this swift at what is now the Estación Biológica de Rancho Grande, an additional 750 km to the northeast in Estado Aragua, Venezuela. Rancho Grande, located at an elevation of 1100 m in the cloud forest of the Central Coast Range, is about 80 km west of Caracas and 13 km northwest of Maracay; the ecology of Rancho Grande and environs have been discussed by Beebe and Crane (1947).

THE FIRST Spot-fronted Swift recorded at Rancho Grande appeared at 9:30 p.m. on February 26, 1948 fluttering against the station's windows during a period of dense fog and strong breeze (Beebe, 1949). Between then and June 1948 a total of nine individuals was

recorded, seven of which similarly appeared between 7:30 and 9:30 p.m., fluttering against lighted windows on foggy nights. Two additional individuals were caught by a pair of Bat Falcons, *Falco rufifigularis*, nesting near the station. On May 10 and June 13, as Beebe watched, two of the world's rarest swifts (the other species was the White-chinned Swift, *Cypseloides cryptus*) were ignominiously plucked and fed to the young falcons (Beebe, 1949, 1950)! In the 26 years that followed, little new was added to our understanding of the Spot-fronted Swift. Additional specimens were collected at Rancho Grande by Beebe (March 30 and November 14, 1952), Schäfer (April 10 and November 14, 1951) and Collins (four on November 12-13, 1966) presumably all attracted by lights on similar foggy nights. Schäfer and Phelps (1954:70) reported that there had been numerous such incidents between 7 and 10 p.m., in all months ex-



Figure 1. Close up view of the Spot-fronted Swift.

cept September and October. A specimen collected by W. Fiala at Finca Helechales, Puntarenas Prov., Costa Rica, on June 12, 1971 provides the only record of the Spot-fronted Swift in Central America in this century (Kiff, 1975). This specimen and another taken at Rancho Grande on May 2, 1973 raised the total specimen material of this swift to 20 (18 skins and 2 skeletons) from four localities, two in Costa Rica, and one each in Colombia and Venezuela. Although it may eventually be found over a larger range and its status elsewhere is uncertain, *C. cherriei* is most certainly a resident breeding species in the Central Coast Range of northern Venezuela.

IDENTIFICATION

AS NOTED BY RIDGWAY (1893) in the original description of *cherriei*, "this apparently new species needs no comparison with any other, the peculiar white markings of the head being sufficient to at once distinguish it." These markings include a prominent white spot in front of each eye and a smaller but clearly seen post-ocular spot (Figs. 1 & 2); the post-ocular spot is not lacking in females contrary to what has been stated (Ridgway, 1911:714; Meyer de Schauensee and Phelps, 1978:128)! The white edge of the chin is variable in extent and nearly lacking in some specimens. Faint-to-prominent white edgings to the feathers of the lower breast and belly appear in six specimens (4 males, 1 female, 1 sex unknown), but does not appear to be readily associated with either age or sex; similar white markings occur in other members of the genus, particularly the Black Swift, *Cypseloides niger*. In this species the white edges have often and persistently been thought to characterize females (Griscom, 1924; Zimmer, 1945) but this was thoroughly rebutted by Swarth (1924). Among its congeners *cherriei* (average measurements: wing 123 mm, tail 44 mm, weight 23 grams) is closest in size to the slightly smaller Chestnut-collared swift, *Cypseloides rutilus*; but like the larger White-chinned Swift, *Cypseloides cryptus*, *cherriei* has a proportionally larger foot and tarsus. The eyes also appear to be somewhat larger than for most similarly-sized swifts (Fig. 1).

In flight, the Spot-fronted Swift would likely prove hard to differentiate

from several other small swifts of similar size. Several clues, however, might prove useful. In silhouette *Cypseloides* swifts generally have a more uniform taper to the hind edge of the wing, as compared to *Chaetura* species which have more elongated inner secondaries and a distinctive constriction in the hind edge of the wing immediately adjacent to the body. Also, the longer tail of the *Cypseloides* swifts gives them a more elongated appearance in flight with the wings seemingly placed more anteriorly than in the shorter-tailed *Chaetura* species. *Cypseloides* swifts are more uniformly colored on the dorsum, lacking the paler rump typical of most *Chaetura* swifts. The prominent white facial markings should clearly separate *cherriei* from either *rutilus* or *cryptus*, but how reliable this would be is difficult

to say; to my knowledge *cherriei* has never been identified in flight!

BREEDING BIOLOGY

MY INTEREST IN THE BIOLOGY of this species was a natural outgrowth of my earlier studies of swifts, including *C. rutilus*, in Trinidad (Collins, 1968b). This interest was substantially whetted by the papers of Beebe (1949, 1950) and a visit to Rancho Grande in November, 1966. From mid-afternoon on November 12 until early on November 16, 1966 Rancho Grande and the surrounding higher elevation forest areas were engulfed in a dense fog-cloud ("neblina") accompanied at times by high winds and occasional rain showers. At 8:30 p.m. on the twelfth I found and captured by hand a Spot-fronted Swift hanging on a



Figure 2. Breeding pair of Spot-fronted Swifts roosting on the first discovered nest, July 16, 1976.

wire trellis near a lighted window of the station. The following night I waited on the same lighted porch for "lightning to strike twice" and to my astonishment was rewarded by having a second Spot-fronted Swift fly in out of the wind and rain promptly at 7:30 p.m.; it was followed by two more before 9:00 p.m. that same evening. Two of these swifts showed advanced or nearly complete wing and body molt typical of the postbreeding period of other swifts. From this it seemed likely that *cherriei*, like many swifts, initiates breeding at the onset of the rainy season, which is to say in the late (north temperate) "spring" in that part of Venezuela (Beebe and Crane, 1947). During a longer visit to this area from March to July, 1972 I searched in vain for a nest of *cherriei*. However on June 28, only five days before the end of my stay, I succeeded in finding an adult on a nocturnal roost on a low overhanging rock face adjacent to a small stream near Rancho Grande. I expected that a nest was nearby, so this bird, the first individual observed under truly natural conditions, was banded and released; the anticipated nest was never found.

On July 15, 1976 I flushed an incubating adult Spot-fronted Swift from its nest high on a dark rock surface, again overhanging a stream not far from Rancho Grande. The nest was examined on July 16 (Fig. 3) and two adults were photographed roosting on the nest that evening (Fig. 2). The nest was a nearly conical mass of damp plant material (90 x 70 mm) constructed mostly of mosses and filmy ferns. It was affixed to the nearly vertical rock surface about 5 m above the stream. Immediately below the nest was a thigh-deep pool situated at the foot of a 2.5 m waterfall. The nest cup (55 mm wide and 12 mm deep) was lined by some coarser fibers, perhaps rootlets. The nest contained a single white egg which measured 24 x 17.5 mm and weighed 3.3 grams. On July 27, 1976, accompanied by Betsy Thomas, I returned to the area, where we found an additional pair of adult Spot-fronted Swifts roosting on the rudiments of a second nest about 5 m downstream from the first site and only slightly more than 2.5 m above the streambed. At approximately the same height and nearly equidistant between these two *cherriei* nests was a typical nest of a Chestnut-collared Swift; first noticed in 1972, this



Figure 3. First discovered nest and egg of the Spot-fronted Swift. Photos/Charles T. Collins.

rutilus nest was still active in 1976. Both adults on the lower *cherriei* nest were captured, but released the following morning after being banded and photographed.

The nest area was again checked the following year (B. Thomas, *in litt.*) and on August 4, 1977 a well-formed nest was found at the site where we had captured the roosting pair in 1976. The now-completed nest measured 92 mm outside height, 87 mm across the top, and the cup diameter was about 56 mm. This *cherriei* nest contained one very small naked nestling (wing 7.4 mm, weight 2.7 grams), which was almost certainly newly hatched. The nearby *rutilus* nest, again active in 1977, had two nestlings estimated to be 3-4 days old. On August 22, after a period of heavy rain, both nests were empty but still utilized by adults, which came to roost there between 7:22 and 7:50 p.m. It was strongly suspected, but not verified, that it was the same pair of *cherriei* which utilized this site in both years. On December 29, 1977 this site was deserted, but a pair of Spot-fronted Swifts was found roosting on the original high nest (Collins and Thomas, pers. obs. in: Altman, 1978). Unfortunately this nesting area has been increasingly frequented by the general public, apparently resulting in an unacceptable level of disturbance; the *rutilus* nest was vandalized in January, 1978 and no swifts of either species have been observed roosting or nesting at this site subsequently.

COMPARISONS WITH OTHER SWIFTS

MOST ASPECTS OF the biology of the Spot-fronted Swift seem typical of other members of the genus *Cypseloides*. In nesting and roosting they all utilize sites characterized by vertical, damp, well-shaded rock surfaces over water, often in the vicinity of (or behind) waterfalls. (Knorr, 1961; Collins, 1968b). The nests are all of soft plant material, mostly mosses and filmy ferns and are reused year after year, often for long periods. Clutch sizes are low, typically one, except in the case of *C. rutilus* where it is usually two. No data are available on the food or feeding ecology of *C. cherriei* but it can safely be assumed to take a wide variety of aerial arthropods, mostly insects, as is typical of all other swifts. The fact that members of this genus are so infrequently observed in the field suggests that they forage at higher elevations and higher above the ground than other swifts, as has been documented for *C. rutilus* (Snow, 1962; Collins, 1968b). It is surprising that so many individuals of the Spot-fronted Swift become disoriented in the early evening fog that frequently engulfs the area of Rancho Grande.

At least seven other swifts occur at Rancho Grande (Beebe, 1949; pers. ob.) and nearby Portachuelo Pass, one of which, the Mountain, or White-tipped Swift, *Aeronautes montivagus*, nests in openings in the walls of the Rancho Grande building (Collins, unpubl.). Even so, these swifts rarely become dis-

oriented in the fog as is true of *C. cherriei*, and on a least three occasions, *C. cryptus*. It is possible that these other swifts go to roost early enough that even on foggy nights there is sufficient light to find their way. The *Cypseloides* swifts, including *C. cherriei*, appear to continue foraging later than other swifts and thus may encounter greater problems finding their roosts under adverse weather conditions. This may account for their appearing at Rancho Grande shortly after their normal roosting time! In Sarawak, Indonesia, the cave-swiftlet, *Collocalia maxima*, was also observed to forage higher and return to roost later than two other sympatric swiftlets (Medway, 1962). This was interpreted as a form of resource-partitioning, allowing *maxima* to forage later, and possibly farther from the nesting-roosting colonies, than other swiftlets (Medway, 1962; Harrison, 1974). Possibly the same interpretations may be applied to the Spot-fronted Swift and other *Cypseloides* swifts, although they lack the echo-localational capacities of most of the cave-swiftlets. Resource partitioning mechanisms of this sort would be important where numerous species of swifts are sympatric as at Rancho Grande and elsewhere in the Neotropics.

Clearly there is still much to be learned about the biology of most Neotropical swifts. The data presented here give us at least a minimal understanding of what up until now has been one of the most poorly known of these fascinating birds.

ACKNOWLEDGMENTS

MY FIELD STUDIES of swifts have been generously supported by research grants from the Frank M. Chapman Memorial Fund of the American

Museum of Natural History and the California State University Long Beach Foundation. Permission to stay, and conduct my studies, at the Estacion Biologica de Rancho Grande has been greatly appreciated, as has been the field assistance of Betsy Trent Thomas. Richard K. Brooke kindly alerted me to the presence and whereabouts of two of the *cherriei* specimens reported herein; Betsy Trent Thomas and Eugene Eisenmann made helpful comments on the manuscript. This paper is dedicated to the late Paul Schwartz, who provided companionship during my several stays at Rancho Grande and who so kindly shared his great love and knowledge of the avifauna of Venezuela.

LITERATURE CITED

- ALTMAN, A. 1978. CBC 1247. Rancho Grande, Aragua, Venezuela. *Am. Birds* 32:910-911.
- BEEBE, W. 1949. The Swifts of Rancho Grande, North-central Venezuela with special reference to migration. *Zoologica* 34:53-62.
- BEEBE, W. 1950. Home life of the Bat Falcon, *Falco albigularis albigularis* Daudin. *Zoologica* 35:69-86.
- BEEBE, W. and J. CRANE. 1947. Ecology of Rancho Grande, a subtropical cloud forest in northern Venezuela. *Zoologica* 32:43-66.
- CARRIKER, M.A., JR. 1910. An annotated list of the birds of Costa Rica including Cocos Island. *Ann. Carnegie Museum* 6:314-915.
- COLLINS, C.T. 1968a. Distributional notes on some Neotropical swifts. *Bull. Brit. Ornith. Club* 88:133-134.
- . 1968b. The comparative biology of two species of swifts in Trinidad, West Indies. *Bull. Florida State Mus.* 11:257-320.
- . 1972. A new species of swift of the genus *Cypseloides* from northeastern South America (Aves:Apodidae). *Los Angeles County Mus. Contrib. Sci.*, 229:1-9
- DEIGNAN, H.G. 1961. Type specimens of birds in the United States National Museum. *U.S. Nat'l Mus. Bull* 221:1-718.
- EISENMANN, E. and L.C. LEHMANN 1962. A new species of swift of the genus *Cypseloides* from Colombia. *Am. Mus Novit.* 2117:1-16.
- GRISCOM, L. 1924. A review of the West Indian Black Swifts. *Auk* 41:68-71.
- HARRISON, T. 1974. The food of *Collocalia* swiftlets (Aves, Apodidae) at Niah Great Cave in Borneo. *Jour. Bombay Nat. His. Soc.* 71:376-393.
- KIFF, L.G. 1975. Notes on southwestern Costa Rican birds. *Condor* 77:101-103
- KNORR, O.A. 1961. The geographical and ecological distribution of the Black Swift in Colorado. *Wilson Bull.* 73:155-170
- MEDWAY, LORD. 1962. The swiftlets (*Collocalia*) of Niah Cave, Sarawak. *Ibis* 104:228-245.
- MEYER DE SCHAUENSEE, R. and W H PHELPS, JR. 1978. A Guide to the Birds of Venezuela, Princeton University Press 424p.
- PETERS, J.L. 1940. Check-list of Birds of the World, Vol. 4, Harvard University Press, Cambridge.
- RIDGWAY, R. 1893. Descriptions of two supposed new species of swifts. *Proc U.S. Nat'l Mus.* 16:43-44.
- . 1911. The birds of North and Middle America. Part 5. *Bull. U.S. Nat'l Mus* 50:1-859.
- SCHÄFER, E. and W.H. PHELPS. 1954. Las aves del parque nacional "Henri Pittier" (Rancho Grande) y sus funciones ecologicas, *Bol. Soc. Ven. Cien. Nat* 83:1-167.
- SNOW, D.W. 1962. Notes on the biology of some Trinidad swifts. *Zoologica* 47:129-139.
- SWARTH, H.S. 1924. [Letter to editor] *Auk* 41:383-834.
- ZIMMER, J.T. 1945. A new swift from Central and South America. *Auk* 62:586-592.

—Department of Biology, California State University, Long Beach, California 90840.