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EXTENSION OF THE BREEDING RANGE OF COSTA'S HUMMINGBIRD IN SOUTHERN SONORA

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As currently known, the breeding range of Costa's Hummingbird (*Calypte costae*) extends from the southwestern United States into Baja California and south to central Sonora, while the winter range extends south to the state of Nayarit (Baltosser 1989, Baltosser and Scott 1996, AOU 1998). Russell and Monson (1998) considered Costa's Hummingbird a "poorly known species" in Mexico and reported evidence of breeding in Sonora as far south as Guásimas (27° 53' N, 110° 35' W). Cody (1983) reported observations of the species during the breeding season at Huatabampo, Sonora (26° 50' N, 109° 38' W), but did not document nesting. We report here the first evidence of breeding from southern Sonora.

From January through March of 2010 we located 16 Costa's Hummingbird nests on an island and in adjacent coastline vegetation in the Agiabampo estuary, which straddles the borders of Sonora and Sinaloa on the coast of the Gulf of California (Figure 1). These observations extend the breeding range over 200 km south of that reported by Russell and Monson (1998).

The upland vegetation around the estuary is a unique coastal thornscrub (Martin et al. 1998) dominated by drought-deciduous trees and shrubs and a forest of columnar cactus (mostly *Stenocereus thurberi*). Felger et al (2001) considered it one of the rarest and least studied ecosystems in the world.

Average annual rainfall is ~320 mm (Friedman 1996), falling mostly in the summer monsoon. Fifteen of the 16 nests were found on Isla Masocarit (26° 22' N, 109° 15' W), an island in the estuary 0.5 km offshore from the Navopatia Field Station and the fishing village of Navopatia, 8 km north of the Sonora/Sinaloa border (Figure 2). Isla Masocarit covers approximately 740 hectares, lacks surface water, and is not settled. The vegetation on the island differs from that of the mainland largely as a result of the lack of livestock grazing. The island's vegetation is dense and dominated by native grasses and a profusion of epiphytes (*Tillandsia* spp.) among the less abundant columnar cacti. Chuparosa (*Justicia californica*), a shrub that is a common food source for hummingbirds, is much more abundant than it is on the nearby mainland. The shoreline is occupied by mangroves (*Avicennia germinans*, *Rhizophora mangle*, and *Laguncularia racemosa*).

We searched for and found nests opportunistically during other surveys on the island and in mainland thornscrub. In this area, male Costa's Hummingbirds commonly sing and display from mid-December through February. Our structured surveys from January to March thus encompassed the presumed peak of the nesting season. Although we were in the area continuously from October to April and occasionally from May to September, we observed no displaying Costa's Hummingbirds from July through November.

All nests were 2 m or less from the ground in nine species of shrubs or trees less than 3 m tall. The three most common nest plants were *Bursera laxiflora* (25%), *Euphorbia californica* (18%), and *Jatropha cinerea* (12%). The nests contained grasses, spider silk, and lichens (*Ramalina* sp.) and were built and placed as described

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Figure 1. Costa's Hummingbird on nest in *Guaiacum coulteri*, February 2010.

Photo by A. Campbell

by Baltosser and Scott (1996). All completed clutches had two eggs. Of the 15 nests observed, at least seven were successful; we found evidence of predation at only one nest.

We found only one nest on the mainland, even though our effort was equal if not greater there. We completed area searches, as described by Ralph et al (1993), on



Figure 2. Agiabampo estuary and Isla Masocarit, southernmost Sonora.

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fourteen 4-ha plots in upland habitats. On seven plots on the mainland over three winters, these searches yielded 105 detections of Costa's Hummingbirds, while the species was detected 254 times on our seven island plots. We believe that the greater density of nectar-producing plants such as *Justicia californica* on the undisturbed island likely accounts for the difference in abundance between island and mainland. Isla Masocarit is legally protected and is one of the few refuges from livestock grazing in Sonora. If similar conditions exist to the south in Sinaloa, Costa's Hummingbird may nest there as well.

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