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Nest Reuse by the Scintillant Hummingbird (*Selasphorus scintilla*)

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ABSTRACT.—Nest reuse behavior in birds is rare because nests are ephemeral structures. We describe the first record of multi-season nest reuse by the Scintillant Hummingbird (*Selasphorus scintilla*). The nest was a multi-cup of four nests with newer nests placed on top of older nests. The nest was under the eave of a roof, which may have reduced nest disintegration and facilitated nest reuse. *Received 19 November 2010. Accepted 19 March 2011.*

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Reuse of nests is an uncommon behavior by birds mainly because the nest structure remains intact only for a short period of time after the bird leaves the breeding area (Skutch 1976, Bertolero 2002), except for cavities (e.g., wood, termitaria, and earth) that persist (Aitken et al. 2002, Sandoval and Barrantes 2009). The vegetal material of a nest and weather conditions, such as rainfall and wind, disintegrate the nest rapidly and prevent successive use, even in the same season if time between nest attempts is lengthy (Aguilar and Marini 2007). Another factor that may prevent or reduce nest reuse is persistence of parasites in old nesting material. Parasites feed on nestlings when the nest is reused, resulting in reduced reproductive success (Moss and Camin 1970, Barclay 1988, Rendell and Verbeek 1996).

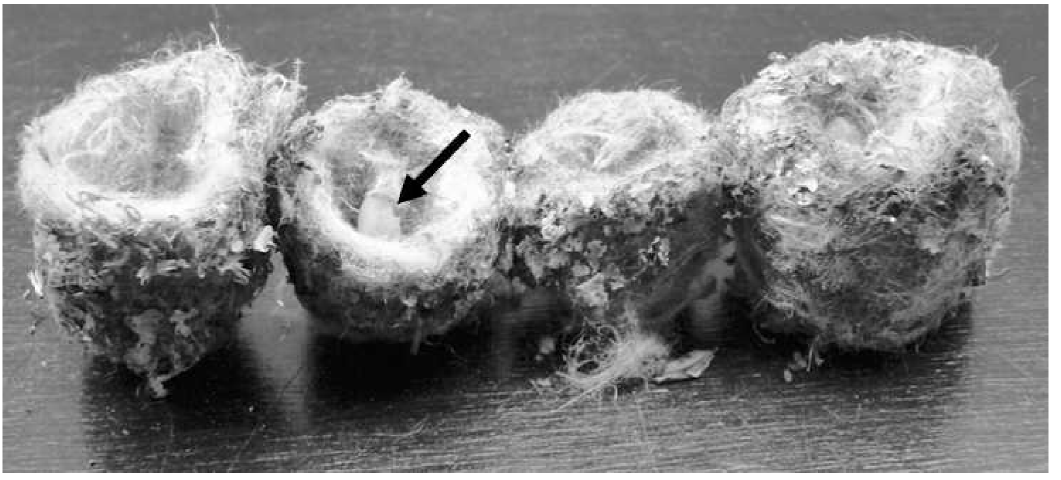

FIG. 1. Four nests of the Scintillant Hummingbird built one on top of the other at La Colmena, Coronado, San José Province, Costa Rica. The nest order is from left (first) to right (fourth). The arrow shows the egg shell in the second nest. (Photograph by Luis Sandoval).

Notable examples of nest reuse occur in raptors (Falconiformes, Accipitriformes) and storks (Ciconidae). Many species from these groups can reuse the same nest in successive years and even add new material each year, which increases nest size (Dijak et al. 1990, Cezilly et al. 2000, Vergara et al. 2006, Stout et al. 2007). Nest reuse by hummingbirds has been reported previously (Skutch 1973), but only in North American species (Gault 1885, Baltosser and Scott 1996, Baltosser and Russell 2000). We provide another example of nest reuse behavior with the first report of a multi-season nest reuse by the Scintillant Hummingbird (*Selasphorus scintilla*). This hummingbird is a common endemic of Costa Rica and west Panama, occurring between 900 and 2,100 m asl. Nests of this species are usually in bushes at forest borders or in open areas (Stiles and Skutch 1989).

OBSERVATIONS

We found an empty Scintillant Hummingbird nest at La Colmena, Vásquez de Coronado, San José Province, Costa Rica (09° 59′ N, 83° 59′ W; 1,500 m asl) on 15 March 2010. The site borders a small secondary forest patch between farm fields and isolated houses.

The nest was a multi-cup structure (Fig. 1) attached from the bottom to the base of a light bulb 2.5 m above ground on a residential porch. The nest was comprised of four similar nest cups with newer nests on top of the older ones. The outer layer of the four individual nests consisted of mosses, lichens, and spider webs. The inner layer was composed mainly of Asteraceae seeds. These characteristics are in agreement with previous nest descriptions of Scintillant Hummingbirds (Stiles and Skutch 1989). There was little variation between the diameters of the nest cups (CV = 16%), in comparison to variation found in nest height and depth of the egg chamber (CV = 145 and 87%, respectively, Table 1).

The size of the egg chamber could be an indicator of nest success. Hummingbird hatchlings grow inside their nests and the egg chamber increases in size. The egg chamber in the fourth and newest nest was wider than the other three (Fig. 1, Table 1); we assume this was the only nest where eggs apparently hatched, because when nestlings grow they expand the egg chamber. An entire egg shell broken in two pieces

TABLE 1. Dimensions (mm) of four individual nests of Scintillant Hummingbirds built one on top of the other. Diameter measurements are perpendicular between nests. Nest height is the highest measurements between the outside nest bottom and cup border. Nest numbers represent the construction order from the oldest (1) to newest (4).

Nest	Diameter	Egg chamber depth	Nest height
1	19.2 × 22.5	17.8	43.2
2	20.0 × 22.7	21.1	35.8
3	19.2 × 22.1	14.5	26.0
4	21.6 × 24.5	24.0	37.9

from a previous nesting attempt was within the second egg chamber (Fig. 1), which suggests, at least in this nest, that two eggs may have been laid. We found no evidence of egg shells inside the other two nest cups and their size was smaller than the fourth. The nests were collected and deposited in Museo de Zoología, Universidad de Costa Rica.

DISCUSSION

Nest reuse in birds could be related to nesting success, nest site fidelity, or habitat limitation (Harvey et al. 1979, Vergara et al. 2006, Aguilar and Marini 2007). The first two causes would be more likely if previous nesting attempts were successful (Beheler et al. 2003, Hoover 2003). Nest choice in hummingbirds and other species that nest during the rainy season, such as the Scintillant Hummingbird (Stiles and Skutch 1989), may be limited to locations with adequate nest cover. Nests with better shelter from the environmental elements (e.g., less direct rain) may reduce thermoregulatory costs (Calder 1971). Sheltered nests may allow the female to spend more time foraging, because eggs and chicks are relatively protected. The Scintillant Hummingbird nest that we observed was completely sheltered and the benefits of shelter may be the main reason this nest was reused on multiple occasions. Also, if the light bulb was on during part of the day, it might have reduced thermoregulatory costs.

We do not know if all nest attempts were successful, but our data suggest the only successful nest was the fourth. We based this upon it having a larger egg chamber size, a characteristic observed in several hatchling hummingbird nests (Calder 1973, Baltosser 1986). It is possible that nesting success was not the main cause of nest reuse. Most hummingbird females are territorial against conspecifics (Stiles and Skutch 1989), which suggests the nest was built by only one female, as occurs for Costa's (*Calypte costae*) and Black-chinned (*Archilocus alexandri*) hummingbirds (Gault 1885, Baltosser and Scott 1996, Baltosser and Russell 2000). However, we are not certain if all nests were built by the same female, in which case nesting success may have nothing to do with the nest reuse.

Nest reuse may have also occurred because it was structurally solid, and was a good foundation for a second nest (Bergin 1997). Generally, this condition is rare in the tropics, where decomposition rate for vegetal material is high (Sandoval and Barrantes 2009). We believe the reuse of this Scintillant Hummingbird nest was most likely due to the ideal nest location below a covered structure.

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