

## DEPREDAATION OF BLACK-CHINNED HUMMINGBIRD NESTLINGS BY YELLOWJACKETS

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The frequency and extent of predation on hummingbird nestlings by wasps of the family Vespidae is not well known. Among the 14 hummingbird accounts in the *Birds of North America* series, there are no documented records of vespids killing adults or young of any species of hummingbird. A further literature review returned only four reports of vespid predation of bird nestlings, supporting the conclusion that this type of predation is rare or underreported. On 29 July 2018 I observed the predation of two Black-chinned Hummingbird (*Archilochus alexandri*) nestlings by four to six yellowjackets (*Vespula* sp.) in the Highlands area of the Boise foothills in Idaho. I first became aware of the hummingbird nest, about 2 m off the ground on the lower branch of an ash (*Fraxinus* sp.) tree overhanging my ground-level deck, on 20 July. Later in the day I photographed the adult female hummingbird on the nest from a discreet distance (Figure 1A and B). I checked on the nest regularly with binoculars and photographed it in late morning and early evening, when sunlight fell on the nest. The adult female was observed on the nest from 20 to 24 July. On 24 July, I observed nestlings for the first time. I last photographed the nestlings on 28 July in the late morning, mid-afternoon, and early evening (Figure 1C, D, E, and F).

On the morning of 29 July, I checked on the nestlings at 09:45 when their heads and beaks were visible above the nest. There was no sign of any predation or the nest being compromised. At 11:10 I checked the nest again and saw one yellowjacket moving along the bottom outside of the nest and then saw two yellowjackets climbing along the top edge and in and out of the nest. From my vantage point, I could not see into the nest itself, but was concerned as I could no longer see either the heads or beaks of the nestlings.

At 11:20, I went outside and looked on the ground below the nest but did not see either of the nestlings. I flicked water from a cup at the nest with my fingers in an unsuccessful attempt to drive away the yellowjackets attacking the nest (Figure 1G). I kept checking the nest through binoculars from the second-floor window. At 11:45, I observed a yellowjacket carrying a feather down the side of the nest and saw other yellowjackets pulling out something red from the nest that appeared to be bird flesh. I did not look again at the nest until 12:15, at which time yellowjackets were no longer present. I did not see the adult female attempt to defend the nest during the attack, although at the time I first observed the attack, the nestlings were already being consumed. However, on 30 July, when I decided to document what remained by photographing the interior of the nest (Figure 1H), the adult female buzzed close to my face in defense of the nest.

I did not obtain specimens of the yellowjackets responsible for the attack, but to identify the species most likely involved, I placed a yellowjacket trap within 4 m of the nest and collected specimens for a 72-hour period following the attack. I preserved the specimens in alcohol and sent them, as well as the photo (Figure 1G) to Luc Leblanc, curator of the William F. Barr Entomological Museum at the University of Idaho, for identification and deposition. Dr. LeBlanc (pers. comm.) identified 93 of the 99 specimens as the Western Yellowjacket (*Vespula pensylvanica*) and the remaining six as the Prairie Yellowjacket (*V. atripilosa*). He indicated the yellowjackets in the photo are consistent with the Western Yellowjacket, the predominant species in the trap, but that two other species common in Idaho, the Aerial Yellowjacket (*Dolichovespula arenaria*) and Common Yellowjacket (*V. vulgaris*), have a pattern of abdominal coloration similar to those in the photo. Thus the Western Yellowjacket was most likely though not unequivocally the culprit.

Richter (2000) reported that vespids, such as yellowjackets, forage for water, plant

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fibers, pulp, and carbohydrates, as well as for arthropod prey and animal protein. They commonly scavenge dead animals, both vertebrates and invertebrates. The few previous reports of vespid predation on birds include one of three Blackcap (*Sylvia atricapilla*) hatchlings being stung by worker wasps (*Vespa sylvestris*) near Cheltenham, England (Wild 1927). Wild killed one of the wasps and drove the other two away but returned an hour later to find several wasps consuming the nestlings. Grant (1959) reported seeing day-old Rufous Hummingbird (*Selasphorus rufus*) hatchlings being consumed by yellowjackets (*Vespula* sp.). Grant (p. 175) also reported seeing an adult Rufous Hummingbird at the same locality suddenly drop to the ground, then saw a “black hornet” (*V. maculata*) on the bird with its “mandibles working furiously” before both took flight.

Moller (1990) reported that several respondents to a New Zealand survey reported wasps feeding on dead adult or nestling birds, but the respondents could not say whether the observations represented predation or scavenging. On the South Island of New Zealand, Moller (1990) did report an attack by German wasps (*V. germanica*) on newly hatched Dunnocks (*Prunella modularis*). Surrounded by flying wasps, the adult birds repeatedly tried to defend the nest while at least one of the three to four hatchlings was still alive. Moller posited that the predation of nestlings by wasps happens much more frequently than reported, but, because the predation itself occurs so quickly, it is rarely observed. Winkler (2012) reported an incident of four or five Ruby-throated Hummingbirds (*Archilochus colubris*) being killed by European hornets (*Vespa crabro*) while being banded in Illinois. Weidensaul et al. (2013) suggested that because of its large size the invasive European hornet might pose a particular threat to Ruby-throated Hummingbirds.

Moller (1990) asked readers to contact him regarding any observed instances of wasps preying on birds. I contacted him, asked if he had received any such reports over the past 28 years since his publication, and he replied he had not. He concluded (pers. comm.) that direct predation, such as the event I witnessed, was probably uncommon. As Moller no longer studies social wasps, he put me in contact with Jacqueline Beggs, director of the Centre for Biodiversity and Biosecurity, School of Biological Sciences—Te Kura Matauranga Koiroa, University of Auckland, who currently does so in New Zealand. She too has few records of yellowjackets attacking nestling birds, remarking that it is difficult to determine if living nestlings were directly attacked by wasps or if they were killed by something else and then scavenged by the wasps (pers. comm.). In a study of 206 hummingbird nests in southwestern New Mexico and southeastern Arizona, Baltosser (1986) found that predation accounted for almost 80% of all nest failures, far more than observed from abandonment, structural failure, infertility, and inclement weather.

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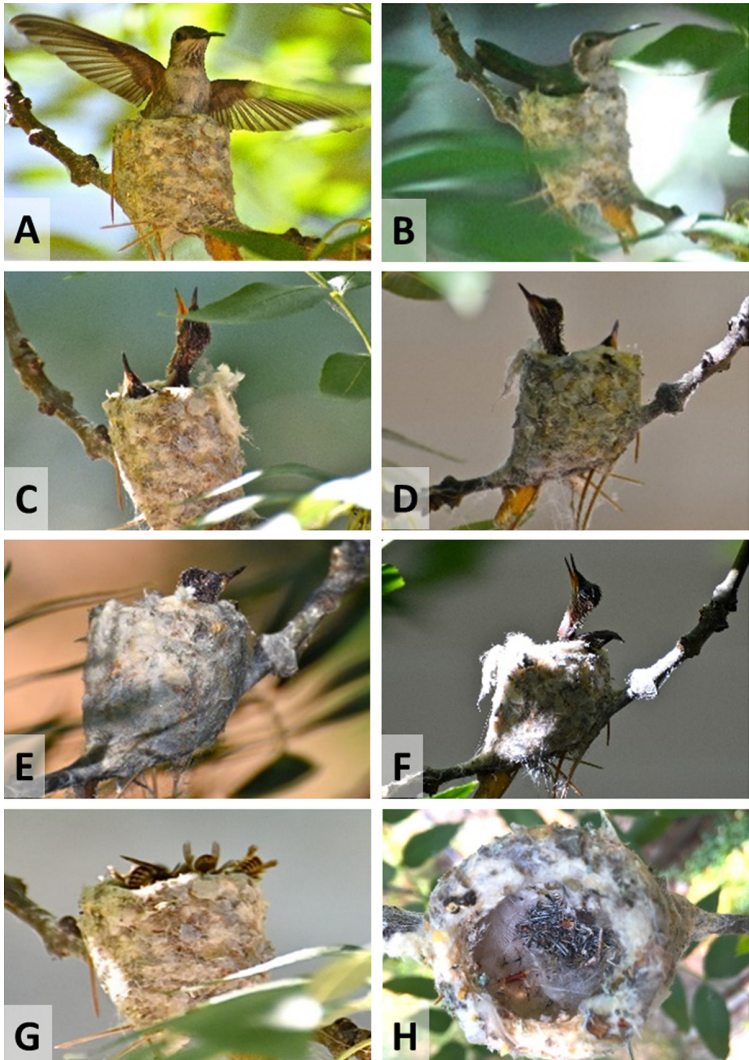


Figure 1. A and B, female Black-chinned Hummingbird observed at nest on 20 July 2018. C-F, Black-chinned Hummingbird nestlings on 28 July 2018 at 11:30 (C), 14:00 (D), and 18:15 (E) and 18:30 (F). G, nest during predation; H, nest after predation.

*Photos by Krista Lyons*

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