

LETTER

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PRESENCE OF CIMICID BUGS (HEMIPTERA: CIMICIDAE) ON A CROWNED EAGLE (*HARPYHALIAETUS CORONATUS*) NESTLING

KEY WORDS: *Crowned Eagle*; *Harpyhaliaetus coronatus*; *cimicid bugs*; *Psitticimex uritui*; *Argentina*.

Ectoparasites of raptors include both blood-sucking and feather-feeding invertebrates such as lice, mites, flies, fleas, ticks, and bugs (Philips 2007). The effects of ectoparasite infections on hosts vary, from almost insignificant to serious, and sometimes cause the death of the host. Some ectoparasites are vectors of protozoan, bacteria, or viruses that can cause an indirect or secondary infection of the host. Other ectoparasites, especially those with hematophagous habits, have direct effects on their host, reducing growth or survival of nestlings or affecting health of adults (Philips 2007). Although ectoparasite infections generally are less important than other limiting factors for raptor populations, understanding host-parasite interactions and the extent of their effects on host fitness can be of special concern for endangered raptor species with small and fragmented populations (Newton 1998).

Cimicid bugs (Hemiptera: Cimicidae) are blood-sucking arthropods found in different groups of birds (e.g., parrots, swallows and martins, swifts, sparrow, and domestic fowl) as well as in bats and humans (Philips 1990, Carpintero and Aramburu 2007). Cimicid bugs lay their eggs in the place where the host lives and both nymphal and adult stages suck blood. Cimicid bugs have been documented parasitizing several diurnal and nocturnal raptors species in North America, including Turkey Vultures (*Cathartes aura*), California Condors (*Gymnogyps californianus*), Bald Eagles (*Haliaeetus leucocephalus*), Golden Eagles (*Aquila chrysaetos*), Red-tailed hawks (*Buteo jamaicensis*), Prairie Falcons (*Falco mexicanus*), Great Horned Owls (*Bubo virginianus*) and Barn Owls (*Tyto alba*; Grubb et al. 1986, Philips 2007). One particular cimicid species, the Mexican chicken bug (*Haematosiphon inodorus*), has killed nestling Bald Eagles (Grubb et al. 1986), Red-tailed Hawks, and Prairie Falcons (Plat 1975, McFadzen and Marzluff 1996) and has caused premature fledging in the California Condor (Brown and Amadon 1968). For the Barn Owl and the Bald Eagle, levels of nest infestation with Mexican chicken bugs have been reported from 1425 to 1778 and from 21 000 to 31 000 bugs per nest respectively (Grubb et al. 1986). However, despite the numerous records for North America, cimicid bugs have not been reported parasitizing raptors in South America.

The Crowned Eagle (*Harpyhaliaetus coronatus*) is one of the largest raptors in southern South America, and inhabits Bolivia, Brazil, Paraguay, and Argentina (Ferguson-Lees and Christie 2001). The Crowned Eagle is currently con-

sidered a globally endangered species, with a world population estimated at less than 1000 individuals (BirdLife International 2004). The ecology of the Crowned Eagle is virtually unknown and the information about its biology is sparse and mostly anecdotal. At least for central Argentina, human persecution and disturbance appear to be important threats (Sarasola and Maceda 2006). Among other unknown aspects of the eagle's biology, there are few data documenting their parasites. Only one species of chewing lice (*Degeeriella fulva*: Ischocera) has been reported for Crowned Eagles (Castro and Cicchino 1998) and mites of the genus *Tennalges* (Acarina) have been reported for the second species in the genus, the Solitary Eagle (*Harpyhaliaetus solitarius*; Philips 2000).

Here we report a cimicid bug species typically found in parakeet nests, on a nestling Crowned Eagle (*Harpyhaliaetus coronatus*) from the Monte Desert region of Argentina. We also discuss the plausible infection mechanisms in the light of the observed association between Crowned Eagle and Monk Parakeets (*Myiopsitta monachus*).

From January to March 2008 (austral summer), and as part of an ongoing study on the breeding biology of Crowned Eagles in central Argentina, we measured and banded four Crowned Eagles nestlings in four nests located in two different habitats in La Pampa province: semiarid forest of Caldén tree (*Prosopis caldenia*) and the Monte Desert biome (Cabrera 1994). During inspection and banding of one nestling in a nest in Limay Mahuida, western La Pampa province, we visually detected the presence of ectoparasites on its body. We collected four of hundreds of ectoparasites observed on feathers and skin of different parts of the eagle. The nestling was in a nest built above a Monk Parakeet nest on the top of an 18-m *Eucalyptus* sp. surrounded by the typical shrub landscape of the Monte Desert biome. After collection, the ectoparasites were stored in 70% ethyl alcohol and then slide-mounted in synthetic Canada Balsam following conventional procedures. Ectoparasites were identified using stereo and ocular microscope, checklist, taxonomic keys, and collections of reference of the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Buenos Aires. All the ectoparasites collected belong to the same species *Psitticimex uritui* (Hemiptera: Cimicidae) and were identified as nymphs.

This cimicid bug species has been previously reported for psittacid birds (Turienzo and Di iorio 2007) and is

particularly common for the Monk Parakeet (Spreyer and Bucher 1998). The Crowned Eagle nest in which ectoparasites were collected was the only one of the four monitored during the 2008 breeding season that was constructed above a Monk Parakeet nest and it was also the only one in which ectoparasites were recorded for eagle nestlings. It is possible that the ectoparasites actively migrated from the parakeet nest, where the cimicid bugs parasited their most common host, to a new and occasional host, the nestling eagle. Although the use of Monk Parakeet nests by Crowned Eagles as a platform on which to build their own nest has been reported previously (del Hoyo et al. 1994), there are no previously published records of parasites associated with Monk Parakeets also occurring in Crowned Eagles. Due to the potential effects of parasite infection on breeding performance and productivity of raptor species, we believe that it is important to gain additional knowledge on the mechanisms and dynamics of parasite transmission between parakeets and raptors.

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