Majority of Anna's hummingbirds may have feather mites on their tail feathers

February 14 2018

Anna's Hummingbird. Credit: Dr. Manfred Kusch

The majority of Californian Anna's Hummingbirds appear to have *P. huitzilopochtlii* feather mites on their tail flight feathers, according to a study published February 14, 2018 in the open-access journal *PLOS*

ONE by Youki Yamasaki from Washington State University, U.S., and colleagues.

Hummingbirds are known to host a diversity of feather mites, but this relationship is not well-understood. In particular, mite distribution *in situ* has not been previously studied. The authors of the present study examined 753 hummingbirds of five species from urban locations in California: Anna's, Allen's, Black-chinned, Calliope and Rufous Hummingbirds. They documented the presence of the feather mite *Proctophyllodes huitzilopochtlii* on tail flight feathers.

The researchers found that feather mites were present on the tail flight feathers of nearly 60 percent of Anna's hummingbirds, but less than 10 percent of the other species. Across all the species, the mite was more prevalent on the tail feathers of males (44.9 percent) than on those of females (36.2 percent), possibly because of the nesting habits of females.

The authors used tabletop scanning electron microscopy to analyze individual feathers, building a detailed 3D picture of the distribution of live mites *in situ*. They found that there tended to be more mites on the hummingbirds' outer tail feathers than inner, and saw that mites often nestled between the barbs of individual feathers, sometimes in high numbers.

The authors state that their study provides the first prevalence and distribution information for these feather mites on both Anna's and Black-chinned Hummingbirds. This is especially important given that Anna's Hummingbirds co-reside seasonally with other hummingbird species, with the potential for spread of mites.

Co-author Lisa Tell summarizes: "This study was exciting because not only were we able to document the presence of a mite on feathers from

two species of hummingbirds found in California, but we were also able to examine the positioning of live feather mites *in situ* with electron microscopy that is portable enough to use in the field."

More information: Yamasaki YK, Graves EE, Houston RS, OConnor BM, Kysar PE, Straub MH, et al. (2018) Evaluation of Proctophyllodes huitzilopochtlii on feathers from Anna's (Calypte anna) and Black-chinned (Archilochus alexandri) Hummingbirds: Prevalence assessment and imaging analysis using light and tabletop scanning electron microscopy. *PLoS ONE* 13(2): e0191323. doi.org/10.1371/journal.pone.0191323