

Newly uncovered helminth parasites of the New Zealand Australasian harrier, their pathogenicity and conservation implications.



Knowledge of New Zealand bird parasites is very poor, and there are virtually no records of helminth parasites in the Australasian harrier *Circus approximans* (swamp harrier, hawk, kāhu). In a small preliminary sample we have found that the harrier is infected with at least 6 different types of parasitic helminth, all of which are new host records, and this is probably an underestimation. At least four of these helminths belong to genera with species that are known to cause deleterious pathologies in their hosts.

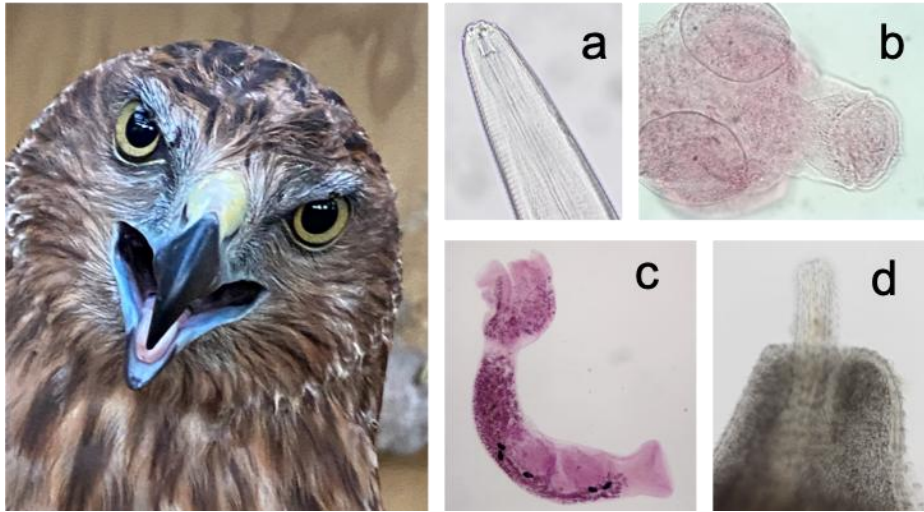
For this project we plan to dissect >20 harrier carcasses that we have at our disposal, and recover all parasitic helminths from the gastrointestinal tract, visceral cavity, internal organs, eyes and nasal passages for helminths. Worms will be mounted for photography and measuring, samples taken for DNA sequencing and examples taken for scanning electron microscopy. The data will be presented in a peer-reviewed journal and will consist of a taxonomic account of all parasite species found, along with detailed descriptions, and, if species new to science, they will be described formally and named. Pathogenicity will be assessed from the carcasses where possible. We intend specifically to seek specimens of a nematode that inhabits the air sacs, and is a cause of debilitating disease in other carnivorous birds. We will also take bird tissue and blood samples for future ornithological use, and samples will be made available to another project looking at *Toxoplasma* and avian malaria. If stomachs hold any useful prey remains there may also be data for a short diet paper.

Identification of their helminth fauna will shed light on whether the New Zealand population of the harrier has its own suite of parasites, compared to populations from other parts of its range, or whether it has brought its suite of parasites with it when it arrived from Australia, c.1000 years ago. While the harrier may be dismissed as a common bird that is not threatened, it is related to, and shares habitat with, the New Zealand falcon, which is threatened. If we know what parasites infect the harrier we are better placed to look out for such infections in cases of sickness or death in the rarer falcon. We would like to thank Birds NZ Research Fund for this opportunity.

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Australasian harrier and some of its parasites: a) nematode, b) cestode, c) trematode, d) acanthocephalan.
Photo of harrier courtesy of Jenni Fraser, NZ Raptor Trust. Photos of parasites by B. Presswell.