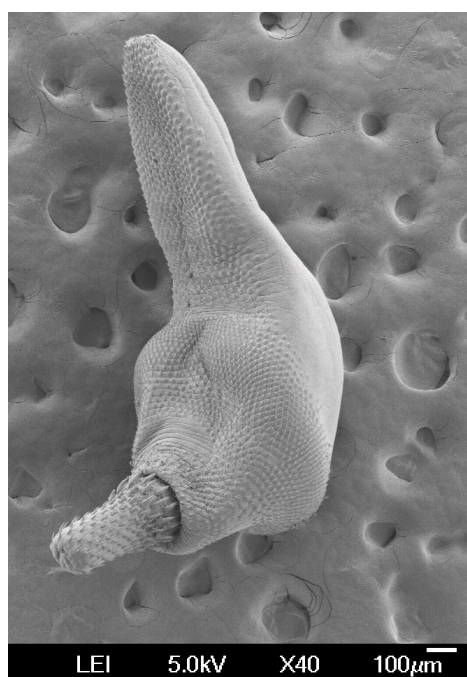


## Parasites in bird faecal samples

The Evolutionary and Ecological Parasitology Research Group at the University of Otago research freshwater and marine parasites with complex life cycles (i.e. requiring several different host species to grow and reproduce), looking at their evolution and ecology as well as their impacts on wildlife. Many parasites use a range of bird species as definitive hosts (i.e. the host where they mature and reproduce). These parasites can have serious pathological effects on birds, inducing high mortality rates during peaks of infection. Unfortunately, very little information exists on bird parasites in New Zealand. Even the basic question “What parasite species infect which bird species?” remains mostly unanswered.

Many parasites live in the gastrointestinal tract of their bird hosts, and acquiring information on the parasite species infecting birds usually requires sacrificing birds for dissection. However, infection levels can be evaluated by counting and identifying parasite eggs in bird faeces. Traditional methods for counting parasite eggs in faeces of birds or animals are time consuming and strenuous. They are designed for counting eggs of known parasites in agricultural samples, not for identification purposes. However, a novel egg flotation device and counting method, developed by Menixis Ltd, in partnership with the Centre for Innovation (University of Otago), could save considerable time, and ultimately money, but has not yet been tested on parasites from bird faeces. It has the advantage of separating parasite eggs from faecal samples so that these could be used for molecular and morphological identification, and it can potentially be used in the field as a quick and cheap method of screening birds or other animals for parasites. We will compare the efficiency and reliability of a classical faecal egg count method with the new flotation method and, if the latter proves successful in our trials, it could be applied on a larger scale for identifying areas of high parasite infection and bird species at risk of parasitic diseases. In cases of mass bird mortality or sickness, this could be an invaluable tool for diagnosis of parasite pathogens.

At a number of marine and freshwater sites we will focus our study on water birds, since these are particularly susceptible to parasite infection and usually yield a large number and variety of intestinal worms. In addition to evaluation the Menixis device, lists of parasite taxa and data on quantitative infection levels will be compiled for every bird species.



*Figure:*  
Scanning electron micrograph of an undescribed acanthocephalan parasite discovered recently in the intestine of a Stewart Island shag.