

Australasian stilts: Genetics and evolutionary history

Kakī or black stilts (*Himantopus novaeseelandiae*) are critically endangered wading birds endemic to New Zealand. Due to predation and habitat loss and modification, their numbers declined to a low of approximately 23 in 1981. Through intensive management by the Kakī Recovery Team, which runs a programme of captive breeding, captive-rearing for release, predator control and habitat management, the wild population has increased to over 100 adults today.

When kakī numbers have been low, they have interbred with poaka or pied stilts (*H. himantopus leucocephalus*). Poaka are self-introduced from Australia and are now widespread across New Zealand. This interbreeding results in fertile hybrids of intermediate plumage, but the reproductive success of kakī-poaka pairs is about half that of pure kakī pairs. I am using high-throughput DNA sequencing to better understand how interbreeding may have affected the genetic composition of kakī for my PhD.

Thanks to the generous support of the Birds NZ research fund, for one aspect of my research, I aim to reconstruct the evolutionary history of kakī by generating whole mitochondrial genomes (mitogenomes) for kakī, poaka, and pied stilts from Australia. Combined with recently published mitogenomes for black-winged stilts (*Himantopus himantopus*) and pied avocets (*Recurvirostra avocetta*), these data will add to the story of the evolutionary history of the stilt complex, and improve our knowledge of the origins of New Zealand's avifauna.

Photos from left to right: Poaka in the rain by Edin Whitehead, a captive kakī at the nest by Liz Brown, Natalie holding a juvenile kakī on release day by Stephanie Galla. All photos used with permission.

