Evaluating the effectiveness of call surveys for spotless crakes in the Manawatū

Wetland loss in Aotearoa has been extreme since human colonisation, particularly through land conversion for farming after European settlement. As a consequence, wetlands are typically small, fragmented, and are often surrounded by open land. These landscapes enable easy movement of introduced mammal predators, which threaten remaining populations of specialist wetland bird species (O'Donnell et al. 2015). One such species is the spotless crake or Pūweto (*Zapornia tabuensis*), a small rail that is most readily detected by its distinctive calls. In this project, I will use playback surveys in wetlands in the Manawatū to determine how calling rates vary with time of day and stage of the spring–summer season, and what factors affect the probability of response to played calls. Presence-absence surveys will be conducted across a range of wetland types and sizes to determine if there are landscape or habitat characteristics associated with the persistence of spotless crakes. This project will therefore validate and refine survey techniques for spotless crakes on the New Zealand mainland, and generate a more accurate picture of the status and habitat requirements of the species in the Manawatū, whose vast flax swamps would have been one of the strongholds for the species in pre-European times.

Spotless Crake . Photo credit: eBird S96914816 – Timothy Paasila

The findings of this research will provide fundamental knowledge about vocalisations of spotless crakes, an evaluation of the relative merits of two methods of monitoring, help refine best practice guidelines for crake surveys, and provide valuable information on the habitat requirements for crakes in the Manawatū.

There is a glaring lack of research on spotless crake in relation to detecting presence. The relative efficacy of using playback surveys (short-term, observer-dependent and typically constrained in the time of day) though there can be major financial and logistic benefits to using automated recorders (the paper by Colin, Emma and Doug). Variation in natural calling rates and response rates to played calls have not been studied in relation to time of day (or night) or season (beyond Kaufman's paper). While a response to a playback provides confirmation of crake presence, there is no published information on what the detection likelihood is with this method – how confident can we be that a lack of response means an absence of crakes at a site? How much effort is required, and of what kind, to conclude that crakes are not present? My research will address these gaps. This project involves Associate Professor Phil Battley of Massey University, Lorraine Cook from Horizons Regional Council, and Emma Williams from the Department of Conservation. This project also involves Birds NZ and we are grateful to them for providing us a grant for our work and for giving us the opportunity to publish our research.