Population Index of paradise shelduck and black swans in North Canterbury Region 2025

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Executive Summary

NCFG conducted annual aerial summer surveys of moulting paradise shelducks and black swans on January 21st, 2025. There were 10,757 paradise shelducks and 9,425 black swans counted. This was the first year of the mixed mode survey with some sites being counted from the ground and others from helicopter. Helicopter counts allowed flying all sites at lower altitude, which would have increased detection probability of birds.

Introduction

North Canterbury Fish and Game Council (NCFGC) is charged with the management of sports fish and game bird resources in the recreational interests of anglers and hunters. Under the Conservation Act 1987, the functions of each Fish and Game Council shall be to manage, maintain, and enhance the sports fish and game bird resource in the recreational interests of anglers and hunters, and in particular—

1) *to assess and monitor—*
    a. *sports fish and game bird populations*

NCFG staff conducted annual aerial surveys in 2025 to

1) Assess the population status of paradise shelducks and black swans

Methods

Aerial flights were conducted via helicopter January 21st with one observer. Flights were conducted between 300-500ft AGL. There were six sites across the region counted from the ground with binoculars and spotting scopes. There were a total of 14 locations surveyed (Figure 1).

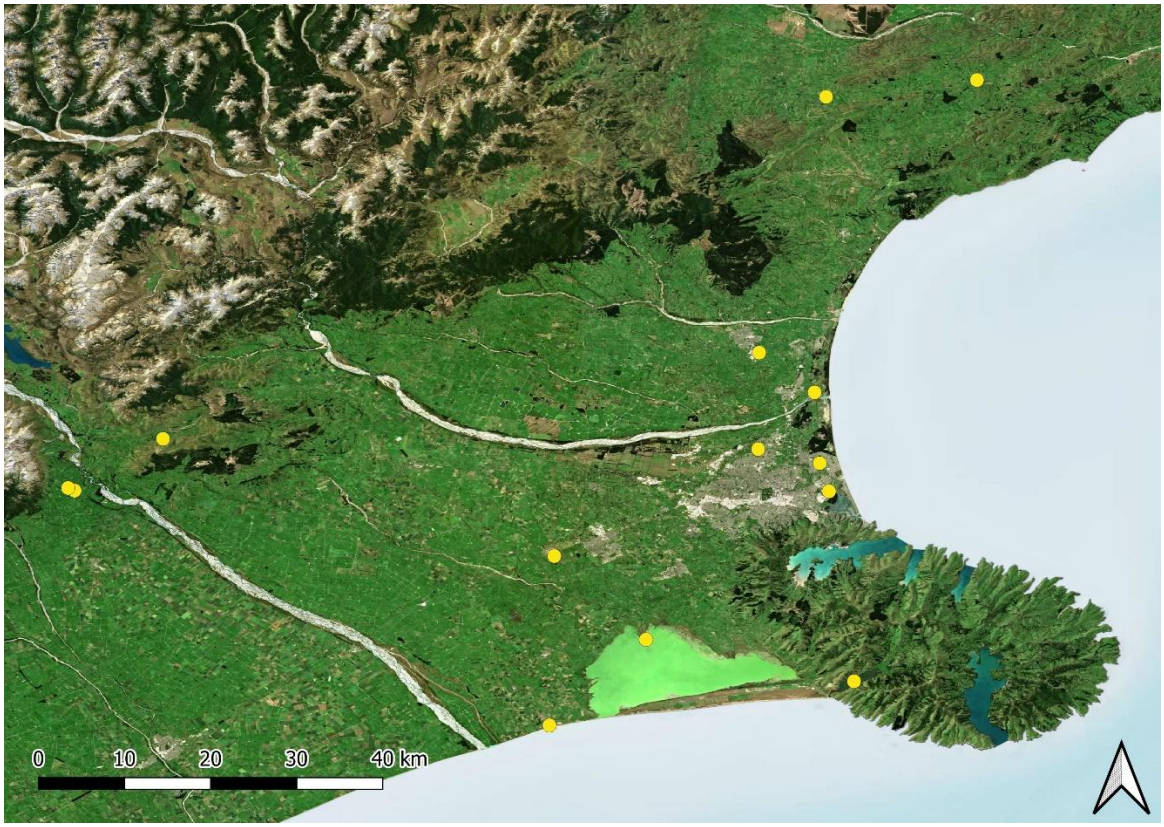

Figure 1. Paradise shelduck and black swan survey locations in North Canterbury, 2025.

Results

There were 10,757 paradise shelducks counted, 20% above the long-term average (Figure 2). A total of 9,425 black swans were counted, 56% above the long-term average (Figure 3).

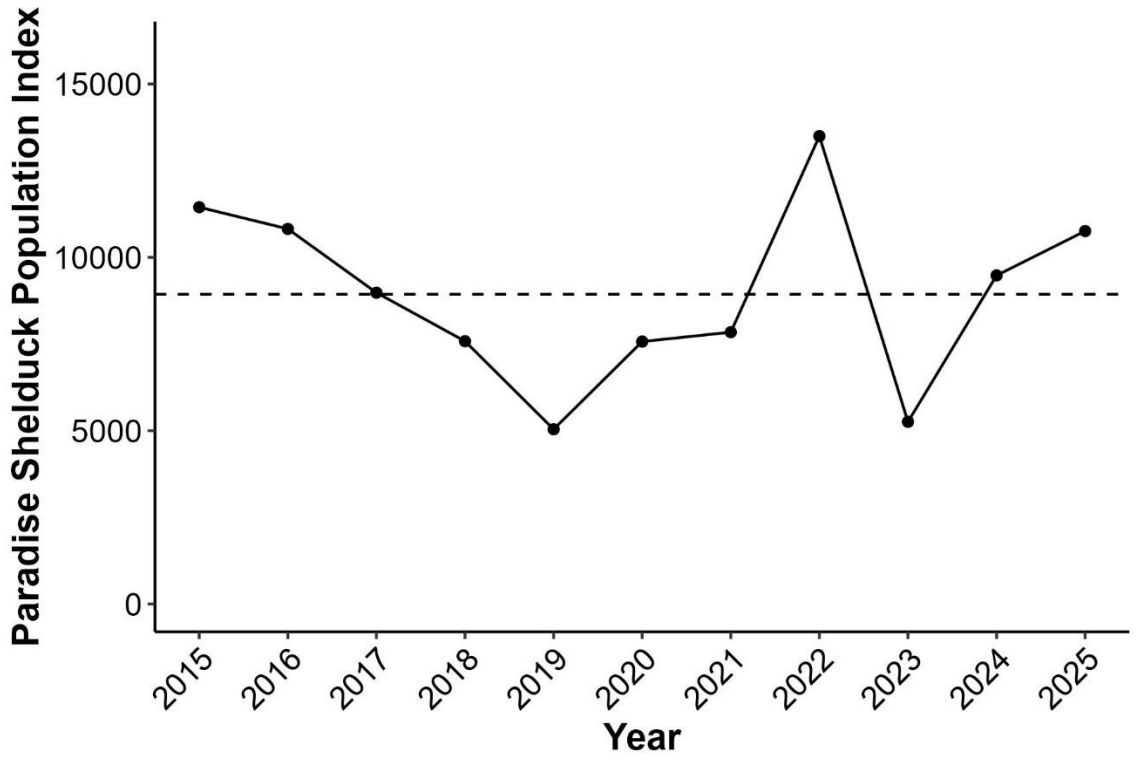

Figure 2. Paradise shelduck population counts of moulting birds 2015-2025.

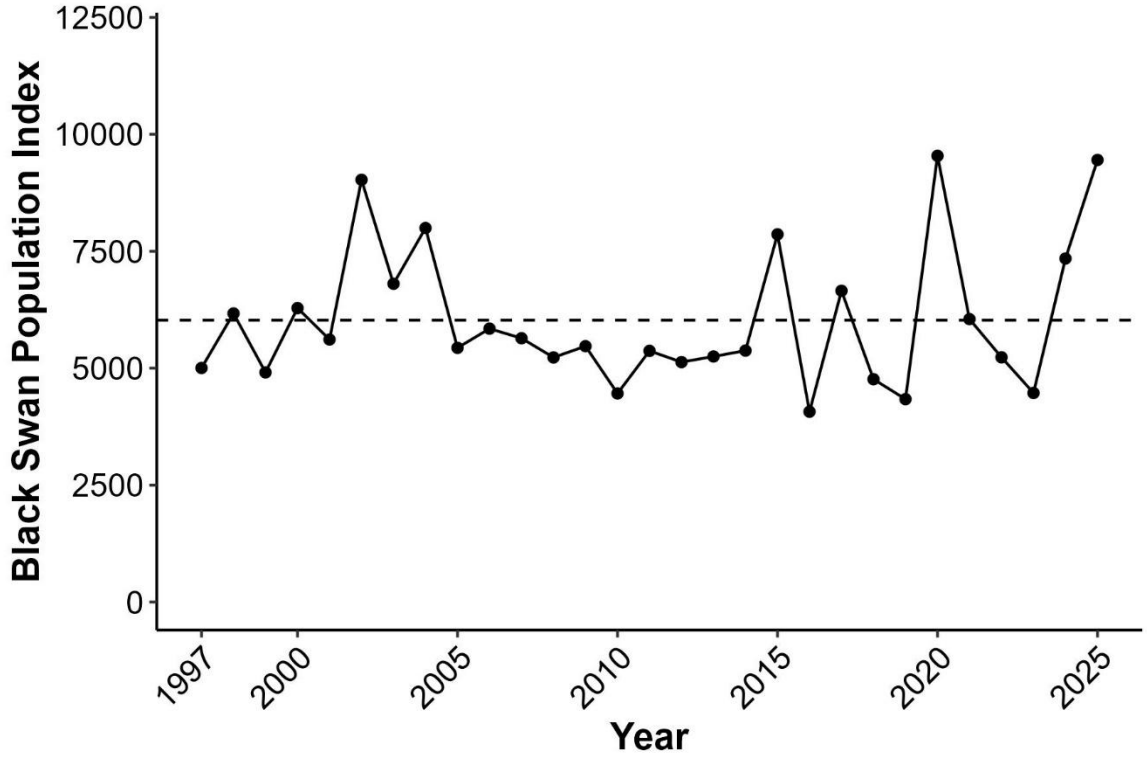

Figure 3. Black swan population index for North Canterbury 1997-2025.

Discussion

Population indices can provide important information for management; however, objectives and methodology must be clearly defined (Engeman 2003). The primary issue surrounding population monitoring is appropriate versus inappropriate experimental design and data analyses to achieve the investigators' objectives (Engeman 2003).

The number of moulting sites surveyed decreased from 110 locations to 26 locations in 2020. It has been further reduced again in 2024 to 14 sites that have been consistently monitored over the life of the survey. When 110 locations were surveyed, the numbers of paradise shelduck counted were between 9,000 and 15,000. Estimates of paradise shelduck harvest in the region during the May-July season are typically between 10,000 and 15,000 birds (Garrick and Sanders Garrick 2025), with another 5,000 harvested during the summer season in February (Garrick and Sanders Garrick 2023). Assuming harvest rate is somewhere between 10% and 20%, the population of paradise shelduck in North Canterbury may be between 75,000 and 200,000 birds. It is a “leap of faith” to make generalisations to the greater population when the survey counts such a low proportion of the population, and also relies heavily on assumptions around population distribution and site fidelity (Mackenzie and Royle 2005, Barker et al. 2010).

Paradise shelduck have also been monitored during the March dabbling duck flights since 2007. These flights are composed of 62 randomly selected 10 km transects across the Canterbury Plains. The robust design of this survey allows inference of the status of the paradise shelduck population in the Canterbury low country. While the high-country area, an important area for paradise shelduck, is not included in this survey, this data indicates the paradise shelduck population is increasing (Figure 4). This trend coincides with anecdotal observation with the extensive development of irrigation and dairying on the Canterbury Plains. These types of developments are generally beneficial to paradise shelduck populations (Williams 1979).

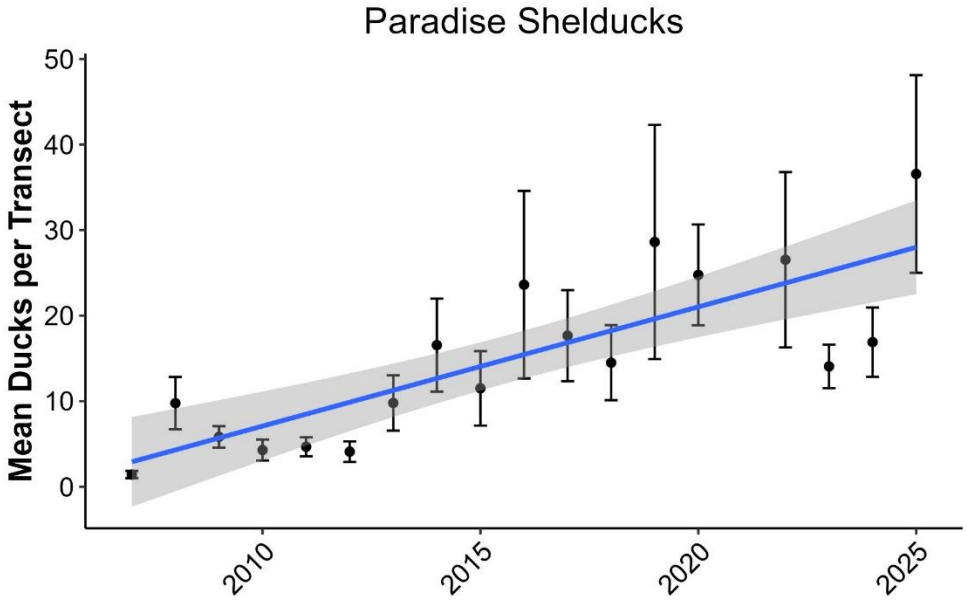

Figure 4. Mean number of paradise shelduck counted per 10 km transect during the March Canterbury Plains dabbling duck survey 2007-2025.

Management Implications

Black swan populations are up the second year in a row, and have now passed the threshold number of 7,500 swans. This triggers a management regime that allows shooting of swans over decoys for depredation permits outside of the main swan nesting season.

In light of the issues with the current moult counts of paradise shelduck, consideration should be put into adapting protocols of monitoring shelduck populations going forward, as well as the development of management frameworks to inform regulations.

Literature Cited

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