



West Coast Pukeko Trend Counts 2023

Results of West Coast Pukeko Monitoring conducted in Autumn 2023.



Dan Scoltock on a successful pukeko hunt, March 2023.

Baylee Kersten, Fish & Game Field Officer, May 2023

Summary

Pukeko are monitored annually on the West Coast using roadside transect counts with the data being analysed by Route Regression Analysis. Mean annual trend count figures for the West Coast population indicate pukeko have declined on average 7% over the last 24 years. Although pukeko numbers show considerable variation between years the standard error in the results has reduced in response to the large number of years surveyed and is currently 2%. Staff recommendations; Continue with current monitoring regime and bag limits. Continue to monitor the new transect sites in the north.

Introduction & Methods

Pukeko constituted about 35% of the annual hunter harvest in the West Coast Region in 2022 with an estimated total of 4,912 pukeko harvested. To assess pukeko population trends annual counts using the methods outlined in the Fish & Game Standard Operating Procedure for Pukeko Monitoring have been undertaken on the West Coast since 2000. These results can then be compared to the annual estimated hunter harvest figures to see if any trends are apparent.

The 2023 counts were completed in late April and early May by staff with the help of volunteers. Data is analysed in accordance with the Fish & Game Standard Operating Procedure - Route Regression (Kelly 2006). Three additional sites with high pukeko numbers were counted for the fourth year at Barrytown, Birchfield, and Karamea to give better geographical coverage and indication of pukeko numbers in the northern region.

Results

A total of 659 pukeko were counted at the traditional survey sites, a 2% decrease from the 2022 count (673 pukeko). This year's count is significantly lower (-46%) than the 2000-2023 average of 1,213 pukeko. There is significant fluctuation in the estimates of the pukeko population over time. Annual estimated hunter harvest during the same period again shows considerable fluctuation.

Only 13 pukekos were counted at traditional northern sites continuing the trend of low numbers post 2011 and well below the 2000-2023 average of 385 pukeko. At the new northern sites 1,077 pukeko were counted, being 8% down on the 2022 count (1174) and 22 less pukeko than the four-year average. At the southern sites 646 pukeko were counted which is below the 2000-2023 average of 826 pukeko.

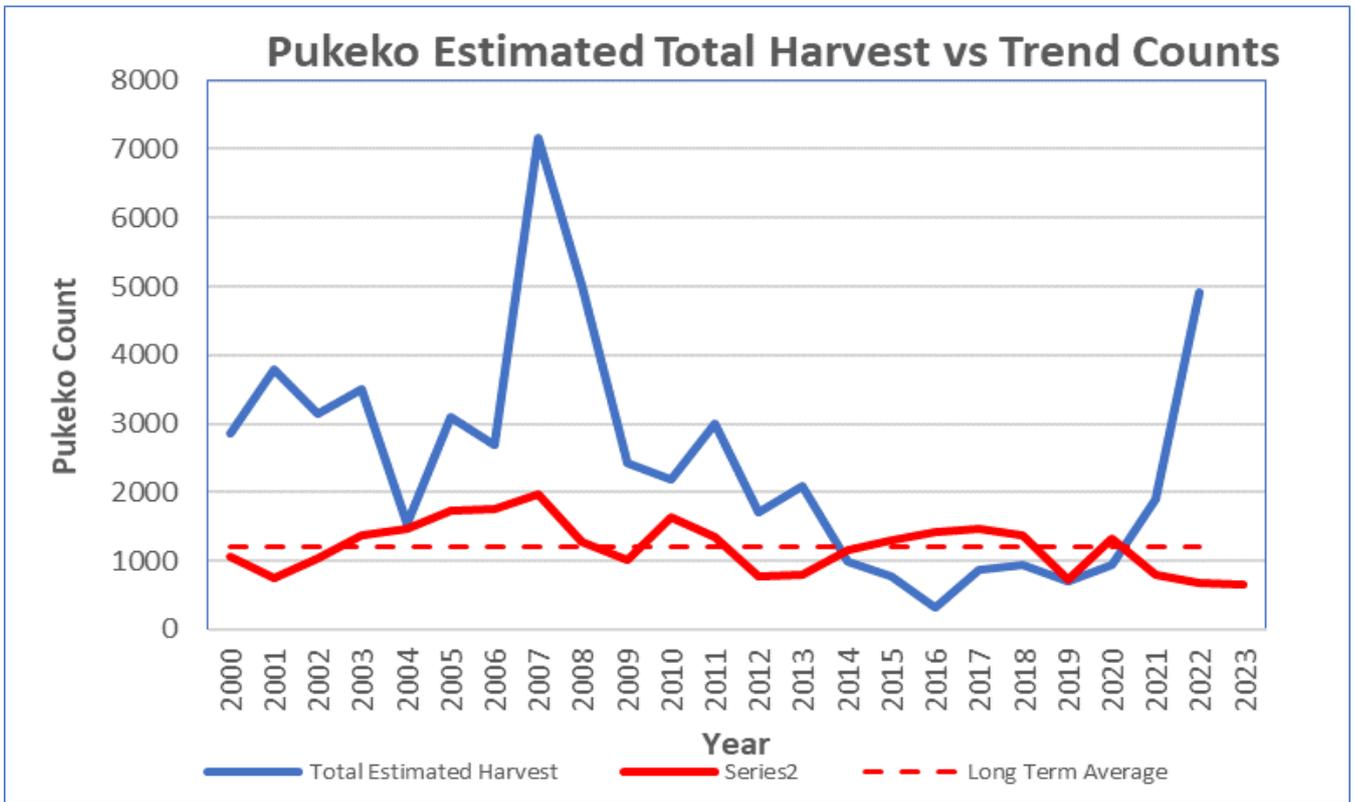


Figure 1: Total estimated number of Pukeko harvested per annum in comparison to annual trend count results for the West Coast Region (2000-2023).

The route regression analysis shows that in the long-term (24 years), despite large yearly fluctuations, the monitored West Coast pukeko population has decreased on average 7%. This decline is attributed solely to the northern population (-14%) as the southern population has remained stable. The standard error in the counts has now reduced to 2% reflecting the long-term nature of the dataset. In the short-term (5 years) the monitored sites have decreased on average 15% with both the northern (-12%) and southern sites (-18%) declining (Figure 2).

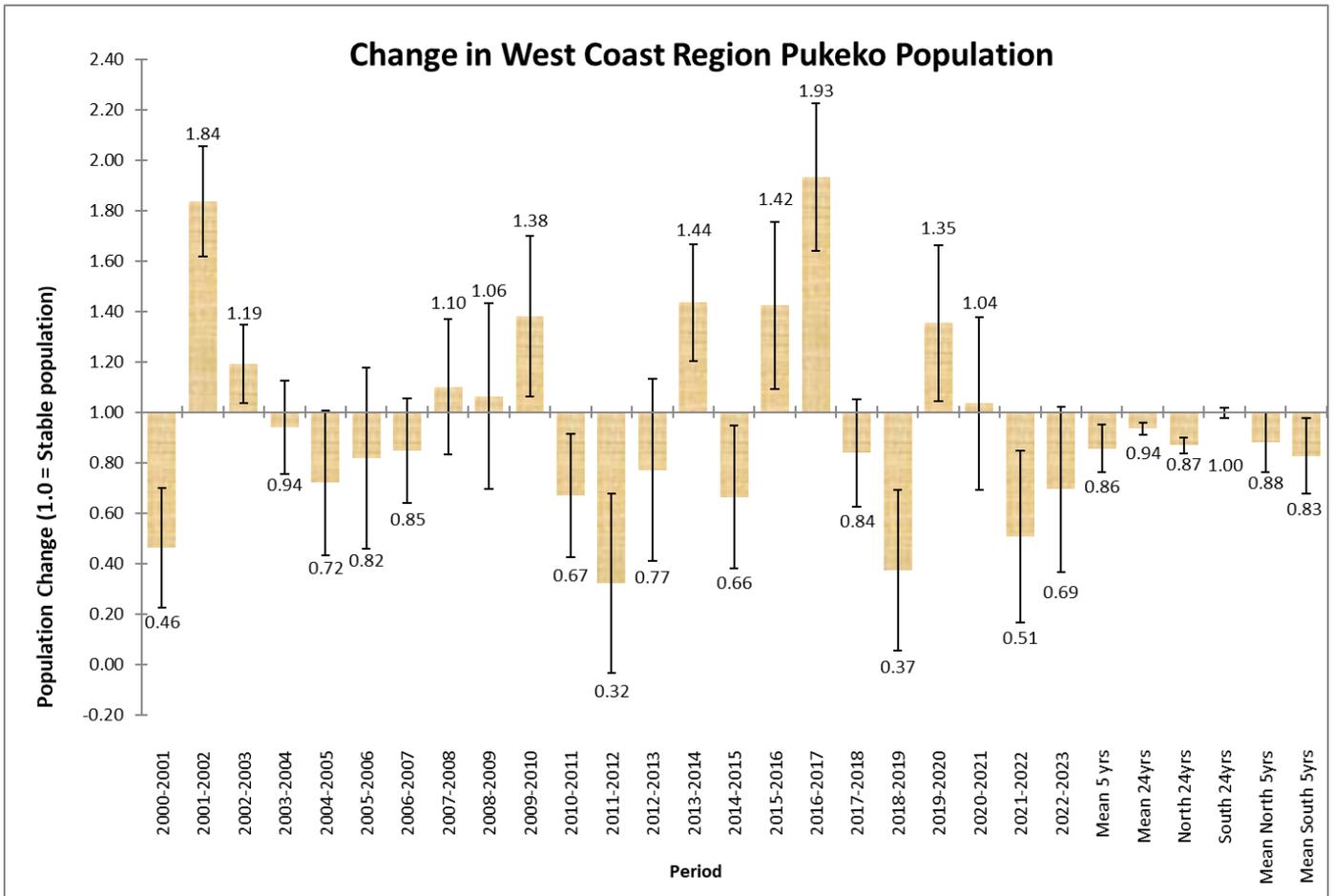


Figure 2: Each column represents the change in the regional population between years. The mean is the average annual change over a given period. A value above or below 1.0 can be taken as the increase or decrease in population over that period. Standard error bars are also fitted to ascertain the accuracy of the survey.

Discussion

Overall, the analysis shows a decline in pukeko numbers at traditionally monitored sites over the full 24-year survey period. This is the result of a major decline in pukeko at sites in the northern region, particularly the Mawheraiti, Nelson Creek, Kotuku and Bell Hill sites. Estimated pukeko harvest fluctuated over the same period but has remained low until last two seasons when harvest rose. There appears to be no correlation between harvest and pukeko counted but rather reducing populations where land development has occurred. From anecdotal observations, locations where there has been limited land development and pockets of ideal habitat has been left, pukeko populations appear to be very healthy.

With there now being opportunities to harvest pukeko in the summer, its likely harvest will increase significantly. This may raise concerns regarding the sustainability of such pressure, with a declining population observed in the traditional northern sites. What provides reassurance is organised hunts targeting pukeko at the three new northern sites, despite this concentrated hunting effort, their counts have remained relatively steady. This is a good indication that pukeko can likely sustain elevated levels of hunting pressure when suitable habitat is present.

The distribution of pukeko seems to be focused on areas of pasture with good ground cover being available. Development of pasture and removal of cover may be a factor in declining pukeko numbers as

could other environmental factors such as climate, with cold winters being suggested to reduce populations in the Otago region.

While there is doubt as to whether roadside transects are a reliable estimate of the total regional population, they are a simple, cost-effective way of monitoring the pukeko population. They meet key statistical criteria of randomisation and repeatability with the only real potential issue being observer bias. Given pukeko are not highly sought after as a game bird the current level of monitoring is considered appropriate.

Recommendations

- Continue with current monitoring regime and bag limits.
- Continue to monitor the new transect sites in the north.

References

Kelly Dean, 2006. *National Pukeko Trend Count Report (2006)* West Coast Fish & Game Region. Internal Report