



Small birds, big legacy – the story of Dunedin's robins

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New Zealand Robin/toutouwai

1 species comprising 3 subspecies (NI, SI, St. I)

At Risk – Declining (NI & SI) or Relict (St. I)

Biggest threat is introduced mammals

Mainly insectivorous and often feed on the ground

Breeding season *ca.* August – February

Pairs mate for life

Generally live for *ca.* 8–10 years



Ian's legacy



Ian Jamieson (1957–2015)

Conservation genetics

- Genetic diversity important for adaptation
- High genetic diversity = high fitness
- Small populations often have low diversity, are inbred & are ill-adapted to a changing environment



Pre-bottleneck



Bottleneck



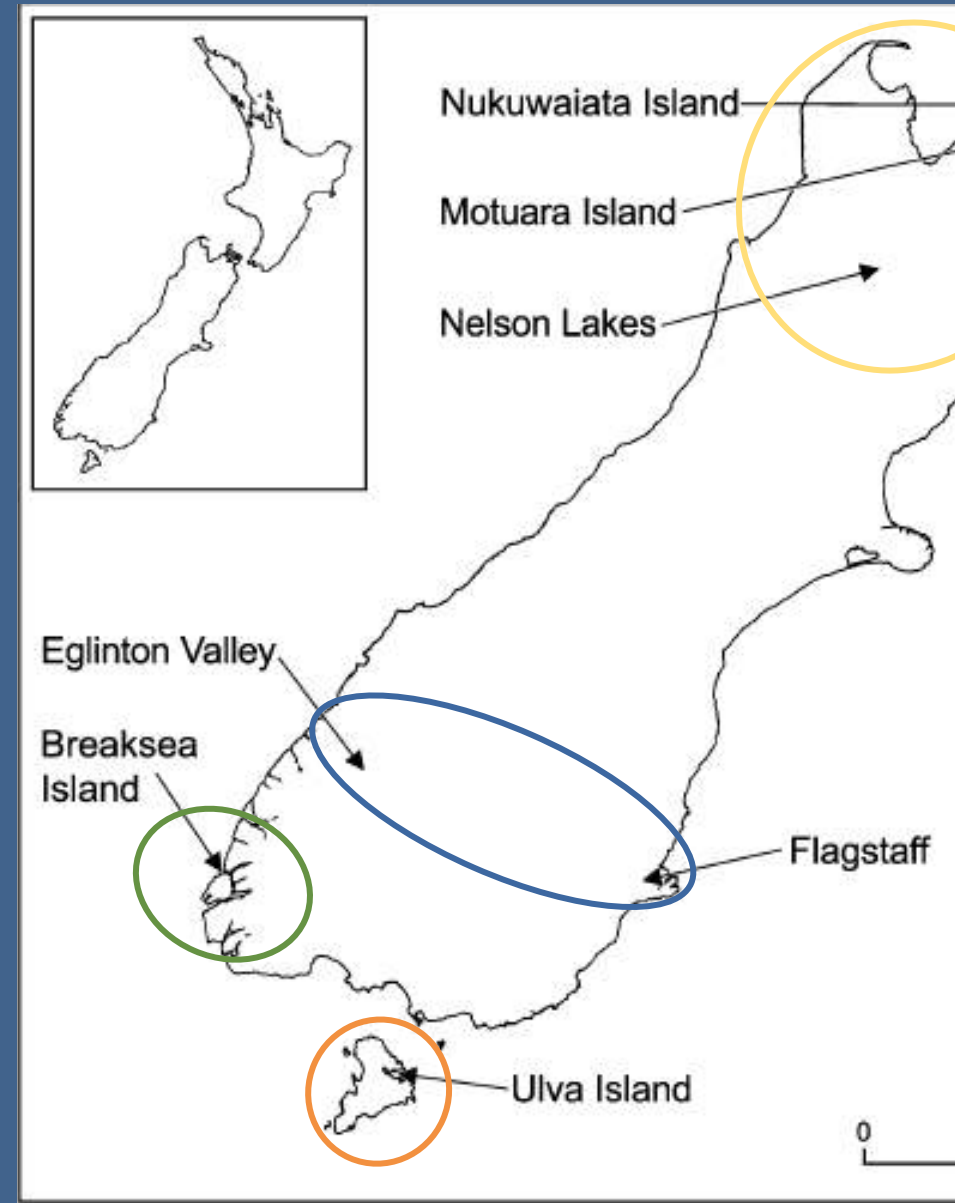
Post-bottleneck



Conservation genetics in NZ robins

- Population wide survey
- 3 – 4 genetic groups
- Dunedin has the only known distinct population on the eastern side of the main divide
- Lowest genetic diversity was in the Dunedin Flagstaff population

Boessenkool *et al.* (2007)



Dunedin robin populations

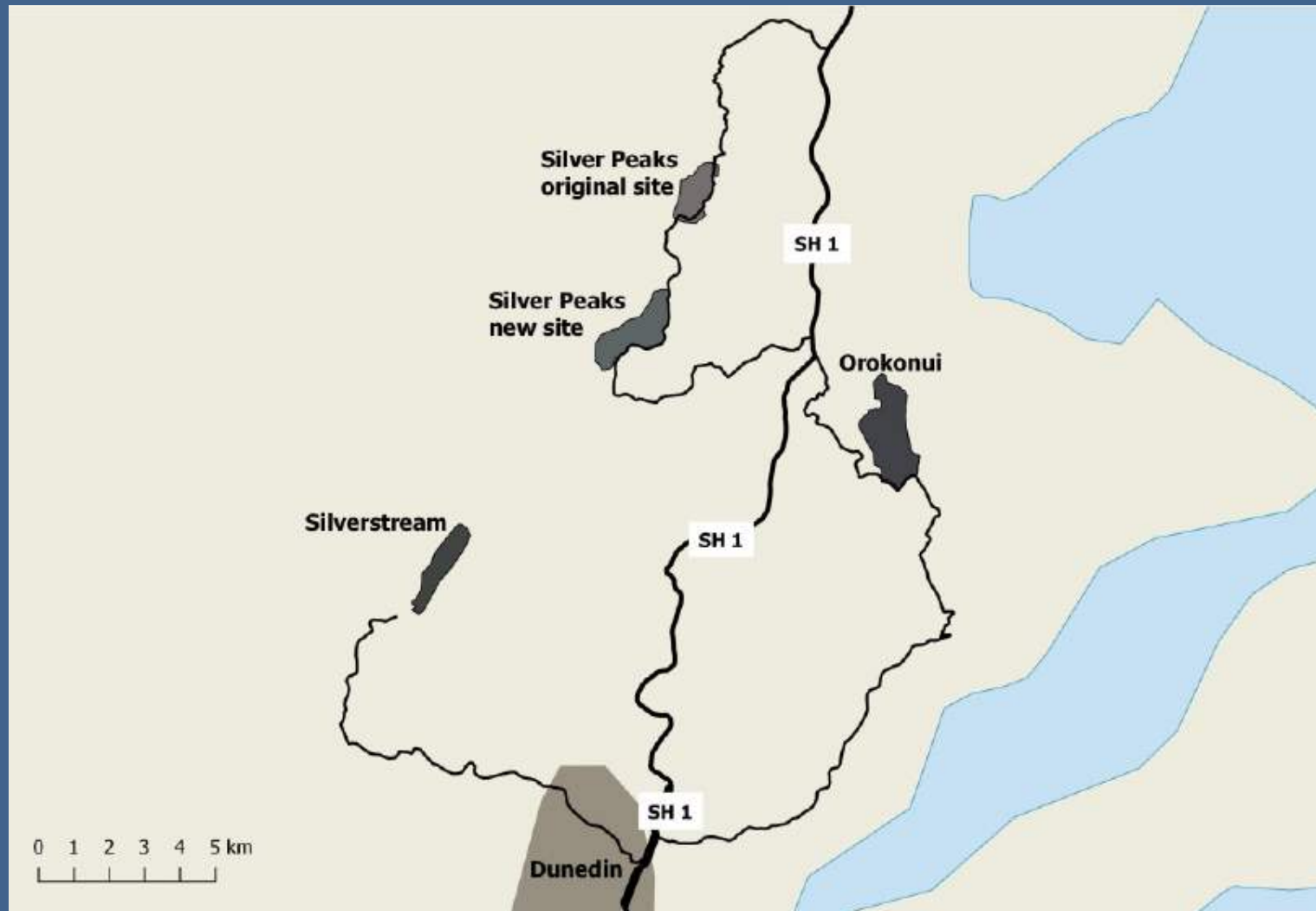
Flagstaff = extinct (habitat loss & pests)

Silver Peaks = at risk (habitat loss & pests)

Silverstream = at risk (pests)



Dunedin robin populations



The translocation to Orokonui

- Two translocations in 2010/11
- Sourced from Flagstaff, Silver Peaks & Silverstream
- 10 pairs established in Orokonui
- Intensive monitoring until the end of the 2013/14 season
- Rapid population growth in the absence of pests



Orokonui SI Robin survey August 2018

Estimated 80–90 pairs (cf. 50 pairs in 2015/16)

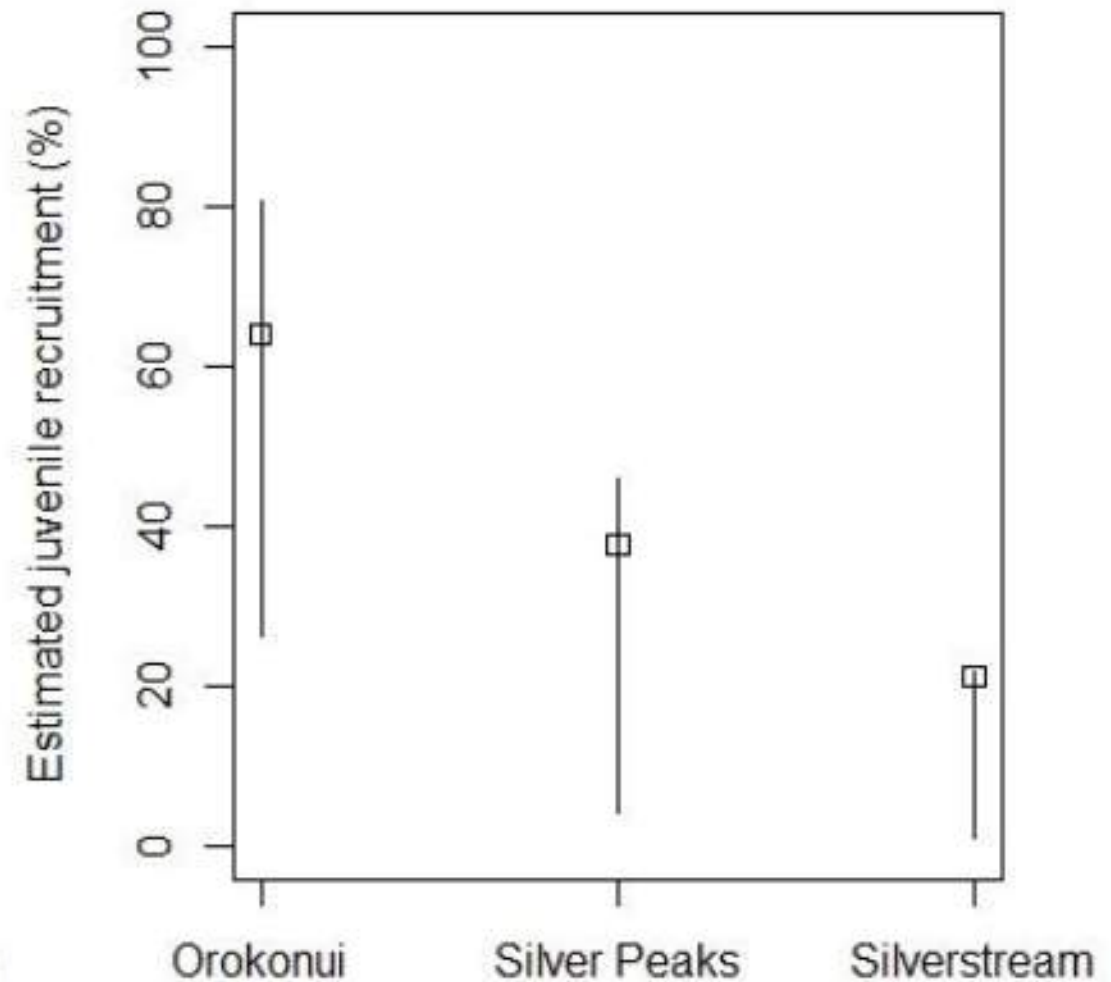
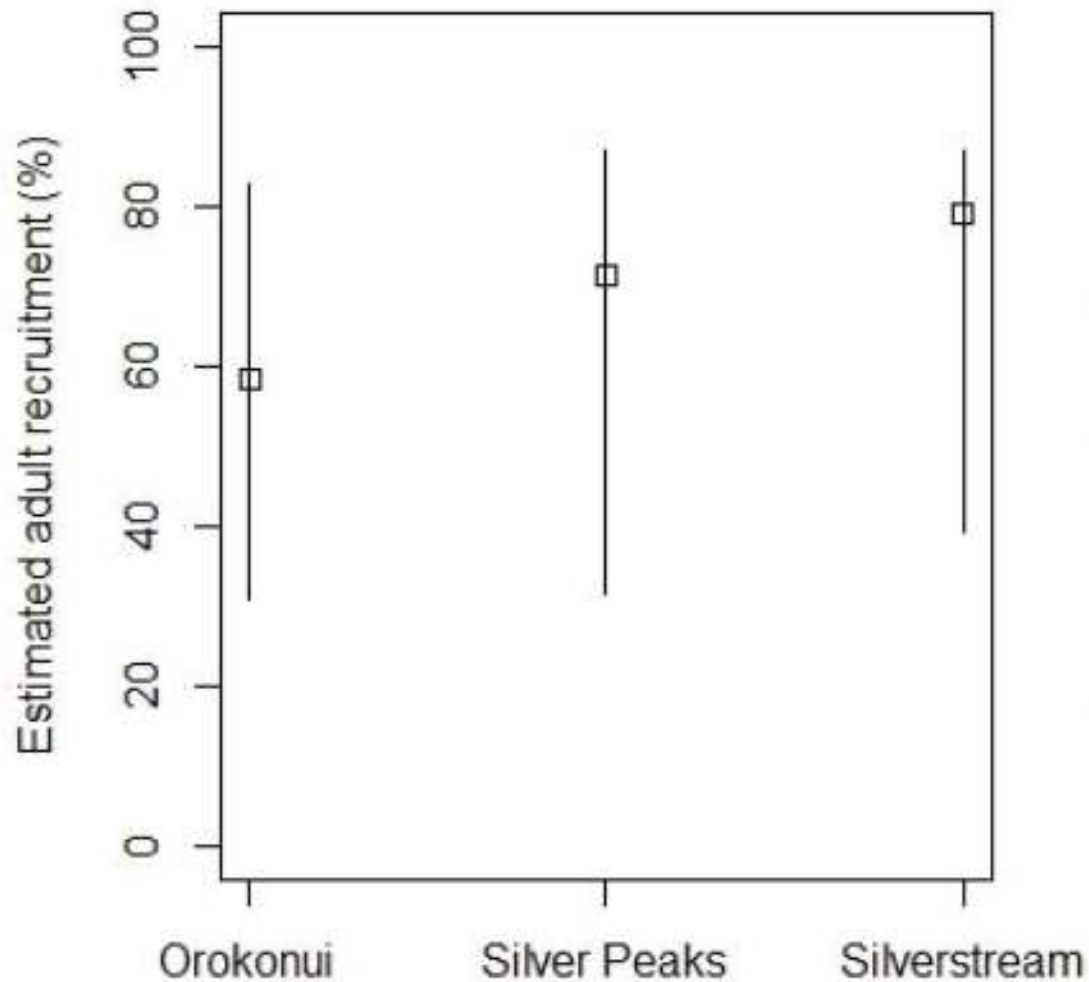
Distributed throughout most of the sanctuary

One of the 16 banded birds found was a founder individual!



But the other populations are still in trouble!

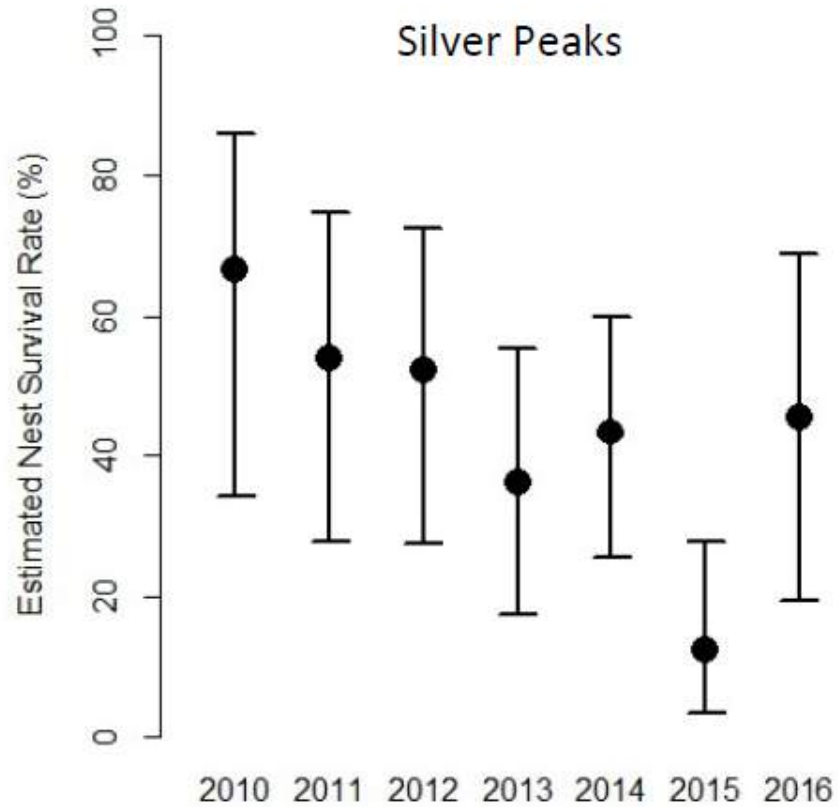
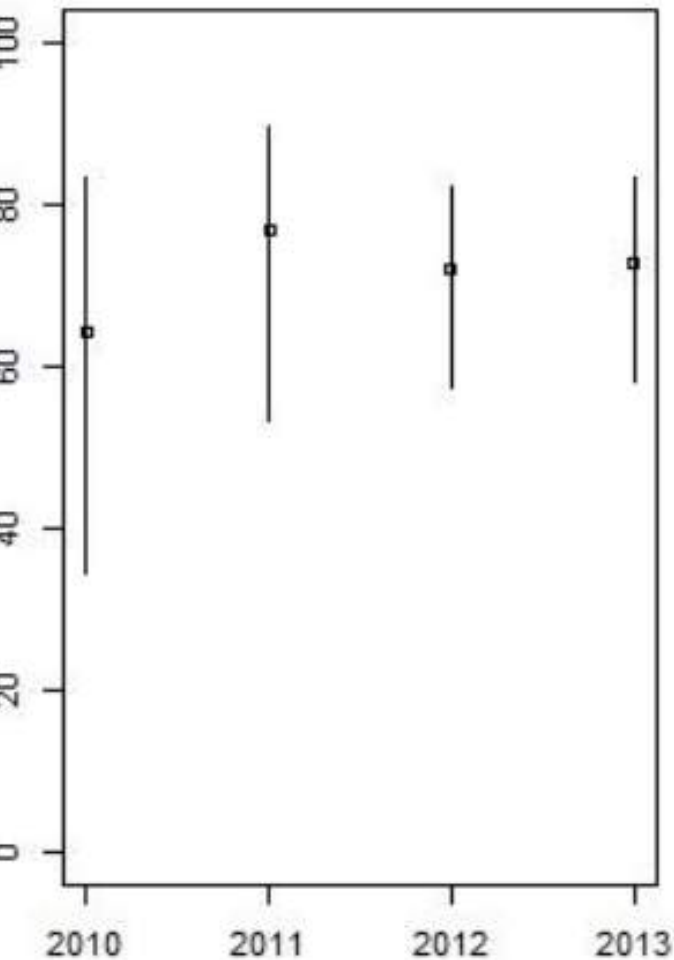
Jones 2016



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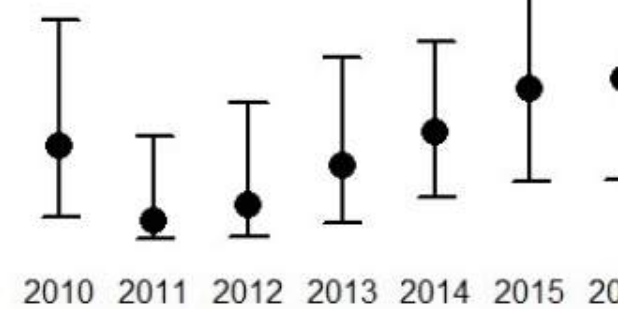
s 2016

Orokonui



Ray et al. 2017

Silverstream



SiteYear

Conservation genetics of Dunedin populations

Not yet assessed although samples collected

Pedigree relatedness:

- Minimal inbreeding recorded at Orokonui
- Descendants from all populations inhabit Orokonui (albeit mixed)
- Difficult to assess for Silver Peaks/Silverstream due to poor recruitment



Conservation goals

Establish permanent pest control in Silver Peaks and/or Silverstream

Complete conservation genetic assessment of all Dunedin population

Restock Silver Peaks and Silverstream with Orokonui birds?

- Genetic diversity
- Minimise generation gaps quicker

Prevent further declines and local extinctions of Dunedin robins

Questions?

