

Eglinton Valley Report



2020-2021

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Conservation
Te Papa Atawhai

New Zealand Government

Cover: Eglinton 2.0 predator control operation. *Photo: Bex Jackson DOC*

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1 Summary

Following the 2019 beech mast event a landscape scale predator control 1080 operation took place in September 2019 and again in May 2020 to control rat and stoat plagues. After the second 1080 operation rat tracking stayed lower than 5 % in the treated area for the next year and tracking valley wide is now 0%. Despite this predator control mohua numbers have crashed dramatically in the valley and this population is now at serious, if not inevitable, risk of extinction. More positively, most threatened species populations are on the rise in the valley including kaka, short-tailed bats and weka. Assessing the success of the second 1080 operation in protecting long tailed bats will need to wait until the results of the 2022 monitoring season.

2 Overview

The Eglinton Valley is one of the few extensive lowland areas of mixed southern beech forest in New Zealand. It supports populations of more than 30 threatened plants and animals and some rare plant communities and has a diverse bird fauna compared to other mainland forests of the South Island. The valley held a relatively large number of mohua until the population crashed following two successive mast-driven rat plagues in 2000 and 2001. Mohua numbers have been boosted by four translocations between 2010 and 2017, without which they would likely have gone locally extinct.

The valley contains two species of endemic bat, the nationally critical long-tailed bat and one of two mainland population of the southern lesser short-tailed bat recently reclassified as recovering. There is a significant population of nationally endangered black-fronted terns on the Eglinton River, with numbers increasing steadily since valley-wide pest control was initiated. Other bird species such as yellow-crowned kakariki, falcon, kea, kaka, robins and ruru are found in good numbers. Lizard diversity appears low, with only two species recorded, but there has been little search effort to date.

The Department of Conservation undertakes continuous stoat and cat control as well as periodic rat and possum control when required to protect this ecosystem. There are several species monitoring projects in the area as well as long term research being undertaken by the Biodiversity Group, DOC. This report summarises the management activities in the valley between July 2020 and June 2021.

Stoat control has been carried out in the Eglinton Valley since 1998. The original trap network of 266 traps was expanded in 2008 and further again in 2017 and now comprises 433 DOC 150 and DOC200 traps. Bait station operations have been undertaken since 2006 growing larger over time until they were largely superseded by aerial 1080 operations which started in 2014. Rat abundance is monitored using standard tracking tunnel methods and is typically carried out quarterly each year. Seedfall monitoring is also undertaken annually.

3 Predator Control

3.1 Mustelid Control

The trap network in the Eglinton Valley is comprised mainly of double-set stainless DOC 150/200 traps. The second to last line of old style single-set DOC 200 traps was upgraded this year, leaving only one line still to be upgraded in the future. There are also 8 DOC250 traps for ferrets. These traps provide year round mustelid protection for the majority of the valley floor where most kaka, tern, bat and mohua breeding takes place.

A total of 92 stoats were caught in the year from July 2020 through to June 2021, up on 74 in the previous year. 96 weasels were caught during the same period, up on 54 the previous year. Additionally two ferrets were caught. 9 trap checks were carried out throughout the year.

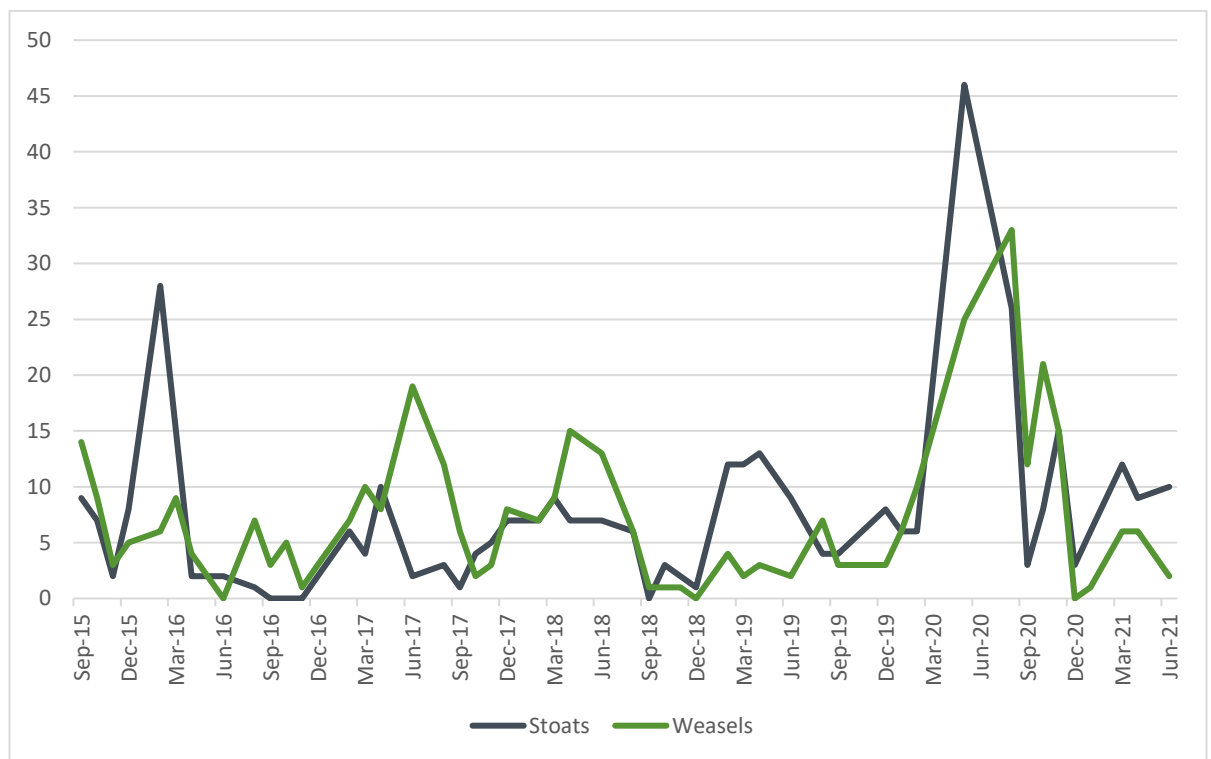


Figure 1. Stoat and weasel captures 2015 - 2021

3.2 Rat Control

After the September 2019 and May 2020 1080 operations no further rat control took place in 2020/2021. Accompanying both 1080 operations roadside bait stations with pindone were used to reduce the number of predators left behind in the road exclusion zone. This bait was removed in August 2020.

As seen in previous years after the initial September 2019 operation rat tracking increased over the summer (31% in February) and remained high until May, with tracking at 40% valley wide. This prompted a second smaller 1080 operation to occur and in May 2020 7,587ha was treated. This operation was originally planned for March but was delayed due to the COVID-19 outbreak and focussed just on the more productive lowlands. Post operation tracking

showed this was successful in reducing rats from 43% to 3% inside the treatment block and kept rat numbers suppressed over winter with August tracking rates in that area remaining at 3%. Valley wide the overall rat tracking rate in August was 11% due to one line outside the treatment area having 90% tracking.

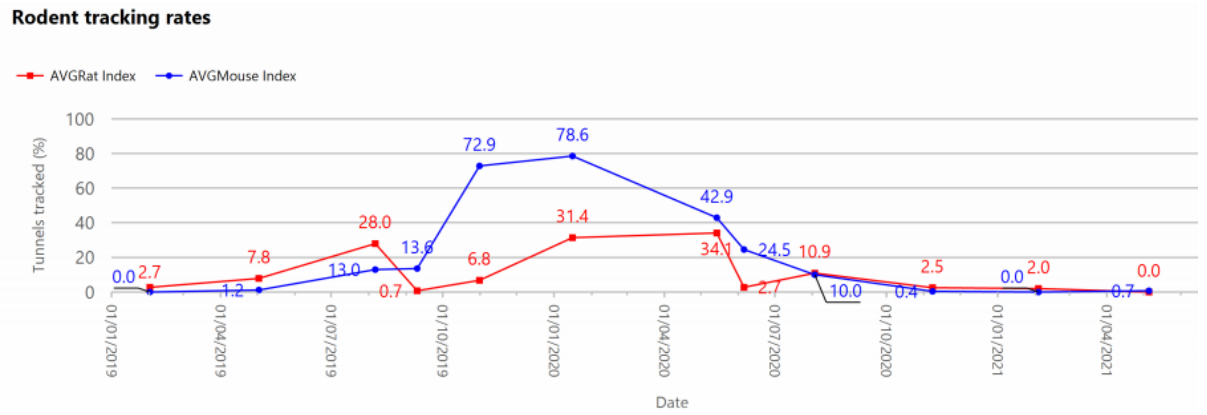


Figure 2. Eglinton Valley rodent tracking rates 2019-2021

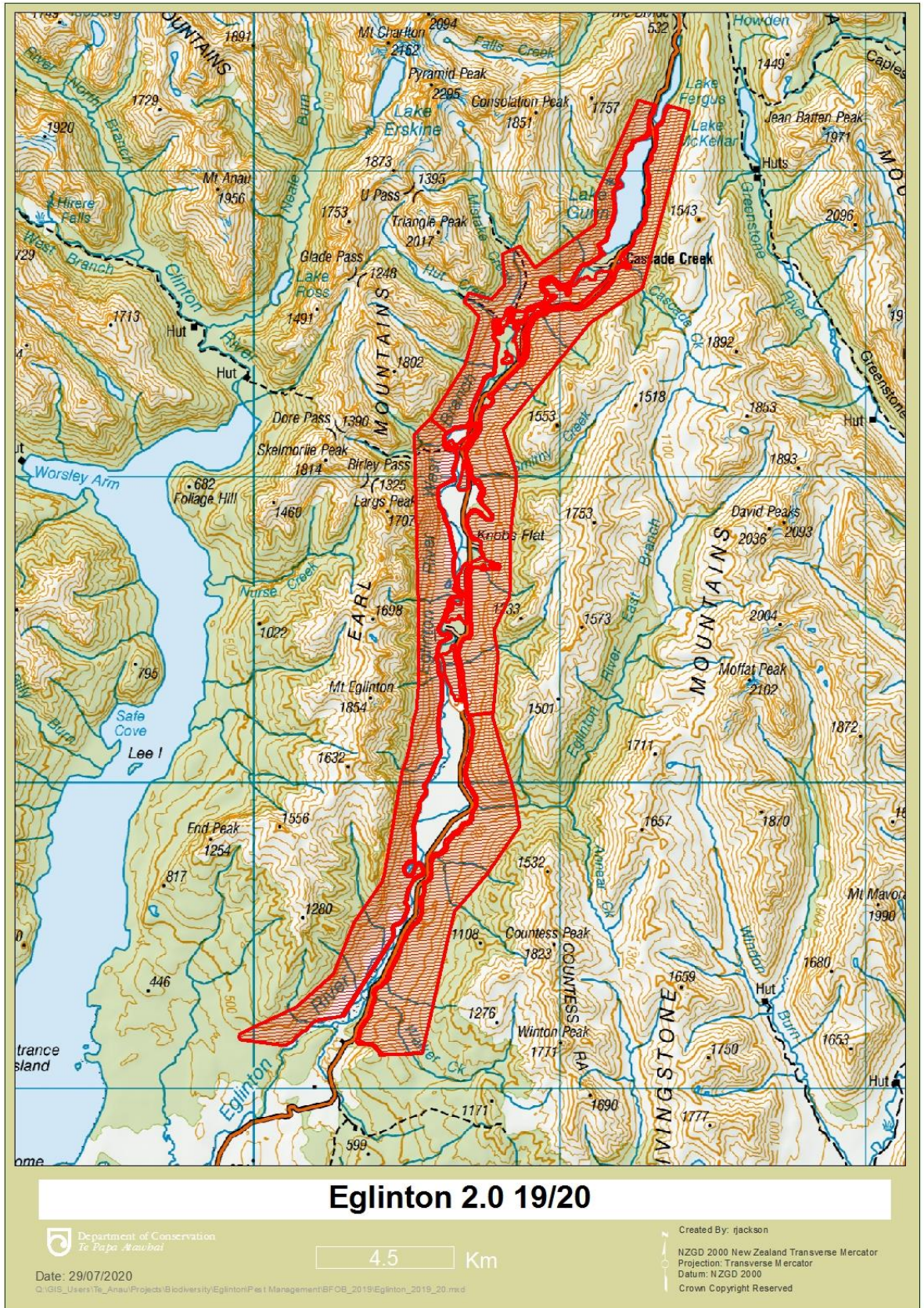


Figure 3. Eglinton 2.0 1080 operation May 2020

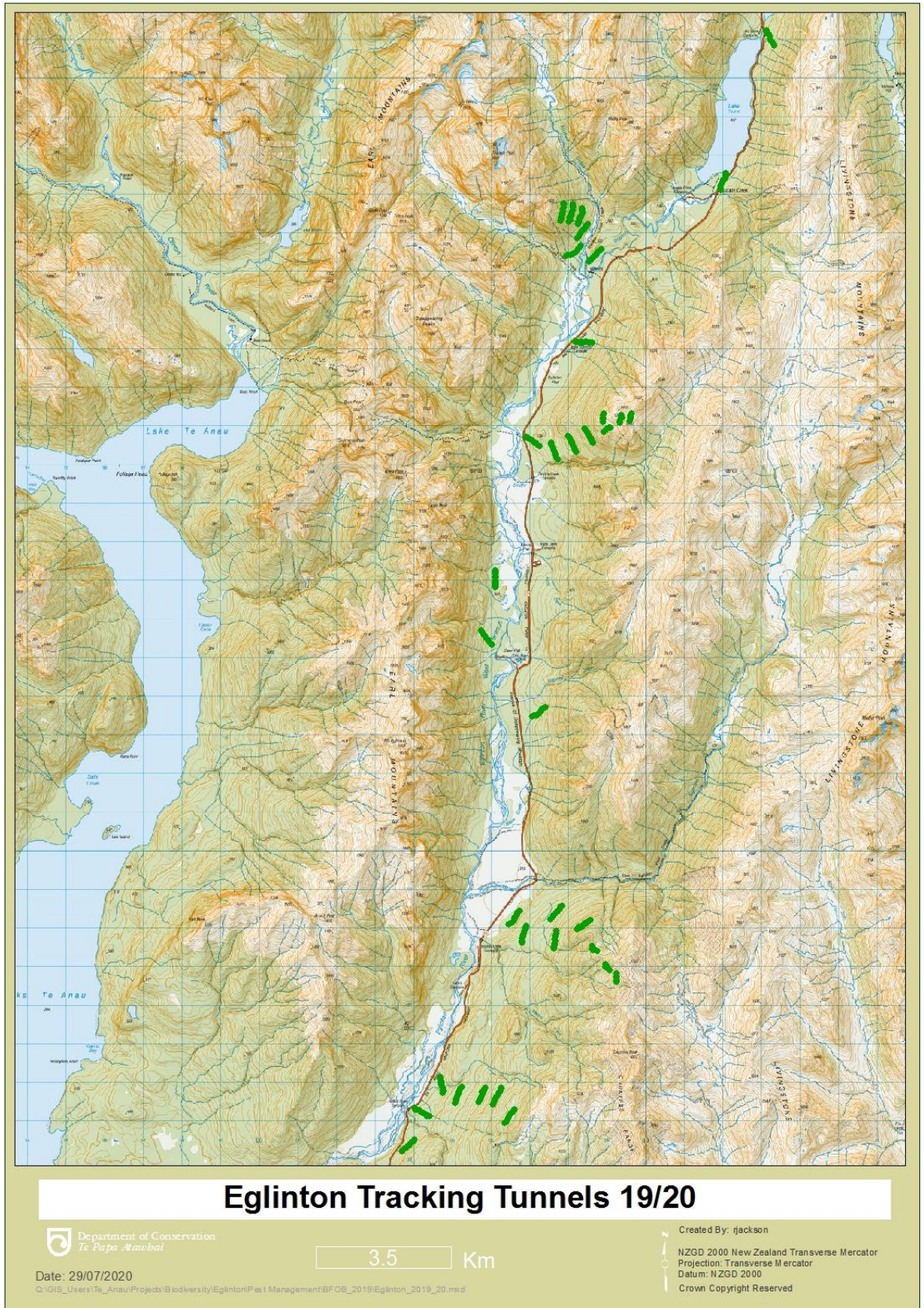


Figure 4. Tracking tunnel lines

3.3 Cat Control

Feral cats have been present in the Eglinton Valley for several years, and infrequent localised attempts to live capture them in cage traps have been made, with little success. Cats are known to be predators of species such as bats and terns and have the potential to kill many animals in one go, though the exact impact cats are having on threatened species in the valley is unknown. Anecdotally the number of cats in the valley, whilst going through fluctuations, has generally increased over time.

Three types of kill trap made up the 33 cat traps in the valley; double conibear traps, Timms traps and SA2 traps, however due to high rates of by catch (particularly weka) the Timms traps were removed this year. All cat traps are baited with fresh rabbit meat and set continuously. Cats have also been captured in stoat trap tunnels as non-target by-catch since the trapping programme began.

9 cats were caught this season - all in the specific cat traps. The number of cats caught in stoat traps has gone down over the last few years, which is thought to be due to older traps with larger openings being replaced with newer models.

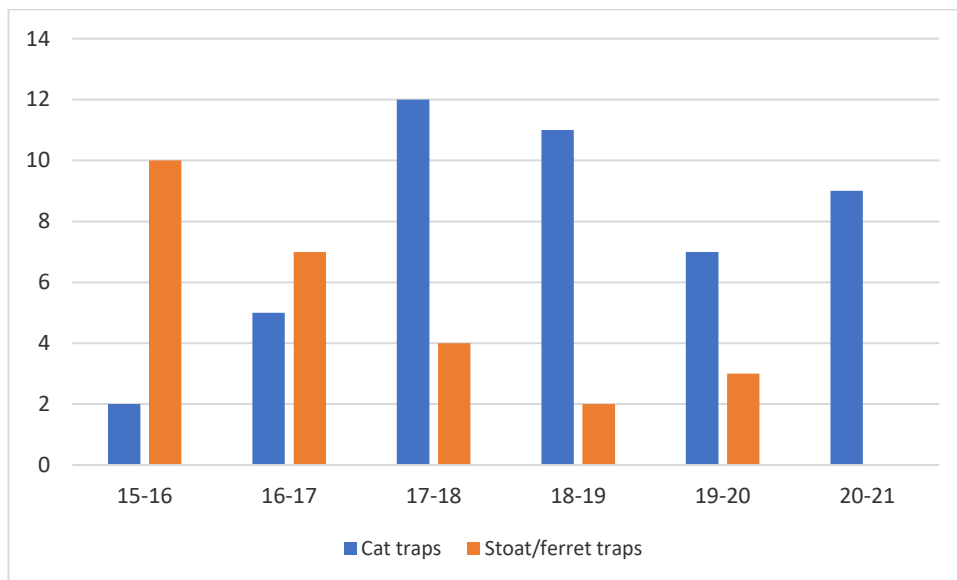


Figure 5. Cat captures in kill traps 2015-2021

4 Monitoring

4.1 Seedfall

Modelling predicts little seed in 2021 and a high probability of a mast event in 2022. Seedfall from May 2021 is yet to be confirmed through seed count data.

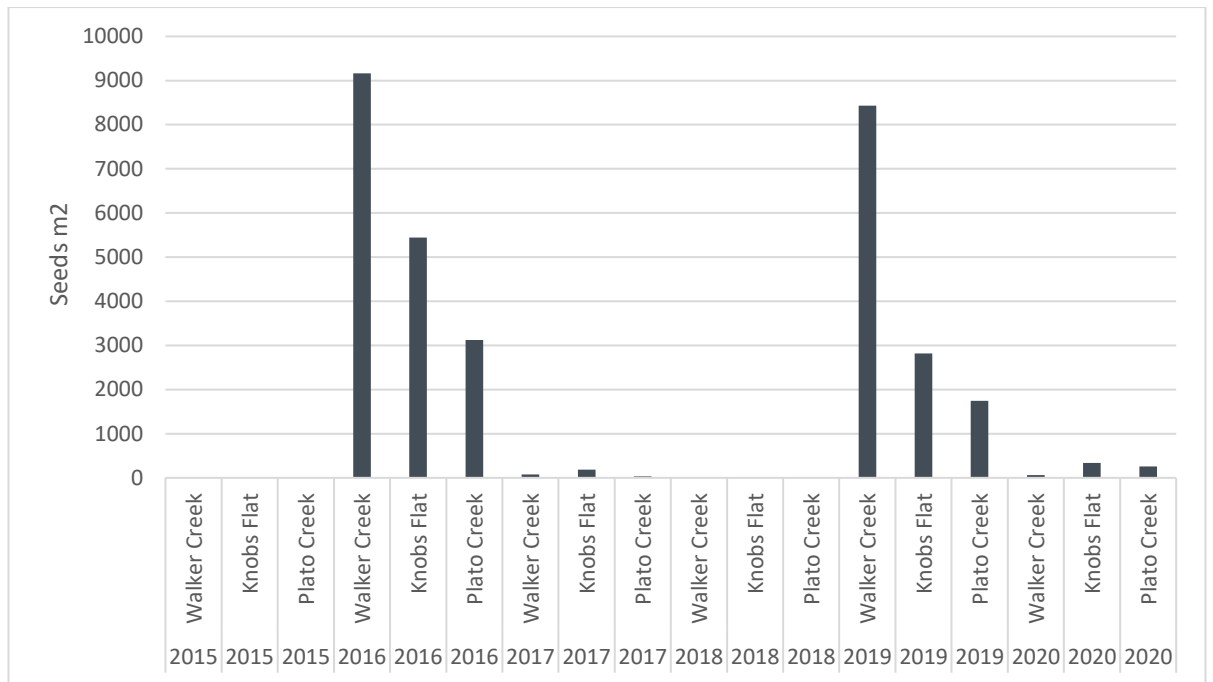


Figure 6. Seedfall data 2015 -2020

4.2 Southern Lesser Short-tailed Bats

The Eglinton Valley southern lesser short-tailed bat population is continuing to recover with high adult female survival recorded in 2019/2020 (92%). Survival results from 2020/2021 will need to be confirmed in the next monitoring period. 1386 individually marked bats were recorded this season, the highest number to date, with 312 new bats receiving tags this season. Roost emergence counts continued to be low with 1697 the highest number on one night, obtained from two roost trees further indicating the risks associated with using roost emergence counts as a sole monitoring tool. See Jackson and Pryde, 2021 for more information.

4.3 Long-tailed Bats

Annual monitoring undertaken by the Biodiversity Group has shown that long-tailed bat survival was reasonable in 2019, between monitoring in summer 2019 and summer 2020. Results for 2020 will be seen after the next season’s monitoring has been completed. See figure 9 for more details.

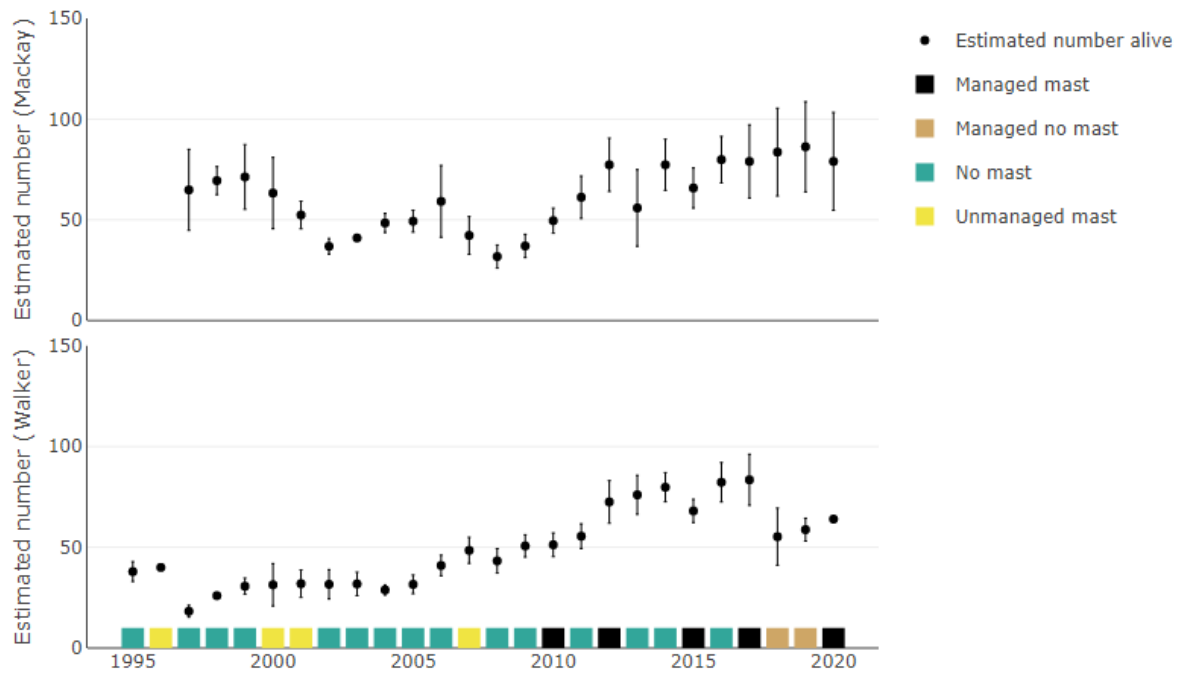


Figure 7. Estimated number alive of adult female long-tailed bats at Walker Creek and Mackay Creek calculated using RMark. Coloured bars indicate the beech mast and management response in the preceding season. Values are means \pm 95% confidence intervals.

4.4 Mohua

The Biodiversity group also undertake mohua monitoring in the valley and a brief summary is below. More information can be found in Jones 2021.

After mohua in the Eglinton Valley almost went extinct following the 1999/2000 double mast predator plague, several translocations have taken place to supplement the remaining population. This is one of the first mainland sites to have mohua translocated to them and has the aim of creating a self sustaining population in the valley.

Following translocations the mohua population in the valley appeared to be holding steady. Between summer 18/19 and 19/20 numbers increased slightly from 68 to 77 birds seen in the valley. However monitoring this year showed numbers have plummeted with just 14 birds being found in 20/21.

5 Public advocacy

Two “Bats and Banana splits” events were planned this summer however only one was carried out due to inclement weather conditions. The public was again keen to learn about these species and view rangers undertaking their work and was once again very successful in advocating bat and bird conservation to the local community.

6 Discussion

As predicted rodent numbers erupted following the 2019 beech mast event and again following the first 1080 operation in September 2019. This prompted a second smaller operation in autumn 2020, which was planned for March but delayed until May due to the COVID-19 pandemic. This represents a major step in our adaptive management approach, and the results of next summer's monitoring will inform on the full impacts of this double operation.

The September 2019 operation appears to have held long-tailed bat survival steady through the immediate after effects of the 2019 beech mast, though the effects of the second predator eruption and subsequent May 2020 1080 operation will not be known until next season's monitoring has been undertaken.

The effects of this second predator eruption however appear to be clear on the mohua population in the valley. The drastic reduction in mohua numbers puts the Eglinton population at serious, if not inevitable, risk of localized extinction. High winter mortality is generally attributed to losses in mohua numbers however given the high numbers of predators in late summer and autumn 2020 before the May 1080 operation took place it must be suggested that this is the cause of the dramatic decline. Had this operation taken place when originally planned in March it is possible it may have had better results in regard to mohua survival.

Stoat numbers appear to have increased substantially in autumn 2021, represented in the huge increase in stoats trapped in the valley at this time. Whether this is due to the abundant rat food source causing a mega breeding event or because of stoats reinvading from outside the control area is unclear. Also unknown is the effect of this high stoat abundance on the mohua decline either directly in late summer/autumn or after the May 1080 operation as rat numbers declined.

Further research is still required to understand the mechanisms driving rat irruptions at these sites. It is unknown how climate change and increased resource availability affect rat populations at these repeat predator control sites (either from removal of meso-competitors possums, or from general increased ecosystem health).

7 Recommendations

- Continue monitoring short and long tailed bats in the valley – the information provided by these programmes is critical to our understanding of how to protect these threatened species, at this site and others.
- Undertake a 1080 operation in response to the predicted 2022 beech mast and put plans in place to undertake a second predator control operation in late summer/early autumn if needed.
- Increase the size of the aerial 1080 block with the aim of achieving a very large area of low stoat density, reducing the potential for stoat reinvasion.
- Continue monitoring mohua and consider what options are available to protect this population from going extinct.
- Continue to upgrade and kea proof kill traps in the valley as opportunity allows.

- Develop and implement a landscape scale cat control programme.
- Begin a kea monitoring programme as part of the national Kea Survey Tool (survey.keadatabase.nz) with field workers collecting kea encounter rate data as they conduct other field work.

8 Acknowledgements

Big thanks to all the contractors who have undertaken predator control and monitoring in the valley; Mammalian Corrections Unit, EcoFX, HeliOtago, CRS Solutions and Edge Effects, and to the Te Anau biodiversity team.

Thank you to all the Biodiversity Group staff for all the work they undertake in the valley and the national Tiakina Nga Manu team for their support.

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