

Fast-Track Panel

Under: Fast-Track Approvals Act 2024

In the matter of: FTAA-2603-L003 – Belmont Quarry Development – Land Exchange

Statement of advice: Rhys Burns

Terrestrial Fauna

Senior Technical Advisor, Department of Conservation

28 May 2026

Introduction

1. My full name is Rhys James Burns.

Instruction

2. I have been requested to provide expert advice regarding terrestrial fauna values to the Department of Conservation (DOC) on the Belmont Quarry Development Project Fast-track land exchange application.

Qualification and Experience

3. I am a Senior Technical Advisor (Fauna) for the Department of Conservation (DOC) based in the Rotorua Office. I have a BSc(Hons) (1993) and a PhD (1997) in Biochemistry from the University of Otago. I have been employed by DOC for 26 years – 5 years as a Biodiversity Ranger and the other 21 years as a Technical Advisor for terrestrial biodiversity. In this role I have performed a wide variety of roles such as providing advice to staff regarding terrestrial conservation matters, advising on prioritising national aerial 1080, assessing and advising on Wildlife Act authorities including lizard salvage applications, wildlife translocations. I am the leader of the Weka Recovery Group and the Kōkako Recovery Group, and am a member of the Frog Recovery Group. I have been an expert witness for DOC on terrestrial fauna matters in several RMA cases including Mt Messenger Road Bypass, Kaiwaikawe Windfarm, and Auckland Regional Landfill (Dome Valley). I am also a member of the Mt Messenger Ecological Review Panel, that advises New Zealand Transport Authority (NZTA) on ecological and pest control matters as they arise during the construction of this road bypass. I currently also have a central role co-ordinating DOC's terrestrial responses to listed and referred projects under the Fast-Track Approvals Act (2024) and Fast-Track Amendment Act (2025). Other Fast-Track projects I have provided expert terrestrial fauna advice to include Waihi North, Southland Windfarm (also under the Covid Fast-Track (2021)

legislation), Takitimu North Link Stage 2, and Huriwaka Windfarm. My role in this project to date has included review of land exchange application documents concerning ecological values of the sites, and attendance at a site visit on 17 October 2025.

Code of conduct

4. Whilst it is acknowledged this is not an Environment Court Proceeding, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2023. I have complied with the Code of Conduct in the preparation of this advice. Unless I state otherwise, this advice is within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

Scope of advice and expert opinion

5. My expert advice relates to the following:
 - i. Adequacy of the Applicant's assessment of terrestrial fauna values, including identification of any values that have not been assessed or have been insufficiently characterised.

Material Considered

6. In preparing this advice I have reviewed the following documents as part of the land exchange application:

- i. BlueGreen (2026). Belmont Quarry Land Exchange: Overview of Ecological Values. Report prepared by BlueGreen Ecology Ltd for Winstone Aggregate Ltd.¹
- ii. Blueprint Ecology (2025). Lizards Memo, Appendix B2.
- iii. Boffa Miskell Ltd (2025) – Bat Assessment, Appendix B3.
- iv. Climate Change and natural hazards (appendix B14).
- v. Ecology Addendum – BlueGreen Ecology Ltd. (Dated: 5 March 2026).
- vi. Lizard Ecology Addendum – BluePrint Ecology. (Dated: 3 March 2026).
- vii. Waikaira Consulting (2025). Land Exchange report. An application by Winstone Aggregates for the Belmont Quarry Development.

Summary

- 8. Each block at Belmont Quarry proposed for land exchange was considered for fauna values, following the DOC guideline for land exchange assessments under the Fast-Track Approvals Act (2024)².
- 9. The values for birds, lizards and bats were considered at all sites as these were the main focus of the applicants' reports. No invertebrate surveys were undertaken, but some consideration was given to the possible presence of a threatened moth that is host dependent on the critically threatened swamp maire. Due to most sites being adjacent or relatively close to each other, mobile species such as birds and bats (if present) would be expected to generally use all sites similarly, but influenced by habitat type and quality. Animal pest control measures would be expected to increase breeding success. The presence and density of less mobile lizard species are expected to mainly be influenced by habitat quality, and animal pest management may increase their survival and breeding success.

¹ Any references to Sections, Figures or Tables in my Statement of Advice relate to this document, unless otherwise stated. Figures, tables and appendices within my Statement of Advice are referred to in **bold** text.

² DOC (2025). DRAFT internal guidance for conservation values assessments for land exchanges under the fast-track Approvals Act.

10. All sites have been disturbed by humans in the past, but due to containing areas of greater maturity and complexity (related to time and extent of previous disturbances) and greater area of extent, I consider the proposed total DOC acquisition sites ('DOC-Get') to be of slightly higher value to terrestrial fauna than the current PCL site (also called OBDA or 'DOC-Give') – see **Appendix 1**. However, if QEII sites in the Northern Gully and Firth block are unable to be considered, in my opinion the 'DOC-Get' and 'DOC-Give' sites have comparable fauna values.
11. An assessment of each land block for terrestrial fauna values is given in **Appendix 1**, and a table of how this was determined is shown in **Appendix 2**. Assessments were also made for the value of the terrestrial fauna found in blocks both with and without the QEII sites.

Terrestrial Fauna Values

Lizard values

12. Lizards have been surveyed at the DOC Public Conservation Land (PCL) site in the proposed OBDA by the applicant, using 75 triple-stacked onduline Artificial Cover Object's (ACO's), 105 pitfall traps, 3 nights of spotlighting and hand searching of habitat.
13. Within the OBDA, these surveys found four grass skinks (*Oligosoma polychroma*; At Risk - Declining) after surveying for 3 days, giving a low Capture Per Unit Effort (CPUE) of 3%. Spotlighting also occurred for 15.5 person-hours in the OBDA and three ngahere geckos (*Mokopirirakau* "Southern North Island"; At Risk – Declining) were found.
14. No lizard surveys were undertaken in any of the proposed land to be acquired by DOC, due to the feasibility and risk of undertaking the activity (very steep terrain, complex tall vegetation or dense, scrubby vegetation). It was also considered by the applicant's herpetologist that even if lizards were present and surveys occurred, there would be a relatively low chance of detecting lizards due to the complexity of the habitat (such as height of the canopy when undertaking spot-lighting), reflecting that most lizard survey methods often have poor detection rates.

15. However, previous surveys³ conducted in 2013-2017 did conduct surveys in the Firth Block, showing this is possible (**Fig 1**).

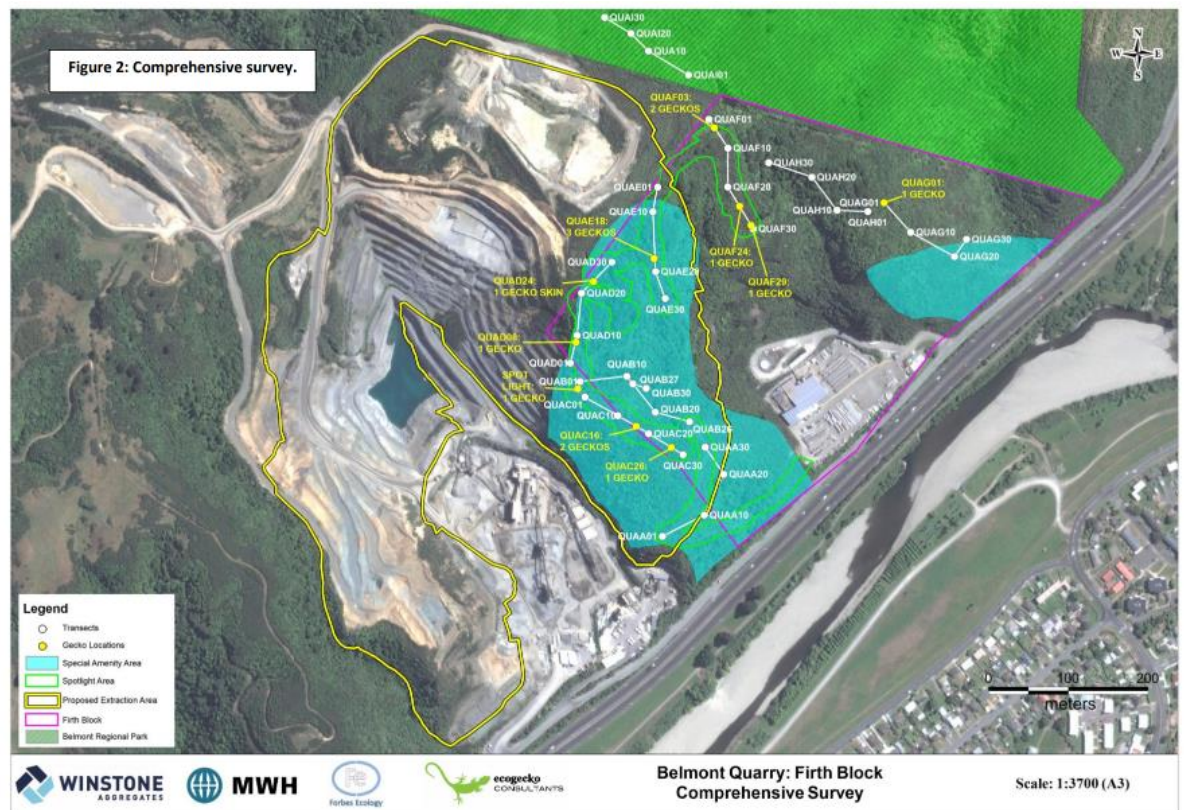


Fig. 1. Surveys undertaken in 2013 for lizards. The turquoise-coloured area on the left has now been largely quarried. From Bell et al (2013), Appendix, Fig. 2.

16. The 2012-13 survey recorded a well established population of ngahere gecko on a ridge that has now been quarried (**Fig. 1**). Other ngahere gecko were found in the current Firth Block QEII site. My understanding is that 49 of 51 ngahere gecko found following initial surveys were translocated to the Mana Island in 2015⁴ and 2017⁵ (with 2 having died in captivity).
17. A comparison with previous lizard assessments in the area is provided in Table **WW**. This shows considerably higher survey effort than was undertaken for this assessment including in parts of the Firth Block which are currently declared to

³ Bell T, Herbert S and Melzer S (2013). An assessment of the lizard fauna – Belmont Quarry Extension. Report prepared for Winstone Aggregates. Eco Gecko Consultants Ltd. DOC DM-1550867.

⁴ [Ngahere gecko transferred from Belmont Quarry to Mana Island | https://www.scoop.co.nz/stories/SC1507/S00020/ngahere-gecko-transferred-from-belmont-quarry-to-mana-island.htm](https://www.scoop.co.nz/stories/SC1507/S00020/ngahere-gecko-transferred-from-belmont-quarry-to-mana-island.htm)coop News

⁵ <https://www.scoop.co.nz/stories/AK1703/S00827/native-geckos-rehomed-on-pest-free-island.htm>

be unworkable due to very steep terrain and dense vegetation. For example, the survey effort in March-May 2013 consisted of placing 270 sets of ACO's, pitfall traps, and closed-cell foam covers on a 10 x 10m grid. All 270 ACO's and closed-cell covers were checked 7 times each and pitfall traps checked 5 times each, resulting in the capture of 13 ngahere geckos. This level of monitoring was required as destruction of their habitat by quarrying was imminent, but it demonstrates the level of effort that is required to find lizards in this habitat. Despite this level of effort, no other lizard species were found, indicating a low density or possible absence of these species at this site (although barking gecko are difficult to find due to often being in the canopy of trees).

18. The details of all lizard removal efforts could not be located, but in total these removal efforts performed 16,000 checks of closed-cell foam covers and removed 51 ngahere geckos⁶. An indication of the initial survey effort undertaken in 2012 and 2013 is provided in **Table 1**.

Date	Land Block	Survey methods and effort						Total Lizards Caught
		Minnow traps	Pitfall traps	Hand searching (daytime)	Closed-cell covers	Onduline ACO's	Night Spot-lighting	
21-23 May 2012 ⁷	Firth Block	46 trap days	50 trap days	15.4 person-hours over 11,600m ² [1 skink caught]	-	-	-	1 northern grass skink
March-May 2013 ⁸	Firth Block	-	270; 5 checks (1350 trap days) [0 lizards caught]	-	270; 7 checks (1890 catch-days) [12 geckos caught]	270; 7 checks (1890 catch-days) [0 lizards caught]	20 hours over 3.0ha [1 gecko caught]	13 ngahere gecko
	Belmont Regional Park	-	-	-	-	30; 3 checks (90 catch-days) (0 lizards caught)	-	0 lizards

Table 1. Previous survey effort for lizards at Belmont Quarry in 2012-13.

19. These surveys strongly indicated that closed-cell foam was the most effective method to detect ngahere gecko, after being left in place for several months to

⁶ Beca Limited (2023). Lizard management Plan – Belmont Quarry. DOC-7499493.

⁷ Bell T, Herbert S and Melzer S (2013). An assessment of the lizard fauna – Belmont Quarry Extension. Report prepared for Winstone Aggregates. Eco Gecko Consultants Ltd. DOCDM-1550867.

⁸ Ibid.

‘bed-in’ and attract geckos. Despite this finding, the current assessment did not use this method, and only 2 ngahere geckos were found (both by spotlighting).

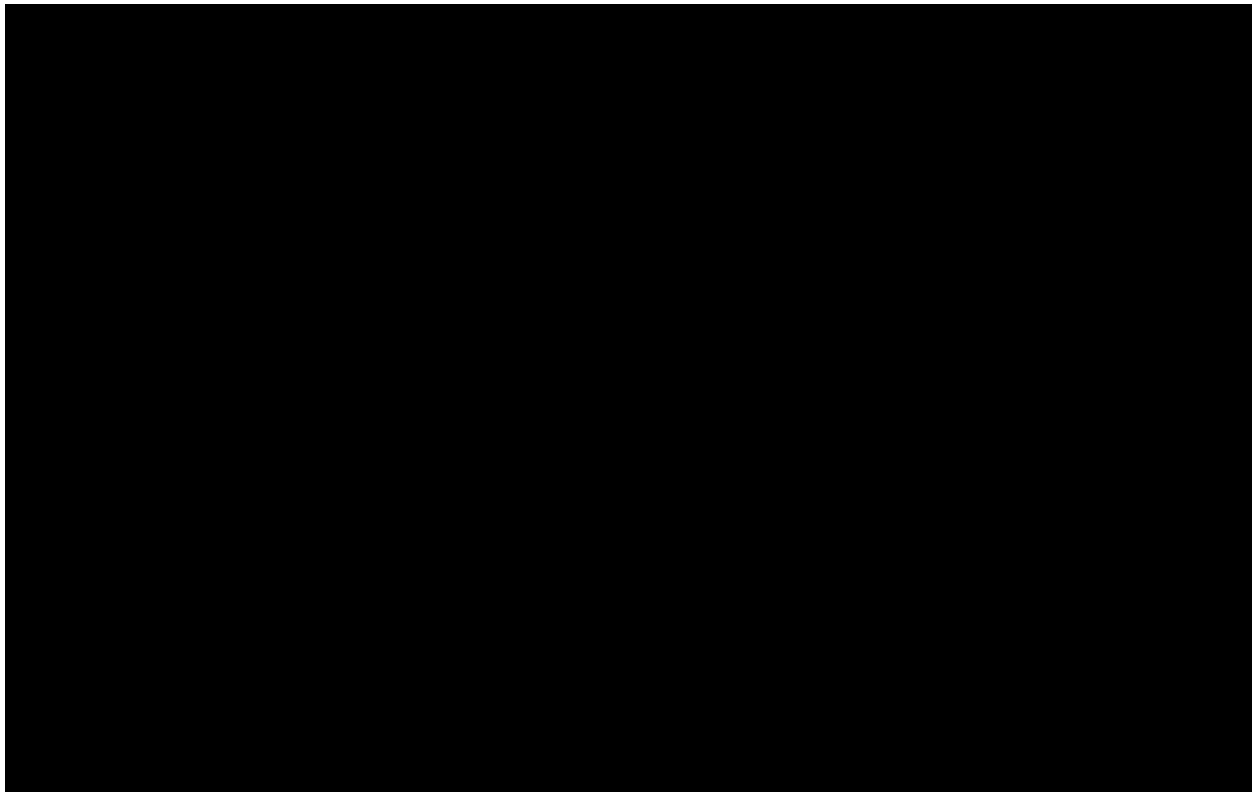


Fig 2. Lizard records on DOC’s herpetofauna database. Red dot = ngahere gecko; Green dot = northern grass skink. Black lines indicate property boundaries (the proposed OBDA is not specifically outlined).

20. This makes it difficult to directly compare the OBDA with the other four sites proposed to be exchanged. However, the applicant has assessed that lizard diversity and abundance can generally be positively correlated with vegetation maturity and complexity over small adjacent areas, so each land parcel can be roughly assessed for lizard value based on vegetation type.
21. I generally agree with this assumption at this site. This assumption is due to more ecological niches and a greater quantity of three-dimensional habitat being available to lizards in a given area, as well as time since disturbance, allowing lizards time to maintain or even build a population for longer. More complex habitat may also provide more refugia sites for lizards from introduced pest animals (such as rats, mice and stoats) allowing lizard populations to persist for longer (i.e. decline at slower rates) than in structurally simpler habitat where they may be more easily preyed upon. The land parcels (except Dry Creek) are also adjacent to each other, making it less likely any high value ‘hotspot’ for lizards don’t also extent into similar, immediately adjacent habitat.

22. A summary of the quality of lizard habitat is provided across all the considered land areas⁹, which based on my site visit and consulting aerial maps, I largely agree with. This shows that there is approximately 4.29 ha (over 2 separate sites¹⁰) of high quality lizard habitat in the PCL ('DOC-Give') area, and 7.75 ha (over 5 separate sites) total high quality in the proposed DOC acquisition ('DOC-Get') sites.
23. However, previous surveys revealed a relatively high density of ngahere geckos in habitat that has now been quarried. The vegetation at these sites was referred to as native scrub, with rocky habitat also being present. Of 13 ngahere geckos caught in 2013 surveys, 4 were found in 'Kanuka, manuka & gorse', 4 found in 'mixed secondary forest', 3 in 'secondary forest' and 2 others in mahoe forest (**Table 2**). None appeared to be in mature forest habitat, but this could reflect the difficulty of catching geckos in this habitat type.

Habitat Type	Ngahere geckos caught in 2013
Kanuka, manuka & gorse	4
Mixed secondary forest, incl. red mapou	4
Secondary forest, adjacent to tawa	3
Mahoe in broadleaf forest	1
Mahoe adjacent to tawa	1
Total	13

Table 2. Ngahere geckos caught in 2013 surveys by habitat type in area of Firth block that has now been quarried.

24. The use of animal pest control for maintaining lizard populations is important, but due to the very steep terrain and dense vegetation at much of the proposed exchange sites, the feasibility of undertaking effective ground-based pest control at the proposed DOC acquisition sites, and maintaining lizard populations in the

⁹ Table 3, Blueprint Ecology memo, 3 December 2025 (Document B2 Lizard Assessment)

¹⁰ Figure 5, Blueprint Ecology memo, 3 December 2025 (Document B2 Lizard Assessment)

long-term, is likely to be lower than on the more accessible and gentler topography of the PCL (OBDA) site.

25. The applicant is also offering to undertake rat control (Table 20), but the offer of developing a 'rat trap plan' indicates rat trapping only will occur. Rats are difficult to consistently control to the low levels required to achieve conservation gains, and several methods (e.g. toxins in bait stations) may need to be deployed simultaneously. In addition, lizards can also be badly affected by mice (which can also increase when rats alone are controlled), so any rodent control plan to benefit lizards will also need to consistently control mice to low levels. Rodent monitoring objectives should also be clearly stated (e.g. 5% tracking tunnel index), rather than the current suggested measure that rats are 'kept low' (Table 20).
26. The lizard species present potentially present at the site are listed in **Table 3**, alongside their regional and national threat status. The Wellington Region is considered for both mainland-only sites, and the whole region (including islands and pest-free areas) as lizards are vulnerable to introduced pests that can dramatically alter population abundance and trends.

Common Name	Scientific name	Wellington Mainland	Wellington Region	National
Pacific gecko	<i>Dactylocnemis pacificus</i>	Data deficient	Data deficient	Not Threatened
Barking gecko	<i>Naultinus punctatus</i>	Vulnerable	Vulnerable	Declining
Copper skink	<i>Oligosoma aeneum</i>	Vulnerable	Declining	Declining
Ornate skink	<i>Oligosoma ornatum</i>	Vulnerable	Declining	Declining
Glossy brown skink	<i>Oligosoma zelandicum</i>	Declining	Declining	Declining
Ngahere gecko	<i>Mokopirirakau</i> "southern North Island"	Declining	Declining	Declining

Minimac gecko	<i>Woodworthia</i> “Marlborough mini”	Declining	Declining	Declining
Northern grass skink	<i>Oligosoma polychroma</i>	Not Threatened	Not Threatened	Not Threatened
Raukawa gecko	<i>Woodworthia maculata</i>	Not Threatened	Not Threatened	Not Threatened

Table 3. Conservation status of lizards currently found on the mainland in the Wellington region.

Avifauna Values

27. Bird surveys with acoustic recorders were carried out at four sites – two within the PCL (OBDA), one on the boundary of the PCL (OBDA) and Firth Block, and one on the boundary of the Northern Gully and Belmont Regional Park (Fig. 11). These sites correspond with four different habitat types (Table 4) – Tawa (Northern Gully), Lake (Firth Block QEII), Kanuka and Exotic (both OBDA), although habitat immediately adjacent to AR1 (outside the PCL and proposed acquisition area), have not been described. Each site is also immediately adjacent, or close to, habitat types other than that described for the immediate site. This will influence the birds present and thus the recorded bird calls, as birds are mobile and their calls can be heard from distances greater than the size of the habitat areas. For clarity, I note that Table 10 calls the site of the AR4 recorder ‘Manuka’, whereas Fig. 44 & 45 refer to it as ‘Kanuka’.
28. The recordings of AR1, AR2 and AR3 were analysed by the applicant, but the ‘Manuka’ site (AR4) in the PCL area (described as Manuka Mixed Broadleaf Forest) in Fig. 11, was apparently not analysed for birds (Part 7.1, first paragraph). However, Table 10 does include species detected at the AR4 site. The AR4 site has more mature forest than the other PCL site (AR2) that was analysed, and I consider it will likely have a higher density of native birds than the AR2 site. The analysis in Table 10 showed little difference in species diversity (if North Island robin is excluded). I consider this recording data demonstrates that diversity is not especially meaningful when considering the value of each land parcel for birds, as they are small areas close to each other, and most birds can readily fly between the different land parcels. It also doesn’t

account for how much time birds of each species spends in each land parcel, to gauge its relative importance.

29. There are several drawbacks to understanding the avian value of a site by relying on sound recordings alone. Some species that could be present rarely verbalise, particularly outside of the breeding season or away from nests (e.g. shags), so will not be recorded by this method. The sites also had recordings made at the coldest time of the year (July and August) which in my opinion is a poor time of year to rely on an assessment of bird value at each site. Some birds (e.g. kingfisher) can move to lower and warmer altitudes over winter months, other birds have different call rates at different times of the year, while other birds (e.g. long-tailed cuckoo and shining cuckoo) migrate overseas during winter. Undertaking bird monitoring in each of the four seasons would be far better in order to gain a better understanding of how important these sites are for birds throughout all times of the year.
30. Nevertheless, I consider the areas of tawa-kamahi forest, hinau-kamahi forest, pukatea-rewarewa forest and pukatea-tawa forest in the Northern Gully (Fig. 15) and the small area of tawa-kamahi forest in the Firth Block QEII area (Fig. 36) should offer better quality native forest bird habitat than most areas present in the PCL (OBDA). However, I consider the other forest types in these two blocks will offer relatively low quality habitat for native forest birds.
31. Likewise, the other sites proposed for DOC to acquire – the Southern Gully (Fig. 23) and Dry Creek (Fig. 28) – the forest is in a state of early succession or dominated by exotic vegetation and weeds, so I consider these areas to be of low quality for native forest birds.
32. The applicant has stated they cannot determine an abundance estimate of birds for the sites using the acoustic recorders. I agree with this to some extent, as acoustic recorders have most accuracy when only used to confirm which bird species are present through their calls. However, I also consider this approach is limiting the full usefulness of these recorders, particularly when there is a requirement during the land exchange process to make a direct comparison between sites, including estimates of density of fauna species.
33. Acoustic recorders can also be used to determine a call activity rate for each species (such as the number of calls per 5 minutes, or calls per hour). When

used to compare different sites with similar habitats, these call rates can be used as an approximation of the relative abundance of each bird species¹¹.

34. Another way to estimate bird species' abundance can be to use five-minute bird counts (5MBC's)¹². This would mean having a grid (e.g. spaced 100 x 100m apart) over the entire area, and counting all individual birds that are seen and heard within a set distance (usually 200m but this can be modified to a smaller distance to accommodate smaller, fragmented forest blocks) for 5 minutes at each grid point, with the location and species of each bird recorded. In this way, the number of individual birds of each species can be estimated at each grid point. As more counts are undertaken (including repeated counts at the same site) an increasingly robust estimate of the density for each species can be calculated for a given site. A combination of both acoustic recorders and 5MBC's have also been used for New Zealand forest birds¹³.
35. Yet another method that could be undertaken is 'distance sampling', where the distance and direction of each bird from each grid point or transect line is determined, and then a computer program is used to estimate the density of each bird species across a forest block. This has also been undertaken successfully in New Zealand forests¹⁴.
36. The density and diversity of forest birds is also likely to be related to the current management of the site. There is currently animal pest control undertaken at the Belmont Regional Park, including in the proposed OBDA (**Fig. 1** at [20] below), and very little (with no bait stations) in the current private land being considered for exchange. Since it was implemented, this pest control should have resulted in birds within the pest control area having a higher proportion of successful nests and increased food resources, enabling them to both increase in density and disperse into neighbouring areas, including the adjacent private land being considered for exchange.

¹¹ Mortimer, JAJ; Greene, TC; van Dam-Bates, P; Westbrooke, IM (2019). Effectiveness and efficiency of avian species detection: a comparison between field observers and automatic recording devices. *Notornis*, 66: 109-128.

¹² Dawson, DG and Bull, PC (1975). Counting Birds in New Zealand Forests. *Notornis*, 22: 101-109.

¹³ Bombaci, SP and Pejchar, L (2019). Using paired acoustic sampling to enhance population monitoring of New Zealand's forest birds. *NZ Journal of Ecology*, 43: 3356.

¹⁴ Drummond, FM and Armstrong, DP (2019). Use of distance sampling to measure long-term changes in bird densities in a fenced wildlife sanctuary. *NZ Journal of Ecology*, 43: 3371.

37. The other habitat type present – a freshwater pond – contained several species of birds that would otherwise not be usually found in forested habitat. These include Caspian tern, pied shag and little shag. However, due to the location of the pond on the boundary between the PCL and Firth Block, these species are found on both parcels of the proposed land swap, so it is effectively a neutral value when considering any loss or gain that would result for the DOC conservation estate if the proposed land swap were to occur.
38. There are 8 bird species present that are regarded as nationally threatened, two of which are assessed as being Regionally Critically Threatened, and a further two Regionally Critically Threatened on Mainland sites only (**Table 4**).

Species	Regional Threat Status ¹⁵		National Threat Status ¹⁶
	Mainland sites only	Region-wide (including islands and pest-free areas)	
Caspian tern	Critical	Critical	Vulnerable
Bush Falcon	Critical	Critical	Increasing
NI robin*	Critical	Vulnerable	Declining
Red-crowned parakeet	Critical	Vulnerable	Relict
Little shag	Endangered	Endangered	Relict
Long-tailed cuckoo	Endangered	Endangered	Vulnerable
Little black shag	Endangered	Endangered	Uncommon
Pied shag	Vulnerable	Vulnerable	Recovering

Table 2. Threatened avifauna species detected

* In my opinion, unlikely to be present

¹⁵ Crisp P, Robertson H, McArthur N and Cotter S (2020). Conservation status of birds in the Wellington Region. Greater Wellington Regional Council, Publication No. GW/KI-G-23/21, Wellington.

¹⁶ Robertson HA et al. (2021). Conservation status of birds in Aotearoa New Zealand, 2021. *New Zealand Threat Classification Series 36*, Department of Conservation, 43p.

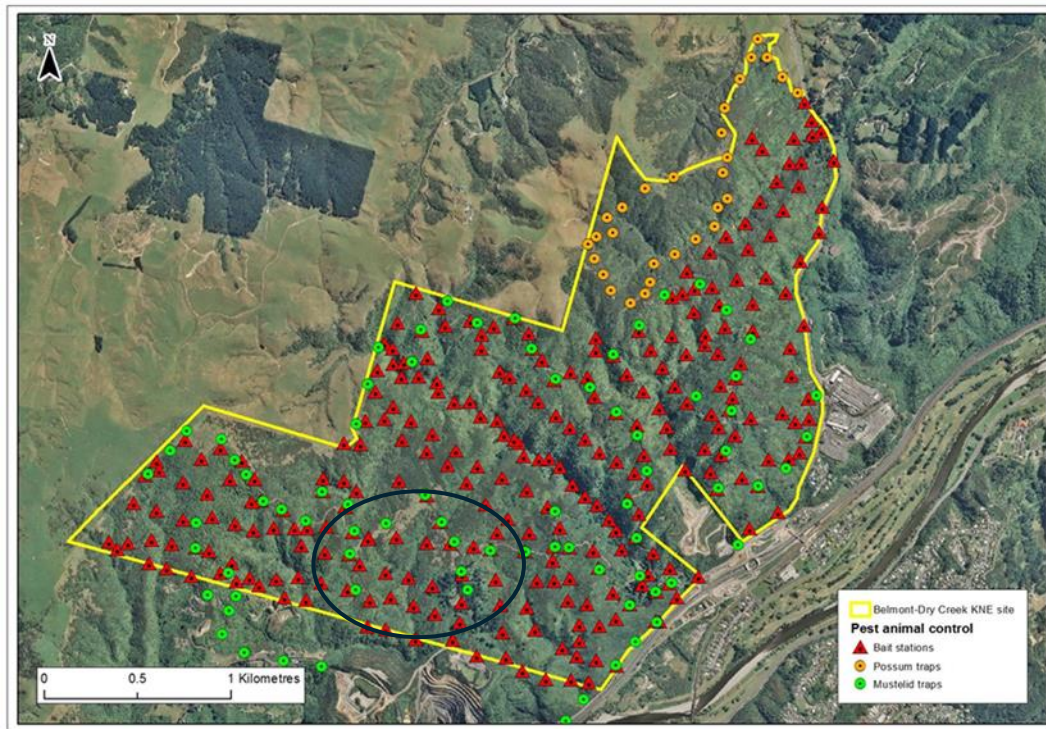


Fig. 3. Animal pest control in the Belmont-Dry Creek KNE site¹⁷. Black oval is approximate OBDA site

39. The comparative assessment (Table 19) shows the most threatened fauna species known at the site. I agree with the assessment that the forest bird species are mobile and if present in one area, are likely to also be present in the other forested areas nearby. However, I consider forest birds are unlikely to consistently use the early seral vegetated areas, but should increasingly do so as the vegetation slowly matures into full canopy and more complex and varied habitat.
40. I am somewhat sceptical that North Island robins are present at any of the sites as they are regarded as Regionally Critical (less than 250 individuals) on the mainland of the Wellington region and, outside pest-free areas (e.g. Zealandia), only seem to be found in small areas of the Tararua ranges. However, if they are present, they are apparently present in both the PCL and proposed DOC acquisition areas. Similarly, shining cuckoo were regarded as being detected by the bird recorders during the July recording period. I also regard this as dubious, as shining cuckoo migrate overseas during winter and very few are thought to

¹⁷ GWRC (2023). Key Native Ecosystem Operational Plan for Belmont-Dry Creek 2023-2028. Appendix 1: Map 6.

remain in New Zealand during winter. Despite their song being very distinctive, eBird records only one shining cuckoo record in the Wellington region ever during June-July (in 2021), and only 13 records over all of New Zealand during June-July¹⁸. These two examples of unlikely (but still ecologically possible) species being identified makes me hesitant in relying on the accuracy of bird species identified using the avian bird recorders at this site. I consider species identified in site visits (Table 10) are likely to be more reliable, as these species can often be seen as well as heard.

41. For threatened birds found at the pond (Caspian tern, pied shag and little shag), I consider that as the pond is found adjoining both the Firth Block and PCL (OBDA) areas, then both areas should have the presence of these species attributed to them when ecologically evaluating all the sites. This has not occurred in Table 10, where only the Firth Block is attributed as having these species present.
42. The use of bird recordings alone does not present the best opportunity to detect whether spotless crane or marsh cranes are using the site. A better option is for an observer to broadcast their recorded calls in spring to try to illicit a response from any resident birds. This method does not seem to have been employed here.
43. For wide-ranging birds such as bush falcon, all sites are likely to be used for hunting, resting or roosting. Emergent trees can be valuable perching and observation sites for falcon, and somewhat ironically, the exotic pine trees in the PCL (OBDA) may best serve this function across all the proposed land exchange areas. I consider it unlikely bush falcon use any of the land exchange sites for nesting, based on the relatively small area these sites would contribute to a typical falcon territory. Falcon may return to a similar area to nest most years (usually in areas clear of vegetation or rocky ledges), but I am not aware of where any nesting sites are for falcon in this territory. If falcon were confirmed to be consistently nesting in one of the land exchange areas, that would make the site locally important for falcon. In the absence of this

¹⁸[Shining Cuckoo - Species](#)

<https://ebird.org/map/shbcuc1?neg=true&env.minX=175.08235168457034&env.minY=-41.025118295975886&env.maxX=175.77998352050784&env.maxY=-40.803552231219506&zh=true&gp=false&ev=Z&excludeExX=false&excludeExAll=false&mr=6-7&bmo=6&emo=7&yr=all&byr=1900&eyr=2026> Map - eBird ; Accessed 27th April 2026

evidence, however, I consider all sites with a closed canopy to be rated the same value for bush falcon.

44. The comparison of the values for land exchange requires each site is considered. In my opinion, a more robust approach would have been to undertake bird monitoring using a variety of methods – avian recorders, 5MBC's and distance sampling, and undertaken each season e.g. February, May, August and November. At least one avian recorder should have been placed in each block proposed for land exchange, with one near the centre of the block and others near the centre of different habitat types if present so all main habitat types e.g. tall mature forest, seral forest, exotic dominant grassland, wetland, are captured. Analysis of 5MBC and distance sampling could also stratify results into these main habitat types. Ideally, this monitoring would also have occurred over several years to understand the extent to which there is any annual variation in the use of each site by native birds.

Bat Values

45. Bat monitoring was undertaken for 21 nights between 24 October and 14 November 2025 at 23 (Fig. 13) sites in both proposed OBDA and DOC acquisition area, using suitable bat detectors.
46. While the number and layout of detectors is adequate, there was no analysis provided of which of these nights were suitable for the emergence of bats (i.e. low wind speeds and warm conditions (>10 deg C for the first 2 hours of darkness)).
47. Therefore, despite the 3 weeks of survey, bat monitoring requires approximately 3 weeks (21 nights) of monitoring in environmental conditions in which bats are known to be active. As this information was not provided, and no analysis of environmental suitability was provided, it is somewhat uncertain if this monitoring regime could be fully relied upon to detect bats with high certainty if they are intermittently present at the site.
48. This is important, as if the land swap proceeds, the vegetation on the PCL will be felled. The DOC bat tree-felling protocol should be implemented if this occurs.

Invertebrate values

49. No invertebrate monitoring was undertaken by the applicant, and there are no known threatened invertebrate species present at the site. However, the presence of swamp maire means it is possible the brightly coloured endemic leaf miner moth *Macarostola miniella*¹⁹, which is regarded as being host-specific on swamp maire, may also be present. If so, then due to the low abundance of swamp maire in the Wellington region²⁰, this moth is likely to be rare in the Wellington region also.
50. Swamp maire has been assessed to have a national conservation threat classification of Threatened – Nationally Critical²¹ due to the recent arrival of myrtle rust in New Zealand, a fungus that causes high mortality of swamp maire. Despite this, *M. miniella* has recently been assessed as being At Risk – Declining on a national scale²². It should be noted, however, that this species has also been given the qualifiers of ‘Data Poor Size’ and ‘Data Poor Trend’, reflecting uncertainty in the current size and trend of its national population.
51. As swamp maire is only found in the current PCL (proposed OBDA), and not in any of the other proposed DOC acquisition areas, I consider the terrestrial invertebrate values in the PCL are likely to be higher than the other lands available for the proposed land exchange due to the potential presence of this moth. However, due to the paucity of invertebrate information, I have not considered invertebrates in the evaluation of terrestrial ecological value (**Appendix 1 & 2**).

Additional comments

52. Table 12 that is comparing the sites appears to have some errors. Several of the columns and rows don’t sum up to the totals stated in the Table, and some habitat appears to be assigned to the incorrect area of the proposed

¹⁹ https://en.wikipedia.org/wiki/Macarostola_miniellalla - Wikipedia, accessed 13 April 2026.

²⁰ Statement of evidence of Mr Ward (Vegetation) at [5], p.7

²¹ de Lange, PJ; Gosden, J; Courtney, SP; Fergus, AJ; Barkla, JW; Beadel, SM; Champion, PD; Hindmarsh-Walls, R; Makan, T and Michel, P. (2024). Conservation status of vascular plants in Aotearoa New Zealand, 2023. New Zealand Threat Classification Series 43. Department of Conservation, 105 p.

²² Hoare, RJB; Edwards, ED; Knox, C; Frost, WT and Michel, P. (2026). *Conservation status of Lepidoptera (moths and butterflies) in Aotearoa New Zealand, 2025*. NZ Threat Classification Series 51. Department of Conservation, 58 p.

land exchange ('DOC-Get' or 'DOC-Give'). For example, the 'Tawa-kāmahi forest' row shows 3.24 ha is present in the 'Northern tawa-kāmahi-Cottle' area, but the total for the 'DOC-Get' is 0.9ha; whereas the OBDA + setback is 0.9ha, yet the Total 'DOC-Give' area is left blank. The total of the OBDA + setback area states a total area of 24.00ha, but summing this column only shows 16.51ha. The last row in Table 12 also has no description attached so I am unsure of the habitat type this signifies. Unfortunately, I have had to conclude that this table, which would have been very helpful in understanding the extent of habitats that will support native terrestrial fauna in each individual block, cannot be relied upon.

53. Table 13 appears intended to have measurements taken directly from Table 12, but there again appear to be inconsistencies. For example, Table 12 shows the 'Total DOC-Get' area of 'Young gorse/pasture' to be 11.75ha, whereas Table 13 shows this habitat type to only be 0.29 ha, but 'Early seral broadleaf forest' to be 11.75ha, the exact same areas as 'Young gorse/pasture' in Table 12. This creates considerable uncertainty in knowing which measurements are the correct ones to be relied upon in any assessment where vegetation habitat influences fauna values. Comparing the habitat area in both tables with Fig. 54, I consider Table 13 is most likely to have the correct habitat areas recorded, so I have used those measures to support my assessment.
54. Table 16 and Table 17 both include a separate assessment of ecological function over 5 different sites that DOC may acquire in any successful land exchange process, whereas Table 12 only shows 4 sites. The additional area appears to be the 'Cottle Block' which for a reason that isn't explained is considered separately in this assessment. The Cottle block is also described separately as part of the Northern Gully in Part 6.1, but the accompanying map (Fig. 15) doesn't specify the boundaries of the Cottle block. I have assumed this block is located between the Northern Gully area (also called Northwestern tawa-kāmahi) and the Southern Gully area. The addition of the Cottle block is also inconsistent with other Tables and assessments throughout the document (e.g. Table 4), where only 4 potential DOC acquisition areas are considered for birds.
55. Animal pest control is currently undertaken in Belmont Regional Park by Greater Wellington Regional Council (GWRC), using bait stations and traps to target possums, rats and mustelids (**Fig. 3** above). Possum control has occurred since 2007 while mustelid and rat control commenced in 2018.

Overall assessment – current terrestrial fauna value of Sites

56. I consider the current overall ecological value of the sites proposed for land exchange (PCL and potential acquisition areas) for terrestrial fauna as:
- a. DOC PCL component of Belmont Regional Park – the proposed OBDA ['DOC-Give'] site: **Moderate.**
 - b. Proposed DOC acquisition sites ['DOC-Get site'] (composed of: Southern Gully, Northern Gully, Firth Block and Dry Creek): **Moderate-High.**
57. The assessment process I used to determine these values is shown in **Appendix 2**. In this process, I divided the 'Representative' value into four components and the 'Ecological Context' value into two components. I considered this was necessary in order to encompass the different aspects contained within these definitions when considering terrestrial fauna.

Overall assessment – future terrestrial fauna value of land parcels following improvements made by the Applicant

58. The applicant has offered several ecological management improvements to the proposed acquisition land parcels²³. I have considered any likely changes these proffered management actions may result in and outline them in **Appendix 1**.
59. The proffered management actions vary considerably across all the 'DOC-Get' blocks, but only a subset of actions will have benefit terrestrial fauna over the period the actions are offered over. The applicant offers weed, goat, possum and rodent control actions. All actions have a defined term that varies from 2-10 years, and all actions are offered by block, except for rats, where a rat trap plan is offered to be developed. As the timeframes for different actions are variable, there is uncertainty at which year to consider the result of the management actions for each land parcel. As 5 years is the most consistent time frame, I have decided to consider the terrestrial fauna of the land parcels after 5 years of the proffered management actions. It is assumed the current pest control at the OBDA ('DOC-Give') site would otherwise continue with seasonal control of rats, mustelids and possums. I have also considered the

²³ Waikaira Consulting (2025) at [10.7] – [10.14] and Section 13.

terrestrial fauna value of the OBDA in 5 years' time as a fair comparison with the proposed DOC acquisition sites.

Northern Gully

60. Goat and possum control occurs for 5 years in the QEII site and eastern pukatea forest, while possum and weed control is proposed for the Cottle portion of this block. The frequency of possum trap checking is not mentioned, but as there are two traps proposed per hectare, I have assumed there would be a slow reduction in the density of possums over a 2 year period to low levels, at which point a low density of possums would be achieved for the next 3 years. Due to the small site, I have assumed goats can be effectively eradicated from the site over the first year.
61. This should result in slightly better habitat for birds over the 5 years, allowing better food resources and better roosting and nesting sites. More native plant species dominance in the weed-controlled seral areas is assumed to have a marginal benefit for birds over 5 years. However, as rat, mustelid or cat control isn't proposed, there will only be limited benefit to nesting birds from possum control alone. Increased food resources may result in a higher density of birds at the site over 5 years as they spill over from possum, rat and mustelid control in areas adjacent to this land parcel. Lizard species are unlikely to benefit from this pest management regime as they are susceptible to rats, mustelids, cats and hedgehogs.

Firth Block

62. Rat control is offered over 10 years, but the area being offered for control seems contradictory. At [10.12], 'targeted rodent control around the farm pond' is offered, but the maps (at [10.7]) indicates the entire Firth Block will have rat control. For my assessment, I have assumed effective seasonal rat control to benefit nesting birds, from spring to late summer, each year for 5 years.
63. It is not known if wetland birds breed at the pond, so the benefits of this control for these species is uncertain. Nevertheless, I have assumed some wetland birds may benefit from this pest control. However, no possum or stoat control is offered, so benefits to birds are not as high as they could be with this control.

64. As rat control alone is offered, and only seasonally (to benefit bird nesting), accompanying benefits to lizards will be low, as lizards can be vulnerable to rat predation throughout the year. Indigenous revegetation measures will have little impact on bird values but may marginally benefit lizards within 5 years.

Dry Creek

65. No animal pest control is offered – only weed control and supplementary indigenous planting. These actions will have little to no discernable benefit to birds and lizards over a 5 year period.

Southern Gully

66. Weed and possum control is offered for 5 years. Due to the largely seral nature of the vegetation, these actions are likely to have little discernable benefit to nesting birds or lizards populations within the 5 year timeframe. The vegetation will continue to mature and possum control should cause a marginal increase food resources for birds. The lack of rat, stoat, cat and hedgehog control may still result in any lizard population continuing to decline.

PCL (OBDA)

67. Without a land exchange, rat, possum and mustelid control is assumed to continue seasonally for the next 5 years at this site. The vegetation at the site will continue to slowly mature, and with the ongoing pest control, there are likely to be continued benefits to native birds breeding at this site. This should result in a small increase in bird density over 5 years, but a reasonable proportion of successfully fledged birds are likely to disperse out of this small area, providing the benefits of native birds to other sites.
68. It is difficult to suppress predators to such low levels that lizard species benefit, particularly if control is only seasonal. However, this site has the most comprehensive pest control of all the other measures offered at any other site, so there is some likelihood that populations could slowly increase over time. However, this is not likely to be discernable over a 5-year timeframe.

Appendix 1. OVERALL ASSESSMENT – TERRESTRIAL FAUNA

DOC PCL 'Give' Site: **Moderate**

DOC Potential Acquisition 'Get' Sites Overall (Including QEII Covenants): **Moderate-High**

DOC Potential Acquisition 'Get' Sites Overall (Excluding QEII Covenants): **Moderate**

	Representativeness	Diversity	Rarity & distinctiveness	Ecological context (size, shape, connectivity, buffering)	Overall Terrestrial Fauna Value	Terrestrial Fauna values after 5 years if all proffered measures are successfully implemented ^a
DOC PCL 'Give' site						
OBDA	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate^b
DOC Potential acquisition 'Get' sites						
Northern Gully (including QEII)	Moderate	Moderate	Moderate	Moderate-Low	Moderate	Moderate
Northern Gully (excluding QEII)	Moderate	Moderate	Moderate	Moderate-Low	Moderate	Moderate

Firth Block (QEII)	Moderate-Low	Moderate	Moderate	Moderate-Low	Moderate-Low	Moderate
Dry Creek	Low	Low	Low	Low	Low	Low
Southern Gully	Low	Low	Low	Low	Low	Low to Moderate-Low
Total 'DOC Get' (excluding QEII)	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Total 'DOC Get' (including QEII)	Moderate-High	Moderate-High	Moderate-High	Moderate	Moderate-High	Moderate-High

^a assuming current pest control continues on PCL (OBDA) area and all measures the applicant has proposed are fully implemented and attain targets for 5 years (so this assessment is for terrestrial fauna values expected in 2031).

^b assuming current pest control measures at this site in Belmont Regional Park continue for another 5 years until 2031.

Appendix 2. Detailed assessment of Belmont Quarry sites – current value of Terrestrial Fauna

Site	Fauna Type		Representativeness				Diversity	Rarity & Distinctiveness	Ecological Context	
			Original Species diversity [Species confirmed (or likely) to be present c.f. original diversity in that habitat type in ED or Region (not including extinct species (e.g. moa) or completely extirpated on mainland (e.g. saddleback), but do include rare on NI mainland, e.g. kaka, kōkako)]	Proportion of regional population [Proportion of each species in current ED or Region (very large sites have higher proportion on average)]	Proportion of original species density [Current population at a site c.f. expected original population at the site (higher score for effective <u>predator</u> control and management e.g. rodents)]	Habitat quality & carrying capacity [Ability of habitat at site to support current populations (and potential to sustain populations in long-term – e.g. include change to habitat quality with forest succession over time); carrying capacity (generally score increases with <u>browser</u> pest control e.g. possums)]	[Current species diversity (number of species) present now (not to be with compared with original diversity). More diversity = higher score. Weighting needed between essential use of site (e.g. territorial and/or nesting sites) with intermittent use (e.g. occasionally seen present) vs traversing (occasionally seen flying over but not landing/feeding/roosting at site)].	[Species present - use national and regional (overall and mainland-only) threat status]	Block Size and Shape [Size & shape that benefits fauna by being sufficient to sustain a population; resilience to pest invasion and ability to undertake effective pest management (larger and squarer block with suitable habitat should score higher)]	Connectedness of site [Connectedness to surrounding natural ecosystems - ease of fauna being able to disperse out of or into block - includes buffering; distance to nearest habitat and ability of current fauna to reach it; % block perimeter connected to suitable habitat]
	Birds	Value	<i>Moderate-High</i>	<i>Moderate-Low</i>	<i>Moderate</i>	<i>Moderate</i>	<i>Moderate-High</i>	<i>High</i>	<i>Moderate</i>	<i>Moderate-High</i>

PCL (Proposed OBDA) ['DOC-Give' site]

	Reasoning	Total area: 23.86 ha Grassland (2.87ha): few/no native birds (falcon, harrier, morepork only) Exotic trees/forest (5.14ha): roosting and perching sites, food for insectivorous birds only Early seral/treefern (low canopy) (8.74ha): likely low density forest birds - insectivorous dominated Mid/Late seral/manuka (7.01ha): 15sp known or likely (e.g. summer monitoring); 6 forest species in wild in Wellington mainland region missing (rifleman, kaka, yellow-crowned kakariki, NI brown kiwi, NI robin, NI kōkako), plus weka (not present on mainland Wellington) Mature forest: none present Wetland (0.23ha): 6 sp. confirmed; 18 possible sp. missing	Small site - doesn't contain significant regional populations of total Wellington population, except falcon. Even 1 pair of falcon using site is significant (<250 adults in Wellington region). Assuming robins not present and RC kakariki only intermittent, assuming both cuckoos present in summer.	Predator control of rats and stoats will have helped maintain and increase bird densities.	Vegetation succession processes proceeding with minimal interference from introduced browsers, so habitat should be recovering to sustain high density of avifauna. Grassland/exotic lowers carrying capacity. Wetland provides foraging habitat but is small and unlikely to support robust populations.	15 forest bird species and 4 known wetland species.	See Table 2 of my report. Caspian tern - Regionally Critical (overall and mainland), Nationally Vulnerable; Falcon - Regionally Critical, overall and on mainland, Nationally Increasing; Long-tailed cuckoo (assumed seasonally present): Regionally Endangered (overall and mainland), Nationally Vulnerable Red-crowned parakeet - Regionally Vulnerable (Regionally Critical on mainland), National - Relict; Pied shag - Regionally Vulnerable (overall and mainland), Nationally - Recovering;	Small area for birds but still able to support the populations of some species. Likely to only be part of home range for most bird species. Square shape maximises chance of a core area with lower pest density with current pest control in place.	Highly connected with 80% perimeter boundary to similar habitat, that is part of wider landscape habitat suitable for forest birds; remaining 20% also available for dispersal and foraging into and out of the block due to high mobility of most forest birds over open areas. Birds found in the wetland highly capable of dispersal and flying across open areas.
	Combined Bird Value	Moderate				Moderate-High	High	Moderate	
Lizards	Value	Moderate-Low	Low	Moderate-Low	Moderate-Low	Moderate-Low	Moderate-Low	Moderate	Moderate-High

	Reasoning	Contains two confirmed species and likely a third species (barking gecko) - with a record approx. 1.2km away in 2021. The site originally likely had 5 other species present (Pacific gecko, Copper skink, Ornate skink, Glossy brown skink and Raukawa gecko), with 4 other species in the Wellington region less likely to have been originally present (Whitaker's skink, Kupe skink, Minimac gecko and northern spotted skink). Several other lizards (and tuatara) are now extinct on the mainland so not considered. the site thus represents possibly 3 of the 12 mainland lizard species in the Wellington region.	A small area compared to habitat available for these species elsewhere in the Wellington region, with apparent low density of lizards	All species likely to have been badly affected by animals pests. Effectiveness of current pest control to achieve bird breeding and protection outcomes is unknown, but should generally be sustaining populations compared to sites with no pest control.	Highly modified in places, with only approx. one quarter of the site having medium quality vegetated habitat	3 species likely present and require year-round habitat	Ngahere gecko is At Risk - Declining in all 3 assessments; Barking gecko (if present) is Vulnerable Regionally & on Regional Mainland, but only Declining on a national scale. Northern grass skink Not Threatened Regionally and Nationally	A relatively small size (24ha) but that is large enough to potentially hold substantial lizard populations should they be able to attain reasonable densities. Shape is square so that maximises the chance of being able to attain a core area of lower pest density	Connected to similar vegetation around 80% of its perimeter, will allow lizards to disperse into and out of the block at high rates. The remaining 20% shares a boundary with a road and overburden site of the current quarry.	
	Combined Lizard Value	Moderate-Low					Moderate-Low	Moderate-Low	Moderate	
		All fauna criteria Value	Moderate				Moderate	Moderate	Moderate	
	OVERALL FAUNA	Total Combined Fauna Value for Site	Moderate							
Northern Gully	Birds	Value	Moderate	Moderate-Low	Moderate	High	Moderate	Moderate	Low	Moderate
	Reasoning	Total Area: 12.63ha Early seral: Likely same as PCL Late seral: Likely same diversity as PCL due to high ability of birds to fly to neighbouring (and distant) areas Mature: Similar diversity to late seral. No wetlands: no wetland birds found in PCL & Firth Block. Hence less diversity overall.	Similar to PCL - small site on regional scale.	Little current pest management (1 short line of stoat traps), so will have limited effect. Mature forest has potential to contain higher native bird densities than seral vegetation.	Mature forest areas should provide good habitat and nesting opportunities for forest birds, but currently has little to no browser control	Common forest species present but no wetland species	NZ falcon and LT-cuckoo likely intermittently use the site	Small area for birds and elongated shape means lower ability to adequately suppress pests and limit pest incursion.	Northern areas well connected but southern areas have limited connectedness, meaning most birds will need to fly across open areas to neighbouring habitat	
	Combined Bird Value	Moderate-High					Moderate	Moderate	Moderate-Low	
	Lizards	Value	Moderate	Moderate-Low	Moderate-Low	Moderate	Moderate	Moderate	Moderate	Moderate-Low

Northern Gully excluding QEII site		Reasoning	No known lizards species confirmed at this site, but reasonably likely to have 4 species and possibly 8 of the original 12 mainland species present in Wellington. Suitable habitat for ngahere gecko and close to known populations so highly likely to be present. Habitat marginal for northern grass skink - but possibly present. Parts of the block have had considerably less disturbance than PCL site, so assume also likely to have raukawa gecko, barking gecko, ornate skink and possibly copper skink, glossy brown skink and Pacific gecko.	Likely to have slightly higher density lizard populations than PCL, but still relatively low on Regional or Ecological District scale	Higher quality habitat in mature forest areas than PCL for most lizards species so should have higher populations; but countered by little to no sustained pest control so populations likely low	Higher quality habitat should provide higher carrying capacity in mature forest areas, but with little to no possum control this will be degrading	Up to 7 species could be present; however no survey results means there is uncertainty in how diverse this site really is	Barking gecko has the highest chance of being present in this block(Regionally Vulnerable)	Small area of high quality habitat but still large enough to potentially contain sustainable lizard populations	Northern areas well connected but southern areas not well connected.
		Combined Lizard Value	Moderate-Low					Moderate	Moderate	Moderate-Low
		All fauna criteria Value	Moderate					Moderate	Moderate	Moderate-Low
		OVERALL FAUNA	Total Combined Fauna Value for Site	Moderate						
	Birds	Value	Moderate	Moderate-Low	Moderate-Low	Moderate-High	Moderate	Moderate	Low	Moderate-Low
		Reasoning	Total area: 9.66ha Smaller area of mature forest than entire Northern Gully, but likely to have similar diversity of birds that use the site.	Small site on regional scale	Some mature forest provides suitable habitat to sustain a reasonable bird density, but a high proportion of habitat has been disturbed (of low value for native forest birds), and little to no predator control occurring	Mature forest has capacity to sustain a high bird density, but much of this block is also seral and of relatively low value. Little to no possum control occurs in this block reducing habitat quality over time.	Same as Northern Gully - common forest birds present but no wetland birds	NZ falcon and LT-cuckoo likely intermittently use the site	Small and irregular elongated shape	Irregular shape with a relatively low proportion of perimeter adjacent to high quality habitat
		Combined Bird Value	Moderate					Moderate	Moderate	Moderate-Low
	Lizards	Value	Moderate-Low	Low	Moderate-Low	Moderate-Low	Moderate	Moderate	Moderate-Low	Moderate-Low

		Reasoning	Similar to entire Northern Gully but smaller site and few if any mature tawa trees so lizard diversity may be less	Considerably smaller area than entire Northern Gully and southern part is likely to be of limited value for lizards	Similar to entire Northern Gully	Higher proportion of low quality habitat than entire Northern Gully block	Similar to entire Northern Gully, although less confident due to smaller area and little if any mature tawa forest	Similar to entire Northern Gully, with less confidence barking gecko is present due to smaller area and little if any mature tawa forest	Largest block is much smaller area than Northern Gully	Good connection to other forest type in northern area but low connection in southern part of block
		Combined Lizard Value	Moderate-Low				Moderate	Moderate	Moderate-Low	
		All fauna criteria Value	Moderate				Moderate	Moderate	Moderate-Low	
	OVERALL FAUNA	Total Combined Fauna Value for Site	Moderate							
Firth Block (QEII site)	Birds	Value	Moderate-High	Moderate-Low	Moderate-Low	Moderate-Low	Moderate-High	High	Moderate-Low	Moderate-Low
		Reasoning	Area: 9.6 ha Seral vegetation habitat: 8.19ha Mature forest habitat: 1.36ha Similar diversity to PCL with mainly seral vegetation and only a small approx. 1 ha area of mature forest habitat, plus wetland bird species	Small area with mainly seral vegetation and limited numbers of forest birds	Mainly early seral vegetation that doesn't support higher density forest bird populations and limited wetland habitat. No animal pest control limits forest bird density.	Mainly early seral vegetation and no possum control to maintain habitat quality	Likely to have similar diversity as PCL, as forest birds fly to adjacent areas and share wetland site with PCL	Similar to PCL site. Little shag - Regionally Endangered (overall and mainland); Nationally Naturally Uncommon;	Square-shaped block but small area to sustain bird populations	Connected to forest habitat at northern perimeter but most of block has few connections, including precipitous cliff with quarry face on western edge
		Combined Bird Value	Moderate-Low				Moderate-High	High	Moderate-Low	
	Lizards	Value	Moderate-Low	Moderate-Low	Moderate-Low	Moderate-Low	Moderate-Low	Moderate-Low	Moderate	Low
		Reasoning	2 confirmed species from previous surveys but less likely to have other species present than Northern Gully	Previous surveys have indicated site connected to this (since removed) had reasonable numbers of ngahere gecko	No current pest control so likely a relatively low density population compared to original values	Mainly seral vegetation, but has been demonstrated at adjacent site to be able to hold reasonable density of ngahere gecko; however, relatively low density of other species	Only 2 species known, with lower chance of barking gecko being present than Northern Gully	Ngahere gecko is 'At Risk - Declining' in all 3 assessments; barking gecko has lower chance of being present than Northern Gully due to limited high quality habitat	Square-shaped block that is large enough to sustain lizard populations if present. Difficult site to establish intensive pest control, but appears to be possible due to previous lizard surveys.	Connection with northern PCL but lizard movement inhibited by waterbody (pond). Southern edge isolated from other forest with motorway to the south and western edge meets vertical quarry face with no connectedness for lizard populations

		Combined Lizard Value	Moderate-Low				Moderate-Low	Moderate-Low	Moderate-Low		
		All fauna criteria Value	Moderate-Low				Moderate	Moderate	Moderate-Low		
	OVERALL FAUNA	Total Combined Fauna Value for Site	Moderate-Low								
Southern Gully	Birds	Value	Low	Low	Low	Low	Low	Low	Low	Low	Low
		Reasoning	Seral vegetation (3.94 ha) provides limited habitat to allow wide diversity of forest birds	Small area and low quality habitat for forest birds means low proportion of regional population	Seral vegetation habitat limits forest bird densities, and no pest control	Seral vegetation limits habitat for forest birds, and no browser control	Low diversity of forest birds in seral vegetation, and no wetland habitat	Unlikely to provide habitat for rare or threatened bird species	Elongated and small shape will limit ability to sustain bird populations even if pest control implemented	Isolated from other forest habitat	
		Combined Bird Value	Low				Low	Low	Low		
	Lizards	Value	Low	Low	Low	Low	Low	Moderate-Low	Moderate-Low	Low	
		Reasoning	Seral vegetation and recent disturbance will limit original lizard diversity	Small area, recent disturbance and low quality habitat means a low proportion of regional lizard populations	No predator control which combined with disturbance and seral vegetation habitat means likely low density lizard populations	No browser control and seral vegetation means habitat quality likely low with limited vegetation refugia at this site	No known species and due to disturbance and seral habitat is likely to have limited lizard diversity	Possibly has ngahere gecko present	Small and elongated shape that will be difficult to sustain lizard populations over time	Isolated from other forest habitat for lizards	
		Combined Lizard Value	Low				Low	Moderate-Low	Low		
		All fauna criteria Value	Low				Low	Low	Low		
	OVERALL FAUNA	Total Combined Fauna Value for Site	Low								
	Dry Creek	Birds	Value	Low	Low	Low	Low	Low	Low	Very low	Low
Reasoning			7.99 ha of mainly seral and weedy vegetation habitat provides limited opportunities for original diversity of forest birds	Small area and low quality habitat for forest birds means low proportion of regional population	Seral vegetation habitat limits forest bird densities, and no pest control	Seral vegetation limits habitat for forest birds, and no browser control	Low diversity of forest birds in seral vegetation, and no wetland habitat	Seral habitat unlikely to provide habitat for rare or threatened forest bird species, but could provide habitat for falcon	Extremely elongated, narrow and irregular shape means pest control even if implemented will be difficult to achieve success for birds by increasing reproductive success	Connection to forested habitat up valley, but most of perimeter connected to weedy or seral vegetation and vehicle tracks	
Combined Bird Value			Low				Low	Low	Low		
Lizards		Value	Low	Low	Low	Low	Low	Moderate-Low	Very low	Low	

All private land sites ('DOC-Get') - excluding QEII sites		Reasoning	Seral vegetation and recent disturbance will limit original lizard diversity	Small area, recent disturbance and low quality habitat means a low proportion of regional lizard populations	No predator control which combined with disturbance and seral vegetation habitat means likely low density lizard populations	No browser control and seral vegetation means habitat quality likely low with limited vegetation refugia at this site	No known species and due to relatively recent quarry disturbance and seral habitat is likely to have limited lizard diversity	Possibly has ngahere gecko present	Extremely elongated, narrow and irregular shape means pest control even if implemented will be unlikely to achieve success for lizards by protecting adults and young from predation	Connection to forested habitat up valley, but most of perimeter mainly connected to weedy or seral vegetation and vehicle tracks	
		Combine Lizard Value	Low					Low	Moderate-Low	Low	
		All fauna criteria Value	Low					Low	Low	Low	
	OVERALL FAUNA	Total Combined Fauna Value for Site	Low								
	Lizards	Birds	Value	Moderate	Moderate-Low	Moderate-Low	Moderate	Moderate	Moderate-High	Moderate-Low	Moderate
			Reasoning	Area: 21.27 ha Seral vegetation habitat: Mature forest habitat: Similar original forest bird diversity as PCL as some mature forest present but no wetland bird species	Mainly seral vegetation but a small area of mature forest	Mainly seral vegetation so current bird densities likely not as high over most of this Site as when including QEII sites.	Mainly seral vegetation (with limited proportion of mature forest) and limited ability to support forest birds over seral vegetation areas, and no possum control reducing habitat quality for forest birds	Common forest birds plus falcon and seasonal LT-cuckoo	Falcon, LT-cuckoo, red-crowned parakeet	Several smaller blocks each of which are unlikely to support robust bird populations, and also have less resilience to invasion than larger sites	Smaller blocks provide limited connectedness for birds to suitable habitat
			Combined Bird Value	Moderate					Moderate	Moderate-High	Moderate
			Value	Moderate-Low	Moderate-Low	Moderate-Low	Moderate	Moderate-Low	Moderate	Moderate-Low	Moderate-Low
			Reasoning	Mainly seral vegetation with presumed limited original lizard species diversity	Limited high quality habitat area for most lizard species	Likely a low density of lizards compared to original populations, and no current or recent effective predator control	Limited high quality mature forest habitat and no browser control will provide more limited refugia in vegetation	Limited areas of mature forest vegetation and seral vegetation	Similar to Northern Gully (excluding QEII)	Relatively small and isolated blocks vulnerable to sustained pest incursions if pest control attempted	Only a relatively small component of the perimeter is well connected to adjacent suitable habitat
		Combined Lizard Value	Moderate-Low					Moderate-Low	Moderate	Moderate-Low	
		All fauna criteria Value	Moderate					Moderate	Moderate	Moderate	
OVERALL FAUNA		Total Combined Fauna Value for Site	Moderate								

All private land sites (including QE II sites)	Birds	Value	Moderate-High	Moderate	Moderate	Moderate-High	Moderate-High	High	Moderate	Moderate
		Reasoning	Area: 33.75 ha, so larger than PCL and likely to contain same original diversity of forest birds and wetland birds as PCL	Largest area and with most high quality vegetation, along with wetland site to support native bird species. Close to other sites with pest control and relatively easily accessed by most bird species from these sites, so likely to be benefiting from adjacent pest control.	Contains some mature forest as well as a small wetland, with adjacent pest control benefitting mobile bird populations that can access the site	Areas of mature forest but offset by large areas of seral vegetation and no current or recent possum control reducing overall habitat quality for forest birds; contains limited wetland bird habitat	Common forest birds, falcon, LT-cuckoo plus wetland birds present in pond	Falcon, LT-cuckoo, red-crowned parakeet, plus Caspian tern and pied shag	Larger area but irregular, elongated and disjointed shape	Some areas well connected bu large parts of the block not well connected to adjacent habitat
		Combined Bird Value	Moderate-High				Moderate-High	High	Moderate	
	Lizards	Value	Moderate	Moderate-Low	Moderate-Low	Moderate	Moderate	Moderate	Moderate	Moderate
		Reasoning	Larger area than PCL and could contain up to 7 lizard species	Small site compared to habitat available in Wellington region and Ecological District	Likely a low density of lizards compared to original populations, as predation over many decades and no current or recent effective predator control	Area of high quality mature forest, but tempered by recently disturbed seral vegetation and no browser control limiting vegetation quality for lizards	Has the most habitat types, including largest area of mature forest, with up to 7 lizard species potentially present	Similar to Northern Gully	Larger area that has potential to sustain robust lizard populations; however pest control difficult in some areas	Greater length of perimeter is connected to suitable habitat than the individual sites considered alone, but connectedness is limited over much of the perimeter of the blocks
		Combined Lizard Value	Moderate				Moderate	Moderate	Moderate	
		All fauna criteria Value	Moderate-High				Moderate-High	Moderate-High	Moderate	
	OVERALL FAUNA	Total Combined Fauna Value for Site	Moderate-High							