

Before the Fast-track Panel

Under: Fast-track Approvals Act 2024

In the matter of: FTAA-2603-1178 – Alternative to the Brynderwyn Hills Project
(Brynderwyn Hills section)

Statement of advice: Dr Rhys Burns

Frogs, birds, lizards

DOC staff

29 July 2026



Department of
Conservation
Te Papa Atawhai

**Te Kāwanatanga
o Aotearoa**
New Zealand Government

Introduction

1. My full name is Rhys James Burns.

Instruction

2. I have been requested to provide expert advice on behalf of the Department of Conservation (DOC) on the Alternative to the Brynderwyn Hills Project (Brynderwyn Hills section) Fast-track application.

Qualification and Experience

3. I am a Senior Technical Advisor (Fauna) for the Department of Conservation 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, and assessing and advising on Wildlife Act authorities including lizard salvage applications and 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, Auckland Regional Landfill (Dome Valley) and Cambridge to Pairere Expressway. 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 (FTAA). Other Fast-track projects I have provided expert terrestrial fauna advice to include Waihi North, Southland Windfarm (also under the Covid-19 Recovery (Fast-Track Consenting) Act 2020), Takitimu North Link Stage 2, Central and Southern Block mining (Taharoa Ironsands), and Belmont Quarry (land exchange).

4. I have a good understanding of Hochstetter's frogs, lizards and birds of this region. Work that is especially relevant to this application includes:
- i. Kaiwaikawe windfarm - expert witness for DOC for birds and lizards
 - ii. I have been a member of the Frog Recovery Group since 2004
 - iii. I was the lead DOC advisor on the Brynderwyn road realignment under Order In Council Emergency Regulations following Cyclone Gabrielle, where there were several significant Hochstetter's frog issues
 - iv. I have been an expert witness for DOC on the Waste Management Auckland Regional Landfill project (Dome Valley), initially on birds, and then the DOC lead on Hochstetter's frogs and lizards also.

Code of conduct

5. 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

6. My expert advice relates to the following:
- i. Effects of the Project on lizards, Hochstetter's frogs and birds, including adequacy of the Applicant's application for a Wildlife Act Approval for each.
 - ii. Comments on conditions.

Material Considered

7. In preparing this advice I have reviewed the following documents as part of the substantive application:
 - a. Substantive Application under the Fast-track Approvals Act 2024 – Volume C – Wildlife Act Approvals (Revision A, dated 2 April 2026).
 - b. Volume B, Appendix D08, Assessment of Effects on Avifauna Ecology (Revision A, dated 2 April 2026).
 - c. Draft Ecological Management Plan (Revision A, dated 13 July 2026).
 - d. Conditions, dated 13 July 2026.
8. I undertook a site visit on 26 June 2026.

Summary

1. The scale and impact of this project means it will have an unprecedented effect on this population of Hochstetter's frogs, with approximately 20,000 frogs directly affected through complete loss of habitat.
2. The Hochstetter's frog habitat to be destroyed is irreplaceable and mitigation efforts on this scale are untested and unreliable.
3. While lizard salvage is possible, owing to the complexity of the habitat I anticipate that many lizards will not be detected and salvaged. The release sites have potential to be suitable but require better pest control measures to be protective of lizards.
4. A Wildlife Approval is required to incidentally kill birds, and eggs (and destroy their nests) during habitat clearance works. The applicant should also undertake more surveys for wetland birds during non-breeding periods, and to determine if kiwi are present within the Proposed Designation. The development of an Avian Management Plan to outline approaches to avoid or minimise these effects is also required for assessment.
5. Due to its very high impact on Hochstetter's frogs and unreliability of mitigation measures, it is not possible to protect, let alone avoid remedy or mitigate the likely impact to the frogs. Offsetting at this level is untested and unlikely to be able to compensate for such a loss.

Key Issues

Wildlife Approvals Specific Advice

Hochstetter's frogs

6. The proposal as it currently stands will have a significant impact on Hochstetter's frogs. This population of Hochstetter's frog is one of four disjunct populations (Moir Hill, Dome Valley, Brynderwyn's and Mareretū) that together form the 'Northern Clade'¹ of Hochstetter's frogs (Fig. 1). Whether they are naturally disjunct or human-induced due to habitat clearance is unknown, but there appears to be unsuitable stream habitat between the populations. Due to unresolved taxonomy (i.e. the unknown degree of genetic and morphological difference between these populations and other Hochstetter's frog populations spread over the upper North Island (Fig.2)) this Northern Clade could collectively be considered as either an Evolutionarily Significant Unit (ESU), sub-species or even a unique species of Hochstetter's frog. There are currently at least 10 different taxonomic entities recognised². Whichever status is resolved, these frogs are sufficiently different from all other Hochstetter's frogs that they should be considered as separate to all other Hochstetter's frog populations and should be managed accordingly. Whether each of the four main populations of this clade have further differences between them is also unknown.

¹ Fouquet A, Green D, Waldman B, Bowsher JH, McBride KP, Gemmell NJ (2010). Phylogeography of *Leiopelma hochstetteri* reveals strong genetic structure and suggests new conservation priorities. Conservation Genetics, 11: 907-919.

² Burns RJ, Armstrong DP, Bell BD, Haigh A, Germano J, Rawlence NJ, Thurley T, Hitchmough RA, Makan T, Michel P. (2025). Conservation status of amphibians in Aotearoa New Zealand, 2024. New Zealand Threat Classification Series 44. Department of Conservation, Wellington. 19pp.



Fig. 1. The four main disjunct populations of Hochstetter's frogs within the 'Northern Clade', from records on the DOC herpetofauna database (accessed 15 July 2026). Note: records of Hochstetter's frogs found during surveys for this development have not yet been uploaded to this database.

9. Some of the survey results within the Outstanding Natural Landscape (ONL) (e.g. survey 2.25 recorded 60 frogs in 25m of stream) uses a relatively new search technique (double-counting studies over a defined transect distance), but are nevertheless the highest Hochstetter's frog densities I am aware of using this method. This strongly indicates these areas within the Proposed Designation are highly suitable for Hochstetter's frogs, and I consider they are irreplaceable for this species.
10. The applicant's Ecological Management Plan (EMP) outlines how Hochstetter's frog salvage and relocation will occur.
11. The timing between 1 October and 30 April (EMP, Section 2.5.1) also coincides with the breeding season for Hochstetter's frogs. As the eggs of protected wildlife are also protected under the Wildlife Act 1953, the applicant should describe a methodology to protect eggs. I suggest that if eggs are found, an area of at least 10m in all directions is left undisturbed until the eggs have hatched, and any upstream activities should be confined to those that will not add additional silt to the waterways.
12. The proposed salvage protocols (EMP, Section 2.6) describes a staged approach of four phases, requiring people to locate in-stream frogs and move them to another location. However, it is evident that not all frogs will be able to be salvaged, as the applicant describes areas that could not be surveyed due to dangerous, steep waterways and features such as waterfalls. I consider there is no reasonable prospect of being able to salvage Hochstetter's frogs if the sites are too dangerous to survey, which will result in 100% mortality of frogs in these areas. The applicant does not indicate what length of waterway (or proportion of waterways) should be considered too dangerous to survey (i.e. what proportion of waterways will have 100% frog mortality).
13. Phase 1 describes initial efforts to find and capture Hochstetter's frogs. The applicant is proposing to undertake daytime searches, move captured frogs to release sites and relocate all potential refugia out of the waterways. While capturing frogs that have been detected can be relatively straight-forward (but see my concerns regarding translocation below), I consider there are several limitations that will limit the effectiveness of this untested method in capturing Hochstetter's frogs:
 - a. there is a limit to how heavy boulders and logs can be moved with crowbars and other hand-tools – it is likely there will remain habitat that cannot be searched for frogs;

- b. heavy boulders and logs using crowbars will not be able to be lifted vertically, so any sideways movement of these objects could endanger frogs located beneath them by having the potential to crush them;
- c. once leaf packs are thoroughly searched, they tend to fall apart into individual leaves and would no longer provide suitable habitat for frogs;
- d. if leaf packs do remain intact, once they are moved out of wetted areas into stream margins they may begin to dry out and be less suitable as frog habitat, and be more likely to being searched by predators such as rats;
- e. the use of 'Judas rocks' is an untested concept and it is unknown the proportion of remaining frogs that may occupy this habitat over the short time-frame allowed for in this phased salvage approach;
- f. the use of frog exclusion barriers is untested, and I consider these barriers have the potential to block the stream, cause a build-up of material behind the barrier, and lead to a sudden failure of the barrier that could cause damage to the downstream frog habitat – particularly if there is a high rainfall event during the time the frog barriers are deployed;
- g. the EMP does not provide any details regarding the material that will be used for the frog barriers, their dimensions, how they will be installed and how long they will be deployed for, so no assessment of their likely effectiveness can be undertaken;
- h. the effectiveness of excluding frogs from a length of waterway using frog barriers is unknown – frogs may directly climb the barrier, burrow under them, or move around them;
- i. searched refugia (rocks, coarse wood and vegetation) are proposed to be moved away from the stream and onto stream banks – however many stream lengths that are suitable for Hochstetter's frogs do not have readily available stream banks (e.g. gorges or steep-sided faces), so material may need to be moved a considerable distances along waterways to deposit them out of the waterway and limit refugia;
- j. heavy boulders and logs will not be able to be moved onto stream banks with considerable mechanical assistance (e.g. cranes), some features that contain many frogs (e.g. crevasses or waterfalls) cannot be removed, meaning waterways may retain complex refugia where frogs may prefer over the 'Judas rocks'. This means there is considerable uncertainty on what proportion of frogs may be further salvaged over phases 2-4;

- k. potentially only 5 days is provided for Phase 1, which may not allow thorough searching of all large boulders, heavy logs and complex potential frog refugia. In addition, adverse weather events may limit the days available to search and capture frogs;
 - l. Seeps with fragile stacks of small gravels are difficult to search without collapsing the whole habitat, which often contain frogs (and often containing smaller, less robust frogs) putting them at greater risk of harm. Entire seep habitat will need to be removed if the aim is to simplify habitat – this may not be feasible at some sites due to the depth and extent of the habitat – unstable areas above seeps may continue to cascade onto areas that have been removed. Other seeps or higher-order waterways may contain frog habitat with crevasses in bedrock that may be impossible to remove without tools (e.g. chisels and hammers), making it less feasible this habitat feature will be removed, allowing frogs to repeatedly occupy these sites;
 - m. Once disturbed, many Hochstetter's frogs jump or rapidly swim away from the site. They may swim a considerable distance aided by water current downstream, hide on the stream bed using their camouflage to avoid detection, or burrow in gravels or sediment. It can be difficult to subsequently detect a frog that behaves in this way. So even if detected, not all frogs will be captured. Jumping behaviour is more likely to occur in the warmer spring, summer and early autumn periods, the time in which these phases are proposed to occur. In contrast, Hochstetter's frogs appear to be more reluctant to jump when water and air temperatures are lower, in late autumn and winter.
14. Phase 2 envisages two nights of nocturnal searching for frogs to detect those not captured during Phase 1. I consider this methodology will be inefficient and likely ineffective due to:
- a. accessing stream sites at night is even more difficult and dangerous for people than during daylight hours, so I consider it is likely less waterway habitat will be able to be searched using this method than during daylight hours;

- b. night searching has been employed as a survey technique for Hochstetter's frogs previously and found to be largely ineffective, with high variability in emergence rates of Hochstetter's frogs³;
 - c. with only 5 days assigned for this phase of work before vegetation clearance or earthworks occurs, rain events during this period will make night searching even more difficult and hazardous. In addition, stream water levels and turbidity levels may remain high for several days following heavy rain events, extending the length of time that hazardous conditions may persist.
15. Phase 3 envisages a final search of remaining stream habitat and lifting 'Judas rocks' immediately prior to earthworks. I consider this method may have limited effectiveness because:
- a. It is unknown how long a moved rock becomes regularly occupied by resident Hochstetter's frogs;
 - b. It is unknown how Hochstetter's frogs will behave when all preferred refugia are removed – they may be more likely to bury themselves in gravels or sand, or leave the waterway and take refuge in more terrestrial environments, such as under logs, rocks or under (or within) suitable vegetation within the forest;
 - c. If Hochstetter's frog behaviour does alter, then they have little chance of being captured during application of this method and are almost certain to be killed if their habitat is within the final alignment or spoil sites. The number killed due to the failure to capture using this method then cannot be measured;
 - d. No timeframe is given for what constitutes 'immediately' before earthworks, i.e. is it hours, days or weeks? The longer the timeframe from Phase 3 to earthworks, the more opportunity there is for frogs to move into the sites already checked and presumed to have few frogs remaining;
 - e. Presumably Phase 3 would occur following vegetation removal activities, so it is likely there will be greatly increased surface refugia items available for frogs in these waterways (e.g. branches, vegetation, logs and 'slash'). All these new items would need to be searched to provide assurance frogs using the refugia were captured. Some items are likely to be heavy and unable to be readily lifted by searchers.

³ Ben D Bell (pers.comm.), Victoria University (retired Associate Professor).

16. Phase 4 suggests the use of machinery that will be available during roading works to lift large objects that could not previously be moved using hand tools. While this is likely to capture some frogs that were unable to be captured earlier, I consider the limitations of the method to be:

- a. Phase 4 will occur at an unknown time following Phase 3, providing considerable opportunity for frogs that were under these large objects to move to other refugia (including refugia searched in previous phases);
- b. the detailed method of how large objects will be moved is not provided in the EMP. For example, if lifting equipment (e.g. chains) need to be placed under a rock before it is lifted, the ground underneath it will need to be dug out. Any large disturbance such as this has a high chance of injuring or killing frogs. I consider a detailed description of how each large object type (e.g. boulder, log) will be lifted and yet will be protective of frogs is required in the EMP;
- c. Even with heavy machinery available, some large refugia may not be able to be effectively searched. The EMP states Phase 4 will occur 'where feasible' acknowledging there are likely to be situations where potential refugia cannot be searched;
- d. It is not stated if heavy machinery can be deployed to all parts of directly affected waterways that contain large objects. If machinery cannot reach some areas, this method cannot be deployed;
- e. The protocol does not state whether the large objects will be returned to the stream bed once lifted by machinery. Returned large objects may crush any undetected frogs present at the relocations site;
- f. Moving large objects in or immediately adjacent to waterways will suspend silts and sands, creating turbid water. Depending on the amount of silt or sand that is resuspended and the water flow within the stream, the water could remain turbid for several minutes, and this will move downstream until it resettles or is washed away. During this time, any frogs escaping within the stream will be very difficult to detect, as they are likely to remain within the turbid water. This will give frogs ample time to swim a considerable distance downstream or find other refugia that will need to be rechecked. I suggest a mesh screen is deployed downstream to increase the chance of capturing escaping frogs.

17. In summary, even with a four-phased approach I expect a significant proportion of the frog population will be unable to be captured. This is particularly so in streams

with a high frog density and plentiful refugia. I consider any frog not captured is almost certain to be killed by subsequent works. With an estimated 20,000 Hochstetter's frogs calculated to be directly affected by total habitat loss, I expect the total that will be killed to number several thousand frogs.

18. The removal protocol should include the dimensions of the container proposed to transport frogs. Each container should be uniquely labelled and recorded both when leaving the capture site and upon arrival at the release site to ensure no containers are lost in transit. The protocol should also be clear that each frog is to be housed individually, with only one frog per container. This is because Hochstetter's frogs can become stressed and exude complex peptides and other substances through their skin, with unknown consequences for other frogs in contact with them. If containers are to be reused, they must be sterilised and repeatedly washed with distilled water to remove all traces of the sterilising agent. It is important that frog containers are appropriately labelled to ensure frogs are maintained in an upright position throughout the full transfer period.
19. The proposed removal protocol that holds frogs overnight for up to 10 hours has not, to my knowledge, been attempted previously. I consider this will increase the risk to frogs, as the prolonged nature of this method may exacerbate any stress-related impacts on frogs.
20. Data to be collected (EMP, Section 2.7.2) should include weight of frogs (in grams). This measure, when combined with snout-to-urostyle length (SUL), can provide information about the condition of *Leiopelma* frogs. Weights should be recorded upon both capture and release, particularly for any nocturnally captured frogs, proposed to be held in captivity for up to 10 hours.
21. Section 2.9 of the EMP should also include protocols if a frog has obviously slow or lethargic responses upon release. This could be particularly important with frogs held overnight for up to 10 hours. Video, along with photographic and GPS records should be recorded and may require specialist care (similar to injured frogs) until they recover. A summary report of each stage of the salvage should also be provided to DOC.
22. The EMP fails to provide sufficient detail on management and monitoring measures that will occur at the release sites to provide confidence that frogs, and the population of frogs, will be protected. For salvage operations, this means outlining measures that will be taken to restore populations to broadly similar levels than they were before salvage occurred.

23. In my view, the EMP should show measures taken to improve habitat of the release site, enhancement measures (e.g. the number of rocks per 100m that might be deployed at the release site), pest control measures and pest target levels, as well as stock and wild ungulate management (to prevent trampling of frogs and other adverse impacts on habitat).
24. Target levels from frog monitoring should be stated, and calculations provided to show that these monitoring target levels will result in a frog population that is similar to the original population, taking into account resident Hochstetter's frogs at the release site. This is required so there can be confidence that protection of frogs has been achieved.
25. The EMP states (Section 6.5.1 and 6.5.2) that 3 years of pest control will be undertaken at both the Northern and Central release sites. However, because Hochstetter's frog populations are thought to increase slowly, I consider this is unlikely to result in sufficient recovery of the frog population to satisfy a protection test. Pest control should continue until there is a demonstrated recovery of Hochstetter's frogs back to a similar population that was present before this development occurred.
26. The Central Release Site contains habitat surrounded by pine trees. It appears that these pine trees will be felled on an ongoing commercial basis, even if Hochstetter's frogs are released. Despite a 10m setback, which is greater than the minimum 5m standard required by the NES-CF, I consider Hochstetter's frogs have the potential to be at high risk of impact due to commercial harvest of pines at this release site. Before any frogs are released here, I consider there should be a clear expectation that all riparian habitat suitable for Hochstetter's frogs needs to be retained following harvest operations, and it is logistically feasible to do so. If harvesting cannot guarantee the permanent retention of this riparian habitat (and so protecting the waterways contained by them), then I consider the site is unsuitable to be considered for a release site for salvaged Hochstetter's frogs. I support the intention of legal protection of these riparian margins.
27. During my site visit on 26 June 2026, I visited a native forest and exotic forest waterway within the proposed designation, and the western (top) end of the waterway within the northern mitigation site. The impression I gained from this visit was that the amount of habitat neighbouring the Proposed Designation site, and the northern area proposed for Hochstetter's frogs as a receiving site, were of variable but generally low quality for Hochstetter's frogs. The northern mitigation site has limited Hochstetter's frog habitat, as most of the waterway enclosed within the forested area is not proposed to be part of the mitigation area (Vol. C, App B,

Assessment of Effects on Terrestrial Ecology, App Q, Sheet 1). I disagree that there is sufficient suitable area within the Proposed Designation to adequately mitigate adverse effects of the Project on Hochstetter's Frogs, as stated in Part 12 of the Wildlife Application.

28. There are no tested and proven mitigation techniques established for Hochstetter's frogs when their stream habitat is destroyed. If salvaged and relocated, it is not known what proportion are likely to survive, or what proportion are likely to die.
29. Another development, also within the 'Northern Clade' of Hochstetter's frogs, has been proposed for the Waste Management Ltd.'s Auckland Regional Landfill (ARL), near Dome Valley. This proposed development may affect an estimated 500-2000 Hochstetter's frogs. The proposed mitigation, management and monitoring for this proposal is significant, including the establishment of a predator-fenced area, complete salvage of all Hochstetter's frogs in the landfill valley, and monitoring of release sites for 35 years. Despite being of much larger magnitude than the ARL proposal, this proposed roading development proposes mitigation measures far less than ARL has proposed.
30. The potential impact on Hochstetter's frogs at Auckland Regional Landfill has been assessed as Very High, yet the 'Alternative to Brynderwyn's' proposal has direct effects that are potentially 10-40 times larger. This proposed roading development currently represents the largest single direct threat to this population – and the Northern Clade – of Hochstetter's frogs.
31. The proposed mitigation using mammalian pest control outlined in the EMP of three years (though the Terrestrial AEE at 5.1.4 offers 5 years) compares poorly with the long-term pest control offered for Auckland Regional Landfill at Dome Valley, as well as the establishment of a predator-proof fenced area that will benefit Hochstetter's frogs. The proposed mitigation for the 'Alternative to Brynderwyn' application is also dwarfed by the mammalian pest control and outcome monitoring occurring in perpetuity that the same applicant (NZTA) is undertaking as mitigation for the Mt Messenger Bypass project, that does not contain frogs, but is aimed at recovering and sustaining bats, birds and lizards. In my view if the project is to be consented, the mitigation measures should be more aligned with these other similar projects, and be considerably greater than currently proposed.
32. However, I consider the potential impacts on Hochstetter's frogs to be so large, and that there is so much uncertainty in the success of the proposed mitigation, that no matter what mitigation measures are offered they are likely to be ineffective.

33. While I am not considering alternative routes as part of this review, the sheer scale of impact can only realistically be avoided by a different alignment. An alternative to this proposed route, to the west of the Brynderwyn ranges would avoid high value Hochstetter's frog habitat, representing a significantly better option for Hochstetter's frogs, as there appears to be limited Hochstetter's frog habitat in that area.

Lizards

34. 16 copper skinks have been found through searching a portion of likely habitat within the Proposed Designation. However, there are large areas that have not been surveyed.
35. These results are broadly similar to the Cambridge to Piarere Expressway project, where a few copper skinks were found in initial surveys. However, after more extensive survey and salvage, over 200 copper skinks have now been found and salvaged, and surveys have not yet been completed. They have been released in a private predator-free fenced site.
36. I expect it is likely that, once more intensive salvage operations occur, there will be considerably more copper skinks than the current 16 found within the footprint of this project.
37. Therefore, the release location of skinks (and other lizards) needs to be carefully considered for suitability and size to accommodate a relatively large number of lizards as well as the ability to effectively control predator numbers.
38. I consider that in a project of this magnitude, having a predator-proof fence to release lizards into is justified, and probably required in which to ensure the long-term security of lizards. This has occurred in the NZTA Otaki to Levin project, where a new lizard enclosure was built for the project, and in Cambridge to Piarere Expressway project where an existing pest-proof site was utilised to release lizards into.
39. The footprint of the project is very large. As a result, it is unlikely to be feasible to effectively search all forested habitat and each tree that is felled for lizards. Despite the low number and diversity of lizards currently detected within the Proposed Designation, I consider it likely there will be several other species present, and possibly in relatively high numbers. This is because the Auckland and Northland regions are known to have reasonably high densities of lizards, particularly in lowland native forest habitat.

40. Detecting and salvaging lizards in dense native forest habitat is difficult, and techniques to be deployed (as provided in the LMP) are widely considered as being insufficient to detect all lizards present. It is my view that destroying this habitat will result in the killing of many lizards, as many will be killed without being detected. Other protective methods not included in the LMP include avoiding the chipping of felled vegetation.
41. The Lizard Management Plan provides sufficient detail on several methods to be used when salvaging lizards. However, as with the Hochstetter's Frog Management Plan (HFMP), it also fails to:
- a. set targets for pest control that will benefit lizards,
 - b. state outcome targets for lizards against fixed timeframes,
 - c. provide additional measures to be triggered if outcomes are not achieved.
42. The EMP offers up to 3 years post-release pest control. I consider this timeframe is likely to be insufficient to allow the lizard population to recover to pre-construction numbers. A more effective solution would be to build a pest-free fence in high-quality habitat and release lizards within the fence.

Birds

43. The applicant has not sought a Wildlife Authority for avifauna (birds) for this project. They have only applied to handle and relocate frogs, lizards and kauri snails. However, as outlined below, I consider the applicant will likely kill wildlife, so in my view the applicant also requires an authority to incidentally kill wildlife (including avifauna).
44. Avifauna will permanently lose a substantial amount of habitat as a result of this project. The applicant appears to have undertaken only limited surveys, with 12 five-minute bird counts that may have all been undertaken on the one day the site was visited by the report's author (on 29 October 2025). This appears to be the only bird study that was specifically directed at the Proposed Designation or indicative alignment, and appears to have been primarily aimed at forested sites only (*Vol. B, App D08, App. A, Map 2*). For example, no playback call surveys were undertaken for cryptic wetland bird species, despite the applicant describing some of the wetlands as having good habitat for such species.
45. The main assessment appears to be a desktop analysis from other sources. However, most of the site is private land so access is limited and there have not been many reported bird counts. I consider it unsatisfactory that the applicant seems to

mainly rely on a desktop assessment using other people's work for a project of this magnitude. These previous bird counts are unlikely to have been undertaken with this project in mind, so are not likely to have concentrated on high-priority sites (e.g. all wetland sites). There should be, as a minimum, seasonal assessments of bird presence (and ideally a measure of abundance also) in all major habitat types present within the Proposed Designation and potential mitigation sites, e.g. native forest, exotic forest, wetlands, and grasslands.

46. The project has potential impacts on threatened wetland birds – particularly Australasian bittern - but also other species such as spotless crane and fernbird, noting that fernbird were recorded by the applicant at two wetlands. Australasian bittern are most easily detectable during the breeding season when males make a loud 'booming' call, but are essentially non-verbal for the other 9-10 months of the year, as female bittern are for the entire year. As Northland is a known hotspot for bittern, I consider a focussed study on understanding whether bittern (and other wetland birds) are present in wetlands within the Proposed Designation throughout the year is essential to better understand impacts of this project, and whether additional measures to protect avifauna are required.
47. Destruction of habitat and disturbance of birds should be avoided during the main passerine, wetland, and waterbird breeding periods (September to February inclusive) and where such activities may be unavoidable, there should be an Avian Management Plan in place to describe how nesting avian wildlife will be detected, avoided, or have impacts suitably minimised.
48. There is a possibility that kiwi are present in the Proposed Designation. These could either be birds from an original population that have survived, or from individuals that have dispersed from a release site to the east. A thorough kiwi calling survey should occur (the best times are during the new moon phase in May) within the entire forested areas (both native and exotic) of the Proposed Designation, as well as an additional buffer of approximately 500m. The extent of this buffer is required as kiwi territories can extend about that far, particularly in low density populations.
49. Kiwi can disperse into the site anytime, so surveys should have already occurred (to consider proposed conditions), and in future immediately before any construction or enabling works that requires forest vegetation clearance.
50. If kiwi are present, being a ground bird that is incapable of flight, they are more at risk of being killed than birds that can fly. Therefore, any disturbance in their habitat needs to be carried out with their presence in mind.

51. Kiwi have a different breeding period than passerines and wetland birds, generally breeding from June to February, though this can extend to March or even April in some years. If kiwi are present, a detailed plan needs to be provided which includes methods to detect kiwi and measures to avoid or mitigate impacts on kiwi.

Conditions

52. Appendix C of Volume C - Wildlife Act Approvals outlines proposed conditions in the application for a Wildlife Act Approval. The most recent set of proposed conditions is dated 13 July 2026.
53. In my view, due to the issues identified above, conditions are unable to remedy, or protect against, the significant effects that the Project will have. However, notwithstanding that is my expert opinion, I comment here on each proposed condition (as they relate to lizards and Hochstetter's frogs) where appropriate.
54. WA1: I consider the approval for Wildlife authority (to handle, release and incidentally kill wildlife) should expire after 10 years. The 20-year timeframe sought could result in considerable changes to baseline biodiversity values and understanding at this site within 20 years, so may not be as applicable as the authority being activated within 10 years.
55. WA2: The draft EMP is lacking in some crucial area such as targets for pest control and species outcomes.
56. WA4: I do not think 20 working days is sufficient time for DOC to fully assess this EMP. It will require several DOC ecological experts to assess the EMP, and they may have had no previous involvement with the project. As this is also such a large and complex project with significant impacts on wildlife, I consider 30 working days to be reasonable.
57. WA6: any proposed staging of the EMP must also include the overall aim of the entire EMP, so the overall impacts and broad mitigation measures are not lost with a more focussed approach.
58. WA12: at the end of the first line, should add "... but not limited to:"
59. WA14: release of lizards should only occur up to 30 April inclusive.
60. WA16(d): at the end of the first line, should add "... but not limited to:".
61. WA19: the breeding season for Hochstetter's frog is late September through to May. Therefore, much care should be taken if frogs are moved during this period. Any frogs guarding egg clusters or any egg clusters found shall not be disturbed or moved

until eggs are known to have either hatched or known to have naturally failed to hatch.

62. WA26: pest control offered for three (3) months prior to transfer is acceptable; however, post-release pest control of only three (3) years is offered (this is inconsistent with other parts of the applications that state 5 years). Either way, pest control should be undertaken to a given standard, and should aimed at achieving a protective outcome for wildlife, and this needs to be clearly stated in the EMP. I consider 3 or 5 years' pest control as inadequate to ensure protection of wildlife as a result of their transfer due the impacts of this project.

Appendix A. Calculation of the number of Hochstetter's frogs affected by the indicative alignment.

Data from Vol.C, App B (Terrestrial AEE), Tables 12 & 19.

	Relative Surveyed Frog Density/100m	Adjusted Frog Density/100m	Adjusted Frog Density/km	Stream length (km)	Total frogs
Exotic Forest (Low to Moderate Quality)	6.7	54.9	549	10.3	5,655
Indigenous vegetation Stream Habitat – High Quality	50.8	416.6	4166	3.9	16,247
Total Frogs directly impacted					21,902