

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 Jamie Stavert
Terrestrial invertebrates
DOC staff
29 July 2026



Department of
Conservation
Te Papa Atawhai

**Te Kāwanatanga
o Aotearoa**
New Zealand Government

Introduction

1. My name is Dr Jamie Stavert.

Instruction

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

Qualification and Experience

3. I am a Senior Science Advisor at the Department of Conservation (DOC). I hold a PhD in Biological Sciences, an MSc and Postgraduate Diploma in Biosecurity and Conservation, and a BSc in Ecology and Conservation, all from the University of Auckland. Before joining DOC in 2019, I held research positions in New Zealand and Australia, including at the University of New England, the Australian National University and the University of Canterbury. My research focuses on terrestrial invertebrate ecology, landscape and network ecology, conservation biology and ecosystem functioning. My doctoral and postdoctoral work examined the effects of land-use change on insect communities, ecological networks and pollination. I have published in leading international journals including *Ecology*, *Journal of Applied Ecology*, *Ecological Applications*, *Philosophical Transactions of the Royal Society B* and *Proceedings of the Royal Society B*. At DOC, I advise on management of threatened species and ecosystems. My invertebrate work has included native dung beetles, pollinators, Mokohinau stag beetle, wētā, invasive invertebrates and the effects of vegetation clearance, earthworks and habitat fragmentation. I have also led research on threatened ecosystems, kauri dieback, NZ fairy tern/tara iti recovery and climate-change risks. My relevant expertise includes terrestrial invertebrate ecology, ecological surveying, habitat and landscape effects, biodiversity assessment and conservation management. I do not claim specialist taxonomic expertise in New Zealand carnivorous land snails. My species-specific conclusions draw on Project records, DOC guidance, current threat classifications and the cited scientific literature.

Code of conduct

4. Although this is not an Environment Court proceeding, I confirm that I have read the Code of Conduct for expert witnesses in the Environment Court Practice Note 2023 and have complied with it in preparing this advice. Unless stated otherwise, this advice is within my area of expertise. I have not omitted to consider any material fact known to me that might alter or detract from the opinions expressed.

Scope of advice and expert opinion

5. My expert advice addresses:
 - i. The effects of the Project on kauri snail / pūpū-rangi (*Paryphanta busbyi*), including the adequacy of survey, effects assessment, salvage, relocation and release-site measures.
 - ii. The proposed replacement Wildlife Approval conditions and draft Ecological Management Plan (EMP) supplied on 13 July 2026.
 - iii. The wider effects of the Project on other terrestrial invertebrates and invertebrate communities.
 - iv. Recommended amendments to the proposed conditions and management measures.

Material Considered

6. In preparing this advice, I have reviewed the following material:
 - i. Substantive Application under the Fast-track Approvals Act 2024: Volume A - Main Application, Revision A, dated 2 April 2026.
 - ii. Substantive Application under the Fast-track Approvals Act 2024: Volume B - RMA Approvals, Revision A, dated 2 April 2026.
 - iii. Substantive Application under the Fast-track Approvals Act 2024: Volume C - Wildlife Act Approvals, Revision A, dated 2 April 2026.
 - iv. Appendix D06 to Volume B, Assessment of Effects on Terrestrial Ecology, Revision A, dated 2 April 2026, including:

- Appendix C - Invertebrate Search Effort, Final Designation, Revision B.
 - Appendix N - At Risk Snail Observations, Final Designation, Revision B.
- v. Proposed Wildlife Approval Conditions, draft dated 13 July 2026, including:
 - Appendix A - Release Sites, supplied 13 July 2026
 - vi. Draft Ecological Management Plan, Revision A, dated 13 July 2026.
 - vii. Proposed Regional Resource Consent Conditions, draft dated 13 July 2026.
 - viii. The legislation, DOC guidance and scientific literature listed in the references.

Summary

1. The applicant recorded 18 kauri snail observations: six live animals and 12 empty shells, all south of the Brynderwyn Hills in native forest and scrub (NZTA 2026b, s 3.5.2; NZTA 2026d).
2. The survey confirmed that kauri snail is present and that suitable forest and scrub within the designation may be affected. It did not establish where the species is absent, its abundance or how many may be affected. The resulting uncertainty requires stage-specific pre-clearance assessment and salvage, rather than reliance on non-detection (NZTA 2026b, s 2.3.5; NZTA 2026c; Sherley and Evans 2016, pp 2-5, 11-12).
3. Appendix D06 (the Terrestrial AEE) rates habitat loss, indirect habitat loss and degradation through fragmentation and edge effects, and injury or death during habitat removal and displacement as High before mitigation and Low after mitigation for the At Risk - Declining snail grouping (NZTA 2026b, Tables 22 and 28). For kauri snail, that reduction has not been demonstrated: affected habitat has not been quantified by construction stage, salvage cannot address permanent habitat loss or fragmentation, and release-site evidence is incomplete. Kauri snail is confirmed at the Southern Site, but the EMP does not establish how many additional snails it can support. The species has not been recorded at the Northern Site, for which no kauri snail-specific evidence of suitability is provided (NZTA 2026i, ss 4.7 and 6.1-6.5; NZTA 2026j).
4. The replacement conditions and draft EMP provide for a Snail Management Plan, habitat assessment, pre-clearance searches, construction-assisted salvage, release-site management, pest control, reporting and limited post-release monitoring (NZTA 2026h, WA20-WA29; NZTA 2026i, ss 4-7). These measures improve the lodged material, but important gaps remain: affected habitat is unquantified;

search provisions retain substantial discretion; release-site capacity is unproven; and site-specific pest-control performance standards and adequate monitoring are absent. The information does not demonstrate a low overall level of effect for kauri snail even after mitigation.

Key Issues

General

5. My assessment addresses the replacement Wildlife Approval conditions, release-site maps, draft Ecological Management Plan and regional resource consent conditions supplied on 13 July 2026. These replaced the corresponding lodged versions. (NZTA 2026h; NZTA 2026i; NZTA 2026j; NZTA 2026k).

Wildlife Approval-specific advice

Kauri snail / pūpū-rangi

Status, records and distribution

6. Kauri snail / pūpū-rangi (*Paryphanta busbyi*) is protected under the Wildlife Act 1953, classified At Risk - Declining, and assigned High ecological value in Appendix D06 (Wildlife Act 1953, ss 2, 3, 7B and Schedule 7; Walker et al. 2024; NZTA 2026a, Table 2; NZTA 2026b, Table 15). The applicant recorded 18 observations: six live animals and 12 empty shells, all south of the Brynderwyn Hills in native forest and scrub (NZTA 2026b, s 3.5.2; NZTA 2026d).
7. The applicant considers that kauri snail, *Amborhytida dunni* and peripatus may occur throughout forested habitat, including exotic forest. If present north of the Brynderwyn Hills, these three groups are expected to occur in lower numbers. They are considered more likely in mature native forest without stock access, where cool, moist litter provides suitable microhabitat (NZTA 2026b, s 3.5.2).

Survey adequacy

8. Surveys in October and November 2025 used manual habitat searches, timed 10 × 10 m land-snail plots, spotlighting and opportunistic searches. Manual-search effort totalled 36 person-hours: 16 were combined lizard and invertebrate searches, and 20 were dedicated solely to invertebrates. In addition, eight person-hours of spotlighting were completed, and each of 39 land-snail plots was searched for 0.5 person-hours. Searches targeted damp litter, decaying logs, rock crevices and dense vegetation.

Appendix C of the Terrestrial AEE maps the locations and types of effort (NZTA 2026b, s 2.3.5; NZTA 2026c).

9. The methods were suitable for confirming that kauri snail occurs within the designation and for identifying the kinds of habitat in which it may occur. DOC guidance explains that manual-search results reflect the habitat, conditions, locations, species activity, the observer's ability to detect the species and the methods used. These methods are generally qualitative and do not provide a comprehensive species list; a species is not necessarily absent if it is not found. For quantitative work, the guidance identifies search area or volume and search time as minimum attributes, with habitat and meteorological conditions recorded where appropriate (Sherley and Evans 2016, pp 2-5, 11-12). The survey therefore does not provide a reliable basis for inferring absence, estimating abundance or estimating how many snails are likely to be affected.
10. Baseline survey and pre-clearance assessment serve different purposes. Because the final works remain subject to detailed design, the baseline survey cannot serve as a clearance survey for the final footprint (NZTA 2026b, s 2.4; NZTA 2026e, ss C4.3-C4.5). Stage-specific work should target live animals and likely refugia, with searching and salvage continuing as ground refugia are exposed. Its purpose is to reduce mortality, not to establish a census or prove absence. Forest, scrub and treeland should be treated as potential habitat wherever they provide moist litter, coarse woody debris, rocks, root masses or other suitable ground refugia, including in suitable exotic forest (NZTA 2026b, ss 3.5.2 and 4.3.5).
11. The draft EMP now provides for manual searches, nocturnal spotlighting and construction-assisted salvage before and during clearance (NZTA 2026i, ss 4.4-4.5). Together, these measures should reduce the risk that kauri snails are missed and killed because searching would occur shortly before clearance and continue as large logs and other ground refugia are exposed. However, the EMP sets no minimum search effort or kauri snail-specific moisture and weather criteria. It also allows areas to be excluded using a combination of habitat condition, intensive grazing or agricultural use and the absence of snail observations from desktop or earlier field surveys (NZTA 2026i, ss 4.5.1-4.5.2). Suitable habitat should not be excluded on the basis of earlier non-detection. The final plan should define habitat-based survey triggers, minimum effort and suitable conditions.
12. Proposed condition WA24 restricts salvage and relocation to the period from 1 October to 30 April, but neither expressly requires all clearance of suitable snail habitat within that period nor provides an approved alternative for works outside it (NZTA 2026h, WA24; NZTA 2026i, s 4.4.1).

13. The Terrestrial AEE rates habitat loss, indirect habitat loss and degradation through fragmentation and edge effects, and injury or death during habitat removal and displacement as High for the At Risk - Declining snail grouping before mitigation, then reduces each to a Low mitigated overall level of effect (NZTA 2026b, Tables 22 and 28). For kauri snail, that reduction has not been demonstrated because the extent and quality of affected habitat remain unquantified, salvage cannot address habitat loss or fragmentation, and the release-site, pest-control and monitoring evidence is incomplete.
14. The scale of the proposed works is central to assessing the extent of confirmed and potential kauri snail habitat exposed to clearance and earthworks, and whether the proposed mitigation can reduce those effects to Low. The application identifies 299.2 ha of cut, fill and spoil areas: 189.8 ha of cut and fill and 109.4 ha of spoil (NZTA 2026g, s D10 and Table 20). Earthworks comprise about 12.65 million m³ of cut, 6.86 million m³ of fill and 6.81 million m³ of spoil (NZTA 2026e, s C4.5.1 and Table 6), and the bulk earthworks programme is expected to run for four years (NZTA 2026g, s D10 and Table 20). The Terrestrial AEE identifies about 99 ha of vegetation loss, including 29 ha of Moderate to Very High value native vegetation (NZTA 2026b, s 4.3.1 and Tables 16 and 23). It treats native and exotic forest as potential habitat for high-value invertebrates and includes suitable exotic forestry as potential kauri snail habitat (NZTA 2026b, s 4.3.5). Although vegetation and snail records are mapped, the final design is unconfirmed, and the application does not quantify by construction stage the potential kauri snail habitat to be permanently removed, temporarily disturbed, retained or avoided. Once detailed design is confirmed, each stage's permanent and temporary works should be overlaid with confirmed kauri snail records and forest and scrub identified as potentially suitable for the species (NZTA 2026b, s 2.4; NZTA 2026e, ss C4.3-C4.5).
15. The 13 July material neither amends the effects assessment nor resolves an internal inconsistency in the lodged application. The Terrestrial AEE, Table 12 rates 'habitat loss' and 'fragmentation and edge effects' on the At Risk - Declining snail grouping as High before mitigation and Low after mitigation; Volume C (Wildlife Act Approvals) Table 4 rates both effects as Low before and after mitigation. Volume C distinguishes wider Project effects from the narrower Wildlife Approval activities, but this does not explain the different unmitigated ratings. I therefore use the Terrestrial AEE for wider effects, and Volume C for handling, salvage, relocation and incidental

- killing (NZTA 2026a, Table 4 and pp 8-9; NZTA 2026b, Tables 22 and 28; NZTA 2026g, Table 12).
16. The works will remove or alter forest-floor habitat, fragment retained habitat and create new edges (NZTA 2026b, s 4.3.5). Imperfect detection means that mapped records do not define the full extent of occupancy (Sherley and Evans 2016). Changes in humidity, temperature, wind exposure and drying may extend beyond the cleared footprint; their extent and severity vary with habitat, slope, aspect, canopy, surrounding land and the species or group concerned (Norton 2002; Simcock et al. 2022). Kauri snails and other moisture-dependent forest-floor invertebrates may therefore be affected both where vegetation is removed and in adjacent retained habitat that becomes warmer, drier or more exposed.
 17. Salvage may reduce direct mortality of kauri snails, but it does not replace habitat, reconnect severed habitat or remove edge effects. When clearance occurs, new planting cannot provide the established litter, deadwood, soil moisture, refugia and prey of mature forest (Toft et al. 2019; Parkhurst et al. 2022). Enhancing existing vegetation may improve habitat sooner, but relocation will reduce effects only if the receiving site has enough suitable habitat, food and refugia to support the added animals without reducing the resources available to snails already present. The application has not demonstrated that outcome (NZTA 2026b, Table 28 and ss 5.1.1-5.1.3).
 18. The 13 July draft EMP identifies the Northern and Southern Sites for kauri snail release and ranks the Southern Site first and the Northern Site second (NZTA 2026i, ss 4.7, 6.1 and 6.3-6.5, Tables 6-4 and 6-5; NZTA 2026j). Kauri snail is confirmed at the Southern Site, showing that the species uses it, but this does not establish habitat quality throughout the site or how many additional snails it can support. The draft EMP does not quantify resident abundance, prey availability, suitable refugia, an appropriate release density or additional capacity. Kauri snail has not been recorded at the Northern Site, whose general habitat description is not species-specific evidence of suitability. Moist forest or scrub, leaf litter and prey availability are critical to kauri snail ecology (Parrish et al. 1995, p. 11). This does not show that either site is unsuitable; instead, the Southern Site's capacity and the Northern Site's species-specific suitability remain unproven.

Salvage and relocation evidence

19. Experience with invertebrate translocations in New Zealand supports caution (Sherley et al. 2010, pp 16-17). The national review found that many outcomes were

unknown and emphasised careful pre-release survey and appropriate post-release monitoring. Evidence from other New Zealand land-snail translocations is relevant, but not directly transferable to kauri snail / pūpū-rangi (*Paryphanta busbyi*) because the species, habitats and Project settings differ. The review supports careful relocation planning, not an assumption that relocation compensates for habitat loss.

Adequacy of mitigation

20. Section 4 of the draft EMP contains an Invertebrate Management Plan providing for pre-clearance searches, construction-assisted salvage, handling, release-site management, pest control and limited monitoring (NZTA 2026i, ss 4-7). These measures improve direct management, but gaps in habitat quantification, interpretation of non-detection, release-site capacity and pest control remain. Monitoring is proposed only where more than 20 kauri snails are released, without a stated evidence basis for that threshold, and the Wildlife Approval conditions require neither post-release monitoring nor reporting of results (NZTA 2026h, WA25-WA29; NZTA 2026i, ss 6.5, 7.1.1, 7.1.4 and 7.2). The applicant has therefore not demonstrated a Low mitigated overall level of effect.

Other terrestrial invertebrates and invertebrate-community effects

21. Where the extensive vegetation clearance, cut, fill and spoil works intersect forest, scrub or refuge-rich ground habitat, they will remove or heavily alter litter, soil, deadwood, roots, rocks and damp refugia. Repeated access, machinery movement and spoil placement may also degrade retained margins (NZTA 2026b, ss 4.3.1 and 4.3.5; NZTA 2026e, ss C4.4.2-C4.4.6 and C4.5.1; NZTA 2026g, s D10 and Table 20).
22. New edges can make retained habitat warmer, drier and more exposed. This may favour disturbance-tolerant or exotic invertebrates while disadvantaging moisture-dependent forest-floor endemics, so community composition may change substantially even where species richness does not decline (Norton 2002; Simcock et al. 2022).
23. Leaf litter and coarse woody debris are integral components of forest-floor habitat (Evans et al. 2003). The invertebrates they support contribute to decomposition and other critical ecological processes (Zeng et al. 2024).
24. The applicant's desktop review used iNaturalist records of Threatened and At Risk terrestrial invertebrates near the designation but did not state the search radius or date window. It also used GBIF records from the previous 25 years within 5 km, threat classifications and Brynderwyn Recovery Project records, and noted that

sensitive iNaturalist coordinates may be obscured (NZTA 2026b, ss 2.2, 2.2.1 and 3.5.1). The review identified records of kauri snail and *Amborhytida dunni*, together with nearby records of peripatus, but no other Threatened, At Risk or protected terrestrial invertebrates within its parameters (NZTA 2026b, s 3.5.1). Because biodiversity databases reflect uneven observation, collection, identification and reporting, this is neither a comprehensive inventory nor evidence that other Threatened, At Risk, Data Deficient or protected invertebrates are not present (Troudet et al. 2017; Di Cecco et al. 2021).

25. The field programme primarily targeted kauri snail and *Amborhytida dunni*. Manual refuge searches, timed snail plots and spotlighting suited those focal snails and may detect conspicuous refuge-dwelling invertebrates, but others were recorded mainly incidentally or opportunistically (NZTA 2026b, ss 2.3.5 and 3.5.2). The programme did not systematically sample foliage-dwelling or flying groups, canopy fauna, soil mesofauna, litter microarthropods, or broader deadwood and ground-active assemblages. Methods designed for large land snails therefore cannot reliably establish the presence or absence of many other invertebrate groups or whether species-specific management is needed (Sherley and Evans 2016, pp 3-5, 14; Ward and Larivière 2004).
26. No detection probability or measure of inventory completeness was reported for non-target invertebrates, so the false-negative risk is unknown, especially for rare, cryptic, patchily distributed or seasonal groups (NZTA 2026b, ss 2.3.5 and 3.5.2). The focal snail surveys achieved their main purpose, but do not demonstrate that other Threatened, At Risk, Data Deficient or protected terrestrial invertebrates are absent from the designation or final works footprint (MacKenzie et al. 2002; Sherley and Evans 2016, pp 3-5).
27. The draft EMP includes an accidental discovery protocol requiring work to stop if an unanticipated At Risk or Threatened fauna species is found (NZTA 2026i, s 5). Proposed condition WA22(f) separately requires accidental-discovery procedures for protected invertebrates not otherwise covered by the plan (NZTA 2026h, WA22(f)). The final EMP should reflect both requirements. Because accidental discovery is reactive, it does not replace a review of habitat and potentially affected invertebrate groups before the final works footprint is confirmed.
28. The principal additional issue involving an At Risk land snail is *Amborhytida dunni*. It is classified At Risk - Declining but is not wildlife under the Wildlife Act 1953 because neither the species nor the genus *Amborhytida* is listed in Schedule 7 (Wildlife Act 1953, ss 2, 3, 7B and Schedule 7; Walker et al. 2024). The applicant reports 60 records of *A. dunni* shells, of which 47 were confirmed empty; the

status of the other 13 is unclear. The records were distributed across native and exotic forest, treeland and scrub from the Brynderwyn Hills to the southern end of the designation, with one record north (NZTA 2026b, s 3.5.2; NZTA 2026d). Its habitat use should be assessed from its own records and habitat attributes, not assumed to match kauri snail. The draft Invertebrate Management Plan (IMP), that forms part of the draft EMP, includes *A. dunniae* in the general snail salvage programme but proposes no post-release monitoring for the species (NZTA 2026i, ss 4.4-4.8 and 7.1.4). Its management remains ecologically relevant.

29. Five peripatus were recorded and considered likely to be *Peripatoides sympatrica*, although this was not confirmed (NZTA 2026b, s 3.5.2). DOC guidance associates peripatus with moist forest-floor refugia, including litter and decaying wood (Department of Conservation 2014, pp 8-10). The draft IMP proposes relocating peripatus if encountered but gives no species-specific salvage or monitoring methods (NZTA 2026i, s 4.4). Glowworms (*Arachnocampa luminosa*) were recorded at forested streams (NZTA 2026b, s 3.5.2). Their occurrence should be considered when managing those stream-edge habitats.
30. New planting cannot recreate the structure, microclimate, litter depth, deadwood, soils or established invertebrate assemblages of mature forest within a timeframe relevant to the Project effects (Toft et al. 2019; Parkhurst et al. 2022). Salvage can move selected individuals of identified species, but not wider invertebrate communities or the ecological relationships supported by litter, soil and deadwood. Published translocation evidence concerns defined species or populations, not the reconstruction of entire forest-floor communities (Sherley et al. 2010).
31. Before works are finalised, best practice is a staged, risk-based assessment. The applicant should use current threat classifications, verified occurrence and collection data, habitat associations and specialist knowledge to identify additional Threatened, At Risk, Data Deficient or protected invertebrates that could plausibly occur (Ward and Larivière 2004; Sherley and Evans 2016). Where a credible likelihood remains and the result could alter avoidance, mitigation or management, targeted surveys should use methods and seasons appropriate to the species or groups concerned. Important habitat should be avoided where practicable. Remaining uncertainty should be documented, and the accidental discovery protocol retained as a backstop and aligned with proposed condition WA22(f). Project conditions should minimise clearance and, where practicable, protect retained forest-floor habitat by retaining damp refugia, litter and coarse woody debris (Evans et al. 2003), limiting compaction (Battigelli et al. 2004) and edge drying

(Norton 2002; Simcock et al. 2022), excluding stock and managing mammalian pests (Didham et al. 2009), and applying Project weed and pathogen controls (NZTA 2026b, ss 5.1.4 and Table 23). I reviewed the 13 July regional resource consent conditions only to see whether such measures were secured elsewhere; I found no condition specifically directed at terrestrial forest-floor invertebrate habitat and make no broader assessment of those conditions (NZTA 2026k).

Suitability of Conditions

32. The replacement conditions and draft EMP address several earlier gaps. The following concerns remain:
33. **Kauri snail management and specialist expertise.** WA20 requires a Snail Management Plan, whereas the draft EMP contains an Invertebrate Management Plan. Both are required; their statutory bases and scopes should be clearly separated. Whatever name is adopted, require its kauri snail component to be prepared and implemented by a suitably qualified invertebrate ecologist with demonstrated experience in large native land snails. The title 'Project Entomologist' alone does not establish this expertise (NZTA 2026h, WA20-WA22; NZTA 2026i, ss 4.1-4.3).
34. **Habitat identification.** Effective pre-clearance management begins with a clear account of the habitat the works will affect. WA21 and the final EMP should require stage-specific mapping and quantification of confirmed and potential habitat affected by all permanent and temporary works. This assessment should distinguish habitat that will be avoided, retained, permanently removed or temporarily disturbed, and distinguish known records from potential habitat and areas of uncertainty. It should not divide the footprint into areas where snails are 'known to be present' or 'known to be absent', because previous non-detection does not justify excluding otherwise suitable habitat (NZTA 2026h, WA21-WA22; NZTA 2026i, ss 4.4-4.5).
35. **Pre-clearance assessment and salvage.** Once the affected habitat has been identified, the final EMP should set a clear and repeatable standard for searching it. It should specify minimum search effort, when repeat surveys are required, and the moisture and weather conditions suitable for manual searches and spotlighting. Construction-assisted salvage should continue as refugia are exposed, providing a final safeguard for snails missed during pre-clearance searches (NZTA 2026h, WA22-WA23; NZTA 2026i, ss 4.4-4.5).

36. **Timing of clearance.** These measures also depend on searching and clearance occurring under conditions in which snails can be detected. Clearance of suitable habitat should therefore occur within the salvage season. Work outside that period should proceed only under an alternative process approved by DOC that addresses detectability and the risk of recolonisation before clearance (NZTA 2026h, WA24; NZTA 2026i, s 4.4.1).
37. **Salvage, handling, biosecurity and mortality response.** Retain the EMP's sterilisation and transport controls. Before any litter, soil, wood or other organic material is moved between sites, require a site-specific biosecurity assessment and controls proportionate to the identified risks. After any unexpected injury or death of a kauri snail or another invertebrate managed under the plan, require work in the immediate area to stop and the methods to be reviewed. The response should carry through to reporting: WA27 requires annual reporting of injured or dead animals, and the annual and final EMP reports should match that requirement and record any corrective action (NZTA 2026h, WA22(c), WA22(e) and WA26-WA29; NZTA 2026i, ss 4.6, 4.8 and 7.2).
38. **Release-site suitability and capacity.** For the Southern Site, require a pre-release assessment of resident kauri snail presence and abundance, prey availability, refugia, habitat condition, proposed release density and capacity for additional animals. Before using the Northern Site, require kauri snail-specific evidence of suitable receiving habitat. If another release site is to be used, it must be brought within the conditions and certified through the EMP before use. The conditions and EMP should therefore state consistently whether sites outside those mapped in Appendix A may be used (NZTA 2026h, definition of Release Sites and WA3(d), WA23; NZTA 2026i, ss 4.7 and 6; NZTA 2026j).
39. **Mammalian pest control and stock exclusion.** The draft EMP specifies stock exclusion and legal protection at the Northern and Southern Sites and lists the target pest groups; retain these measures. WA25 should not, however, allow pest control to end automatically three years after relocation, because the application provides no ecological basis for that fixed period. At that point, mammalian predation may remain a material threat and the survival and establishment of relocated snails may still be uncertain. Control could therefore cease simply because time has elapsed, rather than because the risk has been reduced. Its duration should instead be tied to measurable pest-control and release-site outcomes (NZTA 2026h, WA25; NZTA 2026i, ss 6.5 and 7.1.1; Parrish et al. 1995; Didham et al. 2009).
40. **Pest-control standard and extent.** Require intensive, site-wide control to begin before release and operate as a long-term programme. Its duration should remain

outcome-based: control should continue for as long as needed to achieve and maintain the targets and support the release-site objectives. The final EMP should specify the target pests, treatment area, measurable targets for pest abundance or activity, monitoring frequency and mandatory corrective actions. Where practicable, the same performance-based control should extend to retained kauri snail habitat within and immediately adjoining the designation, especially where new edges or fragmentation affect that habitat (NZTA 2026h, WA25; NZTA 2026i, ss 6.5 and 7.1.1; Parrish et al. 1995; Didham et al. 2009).

41. **Monitoring design.** Remove or justify the threshold limiting monitoring to releases of more than 20 kauri snails. In either case, establish baseline habitat information and monitor habitat condition and pest-control performance at every kauri snail release site, while making species monitoring proportionate to release numbers and risk. Monitoring requirements should define standardised effort, suitable conditions, response triggers and how results will alter management (NZTA 2026h, WA26-WA29; NZTA 2026i, s 7.1.4).
42. **Reporting and internal consistency.** Require post-release monitoring results to be reported under the conditions. The EMP reports should include injured animals, and the erroneous reference to 'lizard monitoring' in the invertebrate monitoring section should be corrected. The reporting requirements should also clarify whether the EMP report due within three months after completion of salvage and the WA29 report due within 24 months after completion of construction are separate, and ensure that both requirements are met (NZTA 2026h, WA26-WA29; NZTA 2026i, ss 7.1.4 and 7.2).
43. **Drafting consistency.** The conditions and EMP contain drafting inconsistencies that must be corrected. WA3(e) appears to contain an incomplete or incorrect cross-reference because it links suitable habitat to WA25, which specifies only the duration of mammalian pest control. Plan names and release-site provisions also differ, and the draft EMP misspells *Amborhytida dunniae* (NZTA 2026h, definitions and WA3(e); NZTA 2026i, ss 4 and 6).
44. **Definition of Protected Wildlife.** A separate legal correction is required. As explained at paragraph 28, *A. dunniae* is not wildlife under the Wildlife Act 1953 because neither the species nor the genus *Amborhytida* is listed in Schedule 7 of the Wildlife Act 1953. The definition of Protected Wildlife and consequential condition wording should therefore be corrected (Wildlife Act 1953, ss 2, 3, 7B and Schedule 7; Fast-track Approvals Act 2024, Schedule 7, cls 1 and 6; Walker et al. 2024; NZTA 2026h, definitions and WA3(e)).

Conclusions / Recommendation

45. Kauri snail is present, and the Project will affect confirmed and potential habitat. The replacement conditions and draft EMP add detail, but key gaps remain: stage-specific habitat effects are unquantified; pre-clearance requirements remain discretionary; release-site suitability and capacity are unproven; pest-control performance standards are absent; and post-release monitoring is incomplete. The Terrestrial AEE rates the relevant unmitigated effects on the At Risk - Declining snail grouping as High, but the information still does not demonstrate a Low mitigated overall level of effect for kauri snail (NZTA 2026b, Tables 22 and 28; NZTA 2026h; NZTA 2026i).
46. The Wildlife Approval application should therefore be amended as set out above. For other terrestrial invertebrates, the desktop review and field assessment remain screening exercises; they do not demonstrate that other rare or threatened terrestrial invertebrates are absent from the final works footprint. Permanent habitat loss, fragmentation and changes in the composition and functioning of wider terrestrial invertebrate communities extend beyond the acts authorised by the Wildlife Approval and should be addressed through conditions governing vegetation clearance and terrestrial ecological effects.
47. The inadequate level of information provided in the Wildlife Approval application is such that I am unable to accept the applicant's purported Low mitigated overall level of effect for kauri snail.

References

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