Threatened species research gaps and priorities for the Department of Conservation Te Papa Atawhai

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Summary

Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020 calls for all threatened species in Aotearoa to be managed by 2030 to prevent further human-induced extinctions. However, < 2% of the more than 4000 taxa¹ that have been categorised as Threatened or At Risk are currently being managed to a standard that will ensure their long-term persistence. A key reason why more taxa are not being effectively managed is because of a lack of knowledge or tools to do so.

A research gap analysis was undertaken in 2020 to identify the knowledge needed to develop or improve effective management actions to secure the majority of Threatened and At Risk – Declining taxa. A total of 1068 taxa were included in this analysis.

Experts first listed the research needs for the management of each taxon. A score between 0 and 30 was then given to each taxon based on (a) *urgency* according to its New Zealand Threat Classification System conservation status; (b) *knowledge gains*, which reflected the number of other Threatened and At Risk – Declining taxa that would benefit from the proposed research; and (c) the amount of *previous relevant research* that could inform the development or improvement of management actions.

Key findings

- Hundreds of knowledge gaps were identified, all of which are recorded in the Online Supplementary Information [<u>https://www.doc.govt.nz/globalassets/documents/science-and-technical/doc-research-and-development-series/drds371-threatened-species-research-gaps.xlsx</u>].
- Of the 1068 taxa assessed:
 - 83 (8%) require no new research to develop or improve management actions
 - 21 (2%) only require research to resolve their taxonomic status or a formal taxonomic description
 - the remaining 964 (90%) require research under at least one of four broad research categories: understanding the causes of decline (34% of all taxa), developing new management plans (54%), improving existing management plans (35%), and developing detection and monitoring methods (38%).
- Of the 421 taxa that already have management plans, 329 (88%) require significant new knowledge to improve these, as not all pressures or methods to mitigate them are understood well enough to provide effective management.
- Most taxa with high scores (≥ 21) were terrestrial or freshwater invertebrates, reflecting the numerical dominance of these groups and a relative lack of historical research to inform their conservation management.
- Many taxa had similar knowledge gaps, allowing broad research topics to be identified that would address common gaps within and across taxonomic groups.

1 Many of the threatened species in Aotearoa have not yet been formally described or are recognised as several distinct subspecies, each of which requires protection. Therefore, the term 'taxon' (plural 'taxa') is used to include all of these entities.