

Waitakere Threatened Species Management Policy



Waitakere Threatened Species Management Policy
2009

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1.0 Purpose

The purpose of this Waitakere Threatened Species Management Policy is to provide guidance to Waitakere City Council (WCC) staff and contractors on the methods to be used to manage the known threatened species on public land, as well as ways to re-populate areas where threatened species are locally extinct.

The policy sets out the objectives for goals associated with threatened species management in Waitakere as proscribed through the Waitakere Biodiversity Strategy and Action Plan 2006. WCC has made a commitment to protecting threatened species within the city as well as protecting their habitats and food sources. This policy sets out how to manage implementation of the strategic objectives and goals, as well as how to manage programming and data management.

The Auckland Regional Council (ARC) is also developing the Auckland Regional Council Plant Conservation Strategy, and it is intended that this policy will also be consistent with the strategic direction and objectives set out within that document. Further work with regional and other local councils is encouraged, with the hope that threatened species recovery in the Auckland region can be improved as a whole.

2.0 Responsibilities

Responsibility for threatened species protection and management within Waitakere is the role of everyone. Whether it is the landowner that has a precious remnant rare plant population, or local government agencies that can develop policies and rules around management and protection.

Threatened animals and plants are managed differently under national legislation, with legal protection provided for wildlife under the Wildlife Act 1953, whereas threatened plants are not afforded any legal protection unless they occur on land that is protected. The Department of Conservation (DOC) regularly issue permits for holding protected species in captivity, handling for research purposes, and transfers as part of restoration projects, and for all endangered animal species it is illegal to work with them unless a permit has been issued and the handler is fully qualified.

Waitakere is unique in that half of its land area is covered by the Waitakere Ranges Regional Park, and WCC therefore works closely with the ARC in biodiversity management. In the Waitakere Ranges we have a number of threatened species populations, with an increasing number of bird re-introductions and pest control initiatives.

The protocols and specialist management advice for threatened species management in Waitakere has been provided by DOC, with the assistance of key specialist personnel at ARC.

Vision for Threatened Species Recovery in Waitakere

Native forests full of native birds linking streams full of native fish contributing to a resurgence of the whitebait shoals in the harbours

3.0 Introduction

Waitakere City faces a biodiversity challenge, that; is to improve the habitats of those endemic species that have remained after urbanisation, and to restore key species that have become locally extinct but play a vital role in the local biodiversity of the city.

The Waitakere Local Biodiversity Action Plan identifies that we have lost 11 native bird species from the Ranges and 15 bird species from the lowlands. The short-tailed bat was once common in the region but has not been recorded for some time. Populations of long tailed bats are still present and so are Hochstetters frogs.

There are now 240 plant species identified as actual or potential threats to native vegetation, and there are 19 introduced bird species, 9 introduced mammals and 2 amphibians, all competing with our native species.

The Waitakere Local Biodiversity Action Plan 2008 identifies a number of goals related to threatened species recovery such as:

- Establish the state of Waitakere's biodiversity
- Provide for maintenance and long-term viability of the City's biodiversity
- Enable re-establishment of plants and animals lost from the City and replenishment of threatened species
- Enable effective involvement of tangata whenua
- Co-ordinate, contribute to and build community capacity
- On-going research and monitoring

Overall Goal for Threatened Species Recovery in Waitakere

The status of threatened species in Waitakere is improved, with local populations thriving

This policy provides for the implementation of these goals associated with threatened species.

The Action Plan also specifies key tasks associated with threatened species recovery:

- Prepare an inventory of local threatened plant species and
- Enter information on a GIS layer and database.
- Prepare management plans to ensure survival of populations at risk
- Identify high priority or high risk sites for conservation
- Prepare and implement a pest animal control plan for high conservation areas
- Determine location of and resources used by long-tailed bats outside the Waitakere Ranges Regional Park in order to protect these resources or provide additional habitat
- Promote and implement eco-sourcing for planting projects
- Identify and prioritise sites and corridors for restoration
- Prepare and implement restoration plans for priority sites
- Prepare and implement recovery plans for threatened species.
- Promote the planting and conservation of threatened plants such as the Huia hebe and *Astelia grandis*

- Support the re-introduction of plant and animal species lost to the Waitakere Ranges in safe habitats.
- Identify vulnerability status of Waitakere native plant and animal species
- Undertake a feasibility study to determine the viability of creating a predator-free enclosure on Harbourview to encourage fernbirds and other threatened bird species known to inhabit the area
- Develop a joint Council/community management plan for Te Henga wetland

This policy will address how these action points can be met through threatened species recovery.

4.0 Background

Work has commenced within Waitakere City to restore threatened species. The most prominent and well known project still operating within the Waitakere Ranges Heritage Area is Ark in the Park. This is a project arm of the Royal Forest and Bird Protection Society of New Zealand, who over the past four years have released whiteheads, North Island robins, stitchbirds, with a vision to release kokako next.

The Auckland Regional Council and the Department of Conservation work closely with specialist staff and volunteers to identify threatened plants on their land. Each agency holds a database of their threatened species that have been recorded and where they were located. The Auckland Regional Council is working closely with the Department of Conservation to develop a Regional Threatened Plant Strategy.

The Auckland Herbarium holds a number of recorded threatened plant specimens, as well as general information about the location and date that they were found. Many of these records are old and require ground truthing to determine whether any plants remain at the sites.

Waitakere City Council Parks commenced surveying threatened plants on public land in early 2009, with the development of a Waitakere Threatened Plant Register and GIS layer. Information will be collected, photographs of the plants will be taken, and a database will be created which can feed into parks maintenance contracts and revegetation programmes.

A funding application to the Biodiversity Advice Fund was also made in September 2008, seeking funds to ground truth known threatened plants recorded on covenanted sites. This was a joint funding application between Waitakere City Council and the QEII National Trust.

This Policy sets the direction for how data will be managed within Council, the limitations of how it can be shared with contractors and members of the public, and to set basic guidelines for all future work.

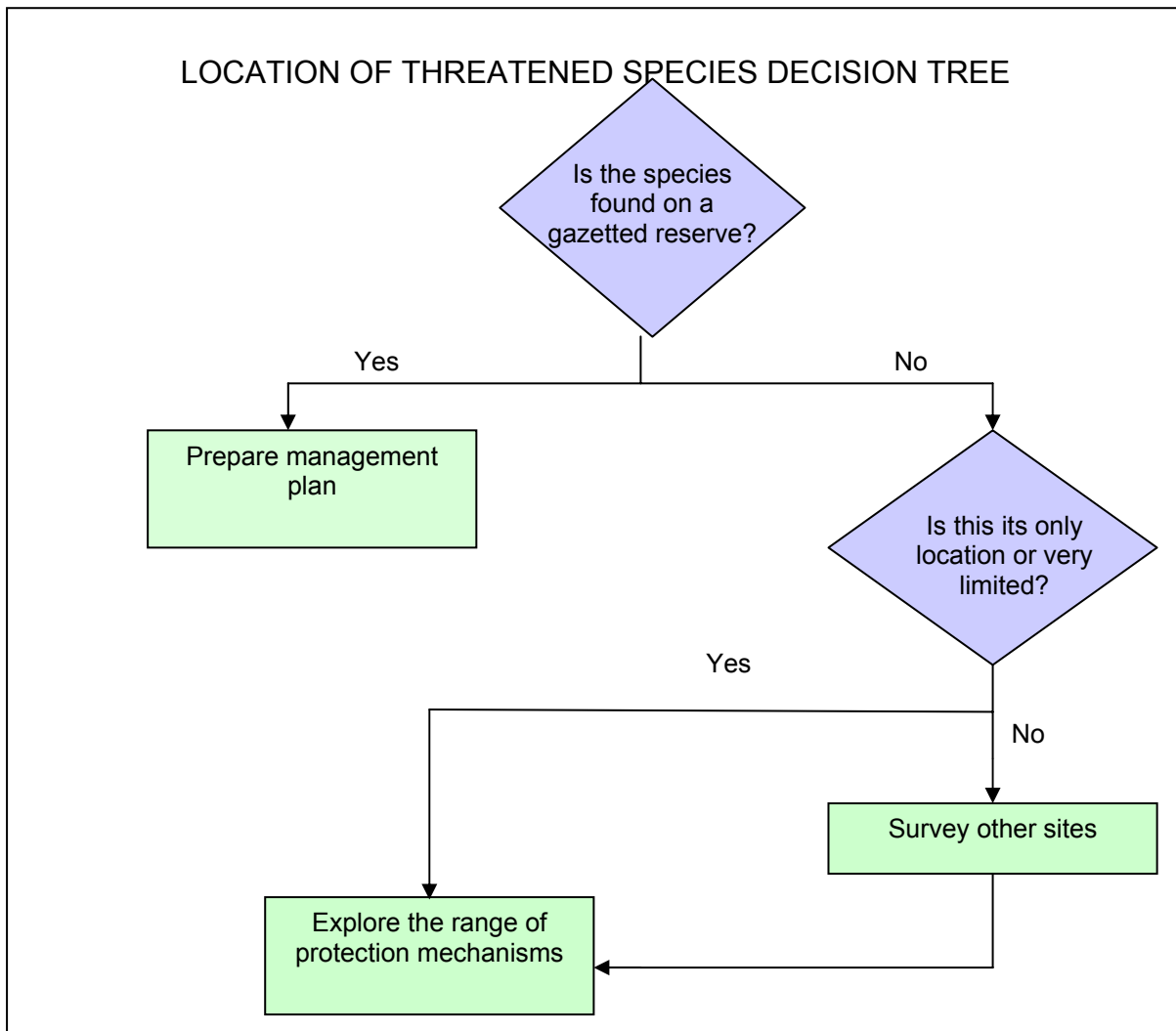
5.0 Definitions

Threatened animals are defined as those listed in the national list developed by the Department of Conservation in 2007 (Hitchmough 2007). **Threatened plants** are defined as those in the national list developed by the Department of Conservation in 2008 (de Lange et al 2008) as well as the regional list (Stanley et al. 2005).

DOC have recently reviewed their threat classifications system for plants, and have made some amendments to the threat categories. The system was reviewed in 2008 however the research community is still developing updated lists of threatened plant classifications in accordance with the new system. The most up-to-date threat classification system is listed in Appendix 3.

The flora and fauna that are of interest for Waitakere City Council are those which are considered to be nationally threatened, nationally threatened but common in Waitakere, as well as those that are locally threatened but not threatened nationally.

Population is defined as a group of interbreeding individuals that are geographically, genetically or behaviourally discrete from other groups of the same species, to the extent that interbreeding does not occur.



6.0 Guiding Principles

Waitakere City Council has taken on board a joint vision in order to protect our local biodiversity through our Local Area Biodiversity Plan. The key guiding principles to meet these goals are:

- **Undertake research** to better understand threatened species' needs.
- **Restore damaged ecosystems and habitats** to provide for populations of threatened species to thrive and increase, including assistance through artificial measures.
- **Control pests** – continue to control weeds and pest animals that out compete or predate threatened species.

7.0 Implementation of Action Plan

Of the key action points associated within the Local Biodiversity Action Plan the following activities and projects will be developed and implemented.

7.1 Waitakere Threatened Plant Register

A Council wide Threatened Plant Register has been set up and is currently being managed by the Parks department. The Parks Ecology and Policy Coordinator will be responsible for managing the data, including its use and distribution.

A GIS layer has been developed to display the Register data, which will be placed in eView for staff information. There will be a layer of confidentiality between the Register and the eView layer. The Register will record actual GPS locations of plants however due to the sensitivity of the information only general polygons will be displayed geographically.

Staff will be prompted to the location of a threatened plant on a particular site and will need to seek more detailed information from the Parks department for advice on managing the identified plant.

Regular surveys shall be undertaken of the known threatened plants within the register, and new recordings shall be added to the register. Council will work closely with the Auckland Regional Council, Department of Conservation and Auckland Botanical Society to compile the Register.

A Schedule will be incorporated into the District Plan identifying properties that have threatened species recorded at them, so that development rules can be developed in order to avoid, remedy or mitigate adverse environmental effects.

7.2 Prepare Risk Population Management Plans

Prepare management plans for populations of threatened species, related to their individual communities and territories. At-risk populations will be determined with biodiversity monitoring within the city, and management plans will establish the best mode of action to help improve the threatened status of the population and ensure they become self sustaining.

A range of management plans may be developed for the same species if there are a number of independent and key populations within Waitakere. It is understood that some species will exist periodically outside Waitakere and as such other Councils will be involved in the management plan process.

As a part of this work stream, long-tailed bat locations and resources will be investigated and a subsequent management plan developed.

Any information that relates to the District Plan and any possible development pressure related to each population must be documented within the management plan, which can then be incorporated into future revisions of the District Plan.

7.3 Identify High Priority Sites for Conservation

The Protected Natural Areas report for the Tamaki Ecological District and the Waitakere Ecological District have identified some key high priority sites for conservation. This work can be used as a starting point, as well ask key areas identified through Parks Acquisition Plans and the District Plan.

High Priority Sites for Conservation will be determined based on their representativeness, size, threats, and the threatened category of the plants and animals that are within the area. Sites can also be included for their habitat quality that may be used as areas for threatened species translocations.

7.4 Prepare and Implement a Pest Animal Control Plan for High Priority Sites

Waitakere City Council adopted the Waitakere City Parks Animal Pest Strategy and Five Year Animal Pest Control Programme in 2006.

The Strategy sets out the basic principles behind animal pest control within the city and the Work Programme identifies key high conservation parks to target and a programme for pest control.

The work programme implementation is limited by operational budgets, however follows the work programme as closely as possible.

In addition to the high priority sites it is also important to ensure that any monitoring that occurs after the work programme is adopted is forwarded to the Parks department for implementation guidance. For instance, any monitoring that determines the likely nesting sites for kereru should be incorporated into the implementation programme for that year.

7.5 Promote Ecosourcing

Waitakere City Council adopted the Ecosourcing Code of Practice in 2001 and there are currently two nurseries in Waitakere that are registered to supply ecosourced plants.

The use of ecosourced plants for revegetation is currently incorporated into Parks contracts including Project Twin Streams plantings. All free plants supplied through the Green Network Community Assistance Programme are ecosourced and a factsheet has been developed to encourage private landowners to choose ecosourced plants for their gardens.

All new residents to Waitakere are provided with a free ecosourced seedling at their welcoming ceremony.

7.6 Prepare Threatened Species Recovery Plans

For all species that are listed in the national database as threatened, a threatened species recovery plan will be prepared. Priority will be given to those species that have the highest threat category.

Recovery plans will also incorporate and be consistent with the population management plans and again may require the cooperation and coordination with other local and regional authorities.

The template for the Recovery Plans is attached in Appendix 4 and these can be completed for populations on private or public land.

All existing Recovery Plans will be reviewed and any action points that are relevant and outstanding will be actioned.

7.7 Waitakere Species Vulnerability Status

Maintain an up to date list of all species that are threatened and that are found or have been recorded in Waitakere. This data will be the basis for undertaking species recovery plans and population management plans.

7.8 Predator-free Enclosure

Prepare a feasibility report and proposal to construct a predator-free enclosure at Harbourview- Orangihina. The fence will be approximately 2km long and enclose approximately 12ha of salt marsh and brackish wetland, with a single entry point for maintenance and visitors.

The fence will provide a protected habitat for wetland bird and salt marsh vegetation species. The area can also be a key area to establish other threatened plant and animal species where the establishment of self sustaining populations would be possible.

Full funding will have to be sought to construct the fence, as well as long term maintenance. There are a number of other agencies in New Zealand that have installed and are maintaining predator-free enclosures and their advice will be valuable. All of these issues will be covered in the feasibility report.

8.0 Data Management

Collecting and managing data is a vital tool in managing threatened species. It is imperative that relevant and up to date information is held on the plants and animals in the city that are threatened, that the information is stored safely, and that the data is retrievable and available in formats that can be easily interpreted.

There is an inherent risk in holding scientific data in that it frequently becomes out of date and therefore inaccurate. Waitakere City Council must commit to undertaking regular biodiversity monitoring, recording data from contractors and volunteers, and managing a database that is relevant to all staff.

As stated above, Council will use Council based mapping systems and property databases to hold threatened plant data, and this can be extended to include threatened animals. However, as animals are more transient this becomes difficult. It would be more appropriate to record where threatened animals have been recorded, but more importantly what habitat is present as to the likelihood of their presence being permanent.

The sharing of this information with members of the public will be restricted; where a landowner is curious to know what threatened species are present on their land, this information can be shared, however providing this information to others will be limited.

The Department of Conservation and the Auckland Regional Council are both contributing information to these databases, and request that any new data that we record can be shared with them to add to their regional and conservancy databases.

Where data is collected through the Threatened Species Registers and Risk Population Management Plans, Schedules will be developed that can be incorporated into the District Plan, enabling development Rules and Policies around adverse environmental effects.

As stated above, threatened species information quickly changes as new research comes to light. This Policy will be regularly updated with new information, and it is understood that any actions will be based on the most recent data.

9.0 Managing Development Pressures on Threatened Species

A Response Matrix has been developed, and is to be used to determine what response action is to be taken when a known threatened species population is under threat from development pressures. The matrix is divided up into regional threat categories and Waitakere population sizes.

	Waitakere Population Size 1	Waitakere Population Size <10	Waitakere Population Size ≥10
Critical	1	2	2
Endangered	1	2	2
Vulnerable	1	2	3
Serious Decline	2	2	3
Gradual Decline	2	2	3
Sparse	2	3	3
Range Restricted	2	3	3

KEY	
Response Category	Response Action*
1	Avoid development and any disturbance to the site which is detrimental to the health and sustainability of the population. Allow no net loss of the population numbers or size.
2	Allow development but mitigate fully on site. Prepare a recovery plan, assess all threats to the population(s), address reducing those threats long term, and monitor the population for three years to make sure the recovery plan actions are met.
3	Allow development however ensure that there is no net loss to the size of the population. Monitor for three years to ensure this is achieved.
*Note: For all cases, action cannot be taken that will cause the species threat classification to worsen due directly to the proposed development.	

APPENDIX 1

Waitakere's Threatened Plant List

Genus	Species Qualifier	Species	Subrank	Subname	National Classification	Regional Classification
<i>Adelopetalum</i>		<i>tuberculatum</i>			Naturally Uncommon	Sparse
<i>Ascarina</i>		<i>lucida</i>	var.	<i>lucida</i>		Critical
<i>Asplenium</i>		<i>appendiculatum</i>	sub.	<i>maritimum</i>		Critical
<i>Asplenium</i>		<i>hookerianum</i>				Sparse
<i>Astelia</i>		<i>grandis</i>				Critical
<i>Austrofestuca</i>		<i>littoralis</i>			Declining	Critical
<i>Azolla</i>		<i>filiculoides</i>				Endangered
<i>Baumea</i>		<i>arthrophylla</i>				Sparse
<i>Blechnum</i>		<i>blechnoides</i>				Sparse
<i>Blechnum</i>		<i>colensoi</i>				Critical
<i>Blechnum</i>		<i>nigrum</i>				Range Restricted
<i>Blechnum</i>		<i>procerum</i>				Range Restricted
<i>Blechnum</i>		<i>triangularifolium</i>				Sparse
<i>Blechnum</i>		<i>vulcanicum</i>				Critical
<i>Brachyglottis</i>		<i>kirkii</i>	var.	<i>kirkii</i>	Declining	Serious Decline
<i>Calystegia</i>		<i>marginata</i>			Naturally Uncommon	Critical
<i>Carex</i>		<i>fascicularis</i>				Critical
<i>Carex</i>		<i>litorosa</i>			Declining	Critical
<i>Carex</i>		<i>subdola</i>				Endangered
<i>Celmisia</i>		<i>major</i>	var.	<i>major</i>		Gradual Decline
<i>Centipeda</i>		<i>aetearoana</i>			Naturally Uncommon	Data Deficient
<i>Chionochloa</i>		<i>conspicua</i>	sub.	<i>cunninghamii</i>		Critical
<i>Coprosma</i>		<i>acerosa</i>			Nationally Vulnerable	Serious Decline
<i>Coprosma</i>		<i>propinqua</i>	var.	<i>propinqua</i>		Vulnerable
<i>Corokia</i>		<i>cotoneaster</i>				Sparse

Genus	Species Qualifier	Species	Subrank	Subname	National Classification	Regional Classification
<i>Corunastylis</i>		<i>nuda</i>			Naturally Uncommon	
<i>Corunastylis</i>		<i>pumila</i>			Naturally Uncommon	Gradual Decline
<i>Cyperus</i>		<i>ustulatus</i>	f.	<i>grandispiculosus</i>		Critical
<i>Dactylanthus</i>		<i>taylorii</i>			Nationally Vulnerable	Critical
<i>Danhatchia</i>		<i>australis</i>			Naturally Uncommon	Sparse
<i>Daucus</i>		<i>glochidiatus</i>			Nationally Critical	Critical
<i>Desmoschoenus</i>		<i>spiralis</i>			Relict	Serious Decline
<i>Dichelachne</i>		<i>inaequiglumis</i>				Data Deficient
<i>Dichelachne</i>		<i>micrantha</i>			Nationally Vulnerable	Data Deficient
<i>Doodia</i>		<i>mollis</i>			Naturally Uncommon	Sparse
<i>Doodia</i>		<i>squarrosa</i>			Naturally Uncommon	
<i>Elaeocarpus</i>		<i>hookerianus</i>				Critical
<i>Eleocharis</i>		<i>neozelandica</i>			Declining	Critical
<i>Elymus</i>		<i>multiflorus</i>				Gradual Decline
<i>Epilobium</i>		<i>hirtigerum</i>			Nationally Critical	Critical
<i>Epilobium</i>		<i>pubens</i>				Sparse
<i>Euchiton</i>		<i>delicatus</i>				Data Deficient
<i>Euphorbia</i>		<i>glauca</i>			Declining	Critical
<i>Galium</i>		<i>propinquim</i>				Data Deficient
<i>Galium</i>		<i>trilobum</i>				Critical
<i>Gastrodia</i>		<i>minor</i>				Range Restricted
<i>Geranium</i>		<i>potentilloides</i>				Sparse
<i>Geranium</i>		<i>retrosum</i>			Nationally Vulnerable	Gradual Decline
<i>Geranium</i>		<i>solanderi</i>				Gradual Decline
<i>Glossostigma</i>		<i>elatinoides</i>				Sparse
<i>Grammatis</i>		<i>pseudociliata</i>				Range Restricted
<i>Gratiola</i>		<i>secdentata</i>				Critical
<i>Gunnera</i>		<i>dentata</i>				Range Restricted
<i>Gunnera</i>		<i>monoica</i>				Data Deficient

Genus	Species Qualifier	Species	Subrank	Subname	National Classification	Regional Classification
<i>Gunnera</i>		<i>prorepens</i>				Endangered
<i>Halocarpus</i>		<i>kirkii</i>				Range Restricted
<i>Hebe</i>		<i>bishopiana</i>			Nationally Vulnerable	Vulnerable
<i>Hebe</i>		<i>obtusata</i>			Naturally Uncommon	Range Restricted
<i>Hydrocotyle</i>		<i>pterocarpa</i>				Data Deficient
<i>Hymenophyllum</i>		<i>armstrongii</i>				Range Restricted
<i>Hymenophyllum</i>		<i>lyallii</i>				Range Restricted
<i>Hypolepis</i>		<i>dicksonioides</i>			Naturally Uncommon	Sparse
<i>Hypolepis</i>		<i>lactea</i>				Sparse
<i>Hypolepis</i>		<i>rufobarbata</i>				Sparse
<i>Ileostylus</i>		<i>micranthus</i>				Critical
<i>Ipomoea</i>		<i>cairica</i>				Range Restricted
<i>Isolepis</i>		<i>distigmata</i>				Data Deficient
<i>Juncus</i>		<i>pauciflorus</i>			Declining	Endangered
<i>Korthalsella</i>		<i>salicornioides</i>			Naturally Uncommon	Sparse
<i>Lagenifera</i>		<i>stipitata</i>				Sparse
<i>Lepidium</i>		<i>flexicaule</i>			Nationally Vulnerable	Extinct
<i>Lepidium</i>		<i>obtusatum</i>			Extinct	Extinct
<i>Lepidium</i>		<i>oleraceum</i>			Nationally Vulnerable	Endangered
<i>Leptinella</i>		<i>rotundata</i>			Nationally Critical	Extinct
<i>Leptinella</i>		<i>squalida</i>	sub.	<i>squalida</i>		Endangered
<i>Leptinella</i>		<i>tenella</i>			Declining	Sparse
		<i>novae-zelandiae</i>				Data Deficient
<i>Leptolepia</i>		<i>micrantha</i>				Range Restricted
<i>Libertia</i>		<i>peregrinans</i>			Nationally Vulnerable	Extinct
<i>Libocedrus</i>		<i>plumosa</i>			Naturally Uncommon	Sparse
<i>Lindsaea</i>		<i>viridis</i>			Naturally Uncommon	Critical
<i>Linum</i>		<i>monogynum</i>	var.	<i>monogynum</i>		Sparse
<i>Lophomyrtus</i>		<i>oncordata</i>				Endangered

Genus	Species Qualifier	Species	Subrank	Subname	National Classification	Regional Classification
<i>Luzula</i>		<i>banksiana</i>	var.	<i>banksiana</i>		Critical
<i>Luzula</i>		<i>picta</i>	var.	<i>picta</i>		Endangered
<i>Manoao</i>		<i>colensoi</i>				Critical
<i>Marattia</i>		<i>salicina</i>			Declining	Gradual Decline
<i>Melicytus</i>		<i>lanceolatus</i>				Range Restricted
<i>Mentha</i>		<i>cunninghamii</i>				Range Restricted
<i>Metrosideros</i>		<i>carminea</i>				Sparse
<i>Microlaena</i>		<i>polynoda</i>				Sparse
<i>Myoporum</i>		<i>laetum</i>				Gradual Decline
<i>Myosotis</i>		<i>petiolata</i>	var.	<i>pansa</i>	Nationally Endangered	Endangered
<i>Myosotis</i>		<i>pygmaea</i>	var.	<i>pygmaea</i>	Declining	Extinct
<i>Myriophyllum</i>		<i>votschii</i>			Naturally Uncommon	Range Restricted
<i>Myrsine</i>		<i>divaricata</i>				Endangered
<i>Nematoceras</i>		<i>rivulare</i>			Data Deficient	
<i>Nestegis</i>		<i>cunninghamii</i>				Critical
<i>Nestegis</i>		<i>montana</i>				Sparse
<i>Olearia</i>		<i>albida</i>				Sparse
<i>Olearia</i>		<i>angulata</i>			Naturally Uncommon	Data Deficient
<i>Ophioglossum</i>		<i>coriaceum</i>				Sparse
<i>Ophioglossum</i>		<i>petiolatum</i>			Nationally Critical	Critical
<i>Paspallum</i>		<i>obiculare</i>			Declining	Serious Decline
<i>Pelargonium</i>		<i>inodorum</i>				Sparse
<i>Pellaea</i>		<i>falcata</i>			Relict	Critical
<i>Pennantia</i>		<i>corymbosa</i>				Sparse
<i>Petalochilus</i>		<i>alatus</i>			Naturally Uncommon	Data Deficient
<i>Phylloglossum</i>		<i>drummondii</i>			Nationally Critical	Extinct
<i>Picris</i>		<i>burbridgeae</i>			Nationally Endangered	Serious Decline
<i>Pimelea</i>		<i>arenaria</i>			Declining	Extinct
<i>Pimelea</i>		<i>longifolia</i>			Data Deficient	Endangered
<i>Pimelea</i>		<i>tomentosa</i>			Naturally Uncommon	Endangered

Genus	Species Qualifier	Species	Subrank	Subname	National Classification	Regional Classification
<i>Pisonia</i>		<i>brunoniana</i>				Endangered
<i>Pittosporum</i>		<i>elipticum</i>			Naturally Uncommon	Sparse
<i>Pittosporum</i>		<i>kirkii</i>			Declining	Vulnerable
<i>Plantago</i>		<i>raoulii</i>				Critical
<i>Plumatochilos</i>		<i>tasmanicum</i>			Nationally Endangered	Critical
<i>Pomaderris</i>		<i>phylicifolia</i>			Nationally Endangered	Extinct
<i>Potamogeton</i>		<i>ochreatus</i>				Sparse
<i>Pouteria</i>		<i>costata</i>				Gradual Decline
<i>Pseudowintera</i>		<i>colorata</i>				Sparse
<i>Psilotum</i>		<i>nudum</i>				Sparse
<i>Pterostylis</i>		<i>cardiostigma</i>				Data Deficient
<i>Ranunculus</i>		<i>acaulis</i>				Endangered
<i>Ranunculus</i>		<i>glabrifolius</i>				Data Deficient
<i>Ranunculus</i>		<i>macropus</i>			Data Deficient	Critical
<i>Ranunculus</i>		<i>urvilleanus</i>				Serious Decline
<i>Raukaua</i>		<i>anomalus</i>				Range Restricted
<i>Raukaua</i>		<i>edgerleyi</i>				Vulnerable
<i>Ruppia</i>		<i>polycarpa</i>				Data Deficient
<i>Scandia</i>		<i>rosifolia</i>			Declining	Serious Decline
<i>Schizaea</i>		<i>dichotoma</i>			Naturally Uncommon	Sparse
<i>Schizeilema</i>		<i>trifoliolatum</i>				Critical
<i>Schoenus</i>		<i>carsei</i>			Nationally Endangered	Critical
<i>Schoenus</i>		<i>concinus</i>				Critical
<i>Schoenus</i>		<i>nitens</i>				Critical
<i>Scleranthus</i>		<i>biflorus</i>				Endangered
<i>Senecio</i>		<i>rufiglandulosus</i>				Critical
<i>Senecio</i>		<i>scaberulus</i>			Nationally Critical	Critical
<i>Sicyos</i>	aff.	<i>australis</i>			Relict	
<i>Sonchus</i>		<i>kirkii</i>			Declining	Critical
<i>Sophora</i>		<i>fulvida</i>			Naturally Uncommon	Range Restricted

Genus	Species Qualifier	Species	Subrank	Subname	National Classification	Regional Classification
<i>Sophora</i>		<i>microphylla</i>				Sparse
<i>Sparganium</i>		<i>subglobosum</i>				Endangered
<i>Stegostyla</i>		<i>atradenia</i>			Naturally Uncommon	Sparse
<i>Streblus</i>		<i>banksii</i>			Relict	Critical
<i>Syzygium</i>		<i>maire</i>				Gradual Decline
<i>Tetragonia</i>		<i>tetragonoides</i>			Naturally Uncommon	Critical
<i>Thelymitra</i>		<i>aemula</i>				Sparse
<i>Thelymitra</i>		<i>carnea</i>				Sparse
<i>Thelymitra</i>		<i>pulchella</i>				Data Deficient
<i>Thelypteris</i>		<i>confluens</i>			Declining	Coloniser
<i>Tmesipteris</i>		<i>sigmatifolia</i>				Sparse
<i>Trisetum</i>		<i>arduanum</i>				Gradual Decline
<i>Tupeia</i>		<i>antarctica</i>			Declining	Critical
<i>Uncina</i>		<i>laxiflora</i>				Range Restricted
<i>Utricularia</i>		<i>australis</i>			Nationally Endangered	Critical
<i>Wahlenbergia</i>		<i>littoricola</i>	<i>sub.</i>	<i>vernica</i>		Sparse
<i>Zoysia</i>		<i>minima</i>				Gradual Decline

APPENDIX 2

Vulnerability Status of Waitakere Animal Species

	Common name	Specific name	NZ threat classification
Mammals	NZ long-tailed bat	<i>Chalinolobus tuberculatus</i>	Nationally vulnerable
	Northern short-tailed bat	<i>Mystacina tuberculata aupourica</i>	(Locally extinct) Nationally endangered
Birds	Bellbird	<i>Anthornis melanura</i>	(Locally extinct) Nationally non-threatened
	Brown teal	<i>Anas chlorotis</i>	(Locally extinct) Nationally endangered
	North Island brown kiwi	<i>Apteryx australis</i>	(Locally extinct) Serious decline
	North Island kokako	<i>Callaeas cinerea</i>	(Locally extinct) Nationally endangered
	North Island robin	<i>Petroica australis longipes</i>	(Re-introduced) Nationally non-threatened
	North Island weka	<i>Gallirallus australis</i>	(Locally extinct) Nationally endangered
	NZ dabchick	<i>Podiceps rufopectus</i>	(Locally extinct) Sparse
	NZ scaup	<i>Athya novaeseelandiae</i>	(Locally extinct) Nationally non-threatened
	Red-crowned kakariki	<i>Cyanoramphus novaezealandiae</i>	(Locally extinct) Range restricted
	Rifleman	<i>Acanthisitta chloris granti</i>	(Locally extinct) Gradual decline
	Stitchbird	<i>Notiomystis cincta</i>	(Re-introduced) Nationally endangered
	Whitehead	<i>Mohoua albicilla</i>	(Re-introduced) Nationally non-threatened
	Yellow-crowned kakariki	<i>Cyanoramphus auriceps</i>	(Locally extinct) Gradual decline
	Australasian bittern	<i>Botaurus poiciloptilus</i>	Nationally endangered
	Grey duck	<i>Anas superciliosa s</i>	Nationally endangered
North island kaka	<i>Nestor meridionalis septentrionalis</i>	Nationally endangered	

	Caspian tern	<i>Sterna caspia</i>	Nationally vulnerable
	Northern NZ dotterel	<i>Charadrius obscurus aquilonius</i>	Nationally vulnerable
	Reef heron	<i>Egretta sacra sacra</i>	Nationally vulnerable
Birds	Wrybill	<i>Amarhyncus frontalis</i>	Nationally vulnerable
	Black-billed gull	<i>Larus bulleri</i>	Serious decline
	Banded dotterel	<i>Charadrius bicinctus</i>	Gradual decline
	Flesh-footed shearwater	<i>Puffinus carneipes</i>	Gradual decline
	Kereru	<i>Hemiphagia novaeseelandiae novaeseelandiae</i>	Gradual decline
	Long-tailed cuckoo	<i>Eudynamys taitensis</i>	Gradual decline
	Northern little blue penguin	<i>Eudyptula minor iridalei</i>	Gradual decline
	Red-billed gull	<i>Larus novaehollandiae scopulinus</i>	Gradual decline
	Sooty shearwater	<i>Puffinus griseus</i>	Gradual decline
	White fronted tern	<i>Sterna striata striata</i>	Gradual decline
	Banded rail	<i>Rallus philippensis</i>	Sparse
	Black shag	<i>Phalacrocorax carbo novaehollandiae</i>	Sparse
	Little black shag	<i>Phalacrocorax sulcirostris</i>	Sparse
	Marsh crake	<i>Porzana pusilla</i>	Sparse
	North Island fernbird	<i>Bowdleria punctata vealeae</i>	Sparse
	Spotless crake	<i>Porzana tabuensis plumbea</i>	Sparse
Reptiles	Auckland green gecko	<i>Naultinus elegans elegans</i>	Gradual decline
	Ornate skink	<i>Cyclodina ornata</i>	Gradual decline
	Pacific gecko	<i>Hoplodactylus pacificus</i>	Gradual decline
Amphibians	Hochstetters frog	<i>Leiopelma hochstetteri</i>	Sparse
Freshwater fish	Giant kokopu	<i>Galaxias argenteus</i>	Gradual decline
	Short-jawed kokopu	<i>Galaxias postvectis</i>	Sparse
	Long finned eel	<i>Anguilla dieffenbachii</i>	Gradual decline
Invertebrates			
	Kauri snail	<i>Paryphanta busbyi</i>	Gradual decline
	Peripatus	<i>Peripatus suteri</i>	Range restricted

APPENDIX 3

Threat Classification System 2008

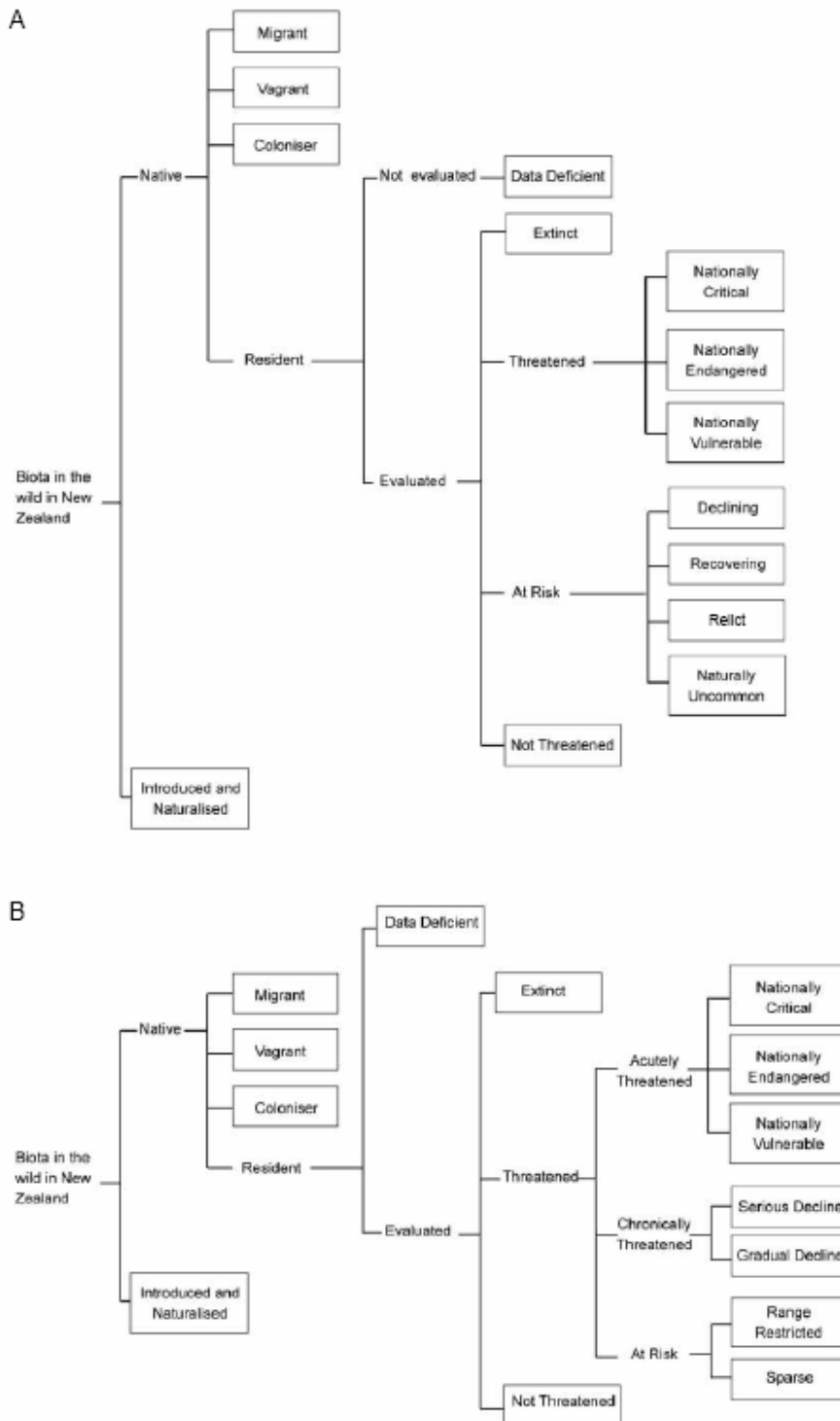


Figure 1. A. Revised (2007) and B. original (2002) structure of the New Zealand Threat Classification System.

APPENDIX 4

Template for Threatened Species Recovery Plans

[Common Name] *[Scientific name]*

Threat Regionally [xx]

Categories Nationally [xx]

Distribution Nationally

Auckland (date of last record)

Areas [Suburbs]

Habitat

[general description]

Biology/Life cycle

[how pollinated and how seed is developed and spread, how young are carried and cared for]

Agents of decline

[threats such as predators, land management practices, food source shortages etc]

Recovery Plan

Action	Output	Completion
[outcome 1]	[how this will be achieved]	[date]
[example 1] Collect Seed	[how this will be achieved]	[date]
[example 2] Establish ex-situ population at ...	[how this will be achieved]	[date]
[example 3] Plan transfer to ...	[how this will be achieved]	[date]
[example 4] Monitor recovery of species at...	[how this will be achieved]	[date]

Relevant reports

[de Lange et al 1999 etc]

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