



New Zealand Threat Classification System lists

2002

THREATENED SPECIES OCCASIONAL PUBLICATION 23



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Te Papa Atawhai

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Cover photo: The coxella weevil, *Hadramphus spinipennis*, is restricted to the Chatham Islands. This species' host plant is coxella speargrass, *Aciphylla dieffenbachii*, which is also endemic to the Chatham Islands. The speargrass (Nationally Vulnerable, with CD, HI, EF and OL qualifiers) is threatened by stock browsing on Chatham and Pitt Islands, and the weevil (Range Restricted, with HI and EF qualifiers) is confined to rodent-free islands such as Mangere Island. Photo by John Marris.

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Foreword

New Zealand has some of the most ancient and fascinating species in the world (e.g. the tuatara). Many of our plants and animals are found nowhere else. But we are also world leaders in our rates of extinctions (particularly of land and freshwater birds, where nearly one-third have been lost), and in our levels of threatened species—a legacy of a history of unsustainable harvest, habitat destruction and alien species introduction.

Preventing the extinction of New Zealand's unique plant and animal species is a critical element in the Government's New Zealand Biodiversity Strategy: a responsibility we owe to the rest of the world. But this is not a small task.

A vital step in doing this is to identify those species that are at risk of extinction, and to measure the level and nature of that risk. This information will allow us to focus our resources on the highest priority actions necessary to prevent extinction.

Since 1992 the Department of Conservation has been using a system (generally known as the Molloy-Davis system) which ranks species according to their priority for recovery action. While that system has served us well, it was not without its weaknesses. With the subsequent recognition of the importance of integrated prioritising, and focusing on places, it became clear that we should separate the process of classifying the threats to species from prioritising species recovery actions. We also recognised the need for a threat classification system that could be used for all New Zealand's species groups, including marine species. A process to develop a new threat classification system was therefore initiated in 1999.

The companion volume¹, by Janice Molloy and others, contains the result of that process. I would like to congratulate all those who have developed the new system. The quality of their work is shown by the fact that neither the final independent testing stage of development nor the actual application of the system identified the need for any significant changes. I would also like to place on record my appreciation for the willingness of experts from within and outside the Department to devote their valuable time to this exercise, and for the constructive approach they took to a sometimes controversial exercise. I believe that the product will be a major contribution to our efforts to prevent biodiversity loss.

This document, compiled by Rod Hitchmough, presents the results of applying the system to classify all those species for which we have sufficient information. We are now able for the first time to provide an accurate threat classification for all those taxa for which information is available, ensuring that all those which are threatened receive the necessary attention to secure their future. I greatly appreciate the willingness of experts from within and outside the Department to share their knowledge and devote often substantial amounts of their valuable time to compiling this information, and their positive attitude to the threat classification system.

Hugh Logan
Director-General of Conservation.

¹ Molloy, J.; Bell, B.; Clout, M.; de Lange, P.; Gibbs, G.; Given, D.; Norton, D.; Smith, N.; Stephens, T. 2002: Classifying species according to threat of extinction. A system for New Zealand. *Threatened species occasional publication* 22, 26 p.

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Introduction

The New Zealand Threat Classification System developed by Molloy *et al.* (2002: companion volume) was used to list nominated New Zealand taxa according to threat of extinction. These lists are provided in Appendices 1 and 2.

Interpreting these lists—the importance of qualifiers

The qualifiers listed for many species provide additional information which adds meaning to the threat classification. The qualifiers are an integral part of the classification of each taxon. When using these listings to inform management decisions, these factors should be taken into account.

Example

All taxa listed 'Nationally Critical' have a very high risk of extinction in New Zealand because of extremely small known populations or areas of occupancy, and/or very high rates of decline. However, some of the listings carry qualifiers which indicate that they are likely to be of lower priority for recovery action, e.g. SO (Secure Overseas), ST (Stable), or RC (Recovering). Among marine mammals, four taxa are listed as Nationally Critical: southern elephant seal, orca/killer whale, Bryde's whale, and North Island Hector's dolphin. All have New Zealand populations of fewer than 250 breeding adults. However, they differ very significantly in the associated qualifiers. North Island Hector's dolphin is CD (Conservation Dependent) and HI (Human Induced loss of range), and the absence of an SO or TO (Threatened Overseas) qualifier means that it is endemic. The southern elephant seal has TO and HI qualifiers; it is declining throughout its world range. On the other hand the Bryde's and killer whales both have SO qualifiers, and the killer whale also has ST, and Bryde's whale OL (One Location—northeastern coastal waters of the North Island).

The process

1. Questionnaires (Appendix 3) requesting information on numbers, population trends and geographic range of potentially threatened taxa (i.e. species, subspecies, and undescribed and tag-named taxa) were sent to many experts both within and outside the New Zealand Department of Conservation (DOC).

2. The taxa were divided into broad taxonomic groups (e.g. birds, terrestrial invertebrates, vascular plants). An expert panel for each taxonomic group met for one or more days, depending on the number of species to be discussed. (Members of the expert panels are listed in Appendix 4.) Each taxon for which information was available in the form of a completed questionnaire, a recent publication on its status, or unpublished information known to panel members was assessed by the panel according to the Molloy *et al.* (2002) criteria. Rod Hitchmough facilitated all meetings to ensure that as far as possible the criteria were applied consistently across all groups. Decisions on threat listings were recorded electronically as they were made, and projected on screen for checking by the panel as they were recorded.
3. The listing process was either completed at the panel meetings or required various degrees of follow-up, according to the amount of information available at the meeting. Considerable additional information was collected after the meetings for some lesser-known groups. In these instances this information, with draft listings inferred from it, was then circulated to group members for their confirmation.
4. A draft list was then circulated both to all panel members and to DOC conservancies for checking for accuracy and identification of significant gaps. Most information about species distributions between DOC conservancies (Fig. 1) was also collected at this stage.

Additional information available in spreadsheet but not published form

In addition to the information published in Appendix 1 of this document, a DOC computer spreadsheet with more information is available via the DOC Intranet. It includes additional notes on distribution and status, columns to allow filtering by taxonomic rank, qualifiers, and criteria triggering listing, a record of the date on which the entry for that taxon was last modified, and previous listings under other systems: (Molloy & Davis, IUCN, and for plants de Lange *et al.* 1999). The spreadsheet also includes synonyms (e.g. tag names now superseded by a published formal name) which have been used in recent documents, with cross-references in the notes column to the name used in this listing.

This spreadsheet is 'live' on the DOC website: <http://www.doc.govt.nz>, and will be updated with significant changes in status of taxa as they occur. When the spreadsheet has been changed since the last hard copy publication of these lists, the spreadsheet should be regarded as containing the more authoritative information. In due course the information from this spreadsheet will be incorporated into the BIOWEB database, and be available via BIOWEB searches.

Most DOC staff will be able to access this additional information. Those outside DOC requiring access in printed or electronic form should contact their local Conservancy office.

Coverage

The system has the capacity to classify the status of all species, subspecies, etc. of organisms occurring in the wild in New Zealand. Every effort has been made to include as many taxa as possible in this list, but inevitably the completeness of the coverage varies between taxonomic groups. We hope taxa not presently covered will be included in future revisions of this list.

Only threatened and data deficient taxa are included in this published document (Appendices 1 and 2). The computer spreadsheet (and in future BIOWEB) includes this information and additional taxa not currently considered threatened as follows:

All native taxa from these groups are listed, including undescribed, tag-named taxa and species considered not threatened:

- Bats
- Birds
- Freshwater fish
- Frogs
- Marine mammals
- Reptiles

All native taxa (including undescribed, tag-named taxa) listed except those considered not threatened:

- Vascular plants

Some threatened or data deficient taxa (including undescribed, tag-named taxa) listed, depending on availability of information; list is known to be incomplete:

- Freshwater invertebrates
- Marine fish
- Marine invertebrates
- Terrestrial invertebrates

Some threatened or data deficient taxa (mostly excluding undescribed, tag-named taxa) listed; restricted to taxa with very small numbers of herbarium collections; list is known to be incomplete as many other, more often collected species probably fit the status and trend criteria for listing:

- Bryophytes
- Algae
- Fungi

Introduced species were not listed, except for a very small number which are IUCN-listed in their country of origin.

Formally described and generally accepted (taxonomically determinate) taxa are separated in this published list from taxonomically indeterminate taxa which lack published names or are of disputed validity. During the listing process it became apparent that it was necessary to clarify and fix the identity of tag-named, undescribed taxa by linking them to numbered voucher specimens. This was achieved as far as possible for vascular plants and some invertebrate groups. For other groups this was not possible in the time available, but the intention is that in future revisions of this list, voucher numbers or other evidence such as reference to a published or filed photograph will be a requirement for inclusion of undescribed taxa.

Listing at one taxonomic level only

Taxa are listed only once. If subspecies are recognised or informally proposed in a species, then the subspecies not the species are listed. For example, the following endemic vertebrate species will not be found listed as species because they are listed at the subspecific level:

Short-tailed bat — *Mystacina tuberculata*
Long-tailed bat — *Chalinolobus tuberculata* (undescribed subspecies)
Hector's dolphin — *Cephalorhynchus hectori* (undescribed subspecies)
Rifleman — *Acanthisitta chloris*
Brown teal — *Anas chlorotis* (undescribed subspecies)
Bellbird — *Anthornis melanura*
Pipit — *Anthus novaeseelandiae*
Fernbird, karoti, matata — *Bowdleria punctata*
Kokako — *Callaeas cinerea*
Banded dotterel — *Charadrius bicinctus*
New Zealand dotterel — *Charadrius obscurus*
New Zealand snipe — *Coenocorypha aucklandica*
Red-crowned kakariki — *Cyanorhamphus novaezelandiae*
New Zealand falcon — *Falco novaeseelandiae* (undescribed subspecies)
Weka — *Gallirallus australis*
Kaka — *Nestor meridionalis*
New Zealand robin — *Petroica australis*
Tomtit — *Petroica macrocephala*
Saddleback, tieke — *Philesturnus carunculatus*
Tui — *Prosthemadera novaeseelandiae*
White-fronted tern — *Sterna striata*
Marbled skink — *Cyclodina oliveri* (component taxa described as species but not recognised in recent revisions)
Striped gecko — *Hoplodactylus stephensi* (undescribed subspecies)
Auckland and Wellington green geckos — *Naultinus elegans*
Common and Chatham Island skinks — *Oligosoma nigriplantare*
Cook Strait and northern tuatara — *Sphenodon punctatus*

Distribution of listings

Table 1 shows a breakdown of numbers of species in each threat category, separated by taxonomic group. Their distribution curve would be U-shaped in most groups, with large numbers of Nationally Critical and Nationally Endangered species, relatively few listed Nationally Vulnerable or in Serious Decline, and large numbers again in the Gradual Decline, Sparse, and Range Restricted categories. The smaller numbers of taxa in the Nationally Vulnerable and Serious Decline categories reflect the combination of high rates of decline and moderate to large population sizes required to trigger classification in these categories. Unless facing a new threat, most New Zealand taxa which are declining at these high rates will now have very low population sizes, triggering a higher threat listing. Taxa which have suffered high rates of decline in the past but have now stabilised in refugia will no longer trigger the trend criteria for these categories, and will be listed as Sparse or Range Restricted.

Conservancy distributions

Appendix 1 includes information on distribution at DOC conservancy (Fig. 1) level as well as threat listings for each taxon. For some taxa, detailed information on distribution was unavailable, so this matrix is incomplete. We would welcome information on conservancy distributions we have missed so that the computer spreadsheet can be corrected and the information become available for future revisions of these lists (contact details below). Table 2 shows a summary of numbers of threatened species in each conservancy, separated by threat category. A more detailed breakdown by both taxonomic group and conservancy is possible from the computer spreadsheet.

Updating listings

The intention is that this list will be fully reviewed every 3 years, and that major changes in risk of extinction will be recorded in the computer spreadsheet as they occur. Suggestions for minor corrections will be stockpiled for consideration in the triennial review of the listings, and should be sent to:

New Zealand Threat Classification System lists
Biodiversity Recovery Unit
Department of Conservation
P O Box 10-420
Wellington
Phone (04) 471 3249
Fax (04) 471 3279

TABLE 1. DISTRIBUTIONS OF THREAT RANKINGS BY TAXONOMIC GROUP. IN EACH CELL, THE ENTRIES ARE: NUMBERS OF SPECIES/NUMBERS OF SUBSPECIES OR OTHER INFRASPECIFIC TAXA. THERE IS NO SPECIES-LEVEL LISTING FOR TAXA LISTED AS SUBSPECIES.

THREAT CATEGORY	TAXONOMIC GROUP						
	BATS ¹	BIRDS ¹	BRYOPHYTES	FRESHWATER FISH ¹	FRESHWATER INVERTEBRATES	FROGS ¹	FUNGI
Nationally Critical		13/12	76/4	1/0	4/0	2/0	50/0
Nationally Endangered	0/3	9/13	8/1	2/0		1/0	
Nationally Vulnerable	0/1	7/2		1/0			
Serious Decline	0/0	5/3		1/0			1/0
Gradual Decline		13/7		10/0			10/0
Sparse		2/9	5/0	2/0	6/0	1/0	5/0
Range Restricted	0/1	28/22	34/1	2/0	38/0		
Total threatened	0/5	77/68	123/6	19/0	48/0	4/0	66/0
Not threatened		26/31		21/0			
Coloniser		10/1		2/0			
Migrant	50/0						
Vagrant		4 ² /0					
Extinct		14/2		1/0			
Data Deficient	1/0	0/0	14/0	5/0	18/2		1416/39

¹ The entire native fauna of these groups has been listed under the system; for other groups, only taxa proposed as potentially threatened have been listed.

² IUCN-listed vagrants only.

TABLE 1 (continued).

THREAT CATEGORY	TAXONOMIC GROUP										TOTAL
	MACROALGAE	MARINE FISH	MARINE INVERTEBRATES	MAMMALS ^o	REPTILES ^o	REPTILES ^o	TERRESTRIAL INVERTEBRATES	VASCULAR PLANTS			
Nationally Critical			12/0	3/1	3/1	72/17	76/13	312/48			
Nationally Endangered			3/0	1/0	4/0	55/32	58/10	141/59			
Nationally Vulnerable				0/1		2/6	20/3	30/13			
Serious Decline			5/0		1/0	13/3	24/6	50/12			
Gradual Decline		2/0	5/0		13/2	24/10	78/6	155/25			
Sparse		17/0	4/0		14/2	65/1	134/10	255/22			
Range Restricted	36/0	32/0	206/9	1/0	15/4	356/14	370/82 (1?)	1118/133			
Total threatened	36/0	51/0	235/9	5/2	50/9	587/83	760/130	2061/312			
Not threatened		101/0	4/0	4/1	13/1	59/1	18/4	-			
Coloniser							9/0	-			
Migrant		5/0		11/1				-			
Vagrant		3/0		14/0			17/2	-			
Extinct					1/0	3/1	5/1	24/4			
Data Deficient	23/0	36/0	2/0	12/0	6/2	367/4	98/4	1998/47			

¹ The entire native fauna of these groups has been listed under the system; for other groups, only taxa proposed as potentially threatened have been listed.

² IUCN-listed vagrants only.

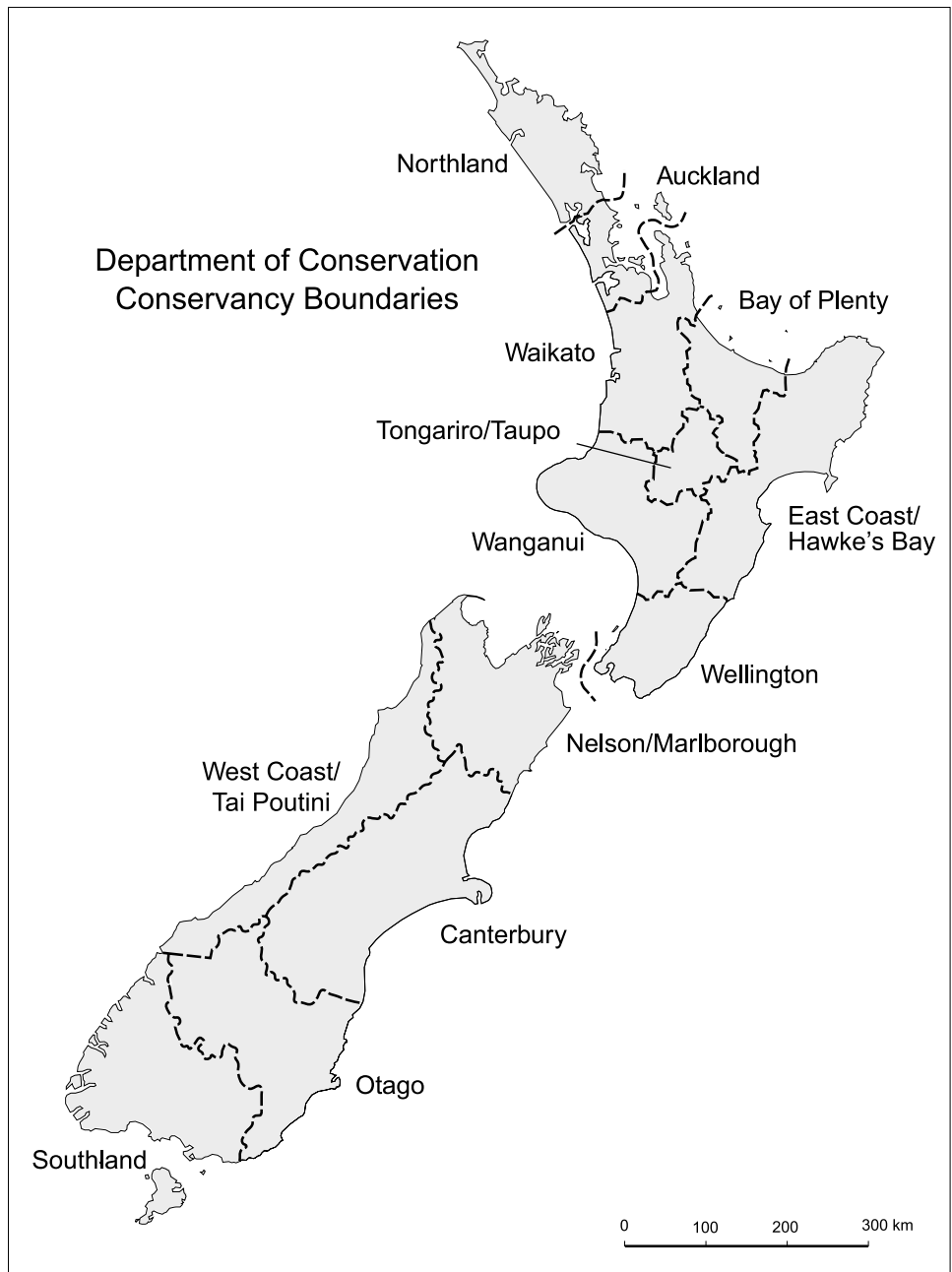


FIGURE 1. DEPARTMENT OF CONSERVATION CONSERVANCY BOUNDARIES.

TABLE 2. DISTRIBUTIONS OF NUMBERS OF THREATENED TAXA BY NEW ZEALAND DEPARTMENT OF CONSERVATION CONSERVANCY (SEE MAP, PAGE 14). ENTRIES ARE: PRESENT IN CONSERVANCY/LOCALLY EXTINCT. MANY TAXA ARE PRESENT IN MULTIPLE CONSERVANCIES.

CONSERVANCY	THREAT CATEGORY										TOTAL THREATENED	DATA DEFICIENT
	NATIONALLY CRITICAL	NATIONALLY ENDANGERED	NATIONALLY VULNERABLE	SERIOUS DECLINE	GRADUAL DECLINE	SPARSE	RANGE RESTRICTED					
Northland	70/8	54/5	6/1	20/1	50/3	66/1	308/2				574/21	124/2
Auckland	38/5	36/4	5/1	21/0	52/4	67/1	146/1				365/16	53/2
Waikato	23/5	30/3	6/1	18/2	51/3	66/0	29/2				223/16	27/3
Bay of Plenty	14/9	25/1	6/0	19/3	48/7	57/1	17/2				186/23	27/3
East Coast/Hawkes Bay	23/7	20/8	4/1	16/1	39/5	37/7	25/5				164/34	38/1
Tongariro/Taupo	13/4	11/6	4/0	12/0	31/2	25/1	16/3				112/17	21/1
Wanganui	21/7	26/3	9/0	21/1	60/3	57/0	44/3				238/17	74/1
Wellington	44/7	49/3	14/0	20/1	64/6	60/3	106/1				357/21	68/2
Nelson/Marlborough	57/14	67/7	17/1	23/2	93/1	129/1	216/2				602/28	102/4
West Coast	43/11	34/7	8/0	10/0	44/4	49/1	63/3				251/26	43/0
Canterbury	49/12	38/13	12/0	14/2	71/2	95/1	98/2				378/32	97/3
Otago	34/13	43/8	15/0	16/0	73/1	83/2	97/2				361/26	75/5
Southland	47/10	38/3	11/0	13/0	68/0	55/1	244/3				476/17	79/1

Acknowledgements

Many people generously donated time and information to this project—in particular the listing would have been impossible without the information provided in completed questionnaires on threatened species. The expert panel members listed in Appendix 4 made the panel meetings enjoyable, informative, and productive. Jennifer Jarres did a tremendous job of gathering and entering conservancy distribution data and tying up other loose ends in the database. John Ombler and Pam Cromarty were supportive project sponsors.