



NEW ZEALAND THREAT CLASSIFICATION SERIES 36

Conservation status of birds in Aotearoa New Zealand, 2021

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Department of
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Te Papa Atawhai



**Te Kāwanatanga
o Aotearoa**
New Zealand Government

Cover: Tara iti/New Zealand fairy tern (*Sternula nereis davisae*): Threatened – Nationally Critical. Photo: Darren Markin.

New Zealand Threat Classification Series is a scientific monograph series presenting publications related to the New Zealand Threat Classification System (NZTCS). Most will be lists providing NZTCS status of members of a plant or animal group (e.g. algae, birds, spiders). There are currently 23 groups, each assessed once every 5 years. From time to time the manual that defines the categories, criteria and process for the NZTCS will be reviewed. Publications in this series are considered part of the formal international scientific literature.

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CONTENTS

1.	Background	2
1.1	Assessment process	2
1.2	This assessment	3
2.	Summary	4
2.1	Additional taxa	4
2.2	Removed taxa	5
2.3	Changed taxon names	5
2.4	Trends	7
2.4.1	Improved status	10
2.4.2	Worsened status	13
2.4.3	Data Deficient	15
2.5	Use of qualifiers	15
2.5.1	CD (Conservation Dependent)	15
2.5.2	CI (Climate Impact)	16
2.5.3	CR (Conservation Research Needed)	16
2.5.4	De (Designated)	16
2.5.5	DP (Data Poor)	16
3.	Conservation status of all known birds in Aotearoa New Zealand	18
3.1	Assessments	18
3.2	NZTCS categories, criteria and qualifiers used in this assessment	37
3.2.1	Qualifiers	37
3.2.2	Categories and criteria	37
4.	Acknowledgements	40
5.	References	41

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Abstract

The conservation status of 491 taxa of birds recorded in Aotearoa New Zealand since first human contact was assessed using the New Zealand Threat Classification System criteria. Since the last assessment in 2016, eight taxa have been added to the list – five as a result of new distribution records and three as newly described extinct species. Four taxa were removed from the assessment process due to one taxonomic revision and reassessment of the validity of records of three vagrant or introduced species. In total, 80 taxa were assessed as being Threatened, 98 as At Risk, 37 as Not Threatened, and 212 as Non-resident, Coloniser, or Introduced and Naturalised. Two taxa remain as Data Deficient, although both are probably functionally extinct, with no accepted sightings in the past 5 years. Since 2016, the status of 25 taxa has improved, often because of conservation management, while the status of 22 taxa has deteriorated. Of note, 5 of 23 taxa that were regarded as Threatened – Nationally Critical are now considered less threatened and no taxa have moved into this category. Much conservation work is still required because 137 taxa are identified as being dependent on conservation management and climate change is known or predicted to have a negative impact on 69 taxa. Although birds are better known than many other taxonomic groups, 80 taxa were flagged as requiring more conservation research and 52 taxa were given one or more Data Poor qualifiers to indicate a paucity of knowledge about their taxonomy and/or their population sizes and trends.

Keywords: Aotearoa New Zealand, birds, conservation status, threat classification

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1. Background

In 2001, the Department of Conservation (DOC) and external conservation scientists produced the New Zealand Threat Classification System (NZTCS; Molloy et al. 2002) to complement the International Union for Conservation of Nature's (IUCN's) Red List system. The categories and criteria within the NZTCS were defined to reflect the recent period of human contact during which populations of many native species have declined in range and/or numbers, taking into account Aotearoa New Zealand's small size, many islands and mountainous geography, which have led to a large number of taxa having naturally restricted ranges and small population sizes (Molloy et al. 2002).

The NZTCS methodology was refined in 2007 to ensure that all possible combinations of status and trend were covered within the different categories, and the resulting manual (Townsend et al. 2008) was used to assess the conservation status of birds within Aotearoa New Zealand and its 200 nautical mile Exclusive Economic Zone (EEZ) in 2008 (Miskelly et al. 2008), 2012 (Robertson et al. 2013), 2016 (Robertson et al. 2017) and 2021 (this report). Some minor changes to the categories, criteria, and qualifiers proposed by Rolfe et al. (2021) and Michel (2021) were incorporated into this latest assessment, as follows:

- The status At Risk – Recovering A for increasing populations consisting of 1000–5000 mature individuals was shifted to the Threatened category and renamed Threatened – Nationally Increasing, with no change of the criteria. This was done to address the fact that when the growth of a population assessed as Recovering A stabilised, the taxon moved to the category Threatened – Nationally Vulnerable, despite there being no deterioration in the taxon's population. The term Nationally Increasing does not imply that the population is increasing consistently across its entire geographical range but rather that the total population of the taxon in Aotearoa New Zealand is predicted to increase at > 10% in three generations.
- The qualifier Climate Impact (CI) was added to reflect new pressures from changing environments and to acknowledge taxa that are or will be adversely affected by long-term climate trends and/or extreme events.
- The new qualifier Conservation Research Needed (CR) indicates a need for research to better understand the cause of decline and/or solution for recovery.
- The qualifier Data Poor (DP) has been split into three new qualifiers that identify the knowledge gaps that cause the qualifiers to be used: Data Poor Recognition (DPR) to indicate the difficulty in identifying the taxon in the field, Data Poor Size (DPS) to indicate a lack of data on population size and Data Poor Trend (DPT) to indicate a lack of data on population trend.
- The new qualifier Population Fragmentation (PF), which covers some taxa that previously triggered the qualifier Sparse indicates that gene flow between subpopulations is hampered as a direct or indirect result of human activity.

1.1 Assessment process

NZTCS assessments are reviewed approximately every 5 years by panels of individuals from within and outside DOC. Each assessment panel comprises experts in the field of taxonomy, conservation biology and ecology who have deep knowledge on a specific taxonomic group and/or are recognised by their peers as active experts in the field, as well as people with a good technical knowledge of the NZTCS process to ensure consistent approaches across the various assessment panels. Assessment criteria and categories are interpreted in the context of scientific evidence (e.g. population monitoring) and expert understanding of the

ecology of each taxon/order (e.g. natural population fluctuations), and the manual requires that a precautionary approach is applied where a taxon is on the border of two possible threat categories, resulting in the higher threat category being chosen.

An information-gathering process complements the knowledge provided by members of the expert panel and is open to anyone wishing to provide scientific information to assist the review of the assessment. A call for submissions is made on DOC's *Have your say* webpage, on the NZTCS website and through expert networks. A questionnaire assists the gathering of relevant scientific evidence, for example from local surveys and monitoring.

The expert panel uses the previously published assessment as the starting point for the new assessment and then evaluates any new information available, both published and unpublished. Taxa are assessed according to the reported population size and recent trends, and the panel predicts future changes over the next 10 years or three generations, whichever is the longer. Taxa are assigned to the Data Deficient category when insufficient data are available to assess the conservation status or are given one of the three Data Poor qualifiers when assessments are made but with low confidence due to limited data being available.

1.2 This assessment

The panel that made this assessment consisted of 10 experts (with an even split from within and external to DOC) plus 2 administration/support staff.

A call for submissions was advertised through the September 2020 issue of *Birds New Zealand*, the quarterly magazine of Birds New Zealand/Ornithological Society of New Zealand (BNZ/OSNZ); on DOC's *Have your say* webpage (www.doc.govt.nz/get-involved/have-your-say/); on the NZTCS website (<https://nztcs.org.nz/>); and through expert networks. A total of 16 submissions were received from ornithologists, providing data on 42 taxa.

Many scientific papers and technical reports have been published in the past 5 years, including two special issues of *Notornis* – a compilation of papers on birds of the Auckland Islands (Miskelly & Symes 2020) and a collection of papers on waders (Woodley & Symes 2020). These publications have improved our confidence in estimating current and future population trends for many of Aotearoa New Zealand's bird species. A key data source was the New Zealand eBird database (<https://ebird.org/newzealand>), which is jointly administered by BNZ/OSNZ and the Cornell Lab of Ornithology, and especially those recent bird records collected as part of the 5-year BNZ/OSNZ's eBird Atlas Scheme (<https://ebird.org/atlasnz/home>).

Bird et al. (2020) modelled estimates of the generation lengths of all bird species in the world based on published life-history and trait data from well-studied species. The critical parameters used in these models were age at first breeding, maximum longevity and annual adult survival. However, while annual survival rates of Aotearoa New Zealand birds are often well known from banding or radio-tracking studies, relatively few taxa have been banded long enough, or recovered in sufficient numbers, to provide robust estimates of longevity, and therefore underestimated generation lengths for many endemic species. Furthermore, the assessment panel found that while the general methodology of Bird et al. (2020) was sound, they often overlooked relevant published data and frequently underestimated generation lengths for Aotearoa New Zealand species. For example, Bird et al. (2020) estimated the annual survival and longevity of rowi (*Apteryx rowi*) to be 0.888 and 24.25 years, respectively, giving a generation length of 10 years, whereas the observed survival of 0.979 (Robertson & de Monchy 2012) combined with the current longevity record of 34.8 years since banding of the species began in the 1990s (NZ Bird Banding Scheme, unpubl. data) gives an estimated generation length of 51 years.

Data on the longevity of Aotearoa New Zealand birds were therefore extracted from FALCON (<https://app.birdbanding.doc.govt.nz/>), the New Zealand National Bird Banding Scheme (NZNBBS) database (Imogen Foote, NZNBBS, pers. comm.), and generation length estimates were re-calculated for the 35 taxa already with substantially higher longevity values than those modelled by Bird et al. (2020) using the formulae they used.

The generation length values used in this assessment and the full meeting notes can be found on the assessment page for many taxa on the NZTCS website (<https://nztc.org.nz/reports/1076>).

2. Summary

This report presents the conservation status of all 491 bird taxa that have been known to inhabit or visit Aotearoa New Zealand and its EEZ since first human contact approximately 750 years ago (Wilmshurst et al. 2008), excluding failed introductions. The geographical coverage excludes birds in the Ross Dependency of Antarctica. This is the latest in a series of assessments (Hitchmough 2002; Hitchmough et al. 2007; Miskelly et al. 2008; Robertson et al. 2013, 2017), the most recent three of which have used the same criteria (Townsend et al. 2008).

In 2016, Robertson et al. (2017) assessed the conservation status of 487 Aotearoa New Zealand bird taxa. This new assessment of 491 taxa includes eight taxa that are being assessed for the first time and excludes four of the taxa that were assessed in 2016.

The nomenclature used in this assessment follows the most recently published *Checklist of New Zealand Birds* (Gill et al. 2010) except where explicitly stated in this report or one of its predecessors following the assessment of new taxonomic information or the acceptance of new distribution records by the BNZ/OSNZ Records Appraisal Committee. The other exception is that we use tohūtō/macrons, where appropriate, for names in te reo Māori, including those that have English descriptors, e.g. South Island kākā and, for consistency, we also include accent marks in foreign words used in names in English (e.g. Adélie penguin).

2.1 Additional taxa

Eight taxa were assessed for the first time in 2021 (Table 1).

Five of these taxa – collared petrel (*Pterodroma brevipes*), eastern Pacific red-footed booby (*Sula sula websteri*), Macquarie Island shag (*Leucocarbo purpurascens*), laughing gull (*Larus atricilla*) and rose-crowned fruit-dove (*Ptilinopus regina*) – have been added to the Aotearoa New Zealand list since 2016 by the BNZ/OSNZ Records Appraisal Committee (Miskelly et al. 2017, 2019, 2021; Miskelly 2020; Miskelly & Cooper 2020).

The remaining three taxa – Chatham Island crested penguin (*Eudyptes warhami*), Richdale's penguin (*Megadyptes antipodes richdalei*) and kōhatu shag (*Leucocarbo septentrionalis*) – became extinct after human settlement in Aotearoa New Zealand approximately 750 years ago and have been added to the Aotearoa New Zealand list following their description based on genetic, osteological, morphological and palaeoecological data from Holocene dune and coastal midden remains (Rawlence et al. 2017; Cole et al. 2019).

2.2 Removed taxa

Four taxa from the previous assessment have not been included in the 2021 list (Table 2).

Blue shag (*Stictocarbo punctatus oliveri*) was assessed by Robertson et al. (2017) as At Risk – Naturally Uncommon but removed from this assessment following genetic and morphological analysis that revealed no discernible separation from spotted shag (*Stictocarbo punctatus punctatus*) (Rawlence et al. 2019). Instead, both forms are treated as spotted shag (*Stictocarbo punctatus*).

Magellanic penguin (*Spheniscus magellanicus*) was excluded from the 2021 list because its occurrence in Aotearoa New Zealand is regarded as a failed introduction rather than as a vagrant (Gill et al. 2010). This species should not have been assessed as a vagrant after 2010.

Feral chicken (*Gallus gallus gallus*) was assessed as Introduced and Naturalised by Robertson et al. (2017) but removed from the 2021 list because, while it is known to breed in the wild in Aotearoa New Zealand, no viable wild populations have been established and most enclaves are supplemented by ongoing releases and/or supplementary feeding (Heather & Robertson 2015). The species was included in the current New Zealand checklist (Gill et al. 2010) only on the basis that feral populations have established on Norfolk Island, which is outside the geographical scope of this assessment.

Crimson rosella (*Platycercus elegans*) was also assessed as Introduced and Naturalised by Robertson et al. (2017). However, a breeding population of this species in Dunedin died out in the 1950s, the small breeding population in Wellington city appears to have died out in the early 2000s, and the few birds that have been seen elsewhere in the country are probably recent cage escapees (Heather & Robertson 2015). The panel assessed that the species is no longer naturalised in Aotearoa New Zealand and so removed it from the 2021 list.

2.3 Changed taxon names

Although the panel was aware that many changes to the genus and some species names applied to bird taxa occurring in Aotearoa New Zealand have been mooted and many of these are now widely accepted in the ornithological literature, it has generally used the scientific names given in the latest edition of the New Zealand checklist (Gill et al. 2010) or previous assessments. This is to avoid replicating the work of the BNZ/OSNZ's Checklist Committee, which is working towards producing a new online edition of the checklist in 2022. However, the taxonomically indeterminate/determinate status of some taxa has changed since the last assessment (Robertson et al. 2017) (see Table 3).

Genetic and morphological analysis combined with a review of movements of sealers at the time the type specimen of tokoeka (*Apteryx australis*) was described have shown that this specimen was from Stewart Island/Rakiura rather than Tamatea/Dusky Sound as previously believed (Scofield et al. 2021). The Rakiura tokoeka now takes the name *A. a. australis*, while the tokoeka in southern Fiordland is now considered to be a taxonomically unresolved subspecies, *A. australis* "southern Fiordland".

In 2018, Whenua Hou diving petrel (*Pelecanoides whenuahouensis*) was described as being a unique species from the South Georgian diving petrel (*Pelecanoides georgicus*) based on morphological and plumage characteristics (Fischer et al. 2018). More recent genetic research suggests that this taxon may only be differentiated at the subspecific level (Grosser et al. 2021) but here we follow Fischer et al. (2018) and treat it as a unique species.

The origin of the type specimens of rock wren (*Xenicus gilviventris*) has been traced to the headwaters of the Rakaia River (Verry et al. 2019), which is to the north of the contact zone between southern and northern forms of this species (Weston & Robertson 2015). The subspecies name *X. g. rineyi* (coined by Falla 1953) is available for the southern form (see Verry et al. 2019). We here use the name *X. g. gilviventris* for the northern rock wren and *X. g. rineyi* for the southern rock wren.

Table 1. Bird taxa assessed for the first time in this report.

ASSESSMENT NAME AND AUTHORITY	COMMON NAME	FAMILY	STATUS
<i>Eudyptes warhami</i> Cole, Tennyson, Ksepka & Thomas, 2019	Chatham Island crested penguin	Spheniscidae	Extinct
<i>Larus atricilla</i> Linnaeus, 1758	laughing gull	Laridae	Non-resident Native – Vagrant
<i>Leucocarbo purpurascens</i> (Brandt, 1837)	Macquarie Island shag	Phalacrocoracidae	Non-resident Native – Vagrant
<i>Leucocarbo septentrionalis</i> Rawlence et al. 2017	kōhatu shag	Phalacrocoracidae	Extinct
<i>Megadyptes antipodes richdalei</i> Cole, Tennyson, Ksepka & Thomas 2019	Richdale's penguin	Spheniscidae	Extinct
<i>Pterodroma brevipes</i> (Peale, 1848)	collared petrel	Procellariidae	Non-resident Native – Vagrant
<i>Ptilinopus regina</i> Swainson, 1825	rose-crowned fruit-dove	Columbidae	Non-resident Native – Vagrant
<i>Sula sula websteri</i> Rothschild, 1898	eastern Pacific red-footed booby	Sulidae	Non-resident Native – Vagrant

Table 2. Taxa that were assessed by Robertson et al. (2017) but are not assessed in this report.

NAME AND AUTHORITY	COMMON NAME	FAMILY	REASON FOR DELETION
<i>Gallus gallus gallus</i> (Linnaeus, 1758)	feral chicken	Phasianidae	No viable wild populations in Aotearoa New Zealand
<i>Platycercus elegans</i> (Gmelin, 1788)	crimson rosella	Psittacidae	No viable wild populations in Aotearoa New Zealand
<i>Spheniscus magellanicus</i> (Forster, 1781)	Magellanic penguin	Spheniscidae	Failed introduction to Aotearoa New Zealand
<i>Stictocarbo punctatus oliveri</i> Mathews, 1931	blue shag	Phalacrocoracidae	Conspecific with <i>Stictocarbo punctatus</i> Sparrman, 1786

Table 3. Name changes affecting Aotearoa New Zealand bird taxa between the publication of Robertson et al. (2017) and this report.

NAME AND AUTHORITY IN ROBERTSON ET AL. 2017	NAME AND AUTHORITY IN THIS REPORT	COMMON NAME	FAMILY
<i>Apteryx australis australis</i> Shaw, 1813	<i>Apteryx australis</i> "southern Fiordland"	southern Fiordland tokoeka	Apterygidae
<i>Apteryx australis lawryi</i> Rothschild, 1893	<i>Apteryx australis australis</i> Shaw, 1813	Rakiura tokoeka	Apterygidae
<i>Pelecanoides georgicus</i> "Codfish Island" Murphy & Harper, 1916	<i>Pelecanoides whenuahouensis</i> Fischer et al., 2018	Whenua Hou diving petrel	Pelecanoididae
<i>Stictocarbo punctatus punctatus</i> (Sparrman, 1786)	<i>Stictocarbo punctatus</i> (Sparrman, 1786)	spotted shag	Phalacrocoracidae
<i>Xenicus aff. gilviventris</i> "southern"	<i>Xenicus gilviventris rineyi</i> Falla, 1953	southern rock wren	Acanthisittidae

2.4 Trends

Of the 491 taxa assessed in this report, 80 (16.3%) are Threatened, 98 (20.0%) are At Risk and 37 (7.5%) are Not Threatened resident native taxa (Table 4). Of the remaining taxa, 2 (0.4%) remain classified as Data Deficient, although both of these are likely to be functionally extinct; 10 (2.0%) are recent colonisers; 62 (12.6%) have become extinct since first human contact c. 750 years ago; and 202 (41.1%) are Non-resident or Introduced and Naturalised.

The number of taxa assessed as being Threatened – Nationally Critical has decreased from 25 taxa in 2012 to 23 in 2016 and 18 in 2021, while the numbers of taxa in the other Threatened categories have fluctuated between assessments with no clear trends (Table 4). Furthermore, while the number of taxa assessed as At Risk – Recovering has increased from 4 in 2008 to 9 in this assessment, the number of At Risk – Declining taxa has also increased from 18 in 2008 to 27 in 2021. These 27 taxa may require special research and management attention to prevent them from moving into one of the Threatened categories in the future.

Table 4. Comparison of the status of Aotearoa New Zealand bird taxa assessed in 2008 (Miskelly et al. 2008), 2012 (Robertson et al. 2013), 2016 (Robertson et al. 2017) and 2021 (this report).

CATEGORY	2008	2012	2016	2021
Extinct*	57	56	59	62
Data Deficient	1	2	2	2
Threatened – Nationally Critical	24	25	23	18
Threatened – Nationally Endangered	15	18	15	14
Threatened – Nationally Vulnerable	38	34	33	37
Threatened – Nationally Increasing†	6	8	13	11
At Risk – Declining	18	17	22	27
At Risk – Recovering	4	5	10	9
At Risk – Relict	17	17	15	25
At Risk – Naturally Uncommon	48	45	47	37
Not Threatened resident native	36	38	38	37
Non-resident Native – Migrant	27	24	24	24
Non-resident Native – Vagrant	130	138	141	143
Non-resident Native – Coloniser	8	9	8	10
Introduced and Naturalised	36	37	37	35
Total	465	473	487	491

* Miskelly et al. (2008) listed 20 species that became extinct since 1880 but noted that 41 additional taxa became extinct between human arrival and 1800; however, this has been reduced to 37 taxa following a revision of moa taxonomy.

† Threatened – Nationally Increasing is a new name and category for the former At Risk – Recovering A category.

The conservation status of 47 taxa has changed since the previous assessment in 2016 (Robertson et al. 2017) (see Tables 5 & 6), with 25 having improved and 22 having worsened, although 6 of the latter were more or less neutral changes from a classification of At Risk – Naturally Uncommon to At Risk – Relict. While most changes were identified as actual changes in population levels or trends, some were driven by improved knowledge, occasionally from the reinterpretation of existing data (Table 6).

Table 5. Summary of status changes of bird taxa between 2016 (rows, Robertson et al. 2017) and 2021 (columns, this report). Numbers on the diagonal (shaded black) represent those taxa that have not changed status between 2016 and 2021. Numbers shaded in light green above the diagonal represent taxa with improved status (e.g. one taxon has moved from Threatened – Nationally Critical in 2016 to At Risk – Declining in 2021). Numbers shaded in dark red below the diagonal represent taxa with poorer status. Numbers without shading represent either taxa that have moved into or out of Data Deficient, taxa that are Non-resident Native or Introduced and Naturalised, newly added taxa, or taxa deleted from this assessment.

		CONSERVATION STATUS 2021																
		TOTAL	EXT	DD	NC	NE	NV	NI [†]	DEC	REC	REL	NU	NT	VAG	MIG	COL	IN	DEL [‡]
		495*	62	2	18	14	37	11	28	9	25	36	37	143	24	10	35	4
CONSERVATION STATUS 2016	Extinct (Ext)	59	59															
	Data Deficient (DD)	2		2														
	Threatened – Nationally Critical (NC)	23			18		4		1									
	Threatened – Nationally Endangered (NE)	15				12	1					2						
	Threatened – Nationally Vulnerable (NV)	33				2	23	2	4		1	1						
	Threatened – Nationally Increasing (NI) [†]	13					1	9		2	1							
	At Risk – Declining (Dec)	22						1	19				2					
	At Risk – Recovering (Rec)	10								1	7	1	1					
	At Risk – Relict (Rel)	15										15						
	At Risk – Naturally Uncommon (NU)	47						6		2		6	32					1
	Not Threatened (NT)	38						1		1		1		35				
	Non-resident Native – Vagrant (Vag)	141												138		2		1
	Non-resident Native – Migrant (Mig)	24													24			
	Non-resident Native – Coloniser (Col)	8														8		
	Introduced and Naturalised (IN)	37															35	2
Additions	8	3											5					

* The total in this table includes the four deleted taxa that were not assessed.

[†] Threatened – Nationally Increasing (NI) is a new name and category for the former At Risk – Recovering A category.

[‡] Del = Deletions from this assessment – these include blue shag (*Stictocarbo punctatus oliveri*), which is no longer considered to be a distinct subspecies within spotted shag (*Stictocarbo punctatus*); Magellanic penguin (*Spheniscus magellanicus*), which is now considered to be a failed introduction; and feral chicken (*Gallus gallus*) and crimson rosella (*Platycercus elegans*), which are no longer considered to be naturalised.

Table 6. Summary of changes to the number of taxa assigned to each conservation status between 2016 (Robertson et al. 2017) and 2021 (this report).

DIRECTION OF CHANGE	REASON FOR CHANGE	CONSERVATION STATUS IN 2021	NO. TAXA
Improved	Actual improvement	Threatened – Nationally Vulnerable	2
		Threatened – Nationally Increasing*	2
		At Risk – Recovering	2
		At Risk – Relict	2
		At Risk – Naturally Uncommon	3
		Not Threatened	2
		Coloniser	2
		Total	15
	More knowledge	Threatened – Nationally Vulnerable	3
		At Risk – Declining	4
		At Risk – Naturally Uncommon	2
		Total	9
	Reinterpretation of data	At Risk – Relict	1
		Total	1
		TOTAL IMPROVED	25
Worsened	Actual decline	Threatened – Nationally Vulnerable	4
		At Risk – Declining	4
		Total	8
	More knowledge	Threatened – Nationally Endangered	1
		Threatened – Nationally Vulnerable	1
		At Risk – Relict	1
		Total	3
	Reinterpretation of data	Threatened – Nationally Endangered	1
		Threatened – Nationally Vulnerable	3
		At Risk – Relict	6
		Total	10
	Greater uncertainty	Threatened – Nationally Vulnerable	1
		Total	1
		TOTAL WORSENE	22
	No change		Extinct
		Data Deficient	2
		Threatened – Nationally Critical	18
		Threatened – Nationally Endangered	12
		Threatened – Nationally Vulnerable	23
		Threatened – Nationally Increasing*	9
		At Risk – Declining	19
		At Risk – Recovering	7
		At Risk – Relict	15
		At Risk – Naturally Uncommon	32
		At Risk – Not Threatened	35
		Non-resident Native – Migrant	24
		Non-resident Native – Vagrant	138
		Coloniser	8
		Introduced and Naturalised	35
	TOTAL NO CHANGE	436	
New listings		Extinct	3

Continued on next page

Table 6 continued

DIRECTION OF CHANGE	REASON FOR CHANGE	CONSERVATION STATUS IN 2021	NO. TAXA
		Non-resident Native – Vagrant	5
		TOTAL NEW LISTINGS	8
Deletions		At Risk – Naturally Uncommon	1
		Non-resident Native – Vagrant	1
		Introduced and Naturalised	2
		TOTAL DELETIONS	4
		TOTAL TAXA ASSESSED	491

* Threatened – Nationally Increasing is a new name and category for the former At Risk – Recovering A category.

2.4.1 Improved status

The conservation status of 25 taxa has improved since the last assessment (Robertson et al. 2017; Table 6). This includes 15 taxa that have shown actual improvement (including two formerly vagrant species that have bred successfully in Aotearoa New Zealand since 2016 to become Coloniser), 10 taxa that have improved due to better knowledge about the states of their populations, and one taxon that has improved following the reinterpretation of data.

Moved out of Threatened – Nationally Critical

Five taxa that were formerly classified as Threatened – Nationally Critical have been assessed to be in less threatened categories.

The placement of pārerā /grey duck (*Anas superciliosa*) in the national threat classification is problematic because of ongoing extensive hybridisation with mallards (*Anas platyrhynchos*) (Gillespie 1985; Rhymer et al. 1994) and the consequent difficulties field observers experience in distinguishing pure birds from hybrids (Williams 2017, 2019). The new qualifier Data Poor – Recognition is particularly applicable in this case, and this flows on to also using the Data Poor qualifiers for both population size and trend. There is a lack of nuclear DNA analysis to determine the number of pure pārerā /grey ducks in Aotearoa New Zealand rather than hybrids towards the far end of the pārerā /grey duck – mallard spectrum (Williams 2019), and there could also be some ongoing gene flow from Australia, as evidenced by the recovery in Otago of a black duck (the Australian common name for pārerā /grey duck) that had been banded in New South Wales, Australia (Heather & Robertson 2015). In 2016, the panel decided that pure pārerā /grey ducks were Threatened – Nationally Critical with a population of less than 1000 mature individuals and a predicted decline of 50–70% in three generations (c. 15 years) based on the assumption that the continuing introgression of mallard genes across the population must mean that pure pārerā /grey ducks were continuing to become rarer. However, this assumed that there was more or less free gene flow across the spectrum from mallards, through hybrids to pārerā /grey ducks, with no strong assortative mating. Based on the many recent encounters by members of the 2021 panel with birds, especially pairs, that had the phenotypic features of pārerā /grey ducks in remote and largely unmodified habitats (e.g. inland Bay of Plenty, Canterbury high country, Fiordland, Chatham Islands), the panel considered that the national population of pārerā /grey ducks was somewhat protected by assortative mating and /or differences in habitat use and so were more likely to be in the range of 1000–5000 mature individuals and declining by 10–50% over three generations, placing the species in the Threatened – Nationally Vulnerable category. Hybrids between pārerā /grey duck and mallard, or ‘grallards/greylards’ (Williams 2019), encompassing the continuum of phenotypic features between the two species, continue to be assessed as Not Threatened.

Black-billed gull (*Larus bulleri*) was assessed as Threatened – Nationally Critical in 2016 (Robertson et al. 2017). Aerial surveys followed by counting samples of nests on the ground in 2014/15 to 2016/17 (Mischler 2018) revealed more black-billed gulls than expected (i.e. 60 256 nests in the most comprehensive survey in 2016/17), indicating that historical data overestimated the magnitude of population decline. Mischler (2018) felt it was likely that black-billed gull numbers were stable but urged a further census in 10 years to confirm this. The panel took a precautionary approach and assessed the species as At Risk – Declining rather than moving it straight from Threatened – Nationally Critical to Not Threatened in a single step, especially given the residual uncertainty about the population trend and the significant known and anticipated threats to the breeding productivity of these birds.

Chatham Island shag (*Leucocarbo onslowi*) and Pitt Island shag (*Stictocarbo featherstoni*) were both placed in the Threatened – Nationally Critical category in 2012 (Robertson et al. 2013) following counts of nesting birds in 2003/04 (Bester & Charteris 2005) and 2011 (Debski et al. 2012) that were much lower than counts conducted in 1997/98 (Bell & Bell 2000). However, more recent counts of 582 apparently occupied Chatham Island shag nests and 793 Pitt Island shag nests (Bell 2021) were similar to counts made in 1997/98, and Bell (2021) considered that the populations of both species appear to have been essentially stable over the past 25 years, although the distributions of nesting birds have changed in this time. The panel assessed both species as Threatened – Nationally Vulnerable, with each having 1000–5000 mature individuals and an approximately stable overall population.

The extensive trapping of predators and use of aerial 1080 poison operations over the core 6000-ha area of South Westland that is occupied by Haast tokoeka (*Apteryx australis* “Haast”), and *ex situ* management through Operation Nest Egg (ONE) and the establishment of small populations on Coal, Pomona, and Rarotoka islands and at Orokonui Ecosanctuary, resulted in the population growing to c. 450 mature individuals by 2018 (Germano et al. 2018). Since then, a small satellite population of c. 12 pairs has been discovered at Junction Hill, 15 km west of the previously known range, and breeding has been confirmed on Coal and Pomona islands and at Orokonui Ecosanctuary (Heath Sinclair, DOC, pers. comm), further supporting the shift of this taxon to Threatened – Nationally Vulnerable.

Moved out of Threatened – Nationally Endangered

Three taxa that were previously assessed as being Threatened – Nationally Endangered have an improved status.

Chatham Island tui (*Prosthemadera novaeseelandiae chathamensis*) is increasing in both its range and numbers following the successful translocation of individuals to Chatham Island and improved habitat on the island following widespread possum (*Trichosurus vulpecula*) control (Graeme Taylor, DOC, pers. obs.), and so is now considered to be Threatened – Nationally Vulnerable.

Research has shown that Rakiura tokoeka (*Apteryx australis australis* – see Table 3 and Scofield et al. (2021)) is not as threatened as previously believed because the serious decline observed at a Mason Bay study site that triggered its past conservation status was likely localised and caused by habitat loss as the site reverts from rough farmland to scrub and flax communities, whereas the vast majority of the taxon’s population is likely to be stable (Hugh Robertson & Rogan Colbourne, DOC, unpubl. data). The taxon is now placed in the At Risk – Naturally Uncommon category pending assessment of whether the total population is above or below 20 000 mature individuals.

The population of Antipodes Island snipe (*Coenocorypha aucklandica meinertzhagenae*) has increased as a direct result of the eradication of mice (*Mus musculus*) from the Antipodes Islands in 2016 through the ‘Million Dollar Mouse’ project and has since reached a new, but higher, equilibrium (Graeme Elliott, DOC, pers. obs.).

Moved out of Threatened – Nationally Vulnerable

The conservation status of eight former Threatened – Nationally Vulnerable taxa has improved.

The population of Campbell Island teal (*Anas nesiotis*) has increased following the extinction of cats (*Felis catus*) and the eradication of Norway rats (*Rattus norvegicus*) from Campbell Island/Motu Ihupuku; and the wrybill (*Anarhynchus frontalis*) population increased by 33% between nationwide counts undertaken in 1983–1994 and 2005–2019, probably as a result of improved predator control and the restoration of braided riverbed habitat at some South Island breeding sites (Riegen & Sagar 2020). Consequently, both species have been moved to the renamed Threatened – Nationally Increasing category.

Antipodes Island pipit (*Anthus novaeseelandiae steindachneri*) increased rapidly following the eradication of mice from the Antipodes Islands in 2016 (Graeme Elliott, DOC, pers. obs.) and is now considered to be At Risk – Naturally Uncommon.

Recent surveys have found more tawaki/Fiordland crested penguins (*Eudyptes pachyrhynchus*) than expected (Long 2017; Mattern & Long 2017), and the current population is estimated to be c. 5000 pairs (Thomas Mattern, University of Otago, pers. comm.), so the rate of decline of this species is now assessed at less than 30% in three generations, placing it in At Risk – Declining.

Flesh-footed shearwater (*Puffinus carneipes*) also appears to have benefited from the eradication of rodents from several islands used for breeding and from changes in fisheries practices that have reduced bycatch mortality (Graeme Taylor, DOC, pers. obs.), and so is now assessed to be At Risk – Relict.

National wader counts undertaken between 1983 and 2019 (Riegen & Sagar 2020) showed that the rates of decline of lesser knot (*Calidris canutus*) and banded dotterel (*Charadrius bicinctus*) were slower than previously feared (Studds et al. 2017; O'Donnell & Monks 2020). Both species have been assessed as At Risk – Declining.

Lastly, Campbell Island mollymawk (*Thalassarche impavida*) has ceased to decline and the population has been stable over the past 25 years, possibly due to reduced bycatch mortality as a result of improved fisheries practices in the Aotearoa New Zealand EEZ. Consequently, it has been assessed as At Risk – Naturally Uncommon.

Moved between At Risk categories

Two taxa, variable oystercatcher (*Haematopus unicolor*) and tīeke/South Island saddleback (*Philesturnus carunculatus*), which were previously assessed as At Risk – Recovering A (now renamed Threatened – Nationally Increasing), were judged to have surpassed the 5000 mature individuals threshold and so have been moved into the At Risk – Recovering category. The gains made have been largely due to conservation management programmes such as nest protection and/or translocations to or the maintenance of predator-free islands.

Additionally, North Island weka (*Gallirallus australis greyi*) was judged to now have > 20 000 mature individuals; however, because this taxon occupies < 10% of its former range, it is classified as At Risk – Relict rather than Not Threatened.

Most of these six taxa have benefited from targeted predator control at breeding sites and/or translocations to sites where predators are absent or managed.

Moved into Not Threatened

Two taxa that were previously classified as At Risk – Declining have been re-assessed as Not Threatened. However, both remain conservation dependent (qualifier CD).

The population of North Island brown kiwi (*Apteryx mantelli*) has > 20 000 mature individuals and is now predicted to increase by > 10% over three generations due to the intensive

in situ control of predators by many community groups and government agencies, *ex situ* management through ONE, and translocations to secure sites (Germano et al. 2018).

Whitehead (*Mohoua albicilla*) was in decline due to habitat loss when large areas of central North Island pine forest were being converted to dairy farms, but its population has now stabilised and expanded following successful translocations to secure sites and extensive aerial 1080 operations to control bovine tuberculosis and to improve forest health. The Ministry for Primary Industries' One Billion Trees Programme, which aims to plant forests on marginal farmland for carbon capture and erosion control, is expected to benefit this species.

Other minor improvements

Two taxa that were assessed as Vagrant in 2016 have been moved to Coloniser in this assessment. After breeding successfully in Southland in the late 1970s, hoary-headed grebe (*Poliocephalus poliocephalus*) failed to establish and so returned to being considered a Vagrant. However, these birds have again bred successfully, this time at Lake Elterwater in Marlborough, at least in 2019/20. Similarly, a pair of gull-billed terns (*Gelochelidon nilotica*) bred successfully near Invercargill in 2020/21.

2.4.2 Worsened status

The conservation status of 22 taxa has worsened since the 2016 assessment (Robertson et al. 2017). Among these, 8 taxa showed an actual decline, 3 changes were the result of new knowledge, and 11 changes followed the reinterpretation of data placing the taxa in different At Risk categories.

Moved into Threatened – Nationally Critical

No bird taxon has moved into the Threatened – Nationally Critical category since the 2016 assessments.

Moved into Threatened – Nationally Endangered

The conservation status of two taxa has worsened to Threatened – Nationally Endangered.

An intensive *ex situ* ONE programme saw the population of rowi (*Apteryx rowi*) increase from c. 160 birds in 1995 (Heather & Robertson 1996) to c. 600 birds in 2018 (Germano et al. 2018). The panel predicted that the population will stabilise at around current levels because of a lack of suitable predator-free islands or other safe release sites under management, and a lack of an effective prescription for *in situ* predator control on the mainland. Previous attempts at extensive trapping and aerial 1080 operations have been largely ineffective at growing the population (Robertson & de Monchy 2012; Hugh Robertson & Troy Makan, DOC, pers. obs.). This species was therefore shifted from Threatened – Nationally Vulnerable to Threatened – Nationally Endangered.

Based on recent experience and eBird records, the panel considered that the previous assessment of the southern falcon (*Falco novaeseelandiae* “southern”) population as being over 1000 mature individuals was likely to have been an overestimate, so the shift from Threatened – Nationally Vulnerable to Threatened – Nationally Endangered reflects this. Taxonomic research is needed urgently to define this taxon, its range and population size.

Moved into Threatened – Nationally Vulnerable

The conservation status of nine taxa has worsened to Threatened – Nationally Vulnerable.

In the 2016 assessment, eastern falcon (*Falco novaeseelandiae novaeseelandiae*) was considered At Risk – Recovering (now called Threatened – Nationally Increasing) because its population had 1000–5000 mature individuals and was increasing at > 10%. However, this taxon

is now assessed as Threatened – Nationally Vulnerable because the panel believed that the population is likely to be stable rather than increasing.

Light-mantled sooty albatross (*Phoebastria palpebrata*) nests are difficult to count on cliffs and other steep terrain on remote subantarctic islands, but recent evidence shows a serious long-term reduction in chick counts in two southern cliff areas on Adams Island in the Auckland Islands (Rexer-Huber et al. 2020). Although the sample was small and from a single island, the panel considered that the conservation status warranted a shift from At Risk – Declining to Threatened – Nationally Vulnerable pending further population trend data.

Six taxa have been moved from At Risk – Naturally Uncommon to Threatened – Nationally Vulnerable. Three of these taxa (white-capped noddy (*Anous minutus*), brown skua (*Catharacta antarctica lonnbergi*) and lesser fulmar prion (*Pachyptila crassirostris flemingi*)) have changed status through recognition that their low population sizes in Aotearoa New Zealand are due to unnatural causes such as predation by introduced mammals or interactions with people. Observed declines in populations of southern royal albatross (*Diomedea epomophora*), northern royal albatross (*Diomedea sanfordi*) and long-tailed cuckoo (*Eudynamis taitensis*) led to a worsened conservation status for each. In the case of both albatross species, fisheries bycatch, which now mainly occurs outside Aotearoa New Zealand's EEZ following improved national fisheries management within the EEZ, and storm events and/or droughts associated with climate change appear to have contributed to the observed declines. For long-tailed cuckoo, call count data (Colin O'Donnell, DOC, pers. obs.) from southern South Island forests (especially the Eglinton and Landsborough valleys and Waitutu) show significant reductions in numbers, so this species requires more research to determine the likely threats throughout its range and whether this decline is more widespread in Aotearoa New Zealand.

Perhaps the most significant deterioration in conservation status recorded in the 2021 assessment process was for spotted shag (*Stictocarbo punctatus*), which has been shifted from Not Threatened to Threatened – Nationally Vulnerable. This change was based on a very significant and ongoing decline in the number of breeding pairs on Banks Peninsula, a site used by c. 30–50% of the entire species (Andrew Crossland, Christchurch City Council, pers. comm.). Breeding habitat was lost during the devastating Canterbury earthquakes of 2010–2011, and the population has failed to recover since then. Despite annual variations in breeding effort and the timing of breeding in many coastal shags, ongoing monitoring of smaller populations of spotted shags around the northern North Island and in Wellington Harbour/Port Nicholson have also recorded marked declines in recent decades, so the overall population trend is of concern.

Moved into or between At Risk categories

The conservation status of four taxa has worsened to the point that they are now assessed as At Risk – Declining, while one taxon has been moved into At Risk – Relict from Not Threatened.

Although mohua/yellowhead (*Mohoua ochrocephala*) surveys (Colin O'Donnell, DOC, pers. obs.) have shown some gains in managed sites on the mainland, overall there has been a greater decline on the mainland (50% of the global population) than previously thought, and these losses are no longer being offset by increases in translocated populations on many pest-free islands, so it is now assessed as At Risk – Declining rather than At Risk – Recovering (B).

Kākāriki/yellow-crowned parakeet (*Cyanoramphus auriceps*) is also becoming increasingly scarce on the mainland, although numbers fluctuate widely through beech-masting cycles, especially in the South Island, so its assessment has changed from Not Threatened to At Risk – Declining.

Buller's shearwaters (*Puffinus bulleri*) breed only on the Poor Knights Islands, where a total of 250 000 pairs was estimated to be breeding on Tawhiti Rahi Island in 1943 (Medway 2001).

Furthermore, while only a handful of pairs were nesting on Aorangi Island at that time, which was shortly after the removal of pigs (*Sus scrofa*) in 1936 (Medway 2001), subsequent population growth on Aorangi was spectacular, with estimates of 100 000 burrows in 1964 (Bartle 1968) and then 200 000 pairs in 1981 (Harper 1983). Recent surveys (Friesen et al. 2021), however, have estimated only 78 645 (95% confidence interval = 67 176–89 178) active burrows across the whole of the Poor Knights Islands, suggesting that there has been a huge decline and/or a significant overestimation of numbers in the past. Since the islands remain predator free, any decline is likely to have been driven by changes in the marine environment. Consequently, the status of this species has changed from At Risk – Naturally Uncommon to At Risk – Declining.

The number of pairs of southern Buller's mollymawk (*Thalassarche bulleri bulleri*) breeding on Snares Islands/Tini Heke increased during the period 1969–2002 but then stabilised (Thompson & Sagar 2020). Of particular concern, the annual survivorship of adults has decreased from > 0.95 in most years from 1993 to 2004 to < 0.94 in most years since 2006 and dropped as low as 0.889 in 2019 (Thompson & Sagar 2020). This taxon has therefore been assessed as At Risk – Declining rather than At Risk – Naturally Uncommon.

Lastly, the panel assessed little shag (*Phalacrocorax melanoleucos brevirostris*) as At Risk – Relict rather than Not Threatened following a marked decline in the numbers recorded in surveys of the Rotorua lakes, one of their breeding strongholds. Although this decline has been offset to an unknown extent by increased numbers recorded in recent decades in the southern North Island and in the South Island, the panel noted a lack of good overall population trend data.

2.4.3 Data Deficient

Both South Island brown teal (*Anas chlorotis* “South Island”) and South Island kokako (*Callaeas cinerea*) were assessed as Data Deficient. The panel considered that there was a very high likelihood that both taxa are at least functionally extinct, but it is difficult to declare them extinct due to the remote habitats they formerly used. South Island brown teal was last recorded in the wild in 1999 (Heather & Robertson 2015), while the last record accepted by the Records Appraisal Committee of BNZ/OSNZ for South Island kokako was in 2007 (Miskelly et al. 2013).

2.5 Use of qualifiers

Almost all native taxa were given one or more assessment process, biological attribute, pressure, population state or population trend qualifiers to help define their assessment and facilitate the process of conservation prioritisation (Rolfe et al. 2021). Some of the qualifiers used are discussed below.

2.5.1 CD (Conservation Dependent)

A total of 137 taxa, including 7 that were assessed as Not Threatened, have been given the qualifier CD. This indicates that they are dependent on ongoing conservation management to maintain or improve their current populations and to prevent them from slipping into more threatened categories. Relevant conservation management may include indirect biosecurity measures to maintain the pest-free status at key breeding sites on islands or in fenced sanctuaries, or active management such as controlling predators on stepping-stone islands, head-starting programmes and integrated pest control to maintain mainland populations. A total of 63 taxa, mainly from the Kermadec and subantarctic islands, have been flagged as being only dependent on good biosecurity measures, with the assumption that if a pest incursion is detected, a response plan is implemented. The remaining 74 taxa require direct

intervention to maintain or improve their current status. DOC uses the CD qualifier to identify taxa to be prioritised for management; however, conservation management is by no means confined to central or regional government, with much of the work now being undertaken on private land by landowners, iwi and community groups.

2.5.2 CI (Climate Impact)

The panel assessed that 69 taxa are known or predicted to be adversely affected by long-term climate trends and/or extreme climatic events. The main taxa impacted are marine taxa whose food supplies and feeding areas are likely to change with changing currents and upwellings, taxa confined to islands subject to an increasing frequency and severity of droughts, riverbed specialists that will be subject to greater fluctuations of river flow, wave-platform specialists and shoreline nesters that will be impacted by rising sea levels, alpine specialists that will be subject to changes in habitat and predator guilds, and forest birds that will be subject to greater predation by rodents and mustelids as a result of an increased frequency and magnitude of beech masting events. Interestingly, 23 (85%) of the 27 taxa assessed as At Risk - Declining have been given the CI qualifier - a far higher percentage than in any other Threatened or At Risk category.

2.5.3 CR (Conservation Research Needed)

Before cost-effective management can be undertaken, the causes of decline at different life stages or in different parts of Aotearoa New Zealand need to be understood. The panel flagged that new or ongoing conservation research is required to best manage 80 taxa whose pressures and/or cost-effective management methods are poorly understood. All 18 Threatened - Nationally Critical taxa were given this qualifier, indicating the need for new or ongoing research to be carried out alongside their management to move them into a lower threat category.

2.5.4 De (Designated)

The panel designated seven seabird taxa, including tākapu/Australasian gannet (*Morus serrator*), as Not Threatened because they have multiple and widely scattered colonies that are unlikely to be affected simultaneously by a particular pressure. These taxa would otherwise have fitted the Threatened or At Risk definitions based on the small area of occupancy of their breeding colonies.

2.5.5 DP (Data Poor)

Survey, monitoring and/or conservation research are urgently needed to more confidently assess the status of taxa with DP qualifiers. The new qualifiers regarding identification, population size, population trend or a combination of these indicate the type of data that are sought. The 52 taxa with DP qualifiers are shown in Table 7 in the hope that this will stimulate projects to address the paucity of data.

The panel was particularly challenged by a lack of knowledge on the overall population trends of New Zealand pipit (*Anthus novaeseelandiae novaeseelandiae*) across a wide range of habitats on mainland Aotearoa New Zealand and by the difficulties of recognising the differences between eastern and southern forms of New Zealand falcon (*Falco novaeseelandiae novaeseelandiae* and *F. novaeseelandiae* "southern", respectively) in the field and hence determining their distributions and population sizes and trends. Concern was raised that these taxa may be undergoing greater declines than currently estimated.

Table 7. Taxa with one or more Data Poor qualifiers. For some taxa, very little is known about their population sizes and/or trends, while for others the panel was unsure whether the taxon was above or below a particular numerical threshold for population size or decline rate that would affect its conservation status. DPR = Data Poor Recognition, DPS = Data Poor Size, DPT = Data Poor Trend.

SCIENTIFIC NAME	COMMON NAME	CATEGORY	DPR	DPS	DPT
<i>Acanthisitta chloris granti</i>	North Island rifleman	Declining		X	X
<i>Anas superciliosa</i>	pāreera/grey duck	Vulnerable	X	X	X
<i>Botaurus poiciloptilus</i>	Australasian bittern	Critical			X
<i>Bowdleria punctata punctata</i>	South Island fernbird	Declining		X	X
<i>Bowdleria punctata stewartiana</i>	Stewart Island fernbird	Vulnerable		X	
<i>Bowdleria punctata vealeae</i>	North Island fernbird	Declining		X	X
<i>Charadrius bicinctus bicinctus</i>	banded dotterel	Declining		X	
<i>Charadrius bicinctus exilis</i>	Auckland Island banded dotterel	Relict		X	X
<i>Charadrius obscurus obscurus</i>	southern New Zealand dotterel	Critical			X
<i>Coenocorypha aucklandica perseverance</i>	Campbell Island snipe	Vulnerable		X	X
<i>Cyanoramphus auriceps</i>	kākāriki / yellow-crowned parakeet	Declining		X	X
<i>Daption capense australe</i>	Snares cape petrel	Naturally uncommon			X
<i>Diomedea epomophora</i>	southern royal albatross	Vulnerable			X
<i>Diomedea sanfordi</i>	northern royal albatross	Vulnerable			X
<i>Egretta sacra sacra</i>	reef heron	Endangered			X
<i>Eudynamys taitensis</i>	long-tailed cuckoo	Vulnerable			X
<i>Eudyptes filholi</i>	eastern rockhopper penguin	Vulnerable			X
<i>Eudyptula minor chathamensis</i>	Chatham Island blue penguin	Relict		X	
<i>Eudyptula minor iredalei</i>	northern blue penguin	Declining		X	X
<i>Eudyptula minor minor</i>	southern blue penguin	Declining		X	X
<i>Falco novaeseelandiae novaeseelandiae</i>	eastern falcon	Vulnerable		X	X
<i>Falco novaeseelandiae</i> "southern"	southern falcon	Endangered	X	X	X
<i>Fregetta grallaria grallaria</i>	white-bellied storm petrel	Endangered		X	X
<i>Fregetta tropica</i>	black-bellied storm petrel	Not threatened		X	X
<i>Gallirallus australis scotti</i>	Stewart Island weka	Vulnerable		X	X
<i>Gallirallus philippensis assimilis</i>	banded rail	Declining		X	X
<i>Hemiphaga chathamensis</i>	parea / Chatham Island pigeon	Vulnerable		X	
<i>Leucocarbo campbelli</i>	Campbell Island shag	Naturally uncommon		X	X
<i>Leucocarbo stewarti</i>	Foveaux shag	Vulnerable		X	X
<i>Megadyptes antipodes</i>	hoiho / yellow-eyed penguin	Endangered		X	X
<i>Nycticorax caledonicus australasiae</i>	nankeen night heron	Coloniser			X
<i>Pachyptila crassirostris flemingi</i>	lesser fulmar prion	Vulnerable		X	X
<i>Pachyptila crassirostris pyramidalis</i>	Chatham fulmar prion	Naturally uncommon		X	X
<i>Pachyptila desolata</i>	Antarctic prion	Relict		X	X
<i>Pelagodroma albiclunis</i>	Kermadec storm petrel	Critical		X	X
<i>Petroica australis australis</i>	kakaruai / South Island robin	Declining			X
<i>Phalacrocorax carbo novaehollandiae</i>	black shag	Relict		X	X
<i>Phalacrocorax melanoleucos brevirostris</i>	little shag	Relict			X
<i>Phoebastria palpebrata</i>	light-mantled sooty albatross	Vulnerable		X	X
<i>Podiceps cristatus cristatus</i>	Australasian crested grebe	Vulnerable			X
<i>Porzana pusilla affinis</i>	marsh crake	Declining		X	X
<i>Porzana tabuensis tabuensis</i>	spotless crake	Declining		X	X
<i>Procellaria cinerea</i>	grey petrel	Relict			X
<i>Procelsterna cerulea albivitta</i>	grey noddy	Relict		X	X
<i>Pterodroma mollis</i>	soft-plumaged petrel	Naturally uncommon			X
<i>Pterodroma neglecta neglecta</i>	Kermadec petrel "summer"	Endangered		X	X
<i>Puffinus bulleri</i>	Buller's shearwater	Declining			X

Continued on next page

Table 7 continued

SCIENTIFIC NAME	COMMON NAME	CATEGORY	DPR	DPS	DPT
<i>Puffinus elegans</i>	subantarctic little shearwater	Naturally uncommon			X
<i>Sterna striata aucklandornata</i>	southern white-fronted tern	Vulnerable		X	X
<i>Sterna striata striata</i>	white-fronted tern	Declining			X
<i>Xenicus gilviventris gilviventris</i>	northern rock wren	Critical		X	X
<i>Xenicus gilviventris rineyi</i>	southern rock wren	Endangered		X	X

3. Conservation status of all known birds in Aotearoa New Zealand

3.1 Assessments

The conservation status of Aotearoa New Zealand's bird taxa was assessed according to the criteria of Townsend et al. (2008), incorporating the technical modification to the former At Risk - Recovering A category introduced by Michel (2021). Brief descriptions of the NZTCS categories and criteria are provided below in section 3.2. All 491 taxa are listed in Table 8, where they are grouped by conservation status and then alphabetically by scientific name.

Categories for native birds are ordered by degree of loss, with Extinct at the top of the list and Not Threatened as the penultimate category, above Introduced and Naturalised. The Data Deficient list is inserted between Extinct and Threatened, although the true status of Data Deficient taxa can span the entire range of available categories. The two bird taxa listed as Data Deficient are probably extinct (or at least functionally extinct if a few isolated individuals survive) but do not yet meet the criteria to be declared Extinct.

For non-endemic species that are threatened internationally, the IUCN Red List category for the entire species (IUCN 2021) is given along with the Threatened Overseas (TO) qualifier. Where a native subspecies is known to be threatened overseas but the species as a whole is classified by IUCN (2021) as Near Threatened or Least Concern, the qualifier TO refers to the panel's understanding of the status of that subspecies rather than that of the entire species.

Supporting data for the assessments listed in Table 8 can be viewed and downloaded at <https://nztcs.org.nz/reports/1076>.

Table 8. Conservation status of birds in Aotearoa New Zealand. A key to the New Zealand Threat Classification System (NZTCS) categories, criteria and qualifiers is provided in section 3.2 below. The only difference introduced in this report is to highlight the importance of good biosecurity measures for a suite of island-dwelling taxa whose current conservation status depends only on their islands remaining free of predators – this is shown as the qualifier CD_g. Other taxa with the CD qualifier may also require good biosecurity along with other active management.

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
EXTINCT (62)					
Taxonomically determinate (62)					
<i>Aegothales novaezealandiae</i>	New Zealand owllet-nightjar	Aegothelidae			No change
<i>Anas chathamica</i>	Chatham Island duck	Anatidae			No change
<i>Anomalopteryx didiformis</i>	little bush moa	Emeidae			No change
<i>Anthornis melaniceps</i>	Chatham Island bellbird	Meliphagidae			No change
<i>Aptornis defossor</i>	South Island adzebill	Aptornithidae			No change
<i>Aptornis otidiformis</i>	North Island adzebill	Aptornithidae			No change
<i>Aquila moorei</i>	Haast's eagle	Accipitridae			No change
<i>Biziura delatouri</i>	New Zealand musk duck	Anatidae			No change
<i>Bowdleria rufescens</i>	Chatham Island fernbird	Megaluridae			No change
<i>Cabalus modestus</i>	Chatham Island rail	Rallidae			No change
<i>Capellirallus karamu</i>	snipe-rail	Rallidae			No change
<i>Chenonetta finschi</i>	Finsch's duck	Anatidae			No change
<i>Circus teauteensis</i>	Eyles' harrier	Accipitridae			No change
<i>Cnemidornis calcitrans</i>	South Island goose	Anatidae			No change
<i>Cnemidornis gracilis</i>	North Island goose	Anatidae			No change
<i>Coenocorypha barrierensis</i>	North Island snipe	Scolopacidae			No change
<i>Coenocorypha chathamica</i>	Forbes' snipe	Scolopacidae			No change
<i>Coenocorypha iredalei</i>	South Island snipe	Scolopacidae			No change
<i>Corvus moriorum antipodum</i>	North Island raven	Corvidae			No change
<i>Corvus moriorum moriorum</i>	Chatham Island raven	Corvidae			No change
<i>Corvus moriorum pyrcrafti</i>	South Island raven	Corvidae			No change
<i>Coturnix novaezealandiae</i>	New Zealand quail	Phasianidae			No change
<i>Dendroscaptor decurvirostris</i>	long-billed wren	Acanthistittidae			No change
<i>Diaphorapteryx hawkinsi</i>	Hawkins' rail	Rallidae			No change
<i>Dinornis novaezealandiae</i>	North Island giant moa	Dinornithidae			No change
<i>Dinornis robustus</i>	South Island giant moa	Dinornithidae			No change
<i>Erneus crassus</i>	eastern moa	Emeidae			No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Eudyptes warhami</i>	Chatham Island crested penguin	Spheniscidae			New listing
<i>Eunyapteryx curtus curtus</i>	North Island coastal moa	Emeidae			No change
<i>Eunyapteryx curtus gravis</i>	South Island coastal moa	Emeidae			No change
<i>Fulica chathamensis</i>	Chatham Island coot	Rallidae			No change
<i>Fulica prisca</i>	New Zealand coot	Rallidae			No change
<i>Gallinula hodgenorum</i>	Hodgens' waterhen	Rallidae			No change
<i>Gallirallus dieffenbachii</i>	Dieffenbach's rail	Rallidae			No change
<i>Heteralocha acutirostris</i>	hula	Callaeidae			No change
<i>Ixobrychus novaezelandiae</i>	New Zealand little bittern	Ardeidae			No change
<i>Leucocorbo septentrionalis</i>	kōhatu shag	Phalacrocoracidae			New listing
<i>Malacorhynchus scarletti</i>	Scarlett's duck	Anatidae			No change
<i>Megadyptes antipodes richdalei</i>	Richdale's penguin	Spheniscidae			New listing
<i>Megadyptes waitaha</i>	Waitaha penguin	Spheniscidae			No change
<i>Megalapteryx didimus</i>	upland moa	Emeidae			No change
<i>Mergus australis</i>	New Zealand merganser	Anatidae			No change
<i>Mergus millineri</i>	Chatham Island merganser	Anatidae			No change
<i>Nestor chathamensis</i>	Chatham Island kaka	Strigopidae			No change
<i>Oxyura vantetsi</i>	New Zealand blue-billed duck	Anatidae			No change
<i>Pachyornis australis</i>	crested moa	Emeidae			No change
<i>Pachyornis elephantopus</i>	heavy-footed moa	Emeidae			No change
<i>Pachyornis geranoides</i>	Mantell's moa	Emeidae			No change
<i>Pachyplichas jęgmi</i>	North Island stout-legged wren	Acanthisittidae			No change
<i>Pachyplichas yaldwyni</i>	South Island stout-legged wren	Acanthisittidae			No change
<i>Porphyrio mantelli</i>	moho/North Island takahe	Rallidae			No change
<i>Pterodroma imberbi</i>	Imber's petrel	Procellariidae			No change
<i>Puffinus spelaeus</i>	Scarlett's shearwater	Procellariidae			No change
<i>Sceloglaux albiglacies albiglacies</i>	South Island laughing owl	Strigidae			No change
<i>Sceloglaux albiglacies rufiglacies</i>	North Island laughing owl	Strigidae			No change
<i>Traversia iyalii</i>	Stephens Island wren	Acanthisittidae			No change
<i>Turnagra capensis capensis</i>	South Island piopio	Turnagridae			No change
<i>Turnagra capensis minor</i>	Stephens Island piopio	Turnagridae			No change
<i>Turnagra tanagra</i>	North Island piopio	Turnagridae			No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Xenicus longipes longipes</i>	South Island bush wren	Acanthisittidae			No change
<i>Xenicus longipes stokesii</i>	North Island bush wren	Acanthisittidae			No change
<i>Xenicus longipes variabilis</i>	Stead's bush wren	Acanthisittidae			No change
DATA DEFICIENT (2)					
Taxonomically determinate (1)					
<i>Callaeas cinerea</i>	South Island kokako	Callaeidae			No change
Taxonomically unresolved (1)					
<i>Anas chlorotis</i> "South Island"	South Island brown teal	Anatidae			No change
THREATENED (77)					
NATIONALLY CRITICAL (18)					
Taxonomically determinate (18)					
<i>Ardea modesta</i>	kōtuku/white heron	Ardeidae	A(1)	CR, OL, SO, St	No change
<i>Botaurus poiciloptilus</i> (IUCN: Endangered C1, ver 3.1, 2018)	Australasian bittern	Ardeidae	B(1)	CR, DPT, RF, Sp, TO	No change
<i>Charadrius obscurus obscurus</i>	southern New Zealand dotterel	Charadriidae	A(1)	CD, CR, DPS, DPT, EF, OL	No change
<i>Cyanoramphus malherbi</i>	kākāriki karaka/orange-fronted parakeet	Psittacidae	A(1)	CD, CI, CR, EF, RR	No change
<i>Diomedea antipodensis antipodensis</i>	Antipodean wandering albatross	Diomedidae	C	CD, CI, CR, IE, RR	No change
<i>Diomedea antipodensis gibsoni</i>	Gibson's wandering albatross	Diomedidae	C	CD, CI, CR, IE, OL	No change
<i>Gygis alba candida</i>	Pacific white tern	Sternidae	A(1)	CD _B , CR, OL, SO	No change
<i>Haematopus chathamensis</i>	Chatham Island oystercatcher	Haematopodidae	A(1)	CD, CI, CR, IE, RR, St	No change
<i>Himantopus novaeseelandiae</i>	kakī/black stilt	Recurvirostridae	A(1)	CD, CR, RR	No change
<i>Pelagodroma albidulumis</i>	Kermadec storm petrel	Hydrobatidae	A(1)	CD _B , CR, DPS, DPT, IE, RR	No change
<i>Pelecanoides whenuahouensis</i>	Whenua Hou diving petrel	Pelecanoididae	A(1)	CD, CI, CR, IE, OL	No change
<i>Petroica traversi</i>	black robin	Petroicidae	A(1)	CD, CR, IE, RR	No change
<i>Pterodroma magentae</i>	tāiko/Chatham Island tāiko	Procellariidae	A(1)	CD, CR, IE, Inc, OL	No change
<i>Sternula nereis davisae</i>	tara iti/New Zealand fairy tern	Sternidae	A(1)	CD, CI, CR, RF, RR	No change
<i>Strigops habroptilus</i>	kākāpō	<i>Strigopidae</i>	A(1)	CD, CR, Inc, RR	No change
<i>Thalassarche salvini</i>	Salvin's mollymawk	Diomedidae	C	CD, CI, CR, RR	No change
<i>Thinornis novaeseelandiae</i>	shore plover	Charadriidae	A(1)	CD, CI, CR, Inc, RR, Sp	No change
<i>Xenicus gilviventris gilviventris</i>	northern rock wren	Acanthisittidae	B(1)	CD, CI, CR, DPS, DPT, RR, Sp	No change

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Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
NATIONALLY ENDANGERED (14)					
Taxonomically determinate (12)					
<i>Apteryx rowi</i>	rowi / Okarito brown kiwi	Apterygidae	B(1)	CD, OL	Worse
<i>Chlidonias albostrigatus</i>	black-fronted tern	Sternidae	C(1)	CI, CR, PD, RF, Sp	No change
<i>Cyanoramphus forbesi</i>	Forbes' parakeet	Psittacidae	B(1)	CD, IE, OL	No change
<i>Egretta sacra sacra</i>	reef heron	Ardeidae	A(1)	CI, CR, DPT, SO, Sp	No change
<i>Fregatta grallaria grallaria</i>	white-bellied storm petrel	Hydrobatidae	B(1)	CD _B , CR, DPS, DPT, RR, SO	No change
<i>Leucocarbo carunculatus</i>	king shag	Phalacrocoracidae	B(1)	CD, CI, CR, RR	No change
<i>Megadyptes antipodes</i>	hoiho / yellow-eyed penguin	Spheniscidae	C(1)	CD, CI, CR, DPS, DPT, EF, PD, RF	No change
<i>Nestor notabilis</i>	kea	Strigopidae	C(1)	CD, CI, CR	No change
<i>Petroica macrocephala chathamensis</i>	Chatham Island tomtit	Eopsaltriidae	B(1)	CD, CR, IE, RR, St	No change
<i>Pterodroma neglecta neglecta</i>	Kermadec petrel "summer"	Procellariidae	B(1)	CD _B , DPS, DPT, SO	No change
<i>Sula dactylatra tasmani</i>	masked booby	Sulidae	B(1)	CD _B , CI, RR, S?O, St	No change
<i>Xenicus gilviventris rineyi</i>	southern rock wren	Acanthisittidae	C(1)	CD, CI, CR, DPS, DPT	No change
Taxonomically unresolved (2)					
<i>Apteryx australis</i> "southern Fiordland"	southern Fiordland tokoeka	Apterygidae	C(1)	CD, CR, RF	No change
<i>Falco novaeseelandiae</i> "southern"	southern falcon	Falconidae	B(1)	CR, DPR, DPS, DPT	Worse
NATIONALLY VULNERABLE (37)					
Taxonomically determinate (35)					
<i>Anas aucklandica</i>	Auckland Island teal	Anatidae	B(1)	CD _B , IE, RR, St	No change
<i>Anas superciliosa</i>	pāpera / grey duck	Anatidae	C(1)	CR, DPR, DPS, DPT, SO	Better
<i>Anous minutus</i>	black noddy	Sternidae	B(1)	CD _B , RR, SO	Worse
<i>Apteryx haastii</i>	roroa / great spotted kiwi	Apterygidae	D(1)	CD, RF	No change
<i>Bowdleria punctata stewartiana</i>	Stewart Island fernbird	Megaluridae	B(1)	CR, DPS, RR	No change
<i>Catharacta antarctica lonnbergi</i>	brown skua	Stercorariidae	B(1)	CD, SO, Sp	Worse
<i>Coenocorypha aucklandica perseverance</i>	Campbell Island snipe	Scolopacidae	A(1)	CD _B , CR, DPS, DPT, IE, Inc, OL	No change
<i>Coenocorypha pusilla</i>	Chatham Island snipe	Scolopacidae	B(1)	CD _B , IE, RR, St	No change
<i>Diomedea epomophora epomophora</i>	southern royal albatross	Diomedidae	E(1)	CD, CI, CR, DPT, RR	Worse
<i>Diomedea sancti</i>	northern royal albatross	Diomedidae	D(1)	CD, CI, CR, DPT, RF, RR	Worse
<i>Eudynamis taitensis</i>	long-tailed cuckoo	Cuculidae	D(1)	CI, CR, DPT	Worse
<i>Eudytes filholi</i>	eastern rockhopper penguin	Spheniscidae	E(1)	CD _B , CI, CR, DPT, RR, TO	No change
<i>Falco novaeseelandiae novaeseelandiae</i>	eastern falcon	Falconidae	B(1)	CR, DPS, DPT	Worse

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Fregatta maoriana</i>	New Zealand storm petrel	Hydrobatidae	A(1)	CD _B , CR, Inc, OL	No change
<i>Gallirallus australis scotti</i>	Stewart Island weka	Rallidae	B(1)	DPS, DPT	No change
<i>Hemiphaga chathamensis</i>	parea/Chatham Island pigeon	Columbidae	A(1)	CD, DPS, IE, Inc	No change
<i>Hydroprogne caspia</i>	Caspian tern	Sternidae	B(1)	CI, SO Sp	No change
<i>Hymenolaimus malacorhynchos</i>	whio/blue duck	Anatidae	C(1)	CD, CI, PD, Sp	No change
<i>Leucocorbo colensoi</i>	Auckland Island shag	Phalacrocoracidae	B(1)	CR, IE, RR	No change
<i>Leucocorbo onslowi</i>	Chatham Island shag	Phalacrocoracidae	B(1)	CR, IE, RR	Better
<i>Leucocorbo stewarti</i>	Foveaux shag	Phalacrocoracidae	B(1)	CD, CR, DPS, DPT, PD	No change
<i>Nestor meridionalis meridionalis</i>	kākā/South Island kākā	Strigipidae	C(1)	OD, CR, PD, RF	No change
<i>Notiomystis cincta</i>	hihi/stitchbird	Notiomystidae	B(1)	CD, CI, RR	No change
<i>Pachyptila crassirostris flemingi</i>	lesser fulmar prion	Procellariidae	B(1)	CD _B , CR, DPS, DPT, OL, St	Worse
<i>Phoebastria palpebrata</i> (IUCN: Near Threatened A4bd, ver 3.1, 2018)	light-mantled sooty albatross	Diomedidae	D(1)	OD, CI, CR, DPS, DPT, RR, TO	Worse
<i>Podiceps cristatus australis</i>	kāmana/Australasian crested grebe	Podicipedidae	A(1)	DPS, Inc, SO	No change
<i>Porphyrho hochstetteri</i>	takahē/South Island takahē	Rallidae	A(1)	CD, CI, RR	No change
<i>Procellaria parkinsoni</i>	tāiko/black petrel	Procellariidae	C(1)	CD, CI, CR, RR	No change
<i>Prosthemadera novaeseelandiae chathamensis</i>	Chatham Island tūi	Meliphagidae	A(1)	CD, CR, IE, RR	Better
<i>Pterodroma axillaris</i>	Chatham petrel	Procellariidae	A(1)	CD, Inc, RR	No change
<i>Puffinus huttoni</i>	Hutton's shearwater	Procellariidae	C(3)	CD, CI, OL	No change
<i>Sterna striata aucklandorua</i>	southern white-fronted tern	Sternidae	B(1)	CD _B , CR, DPS, DPT, RR	No change
<i>Stictocorbo featherstoni</i>	Pitt Island shag	Phalacrocoracidae	B(1)	CR, IE, RR	Better
<i>Stictocorbo punctatus</i>	spotted shag	Phalacrocoracidae	E(1)	CI, CR	Worse
<i>Thalassarche chrysoloma</i> (IUCN: Endangered, A4bd, ver 3.1, 2018)	grey-headed mollymawk	Diomedidae	D(1)	CD, CI, OL, TO	No change
Taxonomically unresolved (2)					
<i>Apteryx australis</i> "Haast"	Haast tokoeka	Apterygidae	A(1)	CD, Inc, OL, RF	Better
<i>Apteryx australis</i> "northern Fiordland"	northern Fiordland tokoeka	Apterygidae	D(1)	CD, CR, PD, RF	No change
NATIONALLY INCREASING (11)					
Taxonomically determinate (11)					
<i>Anarhynchus frontalis</i>	wrybill	Charadriidae		CD, CR, RR	Better
<i>Anas chlorotis</i>	pāteke/brown teal	Anatidae		CD, Inc, RR	No change
<i>Anas nesiotis</i>	Campbell Island teal	Anatidae		CDB, IE, Inc, RR	Better

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Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Apteryx owenii</i>	little spotted kiwi	Apterygidae		CD, CI, Inc, RR	No change
<i>Callaeas wilsoni</i>	kōkako / North Island kōkako	Callaeidae		CD, Inc, PF	No change
<i>Charadrius obscurus aquilonius</i>	northern New Zealand dotterel	Charadriidae		CD, CI, Inc, RR	No change
<i>Falco novaeseelandiae ferox</i>	bush falcon	Falconidae		CR, Inc	No change
<i>Leucocarbo chalconotus</i>	Otago shag	Phalacrocoracidae		CD, CI	No change
<i>Phaethon rubricauda</i>	red-tailed tropicbird	Phaethonidae		CD _B , CR, Inc, RR, SO	No change
<i>Poliiocephalus rufopectus</i>	New Zealand dabchick	Podicipedidae		Inc	No change
<i>Sterna vittata bethunei</i>	Antarctic tern	Sternidae		CD _B , CI, RR	No change
AT RISK (10†)					
DECLINING (27)					
Taxonomically determinate (27)					
<i>Acanthisitta chloris granti</i>	North Island rifleman	Acanthisittidae		CI, DPS, DPT	No change
<i>Anthus novaeseelandiae novaeseelandiae</i>	New Zealand pipit	Motacillidae		CI, CR	No change
<i>Bowdleria punctata punctata</i>	South Island fernbird	Megaluridae		CI, DPS, DPT	No change
<i>Bowdleria punctata vealeae</i>	North Island fernbird	Megaluridae		CI, CR, DPS, DPT	No change
<i>Calidris canutus rogersi</i> (IUCN: <i>Calidris canutus</i> , NT A2abc+3bc+4abc, ver 3.1, 2018)	lesser knot	Scolopacidae		CI, TO	Better
<i>Charadrius bichinctus bichinctus</i>	banded dotterel	Charadriidae		CD, CI, CR, DPS, PD	Better
<i>Cyanoramphus auriceps</i>	kākāriki / yellow-crowned parakeet	Psittacidae		CI, CR, DPS, DPT, EF	Worse
<i>Eudyptes pachyrhynchus</i>	tawaki / Fiordland crested penguin	Spheniscidae		Sp	Better
<i>Eudyptes sclateri</i>	erect-crested penguin	Spheniscidae		CD _B , CI, CR, PD, RR	No change
<i>Eudyptula minor albosignata</i>	white-flipped blue penguin	Spheniscidae		CD, CI, CR, PD, RR	No change
<i>Eudyptula minor iredalei</i>	northern blue penguin	Spheniscidae		CI, CR, DPS, DPT	No change
<i>Eudyptula minor minor</i>	southern blue penguin	Spheniscidae		CI, CR, DPS, DPT	No change
<i>Gallirallus philippensis assimilis</i>	banded rail	Rallidae		CI, CR, DPS, DPT, RR	No change
<i>Haematopus finschi</i>	South Island pied oystercatcher	Haematopodidae		CI	No change
<i>Larus bulleri</i>	black-billed gull	Laridae		CI, CR, RF	Better
<i>Larus novaehollandiae scopulinus</i>	red-billed gull	Laridae		CI	No change
<i>Limosa lapponica baueri</i> (IUCN: <i>Limosa lapponica</i> , NT A2abc+3bc+4bc, ver 3.1, 2016)	eastern bar-tailed godwit	Scolopacidae		CI, TO	No change
<i>Mohoua ochrocephala</i>	mohua / yellowhead	Pachycephalidae		CD, CI, CR, PD, PF, RR	Worse
<i>Petroica australis australis</i>	kakarua / South Island robin	Petroicidae		CD, CI, DPT	No change
<i>Petroica longipes</i>	toutouwai / North Island robin	Petroicidae		CD, CI, PD	No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Porzana pusilla affinis</i>	marsh crane	Rallidae	A(1)	CI, CR, DPS, DPT, PF, RR	No change
<i>Porzana tabuensis tabuensis</i>	spotless crane	Rallidae	A(1)	DPS, DPT, PF, SO	No change
<i>Puffinus bulleri</i>	Buller's shearwater	Procellariidae	C(1)	CD, CR, DPT, OL, St	Worse
<i>Puffinus griseus</i>	sooty shearwater	Procellariidae	C(1)	CD, CI, SO	No change
<i>Sterna striata striata</i>	white-fronted tern	Sternidae	B(1)	CI, CR, DPT	No change
<i>Thalassarche bulleri bulleri</i>	southern Buller's mollymawk	Diomedidae	B(1)	CD, CR, RR	Worse
<i>Thalassarche cauta steadi</i>	New Zealand white-capped mollymawk	Diomedidae	C(1)	CD, CI, CR, EF, RR	No change
RECOVERING (9)					
Taxonomically determinate (9)					
<i>Eudyptula novaehollandiae</i>	Australian little penguin	Spheniscidae		CD, CI, SO	No change
<i>Haematopus unicolor</i>	variable oystercatcher	Haematopodidae		CI, Inc	Better
<i>Macronectes halli</i>	northern giant petrel	Procellariidae		Inc, RR, SO	No change
<i>Nesotor meridionalis septentrionalis</i>	kākā/North Island kākā	Strigopidae		CD, Inc, PD, PF	No change
<i>Onychoprion fuscatus serratus</i>	sooty tern	Sternidae		CD _B , RR, SO	No change
<i>Phalacrocorax varius varius</i>	pied shag	Phalacrocoracidae		CD	No change
<i>Philesturnus carunculatus</i>	tīke/South Island saddleback	Callaeidae		CD, Inc, PF, RR	Better
<i>Pterodroma pycrofti</i>	Pycroft's petrel	Procellariidae		CD _B , Inc, RR	No change
<i>Puffinus assimilis haurakiensis</i>	North Island little shearwater	Procellariidae		CD _B , Inc, RR	No change
RELICT (25)					
Taxonomically determinate (25)					
<i>Charadrius bicinctus exilis</i>	Auckland Island banded dotterel	Charadriidae	B	CD _B , CR, DPS, DPT, IE, RR	Worse
<i>Cyanoramphus novaehollandiae novaehollandiae</i>	kākāriki/red-crowned parakeet	Psittacidae	B	CD, PF	No change
<i>Eudyptula minor chathamensis</i>	Chatham Island blue penguin	Spheniscidae	A	CD _B , CI, CR, DPS, IE, RR	Worse
<i>Gallirallus australis greyi</i>	North Island weka	Rallidae	B	CI, Inc	Better
<i>Gallirallus australis hectori</i>	buff weka	Rallidae	B		No change
<i>Garrodia nereis</i>	grey-backed storm petrel	Hydrobatidae	B	CD _B , RR, SO	No change
<i>Pachyptila desolata</i>	Antarctic prion	Procellariidae	B	CD _B , CR, DPS, DPT, RR, SO	Worse
<i>Pachyptila turtur</i>	fairy prion	Procellariidae	B	CD _B , RR, SO	No change
<i>Pachyptila vittata</i>	broad-billed prion	Procellariidae	B	CD _B , RR, SO	No change
<i>Pelagodroma marina maoriana</i>	New Zealand white-faced storm petrel	Hydrobatidae	B	CD _B , RR	No change
<i>Pelecanoides urinatrix chathamensis</i>	southern diving petrel	Pelecanoididae	B	CD _B , RR	No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Pelecanoides urinatrix urinatrix</i>	northern diving petrel	Procellariidae	B	CD _B , Inc, RR, SO	No change
<i>Petroica australis rakiura</i>	toutouwai/Stewart Island robin	Petroicidae	A	CD, RR	No change
<i>Phalacrocorax carbo novaeaeolandiae</i>	black shag	Phalacrocoracidae	A	CR, DPS, DPT, SO, Sp	Worse
<i>Phalacrocorax melanoleucos brevirostris</i>	little shag	Phalacrocoracidae	A	CR, DPT	Worse
<i>Philesturnus rufusater</i>	tīeke/North Island saddleback	Callaeidae	B	CD, Inc, RR	Better
<i>Procellaria cinerea</i>	grey petrel	Procellariidae	A	CD, CR, DPT, RR, SO	Worse
<i>Procelsterna cerulea albivitta</i>	grey noddy	Sternidae	A	CD _B , CR, DPS, DPT, RR, SO	Worse
<i>Pterodroma cervicalis</i>	white-naped petrel	Procellariidae	B	CD _B , OL	No change
<i>Pterodroma cookii</i>	Cook's petrel	Procellariidae	B	CD _B , Inc, RR	No change
<i>Pterodroma inexpectata</i>	mottled petrel	Procellariidae	B	CD _B , Inc, RR	No change
<i>Puffinus assimilis kermadecensis</i>	Kermadec little shearwater	Procellariidae	B	CD _B , IE, RR	No change
<i>Puffinus carneipes</i>	flesh-footed shearwater	Procellariidae	B	CD, Inc, RR, SO	Better
<i>Puffinus gavia</i>	fluttering shearwater	Procellariidae	B	CD _B , RR	No change
<i>Puffinus pacificus pacificus</i>	wedge-tailed shearwater	Procellariidae	B	CD _B , Inc, RR, SO	No change
NATURALLY UNCOMMON (37)					
Taxonomically determinate (36)					
<i>Anthornis melanura obscura</i>	Three Kings bellbird	Meliphagidae		CD _B , Cl, IE, OL, St	No change
<i>Anthornis melanura oneho</i>	Poor Knights bellbird	Meliphagidae		CD _B , Cl, IE, OL, St	No change
<i>Anthus novaeseelandiae aucklandicus</i>	Auckland Island pipit	Motacillidae		CD _B , Inc, RR	No change
<i>Anthus novaeseelandiae chathamensis</i>	Chatham Island pipit	Motacillidae		IE, RR, St	No change
<i>Anthus novaeseelandiae steindachneri</i>	Antipodes Island pipit	Motacillidae		CD _B , DPS, DPT, IE, RR, St	Better
<i>Apteryx australis australis</i>	Rakiura tokoeka	Apterygidae		CD, CR, OL, St	Better
<i>Bowdleria punctata caudata</i>	Snares Island fernbird	Megaluridae		CD _B , IE, OL, St	No change
<i>Bowdleria punctata wilsoni</i>	Codfish Island fernbird	Megaluridae		CD _B , IE, RR	No change
<i>Coenocorypha aucklandica aucklandica</i>	Auckland Island snipe	Scolopacidae		CD _B , IE, PF, RR, St	No change
<i>Coenocorypha aucklandica meinertzhagenae</i>	Antipodes Island snipe	Scolopacidae		CD _B , IE, St	Better
<i>Coenocorypha huegeli</i>	Snares Island snipe	Scolopacidae		CD _B , IE, RR, St	No change
<i>Cyanoramphus hochstetteri</i>	Reischek's parakeet	Psittacidae		CD _B , IE, RR, St	No change
<i>Cyanoramphus novaeseelandiae chathamensis</i>	Chatham Island red-crowned parakeet	Psittacidae		IE, RR, St	No change
<i>Cyanoramphus novaeseelandiae cyanurus</i>	Kermadec parakeet	Psittacidae		CD _B , EF, IE, RR	No change
<i>Cyanoramphus unicolor</i>	Antipodes Island parakeet	Psittacidae		CD _B , IE, RR, St	No change
<i>Daption capense australe</i>	Snares Cape petrel	Procellariidae		CD, Cl, CR, DPT, RR	No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Eiseyornis melanops</i>	black-fronted dotterel	Charadriidae		SO, Sp	No change
<i>Euodyptes robustus</i>	Snares crested penguin	Spheniscidae		CD _B , IE, OL	No change
<i>Fulica atra australis</i>	Australian coot	Rallidae		Inc, SO	No change
<i>Gerygone albofrontata</i>	Chatham Island warbler	Acanthizidae		CD _B , IE, RR	Better
<i>Leucocarbo campbelli</i>	Campbell Island shag	Phalacrocoracidae		CD _B , CR, DPS, DPT, IE, OL	No change
<i>Leucocarbo ranfurui</i>	Bounty Island shag	Phalacrocoracidae		CI, CR, IE, OL	No change
<i>Lewinia muelleri</i>	Auckland Island rail	Rallidae		CD _B , IE, RR, St	No change
<i>Pachyptila crassirostris crassirostris</i>	fulmar prion	Procellariidae		CD _B , RR, St	No change
<i>Pachyptila crassirostris pyramidalis</i>	Chatham fulmar prion	Procellariidae		CD _B , CR, DPS, DPT, IE, RR	No change
<i>Petroica macrocephala danneleardi</i>	Snares Island tomtit	Petroicidae		CD _B , IE, OL, St	No change
<i>Petroica macrocephala marrineri</i>	Auckland Island tomtit	Petroicidae		CD _B , IE, RR	No change
<i>Phalacrocorax sulcirostris</i>	little black shag	Phalacrocoracidae		RR, SO	No change
<i>Platalea regia</i>	royal spoonbill	Threskiornithidae		Inc, RR, SO, Sp	No change
<i>Procellaria westlandica</i>	Westland petrel	Procellariidae		CD, CR, OL, St	No change
<i>Pterodroma mollis</i>	soft-plumaged petrel	Procellariidae		CD _B , CI, CR, DPT, Inc, OL, SO	No change
<i>Puffinus elegans</i>	subantarctic little shearwater	Procellariidae		CD _B , CR, DPT, RR	No change
<i>Rhipidura fuliginosa penita</i>	Chatham Island fantail	Rhipiduridae		EF, IE, RR	No change
<i>Thalassarche bulleri platei</i>	northern Buller's mollymawk	Diomedidae		CD, CI, RR	No change
<i>Thalassarche eremita</i>	Chatham Island mollymawk	Diomedidae		CD, IE, OL	No change
<i>Thalassarche impavida</i>	Campbell Island mollymawk	Diomedidae	B(1)	CD, CI, IE, OL	Better
Taxonomically unresolved (1)					
<i>Pterodroma aff. neglecta</i>	Kermadec petrel "winter"	Procellariidae		CD _B , CR, T?O	No change

NOT THREATENED (37)**Taxonomically determinate (37)**

<i>Acanthisitta chloris chloris</i>	South Island rifleman	Acanthisittidae			No change
<i>Anas gracilis</i>	grey teal	Anatidae		Inc, SO	No change
<i>Anas rhynchotis</i>	Australasian shoveler	Anatidae		SO	No change
<i>Anas superciliosa x platyrhynchos</i>	grey duck x mallard hybrid	Anatidae			No change
<i>Anthornis melanura melanura</i>	korimako /belbird	Meliphagidae			No change
<i>Apteryx mantelli</i>	North Island brown kiwi	Apterygidae		CD, PD, RF	Better
<i>Aythya novaeseelandiae</i>	pāpango /New Zealand scaup	Anatidae		Inc	No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Chrysococcyx lucidus lucidus</i>	pīwharaura / shining cuckoo	Cuculidae			No change
<i>Circus approximans</i>	kāhu / Australasian harrier	Accipitridae		SO	No change
<i>Cygnus atratus</i>	black swan	Anatidae		SO	No change
<i>Egretta novae-hollandiae</i>	white-faced heron	Ardeidae		SO	No change
<i>Fregatta tropica</i>	black-bellied storm petrel	Hydrobatidae		CD _B , De*, DPS, DPT, RR	No change
<i>Gallirallus australis australis</i>	western weka	Rallidae		EF, Inc	No change
<i>Gerygone igata</i>	roriro / grey warbler	Acanthizidae			No change
<i>Hemiphaga novaeseelandiae</i>	kererū / New Zealand pigeon	Columbidae		CD, Inc	No change
<i>Himantopus himantopus leucocephalus</i>	poaka / pied stilt	Recurvirostridae		SO	No change
<i>Hirundo neoxena neoxena</i>	welcome swallow	Hirundinidae		SO, St	No change
<i>Larus dominicanus dominicanus</i>	karoro / southern black-backed gull	Laridae		SO	No change
<i>Mohoua albigilla</i>	pōpokeatea / whitehead	Pachycephalidae		CD, CI, PD	Better
<i>Mohoua novaeseelandiae</i>	pipipi / brown creeper	Pachycephalidae			No change
<i>Morus serrator</i>	tākapu / Australasian gannet	Sulidae		CI, De*, Inc, SO	No change
<i>Ninox novaeseelandiae novaeseelandiae</i>	runu / morepork	Strigidae			No change
<i>Pelecanoides urinatrix exsul</i>	subantarctic diving petrel	Pelecanoididae		CD _B , De*, RR, SO	No change
<i>Petroica macrocephala macrocephala</i>	South Island tomtit	Petroicidae			No change
<i>Petroica macrocephala toitoi</i>	North Island tomtit	Petroicidae			No change
<i>Porphyrio melanotus melanotus</i>	pūkeko	Rallidae		Inc, SO	No change
<i>Procellaria aequinoctialis</i> (IUCN: Vulnerable A+Bcode, ver 3.1, 2018)	white-chinned petrel	Procellariidae		CD, De*, RR, TO	No change
<i>Prosthemadera novaeseelandiae novaeseelandiae</i>	tūi	Meliphagidae		Inc	No change
<i>Pterodroma lessonii</i>	white-headed petrel	Procellariidae		CD _B , De*, RR, SO	No change
<i>Pterodroma macroptera gouldi</i>	grey-faced petrel	Procellariidae		De*, Inc, RR	No change
<i>Pterodroma nigripennis</i>	black-winged petrel	Procellariidae		CD _B , De*, Inc, RR	No change
<i>Rhipidura fuliginosa fuliginosa</i>	South Island fantail	Rhipiduridae		EF	No change
<i>Rhipidura fuliginosa placabilis</i>	North Island fantail	Rhipiduridae		EF	No change
<i>Tadorna variegata</i>	pūtangitangi / paradise shelduck	Anatidae			No change
<i>Todiramphus sanctus vagans</i>	kōtare / New Zealand kingfisher	Halcyonidae			No change
<i>Vanellus miles novaehollandiae</i>	spur-winged plover	Charadriidae		SO	No change
<i>Zosterops lateralis lateralis</i>	tauhou / silvereye	Zosteropidae		SO	No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
NON-RESIDENT NATIVE (176)					
MIGRANT (24)					
Taxonomically determinate (24)					
<i>Ardea ibis coromanda</i>	eastern cattle egret	Ardeidae		SO	No change
<i>Arenaria interpres</i>	ruddy turnstone	Scolopacidae		SO	No change
<i>Calidris acuminata</i>	sharp-tailed sandpiper	Scolopacidae		SO	No change
<i>Calidris ruficollis</i>	red-necked stint	Scolopacidae		SO	No change
<i>Catharacta macconnicki</i>	Antarctic skua	Stercorariidae		SO	No change
<i>Chlidonias leucopterus</i>	white-winged black tern	Sternidae		SO	No change
<i>Coprotheres pomarinus</i>	pomarine skua	Stercorariidae		SO	No change
<i>Daption capense capense</i>	Cape petrel	Procellariidae		SO	No change
<i>Diomedea exulans</i> (IUCN: Vulnerable A4bd, ver 3.1, 2018)	wandering albatross	Diomedidae		TO	No change
<i>Fulmarus glacialisoides</i>	Antarctic fulmar	Procellariidae		SO	No change
<i>Halobaena caerulea</i>	blue petrel	Procellariidae		SO	No change
<i>Lugensa brevirostris</i>	Kerguelen petrel	Procellariidae		SO	No change
<i>Macronectes giganteus</i>	southern giant petrel	Procellariidae		SO	No change
<i>Numenius phaeopus variegatus</i>	Asiatic whimbrel	Scolopacidae		SO	No change
<i>Oceanites oceanicus exasperatus</i>	Wilson's storm petrel	Hydrobatidae		SO	No change
<i>Pachyptila belcheri</i>	thin-billed prion	Procellariidae		SO	No change
<i>Pachyptila salvini</i>	Salvin's prion	Procellariidae		SO	No change
<i>Pluvialis fulva</i>	Pacific golden plover	Charadriidae		SO	No change
<i>Pterodroma leucoptera caledonica</i> (IUCN: Pterodroma leucoptera, Vulnerable B2ab(i,v); D2, ver 3.1, 2018)	New Caledonian petrel	Procellariidae		TO	No change
<i>Puffinus tenuirostris</i>	short-tailed shearwater	Procellariidae		SO	No change
<i>Stercorarius longicaudus</i>	long-tailed skua	Stercorariidae		SO	No change
<i>Stercorarius parasiticus</i>	Arctic skua	Stercorariidae		SO	No change
<i>Sterna paradisaea</i>	Arctic tern	Sternidae		SO	No change
<i>Sternula albifrons sinensis</i>	little tern	Sternidae		SO	No change
VAGRANT (143)					
Taxonomically determinate (143)					
<i>Acrocephalus australis</i>	Australian reed warbler	Acrocephalidae		SO	No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Anas acuta</i>	northern pintail	Anatidae		SO	No change
<i>Anas castanea</i>	chestnut teal	Anatidae		SO	No change
<i>Anas clypeata</i>	northern shoveler	Anatidae		SO	No change
<i>Anhinga melanogaster novaehollandiae</i>	Australian darter	Anhingidae		SO	No change
<i>Anthochaera carunculata</i>	red wattletbird	Meliphagidae		SO	No change
<i>Aptenodytes forsteri</i>	emperor penguin	Spheniscidae		SO	No change
<i>Aptenodytes patagonicus</i>	king penguin	Spheniscidae		SO	No change
<i>Apus pacificus pacificus</i>	fork-tailed swift	Apodidae		SO	No change
<i>Ardea cinerea joiyi</i>	grey heron	Ardeidae		SO	No change
<i>Ardea intermedia plumifera</i>	plumed intermediate egret	Ardeidae		SO	No change
<i>Ardea pacifica</i>	white-necked heron	Ardeidae		SO	No change
<i>Artamus cyanopterus</i>	dusky woodswallow	Artamidae		SO	No change
<i>Artamus personatus</i>	masked woodswallow	Artamidae		SO	No change
<i>Artamus superciliosus</i>	white-browed woodswallow	Artamidae		SO	No change
<i>Aythya australis</i>	Australian white-eyed duck	Anatidae		SO	No change
<i>Barramia longicauda</i>	upland sandpiper	Scolopacidae		SO	No change
<i>Bulweria bulwerii</i>	Bulwer's petrel	Procellariidae		SO	No change
<i>Cacomantis flabelliformis flabelliformis</i>	fan-tailed cuckoo	Cuculidae		SO	No change
<i>Calidris alba</i>	sanderling	Scolopacidae		SO	No change
<i>Calidris alpina</i>	dunlin	Scolopacidae		SO	No change
<i>Calidris bairdii</i>	Baird's sandpiper	Scolopacidae		SO	No change
<i>Calidris ferruginea</i>	curlew sandpiper	Scolopacidae		SO	No change
<i>Calidris fuscicollis</i>	white-rumped sandpiper	Scolopacidae		SO	No change
<i>Calidris himantopus</i>	stilt sandpiper	Scolopacidae		SO	No change
<i>Calidris mauri</i>	western sandpiper	Scolopacidae		SO	No change
<i>Calidris melanotos</i>	pectoral sandpiper	Scolopacidae		SO	No change
<i>Calidris minuta</i>	little stint	Scolopacidae		SO	No change
<i>Calidris pusilla</i>	semipalmated sandpiper	Scolopacidae		SO	No change
<i>Calidris subminuta</i>	long-toed stint	Scolopacidae		SO	No change
<i>Calidris tenuirostris</i> (IUCN: Endangered A2bc-3bc-4bc, ver 3.1, 2016)	great knot	Scolopacidae		TO	No change
<i>Calonectris borealis</i>	Cory's shearwater	Procellariidae		SO	No change
<i>Calonectris leucomelas</i>	streaked shearwater	Procellariidae		SO	No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Charadrius leschenaultii leschenaultii</i>	large sand dotterel	Charadriidae		SO	No change
<i>Charadrius mongolus</i>	Mongolian dotterel	Charadriidae		SO	No change
<i>Charadrius ruficapillus</i>	red-capped dotterel	Charadriidae		SO	No change
<i>Charadrius semipalmatus</i>	semipalmated plover	Charadriidae		SO	No change
<i>Charadrius veredus</i>	oriental dotterel	Charadriidae		SO	No change
<i>Chlidonias hybridus javanicus</i>	whiskered tern	Sternidae		SO	No change
<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	Campephagidae		SO	No change
<i>Crex crex</i>	corncrake	Rallidae		SO	No change
<i>Cuculus optatus</i>	oriental cuckoo	Cuculidae		SO	No change
<i>Cuculus pallidus</i>	pallid cuckoo	Cuculidae		SO	No change
<i>Dendrocygna eytoni</i>	plumed whistling duck	Anatidae		SO	No change
<i>Egretta garzetta immaculata</i>	little egret	Ardeidae		SO	No change
<i>Erythrogonys cinctus</i>	red-kneed dotterel	Charadriidae		SO	No change
<i>Eudyptes chrysochome</i> (IUCN: Vulnerable, A2abode+3bcde+4abcde, ver 3.1, 2020)	western rockhopper penguin	Spheniscidae		TO	No change
<i>Eudyptes chrysolophus</i> (IUCN: Vulnerable, A2bce+3bce+4bce, ver 3.1, 2020)	macaroni penguin	Spheniscidae		TO	No change
<i>Eudyptes moseleyi</i> (IUCN: Endangered A2acde+3cde+4acde, ver 3.1, 2020)	Moseley's rockhopper penguin	Spheniscidae		TO	No change
<i>Eudyptes schlegeli</i>	royal penguin	Spheniscidae		SO	No change
<i>Eunystomus orientalis pacificus</i>	dollarbird	Coraciidae		SO	No change
<i>Falco cenchroides cenchroides</i>	nankeen kestrel	Falconidae		SO	No change
<i>Fregata ariel ariel</i>	lesser frigatebird	Fregatidae		SO	No change
<i>Fregata minor palmerstoni</i>	great frigatebird	Fregatidae		SO	No change
<i>Fulmarus glacialis</i>	northern fulmar	Procellariidae		SO	No change
<i>Gallinago hardwickii</i>	Japanese snipe	Scolopacidae		SO	No change
<i>Gallinula chloropus</i>	common moorhen	Rallidae		SO	No change
<i>Gallinula tenebrosa</i>	dusky moorhen	Rallidae		SO	No change
<i>Gallinula ventralis</i>	black-tailed native-hen	Rallidae		SO	No change
<i>Glareola maldivarum</i>	oriental pratincole	Glareolidae		SO	No change
<i>Gralina cyanoleuca</i>	magpie-lark	Monarchidae		SO	No change
<i>Haliaeetus leucogaster</i>	white-bellied sea eagle	Accipitridae		SO	No change
<i>Hirundapus caudacutus caudacutus</i>	white-throated needletail	Apodidae		SO	No change
<i>Ixobrychus minutus dubius</i>	Australian little bittern	Ardeidae		SO	No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Lalage tricolor</i>	white-winged triller	Campephagidae		SO	No change
<i>Larus atricilla</i>	laughing gull	Laridae		SO	New listing
<i>Larus pacificus</i>	Pacific gull	Laridae		SO	No change
<i>Larus pipixcan</i>	Franklin's gull	Laridae		SO	No change
<i>Leucocorbo purpurascens</i>	Macquarie Island shag	Phalacrocoracidae		SO	New listing
<i>Limicola falcinellus sibirica</i>	eastern broad-billed sandpiper	Scolopacidae		SO	No change
<i>Limnodromus semipalmatus</i>	Asiatic dowitcher	Scolopacidae		SO	No change
<i>Limosa haemastica</i>	Hudsonian godwit	Scolopacidae		SO	No change
<i>Limosa limosa melanuroides</i>	Asiatic black-tailed godwit	Scolopacidae		SO	No change
<i>Malacorhynchus membranaceus</i>	pink-eared duck	Anatidae		SO	No change
<i>Milvus migrans</i>	black kite	Accipitridae		SO	No change
<i>Monarcha melanopsis</i>	black-faced monarch	Monarchidae		SO	No change
<i>Morus capensis</i>	Cape gannet	Sulidae		SO	No change
<i>Myiagra cyanoleuca</i>	satin flycatcher	Monarchidae		SO	No change
<i>Numenius madagascariensis</i> (IUCN: Endangered A2bc+3bc+4bc, Ver 3.1, 2016)	eastern curlew	Scolopacidae		TO	No change
<i>Numenius minutus</i>	little whimbrel	Scolopacidae		SO	No change
<i>Numenius phaeopus hudsonicus</i>	American whimbrel	Scolopacidae		SO	No change
<i>Numenius tahitiensis</i>	bristle-thighed curlew	Scolopacidae		SO	No change
<i>Oceanodroma leucorhoa leucorhoa</i>	Leach's storm petrel	Hydrobatidae		SO	No change
<i>Onychoprion anaethetus</i>	bridled tern	Sternidae		SO	No change
<i>Onychoprion lunatus</i>	grey-backed tern	Sternidae		SO	No change
<i>Pelagodroma marina dulciae</i>	Australian white-faced storm petrel	Hydrobatidae		SO	No change
<i>Pelecanus conspicillatus</i>	Australian pelican	Pelecanidae		SO	No change
<i>Petrochelidon ariel</i>	fairy martin	Hirundinidae		SO	No change
<i>Petrochelidon nigricans</i>	tree martin	Hirundinidae		SO	No change
<i>Phaethon lepturus dorothaeae</i>	white-tailed tropicbird	Phaethontidae		SO	No change
<i>Phalacrocorax melanoleucos melanoleucos</i>	little pied shag	Phalacrocoracidae		SO	No change
<i>Phalaropus fulicarius</i>	grey phalarope	Scolopacidae		SO	No change
<i>Phalaropus lobatus</i>	red-necked phalarope	Scolopacidae		SO	No change
<i>Phalaropus tricolor</i>	Wilson's phalarope	Scolopacidae		SO	No change
<i>Philomachus pugnax</i>	ruff	Scolopacidae		SO	No change
<i>Phoebastria immutabilis</i>	Laysan albatross	Diomedidae		SO	No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Phoebastria nigripes</i>	black-footed albatross	Diomedidae		SO	No change
<i>Phoebastria fusca</i> (IUCN: Endangered A4bcd, ver 3.1, 2018)	sooty albatross	Diomedidae		TO	No change
<i>Platalea flavipes</i>	yellow-billed spoonbill	Threskiornithidae		SO	No change
<i>Pluvialis dominicus</i>	American golden plover	Charadriidae		SO	No change
<i>Pluvialis squatarola</i>	grey plover	Charadriidae		SO	No change
<i>Porzana fluminea</i>	Australian crake	Rallidae		SO	No change
<i>Pseudobulweria rostrata</i>	Tahiti petrel	Procellariidae		SO	No change
<i>Pterodroma alba</i>	Phoenix petrel	Procellariidae		TO	No change
<i>Pterodroma brevipes</i> (IUCN: Vulnerable C2a(i), D1, ver 3.1, 2018)	collared petrel	Procellariidae		TO	New listing
<i>Pterodroma externa</i> (IUCN: Vulnerable D2, ver 3.1, 2018)	Juan Fernández petrel	Procellariidae		TO	No change
<i>Pterodroma heraldica</i>	Herald petrel	Procellariidae		SO	No change
<i>Pterodroma longirostris</i> (IUCN: Vulnerable D2, ver 3.1, 2019)	Stejneger's petrel	Procellariidae		TO	No change
<i>Pterodroma solandri</i> (IUCN: Vulnerable D2, ver 3.1, 2019)	providence petrel	Procellariidae		TO	No change
<i>Ptilinopus regina</i>	rose-crowned fruit-dove	Columbidae		SO	New listing
<i>Puffinus assimilis assimilis</i>	Norfolk Island little shearwater	Procellariidae		SO	No change
<i>Puffinus creatopus</i>	pink-footed shearwater	Procellariidae		SO	No change
<i>Puffinus gravis</i>	great shearwater	Procellariidae		SO	No change
<i>Puffinus nativitatis</i>	Christmas Island shearwater	Procellariidae		SO	No change
<i>Puffinus newelli</i> (IUCN: Critically Endangered A3bce+4bce, ver 3.1, 2019)	Newell's shearwater	Procellariidae		TO	No change
<i>Puffinus pacificus chlororhynchus</i>	wedge-tailed shearwater	Procellariidae		SO	No change
<i>Puffinus puffinus</i>	Manx shearwater	Procellariidae		SO	No change
<i>Pygoscelis adeliae</i>	Adélie penguin	Spheniscidae		SO	No change
<i>Pygoscelis antarctica</i>	chinstrap penguin	Spheniscidae		SO	No change
<i>Pygoscelis papua</i>	gentoo penguin	Spheniscidae		SO	No change
<i>Recurvirostra novaehollandiae</i>	red-necked avocet	Recurvirostridae		SO	No change
<i>Rhipidura leucophrys</i>	willie wagtail	Rhipiduridae		SO	No change
<i>Rostratula benghalensis</i>	painted snipe	Rostratulidae		SO	No change
<i>Scythrops novaehollandiae</i>	channel-billed cuckoo	Cuculidae		SO	No change
<i>Sterna hirundo longipennis</i>	eastern common tern	Sternidae		SO	No change

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Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Sula leucogaster plotus</i>	brown booby	Sulidae		SO	No change
<i>Sula sula rubripes</i>	Indo-Pacific red-footed booby	Sulidae		SO	No change
<i>Sula sula websteri</i>	eastern Pacific red-footed booby	Sulidae		SO	New listing
<i>Tadorna tadornoides</i>	chestnut-breasted shelduck	Anatidae		SO	No change
<i>Thalassarche cauta cauta</i>	Tasmanian albatross	Diomedidae		SO	No change
<i>Thalassarche chlororhynchos</i> (IUCN: Endangered A4bc, B2ab(v), ver 3.1, 2018)	Atlantic yellow-nosed mollymawk	Diomedidae		TO	No change
<i>Thalasseus bergii cristata</i>	greater crested tern	Sternidae		SO	No change
<i>Thalassoica antarctica</i>	Antarctic petrel	Procellariidae		SO	No change
<i>Threskiornis molucca strictipennis</i>	Australian white ibis	Threskiornithidae		SO	No change
<i>Threskiornis spinicollis</i>	straw-necked ibis	Threskiornithidae		SO	No change
<i>Tringa brevipes</i>	Siberian tattler	Scolopacidae		SO	No change
<i>Tringa cinerea</i>	Terek sandpiper	Scolopacidae		SO	No change
<i>Tringa flavipes</i>	lesser yellowlegs	Scolopacidae		SO	No change
<i>Tringa hypoleucos</i>	common sandpiper	Scolopacidae		SO	No change
<i>Tringa incana</i>	wandering tattler	Scolopacidae		SO	No change
<i>Tringa nebularia</i>	greenshank	Scolopacidae		SO	No change
<i>Tringa stagnatilis</i>	marsh sandpiper	Scolopacidae		SO	No change
<i>Tryngites subruficollis</i>	buff-breasted sandpiper	Scolopacidae		SO	No change
COLONISER (10)					
Taxonomically determinate (10)					
<i>Anous stolidus pileatus</i>	common noddy	Sternidae		OL, SO	No change
<i>Chenonetta jubata</i>	Australian wood duck	Anatidae		OL, SO	No change
<i>Gelochelidon nilotica</i>	gull-billed tern	Sternidae		OL, SO	Better
<i>Nycticorax caledonicus australasiae</i>	nankeen night heron	Ardeidae		DPS, DPT, OL, SO	No change
<i>Plegadis falcinellus</i>	glossy ibis	Threskiornithidae		OL, SO	No change
<i>Poliiocephalus poliocephalus</i>	hoary-headed grebe	Podicipedidae		OL, SO	Better
<i>Tachybaptus novaehollandiae novaehollandiae</i>	Australasian little grebe	Podicipedidae		SO	No change
<i>Thalassarche carteri</i> (IUCN: Endangered A4bc, ver 3.1, 2018)	Indian Ocean yellow-nosed mollymawk	Diomedidae		OL, TO	No change
<i>Thalassarche melanophrys</i>	black-browed mollymawk	Diomedidae		SO	No change
<i>Tyto alba deliculata</i>	Australian barn owl	Tytonidae		OL, SO	No change

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Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
INTRODUCED AND NATURALISED (35)					
Taxonomically determinate (35)					
<i>Acridotheres tristis</i>	Indian myna	Sturnidae		SO	No change
<i>Alauda arvensis</i>	Eurasian skylark	Alaudidae		SO	No change
<i>Alectoris chukar</i>	chukor	Phasianidae		SO, Sp	No change
<i>Anas platyrhynchos</i>	mallard	Anatidae		SO	No change
<i>Anser anser</i>	feral goose	Anatidae		SO	No change
<i>Athene noctua</i>	little owl	Strigidae		SO	No change
<i>Branta canadensis</i>	Canada goose	Anatidae		SO	No change
<i>Cacatua galerita</i>	sulphur-crested cockatoo	Cacatuidae		SO, Sp	No change
<i>Callipepla californica</i>	California quail	Phasianidae		SO	No change
<i>Carduelis carduelis</i>	goldfinch	Fringillidae		SO	No change
<i>Carduelis chloris</i>	greenfinch	Fringillidae		SO	No change
<i>Carduelis flammea</i>	common redpoll	Fringillidae		SO	No change
<i>Cereopsis novaehollandiae</i>	Cape Barren goose	Anatidae		SO, Sp	No change
<i>Columba livia</i>	rock pigeon	Columbidae		SO	No change
<i>Corvus frugilegus</i>	rook	Corvidae		SO	No change
<i>Coturnix ypsilophora australis</i>	brown quail	Phasianidae		SO	No change
<i>Cygnus olor</i>	mute swan	Anatidae		SO, Sp	No change
<i>Dacelo novaeguineae</i>	laughing kookaburra	Halcyonidae		RR, SO	No change
<i>Emberiza cirius</i>	cirl bunting	Emberizidae		SO, Sp	No change
<i>Emberiza citrinella</i>	yellowhammer	Emberizidae		SO	No change
<i>Eolophus roseicapillus</i>	galah	Cacatuidae		RR, SO	No change
<i>Fringilla coelebs</i>	chaffinch	Fringillidae		SO	No change
<i>Gymnorhina tibicen</i>	Australian magpie	Artamidae		SO	No change
<i>Meleagris gallopavo</i>	wild turkey	Phasianidae		SO	No change
<i>Numida meleagris</i>	helmeted guineafowl	Phasianidae		SO, Sp	No change
<i>Passer domesticus</i>	house sparrow	Passeridae		SO	No change
<i>Pavo cristatus</i>	peafowl	Phasianidae		SO	No change
<i>Phasianus colchicus</i>	ring-necked pheasant	Phasianidae		SO	No change
<i>Platycercus eximius</i>	eastern rosella	Psittacidae		SO	No change
<i>Prunella modularis</i>	duncock	Prunellidae		SO	No change
<i>Streptopelia chinensis tigrina</i>	Malay spotted dove	Columbidae		SO	No change

Continued on next page

Table 8 continued

SCIENTIFIC NAME	COMMON NAME	FAMILY	CRITERIA	QUALIFIERS	STATUS CHANGE
<i>Streptopelia risoria</i>	Barbary dove	Columbidae		SO, Sp	No change
<i>Sturnus vulgaris</i>	starling	Sturnidae		SO	No change
<i>Turdus merula</i>	blackbird	Turdidae		SO	No change
<i>Turdus philomelos</i>	song thrush	Turdidae		SO	No change

* Designated because the small total area occupied by colonies would otherwise have placed the taxon in a Threatened or At Risk category.

3.2 NZTCS categories, criteria and qualifiers used in this assessment

3.2.1 Qualifiers

The qualifiers used in this assessment are abbreviated as follows:

CD	Conservation Dependent (CD _B indicates the need for only good biosecurity)
CI	Climate Impact
CR	Conservation Research Needed
De	Designated
DPR	Data Poor Recognition
DPS	Data Poor Size
DPT	Data Poor Trend
EF	Extreme Fluctuations
IE	Island Endemic
Inc	Increasing
OL	One Location
PD	Partial Decline
PF	Population Fragmentation
RF	Recruitment Failure
RR	Range Restricted
SO	Secure Overseas
Sp	Sparse
TO	Threatened Overseas

Further details about each of these can be found at https://nztc.org.nz/content/NZTCS_QUALIFIERS.

3.2.2 Categories and criteria

Extinct

Taxa for which there is no reasonable doubt – following repeated surveys in known or expected habitats at appropriate times (diurnal, seasonal and annual) and throughout the taxon’s historic range – that the last individual has died.

Data Deficient

Taxa that cannot be assessed due to a lack of current information about their distribution and abundance. It is hoped that listing such taxa will stimulate research to find out the true category (for a fuller definition, see Townsend et al. 2008).

Threatened

Taxa that meet the criteria specified by Townsend et al. (2008) for the statuses Nationally Critical, Nationally Endangered and Nationally Vulnerable.

Nationally Critical

A – very small population (natural or unnatural)

A(1) < 250 mature individuals

A(2) ≤ 2 subpopulations, ≤ 200 mature individuals in the larger subpopulation

A(3) Total area of occupancy ≤ 1 ha (0.01 km²)

B – small population with a high ongoing or forecast decline of 50–70%

B(1) 250–1000 mature individuals

B(2) ≤ 5 subpopulations, ≤ 300 mature individuals in the largest subpopulation

B(3) Total area of occupancy ≤ 10 ha (0.1 km²)

C – population (irrespective of size or number of subpopulations) with a very high ongoing or forecast decline of > 70%

C Predicted decline > 70%

Nationally Endangered

A – small population that has a low to high ongoing or forecast decline of 10–50%

A(1) 250–1000 mature individuals

A(2) ≤ 5 subpopulations, ≤ 300 mature individuals in the largest subpopulation

A(3) Total area of occupancy ≤ 10 ha (0.1 km²)

B – small stable population (unnatural)

B(1) 250–1000 mature individuals

B(2) ≤ 5 subpopulations, ≤ 300 mature individuals in the largest subpopulation

B(3) Total area of occupancy ≤ 10 ha (0.1 km²)

C – moderate population and high ongoing or forecast decline of 50–70%

C(1) 1000–5000 mature individuals

C(2) ≤ 15 subpopulations, ≤ 500 mature individuals in the largest subpopulation

C(3) Total area of occupancy ≤ 100 ha (1 km²)

Nationally Vulnerable

A – small population (unnatural), increasing > 10%

A(1) 250–1000 mature individuals

A(2) ≤ 5 subpopulations, ≤ 300 mature individuals in the largest subpopulation

A(3) Total area of occupancy ≤ 10 ha (0.1 km²)

B – moderate population (unnatural), stable ± 10%

B(1) 1000–5000 mature individuals

B(2) ≤ 15 subpopulations, ≤ 500 mature individuals in the largest subpopulation

B(3) Total area of occupancy ≤ 100 ha (1 km²)

C – moderate population, with population trend that has a low to high ongoing or forecast decline of 10–50%

C(1) 1000–5000 mature individuals

C(2) ≤ 15 subpopulations, ≤ 500 mature individuals in the largest subpopulation

C(3) Total area of occupancy ≤ 100 ha (1 km²)

D – moderate to large population and moderate to high ongoing or forecast decline of 30–70%

D(1) 5000–20 000 mature individuals

D(2) ≤ 15 subpopulations, ≤ 1000 mature individuals in the largest subpopulation

D(3) Total area of occupancy ≤ 1000 ha (10 km²)

E – large population and high ongoing or forecast decline of 50–70%

E(1) 20 000–100 000 mature individuals

E(2) Total area of occupancy ≤ 10 000 ha (100 km²)

Nationally Increasing

(This name replaces At Risk – Recovering A of Townsend et al. (2008).)

Taxa that have undergone a documented decline within the last 1000 years to a population size of 1000–5000 mature individuals or a total area of occupancy of ≤ 100 ha (1 km²) and now have an ongoing or predicted increase of > 10% in the total population or area of occupancy, taken over the next 10 years or three generations, whichever is longer.

Taxa that are increasing but have a population size of < 1000 mature individuals (or total area of occupancy of < 10 ha) are listed in one of the other Threatened categories, depending on their population size (see Townsend et al. 2008).

At Risk

Taxa that meet the criteria specified by Townsend et al. (2008) for Declining, Recovering, Relict or Naturally Uncommon.

Declining

A – moderate to large population and low ongoing or forecast decline of 10–30%

A(1) 5000–20 000 mature individuals

A(2) Total area of occupancy \leq 1000 ha (10 km²)

B – large population and low to moderate ongoing or forecast decline of 10–50%

B(1) 20 000–100 000 mature individuals

B(2) Total area of occupancy \leq 10 000 ha (100 km²)

C – very large population and low to high ongoing or forecast decline of 10–70%

C(1) > 100 000 mature individuals

C(2) Total area of occupancy > 10 000 ha (100 km²)

Recovering

Taxa that have undergone a documented decline within the last 1000 years to a population size of 5000–20 000 mature individuals or a total area of occupancy of \leq 1000 ha (10 km²) and now have an ongoing or predicted increase of > 10% in the total population or area of occupancy, taken over the next 10 years or three generations, whichever is longer.

Taxa that are increasing but have a population size of < 5000 mature individuals (or total area of occupancy of < 100 ha) are listed in one of the Threatened categories, depending on their population size (for more details, see the description of Nationally Increasing above and Townsend et al. (2008)).

Relict

Taxa that have undergone a documented decline within the last 1000 years, now occupy < 10% of their former range and meet one of the following criteria:

A 5000–20 000 mature individuals; population stable (\pm 10%)

B > 20 000 mature individuals; population stable (\pm 10%) or increasing at > 10%

The range of a relictual taxon takes into account the area currently occupied as a ratio of its former extent. Relict can also include taxa that exist as reintroduced and self-sustaining populations within or outside their former known range (for more details, see Townsend et al. (2008)).

Naturally Uncommon

Taxa whose distribution is confined to a specific geographical area or which occur within naturally small and widely scattered populations, where this distribution is not the result of human disturbance.

Non-resident Native

Taxa whose natural presence in Aotearoa New Zealand is either discontinuous (Migrant) or sporadic or temporary (Vagrant) or which have succeeded in recently (since 1950) establishing a resident breeding population (Coloniser).

Migrant

Taxa that predictably and cyclically visit Aotearoa New Zealand as part of their normal life cycle (a minimum of 15 individuals known or presumed to visit per annum) but do not breed here. Following previous practice since 2012 (Robertson et al. 2013), the panel assessed eastern bar-tailed godwit (*Limosa lapponoica baueri*) and lesser knot (*Calidris canutus rogersi*) among the native taxa on the basis that more than half of the world's population of these taxa visit Aotearoa New Zealand annually and individuals of both species spend more than half of their lives in Aotearoa New Zealand, even though they do not breed here.

Vagrant

Taxa whose occurrences, though natural, are sporadic and typically transitory, or migrants with fewer than 15 individuals visiting Aotearoa New Zealand per annum.

Coloniser

Taxa that would otherwise trigger Threatened or At Risk categories because of their small population sizes, have arrived in Aotearoa New Zealand without help from humans and have been successfully reproducing in the wild only since 1950.

Not Threatened

Resident native taxa that have large, stable populations. The panel designated several numerous seabird species that breed at more than one location (e.g. tākapu / Australasian gannet (*Morus serrator*)) as Not Threatened because, while the small area of occupancy of breeding colonies would ordinarily have triggered a higher category, the panel felt that if breeding sites in any region were lost or adversely affected by environmental change, the overall Aotearoa New Zealand population would not become threatened.

Introduced and Naturalised

Taxa that have become naturalised in the wild after being deliberately introduced into Aotearoa New Zealand by humans.

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5. References

- Bartle, J.A. 1968: Observations on the breeding habits of Pycroft's petrel. *Notornis* 15: 70–99.
- Bell, M. 2021: 2020 breeding population census of Pitt Island shag and Chatham Island shag. Client report prepared for the Department of Conservation, Wellington, by Wildlife Management International Limited, Blenheim.
- Bell, M.; Bell, D. 2000: Census of the three shag species in the Chatham Islands. *Notornis* 47: 148–153.
- Bester, A.J.; Charteris, M. 2005: The second census of Chatham Islands shag and Pitt Island shag – are numbers declining? *Notornis* 52: 6–10.
- Bird, J.P.; Martin, R.; Akcakaya, H.R.; Gilroy, J.; Burfield, I.J.; Garnett, S.T.; Symes, A.; Taylor, J.; Sekercioglu, C.H.; Butchart, S.H.M. 2020: Generation lengths of the world's birds and their implications for extinction risk. *Conservation Biology* 34: 1252–1261.
- Cole, T.L.; Ksepka, D.T.; Mitchell, K.J.; Tennyson, A.J.D.; Thomas, D.B.; Pan, H.; Zhang, G.; Rawlence, N.J.; Wood, J.R.; Bover, P.; Bouzat, J.L.; Cooper, A.; Fiddaman, S.R.; Hart, T.; Miller, G.; Ryan, P.G.; Shepherd, L.D.; Wilmshurst, J.M.; Waters, J.M. 2019: Mitogenomes uncover extinct penguin taxa and reveal island formation as a key driver of speciation. *Molecular Biology and Evolution* 36: 784–797.
- Debski, I.; Bell, M.; Palmer, D. 2012: Chatham Island and Pitt Island shag census 2011. Unpublished MCSP02010-02 Final Report. Department of Conservation, Wellington. 21 p.
- Falla, R.A. 1953: Description of a new form of New Zealand wren. *Notornis* 5: 142–143.
- Fischer, J.H.; Debski, I.; Miskelly, C.M.; Bost, C.A.; Fromont, A.; Tennyson, A.J.D.; Tessler, J.; Cole, R.; Hiscock, J.H.; Taylor, G.A.; Wittmer, H.U. 2018: Analyses of phenotypic differentiations among South Georgian diving petrel (*Pelecanoides georgicus*) populations reveal an undescribed and highly endangered species from New Zealand. *PLoS ONE* 13: [e0197766](https://doi.org/10.1371/journal.pone.0197766). <https://doi.org/10.1371/journal.pone.0197766>
- Friesen, M.R.; Simpkins, C.E.; Ross, J.; Anderson, S.H.; Ismar-Rebitz, S.M.H.; Tennyson, A.J.D.; Taylor, G.A.; Baird, K.A.; Gaskin, C.P. 2021: New population estimate for an abundant marine indicator species, rako or Buller's shearwater (*Ardenna bulleri*). *Emu-Austral Ornithology* <https://doi.org/10.1080/01584197.2021.1924066>
- Germano, J.; Barlow, S.; Castro, I.; Colbourne, R.; Cox, M.; Gillies, C.; Hackwell, K.; Harawira, J.; Impey, M.; Reuben, A.; Robertson, H.; Scrimgeour, J.; Sporle, W.; Yong, S. 2018: Kiwi Recovery Plan 2018–2028. *Threatened Species Recovery Plan* 64. Department of Conservation, Wellington. 60 p.
- Gill, B.J.; Bell, B.D.; Chambers, G.K.; Medway, D.G.; Palma, R.L.; Scofield, R.P.; Tennyson, A.J.D.; Worthy, T.H. 2010: Checklist of the Birds of New Zealand, Norfolk and Macquarie Islands, and the Ross Dependency, Antarctica. Te Papa Press, Wellington. 500 p.
- Gillespie, G.D. 1985: Hybridization, introgression and morphometric differentiation between mallard *Anas platyrhynchos* and grey duck *Anas superciliosa* in Otago, New Zealand. *Auk* 102: 459–469.
- Grosser, S.; Robertson, F.; Shepherd, L.D.; Tennyson, A.J.D.; Miskelly, C.M.; Taylor, G.A.; Robertson, B.C. 2021: Phylogenetic affinities of the Whenua Hou Diving Petrel: implications for conservation. *Emu - Austral Ornithology* 121: 102–112. <https://doi.org/10.1080/01584197.2021.1908148>
- Harper, P.C. 1983: Breeding of the Buller's shearwater (*Puffinus bulleri*) at the Poor Knights Islands, New Zealand. *Notornis* 30: 299–318.
- Heather, B.D.; Robertson, H.A. 1996: The Field Guide to the Birds of New Zealand. Viking, Auckland. 432 p.
- Heather, B.D.; Robertson, H.A. 2015: The Field Guide to the Birds of New Zealand. Penguin Random House, Auckland. 464 p.
- Hitchmough, R. (compiler) 2002: New Zealand Threat Classification System lists–2002. *Threatened Species Occasional Publication* 23. Department of Conservation, Wellington. 210 p.
- Hitchmough, R.; Bull, L.; Cromarty, P. (compilers) 2007: New Zealand Threat Classification System lists. Department of Conservation, Wellington. 194 p.
- IUCN 2021. IUCN Red List of threatened species. <https://www.iucnredlist.org/> (viewed 2 October 2021).
- Long, R. 2017: A survey of Fiordland crested penguins/tawaki (*Eudyptes pachyrhynchus*) from Cascade River to Martins Bay, South Westland, New Zealand, 2014. *Notornis* 64: 206–210.

- Mattern, T.; Long, R. 2017: Survey and population size estimate of Fiordland penguin (tawaki; *Eudyptes pachyrhynchus*) in Milford Sound/Piopiota, New Zealand. *Notornis* 64: 97-101.
- Medway, D.G. 2001: Pigs and petrels on the Poor Knights islands. *New Zealand Natural Sciences* 26: 87-90.
- Michel, P. 2021: Amendment to the New Zealand Threat Classification System manual 2008: revised categories 2021. Department of Conservation, Wellington. 5 p.
- Mischler, C.P. 2018: Estimating the breeding population of black-billed gulls *Larus bulleri* in New Zealand, and methods for future count surveys. *Notornis* 65: 67-83.
- Miskelly, C.M. 2020: First record of rose-crowned fruit-dove (*Ptilinopus regina*) from New Zealand. *Notornis* 67: 564-567.
- Miskelly, C.M.; Cooper, J.H. 2020: Macquarie Island shags (*Leucocarbo purpurascens*) at the Auckland Islands – an addition to the New Zealand list. *Notornis* 67: 419-426.
- Miskelly, C.M.; Crossland, A.C.; Sagar, P.M.; Saville, I.; Tennyson, A.J.D.; Bell, E.A. 2013: Vagrant and extra-limital bird records accepted by the OSNZ Records Appraisal Committee 2011-2012. *Notornis* 60: 296-306.
- Miskelly, C.M.; Crossland, A.C.; Sagar, P.M.; Saville, I.; Tennyson, A.J.D.; Bell, E.A. 2017: Vagrant and extra-limital bird records accepted by the Birds New Zealand Records Appraisal Committee 2015-2016. *Notornis* 64: 57-67.
- Miskelly, C.M.; Crossland, A.C.; Saville, I.; Southey, I.; Tennyson, A.J.D.; Bell, E.A. 2019: Vagrant and extra-limital bird records accepted by the Birds New Zealand Records Appraisal Committee 2017-2018. *Notornis* 66: 150-163.
- Miskelly, C.M.; Crossland, A.C.; Saville, I.; Southey, I.; Tennyson, A.J.D.; Bell, E.A. 2021: Vagrant and extra-limital bird records accepted by the Birds New Zealand Records Appraisal Committee 2019-2020. *Notornis* 68: 253-265.
- Miskelly, C.M.; Dowding, J.E.; Elliott, G.P.; Hitchmough, R.A.; Powlesland, R.G.; Robertson, H.A.; Sagar, P.M.; Scofield, R.P.; Taylor, G.A. 2008: Conservation status of New Zealand birds. *Notornis* 55: 117-125.
- Miskelly, C.; Symes, C. 2020: Lost gold: ornithology of the subantarctic Auckland Islands. *Notornis* 67: 1-436.
- 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. Department of Conservation, Wellington. 26 p.
- O'Donnell, C.F.J.; Monks, J.M. 2020: Distribution, long term population trends and conservation status of banded dotterels (*Charadrius bicinctus bicinctus*) on braided rivers in New Zealand. *Notornis* 67: 733-753.
- Rawlence, N.J.; Rayner, M.J.; Lovegrove, T.G.; Stoddart, D.; Vermeulen, M.; Easton, L.J.; Tennyson, A.J.D.; Scofield, R.P.; Kennedy, M.; Spencer, H.; Waters, J.M. 2019: Archival DNA reveals cryptic biodiversity within spotted shag (*Phalacrocorax punctatus*) from New Zealand. *Condor: Ornithological Applications* 121: 1-16.
- Rawlence, N.J.; Till, C.E.; Easton, L.J.; Spencer, H.G.; Schuckard, R.; Melville, D.S.; Scofield, R.P.; Tennyson, A.J.D.; Rayner, M.J.; Waters, J.M.; Kennedy, M. 2017: Speciation, range contraction and extinction in the endemic New Zealand king shag complex. *Molecular Phylogenetics and Evolution* 115: 197-209.
- Rexer-Huber, K.; Walker, K.; Elliot, G.; Baker, G.B.; Debski, I.; Jenz, K.; Sagar, P.M.; Thompson, D.R.; Parker, G.C. 2020: Population trends of light-mantled sooty albatross (*Phoebastria palpebrata*) at Adams Island and trials of ground, boat, and aerial methods for population estimates. *Notornis* 67: 341-355.
- Rhymer, J.M.; Williams, M.; Braun, M.J. 1994: Mitochondrial analysis of gene flow between New Zealand mallards (*Anas platyrhynchos*) and grey ducks (*A. superciliosa*). *Auk* 111: 970-978.
- Riegen, A.; Sagar, P.M. 2020: Distribution and numbers of waders in New Zealand, 2005-2019. *Notornis* 67: 591-634.
- Robertson, H.A.; Baird, K.; Dowding, J.E.; Elliott, G.P.; Hitchmough, R.A.; Miskelly, C.M.; McArthur, N.; O'Donnell, C.F.J.; Sagar, P.M.; Scofield, P.; Taylor G.A. 2017: Conservation status of New Zealand birds, 2016. *New Zealand Threat Classification Series* 19. Department of Conservation, Wellington. 23 p.
- Robertson, H.A.; de Monchy, P.J.M. 2012: Varied success from the landscape-scale management of kiwi *Apteryx* spp. in five sanctuaries in New Zealand. *Bird Conservation International* 22: 429-444.
- Robertson, H.A.; Dowding, J.E.; Elliott, G.P.; Hitchmough, R.A.; Miskelly, C.M.; O'Donnell, C.F.J.; Powlesland, R.G.; Sagar, P.M.; Scofield, P.; Taylor G.A. 2013: Conservation status of New Zealand birds, 2012. *New Zealand Threat Classification Series* 4. Department of Conservation, Wellington. 22 p.
- Rolfe, J.; Makan, T.; Tait, A. 2021: Supplement to the New Zealand Threat Classification System manual 2008: new qualifiers and amendments to qualifier definitions, 2021. Department of Conservation, Wellington. 7 p.

- Scofield, R.P.; Wood, J.R.; de Nascimento, L.; Robertson, H.A.; Colbourne, R.M.; de Pietri, V.L.; Innes, J.; Weir, J.T. 2021: Identification of the type locality of the South Island brown kiwi *Apteryx australis*; a nomenclatural framework for the southern tokoeka and an insight into movements of sealers in the early 19th century. *Conservation Genetics* <https://doi.org/10.1007/s10592-021-01349-y>
- Studds, C.E.; Kendall, B.E.; Murray, N.J.; Wilson, H.B.; Rogers, D.I.; Clemens, R.S.; Gosbell, K.; Hassell, C.J.; Jessop, R.; Melville, D.S.; Milton, D.A.; Minton, C.D.T.; Possingham, H.P.; Riegen, A.C.; Straw, P.; Woehler, E.J.; Fuller, R.A. 2017: Rapid population decline in migratory shorebirds relying on Yellow Sea tidal mudflats as stopover sites. *Nature Communications* 8: 14895. <https://doi.org/10.1038/ncomms14895>
- Thompson, D.; Sagar, P. 2020: Population studies of southern Buller's albatrosses on the Snares | Tine Heke. *NIWA client report 2020200WN*. NIWA, Wellington. 24 p.
- Townsend, A.J.; de Lange, P.J.; Duffy, C.A.J.; Miskelly, C.M.; Molloy, J.; Norton, D.A. 2008: New Zealand Threat Classification System manual. Department of Conservation, Wellington. 35 p.
- Verry, A.J.F.; Scarsbrook, L.; Scofield, R.P.; Tennyson, A.J.D.; Weston, K.A.; Robertson, B.C.; Rawlence, N.J. 2019: Who, where, what, wren? Using ancient DNA to examine the veracity of museum specimen data: a case study of the New Zealand rock wren (*Xenicus gilviventris*). *Frontiers in Ecology and Evolution* 7: Article 496.
- Weston, K.A.; Robertson, B.C. 2015: Population structure within an alpine archipelago: strong signature of past climate change in the New Zealand rock wren (*Xenicus gilviventris*). *Molecular Ecology* 24: 4778–4794.
- Williams, M. 2017: The changing relative abundance of grey duck (*Anas superciliosa*) and mallard (*A. platyrhynchos*) in New Zealand. *Notornis* 64: 211–218.
- Williams, M. 2019: Can grey duck (*Anas superciliosa*) × mallard (*A. platyrhynchos*) hybrids be recognised in the field? *Notornis* 66: 45–63.
- Wilmshurst, J.M.; Anderson, A.J.; Higham, T.F.G.; Worthy, T.H. 2008: Dating the late prehistoric dispersal of Polynesians to New Zealand using the commensal Pacific rat. *Proceedings of the National Academy of Sciences* 105: 7676–7680.
- Woodley, K.; Symes, C. 2020. Wader studies in New Zealand. *Notornis* 67: 586–781.