

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p>Fifth Meeting of the Population and Conservation Status Working Group</p> <p><i>Florianópolis, Brazil, 9 - 10 May 2019</i></p> <p>IUCN Red List status of ACAP-listed species</p> <p>G. Barry Baker, Stephen Garnett, Rosemary Gales, Wiesława Misiak</p>

SUMMARY

A review was undertaken concerning the global threat status (IUCN Red List Category of extinction risk) for all ACAP species to ensure consistency and strict adherence to the IUCN Categories and Criteria, and to the Guidelines for using the IUCN Categories and Criteria. Of the 31 ACAP listed species, we found that the Criteria and Guidelines had been used appropriately for 29 species. For *Thalassarche salvini* (Salvin's Albatross), we believe the number of locations may have been incorrectly delimited, although it may still qualify as Vulnerable under other criteria. For *T. cauta* (Shy Albatross) we do not believe it approaches the thresholds sufficiently closely for listing as NT under criterion D2, although a listing of NT under criterion A4(a) may be appropriate. The status of both species should now be reviewed again by BirdLife International. For four other species — *Diomedea epomophora* (Southern Royal Albatross), *D. sanfordi* (Northern Royal Albatross), *T. impavida* (Campbell Albatross) and *Procellaria aequinoctialis* (White-chinned Petrel) — new data are available that may warrant reassessment of their conservation status.

RECOMMENDATIONS

It is recommended that the PaCSWG:

1. Consider the findings of this review.
2. Request, through the Advisory Committee, that BirdLife International be asked to review the global threat status of species where the IUCN Guidelines and Criteria do not appear to have been met, or where new data are available.

Estado de las especies del ACAP según la Lista Roja de la UICN

RESUMEN

Se efectuó una revisión del estado de amenaza mundial —categoría de la Lista Roja de la UICN según el riesgo de extinción— de todas las especies amparadas por el ACAP para garantizar que este fuera coherente y cumpliera estrictamente con las categorías y los

criterios de la UICN, así como con las directrices para el uso de las categorías y de los criterios de la UICN. Descubrimos que los criterios y las directrices se habían aplicado correctamente en 29 de las 31 especies del ACAP. Si bien creemos que el número de sitios correspondientes a la especie *Thalassarche salvini* (albatros de Salvin) pudo haber sido delimitado incorrectamente, dicha especie podría, aun así, clasificarse en la categoría Vulnerable en función de otros criterios. En el caso de la especie *T. cauta* (albatros de corona blanca), no creemos que se acerque lo suficiente a los umbrales para ser clasificada como Casi amenazada en función del criterio D2, aunque sí podría ser apropiado clasificarla como Casi amenazada según el criterio A4(a). En la actualidad, BirdLife International debería revisar una vez más el estado de ambas especies. Existen nuevos datos que justificarían la necesidad de volver a evaluar el estado de conservación de otras cuatro especies, a saber: *Diomedea epomophora* (albatros real del sur), *D. sanfordi* (albatros real del norte), *T. impavida* (albatros de Campbell) y *Procellaria aequinoctialis* (petrel de barba blanca).

RECOMENDACIONES

Se recomienda al GdTPEC lo siguiente:

1. Considerar los hallazgos de esta revisión.
2. Solicitar al Comité Asesor que le pida a BirdLife International revisar el estado de amenaza mundial de especies en los casos en que o bien las directrices y los criterios de la UICN no parezcan haberse alcanzado o bien existan nuevos datos disponibles.

Liste rouge de l'UICN : statut des espèces de l'ACAP

RÉSUMÉ

Les informations relatives au statut mondial des menaces (catégorie risque d'extinction de la liste rouge de l'UICN) pour toutes les espèces de l'ACAP ont été examinées afin de garantir la cohérence et l'adhérence stricte aux catégories et critères de l'UICN et aux lignes directrices pour l'utilisation des catégories et critères de l'UICN. Parmi les 31 espèces inscrites à l'ACAP, nous avons constaté que les critères et les lignes directrices ont été utilisés à bon escient pour 29 espèces. En ce qui concerne le *Thalassarche salvini* (albatros de Salvin), il est possible que le nombre de sites n'ait pas été correctement délimité, bien que l'espèce puisse encore être considérée comme Vulnérable selon d'autres critères. Quant au *T. cauta* (albatros à cape blanche), nous pensons qu'il ne s'approche pas assez des seuils pour être listé sous la catégorie Quasi menacé (NT) selon le critère D2, mais il peut être approprié de le lister comme NT selon le critère A4(a). Le statut de ces deux espèces devrait être révisé par BirdLife International. De nouvelles données sont disponibles pour quatre espèces (*Diomedea epomophora* albatros royal, *D. sanfordi* albatros de Sanford, *T. impavida* albatros de Campbell and *Procellaria aequinoctialis* puffin à menton blanc), ce qui pourrait justifier une nouvelle évaluation de leur statut de conservation.

RECOMMANDATIONS

Il est recommandé que le GTSPC :

1. examine les résultats de cette révision.
2. demande, par le biais du Comité consultatif, que BirdLife International révise le statut mondial des menaces à propos des espèces pour lesquelles les lignes directrices et les critères de l'IUCN n'ont apparemment pas été respectés, ou si de nouvelles données sont apparues.

1. INTRODUCTION

At PaCSWG4 Garnett and Baker (2017) reported on issues identified when the criteria established by the IUCN Red List System (IUCN 2012 — hereinafter ‘the Criteria’) were used to re-assess the conservation status of albatross species, and which may have applied to many previous assessments of ACAP-listed species. When applying the criteria to an albatross species, they identified several issues that seemed to potentially apply to many previous assessments of ACAP-listed species. They formed the view that for some species the IUCN Criteria may have been applied incorrectly because the detail provided in the *Guidelines for using the IUCN Categories and Criteria* (IUCN 2017 — hereinafter ‘the Guidelines’) had not been taken into account when assessments had been undertaken. Particular concern was expressed in the application of Criterion B Restricted Geographic Range, and applying the criteria under climate change. They suggested that resolution of the conservation status for all ACAP species would be best achieved by a comprehensive review of the application of the Criteria to all taxa by ACAP.

The Advisory Committee (ACAP Advisory Committee 2017) subsequently:

- supported a review by PaCSWG of information concerning the global threat status (IUCN Red List Category of extinction risk) for all ACAP species to ensure consistency and strict adherence to the IUCN Categories and Criteria (IUCN 2012), and to the Guidelines for using the IUCN Categories and Criteria (IUCN 2017); and
- endorsed PaCSWG conveying the outcomes of this review to BirdLife International with recommendations for revisions, if necessary, to the global threat status of ACAP species (IUCN Red List Category of Extinction Risk).

This paper reports on the findings of an ad hoc working group (members: Barry Baker, Jonathon Barrington, Ian Burfield, Stuart Butchart, Rosemary Gales, Stephen Garnett, Rob Martin, Wiesława Misiak) established to undertake the review requested by the Advisory Committee.

For reasons of completeness, some of the relevant sections of Garnett and Baker (2017) have been reproduced here.

2. METHODS

2.1. Background to the IUCN Red List System

Since the Agreement entered into force, assessment of conservation status of albatrosses and petrels has been undertaken using the criteria established by the IUCN Red List System.

The Listing Categories and Criteria are well known and were summarised in Garnett and Baker (2017) and provided in **ANNEX 1**. Briefly, the IUCN Red List System is a hierarchical classification system developed to assess and highlight species of animals and plants under higher extinction risk. First conceived in 1964 and originally used by the IUCN's Species Survival Commission (SSC), the IUCN Red List System has set a global standard for species listing and conservation assessment efforts.

The IUCN Red List Categories and Criteria are reviewed regularly, with the most recent revision undertaken in 2012 (IUCN 2012). Guidelines for using the IUCN Categories and Criteria were last revised in March 2017 (IUCN 2017). It should be noted that for several years, the IUCN has not reviewed or revised the criteria themselves, but rather has refined the guidance around how to use them.

Listing to a category of threat requires that a taxon be assessed against five quantitative criteria – meeting any one of these criteria qualifies a taxon for listing at that level of threat. The five criteria are:

- A. Reduction in population size;
- B. Restricted geographic range in the form of either in extent of occurrence or the area of occupancy;
- C. Small population size and decline;
- D. Very small or restricted population; and
- E. Quantitative analysis showing a high probability of extinction.

The IUCN Red List Categories are intended to be an easily and widely understood system for classifying species at high risk of global extinction. The general aim of the system is to provide an explicit, objective framework for the classification of the broadest range of taxa according to their extinction risk.

2.3. Application of the criteria to albatrosses and petrels

Before reviewing the existing assessments for all ACAP-listed species, the working group looked to apply the criteria to a taxon whose conservation status is currently under review by BirdLife International and the Australian government — Shy Albatross *Thalassarche cauta*. This was done to explore the use of the Guidelines in an assessment we thought was typical of those required for albatrosses and petrels:

- data quality is variable across subpopulations;
- climate change modelling had been suggested as a predictor of future decline;
- Area of Occupancy (AOO) was small with the breeding restricted to three island colonies; and
- generation time is long.

In undertaking this review, we consulted closely with BirdLife International's Red List Team, which undertakes assessments of all birds on behalf of the IUCN in their role as the designated Red List Authority for birds. The BirdLife team has considerable expertise in the use of the IUCN Guidelines, and their input into this process was crucial to improving understanding of the interpretation of both the Criteria and Guidelines.

Application of the criteria to long-lived seabirds has some challenges in that such species have long generation times and restricted breeding sites (small Area of Occupancy). In many cases application of the IUCN Criteria would appear to be relatively straightforward as the Guidelines provide clear advice on how to proceed in undertaking an assessment. Areas where this may not be the case are:

- Criterion B. Restricted geographic range, particularly in the AOO (breeding sites),
- addressing restricted range when there is no threat at breeding sites but birds are threatened by fisheries bycatch;
- use of climate change modelling, particularly in extending predictions to cover long generation times (Criteria A3, A4, B1, B2, C1, C2, D2 (VU), and E).

These particular issues were considered before the category of threat for all ACAP listed species was reviewed.

3. RESULTS

3.1. Criterion B2 Restricted geographic range

Criterion B has been designed to identify populations with restricted distributions that are also severely fragmented, undergoing a form of continuing decline, and/or exhibiting extreme fluctuations (in the present or near future). The Guidelines stress that it is important to pay particular attention to criterion B, as it is the most commonly mis-used criterion.

To qualify for criterion B, the general distributional threshold must first be met for one of the categories of threat, either in terms of extent of occurrence (EOO) or area of occupancy (AOO). For most ACAP species the most relevant distributional threshold is AOO, as many species restrict their breeding to colonies that rarely exceed the spatial thresholds (i.e. <2000km² for Vulnerable, <500km² for Endangered, 10km² for Critically Endangered). The taxon must then meet at least TWO of the three options listed for criterion B. The options are (a) severely fragmented or known to exist in no more than x locations, (b) continuing decline, or (c) extreme fluctuation.

Number of locations

Many ACAP species appear to meet subcriterion B2a by virtue of breeding at fewer than 10 locations. It should be noted, however, that the Guidelines state the term "*location*" defines a *geographically or ecologically distinct area in which a single threatening event can **rapidly affect** all individuals of the taxon present.*" Further, they state that *'In the absence of any plausible threat for the taxon, the term "location" cannot be used and the subcriteria that refer to the number of locations will not be met.'*

Use of number of breeding sites to define the number of locations where a species is threatened solely by fisheries bycatch is inappropriate. The threat from fishing is usually over a huge area, far exceeding AOO or EOO thresholds, but "*The size of the location depends on the area covered by the threatening event.*" However, it is not the case that the threats used to define the number of locations for a listing under B2a are required to spatially overlap with

the geographic area that defines the AOO. The threat should apply to the area occupied during the season within which the AOO is defined, the breeding season in the case of albatrosses (so would be assessed across the area used by adults in the incubation/brood-guard, and chick-rearing stages), but does not need to apply to the geographic area used for defining the AOO.

The critical question is whether the threat from bycatch is sufficient to satisfy the location criterion in that it can rapidly affect all individuals of the taxon present. Under criterion D2, where a plausible future threat is required to be specified that may drive the species to CR or EX rapidly, one to two generations is given as an example period. Two generations of these large albatrosses is typically close to 50 years. Hence it is entirely plausible that individuals from a highly restricted breeding area might be subject to “a single threatening event (fishing) [that] can **rapidly affect** all individuals of the taxon present”.

Garnett and Baker (2017) further discussed this concept with Professor Resit Akcakaya, chair of the IUCN Red List Standards and Petitions Subcommittee, which develops Guidelines for threatened species assessments, and evaluates petitions against the red-listing of these species. He clarified that ‘**if there are no threats on the breeding areas, then considering the breeding islands as locations does not fit the criteria**’, and ‘**I cannot think of a reason why AOO and locations must have the same spatial extent**’, such that there was no reason that AOO and the area used to define the number of ‘locations’ needs to geographically overlap.

Consequently, any species for which the AOO is below the threshold for listing as threatened (Vulnerable, Endangered or Critically Endangered) on the IUCN Red List requires an explicit determination of the number of locations the threats to the species represent.

Number of locations using fishery management units

The Working Group also discussed a situation where birds were confined to a small area during a critical stage of breeding e.g. during the brood-guard period or foraging to feed small chicks, and their foraging range during this stage placed them under threat from fisheries bycatch. The discussion centred around how to define fishery management units as locations, and how to deal with overlapping fisheries. Other complications related to biennial breeding species, and species which adopted a dual foraging strategy, where a substantial proportion of the population may be foraging elsewhere and away from the fishing ‘locations’ at the critical time. The Working Group concluded that the correct number of locations to use (provided that bycatch is the main threat), is that of the total of non-overlapping fisheries management units, i.e. those within the EEZ plus the RFMOs. Where fisheries management units overlap, the correct number of locations would be one. The consequence of using these large areas to define ‘location’ for the application of Criterion B or D2 is that where fisheries bycatch is recognised as a threat in a species with a continuing decline it is likely that the thresholds for listing will be met. BirdLife will suggest to the Red List Technical Working Group that clarification and further examples be introduced into the next revision of the *Guidelines for Using the IUCN Red List Categories and Criteria* on 1; the suitability of use of geographically separated AOO and ‘locations’, and 2; the means of defining locations for species with very large foraging ranges where there is a continuous threat that is not spatially restricted, which may simply be to indicate that it is the potential to adjust management that is relevant.

Decline in number of mature individuals B2b(v)

In demonstrating population decline — subcriterion B2b(v) — caution needs to be exercised, particularly where models are used. Unlike Criteria A and C1, thresholds for decline are not defined in the Criteria or the Guidelines, but there is the requirement to demonstrate that there is a ‘continuing decline’ which necessarily means that the number of mature individuals is reducing. IUCN expect rigour to be applied and has been cautious in accepting modelled outputs as demonstrating decline, particularly over long time frames where uncertainty is high. In dealing with uncertainty the Guidelines state:

*“It is recommended that assessors should adopt a precautionary but realistic attitude, and to resist an evidentiary attitude to uncertainty when applying the criteria (i.e., have low risk tolerance). **This may be achieved by using plausible lower bounds**, rather than best estimates, in determining the quantities used in the criteria. **It is recommended that ‘worst case scenario’ reasoning be avoided** as this may lead to unrealistically precautionary listings.”*

See also the discussion on the use of climate change models, below.

3.2. Applying the Criteria under climate change

There are several challenges in applying the criteria to species impacted by global climate changes to thresholds or time horizons specified in the IUCN criteria. Climate change can affect populations via many mechanisms and thinking about how this will occur for a given taxa can clarify the parameters and criteria relevant for a Red List assessment. Relevant parameters for assessment under climate change include “very restricted distribution”, “plausibility and immediacy of threat”, “number of locations”, “severe fragmentation”, “continuing decline”, “extreme fluctuations”, and “population reductions”. The relevant criteria for future effects of climate change include A3, A4, B1, B2, C1, C2, D2 (VU), and E (IUCN 2017). Relevant sections of the Guidelines on assessing species threatened by climate change are on pages 82-97 of that document.

Invariably, predicting decline under climate change will involve the use of modelling. As mentioned above, assessors should adopt a precautionary but realistic attitude to uncertainty in models and using plausible lower bounds, rather than best estimates, in determining the quantities used in the criteria. We also note that the Guidelines require that modelling should be accompanied by a document that describes the quantitative methods used, as well as the data files that were used in the analysis. The document and accompanying information should include enough detail to allow a reviewer to reconstruct the methods used and the results obtained. The documentation should include a list of assumptions of the analysis and provide explanations and justifications for these assumptions. All data used in estimation should be either referenced to a publication that is available in the public domain, or else be included with the listing documentation. The uncertainties in the data should be documented, and methods used in estimating model parameters and in incorporating uncertainties should be described in detail.

While there are no specific Guidelines on model quality, the IUCN expects that any climate model used to predict decline also to model anticipated responses from the modelled species - i.e. status quo in behaviour cannot be inherent in the model's assumptions. For long-lived species it is highly likely that the species will adapt its foraging behaviour to compensate for changes in oceanography, as has been seen in *Diomedea antipodensis* Antipodean Albatross, for example (Elliott and Walker 2017).

3.3. Review of ACAP Listed Species

The working group did not look to explore the adequacy of the data used for the most recent IUCN assessment, but more to consider if the Criteria appeared to have been used correctly during that assessment. However, in considering the current status and the reasons stated by IUCN for the listing, the opportunity was taken to identify species where new data are now available that may warrant consideration of a change.

Of the 31 ACAP listed species, we found that the Criteria and Guidelines had been used appropriately for 29 species, but in our opinion a sufficiently severe credible threat was never present for the use of D2 to list Shy Albatross *Thalassarche cauta* as Near Threatened, and locations may not have been adequately delimited for at least one species, Salvin's Albatross *T. salvini*. (**Table 1**).

Shy Albatross is currently listed as **Near Threatened (NT)** as it is believed to approach the thresholds for listing as threatened **under Criterion D2**. This implies that the population meets or is close to meeting the AOO threshold, and has a credible threat that results in the population occurring in a small number of locations that meet or approach the threshold and which might or might not be capable of causing rapid declines within a short time period. Under D2, NT is appropriate where two of the three subcriteria are met, but the third is currently not met. However, if there is no credible threat, two of the three subcriteria are not met, and it is our belief that the threats suggested previously are not sufficiently either credible or potentially severe to be used. Consequently, we do not believe there is a credible threat currently facing the species within the AOO, hence the species does not approach the thresholds for listing as threatened under D2. However, a threat category of NT is probably valid under **Criterion A4(a)** on the basis that some modelling suggests a decline within three generations in the order of 20-30% (Thomson et al. 2015). Reassessment of conservation status may be appropriate.

Salvin's Albatross is currently listed as **Vulnerable (VU) under Criterion D2**. The legitimacy of this assessment is dependent on the number of locations that comprise the AOO. Salvin's Albatross breeds on seven small islands in the Bounty Is archipelago and two islands in the Snares, Western Chain i.e. more than five locations for threats that operate on the breeding islands. For these threat types Criterion D2 is not met. However, the Bounty Islands and the Western Chain could potentially be considered to be two locations for threats within the foraging range of breeding adults. Criterion D2 would then be met, providing there is a plausible threat. A plausible threat exists in that the species is the second-most at risk from the effects of fishing in New Zealand, with the annual potential fatalities estimated at 2,780 (2 030–3 760) birds per year (Richard et al. 2017). If this fatality rate is affecting the population, criteria A or B may also be appropriate. New population data are available (Barry Baker, unpublished), and should be supplied to BirdLife for the comprehensive reassessment of the conservation status of the world's birds in 2020.

For another species, **Antipodean Albatross** — *Diomedea antipodensis*, which is listed at **EN A4 (b, d, e)**, the fit against sub-criterion e – effects of introduced taxa - could be questioned. From the ACAP website:

All breeding sites for this species are legally protected and access is restricted. Currently, few land-based threats could be considered to cause population level changes in the two main populations. Although introduced house mice are present on Antipodes Island, they do not appear to pose a threat. The main colonies on Adams and Disappointment Islands (Auckland Islands archipelago) are free of introduced mammals

Note no change to the category currently assigned would result if this sub-criterion is not met.

The working group also determined that grounds may exist to consider reassessing the conservation status of four other species:

Southern Royal Albatross — *Diomedea epomophora* — currently listed as **VU D2**. D2 requires a restricted AOO or number of locations with a plausible future threat that could drive the species to Critically Endangered or Extinct in a very short time. The current listing accounts for the introduction of invasive species to Campbell Island with the potential to drive rapid population declines. But there are currently no known land-based threats to the species that would result in population level changes, and all breeding sites are legally protected. The existing listing as VU may be too precautionary.

Northern Royal Albatross — *D. sanfordi*. – currently listed as **EN A4bc; B2ab(iii,v)** because estimates and projections of the population suggested a rapid decline as a result of lower breeding success following the effects of severe storms in the 1980s on its small breeding range. The current listing justification suggests that the number of breeding pairs may have remained relatively stable and the species might qualify for downlisting in the future. Recent population estimates are now available that may warrant a review of the conservation status.

Campbell Albatross — *Thalassarche impavida*. Currently listed as **VU D2**. Following the eradication of rats from Campbell Island, no plausible land-based threat exists at this location. Campbell Island is geologically stable so there is low likelihood of a stochastic landform event that would rapidly drive the species to CR or EX in a very short time. Any review of conservation status could also take into account recent population estimates (Sagar 2014); these are not considered under the current listing criteria.

White-chinned Petrel — *Procellaria aequinoctialis*. – currently listed as **VU A4bcde**. Although no reliable estimates of historical populations exist, very high rates of incidental mortality in longline fisheries have been recorded in recent decades, the chicks are highly susceptible to predation, and the breeding habitat was being degraded at the time of the last assessment, making a rapid and on-going population decline likely. Reassessment is warranted because recent comprehensive analysis of global tracking data provides clear data on the overlap of populations and fisheries (Rexer-Huber 2017) with population estimates showing that almost a third of white-chinned petrels globally, substantially more than previously suspected, breed and forage in the New Zealand region where losses to fishing are relatively low (Rexer-Huber 2017).

4. RECOMMENDATIONS

The findings of this review are submitted to PaCSWG for consideration.

It is recommended that, if endorsed, the Advisory Committee request BirdLife International to review the global threat status of Shy and Salvin's Albatross based on these findings, and of Southern Royal, Northern Royal and Campbell Albatrosses, plus White-chinned Petrel, for which new data are available.

TABLE 1.

Species	Current classification	IUCN justification	Criteria used	This assessment	
				Criteria applied correctly	May need reassessment
<i>Diomedea exulans</i> Wandering Albatross	VU	Overall past and predicted future declines amount to a rapid population reduction over a period of three generations, qualifying the species as Vulnerable. In the south Atlantic, this species is undergoing a rapid decline over three generations (70 years). On the Crozet and Kerguelen Islands, the populations rapidly declined between 1970-1986, then stabilised, but have recently declined again. Longline fishing is likely to be the main cause of decline in this species, causing reductions in adult survival and juvenile recruitment, and this threat is on-going.	A4 bd	Yes	
<i>D. dabbenena</i> Tristan Albatross	CR	Projected extremely rapid population decline over three generations (70 years). Modelled population declines are a consequence of very low adult survival owing to incidental mortality in longline fisheries, compounded by low fledging success caused by predation of chicks by introduced mice.	A4 ade	Yes	
<i>D. antipodensis</i> Antipodean Albatross	EN	Considered to be undergoing a very rapid decline in population size.	A4 bde	Yes, although the fit against A4(e) questioned	

Species	Current classification	IUCN justification	Criteria used	This assessment	
				Criteria applied correctly	May need reassessment
<i>D. amsterdamensis</i> Amsterdam Albatross	EN	Has a very small population, confined to a tiny area on one island.	D	Yes	
<i>D. epomophora</i> Southern Royal Albatross	VU	Although current population trends are assumed to be stable, this species qualifies as Vulnerable because it has a very small range, breeding on four islands though largely confined to just one, with a fifth mainland population comprising only hybrid birds. It is therefore highly susceptible to stochastic effects and human impacts.	D2	Yes	Yes
<i>D. sanfordi</i> Northern Royal Albatross	EN	Restricted to a small breeding range in which severe storms in the 1980s resulted in a decrease in habitat quality and poor breeding success. Based on this low breeding success, the population is estimated and projected to be undergoing a very rapid decline over three generations. Evidence suggests that the number of breeding pairs may have remained relatively stable; thus, the species might qualify for downlisting in the future. However, in the absence of recent substantive data upon which to assess trends or changes in productivity rates, projected declines are maintained as a precautionary measure.	A4 bc; B2 ab(iii,v)	Yes	Yes

Species	Current classification	IUCN justification	Criteria used	This assessment	
				Criteria applied correctly	May need reassessment
<i>Phoebastria irrorata</i> Waved Albatross	CR	Extremely small breeding range, essentially confined to one island, and evidence suggests that it has experienced a substantial recent population decline linked to bycatch mortality in artisanal fisheries in its principal foraging grounds.	B2 ab(v)	Yes	
<i>P. albatrus</i> Short-tailed Albatross	VU	Although conservation efforts have resulted in a steady population increase, it still has a very small breeding range, limited to Torishima and Minami-Kojima (Senkaku Islands), rendering it susceptible to stochastic events and human impacts.	D2	Yes	
<i>P. immutabilis</i> Laysan Albatross	NT	Rebounded from declines in the late 1990s and early 2000s, perhaps because apparent changes in the breeding populations reflected large scale environmental conditions that affected the number of birds that returned to the colonies to nest rather than actual declines in the population. Given the difficulty of predicting long-term trends for such a long-lived species, and the number of documented threats and the uncertainty over their future effects, the species is precautionarily projected to undergo a moderately rapid population decline over three generations (84 years), and as such qualifies as Near Threatened (nearly qualifies for listing as threatened under criterion A4bd).	A4 bd	Yes	

Species	Current classification	IUCN justification	Criteria used	This assessment	
				Criteria applied correctly	May need reassessment
<i>P. nigripes</i> Black-footed Albatross	NT	An analysis of recent data suggests that this species' population is not undergoing rapid declines, as once thought, and is either stable or increasing. However, modelling of the likely effects of mortality caused by longline fishing fleets, combined with potential losses to breeding colonies from sea-level rise and storm surges, suggests it is appropriate to precautionarily predict a moderately rapid population decline over the next three generations (56 years)	A4 cd	Yes	
<i>Thalassarche cauta</i> Shy Albatross	NT	Breeds on just three islands. It may be susceptible to stochastic events and human activities, although one nesting site is moderately widely separated from the other two.	D2	No	Yes
<i>T. steadi</i> White-capped Albatross	NT	The population trend of this albatross remains poorly known, due to high inter-annual variability in breeding numbers and estimates prior to 2007 are not comparable with those made since. Analysis of recent data suggest that the trend may in fact be stable, but the species remains categorised as Near Threatened given the continuing uncertainty over its trend and because, given its longevity and slow productivity, and a high rate of mortality recorded in longline and trawl fisheries, it may be declining at a moderately rapid rate.	A4 de	Yes	

Species	Current classification	IUCN justification	Criteria used	This assessment	
				Criteria applied correctly	May need reassessment
<i>T. salvini</i> Salvin's Albatross	VU	May have undergone a rapid decline, but different census methods make a comparison of the available data potentially misleading. However, breeding is largely restricted to one tiny island group, where it is susceptible to stochastic events.	D2	Maybe	Yes
<i>T. eremita</i> Chatham Albatross	VU	Has a very small breeding range, being restricted to one breeding site (The Pyramid), rendering it susceptible to stochastic events and human impacts.	D2	Yes	
<i>T. bulleri</i> Buller's Albatross	NT	Although it is restricted to a small area when breeding, the population is stable and the islands on which it breeds are moderately widely spread so it is unlikely to become highly threatened in a short time owing to human activities or stochastic events.	D2	Yes	
<i>T. chrysostoma</i> Grey-headed Albatross	EN	Data from South Georgia (Islas Georgias del Sur) ¹ , which holds around half the global population, indicate a very rapid rate of decline of the world population over three generations (90 years), even if colonies lacking trend information are assumed to be stable. The major driver of declines is likely to be incidental mortality in longline fisheries.	A4 bd	Yes	

¹ A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Islas Malvinas), South Georgia and the South Sandwich Islands (Islas Georgias del Sur e Islas Sandwich del Sur) and the surrounding maritime areas

Species	Current classification	IUCN justification	Criteria used	This assessment	
				Criteria applied correctly	May need reassessment
<i>T. melanophris</i> Black-browed Albatross	LC	Has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (extent of occurrence <20,000 km ² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population size is extremely large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). The population trend appears to be increasing, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations).	A4 bd	Yes	
<i>T. impavida</i> Campbell Albatross	VU	Breeding is restricted to a single location, where it is susceptible to potential human impacts and stochastic events. Although numbers decreased steeply between the 1970s and 1980s owing to interactions with fisheries, the population is now thought to be increasing, although there has not been a census since 1996.	D2	Yes	Yes

Species	Current classification	IUCN justification	Criteria used	This assessment	
				Criteria applied correctly	May need reassessment
<i>T. carteri</i> Indian Yellow-nosed Albatross	EN	Estimated very rapid ongoing decline over three generations (71 years), based on data from the population stronghold on Amsterdam Island. This decline is the result of adult mortality and poor recruitment owing to interactions with fisheries and disease.	A4 bde	Yes	
<i>T. chlororhynchus</i> Atlantic Yellow-nosed Albatross	EN	Has a very small breeding range and is estimated to be undergoing a very rapid decline projected over three generations (72 years) owing to incidental mortality in longline fisheries and losses of chicks (Cuthbert et al. 2013) and some adults (Jones et al. 2019) to introduced mice.	A4 bd B2 ab(v)	Yes	
<i>Phoebastria fusca</i> Sooty Albatross	EN	Very rapid decline over three generations (90 years), probably due to interactions with fisheries. Since 1980, three sites (Crozet, Marion and Gough) have witnessed severe declines, although the population at Prince Edward may have increased between 2002-2009. However, high variability in population counts between years necessitates caution and further data are required before a change in status should be considered.	A4 bd	Yes	
<i>P. palpebrata</i> Light-mantled Albatross	NT	May be declining owing to bycatch on longline fisheries and perhaps the impacts of introduced predators. Threats and population status both remain poorly known.	A4 bd	Yes	

Species	Current classification	IUCN justification	Criteria used	This assessment	
				Criteria applied correctly	May need reassessment
<i>Macronectes giganteus</i> Southern Giant Petrel	LC	Recent analysis of trend data for the global population over the past three generations (64 years) gives a best case estimate of a 17 % increase and a worst case scenario of a 7.2 % decline (Chown et al. unpubl. report 2008); declines consequently do not approach the threshold for classification as Vulnerable		Yes	
<i>M. halli</i> Northern Giant Petrel	LC	Had shown a significant increase during the past two decades (probably owing to greater availability of carrion from expanding populations of fur seals, increased waste from commercial fishing operations, and the use of measures to reduce seabird bycatch around some breeding colonies). It no longer approaches the threshold for classification as threatened		Yes	
<i>Procellaria aequinoctialis</i> White-chinned Petrel	VU	Suspected rapid declines, although almost no reliable estimates of historical populations exist. Very high rates of incidental mortality in longline fisheries have been recorded in recent decades; the probability that these circumstances will continue, the susceptibility of chicks to predation, and the degradation of breeding habitat indicate that a rapid and on-going population decline is likely. An updated assessment of the population on South Georgia (Islas Georgias del Sur) ¹ is needed in order to fully assess the overall trend.	A4 bcde	Yes	Yes
<i>P. conspicillata</i> Spectacled Petrel	VU	Owing to its very small breeding range, it is highly susceptible to stochastic events and human activities. Any	D2	Yes	

Species	Current classification	IUCN justification	Criteria used	This assessment	
				Criteria applied correctly	May need reassessment
		evidence of population declines would likely lead to its uplisting.			
<i>P. parkinsoni</i> Black Petrel	VU	Breeds on just two very small islands where introduced predators are a potential threat, and could drive the taxon towards extinction in a very short time. The population is assumed to be stable, but if a decline is detected, the species should be uplisted to Endangered.	D2	Yes	
<i>P. cinerea</i> Grey Petrel	NT	Although there are no current data on the population trend, this species is susceptible to introduced mammalian predators, having been previously extirpated from Macquarie Island by cats and rats, and it has been commonly caught in longline fisheries in New Zealand waters. Evidence from Gough Island, formerly thought to contain the largest population of this species, suggest that the species is likely to be subjected to considerable predation from introduced mice, which are a major predator on other winter-breeding seabirds. The population on the Kerguelen Islands may also be in decline due to fishery bycatch. Based on these data, a moderately rapid decline is suspected and, as such, the species is listed as Near Threatened. Further data are urgently required in order to more accurately assess its population numbers and trends.	A2 cde A3 cde A4 cde	Yes	

Species	Current classification	IUCN justification	Criteria used	This assessment	
				Criteria applied correctly	May need reassessment
<i>P. westlandica</i> Westland Petrel	EN	Restricted to one very small area when breeding, and its habitat is declining in quality due to erosion and landslips.	B2 ab(iii)	Yes	
<i>Aredenna creatopus</i> Pink-footed Shearwater	VU	Has a very small breeding range at only three known locations, which renders it susceptible to stochastic events and human impacts. If invasive species, harvesting of chicks, bycatch in fisheries or other factors are found to be causing population declines, the species might warrant uplisting to Endangered.	D2	Yes	
<i>Puffinus mauretanicus</i> Balearic Shearwater	CR	Small breeding range and a relatively small population which is undergoing an extremely rapid decline, largely related to low adult (and immature) survival rates. Main threats are fisheries by-catch at sea and predation at breeding colonies by introduced mammals. Population models predict over 90% decline in three generations with an average extinction time of about 60 years	A4 bcde	Yes	

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REFERENCES

ACAP 2017. Report of the Tenth Meeting of the Advisory Committee. Downloadable from <https://acap.aq/>

Cuthbert, R.J., Louw, H., Parker, G., Rexer-Huber, K., Visser, P., 2013. Observations of mice predation on dark-mantled sooty albatross and Atlantic yellow-nosed albatross chicks at Gough Island. *Antarctic Science* 25, 763-766.

Elliott, G., Walker, K. 2017. Antipodean wandering albatross census and population study 2017. Downloaded from <http://www.doc.govt.nz/Documents/conservation/marine-and-coastal/marine-conservation-services/reports/antipodean-albatross-adams-island-2017.pdf> on 22 August 2017.

Garnett, S., Baker, G.B. IUCN Red List status of ACAP-listed species. ACAP PaCSWG4 Doc 08, downloadable from <https://acap.aq/>

IUCN (International Union for Conservation of Nature), 2012. IUCN Red List Categories and Criteria: Version 3.1. Second edition. Gland, Switzerland and Cambridge, United Kingdom: IUCN. iv + 32pp. Downloadable from http://s3.amazonaws.com/iucnredlist-newcms/staging/public/attachments/3108/redlist_cats_crit_en.pdf

IUCN (International Union for Conservation of Nature), Standards and Petitions Subcommittee. 2017. Guidelines for Using the IUCN Red List Categories and Criteria. Version 13. Prepared by the Standards and Petitions Subcommittee. Downloadable from <http://www.iucnredlist.org/documents/RedListGuidelines.pdf>

Jones, C.W., Risi, M.M., Cleland, J., Ryan, P.G., 2019. First evidence of mouse attacks on adult albatrosses and petrels breeding on sub-Antarctic Marion and Gough Islands. *Polar Biology* 42, 619–623. Abstract downloaded from <https://link.springer.com/article/10.1007/s00300-018-02444-6>

Phillips R.A., Gales R., Baker G.B., Double M.C., Favero M., Quintana F., Tasker M.L., Weimerskirch H., Uhart M., Wolfaardt A. 2016. A global assessment of the conservation status, threats and priorities for albatrosses and large petrels. *Biological Conservation* 201, 169-183.

Rexer-Huber, K. 2017. White-chinned petrel distribution, abundance and connectivity have circumpolar conservation implications. PhD thesis, University of Otago, Dunedin, New Zealand.

Richard, Y., Abraham, E.R., Berkenbusch, K. 2017. Assessment of the risk of commercial fisheries to New Zealand seabirds, 2006–07 to 2014–15 New Zealand. *New Zealand Aquatic Environment and Biodiversity Report* 191. 104 p. Downloadable from <http://www.mpi.govt.nz/news-and-resources/publications>

Sagar, P., 2014. Population estimates and trends of Campbell and grey-headed albatrosses at Campbell Island. Report for the Department of Conservation. National Institute of Water & Atmospheric Research (NIWA), Christchurch. Downloadable from <https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-conservation-services/reports/pop2012-04-campbell-and-grey-headed-albatross-population-estimates.pdf>

Thomson, R.B., Alderman, R.L., Tuck, G.N., Hobday, A.J. 2015. Effects of climate change and fisheries bycatch on shy albatross (*Thalassarche cauta*) in Southern Australia. PloS ONE 10(6): e0127006. doi:10.1371/journal.pone.0127006.

ANNEX 1

Background to the IUCN Red List System.

The IUCN Red List System is a hierarchical classification system developed to assess and highlight species of animals and plants under higher extinction risk. First conceived in 1964 and originally used by the IUCN's Species Survival Commission (SSC), the IUCN Red List System has set a global standard for species listing and conservation assessment efforts.

The IUCN Red List Categories and Criteria are reviewed regularly, with the most recent revision undertaken in 2012 (IUCN 2012). Guidelines for using the IUCN Categories and Criteria were last revised in March 2017 (IUCN 2017). It should be noted that for several years, the IUCN has not reviewed or revised the criteria themselves, but rather has refined the guidance around how to use them.

Description of the listing categories and criteria

IUCN (2014) recognises the following categories of threat:

Extinct (EX) – A taxon is Extinct when there is no reasonable doubt that the last individual has died.

Extinct in the Wild (EW) – A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalised population (or populations) well outside the past range.

Critically Endangered (CR) – A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (IUCN 2011, Table 2.1), and it is therefore considered to be facing an extremely high risk of extinction in the wild.

Listing to one of the above categories requires that a taxon be assessed against five quantitative criteria – meeting any one of these criteria qualifies a taxon for listing at that level of threat. The five criteria are described in detail in IUCN (2012) and IUCN (2017), and are:

- A. Reduction in population size;
- B. Restricted geographic range in the form of either in extent of occurrence or the area of occupancy;
- C. Small population size and decline;
- D. Very small or restricted population; and
- E. Quantitative analysis showing a high probability of extinction.

The criteria can be applied at any taxonomic unit at or below the species level. They can also be applied at various geographic scales. The IUCN Red List Categories are intended to be an easily and widely understood system for classifying species at high risk of global extinction. The general aim of the system is to provide an explicit, objective framework for the classification of the broadest range of taxa according to their extinction risk.