

**Advice to the Minister for the Environment, Heritage and the Arts
from the Threatened Species Scientific Committee (the Committee)
on Amendment to the list of Threatened Species
under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)**

1. Name

Thalassarche chrysostoma

This species is commonly known as the Grey-headed Albatross. It is in the family Diomedidae.

2. Reason for Conservation Assessment by the Committee

This advice follows assessment of information provided by a public nomination to change the category of the Grey-headed Albatross. The nominator suggested listing in the endangered category of the list.

This is the Committee's first consideration of the species under the EPBC Act.

3. Summary of Conclusion

The Committee judges that the species has been demonstrated to have met sufficient elements of Criterion 2 to make it **eligible** for listing as **endangered**.

The Committee judges that the species has been demonstrated to have met sufficient elements of Criterion 3 to make it **eligible** for listing as **endangered**.

The Committee judges that the species has been demonstrated to have met sufficient elements of Criterion 4 to make it **eligible** for listing as **vulnerable**.

The highest category for which the species is eligible to be listed is **endangered**.

4. Taxonomy

The species is conventionally accepted as *Thalassarche chrysostoma* (Grey-headed Albatross) (Forster, 1785).

5. Description

The Grey-headed Albatross is a medium-sized albatross. Adults weigh approximately 3–4 kilograms and have a wingspan of just over two metres. The head, neck and mantle of the Grey-headed Albatross are darkish blue-grey in colour. The upper-wings are black and the under-wings are white with a dark grey stripe on the forward edge and a lighter, narrower grey stripe on the trailing edge. Grey-headed Albatrosses have a black bill with a yellow stripe running down the culmen, ending in an orange-red tip. The eyes are black with a brown iris. The legs and feet are usually grey or pink (Pizzey and Knight, 1999).

6. National Context

Global distribution

The Grey-headed Albatross has a circum-global distribution in the southern hemisphere (Prince et al., 1998 p. 137-167; Weimerskirch, 1998, p. 168-179). The species breeds in subantarctic island colonies ranging from less than 100 breeding pairs to several thousand breeding pairs. The species breeds in South Georgia, Chilean offshore islands, Iles Kerguelen, Iles Crozet, Marion Island, Prince Edward Island, Campbell Island and Macquarie Island. Globally, the annual breeding population of the Grey-headed Albatross is estimated to be approximately 92 300 pairs. This corresponds to roughly 250 000 mature individuals and 600 000 individuals in total (Gales, 1998, p. 20-45). The population size of most colonies of Grey-headed Albatross is either stable or decreasing (although the trend in population numbers is unknown for some colonies). South Georgia (Islas Georgia del Sur) has the largest population of Grey-headed Albatross in the world, with a population of approximately 47,700 individuals, followed by Chile, with a population of approximately 23,200 individuals (DEWHA, 2009a).

Australian population

The only known place that the species breeds within Australian territory is on Macquarie Island. The species' nesting area is restricted to the south-western corner of the island, on the slopes of Petrel Peak and adjacent areas, comprising an area of approximately 0.12 km². The Grey-headed Albatross has bred in this same restricted area on Macquarie Island for at least the past 30 years (Terauds et al., 2005). This nesting area has been included on the EPBC Act register of Critical Habitat. Macquarie Island is classified as a World Heritage Area, a Biosphere reserve and a National Estate property. The entire island is also classified as a Tasmanian Nature Reserve and is managed by the Tasmanian Parks and Wildlife Service.

The Macquarie Island population of Grey-headed Albatrosses appears to have increased since the early 1900s (Falla, 1937) and remained stable since 1994 (Trebilco et al., 2007; Murray et al., 2008). Typically, Grey-headed Albatrosses are biennial breeders. Between 60 and 95 pairs of Grey-headed Albatross breed on Macquarie Island each year, representing a total breeding population of approximately 120–150 breeding pairs (Terauds et al., 2005). This population represents approximately 0.15% of the global breeding population (Terauds et al., 2005). The Macquarie Island population is not genetically distinct from the global population (Burg and Croxall, 2001) and are likely to move throughout the southern hemisphere during the non-breeding season (Terauds et al., 2006).

Conservation Status

The Grey-headed Albatross is currently listed as a vulnerable marine and migratory species under the EPBC Act. The species is also listed as endangered under the Tasmanian *Threatened Species Protection Act 1995*.

The global population of the Grey-headed Albatross is listed as vulnerable on the IUCN Red List.

7. Relevant Biology/Ecology

Grey-headed Albatrosses have been known to live up to 40 years. They generally reach sexual maturity at approximately 7–8 years of age, although on Macquarie Island, Grey-headed Albatrosses do not usually start breeding until approximately 10 years of age (Terauds et al., 2005). Grey-headed Albatrosses typically breed on steep, coastal slopes of subantarctic islands (Marchant and Higgins, 1990, p. 311-322). On Macquarie Island, the breeding slopes are usually covered in the tussock grass *Poa foliosa* (Scott and Kirkpatrick, 2008).

Grey-headed Albatrosses have strong pair and site fidelity. They generally only come onto land to find a nest site, find a mate and breed. Grey-headed Albatrosses arrive at Macquarie Island in September or October. Eggs are laid and both parents share the 72 day incubation period in shifts averaging 5-15 days. During this incubation period the adults travel long distances to feed in oceanic waters. The parents brood the chick for three weeks. During this time the adults forage closer to the nesting site. The parents return to oceanic feeding once the chick is able to be left unattended, but continue to provide for the chick until it fledges in April or May. After fledging, juveniles leave the island and do not return to the island for up to 11 years. The adults spend the rest of the year foraging at sea (Marchant and Higgins, 1990, p. 311-322). Grey-headed Albatrosses feed mostly on small fish and squid, but their diet also includes a small proportion of crustaceans (Cherel and Klages, 1998, p. 113-136).

Breeding success is variable from year to year and can be influenced by a range of factors, including quality of nesting habitat. Grey-headed Albatrosses usually breed once every second or third year if successful and the following year if unsuccessful. The mean breeding success from 1994–2003 was 55% from eggs hatched to chick fledged (Terauds et al., 2005).

8. Description of Threats

On a global scale, the greatest threat to the Grey-headed Albatross is accidental mortality due to fisheries related by-catch. This includes by-catch in long-line fisheries, trawl fisheries, drift-netting and trolling operations (DEWHA, 2009a). Globally, the species experienced a decline of 48% over three generations (90 years) primarily due to this threat (IUCN, 2008). Within the Australian jurisdiction, implementation of the 'Threat Abatement Plan for the Incidental Catch (or bycatch) of Seabirds during Oceanic Longline Fishing Operations' has significantly reduced levels of albatross bycatch from longlining, such that it is currently not considered to be a major threat within Australian waters (DEWHA, 2009a). An analysis of Macquarie Island population data from 1975 to 2005 found that long-line fishing was not likely to have significantly impacted on the Macquarie Island population (Terauds et al., 2005). However, even though it currently may not be significant, accidental mortality due to fisheries related by-catch is still a threat to the small Macquarie Island population in international waters where actions to mitigate fisheries related by-catch are not enforced (DEWHA, 2009a). There are insufficient data to determine the degree to which this threat impacted on the Macquarie Island population prior to 1975 (Terauds et al., 2005). The trawl and longline fishing operations that currently occur within the Exclusive Economic Zone surrounding Macquarie Island are subject to stringent mitigation measures that have, to date, successfully avoided observed interactions between these birds and the fisheries. Foraging studies have shown that Grey-headed Albatrosses from Macquarie Island spend significant time in waters outside the spatial extent of the Marine Protected Areas off the island, and thus remain at high risk from fisheries in other areas (Terauds et al. 2006).

Additional global threats to the species include parasites and disease, competition with fisheries for marine resources and pollution. Mortality of Grey-headed Albatrosses can occur following ingestion or entanglement in marine debris. Changes in the distribution and abundance of food resources due to climate change is also a potential threat to the species on a global scale. All of the above threats potentially affect the population breeding on Macquarie Island (DEWHA, 2009a).

The major, imminent, threat to the Macquarie Island population of Grey-headed Albatross is breeding habitat reduction due to grazing by the European rabbit (*Oryctolagus cuniculus*). The number of rabbits on Macquarie Island has increased significantly over the past decade. There are estimated to be over 100 000 rabbits on the island (TPWS, 2006). Grazing by rabbits has severely degraded the quality of the Grey-headed Albatross' nesting habitat. Large areas of dead tussock began to appear in 2002 and 2003 and field workers have described conditions in the species' nesting area as having deteriorated rapidly since then (Scott and Kirkpatrick, 2008). During the 2006–2007 summer rabbit damage at the species' breeding site was assessed as “severe, with high levels of erosion and little remaining of the vegetation normally associated with the nesting of this species” (Trebilco et al., 2007). Monitoring in the 2007–2008 summer found there was no live tussock left on the breeding slopes (Murray et al., 2008). Rabbit grazing has increased the frequency of landslides in the area, reducing available nesting habitat. The grazing and resultant slope instability has the potential to lower breeding success on Macquarie Island as landslips remove vegetation and soil cover, exposing rock or clay, which the albatrosses are unable to nest on (Trebilco et al., 2007). Increased slope instability from grazing by rabbits is magnified by the region's regular high rainfall and seismic activity and has considerable potential to cause nests to fall off the side of slopes, possibly resulting in the death of the chick. There are a number of other species whose recovery would also be facilitated by the eradication of rabbits from Macquarie Island, for example, the Windswept Helmet Orchid (TSSC, 2009)

It is believed that it takes several years for tussock roots to rot and the plants to die completely (Scott and Kirkpatrick, 2008). Therefore, the landslip events that are currently occurring are likely to be the consequence of tussock grazing that took place years before, and the full effects of increased rabbit grazing are yet to be felt. Rodents may also present a threat to the Macquarie Island population of Grey-headed Albatross, through predation on the Albatrosses eggs and young.

In June 2007, the Australian and Tasmanian governments agreed to provide \$24.6 million to implement the ‘Plan for the Eradication of Rabbits and Rodents on Subantarctic Macquarie Island’. The plan aims to completely eradicate the European rabbit (*Oryctolagus cuniculus*), the Black rat (*Rattus rattus*) and the House mouse (*Mus musculus*) from Macquarie Island through aerial baiting, shooting, trapping, fumigating burrows and use of rabbit detection dogs. It is anticipated that necessary logistical preparations will take until 2010 to complete. Once the plan has been implemented, it is anticipated that it will take at least five years to eradicate rabbits and rodents from Macquarie Island (TPWS, 2007).

9. Public Consultation

The nomination was made available for public exhibition and comment for 30 business days. The Committee has had regard to all public comment that was relevant to the survival of the species.

10. How judged by the Committee in relation to the criteria of the EPBC Act and Regulations

The Committee judges that the species is **eligible** for listing as **endangered** under the EPBC Act. The assessment against the criteria is as follows:

Criterion 1: It has undergone, is suspected to have undergone or is likely to undergo in the immediate future a very severe, severe or substantial reduction in numbers

On a global scale, there are several threats to the Grey-headed Albatross including accidental mortality due to fisheries related by-catch, marine pollution and, potentially, climate change. All of these threats potentially affect the Macquarie Island population of Grey-headed Albatross. However, the most immediate threat to this population is the impact of rabbit grazing on the population's nesting area. Grazing by rabbits has severely degraded the quality of the nesting habitat and increased the frequency of landslides in the area, reducing available nesting habitat (Trebilco et al., 2007).

The total breeding population on Macquarie Island is approximately 120–150 breeding pairs (Terauds et al., 2005). The Macquarie Island population of Grey-headed Albatrosses appears to have remained stable since 1994 (Trebilco et al., 2007; Murray et al., 2008). However, as the population has a nesting site limited to only 0.12km², and the population is believed to have been nesting at this limited location for the past 30 years (Terauds et al., 2005), the Committee considers that the effects of rabbit grazing will result in future declines in the size and quality of the species' nesting habitat. As a result, the species is likely to undergo a reduction in numbers in the immediate future.

A recovery plan has been prepared that aims to completely eradicate rabbits from Macquarie Island (TPWS, 2007). The magnitude of future declines will therefore depend on the success of this plan. Implementation of the plan is not expected to begin until 2010 and the plan estimates that it will take five years to eradicate rabbits from the island (TPWS, 2007). Vertebrate eradication on such a large scale is an ambitious objective and success is not assured.

The magnitude of the decline in the population will also depend on the degree of damage done to the nesting area prior to the objectives of the rabbit and rodent eradication plan being met. As tussock grasses take several years to die and rot the effect of increased grazing over the last few years is yet to be felt. Even if rabbits are successfully eradicated, the roots of tussocks will continue to rot and, together with the current loss of topsoil and other plants which normally form a natural seed bank from which regeneration occurs, this will hamper vegetation recovery and further reduce the size and quality of the Grey-headed Albatrosses' nesting habitat in the future. The rate and extent of both vegetation recovery and any improved breeding success is uncertain (Scott and Kirkpatrick, 2008).

Given the threats to the Macquarie Island population including mortality due to fisheries related by-catch, pollution, climate change and in particular the immediate threat of rabbit grazing, the Committee judges that the species is likely to undergo a reduction in numbers. However, the outcome of the rabbit and rodent eradication plan, the degree of future damage to the nesting area and the rate of any vegetation recovery, are all uncertain. The Committee therefore considers that there are insufficient data to judge whether the reduction would be very severe, severe, substantial, or not substantial. The species has not been demonstrated to have met each of the required elements of Criterion 1, and is **not eligible** for listing in any category under this criterion.

Criterion 2: Its geographic distribution is precarious for the survival of the species and is very restricted, restricted or limited

The Grey-headed Albatrosses from Macquarie Island have a circum-global distribution in the Southern Hemisphere (Terauds et al., 2006). At sea they are vulnerable to marine pollution, competition with fisheries for marine resources and, particularly in international waters, accidental mortality due to fisheries related by-catch (DEWHA, 2009a).

However, the major threat affecting the Macquarie Island population is the destruction of its nesting area. The Macquarie Island population has a nesting area of 0.12 km². As the population migrates throughout the southern hemisphere the species' global distribution is not considered to be restricted. However, given the very small area of nesting habitat, the Committee considers the population's geographic distribution to be restricted. The population has been nesting in this area for at least 30 years (Terauds et al., 2005). As outlined under Criterion 1, the quality and size of this nesting area has declined as a result of grazing by rabbits. The rabbit and rodent eradication plan aims to eliminate the primary threat to the population. However, it will take several years for the rabbit and rodent eradication plan to be implemented and to achieve its objectives, and success is not assured. Damage to the nesting area prior to the eradication of rabbits may cause the population to decline and the nesting habitat may not regenerate for some time (Scott and Kirkpatrick, 2008).

Given the threats to the species, in particular the impact of rabbit grazing on the species' nesting area, the Committee considers the geographic distribution of the Macquarie Island population to be precarious for its survival. As the population's geographic distribution is restricted and precarious for its survival, the population has been demonstrated to have met the relevant elements of Criterion 2 to make it **eligible** for listing as **endangered**.

Criterion 3: The estimated total number of mature individuals is limited to a particular degree; and either

- (a) evidence suggests that the number will continue to decline at a particular rate; or**
- (b) the number is likely to continue to decline and its geographic distribution is precarious for its survival**

Globally, the annual breeding population of the Grey-headed Albatross is estimated to be approximately 92 300 pairs. This corresponds to roughly 250 000 mature individuals and 600 000 individuals in total (Gales, 1998, p. 20-45).

Between 60 and 95 pairs of Grey-headed Albatross breed on Macquarie Island each year, representing a total breeding population of approximately 120–150 breeding pairs (Terauds et al., 2005). As the Macquarie Island population does not interbreed with other populations of Grey-headed Albatross, the Committee judges that the total number of mature Grey-headed Albatrosses breeding on Macquarie Island is low.

The population of Grey-headed Albatrosses breeding on Macquarie Island appears to have remained stable since 1994 (Trebilco et al., 2007; Murray et al., 2008). As discussed under Criteria 1 and 2, grazing by rabbits is decreasing the size and quality of the population's nesting habitat and is likely to lead to future declines in the size of the population. Additional threats to the species include accidental mortality due to fisheries related by-catch, pollution and potentially climate change (DEWHA, 2009a). These threats are likely to cause the population to decline, but there are insufficient data to determine the particular rate at which it may decline.

As the species' nesting site is isolated, and is currently threatened by rabbit grazing, the Committee considers the species' geographic distribution to be precarious for its survival. Given the low number of individuals breeding on Macquarie Island, a decrease in breeding success could have serious implications for the long-term survival of the population. However, as discussed under Criterion 1, any future decline in the population and the rate and magnitude of decline are unknown and will depend on the outcomes of the rabbit and rodent eradication plan.

The Committee judges that the total number of mature individuals is low and, given the threats outlined above, the species' distribution is precarious for its survival. While there are insufficient data available to determine the rate or magnitude of the decline, the Committee considers that the extent and quality of the species habitat, in terms of its nesting area, is declining and is likely to continue to do so for some time. Therefore, the population has been demonstrated to have met the required elements of Criterion 3 to make it is **eligible** for listing as **endangered**.

Criterion 4: The estimated total number of mature individuals is extremely low, very low or low

Globally, the annual breeding population of the Grey-headed Albatross is estimated to be approximately 92 300 pairs. This corresponds to roughly 250 000 mature individuals and 600 000 individuals in total (Gales, 1998, p. 20-45).

Between 60 and 95 pairs of Grey-headed Albatross breed on Macquarie Island each year, representing a total breeding population of approximately 120–150 breeding pairs (Terauds et al., 2005). Generally each pair breed biennially, and only a single egg is laid in a breeding season. Grey-headed Albatrosses banded as chicks at Macquarie Island do not begin to breed until they are 7-10 years old (Copson, 1988).

As the Macquarie Island population does not interbreed with other populations, has breeding cycle characteristics typical of albatrosses (a single egg, biennial breeding and delayed sexual maturity), has specific nesting habitat requirements, and a very restricted nesting area which is currently under threat from grazing by rabbits, the Committee considers the size of this population to be low.

Therefore, the Macquarie Island population of Grey-headed Albatrosses has been demonstrated to have met the required elements of Criterion 4 to be **eligible** for listing as **vulnerable**.

Criterion 5: Probability of extinction in the wild that is at least:

- a) **50% in the immediate future; or**
- b) **20% in the near future; or**
- c) **10% in the medium-term future.**

There are insufficient data available to estimate a probability of extinction of the species in the wild over a relevant timeframe. Therefore, as the species has not been demonstrated to have met the required elements of Criterion 5, it is **not eligible** for listing in any category under this criterion.

11. CONCLUSION

Conservation Status

Thalassarche chrysostoma (Grey-headed Albatross) was nominated for transferring between the categories of vulnerable and endangered in the list of threatened species referred to in section 178 of the EPBC Act. The nominator suggested listing in the endangered category of the list.

The population's nesting area is confined to 0.12km² and given the threats to the species, in particular the impact of rabbit grazing on the species' nesting area, the geographic distribution of the Macquarie Island population of Grey-headed Albatross is considered to be restricted and precarious for its survival. Therefore the population has been demonstrated to have met the relevant elements of Criterion 2 to make it **eligible** for listing as **endangered**.

The total breeding population on Macquarie Island is approximately 120–150 breeding pairs. As the Macquarie Island population does not interbreed with other populations, the Committee judges the size of this population to be low. The Committee considers that the extent and quality of the population's habitat is declining and is likely to continue to decline for some time. Therefore, the population has been demonstrated to have met the required elements of Criterion 3 to make it **eligible** for listing as **endangered**.

The total breeding population on Macquarie Island is low, therefore the population has been demonstrated to have met sufficient elements of Criterion 4 to make it **eligible** for listing as **vulnerable**.

The highest category for which the species is eligible to be listed is **endangered**.

The Committee further recommends that this listing be reviewed in seven years (2015), upon completion of the five-year 'Plan for the Eradication of Rabbits and Rodents on Subantarctic Macquarie Island' (TPWS, 2007).

Recovery Plan

The Committee considers that there should be no change to the Minister's decision to have a recovery plan for this species. Conservation actions for the species are outlined in the 'Recovery Plan for Albatrosses and Giant Petrels (2009-2014)' (DEWHA, 2009b), which is currently in preparation.

The most urgent threat to the Macquarie Island population of Grey-headed Albatrosses is being addressed through the 'Plan for the Eradication of Rabbits and Rodents on Subantarctic Macquarie Island' (TPWS, 2007). This plan is jointly funded by the Australian and Tasmanian Governments and aims to eradicate rabbits and rodents from Macquarie Island. Initial implementation of this plan has commenced and activity at Macquarie Island is scheduled to begin in 2010.

The 'Macquarie Island Nature Reserve and World Heritage Area Management Plan 2006' (TPWS, 2006) and the 'Threat Abatement Plan for the Incidental Catch (or bycatch) of Seabirds during Oceanic Longline Fishing' (DEH, 2006) also outline actions to protect the species.

The approved conservation advice for the species provides sufficient direction to implement priority actions and mitigate against key threats.

12. Recommendations

- (i) The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **transferring** from the **vulnerable** category to the **endangered** category:

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- (ii) The Committee recommends that there should be no change to the Minister's decision to have a recovery plan for this species.
- (iii) As the eradication of rabbits from Macquarie Island may change the listing status of this species, the Committee recommends that the listing of this species be reviewed in 2015.

Associate Professor Robert J.S. Beeton *AM FEIANZ*

Chair

Threatened Species Scientific Committee

13. References cited in the advice

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