

**PROPOSAL FOR INCLUSION OF SPECIES ON THE APPENDICES OF THE CONVENTION  
ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS**

**A. PROPOSAL:** Inclusion of *Diomedea exulans* in Appendix II.

**B. PROPONENT:** Government of Australia

**C. SUPPORTING STATEMENT**

**1. Taxonomy**

1.1. Class	Aves
1.2. Order	Procellariiformes
1.3. Family	Diomedidae
1.4. Genus/Species	<i>Diomedea exulans</i> Linnaeus 1758
Subspecies	<i>exulans</i> Linnaeus 1758 <i>dabbenena</i> Mathews, 1929 <i>gibsoni</i> (see Robertson and Warham 1992, Medway 1993) <i>antipodensis</i> (see Robertson and Warham 1992, Medway 1993)
1.5. Common Name(s)	Wandering Albatross (English) Albatros huleur (French) Albatros Viajero (Spanish)

**2. Biological Data**

**2.1. Distribution**

Recent breeding activity has been recorded at fourteen sites:

*D. e. exulans* - South Georgia, Marion I., Prince Edward I, Iles Crozet, Kerguelen Is, Macquarie I., Heard I.

*D. e. dabbenena* - Gough I., Inaccessible I.

*D. e. gibsoni* - Auckland Island

*D. e. antipodensis* - Antipodes I., Campbell I.

*D. exulans* are marine and pelagic. They are reported to disperse widely over the Southern Ocean. Movement data obtained from banding studies, satellite tracking and observations of sub-specific plumage characteristics of birds at sea indicate that most birds move east in a circumpolar movement (del Hoyo *et al.* 1992).

*D. e. exulans* from the Crozet Is. forage over extensive distances using prevailing winds as the primary source of energy (Jouventin and Weimerskirch 1990). They appear to use two distinct foraging strategies - a combination of short inshore trips and long pelagic trips - which compromise between the demands of regular chick provisioning and minimising energy expenditure whilst foraging over extensive distances (Weimerskirch *et al.* 1992). Distances up to 15 200km have been recorded for a single foraging trip during incubation, with birds flying up to 80km h<sup>-1</sup> for up to 900km day<sup>-1</sup>.

(Jouventin and Weimerskirch 1990). Most band recoveries of birds from the Crozet Is. population

are from South Africa and Australia, particularly around the New South Wales coast where the species occur throughout the year (Weimerskirch *et al.* 1985, Weimerskirch and Jouventin 1987).

Recoveries of birds banded in South Georgia show that these birds are most often found around Australasia and South America (30° - 40°S, southern Brazil to northern Argentina). Satellite tracking and time budget studies show that when males take the burden of chick provisioning towards the end of chick rearing, females can commute from South Georgia to Brazil in a single foraging trip (Prince *et al.* 1992). Males from the Crozet population tend to forage over Antarctic waters (50 - 60°S) while females more commonly occur in subtropical and offshore waters (35 - 45°S) (Weimerskirch and Jouventin 1987). Similarly, the females from both the Macquarie I. and South Georgia populations also frequent more northerly areas than the males (Croxall and Prince 1990, Prince *et al.* 1992, Battam and Smith 1993).

Banding recoveries show that the birds which aggregate in south eastern Australia represent birds from New Zealand, Macquarie I., Crozet Is., Kerguelen, Marion I. and South Georgia (Battam and Smith 1993). Movement records from Marion I. show that most birds went to and from Crozet and Australian waters and these data support other evidence which suggest circumpolar migration in an easterly direction (Gartshore *et al.* 1988).

It is likely however, that not all *D. exulans* populations undertake such extensive movements. Limited data from Gough I. (subspecies *dabbenena*) indicate that these birds are restricted to the south eastern Atlantic Ocean and to the coastal waters of southern Africa at relatively high latitudes (Cooper 1988). Similarly, the New Zealand populations are thought to be confined to the South Pacific Ocean and the Tasman Sea (C. J. R. Robertson pers. comm. in Gales 1993).

## 2.2. Population

Breeding population is estimated at 20 600 pairs breeding each year, which equates to about 60 000 mature individuals. Of the 14 breeding sites, 3 have less than 10 pairs breeding annually, 3 have less than 1000 pairs and the remainder have 1000 - 6000 pairs. Reliability of survey data is generally good with the exception of the Gough Island *dabbenena* population (Gales in press).

Declines have been observed in the populations breeding at South Georgia, Prince Edward I., and two sites in the Crozet Is. (Weimerskirch and Jouventin 1987, Croxall *et al.* 1990). These declines have been attributed to mortality associated with fisheries and predation by sealers and whalers (Croxall *et al.* 1984).

The populations in the Crozet Is. have increased at a rate of 4% per year over the period 1986 to 1995 following a decline of 50% since 1970.

On Macquarie I. anecdotal reports suggest that there were "numerous" *D. exulans* before the turn of the century but only 1 pair remained in 1913 (Carrick and Ingham 1970). Since then the population increased to 44 pairs in 1967 - 68 and declined again to 10 pairs in 1995 - 96 (Gales and Brothers 1996).

The population at Inaccessible I. in the Tristan da Cunha group has remained at 2 - 3 pairs for the last 50 years after declining from levels of several hundreds as a result of predation by feral pigs (Ryan *et al.* 1990). The change in the New Zealand populations are unknown as there are no reliable records with which to compare recent census data (Walker *et al.* 1991, C. J. R. Robertson

pers. comm. in Gales 1993).

There is evidence of local extinction at some breeding sites. Breeding was last recorded at the Falkland Is./Malvinas in 1959 when human pressure is thought to have led to their disappearance (Woods 1988 in del Hoyo *et al.* 1992). Historically, *D. exulans* were also present on the main island of the Tristan da Cunha group but were culled to extinction at the turn of the Century (Watkins 1987). On Heard I. one pair of *D. exulans* was seen breeding in 1980 (Johnstone 1982) but no further breeding has since been documented at this site.

Biennial breeding frequency (when successful). Most eggs laid between December and February, the eggs are incubated for about 11 weeks, chicks hatch in March-April and fledge 40 weeks later between November and February. Mean age of first breeding is approximately 11 years.

### 2.3. Habitat

Principally marine and pelagic. Usually nests in dispersed groups on flat or gently sloping ground. Also reported nesting on steep tussocky slopes. A single egg is laid in a conical nest which consists of scraped grass and mud.

### 2.4. Migratory patterns

Pelagic movements are discussed under 'Distribution' above.

## 3. **Threat data**

### 3.1. Direct threat to the population

The main threat to *D. exulans* is mortality associated with commercial fishing operations, particularly longlining.

*D. exulans* and other large seabirds are caught and drown on longline hooks as they forage on the bait and discards from fishing boats (Croxall *et al.* 1990, Brothers 1991).

*D. exulans* is particularly at risk as it is one of the most aggressive species in competing for baits on longlines and so are more susceptible to being caught (Brothers 1991). Further, movement studies have shown that *D. exulans* are potentially in contact with longlining fleets at all times of year, and that the tendency for adult females and juveniles to forage in more northern waters would place them at a higher risk than the adult males (Prince *et al.* 1992, Weimerskirch, 1992). This is consistent with the higher reported mortality rates of adult females compared to males and the low survival of immature wandering albatross. The demographic model of Croxall *et al.* (1990b) indicates that reduced juvenile recruitment is a significant factor contributing to the decrease of the population at South Georgia. The authors conclude that, with estimated annual mortality rates of 2 - 3% for adults and 14 - 26% for juveniles for the South Georgia population, longlining is largely responsible for the population declines.

The magnitude of the threat from longlining in the Southern Oceans was estimated by Brothers (1991) who extrapolated from bycatch rates of *D. exulans* (22% of birds caught) on Japanese longliners operating off Australia to estimate that 9600 *D. exulans* are killed each year by that fishing fleet alone. The albatross bycatch in the New Zealand longline Southern Fishery (a

Japanese/New Zealand joint venture) included a similar rate of *D. exulans* bycatch (23%).

The world wide Japanese tuna longline fishery has increased significantly in the last two decades and is now the largest longline fishery in the world (Brothers 1991, Bergin and Haward 1991). The Japanese boats fish mainly north of the subtropical convergence and are most dependent on the Pacific Ocean region, although they maintain consistent effort in the Indian Ocean and a declining presence in the Atlantic Ocean (Bergin and Haward 1991). The distribution of the levels of bird bycatch, illustrated by Brothers (1991), indicate high levels of interference being encountered in all three oceans.

There is a developing tuna longline fishery in Southern Brazil which has a problem with seabird bycatch. Vaske (1991) reports that 70% of the albatrosses killed were *D. exulans*. The birds caught in the waters off northern Argentina and southern Brazil are predominantly from South Georgia (J.P. Croxall pers. comm. in Gales 1993). It has also been reported that in Uruguay some tuna boats kill 200 albatross each day the same region (Vaz Ferreira pers. comm. to J. P. Croxall in Gales 1993).

In 1988 - 89 a Russian longline fishery for Patagonian toothfish (*Dissostichus eleginoides*) was started close to South Georgia. This fishery has been shown to cause albatross deaths and in 1991 - 92 Chilean and Bulgarian vessels also became involved in the fishery (Scientific Committee of CCAMLR 1990, 1992, Dalziell 1991).

Each of these fisheries operates in areas co-extensive with *D. exulans* populations. Assessment of the magnitude of the threat requires monitoring of population demographics and breeding performance and a greater understanding of fisheries impacts e.g. quantifying bird catch rates and identifying the age and provenance of birds killed. Status of populations is dependent on spatial and temporal distribution of longline fishing effort. The recovery of the Crozet population has been linked to a shift in longline fishing effort away from the birds feeding grounds (Weimerskirch, in press).

There appears to be some variation in bycatch susceptibility between the subspecies. Most of the *D. exulans* caught in the New Zealand Southern longline fishery had the plumage characteristics of the Auckland and Antipodes Is. populations (although two banded birds from South Georgia were also caught in this fishery). There was no sex bias in the birds caught (J. A. Bartle pers. comm. in Gales 1993). This may be a reflection of the more localised movements of the New Zealand birds (restricted to Pacific Ocean and Tasman Sea), compared with the South Georgian and Crozet populations.

Other direct threats to *D. exulans* include being trapped for food by fishers in the Indian Ocean and around South Africa (Weimerskirch and Jouventin 1987). They are also shot by fishers off south-east Australia (Tomkins 1985).

### 3.2. Habitat destruction

Pigs have been linked to a decline in the Inaccessible I. population. This may be due to disturbance or predation.

### 3.3. Indirect threat

Ingestion of plastic particles by *D. exulans* has been recorded at several locations, including South Georgia, New Zealand subantarctic islands, Marion I. and Gough I. (J. Cooper, J.P. Croxall, C.J.R. Robertson pers. comm. in Gales 1993). In the South African region, 4% of samples from *D. exulans* contained plastic particles (Ryan 1987) but the effects on the birds are unknown.

*D. exulans* appears to be prone to disturbance by human activity. This is thought to have resulted in the local extinction at Falkland Islands/Malvinas in 1959 (Woods 1988 in del Hoyo *et al.* 1992).

3.4. Threat connected especially with migrations

Pelagic threats include fisheries bycatch discussed above.

3.5. National and International Utilisation

Occasionally reported being used for food by fishers.

4. **Protection status and needs**

4.1. National protection status

Completely protected in Australia, including its Exclusive Economic Zone (to, 200nm) and all external territories.

Australia recognises the Macquarie Island population as a distinct subspecies, *Diomedea exulans chionoptera*. This subspecies is listed as *endangered* under Schedule 1 of the *Endangered Species Protection Act 1992*.

4.2. International protection status

*D. exulans* is listed under the Japan-Australia Migratory Bird Agreement.

4.3. Additional protection needs

Research is required into the nature and extent of fisheries mortality in longline and other fisheries. Methods of mitigating this threat (e.g. tori (bird) poles, night setting, weighted branch lines, bait throwing devices) have been developed and should be appropriately assessed and implemented in each type of fishery operation. Assessment of mitigating methods should consider the effect on the catch of target species as measures will only be used on the high seas if they do not impact on the efficiency and economics of the fishery. The mitigating measures should not increase bycatch of other species. National and International cooperation and collaboration between fisheries managers, fishers, ornithologists and regulators should encouraged.

A greater coverage of specialist seabird scientific observers on boats fishing in the Exclusive Economic Zones of range states and on the high seas is needed to improve the quality and quantity of bycatch data. Currently, most observers are present on boats to mainly record target species catch data.

Where possible carcasses of birds killed should be retained for analysis of species, provenance, age and sex. Banded birds should be reported.

Where other threats persist, e.g. shooting of *D. exulans* by fishers, attempts should be made to assess the magnitude of the problem. Further, where there are insufficient control measures to ensure the protection of the birds at their breeding locations, realistic and effective management plans should be put in place.

**5. Known Range States**

Argentina, Australia, Brazil, Chile, France, New Zealand, South Africa, United Kingdom, International Waters (Indian, Pacific, Atlantic, Southern Oceans). Vagrant in Northern Hemisphere (including Japan).

**6. Comments from Range States**

**7. Additional remarks**

The conservation status of *D. exulans* is considered *vulnerable* by Collar *et al.* (1994)

**8. References**

See Reference at the very end of this document (pp. 182-187).