

**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 melanophris* in Appendix II.

B. PROPONENT: Government of Australia

C. SUPPORTING STATEMENT

1. Taxonomy

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| 1.1 Class | Aves |
| 1.2 Order | Procellariiformes |
| 1.3 Family | Diomedeidae |
| 1.4 Genus/Species | <i>Diomedea melanophris</i> Temminck 1828 |
| Subspecies | <i>melanophris</i> Temminck, 1828, Black-browed Albatross
<i>impavida</i> (Mathews, 1912), New Zealand Black-browed Albatross |
| | The two subspecies may constitute full species as they are sympatric in New Zealand without interbreeding. |
| 1.5 Common Name(s) | Black-browed Albatross, Black-browed Mollymawk (English)
Albatros à sourcils noirs (French)
Albatros Ojeroso (Spanish) |

2. Biological Data

2.1. Distribution (current and historical)

Diomedea m. melanophris - Isla de los Estados, Diego de Almagro, Evout, Iefonso, Diego Ramirez; The Falklands/Malvinas; South Georgia; The Crozets and Kerguelen; Heard I., McDonald I., Macquarie I. and Bishop and Clerk islets; Antipodes Is., Campbell I.

Diomedea m. impavida is endemic to New Zealand.

During the breeding season this species mainly forages in neritic waters over continental shelves adjacent to the breeding islands. At the Crozet Is., for example, *D. melanophris* forages solely over the Crozet shelf, an area not extending more than 40km from the breeding grounds (Weimerskirch *et al.* 1988). The distinct, localised nature of the foraging grounds during the breeding season is also evident at the Falklands/Malvinas. During summer, *D. m. impavida* is very abundant over the Campbell I. shelf (J. A. Bartle pers. comm. in Gales 1993). Weimerskirch *et al.* (1986) have suggested that the size of breeding populations of *D. melanophris* varies with the productivity of the waters and thus the size of the surrounding continental shelf. There are no *D. melanophris* on Prince Edward I., which has no continental shelf, and the populations range from the Crozet Is (small population, small continental shelf), to medium at the Kerguelen Is (medium population, medium continental shelf) to vast at the Falklands/Malvinas; (huge population, huge continental shelf).

It appears that the populations are somewhat segregated in their marine distribution over winter.

Band returns show that the South Georgian population mainly congregates in the waters of the Benguela and Agulhas currents off South Africa, although some have been recorded off the south coast of Australia (Tickell 1967a,b). The Falklands/Malvinas population mainly winters off the east coast of South America (Tickell 1967a,b). Most band recoveries of *D. melanophris* from the Kerguelen Is. have been from southern Australia, with a few from New Zealand and South Africa (Weimerskirch *et al.* 1985). Band returns from the populations of both subspecies in New Zealand indicate that these birds restrict their movements to New Zealand, Australia and central Pacific Islands (Marchant and Higgins 1990; Moore and Moffat 1990b, C.J.R. Robertson and J.A. Bartle pers. comm. in Gales 1993). Many *D. m. impavida* disperse northwards from Campbell I. and are common in temperate waters around mainland New Zealand (Tennyson 1990). These birds are most common on southern and central New Zealand shelf waters in April - June as they proceed towards their wintering grounds in subtropical and tropical waters of the western South Pacific (Bartle 1974; Marchant and Higgins 1990). The few bands which have been recovered from the Heard I. and Macquarie I. populations have been from southern Australia (Milledge 1977; Marchant and Higgins 1990) demonstrating that the preference for wintering areas by populations does not result in complete segregation at sea. All wintering areas seem to be either over coastal waters, on continental shelves or over oceanic currents (Weimerskirch *et al.* 1985).

2.2. Population

Breeding population is estimated at approximately 708 000 pairs (Gales, in press).

On Campbell Island early assessments of the *D. m. impavida* population are considered to be "sketchy and vague" and recent estimates are considered to be overestimates by Moore and Moffat (1990b). A survey in 1987 - 88 estimated an annual breeding population of between 19 000 - 26 000 which indicates an overall decline in the order of 38 - 57% since the 1940s, with the worst affected colonies falling by 88% (Moore and Moffat 1990b). An unpublished census in 1992 estimated a population of 26 000 pairs (P. Moore pers. comm. in Gales 1993). Small colonies of *D. m. melanophris* were first recorded at Campbell I. in 1975 and at Antipodes I. in 1978 (C.J.R. Robertson pers. comm. in Gales 1993). The status of these colonies is not clear.

On Macquarie I. the past status of *D. m. melanophris* is obscure. They were first recorded breeding in 1949 - 50. The current breeding population is small (about 60 - 80 pairs) and is divided between three colonies, the smallest being at the north of the Island which has declined in numbers since the 1950s with no chicks fledging from the colony since the early 1970s (Copson 1988; Selkirk *et al.* 1990). The other colony is at the south of the island which has increased in numbers. The largest colony, on Bishop and Clerk islets, 37km south of Macquarie Is. is of unknown status. It is not known if these colonies are remnants of larger populations decimated by sealers around the turn of the Century or if they have re-established after being completely exterminated from the island during the "commercial" era (Copson 1988). It is possible that the population has always been small as Macquarie I. has virtually no continental shelf, a relationship which fits with the population size / continental shelf hypothesis of Weimerskirch *et al.* (1986).

The population status of *D. melanophris* on Heard and McDonald Is. is unclear due to the sporadic basis upon which the data were collected. The population estimates have been summarised by Woehler (1991) and Kirkwood and Mitchell (1992) and the most recent estimates are 600 - 700 pairs on Heard I. and 82 - 89 pairs on McDonald Is. The serendipitous nature of the data collection and the fluctuations which have been recorded in other colonies (e.g. Prince 1985) makes interpretation of these data difficult. On Kerguelen I. the monitored *D. melanophris* colony

decreased in size by 30% between 1978 - 1988, this decline being attributed to fishing activities both near the islands and elsewhere across their range in the Southern Ocean (Jouventin and Weimerskirch 1991). The population fluctuations and status of this colony in more recent years have indicated that the population continues to decline (Weimerskirch pers. comm. in Gales, in press). An annual breeding population of about 4095 pairs is given for the French subantarctic islands (Jouventin *et al.* 1984; Weimerskirch *et al.* 1989, Weimerskirch pers. comm. in Gales, in press).

The *D. m. melanophris* population in Chile (ca. 20 000 pairs) is also apparently decreasing with Schlatter (1984) proposing the "future" shrimp fishery to be a likely threat to the population. There are few other published details regarding the South American populations making the observations of expeditions such as those of Clark *et al.* (1984), who describe numbers in the Isla Diego de Almagro colony, important contributions.

On the basis of extensive colony counts the population in South Georgia is estimated to be 96 262 pairs (Prince *et al.* 1994). On Bird I., where most intensive work is done, the population has increased by 10% since 1976, at an average rate of 0.8% pa. However, 14 of the 23 colonies have decreased with reduced juvenile survival being most likely demographic component responsible (Prince *et al.* 1994).

D. melanophris breeds on 12 islands in the Falklands/Malvinas. group and this population represents about 75% of the world population of this species (Thompson and Rothery 1991, K. Thompson pers. comm. in Gales 1993). The status of the Falklands/Malvinas populations are not clear as only six islands have been surveyed more than once. The Beauchene I. population has shown a decrease between 1980 (140 000 - 170 000 pairs) and 1993 (109 240) and nest densities have also decreased concomitant with this change (Prince 1982, M. Riddy unpublished data conveyed by K. Thompson pers. comm. in Gales 1993).

D. melanophris generally breed every year regardless of their breeding success (Rothery and Prince 1990). A single egg is laid in September - October which hatches after being incubated for about 68 days. The chicks fledge at about 117 days (mean at S. Georgia) - 125 days (mean at Crozet) after hatching and are independent after fledging (Weimerskirch *et al.* 1986, Croxall *et al.* 1988, Thompson 1989). Successful breeders and chicks depart from the colonies in April/May.

2.3. Habitat

One of the largest known colonies (Beauchene I., Falklands/Malvinas) is on gently sloping ground which lacks vegetation whereas colonies elsewhere are usually found on cliff-top terraces or on steep slopes up to 300m above sea level (Downes *et al.* 1959, Tickell and Pinder 1975). Nests consist of bowl shaped columns with parallel sides and a depression in the top. These structures are sturdy and may last for several years during which they are reused by the same pairs.

2.4. Migratory patterns

See Distribution.

3. **Threat data**

3.1 Direct threats to the population

Incidental mortality associated with fishing vessels is probably the major threat facing *D. melanophris* populations. *D. melanophris* is an enthusiastic scavenger and longline bycatch is increasingly being implicated by band returns of both subspecies (N. Brothers pers. comm, J. Bartle pers. comm, Prince *et al.* 1994). *D. melanophris* made up 44% of albatrosses killed by longlines in Australian waters in a sample by Brothers (1991). By extrapolation of fishing effort and catch rates, Brothers (1991) estimated that over 19 000 birds of this species may be killed each year by Japanese longliners operating in southern waters. During recent trips aboard Japanese longlines in the Indian Ocean, Brothers (pers. comm. in Gales 1993) calculated that 67% of the total albatross kill were *D. melanophris*, and two thirds of these were immature birds.

The current understanding is that longlining in Australian waters threatens Indian Ocean and Australian populations, fishing off Africa threatens the South Georgia population and South American fishing operations threaten Falklands/Malvinas and Chilean populations (Gales, in press).

High capture rates of both subspecies has also been reported from longliners in the New Zealand region (Wairarapa - Bay of Plenty area) where *D. m. melanophris* constituted 21% of albatross caught in the region, and *D. m. impavida* constituted 47% (Murray *et al.* 1993). The *impavida* killed were mainly immature birds and it is estimated that at least 400 are caught per year in the New Zealand region (Murray *et al.* 1993). The fishery must then be implicated in the population decline on Campbell I. (Moore and Moffat 1990b; J. A. Bartle pers. comm. in Gales 1993).

Capture of *D. melanophris* has also been documented by Duhamel (1991) during experimental fishing around Kerguelen Is. and this species was affected more than any other albatross. Populations of *D. melanophris* are declining at the Kerguelen Is. and deaths associated with fishing vessels have been linked to the declines (Weimerskirch *et al.* 1989). Duhamel (1991) concludes that it is likely that longline fishing also presents a serious problem in the South Georgia area where several nations (Russia, Chile and Bulgaria) are involved in longline fisheries targeting Patagonian toothfish (*Dissostichus eleginoides*). Prior to 1970, no band returns of South Georgia *D. melanophris* came from longlining vessels, whereas over half the subsequent recoveries have come from this source (Prince *et al.* 1994). From observations of the longlining around South Georgia, Dalziel and De Porter (unpublished data) calculated that at least 575 *D. melanophris* may be caught each year, and this is probably an underestimate as it was derived from data from night sets only and fishing masters indicated that catch rates were often much higher.

In southern Brazil, *D. melanophris* are killed on domestic longlines, and the number of vessels involved in this fishery is currently increasing (Vaske 1991). The birds affected in this fishery would most likely be from the Falklands/Malvinas populations. *D. melanophris* is the most common albatross species occurring in South African waters, these birds probably mainly originating from the South Georgia population. In these waters the impact of fishing operations is poorly known but there are records of albatross deaths associated with both longline and trawl fisheries (Adams 1992). In South Africa, the longline fisheries which targeted kingklip (*Genypterus capensis*) and hake (*Merluccius* spp) have been closed but the reopening of the hake fishery is currently being considered (Adams 1992). There is also strong evidence that there has been a steady influx of longline vessels into Namibian waters. Substantial numbers of gannets (*Morus capensis*) are affected and visiting albatross would also be deleteriously affected although there is no information from this area.

Trawl fisheries are also known to kill *D. melanophris* around the Kerguelen Is. mainly by collision of the birds with netsonde monitor cables (Duhamel 1991). Albatross are also killed in this way

in South African waters at an estimated rate of at least 1600 per year (Adams 1992). However, neither of the two subspecies of *D. melanophris* were reported killed by the Russian squid trawlers in New Zealand during 1990 (Bartle 1991a) operating from the Snares shelf to the Auckland Is. region although *D. m. impavida* are reportedly partly excluded from the Snares shelf by *D. bulleri* and *D. cauta* (J. A. Bartle pers. comm. in Gales 1993). A suite of different fishing regimes operate around the Falklands/Malvinas including trawl finfish fisheries targeting *Merluccius* spp., *Micromesistius australis*, *Macruronus magellanicus*, *Salilota australis*; jig fisheries targeting *Illex argentinus*; trawl fisheries targeting *Loligo gahi*; and the longline fishery for *Dissostichus eleginoides*. An incidental mortality recording scheme was implemented by the Falklands/Malvinas. Fisheries Directorate in 1991/92 and, at least in the first year, there were no recorded instances of mortality of *D. melanophris* (K. Thompson pers. comm. in Gales 1993). However, the fisheries observers are primarily engaged in monitoring fish and cephalopod catches and are sampling below deck during much of the fishing time (K. Thompson pers. comm. in Gales 1993). From the Australian experience, there were not any documented reports of albatross bycatch on Japanese longline vessels until N. Brothers, an observer who was also a seabird specialist, accompanied the fishing vessels in 1988.

In the South African wintering grounds *D. melanophris* are largely associated with fishing vessels, being most abundant at trawls near the shelf edge (Ryan and Molony 1988). Banded birds from South Georgia have been recovered in this area after being trapped in fishing gear, and probably many of these were killed by fishers for food (Adams 1992). Band returns have also shown that the trap fishery in south-eastern Australia also catch *D. melanophris*, but there is no information regarding the magnitude of this bycatch.

Currently the major predators of eggs and chicks are Southern Skuas (*Stercorarius skua lonnbergi*) and Northern Giant petrels (*Macronectes halli*) (Moore and Moffat 1990b). Predation by skuas occurs on the Falklands/Malvinas. (Thompson 1989) but there is no evidence of predation by introduced species. The level of predation by rats and cats on Campbell Is. is reported to be low (P. Moore pers. comm. in Gales 1993).

3.2. Habitat destruction

On Campbell I. sheep grazing had a high impact on the *D. m. impavida* population. Sheep were removed from the north of the Island in 1970.

3.3. Indirect threat

Ticks occur on both chicks and adults in several populations and may compromise their health by the transfer of avian pox virus between birds causes localised, sporadic mortality in some colonies (A. Heath pers. comm. in Moore and Moffat 1990b).

There is considerable overlap between the fish and squid species targeted by commercial fishing operations and the diet of *D. melanophris* at the Falklands/Malvinas. Thompson (1992) estimated that about 15% of the bird's diet was obtained as discards from the fisheries. The birds breeding on Beauchene I., which lies within the main *Loligo* fishery area, had significantly more *Loligo* in their diet (obtained as waste from the trawlers) than *D. melanophris* breeding on other islands around the Falklands/Malvinas. which were not within the *Loligo* fishing area (Thompson 1992).

This scavenging behaviour and the lack of knowledge of the diet before and during commercial

fishing operations makes any assessment of direct competition for prey impossible. The provision of food as offal and discards is well documented and doubtless there are some short term gains by the birds as a result of this. However there are the balancing components of mortality with fishing equipment and also the potential competition between the albatross and the fisheries for the birds natural prey stocks. After considering the diet and requirements of *D. melanophris* at the Falklands/Malvinas., and the magnitude of the commercial catches, Thompson (1992) concluded that the presence of the fishery is, in the long term, more harmful than beneficial to the birds. Similarly, in South African waters although *D. melanophris* feed on trawler discards, the purse seine fishery in the area removes enormous amounts of their epipelagic prey (Adams 1992).

There is little information on other factors which may threaten the species at other locations. Plastic and other marine debris are regurgitated by *D. melanophris* on Kerguelen I. but it is not known if ingestion of these materials has any effect on the birds (P. Jouventin and H. Weimerskirch pers. comm. in Gales 1993). A change in the food supply as a result of ocean warming has been implicated in the 90% decline of rockhopper penguins (*Eudyptes chrysocome*) at Campbell Is. (Moors 1986) and has been suggested as a possible factor contributing to the decline in albatross numbers at this location (C.J.R. Robertson pers. comm. in Gales 1993).

Breeding success can be highly variable between years and, at South Georgia this has been linked to fluctuations in the availability of Antarctic krill (*Euphausia superba*) which constitutes an important dietary item (Prince 1985). As a result of some years with complete breeding failures when the krill is locally scarce, the breeding success at South Georgia between 1975 and 1991 ranged between 0 - 64%, with a mean of 29% (Prince *et al.* 1994). In areas where the birds do not rely so heavily on krill, average breeding success is generally higher (Kerguelen: mean = 58%, range = 51 - 63%, Jouventin and Weimerskirch 1988; Macquarie: mean = 67%, range = 43 - 86%, Copson 1988).

3.4. Threat connected especially with migrations

Pelagic threats include fisheries bycatch discussed above.

3.5. National and International Utilisation

None known.

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.

Currently being considered by Australia for listing as a *vulnerable* species under the Endangered Species Protection Act 1992.

4.2. International protection status

None known.