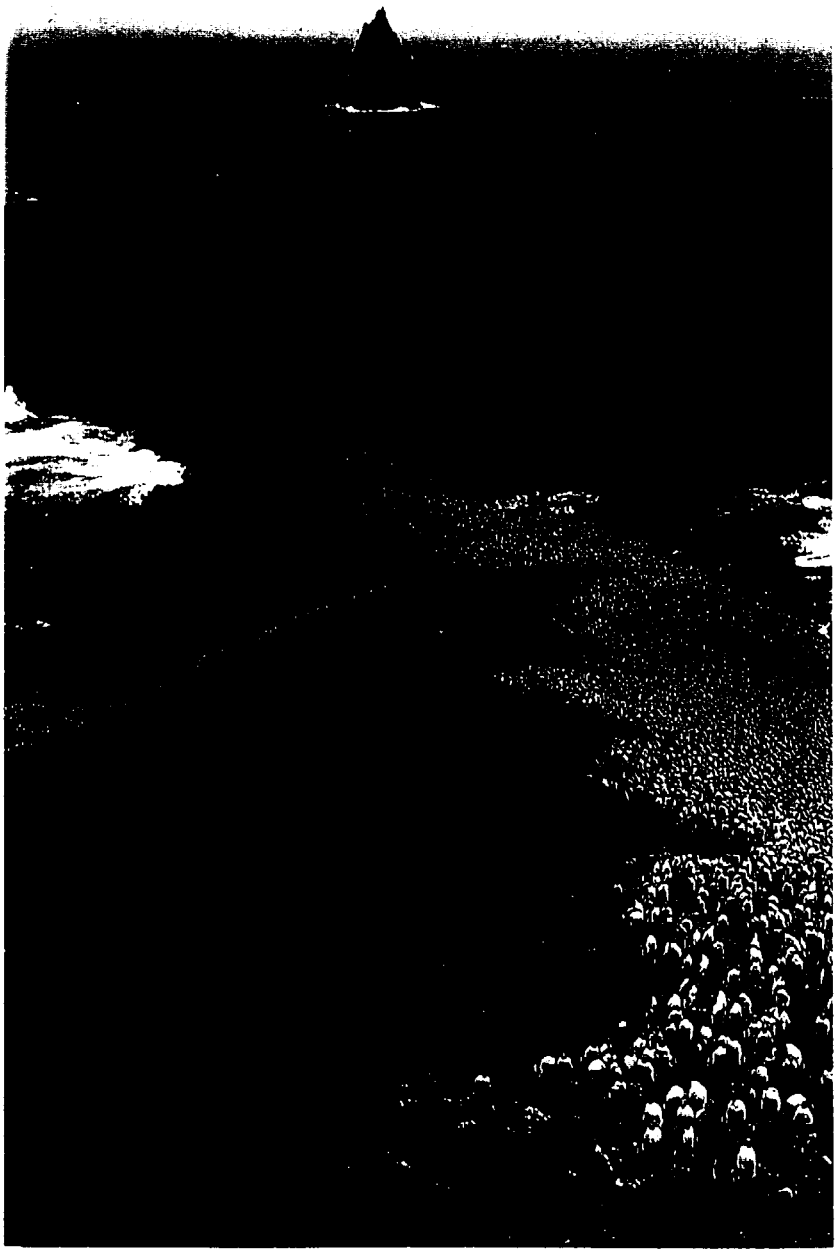
HEARD ISLAND AND McDONALD ISLANDS

AUSTRALIA



McDonald Island with Meyer Rock in background (G. Johnstone)

WORLD HERITAGE NOMINATION - IUCN TECHNICAL EVALUATION

HEARD ISLAND AND McDONALD ISLANDS (AUSTRALIA)

1. DOCUMENTATION

(i) IUCN/WCMC Data Sheet (25 references)

(ii) Additional Literature Consulted: Keage, P. 1987. Additional Protective Measures for Heard Island and the McDonald Islands. in **Conserving the Natural Heritage of the Antarctic Realm**. IUCN. 1991. **A Strategy for Antarctic Conservation**. 85 p; IUCN/SCAR. 1994. **Developing The Antarctic Protected Area System**. 137p. Clarke, M.R. and P. Dingwall. 1995. **Conservation of Islands in the Southern Ocean**. IUCN. 180p.; Thorsell, J. 1993. Which Islands Merit World Heritage Status? **Insula** No 2; Dingwall, P. 1995. Ranking the World Heritage Values of Islands in the Southern Ocean. Report to IUCN 8p.

(iii) Consultations: (1992 evaluation) 7 external reviewers. (Second evaluation) 5 external reviewers including members of the IUCN Antarctic Advisory Committee.

(iv) Field Visit: None

2. SUMMARY OF NATURAL VALUES

The Territory of Heard Island and McDonald Islands (HIMI), an external territory of Australia, consists of a remote group of islands in the Southern Ocean. The nominated property comprises the islands and all offshore rocks and shoals, out to the 12 nautical mile limit for a total area of 6,734 km^2.

HIMI are limestone and volcanic accumulations located on the submarine Kerguelen Plateau. Heard Island is dominated by the Big Ben massif, with the volcanically active 2,745m Mawson Peak (the only active volcano in Australia territory). Heard Island is heavily glaciated, with ice cliffs forming a high percentage of the coastline. Glaciers are fast-flowing as a result of steep slopes and high precipitation, and have been retreating in recent years. There are numerous outlying islets, rocks and reefs. The McDonald Islands are ice-free, and bounded by steep cliffs. The area, composed of basaltic lava and tuffaceous material, is compositionally distinct from Heard Island. The principal vegetation communities on the islands are tussock grassland, herbfield, and feldmark, with smaller areas of meadow, pool complex and cushion carpet. Eleven species of vascular plant occur on Heard Island, forty-two species of moss, and 50 lichen species. Five species of vascular plant occur on the McDonald Islands (all also found on Heard Island). There are no trees. All seven species of Antarctic seals have been recorded, five species of true seals and two species of eared seals. Only three of these species are known to breed on HIMI, of which southern elephant seal and Antarctic fur seal are found in significant numbers. Thirty-four bird species have been recorded, of which 19 species are known to breed in the islands. The most abundant are penguins, with gentoo, macaroni, rockhopper and king breeding. Populations of macaroni penguin (by far the most common species) number two million pairs (16% of the total world population). Heard Island is an important location for four species of burrowing petrels, as it has not been affected by cats and rats. Marine life consists of 24 species of fish, 128 benthic invertebrates and areas of giant kelp. Cultural remains on the island are also of interest. Sealing gangs occupied Heard Island almost continuously for 20 years following the first landing in 1855, thereafter sporadically until 1929.

The site has been put forward by the Government of Australia for inscription on the World Heritage List on the basis of natural criteria (i), (ii) and (iii).

3. COMPARISON WITH OTHER AREAS

Within the Antarctic Biogeographic Realm there are four provinces, one of which comprises all the island groups in the southern ocean around the Antarctic continent: Insulantarctica encompasses 22 major islands or island groups (over 800 individual islands and islets) covering in all 32,000 km^2, an area equivalent to the size of Belgium. These islands are subdivided into the cool temperate islands to the north, the maritime islands close to Antarctica itself, six subantarctic islands or island groups found in the vicinity of the Antarctic oceanic convergence zone: Prince Edward Islands, Îles Crozet, Îles Kerguelen, Macquarie Island, Georgia, and Heard and McDonald.

Inasmuch as all oceanic islands have some unique or distinguishing feature, comparisons are difficult. The islands of Insulantarctica all share certain attributes; they are isolated, they have a cool-temperate or cold maritime climate and each has a restricted biota resulting from climatic stress and isolation. All of them are also important seal and seabird breeding sites.

IUCN has established various working groups to provide an empirical rationale for addressing the comparative importance of islands in Insulantarctica. A "delphi" analysis (Dingwall 1995) ranked all the islands of Insulantarctica on four attributes:

Landscape: South Georgia ranks highest, ahead of Heard Island and Îles Kerguelen.

Geological features: Macquarie Island is outstanding geologically, with Îles Kerguelen and South Georgia also ranked high.

Biodiversity: Three islands are closely ranked at the top in terms of their biological values: Îles Crozet, Îles Kerguelen and Prince Edward Island.

Human Impact: The essential unmodified, non-impacted islands rate highest here, particularly HIMI, Prince Edward Island, Bouvetøya and the South Sandwich Islands. Lowest ranked islands are the highly modified Macquarie Island and Îles Kerguelen.

The Delphi process results do not give Heard Island the highest ranking on any of the four attributes but overall it ranks second (38) to South Georgia (39). By comparison, the existing Gough Island World Heritage site in the Cool-Temperate zone was given a score of 44. McDonald is given the lowest score (26) of all the subantarctic group though it is rated highest for lack of human disturbance. In this ranking then HIMI come out "second best" and substantially behind the score for Gough. It should be noted that, although the overall Delphi analysis was limited in scope and comprehensiveness, it still provides the best comparative analysis to date of the relative world heritage values of subantarctic islands.

With respect to **landscape features and geological character,** HIMI has significant geological value. Heard Island is a spectacular, glacier-eroded and relatively young strato-volcano while McDonald Island is the eroded remnant of another volcanic complex. But they are not alone among volcanic subantarctic islands. Îles Kerguelen is a huge volcanic pile exhibiting a wide range of glacial erosion forms; Prince Edward and Marion Islands are shield volcano summits; and Îles Crozet is an archipelago of small volcanic cones. However, there are a number of additional geological factors which strengthen the claim of HIMI for World Heritage status. These include:

- Heard Island is distinctive among oceanic islands in being founded upon a major submarine plateau which in this case deflects Antarctic circumpolar waters northwards, with striking consequences for geomorphological process;

- The fact that the nominated property includes ongoing activity of the Kerguelen-Heard mantle plume, the long duration and massive size of that plume; and the fact that it is associated with major crustal features;

- HIMI contains the only active volcanism in the subantarctic islands;

- The environmental context of Heard Island has allowed the development of glaciers that are important features in their own right, partly by virtue of their responsiveness to climatic change and also for their potential for research in this area;

- HIMI offers a rare opportunity to review the impact of past glaciation free of the complications posed by the inheritance of features from earlier and more intense Pleistocene glaciations.

In relation to **landscape features** Heard Island has significant value. However, the scenic grandeur of South Georgia and its altitudinal relief rivals or surpasses that of Heard Island as well as being ten times larger in area. Because of its smaller size and dominance of one main feature, the landscape of Heard has less variety than both South Georgia and Kerguelen. Gough Island World Heritage site is equally dramatic for its scenery.

With respect to **biodiversity** value - HIMI have very restricted plant habitat and a relatively depauperate subantarctica flora compared to South Georgia (60 vascular plant species); Îles Kerguelen (36 spp.); Marion Island (38 spp.); and Prince Edward Island (21 spp.). The low-lying non-glaciated McDonald Island has the least diverse biota of any of the subantarctic islands. There are seven endemic insects which belong to the same sub-family as a larger complex centered on Kerguelen. Heard Island's avifauna (30 spp.) is not particularly distinctive relative to other subantarctic islands. Macquarie Island has an equivalent number of breeding seabirds; Îles Kerguelen have 30 spp. of breeding birds; Prince Edward and Marion Islands have a rich avifauna; South Georgia has more than 50% of the world's Macaroni penguins (16% at Heard Island); and Îles Crozet reputedly host more species (36 spp.) of breeding seabird than any other island group in the world. There are endemic land birds on South Georgia and Kerguelen but none on Heard and McDonald. There are substantial populations of seven species of seals on HIMI as there also are on all other subantarctic islands. Few species of plants or invertebrate animals are endemic on HIMI and the survival of none is threatened or endangered. Thus, viewed in terms of biodiversity, Heard and McDonald Islands are not unique and in some respects are outclassed by other subantarctic islands.

It is in relation to **human impact** that the World Heritage value of HIMI rate high. The distinctive conservation value of HIMI lies in the complete absence of alien plants and animals. Pristine island ecosystems are rare globally, especially among large islands, but it is still possible to find examples in the Southern Ocean. Although exploited by sealers in the past, the nominated islands are therefore of special conservation significance as island environments which retain their original biological condition. All other subantarctic island groups have an introduced biota, which compromises their conservation status, to varying degrees. The comparative analysis by Dingwall *et. al.* concluded that, among subantarctic islands, HIMI are rated amongst the three highest due to the absence of human impact.

4. INTEGRITY

The HIMI forms a discrete entity of sufficient size to fulfill the Conditions of Integrity. The nominated islands, like other subantarctic islands, are not subject to much in the way of anthropogenic pressures except for the largely unknown impact of commercial fisheries on the marine ecosystem. The nomination notes the absence of commercial fisheries, but it is important to ascertain how far any such fishery in future could be excluded from, or strictly controlled in, the surrounding waters. The nomination also notes that Australia has initiated a number of fisheries control measures, in addition to the CCAMLR regulations relating to the Australian Fishing Zone (200nm) in relation to the nominated property. Possible extension of the boundary beyond the 12nm limit should be considered.

Potential issues relating to tourism are addressed in the recent HIMI Management Plan, where the provision of a comprehensive permit system is outlined. In addition, the Australian Antarctic Division requires all landing and activities in HIMI to be assessed for environmental impact before a visitor permit is issued. One reviewer noted that the remains and associated rubbish of the old Atlas Cove ANARE station are still evident. Certainly this site should be cleared up as soon as possible.

The HIMI has statutory protection as a Category I (IUCN) protected area under Australian national legislation. It also has an approved legally binding management plan which should ensure protection of World Heritage values.

As the islands' fauna is dependent on the marine environment, the property includes the adjacent ocean up to twelve nautical miles. Many species, however, feed beyond this limit and a boundary that extends to the 200 nautical mile fishing zone boundary has been suggested by some reviewers (this has not been required in the case of other World Heritage islands). The nomination document, however, concentrates on the values of the two islands *per se* and there is very little information provided on the conservation values of the seas surrounding them.

5. ADDITIONAL COMMENTS

When the first nomination of HIMI was deferred by the Bureau in 1991, the reason given was that "its uniqueness in comparison to other islands in the subantarctic was not clearly established." The Bureau, as a consequence, expressed reservations as to whether or not this site meets the World Heritage criteria. The Bureau also requested the Australian authorities to: a) review the legal status for the protection of the islands and indicate whether they are to be given protected area status; b) explain the rationale behind the proposed boundaries of the site; c) describe the conservation values of the seas surrounding the islands; and d) report on the progress in the preparation of a management plan for the islands.

Since 1991, the IUCN Delphi study has shown that the HIMI does not achieve the highest score in this regard though it is rated third overall among the 19 islands scored. The nomination document provides a convincing case that the legal status of HIMI is adequate and secure. A management plan for the site has been completed and came into effect in 1996. The rationale behind the boundaries is mostly a legal one with the 12nm limit being the standard administrative distance albeit not an ecological one. The one request by the Bureau that has not been provided is a description of the conservation values of the seas surrounding the island which is limited to less than a page in the nomination (p. 30).

The recent announcement by New Zealand of its intention to nominate five cool temperate island groups, along with territorial waters in the Southern Ocean, is significant but should not, in itself, affect a decision on the potential of inscription of HIMI on the World Heritage List. As noted above, HIMI are in the "subantarctic" category rather than "cool temperate".

6. APPLICATION OF WORLD HERITAGE NATURAL CRITERIA

Heard (and possibly McDonald) are the only volcanically active subantarctic islands, and thus provide a "window into the earth" that remains open. The opportunities to observe ongoing geomorphic processes on the mountain flanks and along the coasts and adjacent submarine environment are also significant. The property is thus considered to meet criterion (i)

The glacial dynamics and associated coastal changes at Heard Island are unique and of considerable interest from the viewpoint of rapid geomorphic change in response to changing climate. The ecosystems of HIMI, despite their relatively low biodiversity, are none the less important because they are highly simplified and contain no record of alien species. Assuming that appropriate care to avoid introductions is taken in future, they could be important as a place where natural colonization of extremely isolated habitats could be monitored, especially if global warming leads to habitat amelioration. For these reasons HIMI also meet criterion (ii).

In addition, Big Ben, itself, an ice-covered volcano rising directly from the sea, is of exceptional aesthetic value. However, as noted in section 3, there are other subantarctic islands that are considered to be of equal or greater landscape significance. The property, while spectacular, is not considered to meet criterion (iii).

7. RECOMMENDATION

The property satisfies the natural criteria for World Heritage designation, specifically (i) and (ii). IUCN recommends to the Committee that the property be inscribed on the World Heritage List.

Figure 1: Location of Territory of Heard Island and McDonald Islands
Showing limits of Australian Fishing Zone and continental shelf

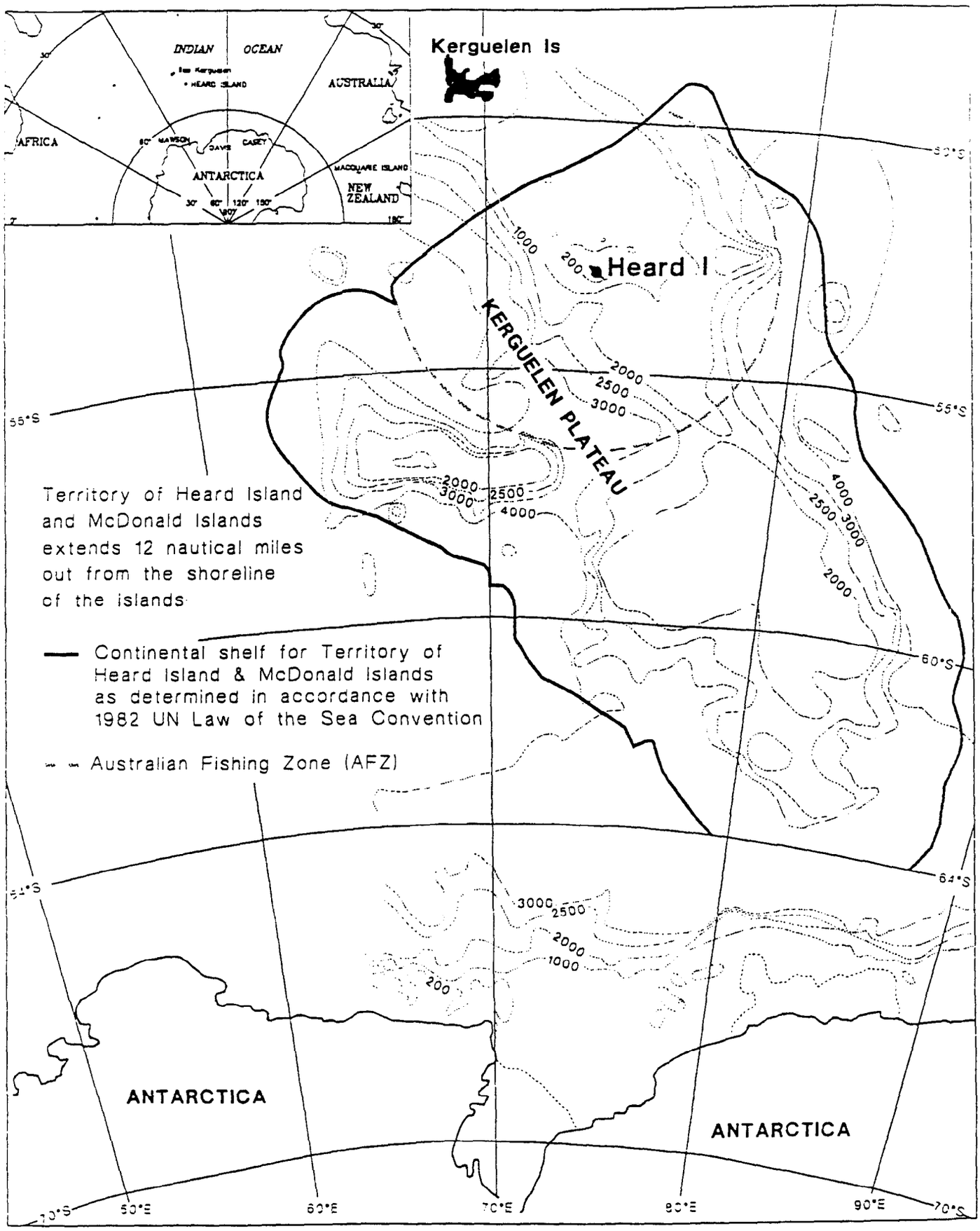
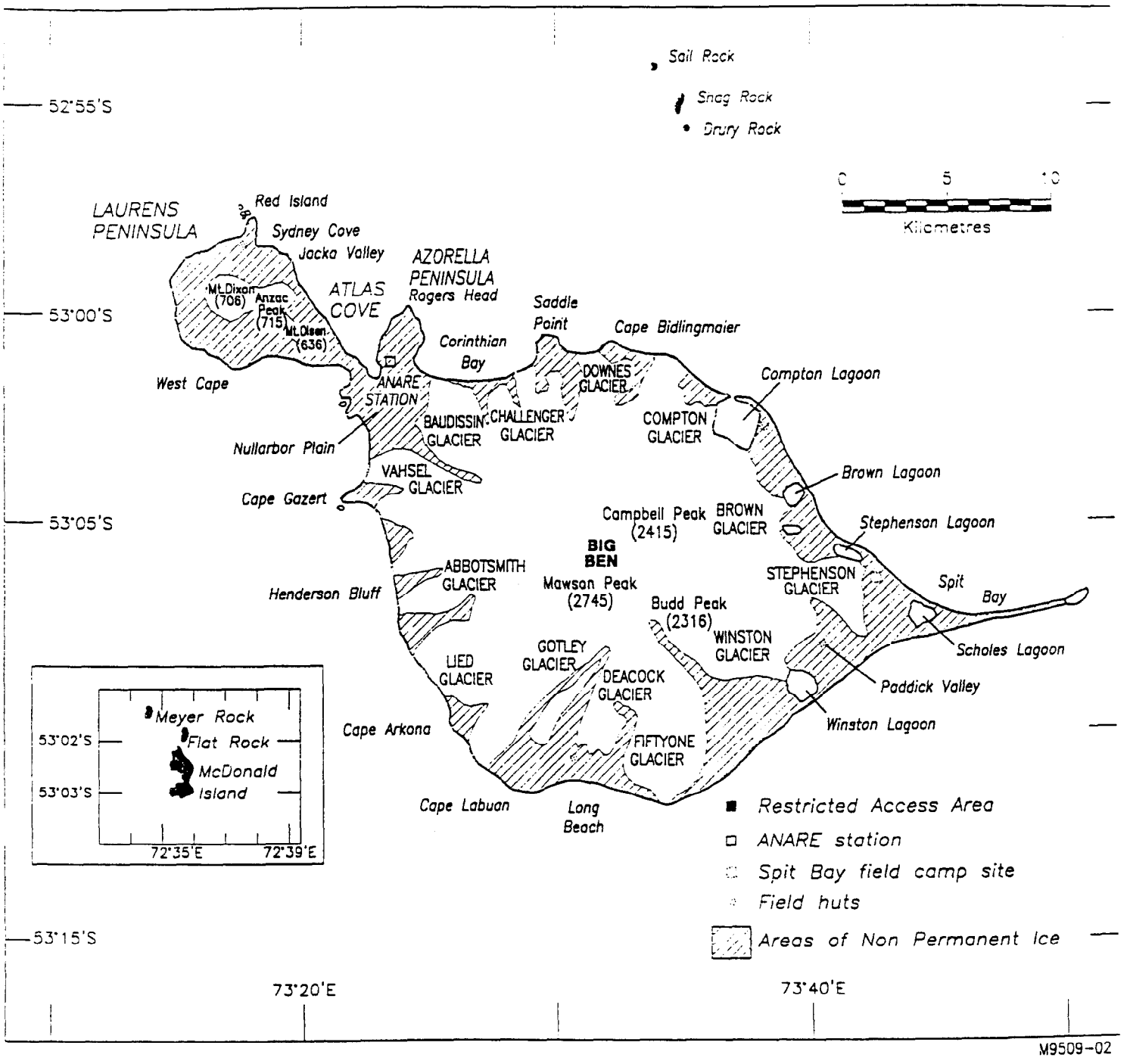


Figure 2: Heard Island and McDonald Islands

The Heard Island Wilderness Reserve defines the Restricted Access Area as: all of Sail Rock, Shag Rock and Drury Rock, and all of the McDonald Islands (including McDonald Island, Meyer Rock and Flat Rock). The Wilderness and Heritage Areas remain, which comprise the whole of Heard Island excluding the Atlas Cove and Spit Bay Main Use Areas (see Figures 4, 5) and any Specially Protected Areas.



WORLD HERITAGE NOMINATION - IUCN TECHNICAL EVALUATION

MACQUARIE ISLAND (AUSTRALIA)

The Bureau referred this nomination to Australia for additional information. IUCN received a substantial new file on 16 September which will be reviewed over the next several months. A report will be available for the next meeting of the Bureau.