IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 12 November 2014

Please note: this is an archived Conservation Outlook Assessment for Heard and McDonald Islands. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Heard and McDonald Islands

SITE INFORMATION

Country:
Australia
Inscribed in: 1997
Criteria:
(viii) (ix)

Site description:

Heard Island and McDonald Islands are located in the Southern Ocean, approximately 1,700 km from the Antarctic continent and 4,100 km south-west of Perth. As the only volcanically active subantarctic islands they ‘open a window into the earth’, thus providing the opportunity to observe ongoing geomorphic processes and glacial dynamics. The distinctive conservation value of Heard and McDonald – one of the world’s rare pristine island ecosystems – lies in the complete absence of alien plants and animals, as well as human impact. © UNESCO

SUMMARY

2014 Conservation Outlook

Good

The values for which the site was inscribed remain well preserved, largely as a result of its isolation and challenging logistic needs to access the islands. The site's extreme geographical remoteness and funding constraints, however, also limit the ability to undertake regular on-site management operations. Management efforts are largely based on scientific data collected a decade ago and given the rapid changes occurring on the islands, the lack of contemporary research data and interpretation also hinders on-ground management of the site. However, the site's isolation assists in reducing the opportunities for human impacts to the site's values and it is considered unlikely that threats to the values will increase in the near future (5 to 10 years).

Current state and trend of VALUES

Good
Trend: Stable

Current status of WH values is good. Low levels of visitation aid in the low potential risks to biosecurity. There is no evidence of an increased rate of visitation to the Reserve, or of increased threats to the value; the primary risk is from biosecurity breach, with introduction of invasive biota. Geological processes (primarily volcanism and glacial retreat) continue undisturbed.

Overall THREATS

Low Threat

The overall assessment is of a low level of threat to the World Heritage values of Heard Island and McDonald Islands. The isolation of Heard Island and McDonald Islands has contributed significantly to the maintenance of their high conservation value. Biosecurity remains the single greatest threat to the natural values on the islands; efforts to prevent the introduction of rats and mice have

been successful to date.
Current regulations and conservation measures for the Territory’s management are able to protect the values appropriately. Ongoing biosecurity efforts are required to ensure no further introductions to the island, particularly of vertebrates. Further consideration may need to be given to the removal (or containment) of Poa annua in light of accelerating glacial retreat.

Overall PROTECTION and MANAGEMENT

Mostly Effective

Management responsibility for the site lies with the Australian Antarctic Division of the Australian Government Department of the Environment. The site’s extreme geographical remoteness and funding constraints limit the ability to undertake regular on-site management operations. Given the rapid changes occurring on the islands, the lack of contemporary research data and interpretation also hinders on-ground management of the site. However, the site’s isolation assists in reducing the opportunities for human impacts to the site’s values.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Outstanding examples of significant on-going geological processes occurring in an essentially undisturbed environment**
  Criterion:(viii)

  The Territory of Heard Island and McDonald Islands contains outstanding examples of geological processes continuing in an essentially undisturbed environment. The physical processes provide an understanding of the role of crustal plates in the formation of ocean basins and continents and of atmospheric and oceanic warming. They also offer an active example of plume volcanism, providing direct geological evidence of the action of the longest operational plume system known in the world. This includes information about plume interaction with overlying crustal plates, in addition to insights into mantle plume composition due to the widest range of isotopic compositions of strontium, neodymium, lead and helium known from any oceanic island volcano system (SoOUV 2012).

- **Evolution and development of island ecosystems**
  Criterion:(ix)

  The Territory of Heard Island and McDonald Islands demonstrate significant on-going ecological, biological, and evolutionary processes. As the only sub-Antarctic islands virtually free of introduced species and with negligible modification by humans, the Territory is a classic example of a sub-Antarctic island group with large populations of marine birds and mammals numbering in the millions, but low species diversity. These intact ecosystems provide

opportunities for ecological research investigating population dynamics and interactions of plant and animal species, as well as monitoring the health and stability of the larger southern oceans ecosystem. Areas of newly deglaciated land as well as areas isolated from each other by glaciers provide opportunities for the study of the dispersal and establishment of plants and animals. (SoOUV 2012).

Other important biodiversity values

► **Migratory species, seabirds and marine mammals**

The Territory provides important habitat for a number of migratory birds and marine mammals. Many of these are listed under international agreements, including the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), the Agreement between the Government of Australia and the Government of the People’s Republic of China for the Protection of Migratory Birds and their Environment (CAMBA), the Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Species and Birds in Danger of Extinction and their Environment (JAMBA), and the Agreement on the Conservation of Albatrosses and Petrels (ACAP).

► **Wetlands**

Significant wetland features and processes are present in some areas, and provide habitat for a number of wetland species. These are the moist, low-level terrestrial, freshwater areas and shallow near-shore marine environments. The wetlands have been assessed to meet six of the Ramsar criteria for Wetlands of International Importance.

Assessment information

Threats

Current Threats

Low Threat

The isolation of Heard Island and McDonald Islands has contributed significantly to the maintenance of their high conservation value. Potential biosecurity breaches remain the single greatest local threat to the natural values on the islands; efforts to prevent the introduction of rats and mice have been successful to date.
The establishment and spread of the grass Poa annua is a threat in light of its capacity to spread rapidly in the Territory as glacial retreat accelerates. Further introductions of plants and invertebrates could occur during human visits to the islands as a result of varying degrees of adherence to, and scrutiny of biosecurity measures.
The level of IUU fisheries and their bycatch within the foraging ranges of seabirds and marine mammals from Heard Island are presently unknown but likely to be low.

▶ Fishing / Harvesting Aquatic Resources

Data Deficient
Inside site
Outside site

Commercial IUU fisheries operate within foraging range of many species of albatrosses and petrels that breed on Heard Island. IUU fisheries elsewhere kill seabirds by striking gear, entanglement and drowning on long-lines. IUU fisheries around Heard Island and McDonald Islands likely to kill seabirds, but extent and species composition are unknown.

▶ Housing/ Urban Areas

Very Low Threat
Inside site

Research station was occupied 1947 – 1954, then abandoned; during subsequent various short-term periods of occupation other structures were erected (primarily accommodation). Almost all materials were left in situ and have deteriorated from lack of maintenance, strong winds (Green 2006, Munro 2006).
Some clean-up efforts in 1980s and 2000s to remove hazardous materials

such as asbestos, old fuel drums,building materials etc. Majority of infrastructure removed, some materials remain scattered over landscape downwind of Atlas Cove (NW Heard Island).

► Other Activities

Very Low Threat
Inside site

Small wind generators were used to support research expeditions in 1990s and 2000s, resulting in seabird strikes and deaths; future use may pose similar risk to seabirds (Woehler 2006).

► Tourism/ visitors/ recreation

Very Low Threat
Inside site

Low levels of disturbance to seabirds and marine mammals associated with commercial tourism efforts, research expeditions and fisheries/customs enforcement staff while ashore.

► Other Activities

Very Low Threat
Inside site

Low levels of disturbance to seabirds and marine mammals associated with commercial tourism efforts, research expeditions and fisheries/customs enforcement staff while ashore and travelling between vessels and shore.

► Tourism/ visitors/ recreation

High Threat
Inside site

Biosecurity guidelines are in place but the level of attention to their adoption can vary among commercial tourist operators, research expeditions, fisheries/customs enforcement staff and private visitors. Potential exists for introduction of alien/invasive plant and invertebrate species; worst-case scenario would be rats.

► Invasive Non-Native/ Alien Species

High Threat

Inside site

Poa annua is an invasive/alien species established and now expanding on ice-free areas on eastern areas of Heard Island (where there is slightly milder climate than western areas). Competition with native vegetation and potential interference with natural processes of colonisation by other plant species possible (Scott & Kirkpatrick 2005).

► Solid Waste

Data Deficient
Inside site

Documented reports of wildlife entanglement, plastic ingestion by, and of oiling of seabirds. Smaller petrels feed by capturing prey at the surface and can mistake plastic particles as prey (Auman et al. 2004). Plastic debris common on foreshores in Reserve (Eriksson et al 2012).
Three reports of seabirds ashore with oil on feathers, evidence indicates oiling at sea rather than onshore (Woehler 2006).
Data deficient in terms of species involved, frequency of events and severity of ingestion and oiling.

Potential Threats

Data Deficient

Eruptions on McDonald Island and on Heard Island are natural events but have the potential to impact substantial numbers of seabirds and to some extent, marine mammals, depending on intensity, frequency and timing of events. High numbers of seabirds and mammals breed on the islands and eruptions could result in the complete loss of a breeding season’s chick/pup production or of breeding adults.

► Volcanoes

Very Low Threat
Inside site

Lava from episodic/irregular eruptions of Big Ben (Heard Island) appears to flow downhill on southwest face of mountain, predominantly glaciated. Some wildlife habitat present (ice-free areas used by seabirds) but these small areas likely to support small breeding populations of seabirds and limited

vegetation (Green and Woehler 2006 and references therein).

► Avalanches/ Landslides

Data Deficient
Inside site

Some breeding colonies of seabirds (Black-browed Thalassarche melanophrys and Light-mantled Sooty Albatrosses Phoebetria palpebrata) on cliffs and may be injured or killed by avalanches/landslides. Avalanches and landslides at least partly attributable to glacier retreats from global climate change (other component from lava flows).

► Chemical changes in oceanic waters, Temperature changes

High Threat
Inside site

Climate change artificially accelerating ecological processes and interaction in terrestrial and marine ecosystems. Oceanic acidification likely to adversely affect marine ecosystems more directly than terrestrial.

► Volcanoes

Data Deficient
Inside site

Geomorphology of McDonald Islands dramatically altered with recent lava flows. Main island and two smaller adjacent islands now joined by extensive lava flows and uplift of the islands due to volcanic processes.
Earlier surveys (1980) located large breeding populations of seabirds (largest was estimated 1 million breeding pairs of Macaroni Penguins Eudyptes chrysolophus) and Southern Giant-petrels Macronectes giganteus (approx. 1500 breeding pairs). As the timing, intensity and duration of the eruption(s) and rate of uplift are unknown, the impacts on seabird and marine mammal populations are unknown (Woehler 1991, 2006).
Continued eruptions and uplift may alter seabird and marine mammal populations and assemblages.

Protection and management

Assessing Protection and Management

► Staff training and development

Some Concern

Very few AAD staff have been ashore in the site; opportunities for training and skills development are constrained.

► Relationships with local people

Highly Effective

Not applicable as there are no native or permanent residents in the site.

► Legal framework and enforcement

Mostly Effective

The site has a comprehensive legal framework based on Australian legislation and regulations, and management and enforcement by Australian Government agencies. Management responsibility lies with the Australian Antarctic Division (www.aad.gov.au) of the Australian Government Department of the Environment.
All proposed activities within the site must meet the requirements of theEnvironment Protection and Biodiversity Conservation Act 1999; Environment Protection and Biodiversity Conservation Regulations 2000; and Environment Protection Management Ordinance (1987).

► Integration into regional and national planning systems

Mostly Effective

The Territory is managed under Australian legislation and its World Heritage values are primarily protected under Environmental Protection and Biodiversity Act 1999 (EPBC Act).

► Management system

Mostly Effective

The site forms part of the Heard Island and McDonald Islands (HIMI) Marine Reserve, an IUCN category 1A Strict Nature Reserve declared in October

2002. A new Marine Reserve management plan is expected to come into effect in late 2014.
The Heard Island and McDonald Islands (HIMI) Marine Reserve was declared as a Commonwealth Reserve under the EPBC Act and assigned to the IUCN category 1A Strict Nature Reserve. The 65,000 km2 Marine Reserve was declared in October 2002. On 24 August 2012, the HIMI Marine Reserve Management Plan 2005-2012 lapsed. It is presently unknown when a new MP will be prepared and implemented.

Biosecurity for various categories of visitors, removal of introduced species (Poa). Management Plan for the islands includes Marine Protected Areas. Note MP is ineffective against IUU fisheries and of unknown value for infrequent private yacht visits.

Terrestrial areas set aside specifically for commercial and private tourists to Heard Island; McDonald Island off limits to all visits but virtually impossible to enforce this for private visits.

► Management effectiveness

Some Concern

The site’s extreme geographical remoteness and funding constraints limit the AAD’s ability to undertake regular on-site management operations. This has impeded AAD’s ability to fulfill all of the management objectives of the now lapsed Heard Island and McDonald Islands Marine Reserve Management Plan (IUCN Consultation, 2013). The Territory continues to be managed as an IUCN 1A reserve. It is likely that in light of the relatively few visitors that the interim measures to manage the reserve until the new management plan is declared will be sufficient to conserve the values.

► Implementation of Committee decisions and recommendations

Highly Effective

There was one request from the Committee at the time of the inscription, requesting documentation of the state of the marine resources around Heard Island and the McDonald Islands (Decision 21COM.VII.A, 1997). A federal government funded research project collated all available information, including (the then) contemporary data and analyses from marine science research cruise to the Territory. The results of the study were published by

Meyer et al. (2000).

▶ Boundaries

Mostly Effective

The boundaries for the site are marine; there are no signs or other evidence of the boundaries on the island, consistent with preserving the Territory's wilderness values.

▶ Sustainable finance

Mostly Effective

Funding for AAD is secured from Federal budget.

▶ Sustainable use

Mostly Effective

No harvesting of any form is permitted in the Territory.

▶ Education and interpretation programs

Mostly Effective

Some interpretive and educational materials available on the web (www.heardisland.aq).

▶ Tourism and interpretation

Mostly Effective

Commercial tourist visits to Heard Island limited to 60 persons ashore at once and only 3 Visitor Areas declared for non-research visits.

▶ Monitoring

Some Concern

Scientific monitoring of biota and physical environmental parameters (e.g. glaciers) occurs opportunistically. The last research expedition visit was 2003/04.

▶ Research

Mostly Effective

Despite isolation and relatively few scientific visits, considerable scientific literature has been published from the site. The most complete compilation and review is Green & Woehler (2006) that drew on most recent scientific visit in 2003/04. All research in the Territory and its surrounding marine reserve must be approved by the Australian Government.

Overall assessment of protection and management

Mostly Effective

Management responsibility for the site lies with the Australian Antarctic Division of the Australian Government Department of the Environment. The site's extreme geographical remoteness and funding constraints limit the ability to undertake regular on-site management operations. Given the rapid changes occurring on the islands, the lack of contemporary research data and interpretation also hinders on-ground management of the site. However, the site's isolation assists in reducing the opportunities for human impacts to the site's values.

▶ **Assessment of the effectiveness of protection and management in addressing threats outside the site**

Some Concern

The ability to comply with stringent biosecurity measures is a requirement for all visitors to the Territory.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Outstanding examples of significant on-going geological processes occurring in an essentially undisturbed environment**

Good
Trend:Stable

Geological processes (primarily volcanism and glacial retreat) continue

undisturbed.

► Evolution and development of island ecosystems

Data Deficient
Trend:Data Deficient

The potential impact of the introduced grass Poa annua on the terrestrial ecosystem of Heard Island cannot be assessed at this time. The species is cosmopolitan and capable of spreading on the ice-free areas of Heard Island, which are increasing as the islands' glaciers retreat. The extent to which the presence of the grass on the island will influence the island's ecosystems is unknown as there are native grasses on the island and the evolution and development of ecosystems on Heard Island may be adversely affected. The absence of contemporary data on the distribution and rate of spread potentially undermines some aspects of the management of the island. Introduced species are believed to be absent from McDonald Island.

Other important biodiversity values

► Migratory species, seabirds and marine mammals

The Territory provides important habitat for a number of migratory birds and marine mammals. Many of these are listed under international agreements, including the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), the Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment (CAMBA), the Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Species and Birds in Danger of Extinction and their Environment (JAMBA), and the Agreement on the Conservation of Albatrosses and Petrels (ACAP).

► Wetlands

Significant wetland features and processes are present in some areas, and provide habitat for a number of wetland species. These are the moist, low-level terrestrial, freshwater areas and shallow near-shore marine environments. The wetlands have been assessed to meet six of the Ramsar

criteria for Wetlands of International Importance.

Summary of the Values

▶ **Assessment of the current state and trend of World Heritage values**
Good
Trend: Stable

Current status of WH values is good. Low levels of visitation aid in the low potential risks to biosecurity. There is no evidence of an increased rate of visitation to the Reserve, or of increased threats to the value; the primary risk is from biosecurity breach, with introduction of invasive biota. Geological processes (primarily volcanism and glacial retreat) continue undisturbed.

▶ **Assessment of the current state and trend of other important biodiversity values**
Data Deficient
Trend: Stable

Contemporary data on the state of wetlands, and breeding populations of seabirds and marine mammals are lacking. The last seabird and marine mammal research was in 2000/01 and 2003/04 (Green and Woehler, 2006). The wetlands meet six of the Ramsar criteria but have not been nominated and their current status and any threats to them are indeterminate.

Additional information

Key conservation issues

▶ **Climate change**
Global

Glacial retreat is leading to the formation of lagoons and freshwater lakes and is exposing new land for flora and fauna colonisation. Pronounced climate change is expected to result in the establishment of new species, and changes to species’ distributions. Population growth of some species may be at the

expensive of vulnerable species (IUCN Consultation, 2013).

▶ **Updated data on seabird and marine mammal populations (research and monitoring).**
Regional

Contemporary population data is desirable.

▶ **Updated data on distribution, abundance and rate of spread of invasive Poa annua (research and monitoring).**
Local

Contemporary data is needed to underpin decisions on the viability of Poa's eradication or control.

Benefits

Understanding Benefits

▶ **Importance for research**

The site that has the potential to yield sentinel climate change data and improve our understanding of climate change.

▶ **Is the protected area valued for its nature conservation?**

Major seabird and marine mammal breeding site, significant populations of several species. Lack of introduced vertebrates serves as reference for other subantarctic islands with introductions. Active and ongoing volcanism unique among subantarctic islands. Largely unmodified flora and fauna communities – one of the world's last true wilderness areas.

▶ **History and tradition**

Relics from 19th and early 20th Century sealing industries remain on the island.

▶ **Outdoor recreation and tourism**

Nature-based eco-tourism, limited opportunity for mountaineering.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Australian Fisheries Management Authority		Observer program on commercial fishing vessels within EEZ to document wildlife interactions with fisheries activities.
2	Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)		Regional fisheries management authority for legal commercial fisheries

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	Australian Antarctic Division	Research and management priorities will be identified in the forthcoming management plan.	

REFERENCES

№	References
1	Auman HJ, Woehler EJ, Riddle MJ and Burton HR (2004) Plastic debris ingestion by seabirds at subantarctic Heard Island. Marine Ornithology 32, 105-106.
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3	Green K (2006) Heard Island – the later ANARE years 1963 – 2004. In: Green K and Woehler EJ (eds) Heard Island, Southern Ocean Sentinel. Surrey Beatty and Sons, Chipping Norton, pp 231-253.
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7	Munro GD (2006) “Waiting on the weather” – the ANARE years 1947-1955. In: Green K and Woehler EJ (eds) Heard Island, Southern Ocean Sentinel. Surrey Beatty and Sons, Chipping Norton, pp 202-230.
8	Scott JJ, Kirkpatrick JB (2005) Changes in subantarctic Heard Island vegetation at sites occupied by Poa annua, 1987-2000. Arctic, Antarctic, and Alpine Research 37, 366-371.
9	SoOUV 2012
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