

## World Heritage Sites

### Protected Areas and World Heritage



## GOUGH AND INACCESSIBLE ISLANDS UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

*Gough Island, in the South Atlantic, is one of the least disrupted cool temperate island ecosystems in the world. The towering cliffs are home to one of the world's largest colonies of sea birds. The island also has two endemic species of land bird, the Gough moorhen and the Gough finch, four endemic vascular plants and 15 endemic ferns.*

*Inaccessible Island is part of the Tristan da Cunha-Gough Island group, 350 kilometres north-northwest of Gough Island. It is largely pristine and is one of the few temperate oceanic islands free of introduced mammals. It has two birds, eight plants and ten invertebrates found nowhere else. 70 terrestrial plant and animal species are restricted to the islands and 60 marine species are endemic to the island group.*

### COUNTRY

United Kingdom of Great Britain and Northern Ireland

### NAME

Gough and Inaccessible Islands

### NATURAL WORLD HERITAGE SERIAL SITE

1995: Inscribed on the World Heritage List under Natural Criteria vii and x.

2004: Extended to include Inaccessible Island under Natural Criteria vii and x

### STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

### INTERNATIONAL DESIGNATION

2008: The islands designated a Biosphere Reserve under the UNESCO Man & Biosphere Programme.

### IUCN MANAGEMENT CATEGORY

Ia Strict Nature Reserve

### BIOGEOGRAPHICAL PROVINCE

Insulantarctica (7.4.9)

### GEOGRAPHICAL LOCATION

Gough Island lies in the South Atlantic Ocean about 350 km south-southeast of Tristan da Cunha at 40°19'29"S by 9°55'43"W. Inaccessible Island is 35 kilometres south-west of Tristan da Cunha and 340 kilometres north-northwest of Gough Island at 37°18'S by 12°41' W.

### DATES AND HISTORY OF ESTABLISHMENT

1938: Gough Island proclaimed a British possession in 1938 as part of the Overseas Territory of Tristan da Cunha, part of the Crown Colony of St Helena;

- 1950: Land birds on Gough Island protected under the Tristan da Cunha Wildlife Protection Ordinance;
- 1976: Gough Island with its islets and territorial waters out to 3 nautical miles, designated a Wildlife Reserve under the Tristan da Cunha Conservation Ordinance;
- 1977: Designated marine zone extended to 12 nm (22 km);
- 1983: Waters within 200 nm (370 km) of the islands are protected by the Fishery Limits Ordinance;
- 1997: Inaccessible Island and its territorial waters out to 12 nm designated a Nature Reserve under the Fishery Limits Conservation Ordinance (amended);
- 2001: The 200 nm protected zone around the Tristan da Cunha and Gough Island group declared whale sanctuary.
- 2004: Gough Island's territorial waters out to 12 nautical miles plus Inaccessible Island and its territorial waters out to 12 nm designated extensions to the original World Heritage site.

## LAND TENURE

Crown estate. Both islands are administered by the Island Council of Tristan da Cunha. A meteorological station in the southeast of Gough Island is leased to the South African government.

## AREA

Total site area:	397,900 ha	Land: 7,900 ha	Marine: 390,000 ha
Gough Island:	6,500 ha	Marine 12 km extension:	230,000 ha
Inaccessible I:	1,400 ha	Marine 12 km extension:	160,000 ha

## ALTITUDE

Seabed to 910m (Gough Island.); to ± 600m (Inaccessible Island).

## PHYSICAL FEATURES

The Tristan da Cunha Islands and Gough Island are part of a chain of South Atlantic volcanic sea-mounts on the east slope of the mid-Atlantic ridge. Gough is the mountainous island summit of a Tertiary volcanic mass separated from the formations of the Tristan group. The island is mountainous, with dramatically steep cliffs forming much of the coastline, and an undulating plateau rising up 910m above sea level. The eastern side of the island is dissected by a series of deep, steep-sided valleys known as glens, which are separated by narrow, serrated ridges. The western side of the island consists of rounded slopes, extending from the central plateau to western sea cliffs. The southern area of the island is the only land below 200m in height. Boulder beaches are found beneath the cliffs, and there are numerous offshore islets, stacks and rocks - most within 100m of the main island, and none at a distance greater than one kilometre. The largest stacks support vascular plants and breeding birds

Inaccessible Island is a 2-3 million year old remnant of a far larger much eroded volcano, material from which has built up a wide submarine plateau. It was a shield volcano of thin basaltic flows interleaved with ash and scoria overlaid in places by later volcanic domes, plugs and dykes. The island is a 5.7 by 4.6 km undulating plateau rising from 100m in the east to over 500m in the west above a line of steep cliffs punctuated by waterfalls. The soil is undeveloped and coarse, mostly covered by thick peat and, in the wet climate, often slumps downslope (Ryan & Glass, 2001).

## CLIMATE

The islands have a cool-temperate oceanic climate, and lie on the edge of the roaring forties, a seasonally oscillating belt of strong westerly winds south of 40°S. Mean temperatures at sea level are 11.3°C (Gough) and 14.5°C (Tristan) with little seasonal variation. Extreme temperatures at sea level vary from -3°C to 25°C (Gough) and 3°C to 24°C (Tristan). The mean daily temperature variation is 4°C -5°C, with a mean relative humidity of 80%. Snow may fall on the peaks of Gough between May and January, but rarely occurs at sea level. In association with cyclonic depressions, frontal precipitation

falls throughout the year. Mean annual precipitation near sea level is 3,116mm (Gough) and 1,671mm (Tristan) with more falling in winter. The cloud base is typically between 300-500m, although it occasionally descends to sea level. The mean wind speed is  $12 \text{ m/s}^{-1}$  (Tristan  $10 \text{ m/s}^{-1}$ ), with stronger winds in winter. Gales blow on 5% of summer days and on 15% (Gough) and 10% (Tristan) of winter days. Wind speed increases with altitude, and is exceptionally strong on exposed ridges (Cooper & Ryan, 1992; Ryan & Glass, 2001).

The temperature of the seas surrounding Inaccessible Island increases by some  $4^\circ$  in summer, influenced by the movement of the Subtropical Convergence from north to south of the island. It occurs more often on the south side so that the waters are usually subtropical and the heated summer layer which is confined by a thermocline at 50m promotes the growth of phytoplankton.

## VEGETATION

The islands are one of the least disturbed major cool-temperate island ecosystems in the south Atlantic. The flora of both is typical of southern cold-temperate oceanic islands with their relatively low species diversity and a preponderance of ferns and cryptogams. On **Gough Island** there are 36 flowering species of which 21 are endemic to the Tristan-Gough Island group and four are restricted to Gough. 27 species of fern are known from the island of which 15 are endemic to the Tristan-Gough group. A large number of bryophytes and lichens are known but not described in detail. Only four alien species are widespread on the island, but the integrity of the ecosystem has recently been threatened by the invasion of an alien groundcover, procumbent pearlwort *Sagina procumbens*. This very quickly forms dense mats on disturbed ground such as birds' burrows, peat slips and around the settlement and competes strongly with existing vegetation (Gremmen & Barendse, 2000).

The vegetation on Gough Island varies markedly with changes with altitude and microclimate (Wace, 1961). Two-meter high tussock grassland, dominated by *Spartina arundinacea* and tussock grass *Parodiochloa flabellata* is restricted to areas where salt spray is regular, and it is found on offshore stacks, sea cliffs and adjacent slopes. It extends 300m up seaward facing slopes on the exposed western side of the island, and to approximately 100m on the more sheltered eastern side. Extending from tussock grassland to approximately 500m is a dense vegetation of fernbush. This is dominated by bat's wing fern *Histiopteris incisa*, characterised by the hard or Gough tree fern *Blechnum palmiforme*, and is more extensive on the eastern side of the island and in southern downland areas. This vegetation type is approximately one metre high, occasionally interrupted by the shrubby island tree *Phyllica arborea*. From the upper limits of fernbush communities, wet heath is the dominant vegetation type to 800m. This is a diverse community of ferns, sedges, grasses, angiosperms and mosses and is dominated by *Blechnum palmiforme*, crowberry *Empetrum rumbrum*, grasses and sedges. Above 600m, peat bogs are widespread. These sodden bogs are 5 meters deep in valleys and are dominated by *Sphagnum* mosses. Fuegian arrowgrass *Tetroncium magellanicum* and mossy deergrass *Scirpus* spp. are the only abundant vascular plants found in bogs, although bog margins show a wider diversity, including various grasses. From 600m, feldmark and montane rock communities are found. These consist of cushion-forming or crevice plants, found on exposed areas such as ridges (Oldfield, 1994).

The marine area around Gough Island can be split into two distinct algal zones. From sea level to 5m depth, algae consists mainly of bull kelp *Durvillea Antarctica*. Beyond 20m deep the waters are dominated by *Laminaria pallida* and giant kelp *Macrocystis pyrifera*. Forty species of algae were recorded by Chamberlain *et al.* (1985), of which two species are endemic to Gough.

On **Inaccessible Island** there are 213 native species of plants, eight being known only from the island. 60 of the 136 species and 35 of the 46 vascular plants restricted to the Tristan group are also found there, including all ten endemic species. One of these is the pepper tree, an endemic subspecies *Peperomia berteroa tristanensis*, found in one locality only. Endemism is highest in grasses, ferns and mosses. As with Gough the vegetation is graded by height and exposure. Dense high tussock grass dominates all the coastal lowlands and cliffs up to 200-500m except in marshes where the pennywort *Hydrocotyle capitata* is common, and on the drier western slopes which are dominated by tree fern *Blechnum penna-marina* heath. Scattered within the grassland are occasional *Phyllica arborea*

trees. Landslips are colonised by both introduced and native species such as southern wild celery *Apium australe*. Most of the plateau is covered by fernbush. The lower eastern half is dominated by *Phyllica arborea* in a low 3-5m canopy supporting a dense growth of lichens and mosses where damp. The understorey where open is dense with ferns. The higher western half is dominated by bog treefern *Blechnum palmiforme* between 0.5 -1m high. The *Phyllica* here are wind-cropped down to 0.5m. Above this on the high western edge of the plateau is narrow belt of wet heath of low tree ferns and a considerable diversity of species: celery, sedges, grasses and mosses. There are two bog communities: *Sphagnum* cf. *recurvum* on both plateau and lowland and *Scirpus sulcatus* on the plateau which is perpetuated by the burrowing of the endemic spectacled petrel *Procellaria conspicillata* (CR). There are 27 alien species, mostly colonising disturbed ground. Only two, velvet grass *Holcus lanatus* and New Zealand flax *Phormium tenax* are presently any in danger of growing out of control. Offshore, shallow waters are turfed with short tufty seaweeds, deeper water is dominated by the kelp *Laminaria pallida* and coralline algae. The giant kelp *Macrocystus pyrifera* growing between 8 and 40 meters, creates a characteristic zone of calmer water around much of the island (Ryan & Glass, 2001).

## FAUNA

**Gough Island** has been described as perhaps the most important seabird colony in the world (Bourne, 1981), with 54 bird species recorded in total, of which 22 species breed on the island, 20 being seabirds. Four species are threatened and there are three endemic genera. About 48% of the world's population of southern rockhopper penguin *Eudyptes chrysocome moseleyi* (VU) breed on Gough (Jouventin, 1982). Atlantic petrel *Pterodroma incerta* (EN) is endemic to Gough and the Tristan group of islands. Gough is also a major breeding site of the great shearwater *Puffinus gravis* with up to three million pairs breeding on the island. The main southern ocean breeding sites of little shearwater *Puffinus assimilis* are Tristan da Cunha and Gough Island, with breeding pairs numbering several million (Richardson, 1984). Tristan or wandering albatross *Diomedea dabbenena* (CR) is virtually restricted to Gough, with between 1,300 and 2,400 breeding pairs. Atlantic yellow-nosed albatross *Thalassarche chlororhyncos* (EN: 1,000 pairs) are found on both islands. The last survivors of the southern giant petrel *Macronectes giganteus* also breed on Gough, with an estimated 100-150 pairs (Bourne, *in litt.*, 1993). Gough moorhen *Gallinula nesiotis* is found in fern bush vegetation areas. Estimates of population size vary from 300-500 pairs (Richardson, 1984) to 2000-3000 pairs (Watkins & Furness, 1986). 4-500 pairs of Gough bunting *Rowettia goughensis* (CR) were recorded in 2007 (IUCN Red List, 2009).

Sub-antarctic fur seal *Arctocephalus tropicalis* (200,000 individuals and increasing), and southern elephant seal *Mirounga leonina* (about 100 individuals) are the only two native breeding mammals. The former breed at beaches all round the island, while the latter are restricted to the island's sheltered east coast (Bester, 1990). Two other marine mammals are found within the reserve: southern right whale *Eubalaena australis* and dusky dolphin *Lagenorhynchus obscurus*; the rarely seen Tasman beaked whale *Tasmacetus shepherdi* has also been reported. Reptiles, amphibians, freshwater fish and native terrestrial mammals are absent from the island, although the introduced house mouse *Mus musculus* is widespread and abundant, posing some threat to birds. 100 free-living species of terrestrial invertebrates have been recorded but have been poorly studied. An additional 24 parasitic invertebrate species have been found on vertebrate hosts on the island. At least eight free-living invertebrate species are endemic to Gough, and an additional 14 species are restricted to Gough and the Tristan group of islands (Holdgate, 1965). Only eight species of freshwater invertebrate are known (Holdgate, 1959/60). Most littoral species found at Gough are widespread on other Southern Ocean islands, and 79 invertebrate species have been recorded (Chamberlain *et al.*, 1985). Limpets and bivalves are absent from the littoral and subtidal zones. Sea urchins *Arbacia dufresnii* are abundant in the marine area, as are whelks *Argobuccinum* sp., chitons, starfishes, sea anemones, bryozoans, barnacles, slipper limpets, nudibranchs and sponges. Twenty coastal fish species have been recorded (Andrew *et al.*, 1994). Other important marine species include Tristan rock lobster *Jasus tristani* (from close inshore to 400m depth around Gough), and octopus *Octopus vulgaris*. Both are economically exploited by fishermen under close regulation.

On **Inaccessible Island** the terrestrial fauna, like the flora, has relatively low diversity but a high degree of endemism. There are no land mammals, reptiles, amphibians or freshwater fish. A number of birds and insects are flightless and there are no alien species except for invertebrates, although in the past pigs, goats, sheep and cattle were all introduced. The two marine mammals found on land are the subantarctic fur seals *Arctocephalus tropicalis* and southern elephant seals *Mirounga leonina*. Both were abundant until sealing started at the end of the 18<sup>th</sup> century and were locally almost exterminated within a hundred years. Elephant seals remain rare, but fur seals have returned, numbering 150 bulls and 500 cows over less than half the coastline in the summer of 1999. Offshore, southern right whales *Eubalaena australis*, which were also decimated during the 19<sup>th</sup> century, false killer whales *Pseudorca crassidens*, humpback whales *Megaptera novaeangliae*, Tasmanian beaked whales *Tasmocetus sheperdi* and dusky dolphins *Lagenorhynchus obscurus* have all been sighted. Terrestrial invertebrates have been little studied, although 58 free living species are recorded, 10 being endemic and over 20 introduced. 12 parasitic species have also been found, and two examples of adaptive radiation on the islands, among drosophilid flies and weevils (Ryan & Glass, 2001). The marine and littoral environments are even less well known. About 258 species are known, and 60 recorded species which are endemic to the Tristan group. 25 species of fish are known from the island's waters with another 17 species probably occurring. These include the one fish endemic to the islands, the klipfish *Bovichtus diacanthus*. The Tristan rock lobster *Jasus tristani* is commercially important and octopus is caught with it. Marine macro-invertebrate life is scarce but as with Gough, sea urchins and whelks are conspicuous, also the large barnacle *Megabalanus isolde* (Ryan & Glass, 2001).

44 bird species are recorded, of which 16, possibly 20, breed on the island. All but five are seabirds of the subantarctic region: the brown noddy *Anous stolidus* is a tropical species and there are four native land birds. One species breeds only on Inaccessible Island: the endemic spectacled petrel *Procellaria conspicillata* (VU), 3-4,000 pairs nesting in burrows on the high plateau. It is one of thirteen burrow-nesting species on the island (Ryan & Maloney, 2000). Apart from Gough, the island is the only other breeding site of the Tristan or wandering albatross *Diomedea dabbenena* (EN, 2-3 pairs). Three other breeding species are endemic to the Tristan-Gough islands: great shearwater *Puffinus gravis* (2 million pairs), Atlantic yellow-nosed albatross *Thalassarche chlororhyncos* (EN) and Atlantic petrel *Pterodroma incerta* (EN). Two other breeding species are listed as threatened: southern rockhopper penguin *Eudyptes chrysocome moseleyi* (EN) and sooty albatross *Phoebastria fusca* (EN). Only the marauding southern skua *Catharacta antarctica* feeds on the island, mostly on spectacled petrels. The soft-plumaged petrel *Pterodroma mollis* and whitebellied storm petrel *Fregetta grallaria* populations are globally important. Of the four land birds the Inaccessible Island rail *Atlantisia rogersi* (VU), the smallest existing flightless bird, is found only on the island in a population of 8,500. There are three endemic subspecies: Tristan thrush *Nesochicla eremita* (850 pairs), grosbeak bunting *Nesospiza wilkinsi* (EN, 2,200 pairs) and Tristan bunting *Nesospiza acunhae* (VU, 10,000 pairs). The buntings exemplify local adaptive radiation, but may be hybridising which could eventually produce a new species endemic to the island. All would be vulnerable to mammalian predators (Ryan & Glass, 2001).

## CONSERVATION VALUE

Gough Island is the least disturbed major cool-temperate island ecosystem in the South Atlantic Ocean, and one of the most important sea-bird colonies in the world. The island is scenically beautiful with spectacular sea cliffs round much of the coastline. Two endemic landbirds are found: the Gough moorhen and the Gough bunting. Gough is in the Tristan da Cunha Priority One Endemic Bird Area, as defined by BirdLife International. Its undisturbed nature makes it particularly valuable for biological research, which, with weather monitoring, is the only activity permitted on the island (Oldfield, 1994). Inaccessible Island's values complement those of Gough Island. It is also largely pristine and is one of the few temperate oceanic islands without introduced mammals. It has two birds, eight plants and ten invertebrates found nowhere else, 70 terrestrial plant and animal species are restricted to the islands and 60 marine species are endemic to the island group (Ryan & Glass, 2001). Both islands are designated Endemic Bird Areas.

## **CULTURAL HERITAGE**

The Tristan archipelago was discovered by Tristão d'Ancunha in 1506, was visited periodically by Dutch sailors and annexed to Britain in 1816. Both Gough and Inaccessible Islands were exploited by sealers in the last decade of the 18<sup>th</sup> century and early decades of the 19<sup>th</sup> century. Sealers stayed on Gough Island for considerable periods, subsisting on fish, seabirds, eggs, wild plants and cultivated potatoes (which are no longer present on Gough). Whaling occurred between 1830 and 1870, and Tristan islanders visited Inaccessible between the 1850s and 1890s to harvest seals and the introduced goats and pigs, but the islands remained uninhabited.

## **LOCAL HUMAN POPULATION**

Gough Island has never been permanently populated and the only inhabitants are the six scientists working at the meteorological station which has functioned since 1956. The only man-made structure on the island is the meteorological station and its associated generators, storerooms, communication facilities and helicopter landing site. Inaccessible Island has been uninhabited except for a two-year farming settlement 1936-38 but has been regularly visited from Tristan for birds, eggs, driftwood, guano and apples. The last pigs, sheep and cattle were removed in the 1950s. Since 1949 its coastal waters within 50 nautical miles are fished for the Tristan rock lobster *Jasus tristani* by a single licensee. This, with crayfish fishing, is the island groups' main source of revenue.

## **VISITORS AND VISITOR FACILITIES**

Access to both islands is prohibited unless written approval has been obtained from the Administrator of Tristan da Cunha, although cruise ships have begun to visit the seas around group. In 2003 there were 40 visitors only (IUCN, 2005). Landing on Gough is restricted to the coast next to the meteorological station, and on Inaccessible to Blendon Hall Bay, site of the old settlement and now of two guided tour landing sites. It is suggested that signs be erected on the islands, stating the conservation objectives, and that detailed information be produced for permitted visitors to the islands (Cooper & Ryan, 1994). There is no jetty, nor visitor facilities.

## **SCIENTIFIC RESEARCH AND FACILITIES**

Scientists have visited Gough Island periodically from 1811 on (Tagart, 1832). The Gough Island Scientific Survey, the first scientific visit specific to Gough took place in 1955/6, produced the first topographical map of the island (Heanley & Holdgate, 1957). A number of biological and other scientific papers were produced over this period. The scientific base was taken over by the South African Weather Bureau in 1956, and the present weather station was built in 1963. Current research is mainly undertaken by biologists at the Fitzpatrick Institute of African Ornithology of the University of Cape Town. Thirteen short expeditions were completed between 1979 and 1990, with scientific study concentrating on the population dynamics of seabird populations and the island's biota, emphasising its conservation (Cooper & Ryan, 1994). Inaccessible Island has had over 30 mostly brief visits by researchers since 1871. HMS Challenger's day-long visit in 1873 produced 9 papers, the 17-day Norwegian Scientific Expedition of 1937-38 produced 50 papers, the three-month Denstone College Expedition of 1982-83 produced 17 papers, and three South African Expeditions between 1987 and 1990 under the aegis of the national Antarctic Programme produced 23 papers. The hut at Blendon Hall serves as a headquarters. Several studies have by now described Gough Island's terrestrial biodiversity, most notably the vertebrates, macro-invertebrates and vascular plants. There is an automatic weather station on the island (Ryan & Glass, 2001). The Royal Society for the Protection of Birds with the University of Cape Town, has initiated a monitoring program for threatened birds of the island (IUCN, 2005).

## **MANAGEMENT**

The Tristan da Cunha Conservation Ordinance of 1976 designated Gough Island and its territorial waters out to three nautical miles as a wildlife reserve. This ordinance provided strict legislation to conserve the island and its surrounding marine habitat. The Tristan da Cunha Fisheries Limits Ordinance 1983, as amended by Ordinances Nos. 2 of 1991 and 1992 defines the fisheries limit as 200 nautical miles around Gough Island and makes provision for fishing within these limits. Commercial

fishing without a licence is strictly prohibited. The objectives of this comprehensive legislation are to maintain the flora, fauna, geological, scenic and historical features of the island, and to prevent any human-induced change in these. The island is zoned into a Logistic zone (six hectares for support of the meteorological station), Marine zone, Scientific Research zones, and Conservation zone (most of the island). Other objectives include the promotion of scientific research, and to create awareness of the value and significance of Gough Island globally. A Gough Island Wildlife Reserve Advisory Committee (GIWRAC) has been established by the Tristan Natural Resources Department to advise the administrator of Tristan da Cunha on matters related to its management, and a representative visits Gough Island once a year (Cooper & Ryan, 1994). Monitoring of albatrosses is done from the Institute of African Ornithology at the University of Capetown. At the 290th meeting of the Tristan da Cunha Island Council in 2001 the whole island group was declared a whale sanctuary. The 1993 Management Plan is being updated. Little management is needed but what there is tends to be remote and discontinuous.

A Management Plan for Inaccessible Island funded by WWF-UK and supported by the government was completed in 2001. It was based on two expeditions, during 1989-90 (Cooper & Ryan, 1994) and 1999-2000. Its aims are to conserve and restore the biota, environment, scenery and historic sites, to exclude alien species and to promote research and the awareness of the island's values. The administration of both islands is by the Island Council of Tristan da Cunha, advised by a group of experts. Strict controls are maintained over access and the introduction of alien species, especially rodents, and continual monitoring is needed. Agriculture is prohibited and any construction requires a permit and can only be done at the Blendon Hall site. Tourism is restricted to the Marine zone with guide-controlled small boat landings at two points only. Fishing for rock lobster with octopus as a by-catch is controlled for sustainability and a fisheries patrol vessel helps to enforce the regulations. The fishing is mostly over the submarine plateau west of the island.

## MANAGEMENT CONSTRAINTS

The introduction of alien species is the major threat. Goats and sheep are no longer present but a danger recently publicised is of an increase in the population and size of mice due to the ease in which they are able to eat albatross chicks in the nest (BBC, 2005). All supplies to the meteorological station on Gough are carefully checked for alien fauna. In 1990, for example, 10 live exotic snail species were found in an imported cauliflower, along with aphids, caterpillars and mites, all of which were removed from the island. Alien plants originate mainly from seeds found in bird droppings, and are found around the nesting burrows on Inaccessible and in coastal areas of Gough which are trampled by penguins and seals. The major recent invasion there by procumbent pearlwort *Sagina procumbens* required an eradication program during 1999-2000 and though apparently eradicated the weed will need monitoring and containment for several years. Its introduction is ascribed to the movement of scientists between islands, such as Marion Island, where it occurs. The RSPB published a feasibility study for the eradication of house mice from Gough Island in May 2008. The eradication team suggested that containment if not eradication of alien mice by 2012 could be done by staff of the meteorological station (UNESCO, 2009; IUCN, 2008; Gremmen & Barendse, 2000). Pollution from the meteorological station is carefully controlled, and there is legislation for controlling foreign pollutants, such as foreign vessels passing through the islands' territorial waters.

There is unlicensed fishing around the Reserve, and illegal use of drift nets but the most serious new threat is the use on an industrial scale of long-line and driftnet fishing all over the southern oceans. This is killing as by-catch an increasing number of at least six species of the islands' seabirds, including three albatross species, one the critically endangered Tristan Albatross, and three petrel species amongst other seabirds. Several methods of lowering the mortality have been developed: it only remains to persuade the fishing industries to use them (Environment Australia, 1998). The numbers of northern rockhopper penguin, Tristan albatross and Gough bunting are all in decline, the latter two suffering severely from predation of their chicks by mice (IUCN Red List, 2009).

## STAFF

Two scientists from the Percy Fitzpatrick Institute of African Ornithology, University of Cape Town, South Africa, were appointed Conservation Officers by the Government of Tristan da Cunha in 1990. They have many duties, including fisheries patrol, and are empowered to arrest those disobeying the legislation set out in the Conservation of fauna and flora of Tristan da Cunha Ordinance of 1976 (Cooper & Ryan, 1994). Trained staff are needed to effectively control the alien species (IUCN, 2005).

## BUDGET

The South African Department of Environmental Affairs and Tourism, as part of its operation of the meteorological station, provides most of the management support and environmental inspection. Some project funds have been raised from the UK Foreign and Commonwealth Office (IUCN, 2005).

## LOCAL ADDRESS

The Administrator, The Residency, Tristan da Cunha, South Atlantic.

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