Agreement on the Conservation of Albatrosses and Petrels

Third Meeting of Advisory Committee

Valdivia, Chile, 19 – 22 June 2007

UKOT IBAs Tristan de Cuhna

Author: AFRICA

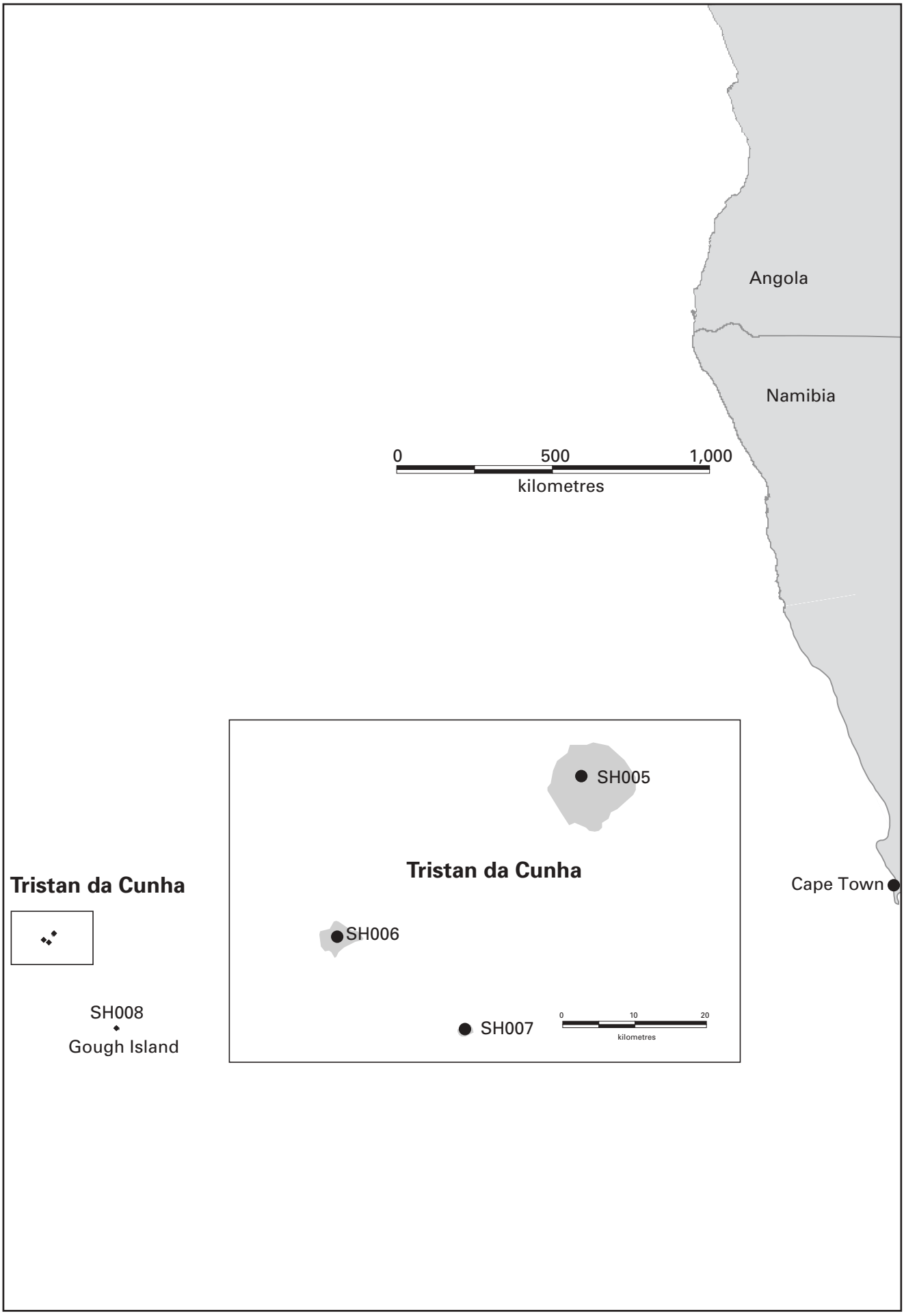
Tristan da Cunha
(including Gough Island)

Beau W. Rowlands (updated by Geoff Hilton, 2004)

Tristran from Nightingale, with a pair of Yellow-nosed Albatrosses

General introduction

The Dependency of Tristan da Cunha, which covers both the Tristan group (Tristan, Inaccessible, Nightingale, Middle and Stoltenhoff Islands) and Gough Island, has a total land area of 69 square miles (179 square km). The islands are of volcanic origin, of varying geological age and stage of erosion, the oldest rocks dating back 18 million years. However, the three largest islands all show evidence of recent activity, and therefore cannot be regarded as volcanically extinct. Isolated, the five islands of the Tristan group lie within 25 miles (40 km) of each other in the mid-South Atlantic Ocean, on similar latitudes 1,729 miles (2,782 km) from South Africa (Cape Town) and 2,453 miles (3,947 km) from South America (Mar del Plata). Gough Island lies 217 miles (350 km) to the south-south-east. Lying somewhat east of the crest of the mid-Atlantic Ridge, near its junction with the aseismic Walvis Ridge, the islands rise from a sea depth of about 3,500 m. At least 212 plant taxa have been recorded, including 35 native ferns and 58 native flowering plants. Of these, 20 fern and 34 flowering plant taxa are considered to be endemic. There are no reptiles, amphibians or freshwater fish, and there are no records, other than poultry, of introduced birds. An invertebrate fauna includes weevils and snails of particular interest, but with a relatively low number of native species. The only native breeding mammals are seals, which have been exploited in the past. Five whales – *Eubalaena glacialis*


Angola
Namibia
0
500
1,000
kilometres
SH005
Tristan da Cunha
Tristan da Cunha
Cape Town
SH006
SH007
0
10
20
kilometres
SH008
Gough Island

australis, Physeter macrocephalus, Megaptera novaeangliae, Globicephala melas and *Tasmacetus shepherdi* – occur relatively frequently, the last with regular strandings. Various species of dolphin, including *Lagenorhynchus obscurus*, are common.

The islands are a dependency of St Helena, itself a UK Overseas Territory, 1,513 miles (2,435 km) to the north-north-east. There is no air link. None is on any regular shipping lane, but there is a shipping link with Cape Town and cruise ships occasionally call. The islands are governed by an administrator appointed by the UK Foreign & Commonwealth Office, who is advised by an Island Council of eight elected and three appointed members, of whom one is chosen as Chief Islander by popular ballot. The administrator is accountable to the Governor of St Helena. One of the most isolated communities in the world, the human population in 2006 was 273 (seven family names), all on the largest and main island of Tristan but for the six non-resident members of a South African meteorological team on Gough. The Tristan settlement, Edinburgh, in the north, has some 75 homes (100 families). The community is self-sufficient in food due to the surrounding seas and to the management of the grasslands around the village and the Potato Patches (about 1.8 miles/3 km south-west) where the staple potato crop is grown. The economy is based on crayfish *Jasus tristani* (the frozen product is exported), philately (worldwide sales) and handicrafts (mainly woollen goods). The other islands are uninhabited, but there are traditional longboat trips to Nightingale Island to collect penguin and shearwater eggs, shearwater chicks and guano. About 30 wooden huts and shacks, as well as pathways, have been constructed on Nightingale for this purpose. Inaccessible Island has been visited less often since 1938 but, before then, was much more visited than Nightingale. A single research hut built on Inaccessible by the Denstone Expedition in 1982 was both demolished and replaced in January 2000. The only settlement on Gough is the meteorological station, about 10 buildings, at Transvaal Bay in the south-east of the island.

The climate of the dependency is cool temperate oceanic, but can vary locally from island to island. Lying on the edge of the West Wind Belt, the islands are under the influence of both maritime tropical (mT) and maritime polar (mP) air masses from the western South Atlantic. The pattern is dominated by the passage of often severe cyclonic storms, generated by outbursts of mP air on the Polar Front. (A storm in May 2001, with 118 mph/190 kmph winds, caused considerable disruption and damage in the Tristan settlement.) At Tristan, the prevailing winds are north-westerly to south-westerly, occasionally from the north and south, and only rarely from the east. Since the mP air is cooler than the ocean, and many fronts are occluded by the time they arrive, the weather is mostly cloudy with frontal rain. The islands also induce much orographic rainfall. In summer (October to March), the Tristan group may be influenced by the sub-tropical high-pressure cell bringing mT air with orographic cloud, fewer storms and less rain than in the winter (April to September), though summer droughts seldom exceed a few weeks. Frontal rainfall occurs throughout the year at Gough, where the mean monthly rainfall in summer is 230 mm; in winter it is 289 mm. The mean annual temperature at the Tristan settlement is 14.5ºC while, near sea level on the south-east coast of Gough, it is 11.3ºC. Tristan (settlement) has a recorded mean annual rainfall of 1,676 mm, with rain on 250 days of the year, and Gough 3,397 mm with rain on 296 days. Rainfall on the uplands of Tristan and Gough may be at least twice as heavy as that at sea level. Snow lies intermittently during the winter above about 600 m on Tristan and above about 300 m on Gough, but frosts at sea level are almost unknown on either island. The cloud base at Tristan usually lies above 600 m, but frequently descends below the Base plateau. Nightingale Island is usually cloud free, being warmer and drier than Tristan. On Inaccessible Island, orographic cloud is a common feature. At Gough the cloud base is typically between 300 m and 500 m. At all the islands it occasionally descends virtually to sea level.

The islands lie within the West Wind Drift, where the prevailing winds in the Southern Ocean impart an easterly set to the surface waters of some 8 miles (13 km) per day. The Subtropical Convergence usually lies between the Tristan group and Gough, but occasionally south of Gough. The dependency is therefore affected by both sub-Antarctic and cold temperate mixed water types. Mean sea temperatures are around 18ºC and 13ºC in summer and 13ºC and 11ºC in winter at Tristan and Gough Island, respectively.

The six islands of the dependency each have distinct topographical, floral and faunistic characteristics.

Tristan Island

Roughly circular in plan, covering 37 square miles (96 square km), with an average diameter of some 7.5 miles (12 km), Tristan is a strato-volcano made up of interbedded lavas (mainly basaltic) and pyroclastic deposits, with a central cone, the Peak, rising to 2,060 m. It is geologically the youngest in the group, about 500,000 years old. At the summit it is an unbreached crater, containing a shallow lake that is frozen in winter. The flanks are steepest near the summit, and gradients slacken to a more gently inclined area known as the Base plateau, lying between 600 m and 900 m. To seaward, the Base is truncated by precipices and cliffs, but there are discontinuous lowlands between the cliffs and the sea, the three most prominent being the Settlement Plain (5 miles by 0.6 miles/8 km by 1 km) in the north-west, Sandy Point in the east, and Stony Hill and Cave Point in the south. Numerous parasitic cones, resulting from secondary eruptions, protrude from the flanks of the Peak, the Base plateau and coastal strips. At least eight on the Base plateau are considered less than 25,000 years old. The last eruption was that of October 1961, at the eastern end of the Settlement Plain, when about 0.3 square miles (0.5 square km) of land, mostly as lava flows, was added. Seaward erosion of both the main flows and the coastal strips has produced a precipitous cliffed coastline fringed by narrow boulder beaches and rocky headlands. Two stacks – The Hardies, the higher 37m – lie about 1.8 miles (3 km) south-west of Herald Point in the

north-west. The island retains a youthful drainage system, with radially arranged flat-bottomed gorges, or 'gulches', deeply incised into the main sequence of lava flows on the Base plateau. Permanent running water is found only on the Settlement Plain, although small water bodies, including three crater lakes, exist just above 600 m.

There are five native vegetation types, clearly zoned according to altitude and topography. On the coast and up to 600 m the vegetation consists of grassland (remnants of native *Spartina arundinacea* tussock and dominant imported pasture grasses), with fern-bush (including tree-ferns *Blechnum palmiforme*) and scattered thickets of island trees *Phylica arborea.* The *Phylica* is recovering on cliffs above the Settlement Plain, following an Island Council ban on cutting. *Blechnum palmiforme* and *P. arborea* dominate the zone above, between 600 m and 750 m. Above 750 m, to about 900 m, around the lower part of the Peak, the ground is generally boggy, the tree-ferns giving way to mats of *Blechnum penna-marina* and the aliens *Rumex acetosella* and *Holcus lanatus.* Above 900 m lies a wet heath comprising extensive mats of *Empetrum rubrum* and *Rhacomitrium lanuginosum,* together with *Acaena stangii* and scattered sedges, followed by moor and feldmark vegetation (an assemblage of dwarf, cushion-forming and crevice plants) on higher slopes. Above 1,500 m, on loose cinders, is an alpine tundra of very sparse vegetation. However, *Empetrum* and bryophytes can be found in the main crater at some 2,000 m. Encircling the island is a sub-littoral zone of *Macrocystis* kelp.

The Settlement Plain has been overgrazed by sheep and cattle, the original cover virtually replaced by the imported pastures. Stony Beach is badly eroded by feral cattle, likewise Sandy Point where there is also an orchard and a conifer plantation. However, goats, pigs and possibly rabbits did not build up large, destructive feral populations, as on St Helena, the reasons for which remain obscure. Introduced rats and mice are present but feral cats have been extirpated.

Inaccessible Island

Inaccessible Island lies 25 miles (40 km) south-west of Tristan. Roughly rhomboidal in plan, it is 5.4 square miles (14 square km) in size, 3.5 miles (5.7 km) from west to east, and 2.8 miles (4.6 km) north to south. The highest part, Swales Fell, in the west, rises to 511 m. Geologically, it is the second youngest in the Tristan group, around three million years, and it is a volcanic remnant dominated by interbedded basalt flows and pyroclastic deposits that gently dip towards the north-east. Cliffs rise sheer from sea level round most of the coastline, to 300 m at South Hill. The inland plateau comprises three principal drainage systems, with numerous additional ravines and 'gulches', a shallow central basin and a few small, conical hills. Narrow boulder beaches are present at the base of most cliffs, but are wider at Salt Beach and Waterfall Beach in the north-east. Landslide material at West Point forms the only extensive, relatively flat land area at sea level. A recent bog, about 400 years old, incorporates the only area of open standing fresh water on the island. The vegetation comprises three main types. The lower slopes are blanketed with dense, uniform *Spartina* tussock-grassland, up to 2.5 m high. The western part of the plateau comprises largely *Blechnum* tree-ferns, interspersed with stunted thickets (about 1 m) of *Phylica* trees. Dense stands of taller *Phylica* (3 m or more) occur in the lower, eastern part of the plateau and at sea level at Skua Bog in the west. Scattered *Phylica* occurs elsewhere over much of the island, particularly in sheltered 'gulches'. Up to 22 species of alien flowering plants have been recorded, largely at the landing sites at Salt Beach and Blenden Hall, but seven alien species have been found on the plateau. There are no introduced mammals; pigs and goats were brought to the island in the 19th century, but no longer occur, while Inaccessible has remained free of rats and cats. Offshore are a number of stacks, of which the largest is Cave Rock on the south-east coast, reaching to about 150 m and well vegetated. The outermost, Pyramid Rock, 18 m, lies 440 m to the south-west of South Hill. Encircling the island is a sub-littoral zone of *Macrocystis* kelp. Inaccessible Island has the largest submarine plateau of all the islands.

Nightingale Island

Nightingale Island lies 24 miles (38 km) south-west of Tristan and 14 miles (22 km) south-east of Inaccessible Island. It measures 1.5 miles (2.5 km) from west to east, 1 mile (1.5 km) north to south, and covers 1.5 square miles (4 square km). It has the shape, in plan, of a squat dumb-bell, with two hill masses separated by a broad waist. High Ridge, in the east, rugged and precipitous, rises to 337 m, appearing conical when seen from the north-east or south-west. The other, 293 m, slopes gently on all but its south side. With the exception of the north-east, the coasts are precipitous and cut into deep recesses and caves. A volcanic skeleton, the island retains no trace of its original form, but a wide, shallow submerged platform to the north may mark its former extent. Much of Nightingale is composed of intrusive trachyte lavas, and these extend northwards to Middle and Stoltenhoff Islands, which are part of the same complex. A secondary centre in the south (Ned's Cave and Seahen Rocks) may have produced lavas and tuff that overlie peaty deposits, tentatively dated at 400,000 years. There are no streams or 'gulches', but in the centre are four marshy areas known as 'The Ponds', in two of which are pools of open water. The flora of the site is poor in species, due to the small size and narrow range of environments. A total of 19 species of vascular plants and 15 pteridophytes are native, and by 1968 only six alien vascular plants had been recorded. The predominant vegetation is dense *Spartina* tussock-grassland, forming almost pure stands 2–3 m in height, usually on hard fibrous peat. There are some 20 ha of *Phylica,* in small groves, which have few epiphytes, other than lichens, and a sparse understorey. Around the central swamps, and on some of adjoining gently sloping ground, meadows of hummock-forming *Scirpus bicolor* replace the *Spartina.* Kelp extends offshore in the east but there is less to the south and west. There are no introduced mammals.

Middle Island

Known also as Alex Island, Middle Island lies 100 m north to north-west of Nightingale Island. Containing the oldest rocks, it has an area of 0.2 square miles (0.5 square km) and rises to 46 m. The island is covered in *Spartina* tussock and has a few boggy areas. Pin Rock, 9 m high, lies off the north-western extremity.

Stoltenhoff Island

Known also as Stoffenberg Island, Stoltenhoff Island lies 1 mile (1.5 km) north of Nightingale Island. It is 0.08 square miles (0.2 square km) in size, and rises gradually to 99 m at its southerly point. On its westerly (windward) side, low cliffs give way to bare rock where brackish water collects. The island is otherwise covered with short *Spartina* tussock below 1 m in height, through which many rocky outcrops protrude. Only one stunted tree (*Phylica*) has been recorded. To the east, separated from the island and each other by narrow chasms, are a high narrow pinnacle and a large, vegetated stack.

Gough Island

Politically a part of the territory, Gough Island is the most complex in both terrain and structure. Gough is a basaltic shield volcano with a complex structure resulting from four main periods of volcanic activity, the last of which ceased at least 0.2 to 0.1 million years ago. More or less rectangular and 25 square miles (65 square km), it is 8 miles (13 km) in length from north-west to south-east, and over 3 miles (5 km) from south-west to north-east at its widest point. The summit, Edinburgh Peak, reaches 910 m, and the second highest point, Expedition or Gonçalo Alvarez Peak, 894 m. Both rise from a central upland of rounded hills and broad boggy plateaux, in the north-western half of the island. The northern and eastern sides of the island form a deeply dissected landscape of narrow ridges and steep-sided valleys or 'glens'. There are seven main valleys, ranging from 0.7–1.5 miles (1.2–2.5 km) in length and the ridges between them attain a rather uniform elevation of around 600 m. On the western side, the upland plateaux slope more gently down to precipices 450 m to 170 m in height. Towards the south is an undulating but thickly wooded lowland, the only area below 200 m, much of which is drained by a meandering stream behind Transvaal Bay in the south-east. The entire coastline is cliffed; of the numerous streams, only those draining The Glen (the largest of the eastern valleys), its neighbour Sophora Glen, and the southern slopes, discharge their water close to sea level. The other valleys are truncated by cliffs, over which their streams form picturesque cascades, or into which they have incised deep gullies. Boulder beaches lie beneath the cliffs. Offshore are some 20 islets, stacks and rocks, the largest of which support vascular plants and breeding birds. Most lie within 100 m of the main island, none at a distance greater than 0.6 miles (1 km). The tallest is Tristania Rock, 164 m, in the north-west, and the outermost is Penguin Island, off the north-east coast.

The vegetation exhibits marked changes with altitude in relation to climatic differences, and five types are described. At the coast it consists of tussock-grassland on the offshore stacks, sea cliffs and adjacent slopes where salt spray is regular. This is up to 300 m on the exposed west side of the island, below 100 m on the east, with *Spartina arundinacea* and *Poa* (=*Parodiochloa*) *flabellata* dominant. The endemic *Cotula goughensis* is restricted to the upper beach and coastal cliffs. Scattered *Phylica* trees also occur. Sites disturbed by marine erosion (landslips, slumps and rockslides) and trampling by seals and penguins support the greatest diversity of introduced species, including *Agrostis stolonifera, Holcus lanatus, Poa annua, Plantago lanceolata, Rumex obtusifolius, Stellaria media* and *Sonchus spp.* Native species found in these disturbed habitats include *Scirpus bicolor, Cotula goughensis, Apium australe* and *Callitriche christensenii.*

Fern bush occurs above the coastal grassland, up to about 500 m. It is better developed on the more sheltered eastern side and is most extensive on the southern coastal lowlands. The deciduous fern *Histiopteris incisa* forms the dominant climax assemblage. Fern bush is also characterised by *Phylica arborea* (canopy 2–3 m high) and *Blechnum palmiforme* (0–1 m high, up to 2 m in sheltered spots). *Sophora microphylla*, the only other woody tree on the island, is restricted to a few individuals in Sophora Glen.

Fern bush, a dynamic community, is dependent on peat slips to maintain plant diversity. Fresh slip faces are first colonised by mosses and *Scirpus bicolor,* followed by *Nertera depressa, Empetrum rubrum, Lycopodium diaphanum* and various grasses and sedges, as well as *Phylica* and *Blechnum* seedlings. As the slip site ages, *Histiopteris incisa* and *Acaena sarmentosa* appear, the former eventually dominating the area. The fern bush is a mosaic of recent and old slips, each supporting different plant assemblages. These are more open on steeper slopes, where slips are more frequent, whereas on flatter ground where slips occur less frequently, there is a preponderance of *Histiopteris*-dominated assemblages.

Wet heath occurs from the upper limit of fern bush to above 800 m in sheltered locations. It is a transitional vegetation type, with fairly short plants, less than 1 m high. Diverse, it contains species found in virtually all other vegetation types. Three assemblages are recognised, dominated by *Blechnum, Empetrum* and grasses and sedges respectively. Feldmark, a community of dwarf, cushion-forming or crevice plants, is found on exposed areas such as ridges, above 600 m. Dwarf *Empetrum rubrum, Lycopodium magellanicum, Huperzia insularis, Acaena stangii, Agrostis media, A. carmichaelii* and several sedges, mosses and lichens characterise this alpine community. Peatbogs are widespread on the level uplands above 600 m. The bogs are sodden, and are dominated by *Sphagnum* mosses and a number of hepatics. The only abundant vascular plants are *Tetronicum magellanicum* and *Scirpus spp.* However, a wider diversity occurs along bog margins, including *Empetrum rubrum* and various grasses.

Offshore, 40 species of algae are recorded, of which two are endemic. From sea level to 5 m depth, the principal species is the Bull Kelp *Durvillea antarctica*. Beyond 20 m the dominants are *Laminaria pallida* and the Giant Kelp *Macrocystis pyrifera.*

Gough was once described as the largest relatively unmodified cool temperate island ecosystem in the South Atlantic. Recent evidence suggests that the island has been colonised by many non-native species, which may be having a profound effect on the island's ecology. Of 99 pterygote insect species recorded on the island, 71 are non-native, of which 56 are established in the wild. A total of 25 out of 88 vascular plant species recorded on Gough are non-native, and several are now widespread; most are transient, requiring some form of disturbance to penetrate native vegetation. An invasive weed, *Sagina procumbens*, survived an eradication attempt in 2000 and remains a threat requiring urgent action. House Mice *Mus musculus* are the only introduced mammals, and are extremely abundant. Based on research on other sub-Antarctic islands, they are likely to have a profound effect on some native invertebrates, and consequently on nutrient recycling; they may affect recruitment of native plants. They may compete with the Gough Bunting for food. Most importantly, they appear to have evolved a predatory behaviour on Gough, and are having a major impact on the reproductive output of at least some seabird populations, and possibly also that of the Gough Bunting. There is no record of them on the offshore islets and stacks. Goats and sheep have been introduced in the past, but are no longer present. Longline fishing mortality in Tristan/Gough waters, and more widely in the Southern Oceans is a major threat to many of the seabird populations

Ornithological importance

A total of 14 species of global conservation concern occur in the territory (see the table overleaf), six of which are endemic landbirds of restricted range, whose distributions define two Endemic Bird Areas (EBAs). These are the Inaccessible Rail (VU), Tristan Thrush (NT), Grosbeak Bunting (VU) and the Tristan Bunting (VU), all confined to the Tristan group and comprising the Tristan Islands EBA (EBA 079). The Gough Moorhen (VU) and the Gough Bunting (VU) are endemic to Gough Island EBA (EBA 080).

Among the breeding seabirds, the Tristan Albatross (EN), Atlantic Yellow-nosed Albatross (EN), Spectacled Petrel (CR) and the Atlantic Petrel (VU) are endemic to the Territory, while the Rockhopper Penguin (VU), Sooty Albatross (EN), Southern Giant-petrel (VU) and the Grey Petrel (NT) are all present. The Southern Giant-petrel is now found only on Gough (extirpated on Tristan da Cunha), where it is currently the subject of a phylogenetic investigation because the population is phenotypically distinctive and may represent an endemic taxon.

The Tristan group is exceptional in having three endemic genera: rails, buntings and thrushes. The buntings are of particular interest because, as with the famous Darwin's Finches of the Galapagos Islands, they have undergone remarkable speciation, with the two species (Tristan and Grosbeak Buntings) differing markedly in size and, on Nightingale Island, co-occuring without inter-breeding. On Inaccessible Island, where they also co-occur, there are two altitudinally segregated colour-morphs of Tristan Bunting, as well as a hybrid complex involving Tristan and Grosbeak Buntings. Distinct sub-species of the Thrush are recognised from each of the three main islands.

On Tristan Island, the modification of vegetation by grazing livestock may have contributed to the extinction of the Tristan Moorhen and, locally, of the Tristan Bunting, although introduced predators (cats and rats) are expected to have had a more significant role. The Tristan Thrush is the only native landbird surviving on the island, although the population has decreased markedly since the arrival of man and his commensals. The Gough Moorhen has been introduced to Tristan from Gough (see site account, below).

On Inaccessible and Nightingale Islands, habitat destruction (by fire and the possible introduction of livestock) is a threat, but a far greater one is the accidental introduction of alien species, especially predatory mammals. The presence of rats on nearby Tristan da Cunha is a particular concern in this regard. The Inaccessible Rail is arguably the most vulnerable, being flightless (indeed, the world's smallest flightless bird), even though it occurs at high density (probably at carrying capacity) and numbers an estimated 8,400 birds. On both islands, invasive alien plants are present and have the capacity to radically alter vegetation communities; control and eradication measures for some of these are under way.

All the Tristan group's restricted-range species are found in a variety of habitats. The Grosbeak Bunting is rather rare and restricted in distribution, and tends to be associated with *Phylica* trees, but not exclusively so. The Inaccessible Rail is most common in coastal tussock-grassland away from the cliffs. On Inaccessible Island all the extant species occur, and the Inaccessible Rail is confined to the island. On Gough Island, the Gough Bunting occurs at much lower densities than Grosbeak Buntings on nearby Inaccessible, for reasons that are not clear, and are not obviously related to habitat quality. A 2000 population estimate of 400–500 pairs is substantially lower than the 1,000 pairs estimated in 1990, though the apparent decrease may well be due to differences in methodology, rather than a genuine deterioration in status. Nevertheless, introduced House Mice appear to be major nest predators of (and possibly competitors with) the Gough Bunting. The bunting is found mainly in the uplands of Gough, although the lowlands apparently provide more favourable habitat. This may be a consequence of heavy nest predation in the lowlands, possibly by mice, but perhaps by the Gough Moorhen. The Gough Moorhen appears to be fairly abundant, with a population estimate in 2000 of around 3,500–4,250 pairs.

Both of Gough's endemic landbirds are at risk from the threat of new alien predators (especially cats and rats) being introduced.

The occurrence of globally threatened and restricted-range species at Important Bird Areas on Tristan da Cunha

Important Bird Area	SH005	SH006	SH007	SH008
Species of Global Conservation Concern (A1)				
Spectacled Petrel (CR) *Procellaria conspicillata*		X		
Tristan Albatross (EN) *Diomedea dabbenena*		X		X
Atlantic Yellow-nosed Albatross (EN) *Thalassarche chlororhynchos*	X	X	X	X
Sooty Albatross (EN) *Phoebetria fusca*	X	X	X	X
Rockhopper Penguin (VU) *Eudyptes chrysocome*	X	X	X	X
Southern Giant-petrel (VU) *Macronectes giganteus*				X
Atlantic Petrel (VU) *Pterodroma incerta*	X			X
Inaccessible Rail (VU) (A2) *Atlantisia rogersi*		X		
Gough Moorhen (VU) (A2) *Gallinula comeri*	X			X
Gough Bunting (VU) (A2) *Rowettia goughensis*				X
Tristan Bunting (VU) (A2) *Nesospiza acunhae*		X	X	
Grosbeak Bunting (VU) (A2) *Nesospiza wilkinsi*		X	X	
Grey Petrel (NT) *Procellaria cinerea*	X			
Tristan Thrush (NT) (A2) *Nesocichla eremita*	X	X	X	

In addition to the endemic and globally threatened seabird populations mentioned above, both the Tristan da Cunha group and Gough are internationally important for their breeding populations of some 20 species. The seabird community comprises mainly *Procellariiformes* with sub-Antarctic affinities, although the Brown Noddy, a largely tropical species, is also present. Numbers of burrow-nesting petrels are vast, but poorly documented. The great majority of the world population of Great Shearwaters is found in the Territory, with perhaps five million breeding pairs.

Conservation infrastructure and Protected Area system

The first Protection Ordinance was passed at Tristan in 1950, with several subsequent additions. Under the Tristan da Cunha Conservation Ordinance of 1976, Gough Island and its territorial waters out to 3 nautical miles was proclaimed a wildlife reserve. This was modified by the Tristan da Cunha Conservation Ordinance (Amendment) of 1997, such that Gough Island was renamed a nature reserve and the boundary was extended to 12 nautical miles. A new Tristan da Cunha Conservation Ordinance was enacted in 2006, which declares all Rockhopper Penguin breeding colonies on Tristan as Nature Reserves. The Tristan da Cunha Fisheries Limits Ordinance of 1983, as amended in 1991, 1992 and 1997, defines the fisheries limit around Gough Island as 200 nautical miles, and makes provision for fishing

within these limits. The objectives of this comprehensive legislation are the maintenance of fauna, flora, geological, scenic and historical features of the island. Gough Island is divided into a logistic zone (6 ha for support of the meteorological station), marine zone, scientific research zones, and the conservation zone that encompasses the vast majority of the island. The Management Plan for the Gough Island Nature Reserve took effect in 1993 and was due to be amended in 2004.

Inaccessible Island was declared a nature reserve under the Tristan da Cunha Conservation Ordinance (Amendment) of 1997, including the surrounding waters up to 12 nautical miles. Under this legislation, although Tristan islanders still retain the right to collect driftwood and guano, other access is restricted and all living resources are protected. The Inaccessible Island Nature Reserve Management Plan was published by the Government of Tristan da Cunha in 2001.

While Tristan Island and the Nightingale Island group are not protected as nature reserves, they are subject to the Tristan da Cunha Conservation Ordinance as given above. During 2003–2006, a Darwin Initiative project will develop a 'Biodiversity Action Plan' for Tristan da Cunha and Nightingale.

In total, some 44% of the land area of the Tristan da Cunha dependency has been set aside for conservation.

International measures relevant for the conservation of sites

As a dependency of St Helena, Tristan da Cunha and Gough Island are included under the ratification by the UK of the Convention of Biological Diversity, CITES, the Ramsar Convention, the Convention on Migratory Species, the Convention on Climate Change, the Convention to Combat Desertification, and the World Heritage Convention. Gough Island was granted World Heritage status in December 1995, only the third British site to be so recognised for its biological value. In 2004, the World Heritage designation was extended to cover Inaccessible Island.

Overview of the inventory

A total of four Important Bird Areas (IBAs) have been included in this inventory (see the table below), covering the entire dependency and all its natural habitats (69 square miles/179 square km). The sites are Tristan Island (SH005), Inaccessible Island (SH006), Nightingale Island, together with Middle and Stoltenhoff Islands (SH007), and Gough Island (SH008). All include their offshore islets, stacks and rocks, and the marine habitat, out to 3 nautical miles in the case of Tristan and the Nightingale group, in line with the Tristan da Cunha Conservation Ordinance as given above, and 12 nautical miles for Inaccessible and Gough, following the Tristan da Cunha Conservation Ordinance (Amendment) of 1997. The sizes given in the site accounts refer, however, to land areas only.

Sites of global conservation importance

IBA code	Site name	A1	A2	A4i	A4ii	A4iii
SH005	Tristan Island	X	X	X	X	X
SH006	Inaccessible Island	X	X	X	X	X
SH007	Nightingale Island (with Middle and Stoltenhoff Islands)	X	X	X	X	X
SH008	Gough Island	X	X	X	X	X

SH005: Tristan Island

Ref number	SH005
Admin region	Tristan da Cunha
Coordinates	37°06'S 12°18'W
Area	9,600 ha
Altitude	0–2,060 m
IBA categories (details below)	A1, A2, A4i, A4ii, A4iii
Status	Unprotected

Site description

The site comprises the whole of Tristan Island and is described in the 'General introduction' to this chapter.

Birds

See the accompanying table for details of key species. Although as many as 56 bird taxa have been recorded, there are now only 13 known species of breeding seabirds and two species of resident landbirds. The seabirds include Rockhopper Penguins of the northern sub-species *moseleyi*, Atlantic Yellow-nosed Albatrosses, Sooty Albatrosses, Atlantic Petrels, Great-winged Petrels, Soft-plumaged Petrels, Broad-billed Prions, Grey Petrels, Great Shearwaters, Sooty Shearwaters, Southern (Antarctic) Skuas, Antarctic Terns and Brown Noddies. Tristan is the only known breeding site within the group of Atlantic Petrels and of Sooty Shearwaters, while numbers of Atlantic Yellow-nosed Albatrosses are the highest for any island in the Territory. Kerguelen Petrels and Little Shearwaters may also breed; there is a remote possibility that the Critically Endangered Spectacled Petrel breeds, and this requires investigation. Great-winged Petrels, Atlantic Petrels and Grey Petrels have not been proven to breed elsewhere in the Tristan group, possibly because they are winter breeders and very few ornithologists have visited the uninhabited islands during winter. There are currently an estimated 40,000 breeding pairs of seabirds, most known from the south-eastern quadrant, which has suffered least from human disturbance. The estimated breeding density is only 500 pairs per square kilometre. The terrestrial species include the restricted-range Gough Moorhen, introduced from Gough Island (SH008) in 1956 (3,000 pairs, 1993 estimate), and the Tristan Thrush, confined to this island and numbering 80 pairs in 2004.

There are more records of non-breeding visitors and vagrants on Tristan than from the other islands of the group. This is probably due to the island's larger size and permanent human presence. Also, due to persecution, there are fewer Southern Skuas to prey upon them as they arrive. Most records are from the settlement area. Seabirds include Tristan Albatrosses, Black-browed Albatrosses, Southern Giant-petrels, Northern Giant-petrels, Southern Fulmars, Cape Petrels, White-chinned Petrels, Spectacled Petrels, Great Shearwaters, Wilson's Storm-petrels, White-faced Storm-petrels and Kelp Gulls. Shorebirds and landbirds include Great Egrets, Snowy Egrets, Cattle Egrets, Purple Gallinules, White-rumped Sandpipers and Barn Swallows. The strong westerlies create favourable conditions for a crossing from South America, and this would explain the presence of gallinules and other non-breeding landbirds that have reached Tristan from that continent. The site requires much further field study, especially the southern side.

Other threatened/endemic wildlife

There are no endemic mammals. The only breeding native mammal is the sub-Antarctic Fur Seal *Arctocephalus tropicalis*, of which there is a small colony at Cave Point on the south side of the island. Elephant Seals *Mirounga leonina* haul out regularly on Tristan beaches and breed sporadically. *Eubalaena glacialis* (EN) occurs in offshore waters between September and November, but in very low numbers. Of 62 native terrestrial invertebrates recorded, only four are endemic, but further investigation of the invertebrate fauna is required. The plant *Atriplex plebeja* (*Chenopodiaceae*) (CR) is known only from Tristan da Cunha and Nightingale.

Conservation issues/threats

Protection of the birds of the Tristan group is provided for by the Tristan da Cunha Conservation Ordinance of 2006. Tristan itself, as the only inhabited island, has incurred the greatest effects of human activity. These include overgrazing by sheep, tree felling, fire and, in particular, predation by introduced mammals.

Before the arrival of man, the island may have supported 19 seabird species and four landbird species. The Tristan Albatross became extinct as a breeder between 1880 and 1907 due to excessive culling, and the Southern Giant-petrel probably became similarly extinct around 1870 due to disturbance and a decrease in its food supply, and is now only a non-breeding visitor to the Tristan group. The Southern Skua may soon also disappear as a breeding species due to persecution. The Tristan Bunting became extinct on Tristan between 1852 and 1873, probably due to the destruction of the low-lying tussock. The Tristan Moorhen is thought to have become extinct between 1873 and 1906.

Seabird populations are likely to have been massively reduced since human occupation, as a result primarily of cat and rat predation, the latter of which is ongoing. Many of the seabird populations on Tristan, such as the Atlantic Petrel, are now reduced to tiny remnants. The current status of seabird populations on Tristan da Cunha is very poorly understood. For the majority of species, there has

Key species

Criteria	Key species	Number of breeding pairs (if known)
A1	Rockhopper Penguin *Eudyptes chrysocome moseleyi*	3,860 (2004)
A1	Grey Petrel *Procellaria cinerea*	50–100 (1974)
A1, A2	Tristan Thrush *Nesocichla eremita*	50–80 (2004)
A1, A4i	Gough Moorhen (introduced) *Gallinula comeri*	2,000 (1993)
A1, A4ii	Atlantic Yellow-nosed Albatross *Thalassarche chlororhynchos*	16,000–30,000 (1974)
A1, A4ii	Sooty Albatross *Phoebetria fusca*	2,000–3,000 (1974)
A1, A4ii	Atlantic Petrel *Pterodroma incerta*	100–200 (1974)
A4i	Antarctic Tern *Sterna vittata*	50–70 (1974)
A4ii	Great-winged Petrel *Pterodroma macroptera*	1,000–3,000 (1974)
A4ii	Soft-plumaged Petrel *Pterodroma mollis*	100–500 (1974)
A4ii	Broad-billed Prion *Pachyptila vittata*	1,000–10,000 (1974)
A4iii	More than 10,000 pairs of seabirds occur regularly at this site	

been no assessment of numbers since the early 1970s. As a result, it is unclear whether declines are ongoing. Given the continued presence of rats, this seems plausible.

The south-eastern sector, which remains the largest refuge for the Tristan Thrush and seabirds, and is rarely visited, should remain a wilderness area. However, introduced mammals are likely to have as profound an effect here as elsewhere.

On Tristan, the Tristan Thrush has decreased markedly, due to overgrazing, introductions of alien plants, predation by cats and nest predation by rats. The current population is restricted largely to 'gulches' on the Base plateau. There are no accurate data on population trends, but a decrease is suggested by reports that the species no longer inhabits gulches near the Hillpiece (Settlement Plain), nor visits the settlement itself, even though in the last 25 years birds have been seen in *Phylica* above the new volcano. The genetic identity of the population is threatened by introgression from birds (other sub-species) brought over from Inaccessible and Nightingale Islands.

It is unclear whether invasive alien plants or invertebrates are having a significant effect on the native biota of Tristan da Cunha, although this is certainly a significant risk.

Overall, the current status of and threats to Tristan's biota are very poorly known, and new information is needed before effective conservation management can take place.

Further reading

See full details at end of chapter.

Broekhuysen and Macnae (1949), Brooke (1979), Christophersen (1947), Cooper *et al.* (1995), Crawford (1941, 1982, 1999), Elliott (1953, 1957), Fraser *et al.* (1994), Glass *et al.* (2000), Hagen (1952), Helyer and Swales (1998), Holdgate (1958, 1965), Richardson (1984), Rowan (1951), Rowlands (1992, 1994), Ryan *et al.* (1990), Stattersfield *et al.* (1998), Swales (1996), Swales *et al.* (1993), Tristan Natural Resources Department and RSPB (2006), Wace and Holdgate (1976).

SH006: Inaccessible Island

Ref number	SH006
Admin region	Tristan da Cunha
Coordinates	37°18'S 12°41'W
Area	1,400 ha
Altitude	0–511 m
IBA categories (details below)	A1, A2, A4i, A4ii, A4iii
Status	Nature Reserve, World Heritage Site

Site description

The site comprises the whole of Inaccessible Island and is described in the 'General introduction' to this chapter.

Birds

See the accompanying table for details of key species. At least 33 bird taxa are known. A total of 16 species of breeding seabirds and four of native landbirds occur. The seabirds include the Rockhopper Penguin, Tristan Albatross, Atlantic Yellow-nosed Albatross, Sooty Albatross, Kerguelen Petrel, Soft-plumaged Petrel, Broad-billed Prion, Spectacled Petrel, Great Shearwater, Little Shearwater, White-faced Storm-petrel, White-bellied Storm-petrel, Common Diving-petrel, Southern Skua, Antarctic Tern and the Brown Noddy. It is possible that the three Tristan Island winter breeders, the Great-winged Petrel, Atlantic Petrel and the Grey Petrel, also breed here.

The critically endangered Spectacled Petrel is, so far as is currently known, entirely restricted to Inaccessible Island when breeding. A census in 1999 estimated 3,000–4,000 pairs; they are likely to be declining because there is very high mortality on longlines. However, a census in 2004 estimated 10,000 pairs, which indicates that the population is increasing rather than declining as previously thought. The island is one of only two breeding localities for the Tristan Albatross, although the Inaccessible population has been reduced to two or three pairs.

The terrestrial species comprise the Inaccessible Rail, Tristan Thrush, Tristan Bunting and the Grosbeak Bunting.

Non-breeding visitors include the Black-browed Albatross, Southern Giant-petrel, Northern Giant-petrel, Southern Fulmar, Cape Petrel, Antarctic Prion, Sooty Shearwater, Wilson's Storm-petrel, Purple Gallinule, White-rumped Sandpiper, Kelp Gull, Arctic Tern and the Barn Swallow.

Other threatened/endemic wildlife

Almost 20% of animal taxa recorded on Inaccessible are endemic to the island, and over half are endemic to the Tristan group. The only breeding native mammal is *Arctocephalus tropicalis*. At least 39 species of native terrestrial invertebrates are known, although there are likely to be many more. Levels of endemicity are not known, but the island is particularly rich in the listroderine weevils endemic to the Tristan group as a whole. Eight plant species are recorded only from Inaccessible (including three lichens, three mosses and one liverwort), but being from little-studied taxa, these may not be true endemics. Inaccessible does support populations of 60 of the 136 plant species that are confined to the Tristan group. Two globally threatened plant species *Cotula moseleyi* (*Compositae*) (VU), and *Agrostis trachylaena* (*Gramineae*) (EN) are recorded from the island.

Conservation issues/threats

The island, including the surrounding waters up to 12 nautical miles, was declared a Nature Reserve in 1997. The Gough Island World Heritage Site was extended to cover Inaccessible Island in 2004. Perhaps its greatest value is its virtually unspoilt state. The greatest and most immediate threats are the introduction of alien predators, most notably rats, and the accidental firing of the tussock.

A number of invasive alien plants already occur. New Zealand Flax *Phormium tenax*, which has the potential to exclude native vegetation communities, was spreading around the cliff north-west of the waterfall until control efforts in 2004 removed almost all plants. The introduced grass *Holcus lanatus* and dock *Rumex obtusifolius* are both widespread on the plateau, with the former apparently having the ability to exclude native species. Other localised alien plants may cause problems in the future. There are at least 12 alien invertebrate species. Earthworms, slugs and woodlice, all formerly absent, are now widespread and abundant, with unknown effects on the ecology of the island.

Longline fishing is a major threat to some of the *Procellariiform* seabirds on the island, especially the Spectacled Petrel, Tristan Albatross, Atlantic Yellow-nosed Albatross and the Sooty Albatross. Large-scale mortality of the former two species has been recorded off the South American continental shelf near southern Brazil. Illegal fishing in the Tristan EEZ may also contribute significant mortality.

Further reading

See full details at end of chapter.

Cooper *et al.* (1995), Fraser (1983, 1989), Fraser and Briggs (1992), Fraser *et al.* (1983, 1988, 1992, 1994), Olson (1973), Richardson (1984), Rowan (1951), Rowan *et al.* (1951), Ryan (1998), Ryan and Moloney (2000), Ryan *et al.* (1990, 1994, 2001), Swales (1996), Wace and Holdgate (1976).

Key species

Criteria	Key species	Number of breeding pairs (if known)
A1	Rockhopper Penguin *Eudyptes chrysocome moseleyi*	16,000–20,000 (2004)
A1	Tristan Albatross *Diomedea dabbenena*	0–2 (2004)
A1, A2	Inaccessible Rail *Nesocichla eremita*	4,200 individuals (1982)
A1, A2	Tristan Thrush *Nesocichla eremita*	850 pairs (1990)
A1, A2	Tristan Bunting *Nesospiza acunhae*	10,000 pairs (approx), plus 1,900 hybrid pairs (approx) with *N. wilkinsi,* 1990 estimate
A1, A2	Grosbeak Bunting *Nesospiza wilkinsi*	2,000 pairs, 1990 estimate
A1, A4ii	Spectacled Petrel *Procellaria conspicillata*	10,000 (2004)
A1, A4ii	Atlantic Yellow-nosed Albatross *Thalassarche chlororhynchos*	2,000 (2004)
A1, A4ii	Sooty Albatross *Phoebetria fusca*	500 (2004)
A4i	Antarctic Tern *Sterna vittata*	100 (1999)
A4ii	Soft-plumaged Petrel *Pterodroma mollis*	10,000–100,000 (1999)
A4ii	Broad-billed Prion *Pachyptila vittata*	50,000–500,000 (1987)
A4ii	Great Shearwater *Puffinus gravis*	2,000,000 (1999)
	Little Shearwater *Puffinus assimilis*	5,000–50,000 (1987)
	White-faced Storm-petrel *Pelagodroma marina*	5,000–50,000 (1987)
	White-bellied Storm-petrel *Fregetta grallaria*	50,000–500,000 (1999)
A4iii	More than 10,000 pairs of seabirds occur regularly at this site	

SH007: Nightingale Island group

Ref number	SH007
Admin region	Tristan da Cunha
Coordinates	37°24'S 12°29'W
Area	390 ha
Altitude	0–337 m
IBA categories (details below)	A1, A2, A4i, A4ii, A4iii
Status	Unprotected

Site description

The site comprises the whole of Nightingale Island as well as Middle and Stoltenhoff Islands and the offshore islets and stacks, which are as described in the 'General introduction' to this chapter.

Birds

See the accompanying table for details of key species. At least 30 bird taxa are known. A total of 13 species of breeding seabird and three of the native landbird occur. The seabirds comprise Rockhopper Penguins, Atlantic Yellow-nosed Albatrosses, Sooty Albatrosses, Soft-plumaged Petrels, Broad-billed Prions, Great Shearwaters, Little Shearwaters, White-faced Storm-petrels, White-bellied Storm-petrels, Common Diving-petrels, Southern Skuas, Antarctic Terns and Brown Noddies. The breeding population of Great Shearwaters is the largest known and at the highest density in the world, with an estimated one million pairs per square kilometre. Kerguelen Petrels may also breed. The terrestrial species include the Tristan Thrush, the Tristan Bunting and the Grosbeak Bunting.

Non-breeding visitors include Black-browed Albatrosses, Southern Giant-petrels, Northern Giant-petrels, Southern Fulmars, Cape Petrels, White-chinned Petrels, Spectacled Petrels and Kelp Gulls.

Other threatened/endemic wildlife

The only breeding native mammal is *Arctocephalus tropicalis*. At least 31 species of native terrestrial invertebrates are known. These include five endemic listroderine weevils and seven of endemic drosophilid *Scaptomyza*. Two globally threatened plants *Cotula moseleyi* (*Compositae*) (VU) and *Agrostis trachylaena* (*Gramineae*) (EN) are recorded.

Conservation issues/threats

The site has been less affected by alien animals than the other sites, and no alien vertebrates have become established. Besides the annual harvest by Tristan islanders of the eggs of Rockhopper Penguins and the eggs and chicks of Great Shearwaters, of which the annual toll is not high, the remaining seabirds are little affected. The introduction of mammalian predators and tussock fires are the principal threats, while the recent die-back of trees, possibly caused by an introduced fungal pathogen, is being investigated but is, potentially, serious for the Grosbeak Bunting.

The presence of several alien plants, including *Phormium tenax*, gives some cause for concern, although actions to reduce this threat have commenced. The presence and impact of introduced invertebrates is not known.

As with all sites in the Territory, longline fishing, both in the EEZ and in other marine areas, is a major threat to several *Procellariiform* seabirds.

Further reading

See full details at end of chapter.

Broekhuysen (1948), Cooper *et al.* (1995), Fraser *et al.* (1994), Hydrographer of the Navy (1977), Richardson (1984), Rowan (1951, 1952), Ryan *et al.* (1990), Wace and Holdgate (1976).

Key species

Criteria	Key species	Number of breeding pairs (if known)
A1, A4ii	Rockhopper Penguin *Eudyptes chrysocome moseleyi*	125,000 (approx) (1974)
A1, A2	Tristan Thrush *Nesocichla eremita*	300–500 pairs, 1974 estimate
A1, A2	Tristan Bunting *Nesospiza acunhae*	5,000 pairs, 1990 estimate
A1, A2	Grosbeak Bunting *Nesospiza wilkinsi*	50 pairs, 1990 estimate
A1, A4ii	Atlantic Yellow-nosed Albatross *Thalassarche chlororhynchos*	4,500 (approx) (1974)
A1, A4ii	Sooty Albatross *Phoebetria fusca*	100–200 (1974)
A4i	Antarctic Tern *Sterna vittata*	100–300 (1974)
A4ii	Soft-plumaged Petrel *Pterodroma mollis*	100–1,000 (1974)
A4ii	Broad-billed Prion *Pachyptila vittata*	10,000–100,000 (1974)
A4ii	Great Shearwater *Puffinus gravis*	3,000,000 (approx) (1990)
	White-faced Storm-petrel *Pelagodroma marina*	1,000–10,000 (1974)
	White-bellied Storm-petrel *Fregetta grallaria*	100–1,000 (1974)
A4ii	Southern Skua *Catharacta antarctica*	100–500 (1974)
A4iii	More than 10,000 pairs of seabirds occur regularly at this site	

SH008: Gough Island

Ref number	SH008
Admin region	Tristan da Cunha
Coordinates	40°21'S 09°53'W
Area	6,500 ha
Altitude	0–910 m
IBA categories (details below)	A1, A2, A4i, A4ii, A4iii
Status	Nature Reserve, World Heritage Site

Site description

The site comprises the whole of Gough Island as well as the offshore islets and stacks, and is described in the 'General introduction' to this chapter.

Birds

See the accompanying table for details of key species. The site has been described as 'a strong contender for the title most important seabird colony in the world'. As many as 54 bird taxa are recorded, of which 20 are non-breeding seabirds and two are endemic landbirds. The breeding seabirds include Rockhopper Penguins (about 48% of the world population), Tristan Albatrosses, Atlantic Yellow-nosed Albatrosses, Sooty Albatrosses, Southern Giant-petrels, Kerguelen Petrels, Great-winged Petrels, Soft-plumaged Petrels, Atlantic Petrels, Broad-billed Prions, Grey Petrels, Great Shearwaters, Little Shearwaters, Grey-backed Storm-petrels, White-faced Storm-petrels, White-bellied Storm-petrels, Common Diving-petrels (>20,000 pairs), Southern Skuas, Antarctic Terns and Brown Noddies. The island holds well over 90% of the world population of Tristan Albatrosses and Atlantic Petrels. The terrestrial species are the Gough Moorhen and the Gough Bunting.

Non-breeding visitors include the Black-browed Albatross, Northern Giant-petrel, Southern Fulmar, Cape Petrel, Antarctic Prion, White-chinned Petrel, Sooty Shearwater, Wilson's Storm-petrel, Black-bellied Storm-petrel, Cattle Egret and the Kelp Gull.

Other threatened/endemic wildlife

Arctocephalus tropicalis (200,000 individuals and increasing) and *Mirounga leonina* (about 100 individuals) are the only two native breeding mammals. Several hundred freshwater and terrestrial invertebrates have been recorded. Among winged insects, only 28 species out of 99 recorded are thought to be native, of which at least eight are endemic, while 14 are native to the territory as a whole. Of 63 recorded vascular plant species, three grasses *Agrostis goughensis, Deschampsia robusta* and *D. wacei* and one dicot, *Cotula goughensis,* are endemic. A further 25 vascular plant species are endemic to the Tristan group.

Conservation issues/threats

In 1976 Gough Island was declared a Wildlife Reserve, and in 1997 it was renamed a Nature Reserve and its boundaries were extended to 12 nautical miles. It was listed as a World Heritage Site in 1995.

The only introduced vertebrate is the House Mouse *Mus musculus.* Recent evidence from other islands suggests that this species can have profound effects on invertebrate populations, plant population dynamics and nutrient cycling in sub-Antarctic ecosystems. Perhaps even more importantly, new evidence from Gough shows that the species has evolved to become a major predator of *Procellariiform* seabird chicks. Predation on the Tristan Albatross, Great Shearwater and Atlantic Petrel has been confirmed to date, but probably extends much more widely. There may also be substantial predation on and competition with the Gough Bunting. Mice are therefore thought to be having a major impact on Gough's terrestrial biota.

Introduction of other vertebrates, most notably rats, would be catastrophic.

There are numerous introduced invertebrate species, which may be having a profound effect on the island's ecology. Relatively few invasive alien plants are known, but *Sagina procumbens,* having survived an eradication attempt in 1999, has the potential to spread and cause substantial damage.

As with other islands in the group, longline fishing is a major threat to several of the *Procellariiform* seabirds.

New evidence suggests that the population of Rockhopper Penguins has declined substantially since the 1950s, in common with populations elsewhere in the range. The causes of this are unknown.

Further reading

See full details at end of chapter.

Broekhuysen and Macnae (1949), Cooper and Ryan (1994, 1995), Cuthbert *et al.* (2004), Cuthbert and Sommer (2004), Glass *et al.* (2000), Holdgate (1958), Hydrographer of the Navy (1977), Olson (1973), Richardson (1984), Ryan *et al.* (2001), Stattersfield *et al.* (1998), Swales (1965), Wace and Holdgate (1976), Watkins and Furness (1986).

Key species

Criteria	Key species	Number of breeding pairs (if known)
A1	Southern Giant-petrel *Macronectes giganteus*	222–236 (2005)
A1, A4ii	Rockhopper Penguin *Eudyptes chrysocome moseleyi*	30,000 (2004)
A1, A4ii	Tristan Albatross *Diomedea dabbenena*	1,500–2,400* (2001)
A1, A4ii	Atlantic Yellow-nosed Albatross *Thalassarche chlororhynchos*	5,250 (2001)
A1, A4ii	Sooty Albatross *Phoebetria fusca*	5,000 (2001)
A1, A4ii	Atlantic Petrel *Pterodroma incerta*	1,800,000 (2001)
A1, A2	Gough Bunting *Rowettia goughensis*	700–1,000, 2000/01 estimate
A1, A2, A4i	Gough Moorhen *Gallinula comeri*	3,500–4,250 (2001)
A4i	Antarctic Tern *Sterna vittata*	500 (2001)
A4ii	Kerguelen Petrel *Pterodroma brevirostris*	>50,000 (2001)
A4ii	Great-winged Petrel *Pterodroma macroptera*	>10,000 (2001)
A4ii	Soft-plumaged Petrel *Pterodroma mollis*	400,000 (2001)
A4ii	Broad-billed Prion *Pachyptila vittata*	1,750,000 (2001)
A4ii	Grey Petrel *Procellaria cinerea*	>10,000 (2001)
A4ii	Great Shearwater *Puffinus gravis*	980,000 (2001)
A4ii	Little Shearwater *Puffinus assimilis*	>5,000 (2001)
A4ii	Grey-backed Storm-petrel *Garrodia nereis*	1,000–10,000 (1974)
A4ii	White-faced Storm-petrel *Pelagodroma marina*	>10,000 (1994)
A4ii	White-bellied Storm-petrel *Fregetta grallaria*	>10,000 (1994)
A4ii	Southern Skua *Catharacta antarctica*	1,000 (2001)
A4iii	More than 10,000 pairs of seabirds occur regularly at this site	

* Represents number of pairs breeding each year in this biennially breeding species.

References

Broekhuysen, G. J. (1948) Observations on the Great Shearwater in the breeding season. *British Birds* 41(11): 338–41.

Broekhuysen, G. J. and Macnae, W. (1949) Observations on the birds of the Tristan da Cunha islands and Gough Island in February and early March 1948. *Ardea* 37: 97–113.

Brooke, R. K. (1979) Some mid-XIX century bird collections from Tristan da Cunha. *Cormorant* 7: 24–6.

Christophersen, E. (1947) A short account of the expedition. *Results of the Norwegian Scientific Expedition to Tristan da Cunha 1937–1938* 1: 1–24.

Cooper, J. and Ryan, P. G. (1994) *Management plan for the Gough Island Wildlife Reserve.* Edinburgh, Tristan da Cunha: Government of Tristan da Cunha.

Cooper, J. and Ryan, P. G. (1995) Conservation status of Gough Island. In P. R. Dingwall, ed., *Progress in the conservation of the Subantarctic Islands.* Gland and Cambridge, UK: International Union for Conservation of Nature and Natural Resources: 71–84.

Cooper, J., Ryan, P. G. and Andrew. T. G. (1995) Conservation status of the Tristan da Cunha Islands. In P. R. Dingwall, ed., *Progress in the conservation of the Subantarctic Islands.* Gland and Cambridge, UK: International Union for Conservation of Nature and Natural Resources: 59–70.

Crawford, A. B. (1941) *I went to Tristan.* London: Hodder & Stoughton.

Crawford, A. B. (1982) *Tristan da Cunha and the Roaring Forties.* Edinburgh and London: Charles Skilton Ltd. Cape Town: David Philip.

Crawford, A. B. (1999) *Penguins, potatoes & postage stamps – a Tristan da Cunha chronicle.* Oswestry, UK: Anthony Nelson.

Cuthbert, R., Sommer, E., Ryan, P., Cooper, J. and Hilton, G. (2004) Demography and conservation of the Tristan Albatross *Diomedea [exulans] dabbenena. Biological Conservation* 117: 471–81.

Cuthbert, R. J. and Sommer, E. (2004) *Gough Island bird monitoring manual.* RSPB Research Report 5. Sandy, UK: The Royal Society for the Protection of Birds.

Elliott, H. F. I. (1953) The fauna of Tristan da Cunha. *Oryx* 2: 41–53.

Elliott, H. F. I. (1957) A contribution to the ornithology of the Tristan da Cunha group. *Ibis* 99: 545–86.

Fraser, M. W. (1983) The Denstone Expedition to Inaccessible Island. *Cormorant* 11: 69–73.

Fraser, M. W. (1989) The Inaccessible Island Rail, smallest flightless bird in the world. *African Wildlife* 43: 14–19.

Fraser, M. W. and Briggs, D. J. (1992) New information on the *Nesospiza* buntings at Inaccessible Island, Tristan da Cunha, and notes on their conservation. *Bulletin of the British Ornithological Club* 112: 12–22.

Fraser, M. W., Dean, W. R. J. and Best, J. C. (1992) Observations on the Inaccessible Island Rail *Atlantisia rogersi*: the world's smallest flightless bird. *Bulletin of the British Ornithological Club* 112: 12–22.

Fraser, M. W., Ryan, P. G. and Watkins, B. P. (1988) The seabirds of Inaccessible Island, South Atlantic Ocean. *Cormorant* 16: 7–33.

Fraser. M., Gilfillan, D., Hall, N., Holt, R., Mateer, N., Preece, R., Siddall, C., Swales, M., Woolley, J. and Dowsett, D. (1983) In *Denstone Expedition to Inaccessible Island. Denstonian Supplement.* Uttoxeter: Denstone Expeditions Trust, Denstone College:1–60.

Fraser, M. W., Ryan, P. G., Dean, W. R. J., Briggs, D. J. and Moloney, C. L. (1994) Biology of the Tristan Thrush *Nesocichla eremita. Ostrich* 65: 14–25.

Glass, N., Lavarello, I., Glass, J. P. and Ryan, P. G. (2000) Longline fishing at Tristan da Cunha: impacts on seabirds. *Atlantic Seabirds* 2(2): 49–56.

Hagen, Y. (1952) Birds of Tristan da Cunha. *Results of the Norwegian Scientific Expedition to Tristan da Cunha 1937–1938* 20: 1–248.

Helyer, P. and Swales, M. (1998) *Bibliography of Tristan da Cunha.* Oswestry, UK: Anthony Nelson.

Holdgate, M. W. (1958) *Mountains in the sea. The story of the Gough Island Expedition.* London: Macmillan.

Holdgate, M. W. (1965) The fauna of the Tristan da Cunha islands. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences* 249: 361–424.

Hydrographer of the Navy (1977) *Africa Pilot* Vol 2 (12th edn), corrected to 29 April 1989. Taunton, UK: Ministry of Defence.

Olson, S. L. (1973) Evolution of the rails of the South Atlantic islands (*Aves Rallidae*). *Smithsonian Contributions to Zoology* 152: 1–53.

Richardson, M. E. (1984) Aspects of the ornithology of the Tristan da Cunha group and Gough Island, 1972–1974. *Cormorant* 12: 122–201.

Rowan, A. N., Elliott, H. F. I. and Rowan, M. K. (1951) The 'spectacled' form of the Shoemaker *Procellaria aequinoctialis* in the Tristan da Cunha group. *Ibis* 93: 169–74.

Rowan, M. K. (1951) The Yellow-nosed Albatross *Diomedea chlororhynchos Gmelin* at its breeding grounds in the Tristan da Cunha group. *Ostrich* 22: 139–55.

Rowan, M. K. (1952) The Greater Shearwater *Puffinus gravis* at its breeding ground. *Ibis* 94: 97–121.

Rowlands, B. W. (1992) Seabird observations between Ascension, St Helena and Tristan da Cunha in the central South Atlantic. *Marine Ornithology* 20: 25–42.

Rowlands, B. W. (1994) A seabirding cruise to Tristan da Cunha, 20 January to 2 February 1993. *Sea Swallow* 45: 64–8.

Ryan, P. G. (1998) The taxonomic and conservation status of the Spectacled Petrel *Procellaria conspicillata. Bird Conservation International* 8: 223–35.

Ryan, P. G. and Moloney, C. L. (2000) The status of Spectacled Petrels (*Procellaria conspicillata*) and other seabirds at Inaccessible Island. *Marine Ornithology* 28: 93–100.

Ryan, P. G., Cooper, J. and Glass, J. P. (2001) Population status, breeding biology and conservation of the Tristan Albatross *Diomedea (exulans) dabbenena. Bird Conservation International* 11: 35–48.

Ryan, P. G., Moloney, C. L. and Hudon, J. (1994) Color variation and hybridization among *Nesospiza* buntings on Inaccessible Island, Tristan da Cunha. *Auk* 111(2): 314–27.

Ryan, P. G., Dean, W. R. J., Moloney, C. L., Watkins, B. P. and Milton, S. J. (1990) New information on seabirds at Inaccessible Island and other islands in the Tristan da Cunha group. *Marine Ornithology* 18: 43–54.

Stattersfield, A. J., Crosby, M. J., Long, A. J. and Wege, D. C. (1998) *Endemic bird areas of the world. Priorities for biodiversity conservation.* Cambridge, UK: BirdLife International.

Swales, M. K. (1965) The sea-birds of Gough Island. *Ibis* 107: 17–42, 215–29.

Swales, M. K. (1996) Tristan da Cunha. *Islander* 2: 2–4.

Swales, M., Whirledge, C., Woolley, J. and Wright, S. (1993) In *Denstone Expedition to Inaccessible Island. Denstonian Supplement.* Uttoxeter, UK: Denstone Expeditions Trust, Denstone College.

Tristan Natural Resources Department and RSPB (2006) *Biodiversity Action Plan for Tristan da Cunha*. Royal Society for the Protection of Birds, Sandy, Bedfordshire.

Wace, N. M. and Holdgate, M. W. (1976) Man and nature in the Tristan da Cunha islands. *International Union for the Conservation of Nature Monograph* 6: 1–114.

Watkins, B. P. and Furness, R. W. (1986) Population status, breeding and conservation of the Gough Moorhen. *Ostrich* 57: 32–6.

Further reading

Bester, M. N., Moller, H., Wium, J. and Enslin, B. (2001) Tristan Island: an update on the status of Southern Elephant Seals at Gough Island. *South African Journal of Wildlife Research* 31: 68–71.

Collar, N. J., Crosby, M. J. and Stattersfield, A. J. (1994) *Birds to watch 2. The world list of threatened birds.* Cambridge, UK: BirdLife International (BirdLife Conservation Series no. 4).

Cuthbert, R. (2004) Breeding biology of the Atlantic Petrel, *Pterodroma incerta*, and a population estimate of this and other burrowing petrels on Gough Island, South Atlantic Ocean. *Emu* 104: 221–8.

Cuthbert, R. and Hilton, G. (2004) Introduced House Mice *Mus musculus*: a significant predator of threatened and endemic birds on Gough Island, South Atlantic Ocean? *Biological Conservation* 117: 483–9.

Cuthbert, R., Ryan, P. G., Cooper, J. and Hilton, G. (2003) Demography and population trends of the Atlantic Yellow-nosed Albatross. *Condor* 105: 439–52.

Cuthbert, R. J. and Sommer, E. S. (2004) Population size and trends of four globally threatened seabirds. *Marine Ornithology* 24.

Cuthbert, R. J., Phillips, R. A. and Ryan, P. G. (2003) Separating Tristan Albatrosses and Wandering Albatrosses using morphometric measurements. *Waterbirds* 26: 338–44.

Cuthbert, R. J., Hilton, G. M., Ryan, P. G. and Tuck, G. (2005) At-sea distribution of the Tristan Albatross *Diomedea dabbenena* and the relationship with pelagic longline fishing in the South Atlantic Ocean. *Biological Conservation* 121: 345–55.

Elix, J. A. and Gremmen, N. J. M. (2002) The lichen family *Parmeliaceae* (*Ascomycotina*) on Gough Island, South Atlantic Ocean. *Mycotaxon* 81: 257–64.

Gaston, K. J., Jones, A. G., Hanel, C. and Chown, S. L. (2003) Tristan Island: rates of species introduction to a remote oceanic island. *Proceedings of the Royal Society of London, Series B: Biological Sciences* 270: 1091–8.

Johnstone, G. W., Shaughnessy, P. D. and Conroy, J. W. H. (1976) Giant-petrels in the South Atlantic: new data from Gough Island. *South African Journal of Antactic Research* 6: 19–22.

Jones, A. G., Chown, S. L. and Gaston, K. J. (2002) Tristan Island: terrestrial invertebrates of Gough Island: an assemblage under threat? *African Entomology* 10: 83–91.

Jones, A. G., Chown, S. L. and Gaston, K. J. (2003) Tristan Island: introduced House Mice as a conservation concern on Gough Island. *Biodiversity and Conservation* 12: 2107–19.

Jones, A. G., Chown, S. L., Ryan, P. G., Gremmen, N. J. M. and Gaston, K. J. (2003) A review of conservation threats on Gough Island: a case study for terrestrial conservation in the Southern Oceans. *Biological Conservation* 113: 75–87.

Klimaszewski, J., Maus, C. and Gardiner, A. (2002) The importance of tracking introduced species: new records of Athetine Rove Beetles from South Atlantic Inaccessible Island *(Coleoptera, Staphylinidae, Aleocharinae). Coleopterists Bulletin* 56(4): 481 – 490.

Marshall, D. J. and Chown, S. L. (2003) Marine *hyadesiid* mites from Gough Island. *Hydrobiologia* 495: 119–26.

Preece, R. C. and Gittenberger, E. (2003) Systematics, distribution and ecology of Balea (= *Tristania*) (*Pulmonata: Clausiliidae*) in the islands of the Tristan–Gough group. *Journal of Molluscan Studies* 69: 329–48.

Preece, R. C. (2001) Tristan Island: introduced land molluscs on the islands of the Tristan da Cunha–Gough group (South Atlantic). *Conchol* 37: 253–9.

Ryan, P. G. (2001) Morphological heritability in a hybrid bunting complex: *Neospiza* at inaccessible island. *Condor* 103: 429–38.

Ryan, P. G. and Glass, J. P. (2001) Inaccessible Island Nature Reserve Management Plan. Edinburgh, Tristan da Cunha: Government of Tristan da Cunha.

Ryan, P. G. and Moloney, C. L. (2002) Breeding behaviour, clutch size and egg dimensions of *Neospiza* buntings at Inaccessible island, Tristan da Cunha. *Ostrich* 73: 52.

Ryan, P. G. (2006) *Inaccessible Island bird monitoring manual*. RSPB research report no. 16. Royal Society for the Protection of Birds, Sandy, Bedfordshire.

Acknowledgements

The site accounts and introductory sections in this chapter were compiled from information gained locally, and sources supplied by the library at BirdLife International, Cambridge, in particular Christine Alder. Lincoln Fishpool reviewed the first draft of the inventory. Selection of IBAs was made in consultation with Michael K. Swales, a member of the Gough Island Scientific Survey Expedition of 1955–56, who also led the Denstone Expeditions to Inaccessible Island in 1982–83 and Tristan da Cunha in 1993. John Cooper and Peter Ryan also commented upon the inventory and provided additional information. Geoff Hilton updated the text in 2004, using information provided in particular by Richard Cuthbert, Erica Sommer, Ross Wanless and Andrea Angel.