Biodiversity Action Plan for the Tristan da Cunha islands

The RSPB and the Tristan Conservation Department
Biodiversity Action Plan for the
Tristan da Cunha islands
(2012-2016)

Funded by OTEP

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Foreword from the Island Council and Conservation Department

The Island Council and Conservation Department welcome this updated Biodiversity Action Plan for Tristan da Cunha to guide our efforts to protect our islands and their unique biodiversity.

It is recognised that no single organisation will be able to carry out all of the work needed and the people of Tristan look forward to working in partnership with many individuals and organisations to implement this plan by 2016.

Our thanks go to the many people who have taken the time to attend planning meetings or have commented on previous drafts of this document.

Ian Lavarello  Head Islander  Trevor Glass  Head of Conservation

1: The Tristan Darwin Team, on Nightingale Island (photo: Matthew Green)
Foreword from the Administrator

I have been fortunate enough to spend the last two years working and living in this unique part of the world, home to globally important populations of seabirds, land birds, plants, invertebrates and diverse marine life. During my time on Tristan da Cunha I have been privileged to work with a number of individuals from Tristan and elsewhere who care deeply about the conservation of Tristan’s biodiversity. They have all contributed to this updated Biodiversity Action Plan which will provide a framework for conservation priorities over the next five years.

The grounding of the bulk carrier MS Oliva in March 2011 graphically illustrated the fragility of Tristan’s biodiversity and it could be many years before we know the true extent of the impacts of the oil and cargo spill on the marine environment. Not only did this terrible accident have an impact on the penguin population but it also threatened the rock lobster fishery, the backbone of the Tristan economy and therefore threatened the sustainability of an entire community. The people of Tristan value their natural environment and wildlife and appreciate the importance of conserving biodiversity. Their phenomenal response to this Oliva disaster was recognised by the RSPB who this year awarded the entire community with the RSPB medal.

Over the last five years the Tristan government has, with the help of its many friends, taken great steps to put biodiversity issues further up the agenda. Some tangible examples include; forming a standalone conservation department that has taken forward projects sponsored under the Darwin initiative, OTEP and JNCC. It now carries out annual monitoring of seabirds on Nightingale and Tristan and has produced management plans for the World Heritage sites of Inaccessible and Gough Islands. In 2011 the Tristan fishery was awarded MSC (Marine Stewardship Council) accreditation, demonstrating that we have a well managed and sustainable fishery.

None of this could have been possible without the dedication of the Tristan community who has worked closely with a number of partners over the last few years including; RSPB, JNCC, OTEP, Mohammed Bin Zayed, Tristan Biodiversity Advisory Group, UCT, our fishing concessionaire Ovenstone and a number of individuals. Our thanks go to all these partners as well as to the Royal Zoological Society of Scotland who provided us with the RIB ‘Arctic Tern’ and to the Calgary Zoological Society who have provided a Landrover. Resources are very limited on Tristan and these donations will ensure that the conservation department can carry out its work on the islands.

Finally I would like to thank the Tristan government heads of department who worked in close collaboration with the conservation department and RSPB to pull this updated Plan together on island. It is a thorough and detailed piece of work, which has been carried out in collaboration with some of our partners overseas in the UK and South Africa. It is our guide on biodiversity priorities for the next few years. Our responsibility now is to ensure that the Plan is incorporated into the day to day work of government and the way it develops its future plans and policies.

Sean Burns
Administrator

October 2012
Acknowledgements

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Much of the recent information on the wildlife of Tristan da Cunha was the result of fieldwork carried out by the Conservation Department and Darwin Team: James Glass, Norman Glass, Simon Glass, Trevor Glass, Warren Glass, Jeremy Green, Matthew Green, Patrick Green, Rodney Green, Clifton Repetto, Eugene Repetto, Julian Repetto, Graham Rogers, Frank Swain, George Swain and Wayne Swain.

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Note on terminology

Throughout this document:

Tristan da Cunha usually refers to all the islands in the Tristan-Gough archipelago or group. This comprises the Main Island of Tristan, Gough Island, Inaccessible Island, Nightingale Island, Middle (or Alex) Island, Stoltenhoff Island and the islets belonging to any of these islands. All these islands are also collectively referred to as the Tristan islands or the Tristan group.

The top islands refers to Tristan, Nightingale and Inaccessible Islands (and their islets).

The Nightingale Island group refers to Nightingale Island, Middle (or Alex) Island, Stoltenhoff Island and their islets.

Tristan Island refers to the main island of Tristan. Occasionally this island is referred to by its full name of Tristan da Cunha.

Tristan can refer exclusively to the main island of Tristan or to the territory of Tristan da Cunha, for example when referenced in relation to the Tristan Island Council, Tristan Government, but this should be clear from the context.
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Introduction

Since the 1992 Earth Summit in Rio de Janeiro there has been much talk about biodiversity and the urgent need to conserve it. Twenty years on, and at the start of the United Nations’ ‘Decade on Biodiversity’ (2011-2020) with its aim of significantly reducing biodiversity loss, this need is all the more pertinent. Tristan da Cunha is one of the world’s smallest ‘nations’, but its wildlife (including millions of seabirds and many endemic species) represents a significant part of the United Kingdom’s, and the world’s, biodiversity.

Much work has already been carried out in order to protect Tristan da Cunha’s wildlife, and over the past five years an increasing proportion of this work has been undertaken by Tristanians. This was admirably demonstrated by the dedicated efforts of the Conservation Department’s Darwin Team and whole community following the grounding of the MS Oliva in March 2011. Particular progress has been made in the last five years in improving understanding of the marine environment around the Tristan islands. This work underpinned a successful bid for Marine Stewardship Council certification for the Tristan Rock Lobster fishery.

However, the concept of long-term planning is still relatively new to Tristan da Cunha, and this plan has been prepared whilst the Tristan government has been in the process of implementing an overall government strategy, the Strategic Sustainable Development Plan (SSDP) (2009), with key objectives to be achieved by 2016. The SSDP is currently being updated and the Tristan da Cunha Biodiversity Action Plan 2012-2016 will form an important part of the final plan.

This updated action plan gives an overview of the present status of the biodiversity of Tristan da Cunha, and the actions planned to manage it effectively for the next five years 2012-2016. It will not be possible for the Tristan da Cunha Government or its citizens alone to implement all the actions set out in the plan and some external assistance (human and financial) will be required.

Tristan is responsible for the Gough and Inaccessible Islands World Heritage Site. Management plans have already been published for Gough and Inaccessible, and a management plan for Nightingale is being prepared. The present plan forms an ‘umbrella’ for all of these plans, and to a large extent will continue to function as the Tristan management plan covering areas and actions not included in the other plans. Hence many of the actions are focused on the main island of Tristan – actions specific to the other three main islands are covered within their management plans.

Tristan da Cunha’s natural environment underpins the quality of life for residents on Tristan, the world’s most isolated island community. Residents understand the need to live in harmony with nature as livelihoods depend on using natural resources wisely, and they take seriously their responsibilities for preserving a healthy environment on Tristan and its islands. The biodiversity of Tristan da Cunha is precious to islanders and enriches the entire world community and its long-term protection, maintaining the global biodiversity of life remains a high priority for the Tristan community.
Vision

To enable the people of Tristan da Cunha, in partnership with organisations from around the world and particularly in the UK and South Africa, to conserve their globally important and unique biodiversity for the benefit of current and future generations.

2: View from Nightingale (photo: Katrine Herian)
Goal and Objectives

Overall Goal

The overall goal is to conserve the native biological diversity of Tristan da Cunha so that the people of Tristan da Cunha continue to benefit from it and the entire world community is enriched by it.

To this end, the plan seeks to halt, and in some cases reverse, the rate of biodiversity decline on Tristan da Cunha.

The plan will enable the people of Tristan da Cunha to contribute actively to the conservation of biodiversity on their islands and to benefit from it.

Objectives

The Plan has the following main objectives:

1. Conservation is integrated into all Government programmes, policies and plans (both those of Tristan Government and those of the UK that affect Tristan),

2. Support for biodiversity conservation is strengthened on Tristan,

3. Tristanians have the capacity to manage biodiversity effectively,

4. The impact of invasive alien species is reduced or eliminated,

5. The sustainable use and management of the marine environment is enhanced, and

6. The knowledge of Tristan’s key habitats and species is increased.

The next section describes the sub-objectives and planned activities under each main objective. An activity table at the end of the section indicates the timeframe and responsibility.

The UK Government has ratified the Convention on Biological Diversity (CBD) on behalf of Tristan and this plan will assist in meeting its requirements. The Government of Tristan da Cunha has signed an Environment Charter agreement with the UK Government to outline the way forward for the protection of the environment throughout the Tristan-Gough archipelago. The actions within this plan have been cross-referenced to the commitments in the Environment Charter and to the Aichi Targets developed under the CBD.
Objective 1. Conservation is integrated into all Government programmes, policies and plans (both those of Tristan Government and those of the UK that affect Tristan) (Aichi Target 2)

The economy of the territory is, at present, almost completely dependant on the sustainable harvesting of the Tristan Rock Lobster *Jasus tristani* and so the conservation of the biodiversity of Tristan da Cunha is of fundamental importance to the protection of livelihoods on the island. There is potential to diversify the economy to include more wildlife tourism and nature-based handicrafts, which would be limited by necessity, but which could raise vital revenue for the island.

1.1 The long-term sustainable economic plan will ensure that benefits and potential benefits from economic activities other than fishing (in particular, wildlife tourism, handicrafts) are fully realised (Environment Charter Commitments 1, 3)

1.1.1 Updating of the Strategic Sustainable Development Plan, through the annual review process, will ensure that conservation of biodiversity is “mainstreamed” into future activities.

1.1.2 The Conservation Officer will ensure that high priority is given to conservation and its potential benefits to Tristan da Cunha, in particular through discussion at Tristan Island Council meetings.
1.1.3 The Tristan Tourism Coordinator will make contact with cruise ship operators to encourage tourism on Tristan. On first contact, the opportunity for guided field trips to view Tristan’s wildlife and natural habitats and presentations on their conservation will be promoted by the Tourism Coordinator.

1.1.4 The Tristan Tourism Coordinator will investigate other opportunities for marketing the natural environment and wildlife of Tristan as part of the Tourism Development Plan.

1.1.5 Opportunities to promote the natural environment and wildlife of Tristan will be highlighted through the Tristan da Cunha Association and Tristan da Cunha website (www.tristandc.com).

1.1.6 The Tristan Government Representative will promote the natural heritage of Tristan where opportunities arise.

1.2 Tristan will seek sustained and coordinated UK Government attention to Tristan conservation issues (Environment Charter Commitment 4)

1.2.1 The Tristan Government will develop closer working relationships on conservation and related issues with relevant UK government and associated departments, including the Foreign & Commonwealth Office (FCO), the Department for International Development (DFID), the Department for Environment, Food and Rural Affairs (DEFRA), the Joint Nature Conservation Committee (JNCC) and with other UK Overseas Territories’ government departments, particularly the other South Atlantic UK Overseas Territories.

1.2.2 The Tristan Government specifically will seek support from DEFRA on revising policy for Agriculture and Horticulture on Tristan.

1.2.3 The Conservation Officer will seek to provide input into DEFRA’s development of an Implementation Plan for the UK Overseas Territories Biodiversity Strategy.

1.3 Awareness of the importance of Tristan’s biodiversity will be raised amongst the wider decision-making community in the UK and European Union (EU) (Environment Charter Commitment 4)

1.3.1 Information about biodiversity issues on Tristan will be communicated to a wider network in the UK and beyond through the Tristan da Cunha, RSPB, JNCC and other websites, and the popular press.

1.3.2 The conservation and wildlife pages on the Tristan da Cunha website will be expanded and kept updated.

1.3.3 Employees and representatives of the Tristan Government will maximise the opportunities given by temporary residence in the UK to develop and strengthen links with UK agencies.

1.3.4 Tristanians will liaise with and seek support from the Tristan Government representative in the UK on specific issues.

1.4 Legislation and policies will be put in place to ensure that future economic and infrastructure development does not impact negatively on biodiversity (Environment Charter Commitment 4)

1.4.1 Policies will be produced that require infrastructure/development projects to undergo environmental impact assessments.

1.4.2 The proposed construction of a new harbour, or improvements to the existing harbour, will be preceded by an environmental impact assessment, in particular to reduce the risk of introducing invasive species.

1.4.3 The proposed construction of a new hospital will be preceded by an environmental impact assessment.
1.4.4 Any expansion or diversification of fisheries will be preceded by an environmental impact assessment.

1.4.5 Any (significant) expansion of tourism will be preceded by an environmental impact assessment.

1.5 The Tristan Government will continue to improve the quality of environmental management to the enhanced benefit of the island community (Environment Charter Commitments 2,3, 7)

1.5.1 Agriculture and Horticulture policies will be reviewed and updated to ensure that practises do not impact negatively on biodiversity on Tristan.

1.5.2 Advice will be sought from UK, other UKOTs, South Africa and other agencies operating on small islands on the best methods for achieving environmentally sustainable farming.

1.5.3 Stock levels of penned sheep on the Base on Tristan will be documented as part of the annual count on the Settlement Plain.

1.5.4 Efforts will be made to reduce the number of feral sheep on the Base through the improvement of pen maintenance.

1.5.5 Stocking densities and stock rotation practises of sheep and cattle on the Settlement Plain will be reviewed and updated.

1.5.6 Agricultural education on Tristan will be enhanced through visits from an Agricultural Adviser.

1.5.7 Only forage plant species which improve the grazing sward but which do not result in a loss of biodiversity will be used.

1.5.8 The pasture on the coastal plain will be improved through the application of fertiliser to eliminate the need to import fodder.

1.5.9 Alternative fodder (pellets) will be imported to reduce the risk of invasive species introductions.

1.5.10 The production of winter forage on the Settlement Plain will be investigated.
Objective 2. Support for biodiversity conservation is strengthened on Tristan (Aichi Target 20)

The Darwin Initiative projects began to raise awareness of conservation issues amongst the Tristan population and this has been furthered by the EU-funded South Atlantic Invasive Species (SAIS) project and past and current OTEP projects in the intervening five years. This process needs to be continued. Tristanians are directly involved in conservation projects, and this has helped raise awareness of the importance of their natural heritage.

4: Following the wrecking of the MS Oliva the Tristan community rallied to rehabilitate oiled penguins (photo: Estelle van der Merwe)
2.1 Tristanians will be more aware of the importance of the biodiversity of the islands (Environment Charter Commitments 9, 10)

2.1.1 Educational materials about the biodiversity of Tristan and its global/local importance will be used in the school and kept updated, with regular input from the Conservation Department on current conservation work.

2.1.2 The school curriculum will be developed to include environmental education through the Tristan Studies programme.

2.1.3 Copies of papers and articles about wildlife on Tristan will be announced through the Conservation Newsletter and made widely available on the island.

2.1.4 Where possible, the school will be encouraged to take an active role in conservation activities.

2.1.5 The island’s museum display on the natural history of Tristan will be expanded.

2.1.6 The museum garden will be developed to showcase selected native plant species.

2.2 Islanders will be given adequate feedback on research on and about Tristan (Environment Charter Commitment 10)

2.2.1 The Conservation Office will produce two Conservation Updates a year (June and December) detailing the conservation work that has been carried out and analysing the results of that work. These will be distributed as digital or paper copies to the school, government departments, island households and through the Tristan da Cunha website, or could now be produced via the new Tristan Conservation Facebook page.

2.2.2 Any newsletters (such as ‘The Bunting’) produced by personnel at the South African Weather Station on Gough Island will be distributed on Tristan.

2.2.3 The Conservation Officer will keep the island population informed about conservation projects through reports to the council and open public meetings.

2.2.4 Visiting scientists will be required to give presentations about their work to the school and to the wider community and to leave a summary of their findings in a form that can be used as a resource for the school, where appropriate.

2.2.5 Presentations on conservation in Tristan will be given to all visiting tourist and Ovenstones vessels.

2.2.6 An illustrated presentation on the work of the Conservation Department will be prepared for use by Conservation Department staff.
Objective 3. Tristanians have the capacity to manage biodiversity effectively (Aichi Target 1)

The Darwin Initiative project enabled training to be given to the conservation team on Tristan. Ten Tristan government employees have attended training for conservation management and this has been enhanced by further training through SAIS and OTEP projects, past and current. The Conservation Officer and Conservation Clerk have attended project management training in the UK and are being supported in applying this training.

However, the human and financial capacity to take forward conservation work is limited so some external specialist knowledge and resources will still be required, particularly in work in the marine environment. Moreover, conservation is a world-wide activity and a two-way exchange of knowledge will benefit Tristan, just as Tristan’s experiences will assist island communities elsewhere.

3.1 Adequate conservation legislation to protect species and habitats will be introduced, and this legislation will be enforced (Environment Charter Commitments 2, 6)

3.1.1 Greater emphasis will be given on Tristan to the effective enforcement of conservation legislation.
3.1.2 Biodiversity protection legislation will be assessed and upgraded where necessary to comply with international obligations, and to take advantage of international legislation where available and appropriate.

3.1.3 Programmes will be introduced to monitor any harvest of great shearwater *Puffinus gravis* eggs and chicks and northern rockhopper penguin *Eudyptes moseleyi* eggs on Nightingale and Alex (or Middle) Islands.

3.2 The protected sites in the Tristan da Cunha group will be maintained at optimal conservation status (Environment Charter Commitments 2, 6, 7)

3.2.1 Tristan Biodiversity Advisory Group (T-BAG) will advise on the management of all the protected areas within the Tristan da Cunha group, with representatives from partner organisations in the UK, South Africa and Tristan. T-BAG will be consulted on specific issues and sent updates through fieldwork reports.

3.2.2 Individuals within T-BAG will be appointed to be specialist advisors in their field and occasional meetings of T-BAG will be held to consider progress.

3.2.3 The combined management plan for Inaccessible and Gough Islands will be implemented and routinely reviewed.

3.2.4 A management plan for Nightingale Island will be finalised and implemented.

3.2.5 The boundaries of each of the (currently) eight Northern Rockhopper Penguin colonies on Tristan will be determined and mapped.

3.2.6 Access to protected areas will be regulated by the Conservation Department.

3.2.7 Records of all landings at Nightingale and Inaccessible will be kept by the Conservation Department.

3.2.8 Records of all landings at Gough will be reported annually to the Conservation Department by the South African authorities.

3.2.9 Biosecurity measures will be implemented, enforced and regularly reviewed to eliminate the risk of introducing alien species to all the Tristan islands.

3.2.10 Further human-induced habitat loss will be prevented, and in particular fire-prevention measures will be put in place on Nightingale, Inaccessible and Gough.

3.2.11 Fire extinguishers and rodent detection devices on Nightingale will be checked at regular intervals and replaced as necessary.

3.2.12 With assistance from the Foreign and Commonwealth Office the establishment of a Particularly Sensitive Sea Area (PSSA) and or a Marine Protected Area (MPA) around the Tristan islands will be investigated.

3.2.13 The potential effects of climate change on the marine environment will be investigated.

3.3 Technical skills to manage biodiversity effectively will be strengthened (Environment Charter Commitment 1)

3.3.1 Training for selected Tristan Government employees who will assist the Conservation Officer will be continued.
3.3.2 Conservation Department staff returning from overseas training will share skills acquired, through presentations / demonstrations to departmental staff.

3.3.3 The Conservation Department will seek help to propose and manage biodiversity projects run from the UK and by other external agencies and individuals.

3.3.4 Links will be developed with UK and South African agencies in order to gain funding and progress conservation and fisheries projects.

3.3.5 Visiting scientists to the Tristan islands will be provided with briefings on Tristan culture.

3.3.6 Conservation Department and other key Tristan Government staff will be made familiar with the Tristan oil spill contingency plan which will be reviewed every five years.

3.3.7 Wildlife monitoring manuals for the Tristan islands will be kept updated.

3.4 External communications and access to this communication will be improved (Environment Charter Commitment 1)

3.4.1 Improvements to the satellite link to Tristan will be sought through increased bandwidth.

3.4.2 The Conservation Department email link will be used to keep stakeholders in the UK and South Africa informed of conservation issues on Tristan.

3.4.3 The Conservation Officer will ensure that all desktop computers and laptops in the Conservation Department have adequate and regularly updated virus protection.

3.5 Data management and access to data on Tristan’s wildlife will be improved (Environment Charter Commitments 1 and 7)

3.5.1 The Conservation Officer will ensure that data collected on field trips are digitally entered on file as soon as possible after collection, that datasets are stored securely and that digital copies of data are regularly backed up to external hard drives and disks.

3.5.2 The Conservation Officer will ensure that visiting scientists to the Tristan islands or off-island researchers share information on their research on Tristan’s biodiversity with the Conservation Department by way of submitting copies of progress and final reports and relevant publications.

3.5.3 Publications on the biodiversity of the Tristan islands and those plant and invertebrate specimens currently lodged on Tristan will be housed within an accessible reference collection within the Conservation Department.

3.5.4 RBG Kew’s digitised Herbarium of plant specimens from the Tristan islands will be available for reference on island.
Objective 4. The impact of alien species is reduced or eliminated (Aichi Target 9)

The greatest threat to the wildlife of Tristan da Cunha is from the introduction of alien species, both plant and animal. Many alien plant species already established on Tristan were brought in deliberately to improve pasture or to provide building timber. Many more species, especially of invertebrates, have been accidentally introduced with imported goods. The development of a school garden through the SAIS project, and the production of salad crops in the two newly erected greenhouses has reduced the reliance on imported vegetables and reduced the threat of further introduced invasive invertebrates.

Under the SAIS project, a grid system for bait stations for the control of rodents was established and implemented on the Settlement Plain on Tristan. A rodent incursion contingency response plan was developed for Nightingale and Inaccessible and training delivered to the conservation team in rodent control and monitoring. Improvements were made to offshore biosecurity arrangements in Cape Town and awareness of the threats from invasive species was raised on island through the production of posters and other educational materials.

In the past there has been livestock and crops on all four main islands, but agricultural activity is now limited to the main island of Tristan. However the effects of agriculture in terms of introduced species can still be seen on Nightingale, Inaccessible and Gough.

6: Growing more local produce will reduce reliance on imported goods and reduce import of invasive species (photo: Anja Rosler)
Much of the total area of the main island of Tristan is used for agriculture in one form or another. The coastal plains are used for growing potatoes and other food crops, and cattle and sheep are also grazed there. These areas are separated from the mountainous areas of Tristan by steep cliffs, with fencing in some places, and the higher ground is used only for the grazing of sheep. Physical constraints such as steep, rocky ground and dense Phylia trees, in addition to force of habit, mean that sheep grazing is mainly confined to the northern and western parts of the mountain, from Fem’s Gulch west around to Cave Gulch.

The development of agriculture on Tristan da Cunha has led to significant changes to areas of natural habitat on the main island of Tristan. The first major change was the loss of coastal tussock grass, but more recently alien plants and invertebrates have been introduced as a result of agricultural activity, and these are now spreading and affecting native habitats and possibly breeding birds. The spread of alien species is exacerbated by the presence of grazing animals, although the extent of the problem has not yet been quantified.

The most significant introductions in the terrestrial environment have been the arrival of rats *Rattus rattus* on Tristan and house mice *Mus musculus* on Gough, which have severely depleted burrowing petrel populations on Tristan, and continue to threaten the survival of several seabird and landbird populations including three endemic species, on both islands.

Alien species have also been introduced into the marine environment, most recently from a stranded oil rig in 2006, and the wreck of the bulk carrier *MS Oliva* in 2011. The South American Silver Porgy *Diplodus argenteus* an invasive opportunist fish, has become well established from the rig stranding, and potentially invasive mussels arrived on the *Oliva*. The effects of these organisms on the native marine life of Tristan are as yet unknown, but are potentially serious for the rock lobster fishery on which the Tristan economy currently depends. A draft contingency plan for reaction to marine incidents, and to limit the risk of marine introductions, was produced in 2008 as part of a Darwin Initiative project. This requires revision and implementation.

### 4.1 A major effort will be made to reduce the number of alien species introduced to Tristan (Environment Charter Commitments 2, 3, 4)

4.1.1 The ‘South Atlantic Invasive Species Strategy and Action Plan’ (2010) will be implemented at the Tristan islands.

4.1.2 The Conservation Department will work with the South African authorities to improve arrangements for checking and transporting cargo in Cape Town.

4.1.3 Priority will be given to increasing the amount of fruit (including fruit trees in gardens) and vegetables grown on the island so as to reduce the quantities imported from South Africa. Prospects for increasing yield through organic methods (for instance crop rotation, and composting plant waste / kelp) as well as through improved pest control and watering techniques, and using organic mulch will be investigated.

4.1.4 Recycling heat generated by the fish factory into greenhouses for growing additional types of fruit and vegetables will be investigated.
4.1.5 Funding will be sought to ensure that the fruit and vegetables that are imported are irradiated at their place of origin or on Tristan.

4.1.6 A quarantine/biosecurity facility will be established for inspecting cargo and dealing with alien species when they arrive at Tristan.

4.1.7 Funding will be sought for biosecurity training for both Conservation and Agriculture Department staff.

4.1.8 All arriving cargo will be checked by the Agriculture Officer.

4.2 Non-naturalized alien plants will be prevented from establishing populations in the wild (Environment Charter Commitment 2)

4.2.1 The existing species inventories of alien plants on the Tristan islands will be kept regularly updated and expanded to cover all habitats and areas, identifying the highest-risk species for which control or eradication actions are required.

4.2.2 Careful monitoring will be carried out at targeted sites including all landing places around Tristan, Nightingale, Inaccessible and Gough, so that newly-arrived alien plants are quickly recognised and are not allowed to establish populations.

4.2.3 The use of existing garden plants and native plants for gardening will be encouraged.

4.2.4 The Agriculture Department will be notified of any new garden plants brought on to Tristan so that quarantine measures can be implemented.

4.2.5 Contingency supplies of herbicide, spraying equipment and protective clothing, will be kept so that any new alien species discovered is quickly eradicated.

4.2.6 Training will be given to the staff of Agriculture and Conservation Departments in the identification of alien plant species, application of pesticides and COSHH (Control of Substances Hazardous to Health) safe storage of chemicals.

4.2.7 Laminated cards / posters of the highest-risk alien plant species found on Tristan will be produced using Gremmen N.J.M. & Halbertsma R.L. ‘Alien plants and their impact on Tristan da Cunha’ (2009) and other sources.

4.3 The transfer of alien species between islands of the Tristan group will be prevented (Environment Charter Commitment 2)

4.3.1 The recommendations of the combined Inaccessible and Gough management plan to prevent the introduction of alien species will be enforced.

4.3.2 Existing rodent contingency monitoring will continue to be implemented on Nightingale, Inaccessible and Gough Islands.

4.3.3 All sand taken from Tristan to other islands will be steam treated and steam treatment equipment will be maintained.
4.3.4 Boots, clothing, tools, equipment and food bins will be cleaned before travelling between the Tristan islands.

4.3.5 Tristanians will carry out self-inspection checks prior to travelling between the Tristan islands.

4.3.6 A boot dip will be installed at the harbour on Tristan and anyone departing to Nightingale and Inaccessible or landing from visiting vessels will go through boot scrubbing with disinfectant (eg. Virkon S).

4.3.7 Monitoring of spread of alien species will be carried out so that any accidental transfers between islands are quickly recorded and action taken to prevent spreading.

4.3.8 All vessels visiting islands in the Tristan group will be required to register with the Conservation and Police Departments and to email certificates to show they are rodent free prior to arrival at Tristan.

4.3.9 All visitors will receive a copy of the ‘Nature Conservation Guidelines for Visitors to Tristan da Cunha and Outer Islands’ outlining measures to be adopted by visitors to prevent the accidental introduction of alien species.

4.4 The programme of control or removal of alien plants will be expanded (Environment Charter Commitment 2)

4.4.1 Control and possible eradication methods for the invasive alien species already established on Tristan da Cunha will be investigated.

4.4.2 Procumbent pearlwort *Sagina procumbens* will be eliminated from Gough and control of *Sagina* on Tristan will continue especially around the harbour.

4.4.3 Action to prevent the spread of species such as New Zealand Christmas tree *Metrosideros excelsa* on Tristan will continue and be extended to other species such as introduced conifers and Soft Rush *Juncus effusus* above Sandy Point (see Annex 6b for suggested management actions).

4.4.4 Alien plants recently introduced accidentally to Inaccessible Island will be removed.

4.4.5 Nightingale and Inaccessible Islands will be closely monitored to ensure that the on-going New Zealand flax *Phormium tenax* removal programmes are ultimately successful and the species is not allowed to re-establish.

4.4.6 The programme for controlling Australian brass buttons *Cotula australis* on Nightingale Island will be continued to ensure that the species is not allowed to spread.

4.4.7 The effects of alien plants on native species will be investigated so that resources may be prioritised to the control of those alien species that pose the most threat to the native wildlife.

4.4.8 An invasive alien plant management programme for the control or eradication of prioritised invasive plant species on Tristan, will be developed.

4.4.9 Funding will be sought for developing and implementing an invasive alien plant management programme on Tristan, with training for staff of the Conservation and Agriculture Departments.
4.4.10 A database will be established, listing alien plants and their distribution, and chemical and mechanical methods that can be used for control/eradication with details on the appropriate timing for management and monitoring.

4.5 The current programme for the control of alien terrestrial invertebrates will be expanded (Environment Charter Commitment 2)

4.5.1 Key invertebrate pests that are a priority for control or possible eradication, will be identified.

4.5.2 Control and possible eradication methods for target alien invertebrate species already established at the Tristan islands will be investigated and implemented.

4.6 Introduced rodents will be controlled or eradicated on Tristan and Gough (Environment Charter Commitment 2)

4.6.1 The feasibility study for the eradication of rodents from Tristan will be reviewed and updated.

4.6.2 Funding will be sought for the eradication of rodents from Tristan once approval is obtained from the Tristan community.

4.6.3 Funding will be sought to eradicate house mice from Gough Island.

4.6.4 Awareness will be raised on Tristan of the danger of accidental introduction of rats and mice to Nightingale or Inaccessible.

4.6.5 Measures will be put in place to prevent further introductions of rodents both in cargo from South Africa and by transfer between islands.

4.6.6 Measures will be put in place to prevent the introduction of rodents from other boats, yachts and cruise ships visiting Tristan and the outer islands.

4.6.7 The Conservation Department and Darwin Team will maintain familiarity with contingency plans drawn up in case of accidental introduction of rodents to Nightingale or Inaccessible.

4.6.8 Alternative food sources for rodents on all islands will be removed through improved waste management (storage, collection and disposal of waste).

4.6.9 An improved rat control programme will be implemented in the Village and at the Patches on Tristan.

4.7 Following removal of alien species, affected species and ecosystems will be restored (Environment Charter Commitment 2)

4.7.1 The possibility of reintroducing the Tristan albatross to the main island if a rodent eradication takes place will be explored.
Objective 5. The sustainable use and management of the marine environment is enhanced (Aichi Target 6)

The economy of Tristan depends almost entirely on the fishing industry, and in particular on the Tristan Rock Lobster or ‘crayfish’ fishery. Opportunities to increase the income from fisheries will be investigated, while ensuring that the use of marine resources is sustainable and that there is no threat to the marine ecosystem.

A Darwin Initiative Project significantly enhanced the information base on the marine environment around Tristan, and provided the first detailed descriptions of shallow water underwater life and sea-bed habitats around Tristan, Nightingale and Inaccessible. A draft contingency response plan was produced for limiting marine introductions and members of the Darwin team received dive training. Improved awareness on island of biodiversity and the marine environment was supported through a collection of high-quality underwater photographs and the production of identification guides for marine species. However, knowledge of the marine microfauna and dynamics of the shallow water marine ecosystem around all the Tristan islands is still incomplete, and virtually nothing is known of deepwater life and habitats below 40 m depth, despite this being the vast majority of the marine area.
The marine life of the Tristan islands is very interesting as no other cool temperate island group is as remote and isolated as Tristan, and the arrival of new species has been a rare event: diversity is extremely low compared to mainland coasts in the same temperature range. As on land, marine species arriving have subsequently evolved in isolation, so that a large proportion of them are (or are thought to be) endemic. This makes the islands important for conservation of biodiversity, and vulnerable to the further accidental introduction of foreign species and pathogens.

One of the main threats to the marine environment of the Tristan EEZ is increased shipping traffic and potential pollution from oil or cargo. The government will investigate the establishment of a PSSA and or a MPA in Tristan territorial and EEZ waters.

Climate change is also a potentially serious threat to the Tristan marine ecosystem. Giant kelp forests worldwide generally only thrive in seawater temperatures below 20°C. This temperature is already reached around the Tristan top islands in the summer months. Any increase in seawater temperature could adversely affect kelp growth, and thus the whole shallow water ecosystem dependent on kelp production, including the economically important rock lobster fishery.

5.1 The sustainability of the legal fishery will be ensured (Environment Charter Commitments 1, 3, 7)

5.1.1 Advice on fisheries management will be sought from other South Atlantic UK Overseas Territories, South Africa and the UK.

5.1.2 Fish stocks will be monitored in order to provide better data to inform quota levels.

5.1.3 Marine Stewardship Council (MSC) certification requirements for the Tristan Rock Lobster fishery will be complied with.

5.1.4 A monitoring plan to monitor the Catch Per Unit Effort (CPUE) of the Tristan Rock Lobster at Nightingale until the fishery returns to pre-Oliva catches will be developed and implemented.

5.1.5 Harvest Control Rules (HCR) and Operation Management Procedures (OMP) will be implemented.

5.1.6 Research into the larval and early settlement stages of the Tristan Rock Lobster will be instigated in order to better understand recruitment to the fishery and prediction of sustainable yields.

5.2 The impact of the legal fishery on the marine environment will be minimised (Environment Charter Commitments 2, 6)

5.2.1 All fishing vessels (long-liners and trawlers) will carry a Fisheries Department observer or International Observer on board to verify compliance with licence conditions and to ensure that bycatch mitigation measures are used.

5.2.2 Fishing licences will include a condition that mitigation measures are employed to minimize by-catch of non-target marine species and seabirds.

5.2.3 Data on bird bycatch will be collected in updated Fisheries logbooks and analysed annually, and made available through the Tristan da Cunha website.
5.2.4 Existing procedures for ship-to-ship, and ship-to-shore transfer of fuel will be followed and contingency measures will be in place and implemented in the event of a fuel spill.

5.2.5 Fishing activities will not facilitate the spread of alien marine introductions between the islands.

5.2.6 Fishing activities will have minimal effects on deep water seabed life. This requires much greater knowledge of deep water marine life and habitats around the islands.

5.3 **Illegal fishing in the Tristan EEZ will be minimised (Environment Charter Commitments 2, 6, 8)**

5.3.1 Regular patrol assistance will be requested from licensed fishing boats, research vessels and naval vessels.

5.3.2 The means of setting up a system for monitoring fishing vessels in the Tristan EEZ will be investigated. This may include use of a long-range patrol vessel and surveillance by remotely operated radar installed on either Nightingale or Inaccessible Islands.

5.3.3 An Automatic Identification System (AIS) to monitor vessels passing within 100 miles of Tristan and Gough Islands will be installed.

5.3.4 The scale of illegal fishing will be determined by monitoring reports of landings of Tristan Rock Lobster at foreign ports.

5.3.5 Tristan Government will engage with regional and international fisheries organisations especially the International Commission for the Conservation of Atlantic Tunas (ICCAT) and the South East Atlantic Fisheries Organisation (SEAFO).

5.4 **The marine biodiversity of Tristan will be maintained at its current level (Environment Charter Commitments 2, 7, 10)**

5.4.1 The existing collections of preserved marine animals and seaweeds will be identified.

5.4.2 Published information from previous surveys on the marine ecosystems will be collected and collated and further work required to establish a baseline of information on marine life will be identified and implemented.

5.4.3 The contingency plan for alien marine introductions and other marine incidents will be revised and implemented.

5.4.4 Fisheries and Conservation department staff and Darwin team members will have familiarity with the identification of the introduced marine species in the marine environment contingency plan.

5.4.5 The potential impact of introduced species on the native marine life, particularly on economically important species will be identified, and mitigation measures to minimise the likelihood of such introductions occurring will be introduced.

5.4.6 The status of the alien South American Silver Porgy *Diplodus argenteus argenteus* and its impacts on the local fish and marine ecosystem will be monitored.
5.4.7  The settlement of alien marine invertebrates and distribution of vertebrates that arrived with the oil rig will be surveyed.

5.4.8  Alien marine species introduced at Nightingale as a result of the grounding of the *MS Oliva* will be identified and contingency measures for control / eradication will be developed and implemented. In particular, the mussels that arrived will be relocated and eradicated.

5.4.9  Improved sewage handling on Tristan will ensure that impact on the marine environment is minimised.

5.4.10  Awareness on island of the issue of plastic and other pollution at sea will be raised and international partners supported to address this issue.

5.4.11  The potential impact of experimental long-lining and trawling around the Tristan islands on Shepherd’s beaked whale *Tasmacetus shepherdi* will be investigated.

8: Tristan’s rich marine environment needs more research to describe the range of species and habitats present (photo: Sue Scott)
Objective 6. The knowledge of Tristan’s key habitats and species is increased (Aichi Targets 12, 19)

There is still much yet to be discovered about the biota of Tristan da Cunha. There are few data on key taxa and little is known about the interaction between key species and the habitats in which they live, particularly in the marine environment.

6.1 The current distribution of native habitats will, as far as possible, be maintained or improved. (Environment Charter Commitments 2, 7)

6.1.1 Study plots will be established in key habitats on Tristan to monitor vegetation dynamics over time.

6.1.2 These study plots will be monitored every five years to assess change.

6.1.3 Fixed point photographic sites will be identified on the slopes adjoining the Settlement Plain to monitor vegetation cover annually.

6.1.4 The impact of alien species on native plants and habitats on Tristan and Nightingale will be assessed.

6.1.5 The extent of Island tree *Phylica arborea* woodland on Nightingale will be mapped.

6.1.6 Guidelines for the sustainable management of the Island tree woodland on Nightingale will be developed and selected areas restored by a seedling planting programme.

6.2 Baseline information on indigenous terrestrial plant species will be expanded (Environment Charter Commitments 2, 7)

6.2.1 Survey work to establish baseline data on the range of the indigenous plants will continue.

6.2.2 The range of indigenous plants will be monitored on a five-to-ten yearly basis.

6.2.3 Baseline information on bryophytes will be expanded.

6.3 Baseline information on terrestrial invertebrates on Tristan, Nightingale and Gough will be expanded (Environment Charter Commitments 2, 7)

6.3.1 The present work to identify invertebrates collected on Tristan and Nightingale will continue.

6.3.2 An invertebrate collection will be made on Inaccessible.

6.3.3 Funding will be sought for the study, collection and identification of invertebrates on Inaccessible.

6.4 Measures will be taken to maintain stable populations of breeding birds (Environment Charter Commitments 2, 7)

6.4.1 The ‘Tristan da Cunha Implementation Plan for the Agreement on the Conservation of Albatrosses and Petrels’ (ACAP 2009) will be implemented at all the Tristan islands.

6.4.2 Populations of the target species and annual harvesting of great shearwater chicks and eggs on Nightingale will be monitored to ensure that any harvesting is sustainable.
6.4.3 Northern rockhopper penguins (breeding adult population and productivity) and breeding Atlantic yellow-nosed albatrosses *Thalassarche chlororhynchos* will be monitored annually on Nightingale and Tristan as per the monitoring manual (Annex 9).

6.4.4 The breeding ecology and foraging behaviour of northern rockhopper penguins will be investigated.

6.4.5 A census of breeding Atlantic yellow-nosed albatross on Tristan will be carried out.

6.4.6 Monitoring protocols will be put in place for breeding land birds.

6.4.7 The distribution of breeding pairs of Wilkins’ bunting *Nesospiza wilkinsi* on Nightingale will be mapped and a protocol for monitoring the species will be set up.

6.4.8 Populations of target breeding seabirds and landbirds on Gough Island will be monitored, especially those species listed on IUCN’s Red List.

6.4.9 The impact of subantarctic fur seals *Arctocephalus tropicalis* on breeding sea birds will be investigated.

6.5 Baseline information on marine animal and plant species and habitats around the Tristan islands will be expanded (Environment Charter Commitments 2, 7)

6.5.1 Fur seal numbers on Tristan will be counted annually (Annex 9).

6.5.2 Southern elephant seals *Mirounga leonina* will be monitored on Gough.

6.5.3 The occurrence of cetaceans, in particular, Shepherd’s beaked whales around Tristan will be investigated.

6.5.4 Specialist collection and identification of lesser-known marine animal and seaweed groups will continue.

6.5.5 Basic knowledge on the dynamics of the shallow water marine environment, including seasonal changes, food chains and reproductive timing and requirements of key marine species will be acquired.

6.5.6 Intertidal and subtidal diving surveys on Gough using methods comparable to those used on Tristan, Nightingale and Inaccessible will be carried out.

6.5.7 Key habitats and species in deeper waters around the islands, using video and limited remote sampling will be surveyed and documented.
Activities Plan

The Head of the Tristan Conservation Department (Conservation Officer) will be responsible for overseeing the implementation of the plan in the Tristan islands. Many of the actions will be carried out by the Conservation Officer, aided by other Tristan Government staff.

Because there are a range of departments involved in implementation the activities table below outlines the activities, timeline and departments/persons responsible for taking activities forward.

Green actions: ongoing, with resources available.

Orange actions: resources available but not in action yet

Grey actions: will only take place if funding becomes available

Table 1: Tristan Biodiversity Action Plan Activities

<table>
<thead>
<tr>
<th>Action</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation is integrated into all Government programmes, policies and plans (both those of Tristan Government and those of the UK that affect Tristan)</td>
<td></td>
<td>Tristan Island Council, Administrator, Administrator &amp; Tristan Tourism Coordinator, Tristan Tourism Coordinator</td>
</tr>
<tr>
<td>The long-term sustainable economic plan will ensure that benefits and potential benefits from economic activities other than fishing are fully realised</td>
<td></td>
<td>Tristan Island Council, Administrator, Administrator &amp; Tristan Tourism Coordinator, Tristan Tourism Coordinator</td>
</tr>
<tr>
<td>Updating of the Strategic Sustainable Development Plan, will ensure that conservation of biodiversity is “mainstreamed” into future activities</td>
<td>Ongoing</td>
<td>Tristan Island Council, Administrator, Administrator &amp; Tristan Tourism Coordinator, Tristan Tourism Coordinator</td>
</tr>
<tr>
<td>The Conservation Officer will attend Island Council meetings on conservation issues</td>
<td>Ongoing</td>
<td>Conservation Officer</td>
</tr>
<tr>
<td>Contact will be made with cruise ship operators and guided field trips and presentations on Tristan’s biodiversity will be promoted</td>
<td>Ongoing</td>
<td>Administrator &amp; Tristan Tourism Coordinator</td>
</tr>
<tr>
<td>Other opportunities for marketing Tristan’s natural environment and wildlife will be investigated</td>
<td>Ongoing</td>
<td>Tristan Tourism Coordinator</td>
</tr>
<tr>
<td>1.1.5</td>
<td>Opportunities for promoting Tristan’s natural environment will be highlighted through the Tristan da Cunha Association and Tristan da Cunha website</td>
<td>Ongoing</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>1.1.6</td>
<td>Tristan Government Representative will promote the natural heritage of Tristan</td>
<td>Ongoing</td>
</tr>
<tr>
<td>1.2</td>
<td>Tristan will seek sustained and coordinated UK Government attention to Tristan conservation issues</td>
<td></td>
</tr>
<tr>
<td>1.2.1</td>
<td>Strengthen relationships with UK government and associated departments and with UK Overseas Territories government departments</td>
<td>Ongoing</td>
</tr>
<tr>
<td>1.2.2</td>
<td>Tristan Government will seek support from DEFRA on revising Agriculture and Horticulture policy.</td>
<td>2013</td>
</tr>
<tr>
<td>1.2.3</td>
<td>Conservation Officer will seek to provide input into DEFRA’s development of an Implementation Plan for the UKOTs Biodiversity Strategy</td>
<td>Ongoing</td>
</tr>
<tr>
<td>1.3</td>
<td>Awareness of the importance of Tristan’s biodiversity will be raised amongst the wider decision-making community in the UK and European Union</td>
<td></td>
</tr>
<tr>
<td>1.3.1</td>
<td>Information about biodiversity will be communicated through the Tristan da Cunha, RSPB, JNCC and other websites and popular press</td>
<td>Ongoing</td>
</tr>
<tr>
<td>1.3.2</td>
<td>Conservation and wildlife pages on the Tristan da Cunha website will be expanded and kept updated</td>
<td>2013/ongoing</td>
</tr>
<tr>
<td>1.3.3</td>
<td>Tristanians will maximise the opportunities given by temporary residence in the UK to develop and strengthen links with UK agencies</td>
<td>Ongoing</td>
</tr>
<tr>
<td>1.3.4</td>
<td>Tristanians will liaise with and seek support from the Tristan Government representative on specific issues</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
### 1.4 Legislation and policies will be put in place to ensure that future economic and infrastructure development does not impact negatively on biodiversity

<table>
<thead>
<tr>
<th>1.4.1</th>
<th>Policies will be produced that require infrastructure/development projects to undergo environmental impact assessments</th>
<th>Ongoing</th>
<th>Tristan Island Council, Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4.2</td>
<td>The proposed construction of a new harbour or improvements to the existing harbour will be preceded by an environmental impact assessment</td>
<td>2013</td>
<td>Tristan Island Council, Administrator</td>
</tr>
<tr>
<td>1.4.3</td>
<td>The proposed construction of a new hospital will be preceded by an environmental impact assessment</td>
<td>Funding dependent</td>
<td>Tristan Island Council, Administrator</td>
</tr>
<tr>
<td>1.4.4</td>
<td>Any expansion or diversification of fisheries will be preceded by an environmental impact assessment</td>
<td>Ongoing</td>
<td>Tristan Island Council, Administrator, Fisheries Department</td>
</tr>
<tr>
<td>1.4.5</td>
<td>Any (significant) expansion of tourism will be preceded by an environmental impact assessment</td>
<td>Ongoing</td>
<td>Tristan Island Council, Administrator, Tristan Tourism Coordinator</td>
</tr>
</tbody>
</table>

### 1.5 Tristan Government will continue to improve the quality of environmental management to the enhanced benefit of the island community

<table>
<thead>
<tr>
<th>1.5.1</th>
<th>Agriculture and Horticulture policies will be reviewed and updated</th>
<th>2013</th>
<th>Agriculture Department, Tristan Island Council</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5.2</td>
<td>Advice will be sought from UK, other UKOTs, South Africa and other agencies operating on small islands on the best methods for achieving environmentally sustainable farming</td>
<td>Ongoing</td>
<td>Agriculture Department</td>
</tr>
<tr>
<td>1.5.3</td>
<td>Stock levels of penned sheep on the Base on Tristan will be documented</td>
<td>Annually</td>
<td>Agriculture Department</td>
</tr>
<tr>
<td>1.5.4</td>
<td>Efforts will be made to reduce the number of feral sheep on the Base through the improvement of pen maintenance.</td>
<td>Ongoing</td>
<td>Agriculture Department</td>
</tr>
<tr>
<td>1.5.5</td>
<td>Stocking densities and stock rotation practises of sheep and cattle on the Settlement Plain will be reviewed and updated</td>
<td>Annually</td>
<td>Agriculture Department</td>
</tr>
</tbody>
</table>
1.5.6 Agricultural education on Tristan will be enhanced through visits from an Agricultural Advisor | Ongoing | Expertise to be identified

1.5.7 Only forage plant species which improve the grazing sward but which do not result in a loss of biodiversity will be used | Ongoing | Agriculture Department

1.5.8 The pasture of the coastal plain will be improved through the application of fertiliser | Annually | Agriculture Department

1.5.9 Alternative fodder (pellets) will be imported to reduce the risk of invasive species introductions | Ongoing | Agriculture Department

1.5.10 The production of winter forage on the Settlement Plain will be investigated | 2013 | Agriculture Department

2. Support for biodiversity conservation is strengthened on Tristan

2.1 Tristanians will be more aware of the importance of the biodiversity of the islands

2.1.1 Educational materials about biodiversity will be used and kept updated, with regular input from the Conservation Department on current conservation work | Ongoing | Conservation Officer, Head of School

2.1.2 School curriculum will be developed to include environmental education through the Tristan Studies programme. Horticulture education will also be investigated. | Ongoing | Conservation Officer, Head of School, RSPB

2.1.3 Copies of papers and articles about wildlife on Tristan will be announced through the Conservation Newsletters and made widely available on the island | Ongoing | Conservation Officer

2.1.4 School will be encouraged to take an active role in conservation activities | 1 fieldtrip/year | Conservation Officer, School, Education Department

2.1.5 The island’s museum display on the natural history of Tristan will be expanded | 2014 | Administration, Tristan Tourism Coordinator, Conservation Officer

2.1.6 The museum garden will be developed to showcase selected native plant species | 2015 | Tristan Tourism Coordinator, Conservation Officer, Agriculture Officer
<table>
<thead>
<tr>
<th>2.2</th>
<th>Islanders will be given adequate feedback on research on and about Tristan</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.1</td>
<td>Conservation updates detailing conservation activities and analysing the results of that work, will be produced and disseminated</td>
</tr>
<tr>
<td>2.2.2</td>
<td>News updates from Gough will be disseminated on Tristan</td>
</tr>
<tr>
<td>2.2.3</td>
<td>Island will be kept informed about conservation projects</td>
</tr>
<tr>
<td>2.2.4</td>
<td>Visiting scientists will be required to give presentations of their work to the school and wider community, and to leave a summary of their findings</td>
</tr>
<tr>
<td>2.2.5</td>
<td>Presentations on conservation in Tristan will be given to all visiting tourist and Ovenstones vessels</td>
</tr>
<tr>
<td>2.2.6</td>
<td>Illustrated presentation on the work of the Conservation Department will be prepared for use by conservation staff</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>Tristanians have the capacity to manage biodiversity effectively</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Adequate conservation legislation to protect species and habitats will be introduced, and this legislation will be enforced</td>
</tr>
<tr>
<td>3.1.1</td>
<td>Greater emphasis will be given on Tristan to the enforcement of legislation</td>
</tr>
<tr>
<td>3.1.2</td>
<td>Biodiversity legislation will be assessed and upgraded where necessary to comply with international obligations</td>
</tr>
<tr>
<td>3.1.3</td>
<td>Programmes will be introduced to monitor harvest of great shearwater and northern rockhopper penguin eggs on Nightingale and Alex</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.2</th>
<th>The protected sites in the Tristan da Cunha group will be maintained at optimal conservation status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2.1</td>
<td>Tristan Biodiversity Advisory Group (T-BAG) will advise on the management of all the protected areas, and will be consulted on specific issues and updated through fieldwork reports</td>
</tr>
<tr>
<td>3.2.2</td>
<td>Individuals within T-BAG will be appointed to be specialist advisors in their field, and occasional meetings of T-BAG will be held to consider progress</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3.2.3</td>
<td>Combined management plan for Inaccessible and Gough Islands will be implemented and routinely reviewed</td>
</tr>
<tr>
<td>3.2.4</td>
<td>Management plans for Nightingale and an invasive species plan will be finalised and implemented.</td>
</tr>
<tr>
<td>3.2.5</td>
<td>Boundaries of each of the eight penguin colonies on Tristan will be determined and mapped</td>
</tr>
<tr>
<td>3.2.6</td>
<td>Access to protected areas will be regulated by the Conservation Department</td>
</tr>
<tr>
<td>3.2.7</td>
<td>Records of all landings at Nightingale, Inaccessible and Gough will be kept by the Conservation Department</td>
</tr>
<tr>
<td>3.2.8</td>
<td>Records of all landings at Gough will be reported annually to the Conservation Department by the South African authorities</td>
</tr>
<tr>
<td>3.2.9</td>
<td>Biosecurity measures will be implemented, enforced and regularly reviewed to eliminate the risk of introducing alien species to all the Tristan islands</td>
</tr>
<tr>
<td>3.2.10</td>
<td>Further human-induced habitat loss will be prevented and in particular fire prevention measures will be put in place on Nightingale, Inaccessible and Gough</td>
</tr>
<tr>
<td>3.2.11</td>
<td>Fire extinguishers on Nightingale and rodent detection devices will be checked at regular intervals and replaced as necessary</td>
</tr>
<tr>
<td>3.2.12</td>
<td>Investigate the establishment of a Particularly Sensitive Sea Area (PSSA) and/or a Marine Protected Area (MPA) around the Tristan islands</td>
</tr>
<tr>
<td>3.2.13</td>
<td>Investigate the potential effects of climate change on the marine environment</td>
</tr>
</tbody>
</table>
### 3.3 Technical skills to manage biodiversity effectively will be strengthened

<table>
<thead>
<tr>
<th>3.3.1</th>
<th>Training for selected Tristan Government employees who will assist the conservation officer will be continued</th>
<th>Ongoing</th>
<th>Conservation Officer, Conservation Department, Darwin team</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3.2</td>
<td>Conservation staff returning from overseas training will share skills acquired through presentations / demonstrations to department staff</td>
<td>Ongoing</td>
<td>Conservation Officer</td>
</tr>
<tr>
<td>3.3.3</td>
<td>The Conservation Department will seek help to propose and manage biodiversity projects from UK and other external agencies and individuals</td>
<td>Ongoing</td>
<td>Conservation Department</td>
</tr>
<tr>
<td>3.3.4</td>
<td>Links will be developed with UK and South African agencies in order to gain funding and progress proposed conservation and fisheries projects</td>
<td>Ongoing</td>
<td>Conservation Officer, Fisheries Department</td>
</tr>
<tr>
<td>3.3.5</td>
<td>Visiting scientists to the Tristan islands will be provided with training on Tristan culture</td>
<td>Ongoing</td>
<td>Conservation Officer</td>
</tr>
<tr>
<td>3.3.6</td>
<td>Conservation Department and other key Tristan Government staff will be made familiar with the Tristan oil spill contingency plan which will be reviewed every five years</td>
<td>2013</td>
<td>Conservation Officer, RSPB</td>
</tr>
<tr>
<td>3.3.7</td>
<td>Wildlife monitoring manuals for the Tristan islands will be kept updated</td>
<td>2012/Ongoing</td>
<td>Conservation Officer, RSPB</td>
</tr>
</tbody>
</table>

### 3.4 External communications and access to this communication will be improved

<table>
<thead>
<tr>
<th>3.4.1</th>
<th>Improvements to the satellite link to Tristan will be sought through increased bandwidth</th>
<th>Ongoing</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4.2</td>
<td>The Conservation Department email link will be used to keep stakeholders in the UK and South Africa informed on conservation issues in Tristan</td>
<td>Ongoing</td>
<td>Conservation Department &amp; Conservation Officer</td>
</tr>
<tr>
<td>3.4.3</td>
<td>Conservation Department computers will have adequate virus protection which will be kept updated</td>
<td>Ongoing</td>
<td>Conservation Officer</td>
</tr>
</tbody>
</table>
### 3.5 Data management and access to data on Tristan’s wildlife will be improved

<table>
<thead>
<tr>
<th>3.5.1</th>
<th>Conservation Officer will ensure that data collected during fieldwork, are digitally entered on file as soon as possible after collection, datasets are securely stored and that digital copies are regularly backed up</th>
<th>Ongoing</th>
<th>Conservation Officer, Conservation Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5.2</td>
<td>Visiting scientists/researchers will share information on their research on Tristan’s biodiversity with the Conservation Department by way of submitting copies of progress and final reports and relevant publications</td>
<td>Ongoing</td>
<td>Conservation Officer</td>
</tr>
<tr>
<td>3.5.3</td>
<td>Publications of the biodiversity of the Tristan islands and plant and invertebrate specimens lodged on Tristan will be housed within a reference collection within the Conservation Department</td>
<td>Ongoing</td>
<td>Conservation Officer</td>
</tr>
<tr>
<td>3.5.4</td>
<td>RBG Kew’s digitised Herbarium of plant specimens from the Tristan islands will be available for reference</td>
<td>Ongoing</td>
<td>Conservation Officer</td>
</tr>
</tbody>
</table>

### 4 The impact of alien species is reduced or eliminated

<table>
<thead>
<tr>
<th>4.1</th>
<th>Reduce the number of alien species introduced to Tristan</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.1</td>
<td>The SAIS Strategy and Action Plan (2010) will be implemented at the Tristan islands</td>
</tr>
<tr>
<td>4.1.2</td>
<td>The Conservation Department will work with the South African authorities to improve arrangements for checking and transporting cargo in Cape Town</td>
</tr>
<tr>
<td>4.1.3</td>
<td>Priority will be given to increasing the amount of fruit (including fruit trees in gardens) and vegetables grown on the island to reduce the amount imported from South Africa. Prospects for increasing yield through organic methods (eg. crop rotation and composting plant waste/kelp) as well as through improved pest control, watering techniques and organic mulch will be investigated</td>
</tr>
<tr>
<td>4.1.4</td>
<td>Recycling heat generated from the fish factory into glasshouses for growing additional types of fruit and vegetables will be investigated</td>
</tr>
<tr>
<td>4.1.5</td>
<td>Funding will be sought to ensure that the fruit and vegetables that are imported will be irradiated either at the place of origin or on Tristan</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4.1.6</td>
<td>A quarantine/biosecurity facility will be established for inspecting cargo and dealing with alien species when they arrive at Tristan</td>
</tr>
<tr>
<td>4.1.7</td>
<td>Funding will be sought for biosecurity training for Conservation and Agriculture department staff</td>
</tr>
<tr>
<td>4.1.8</td>
<td>All arriving cargo will be checked by the Agriculture Officer</td>
</tr>
<tr>
<td>4.2</td>
<td>Non-naturalised alien plants will be prevented from establishing populations in the wild</td>
</tr>
<tr>
<td>4.2.1</td>
<td>The existing species inventories of alien plants on the Tristan islands will be kept regularly updated and expanded to cover all habitats and areas, identifying the highest-risk species for which control or eradication actions are required</td>
</tr>
<tr>
<td>4.2.2</td>
<td>Careful monitoring will be carried out at targeted sites including all landing places around Tristan, Nightingale, Inaccessible and Gough so that newly-arrived alien plants are quickly recognised and are not allowed to establish populations</td>
</tr>
<tr>
<td>4.2.3</td>
<td>The use of existing garden plants and native plants for gardening, will be encouraged</td>
</tr>
<tr>
<td>4.2.4</td>
<td>The Agriculture Department will be notified of any new garden plants brought on to Tristan so that quarantine measures can be implemented</td>
</tr>
<tr>
<td>4.2.5</td>
<td>Contingency supplies of herbicide, spraying equipment and protective clothing will be kept so that any new alien species discovered is quickly eradicated</td>
</tr>
<tr>
<td>4.2.6</td>
<td>Training will be given to the staff of Agriculture and Conservation Departments in the identification of alien plant species, application of pesticides and COSHH safe storage of chemicals</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>4.2.7</td>
<td>Laminated cards of the highest-risk alien plant species found on Tristan will be produced using Gremmen &amp; Halbertsma (2009) alien plant report and other sources</td>
</tr>
<tr>
<td>4.3</td>
<td>The transfer of alien species between islands of the Tristan group will be prevented</td>
</tr>
<tr>
<td>4.3.1</td>
<td>The recommendations of the combined Inaccessible and Gough management plan to prevent the introduction of alien species will be enforced</td>
</tr>
<tr>
<td>4.3.2</td>
<td>Existing rodent contingency monitoring will continue to be implemented on Nightingale, Inaccessible and Gough Islands</td>
</tr>
<tr>
<td>4.3.3</td>
<td>All sand taken from Tristan to other islands will be steam treated and steam treatment equipment will be maintained</td>
</tr>
<tr>
<td>4.3.4</td>
<td>Boots, clothing, tools, equipment and food bins will be cleaned before travelling between the Tristan islands</td>
</tr>
<tr>
<td>4.3.5</td>
<td>Tristanians will carry out self-inspection checks prior to travelling between the Tristan islands to ensure that cleaning has been effectively carried out</td>
</tr>
<tr>
<td>4.3.6</td>
<td>A boot dip will be installed at the harbour on Tristan and anyone departing to Nightingale or Inaccessible or landing from visiting vessels will go through boot scrubbing with disinfectant</td>
</tr>
<tr>
<td>4.3.7</td>
<td>Monitoring of spread of alien species will be carried out so that any accidental transfers between islands are quickly recorded and action taken to prevent spreading</td>
</tr>
<tr>
<td>4.3.8</td>
<td>All vessels visiting islands in the Tristan group will be required to register with the Conservation and Police Departments and to email certificates to show they are rodent free prior to arrival at Tristan</td>
</tr>
<tr>
<td>4.3.9</td>
<td>All visitors will receive a copy of the ‘Nature Conservation Guidelines for visitors to Tristan da Cunha and Outer Islands’</td>
</tr>
</tbody>
</table>
4.4 The programme of control or removal of alien plants will be expanded

<table>
<thead>
<tr>
<th>4.4.1</th>
<th>Control and possible eradication methods for the invasive alien species already established on Tristan da Cunha will be investigated</th>
<th>Ongoing</th>
<th>Tristan Biodiversity Advisory Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4.2</td>
<td><em>Sagina procumbens</em> will be eliminated from Gough, and control of <em>Sagina</em> on Tristan will continue especially around the harbour</td>
<td>Ongoing</td>
<td>Conservation Officer, UCT</td>
</tr>
<tr>
<td>4.4.3</td>
<td>Action to prevent the spread of species such as New Zealand Christmas tree on Tristan will continue and be extended to other species such as introduced conifers and soft rush above Sandy Point</td>
<td>2013/Ongoing</td>
<td>Conservation Officer</td>
</tr>
<tr>
<td>4.4.4</td>
<td>Alien plants recently introduced accidentally to Inaccessible Island will be removed</td>
<td>Ongoing</td>
<td>Conservation Officer, UCT</td>
</tr>
<tr>
<td>4.4.5</td>
<td>Nightingale and Inaccessible Islands will be closely monitored to ensure that the ongoing flax removal programmes are ultimately successful and the species is not allowed to re-establish</td>
<td>Ongoing</td>
<td>Conservation Officer</td>
</tr>
<tr>
<td>4.4.6</td>
<td>The programme for controlling Australian brass buttons on Nightingale will be continued to ensure that the species is not allowed to spread</td>
<td>Ongoing</td>
<td>Conservation Officer</td>
</tr>
<tr>
<td>4.4.7</td>
<td>The effects of alien plants on native species will be investigated, so that resources may be prioritised to the control of those alien species that pose the most threat to the native wildlife</td>
<td>2013/Ongoing</td>
<td>Conservation Officer</td>
</tr>
<tr>
<td>4.4.8</td>
<td>An invasive alien plant management programme for the control or eradication of prioritised invasive plant species on Tristan will be developed</td>
<td>2013/Ongoing</td>
<td>Conservation Officer, Agriculture Department</td>
</tr>
<tr>
<td>4.4.9</td>
<td>Funding will be sought for developing and implementing an invasive alien plant management programme on Tristan with training for staff of the Conservation and Agriculture Departments</td>
<td>2013</td>
<td>Conservation Officer, Agriculture Department</td>
</tr>
<tr>
<td><strong>4.4.10</strong></td>
<td>A database will be established, listing alien plants and their distribution, and chemical and mechanical methods that can be used for control/eradication with details on the appropriate timing for management and monitoring</td>
<td>2013/Ongoing</td>
<td>Conservation Officer, Agriculture Department</td>
</tr>
<tr>
<td><strong>4.5</strong></td>
<td><strong>The current programme for the control of alien terrestrial invertebrates will be expanded</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4.5.1</strong></td>
<td>Key invertebrate pests that are a priority for control or possible eradication will be identified</td>
<td>2013/Ongoing</td>
<td>Conservation Officer, Agriculture Department, Tristan Biodiversity Advisory Group</td>
</tr>
<tr>
<td><strong>4.5.2</strong></td>
<td>Control and possible eradication methods for target alien invertebrate species already established at the Tristan islands will be investigated and implemented</td>
<td>Ongoing</td>
<td>Tristan Biodiversity Advisory Group</td>
</tr>
<tr>
<td><strong>4.6</strong></td>
<td><strong>Introduced rodents are controlled or eradicated on Tristan and Gough</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4.6.1</strong></td>
<td>The feasibility study for the eradication of rodents from Tristan will be reviewed and updated</td>
<td>2015</td>
<td>Conservation Department, RSPB</td>
</tr>
<tr>
<td><strong>4.6.2</strong></td>
<td>Funding will be sought for the eradication of rodents from Tristan once approval is obtained from the Tristan community</td>
<td>Contingent upon approval</td>
<td>Conservation Department, RSPB</td>
</tr>
<tr>
<td><strong>4.6.3</strong></td>
<td>Funding will be sought to eradicate house mice from Gough Island</td>
<td>Ongoing</td>
<td>RSPB, Tristan Biodiversity Advisory Group</td>
</tr>
<tr>
<td><strong>4.6.4</strong></td>
<td>Awareness will be raised on Tristan of the danger of accidental introduction of rats and mice to Nightingale or Inaccessible</td>
<td>Ongoing</td>
<td>Conservation Officer</td>
</tr>
<tr>
<td><strong>4.6.5</strong></td>
<td>Measures will be put in place to prevent further introductions of rodents both in cargo from South Africa and by transfer between islands</td>
<td>Ongoing</td>
<td>Tristan Island Council, Administrator</td>
</tr>
<tr>
<td><strong>4.6.6</strong></td>
<td>Measures will be put in place to prevent the introduction of rodents from other boats, yachts, cruise ships visiting Tristan and the outer islands</td>
<td>Ongoing</td>
<td>Police, Conservation Department</td>
</tr>
</tbody>
</table>
### 4.6.7
**The Conservation Department and Darwin Team will maintain familiarity with contingency plans in case of accidental introduction of rodents to Nightingale or Inaccessible**

**Conservation Officer**

**2013/Ongoing**

### 4.6.8
**Alternative food sources for rodents on all islands will be removed through improved waste management (storage, collection and disposal of waste)**

**Public Works Department**

**Ongoing**

### 4.6.9
**An improved rat control programme will be implemented in the Village and at the Patches on Tristan**

**Agriculture Department**

**2012-2014**

### 4.7
**Following removal of alien species, affected species and ecosystems will be restored**

### 4.7.1
**The possibility of reintroducing the Tristan albatross to the main island if a rodent eradication takes place will be explored**

**Tristan Biodiversity Advisory Group**

**Contingent upon the success of 4.6.2**

### 5
**The sustainable use and management of the marine environment is enhanced**

#### 5.1
**The sustainability of the legal fishery will be ensured**

#### 5.1.1
**Advice on fisheries management will be sought from other South Atlantic UK Overseas Territories, South Africa and the UK**

**Fisheries Department**

**Ongoing**

#### 5.1.2
**Fish stocks will be monitored in order to provide better data to inform quota levels**

**Fisheries Department**

**Ongoing**

#### 5.1.3
**Marine Stewardship Council (MSC) certification requirements for the Tristan rock lobster fishery will be complied with**

**Fisheries Department**

**Ongoing**

#### 5.1.4
**A monitoring plan to monitor the CPUE of the Tristan rock lobster at Nightingale until the fishery returns to pre-Oliva catches will be developed and implemented**

**Fisheries Department, Marine Resource Assessment Group, Marine Resource Assessment and Management, Rhodes University**

**June 2012/Ongoing**
| 5.1.5 | Harvest Control Rules (HCR) and Operation Management Procedures (OPR) will be implemented | Ongoing | Fisheries Department, Marine Resource Assessment Group, Marine Resource Assessment and Management, |
| 5.1.6 | Research into the larval and early settlement stages of the Tristan Rock Lobster will be investigated | Funding dependent | Fisheries Department |

### 5.2 The impact of the legal fishery on the marine environment will be minimised

| 5.2.1 | All fishing vessels (long-liners and trawlers) will carry a Fisheries Department observer or International Observer on board to verify compliance with licence conditions and to ensure that mitigation measures are used | Ongoing | Fisheries Department, CapFish |
| 5.2.2 | Fishing licences will include a condition that mitigation measures are employed to minimize by-catch of non-target marine species and seabirds | Ongoing | Fisheries Department |
| 5.2.3 | Data on bird bycatch will be collected in updated Fisheries logbooks and analysed annually | July 2012/Ongoing | Fisheries Department, UCT, RSPB, BirdLife Global Seabird Programme |
| 5.2.4 | Existing procedures for ship-to-ship and ship-to-shore transfer of fuel will be followed and contingency measures will be in place and implemented in the event of a fuel spill | Ongoing | Fisheries Department |
| 5.2.5 | Fishing activities will not facilitate the spread of alien marine introductions between the islands | Ongoing | Fisheries Department |
| 5.2.6 | Fishing activities will have minimal effects on deep water seabed life | Ongoing | Fisheries Department |

### 5.3 Illegal fishing in the Tristan EEZ will be minimised

| 5.3.1 | Regular patrol assistance will be requested from licensed fishing boats, research vessels and naval vessels | Ongoing | UK Government, Fisheries Department |
| 5.3.2 | The means of setting up a system for monitoring fishing vessels in the Tristan EEZ will be investigated. This may include use of a long range patrol vessel, and surveillance by remotely operated radar installed on either Nightingale or Inaccessible Islands | Ongoing | UK Government, Fisheries Department |
| 5.3.3 | **Automatic Identification System (AIS) to monitor vessels passing within 100 miles of Tristan and Gough Islands will be installed** | 2012 | UK Government |
| 5.3.4 | **The scale of illegal fishing will be determined by monitoring reports of landings of Tristan Rock Lobster at foreign ports** | Ongoing | UK Government, Ovenstones (South Africa) |
| 5.3.5 | **Tristan Government will engage with regional and international fisheries organisations especially the International Commission for the Conservation of Atlantic Tunas (ICCAT) and the South East Atlantic Fisheries Organisation (SEAFO)** | Ongoing | UK Government, RSPB |

### 5.4 The marine biodiversity of Tristan will be maintained at its current level

| 5.4.1 | **The existing collections of preserved marine animals and seaweeds will be identified** | Ongoing | Rhodes University, Sue Scott |
| 5.4.2 | **Published information from previous surveys on the marine ecosystems will be collected and collated and further work required to establish a baseline of information on marine life will be identified and implemented** | Ongoing | Fisheries Department, RSPB, Sue Scott |
| 5.4.3 | **Contingency plan for alien marine introductions and other marine incidents will be revised and implemented** | 2013 | Fisheries Department, Sue Scott |
| 5.4.4 | **Fisheries and Conservation department staff and Darwin Team members will have familiarity with the identification of the introduced marine species in the marine environment contingency plan** | Ongoing | Fisheries Department, Conservation Department, Darwin Team |
| 5.4.5 | **The potential impact of introduced species on the native marine life particularly on economically important species will be identified, and mitigation measures to minimise the likelihood of such introductions occurring will be introduced** | Ongoing | Fisheries Department |
| 5.4.6 | **The status of the alien South American porgy and its impact on the local fish and marine ecosystem will be monitored** | Ongoing | Fisheries Department |
| 5.4.7 | **The settlement and status of alien marine invertebrates and vertebrates that arrived with the oil rig will be surveyed** | Funding dependent | Fisheries Department |
### 5.4.8 Alien marine species introduced at Nightingale as a result of the grounding of the MV Oliva will be identified and contingency measures for control/eradication will be developed and implemented. In particular, the mussels that arrived will be relocated and eradicated

<table>
<thead>
<tr>
<th>5.4.9</th>
<th>Improved sewage handling on Tristan will ensure that impact on the marine environment is minimised</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4.10</td>
<td>Awareness on island of the issue of plastic and other pollution at sea will be raised and international partners supported to address the issue</td>
</tr>
<tr>
<td>5.4.11</td>
<td>The potential impact of experimental long-lining and trawling around the Tristan Islands on Shepherd’s beaked whale will be investigated</td>
</tr>
</tbody>
</table>

### 6 The knowledge of Tristan’s key habitats and species is increased

#### 6.1 The current distribution of native habitats will, as far as possible, be maintained or improved

<table>
<thead>
<tr>
<th>6.1.1</th>
<th>Study plots will be established in key habitats on Tristan to monitor vegetation dynamics over time.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1.2</td>
<td>These study plots will be monitored every five years to assess change</td>
</tr>
<tr>
<td>6.1.3</td>
<td>Fixed point photographic sites will be identified on the slopes adjoining the Settlement Plain to monitor vegetation cover annually</td>
</tr>
<tr>
<td>6.1.4</td>
<td>The impact of alien species on native plants and habitats on Tristan and Nightingale will be assessed</td>
</tr>
<tr>
<td>6.1.5</td>
<td>The extent of Island tree woodland on Nightingale will be mapped</td>
</tr>
<tr>
<td>6.1.6</td>
<td>Guidelines for the sustainable management of the Island tree woodland on Nightingale will be developed and selected areas restored by a seedling planting programme</td>
</tr>
</tbody>
</table>

#### 6.2 Baseline information on indigenous terrestrial plant species will be expanded
| 6.2.1 | Survey work to establish baseline data on the range of the indigenous plants will continue | Funding dependent | Conservation Officer |
| 6.2.2 | The range of indigenous plants will be monitored on a five to ten yearly basis | Funding dependent | Conservation Officer |
| 6.2.3 | Baseline information on bryophytes will be expanded | Funding dependent | Conservation Officer, Tristan Biodiversity Advisory Group |
| **6.3** | Baseline information on terrestrial invertebrates on Tristan, Nightingale, and Gough will be expanded |  |
| 6.3.1 | The present work to identify invertebrates collected on Tristan and Nightingale | Ongoing | Conservation Officer, Christine Hänel |
| 6.3.2 | An invertebrate collection will be made on Inaccessible | 2015 | Conservation Officer |
| 6.3.3 | Funding will be sought for the study, collection and identification of invertebrates on Inaccessible | 2014 | Conservation Department |
| **6.4** | Measures will be taken to maintain stable populations of breeding birds |  |
| 6.4.1 | The 'Tristan da Cunha Implementation Plan for the Agreement on the Conservation of Albatrosses and Petrels (ACAP 2009) will be implemented at all the Tristan islands | Ongoing | Conservation Officer |
| 6.4.2 | Populations of the target species and annual harvesting of great shearwater chicks and eggs on Nightingale will be monitored to ensure that any harvesting is sustainable | 2012/Ongoing | Conservation Officer |
| 6.4.3 | Northern rockhopper penguins (breeding adult population and productivity) and breeding Atlantic yellow-nosed albatross will be monitored annually on Nightingale and Tristan as per the monitoring manual | Anually | Conservation Officer |
| 6.4.4 | The breeding ecology and foraging behaviour of northern rockhopper penguins will be investigated | 2012-13 | Conservation Officer, UCT, RSPB |
### 6.4.5 A census of Atlantic yellow-nosed albatross on Tristan will be carried out

| Funding | Conservation Officer, RSPB, Birdlife SA, ACAP Officer UK South Atlantic Overseas Territories (JNCC) |

### 6.4.6 Monitoring protocols will be put in place for breeding land birds

| Ongoing | Conservation Officer, RSPB |

### 6.4.7 The distribution of breeding pairs of Wilkins’ bunting on Nightingale will be mapped and a protocol for monitoring the species will be set up

| 2012/13 | Conservation Officer, RSPB, UCT |

### 6.4.8 Populations of target breeding seabirds and landbirds on Gough Island will be monitored, especially Red Listed species

| Ongoing | RSPB, UCT |

### 6.4.9 The impact of Subantarctic fur seals on breeding sea birds will be investigated

| Funding dependent | Conservation Officer |

### 6.5 Baseline information on marine animal and plant species and habitats around the Tristan islands will be expanded

#### 6.5.1 Fur seal numbers on Tristan will be counted annually

| Ongoing | Conservation Officer |

#### 6.5.2 Southern elephant seal numbers will be monitored on Gough

| Ongoing | Marthan Bester, RSPB, UCT |

#### 6.5.3 The occurrence of cetaceans, in particular Shepherd’s beaked whales around Tristan will be investigated

| Funding dependent | Fisheries Department |

#### 6.5.4 Specialist collection and identification of lesser-known marine animal and seaweed groups will continue

| Funding dependent | Conservation Department, Fisheries Department, Sue Scott |

#### 6.5.5 Basic knowledge on the dynamics of the shallow water marine environment including seasonal changes, food chains and reproductive timing and requirements of key marine species will be acquired

| Funding dependent | Conservation Department, Fisheries Department, Sue Scott |

#### 6.5.6 Intertidal and subtidal diving surveys on Gough using methods comparable to those used on Tristan, Nightingale and Inaccessible will be carried out

| Funding dependent | Conservation Department, Fisheries Department, Sue Scott |
| 6.5.7 | Key habitats and species in deeper waters around the islands using video and remote sampling will be surveyed and documented | Funding dependent | Conservation Department, Fisheries Department, Sue Scott |
Monitoring Progress

The Head of the Tristan Conservation Department will be responsible for monitoring the overall progress of plan implementation.

An annual progress report will be submitted to the Tristan Island Council by 1 May each year, recording actions under each activity heading. Other department heads responsible for actions under the plan will provide input into the report through updating the Head of Conservation on progress with those actions.

At the end of five years (2016), the action plan will need to be reviewed. Table 2 outlines indicators to monitor progress in implementing the plan at the end of five years.

Table 2: Tristan Biodiversity Action Plan Indicators

<table>
<thead>
<tr>
<th>Goal</th>
<th>Description and justification</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>To halt, or in the case of some species and habitats, reverse the rate of biodiversity decline on Tristan da Cunha</td>
<td>Tristan is one of the world’s smallest ‘nations’ but its biota, including millions of seabirds and many endemic species, represents a significant part of the UK’s and the World’s biodiversity</td>
<td>Stable populations of key species over a five-year period e.g. Atlantic Yellow-nosed Albatross and Northern Rockhopper Penguin, are reported to BirdLife International for use in IUCN Red List assessments</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Purpose (5 years)</th>
<th>Description and justification</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>To enable the people of Tristan to actively engage in and benefit from the conservation of biodiversity on their islands</td>
<td>The economy of Tristan is, at present, almost completely dependent on the sustainable harvesting of it’s natural resources, and so the conservation of the biodiversity of Tristan is of fundamental importance to the protection of livelihoods on the island</td>
<td>Use of the quota system to manage fisheries sustainably provides 90% of the total Tristan Government revenue Revenue raised from tourism increases by 10% At least 12 Tristanians are actively involved in biodiversity conservation activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Description and Justification</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Biodiversity Conservation is integrated into all Government, programmes, policies and plans (both those of Tristan Government and those of the UK that affect Tristan),</td>
<td>As the conservation of biodiversity is fundamental to livelihoods on the island any development plans must take its protection into account</td>
<td>References to biodiversity and its conservation are made in the economic development plan An annual report is presented to the Tristan Island Council and Tristan Biodiversity Advisory Group</td>
</tr>
</tbody>
</table>
2. Support for biodiversity conservation is strengthened on Tristan

<table>
<thead>
<tr>
<th>Conservation Officer participates at Tristan Island Council meetings at least 2 times/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Darwin Initiative project and OTEP projects have raised awareness of conservation issues on Tristan but this process needs to be continued</td>
</tr>
<tr>
<td>Two conservation newsletters/year produced for the Tristan community</td>
</tr>
<tr>
<td>Environmental education is developed in the school curriculum</td>
</tr>
<tr>
<td>Tests show school children are more aware of the natural heritage of Tristan da Cunha</td>
</tr>
</tbody>
</table>

3. Tristanians have the capacity to manage biodiversity effectively

<table>
<thead>
<tr>
<th>Tristan Biodiversity Advisory Group is regularly consulted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation Officer uses network of contacts, particularly in the UK South Atlantic OTs in order to strengthen biodiversity management on Tristan</td>
</tr>
<tr>
<td>Management plans for all four islands of the Tristan group are produced/updated and implemented</td>
</tr>
</tbody>
</table>

4. The impact of alien species is reduced or eliminated

<table>
<thead>
<tr>
<th>The greatest threat to the wildlife of Tristan is from the introduction of alien species, both plant and animal.</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no new introduction of alien species to the Tristan islands from each other and elsewhere</td>
</tr>
<tr>
<td>Procumbent Pearlwort is eradicated from Gough</td>
</tr>
<tr>
<td>New Zealand Flax is eradicated from Nightingale &amp; Inaccessible</td>
</tr>
<tr>
<td>Impact of rodents on wildlife is decreased/halted through control/eradication</td>
</tr>
</tbody>
</table>

5. The sustainable use and management of the marine environment is enhanced

<table>
<thead>
<tr>
<th>Data is collected according to best practice and submitted annually for analysis to establish quotas</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSC certification requirements</td>
</tr>
<tr>
<td>The marine life of the Tristan islands is of global significance and holds many endemic species, yet there is little information or knowledge. The Tristan economy is almost entirely dependent on a</td>
</tr>
</tbody>
</table>
| **6. Knowledge of Tristan’s key habitats and species is increased** | Information is lacking on the numbers and distribution of many of the key species, particularly the native invertebrates. Very few species have had long term monitoring | Annual monitoring of key species on Tristan and Nightingale is carried out as detailed in the monitoring manuals, and the data published or made available via the Tristan website
A full terrestrial invertebrate survey of Inaccessible is undertaken
Study plots in key habitats are in place |
Background and Context for Implementation

This section describes some of the local and global context for the implementation of this plan. There are many other publications that contain additional information about Tristan – readers can refer to the bibliographies in the Annexes for more references.

Roles and responsibilities
Responsibility for the conservation of the biodiversity of Tristan da Cunha lies primarily with the Tristan Island Government, with advice from the Governments of St Helena and the UK, and from Non-governmental Organisations (NGOs), universities and other groups: the Royal Society for the Protection of Birds (RSPB), University of Cape Town (UCT), Tristan Biodiversity Advisory Group (T-BAG), and the UK Overseas Territories Conservation Forum (UKOTCF). The UK retains responsibility for external affairs, including fulfilling requirements of international conventions such as the Convention on Biological Diversity.

Relevant Legislation
The latest Conservation Ordinance was agreed by the Tristan Island Council in June 2005, and approved by the Attorney General in St Helena in January 2006. The objectives of this legislation are the maintenance of fauna, flora and geological, scenic and historical features of the islands. The Tristan da Cunha Fisheries Limits Ordinance of 1983, as amended in 1991, 1992, 1997 and 2001, defines the fisheries limit around each of the islands as 200 nautical miles, and makes provision for fishing within these limits.

Land management on Tristan is controlled by the Land Adjudication (Tristan da Cunha) Ordinance of 1997. The import and export of livestock and fresh goods is controlled by the Export and Import Control (Tristan da Cunha) Ordinance of 1976 (as amended).

Under the Conservation Ordinance, Gough Island has been named a Nature Reserve with a boundary of 12 nautical miles from shore. For management purposes, Gough Island is divided into a logistic zone (six ha for support of the meteorological station), marine zone, scientific research zones, and a conservation zone that encompasses the vast majority of the island. Gough Island was designated as a Ramsar Wetland of International Importance in 2008.

Inaccessible Island has also been declared a Nature Reserve under Tristan da Cunha legislation, including surrounding waters out to 12 nautical miles. Tristan islanders still retain the right to collect driftwood and guano but other access is restricted and all living resources are protected. The ‘Inaccessible Island Nature Reserve Management Plan’ came into effect in March 2001. Inaccessible Island was designated as a Ramsar Wetland of International Importance in 2008. A joint ‘Gough and Inaccessible Islands World Heritage Site Management Plan April 2010 – March 2015’ came into effect in 2010.

Whereas Tristan Island and the Nightingale Island group are not protected as Nature Reserves, they are subject to the 2006 Tristan da Cunha Conservation Ordinance as given above. Under this Ordinance, all
(currently eight) breeding colonies of Northern Rockhopper Penguin on Tristan Island are declared as Nature Reserves. However, their geographical boundaries are yet to be determined and published.

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

Protection of the birds of the Tristan group is provided for by the Tristan da Cunha Conservation Ordinance of 2006. Harvesting of seabirds and their eggs is currently restricted to two species only at Nightingale and Alex Islands. Penguin eggs are collected in September, and eggs and chicks of the Great Shearwater are collected during the summer on Nightingale.

**International measures relevant for the conservation of sites**

As a part of the UK Overseas Territory of Saint Helena, Ascension and Tristan da Cunha, Tristan is included under the ratification by the UK of The Convention on Biological Diversity (the CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Wetlands of International Importance, especially as Waterfowl Habitat (the Ramsar Convention), the Convention on the Conservation of Migratory Species of Wild Animals (CMS), and the Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention). Gough Island and its territorial waters to 12 nautical miles was granted World Heritage status in December 1995, only the third British site to be so recognized for its natural value. In 2004, the World Heritage designation was extended to cover Inaccessible Island and its territorial waters.

Seabirds and seals that breed on the Tristan islands spend significant proportions of their lives outside the Tristan da Cunha EEZ, and their conservation in international waters is facilitated by international agreements, in particular the Convention on Conservation of Antarctic Marine Living Resources (CCAMLR) and the Agreement on the Conservation of Albatrosses and Petrels (ACAP).

In April 2006, the UK Government ratified ACAP on behalf of Tristan. The priorities for action under this agreement are the monitoring of populations of the three albatross species, Tristan albatross, Atlantic yellow-nosed albatross and sooty albatross, the southern giant petrel, spectacled petrel and grey petrel. Another priority is the eradication of rodents from Tristan da Cunha and Gough and the development of rigorous quarantine procedures on materials entering Tristan and moving between the islands, especially in respect of rodents and avian diseases. The ACAP implementation plan for Tristan was adopted in 2009 with a prioritised work programme defined.

**Conservation Management**

Much of the monitoring and monitoring of the biodiversity of Tristan da Cunha prior to the implementation of the Tristan Biodiversity Plan (2006-2010) was carried out by teams of visiting scientists. Local capacity to carry out conservation work on Tristan has now been significantly enhanced but is still limited by a small workforce, and very little formal scientific education. The Tristan Studies course in the curriculum is therefore of the utmost importance.

The Tristan Darwin Initiative project delivered fieldwork training to a team of 10 government employees, the ‘Darwin Team’, and much of the conservation work since 2006 has been carried out by
this team, led by the Tristan Conservation Officer. There will still be a need for specialist input, but most seabird and seal monitoring on Tristan and Nightingale Islands, is now carried out by the government workforce. Where possible, at least two members of this team will work with any future conservation projects in order to maximise the training opportunities afforded by such projects.

On Inaccessible Island, the Tristan conservation team carries out some of the seabird monitoring and alien invasive plant control. All other monitoring has been carried out during research visits from the University of Cape Town.

Due to the limited opportunities for the Tristan Conservation Department to visit Gough, conservation management and research there will continue to require South African logistic support. Nearly all the monitoring on Gough Island is carried out by two members of the Gough annual team except during the annual relief expedition when two Tristanians are able to join the team during the three week handover period.

**Location and geography**

Tristan da Cunha is the largest of a group of six islands in the mid South Atlantic Ocean, 2,800 km from Cape Town, South Africa and 3,950 km from Mar del Plata, South America. The main island of Tristan and the Nightingale Island group that includes Middle (or Alex) and Stoltenhoff, and Inaccessible Island lie within 40 km of each other and constitute the ‘top’ islands of the Tristan da Cunha group. Gough Island lies 350 km south-south-east of Tristan da Cunha itself. 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. The Tristan da Cunha islands form part of a chain of volcanic seamounts that includes Isolda, McNish, RSA, Zenker, Sky Bank and one unnamed, within the Tristan EEZ.

The islands are of volcanic origin, of varying geological age and stage of erosion, with the oldest rocks dating back 18 million years. The main group certainly cannot be regarded as volcanically extinct. There was a submarine eruption near Nightingale in August 2004 and an eruption on the main island of Tristan in 1961 resulted in a two-year evacuation of the entire community.

The Tristan islands form part of the United Kingdom Overseas Territory of St Helena, Ascension and Tristan da Cunha. There is no air link – transport to and from the islands is by fishing vessel every few months, and the annual visit by the South African Antarctic supply and research vessel.

**People**

The islands were first discovered by Portuguese sailors in 1506, and have been inhabited since 1811 by a succession of British soldiers, sealers and whalers and shipwrecked sailors of various nationalities. The present population of 261 (June 2012) are the descendants of seven early male settlers (Glass, Green, Hagan, Laverello, Repetto, Rogers and Swain). All age groups are represented with 34% of the population over 60, increasing from 18% of the population in 1982. The population has steadily declined from a maximum of around 300 to the present 261. The entire population live in one settlement, Edinburgh of the Seven Seas, which is in the north of the main island of Tristan.
As part of a UK Overseas Territory, the UK Government is represented by a resident Administrator who is advised by an Island Council of eight elected and three appointed members. The elected member with the most votes is chosen as Chief Islander.

Economy
Tristan only became a cash economy in the 1950s when the rock lobster or ‘crayfish’ industry was established. Until then it had been a subsistence community and it is still the case that the islanders produce a substantial amount of their own food (meat, potatoes, a small amount of vegetables and fish).

Currently Tristan da Cunha is almost economically self-supporting – only large capital projects require overseas funding, although government reserves have been in decline. Tristan Government revenue finances healthcare and education.

The economy of Tristan is mainly based on the Tristan Rock Lobster Jasus tristani or fishery (the frozen product is exported), with small revenues raised from philately (worldwide sales) and handicrafts (mainly woollen goods).

In the past profits from the fishery have been used to build up reserves. After a period when reserves declined, Government activities have been vigorously directed to their re-building and to keeping pace with trends in the rock lobster industry and the needs of the Island. The economy of Tristan can be greatly affected by man-made disasters, such as the wreck of the MS Oliva on Nightingale Island in 2011. The government is aware of the urgent need to diversify the economy as current reserves will soon be depleted. However, without the improvement of the harbour (see below) there are few options available for Tristan.

The government is the chief employer on the island with a current workforce of 135. The rock lobster factory provides permanent employment for 21 and casual employment for 35 fishers (mainly males) and 71 factory workers on fishing days. Many of those employed in the rock lobster industry also do casual work for the government as fishing only takes place on about 60 days/year. If incomes from tourism, including wildlife tourism increase, this could open up the possibility of increased private enterprise.

The Government owns the one shop on the island and virtually all supplies come from Cape Town. Most items are subject to a 75% mark-up although some basic foodstuffs, including flour, tea, milk, certain vegetables and rice are subsidised.

Fisheries
The main commercial fishery of Tristan is for Tristan rock lobster with a by-catch of common octopus Octopus vulgaris; other species taken commercially under licence are bluefish Hyperoglyphe antarctica, tuna and alfonsino Beryx splendens and B. decadactylus.

The rock lobster concession is held by a British registered company, Eurex, that has offices in the Isle of Man and South Africa (Ovenstone Agencies). The company currently operates two vessels, the
Edinburgh and the Baltic Trader. Only the Edinburgh fishes around the islands of Nightingale, Inaccessible and Gough for which a quota is set each year by the Fisheries Department. Eurex owns the factory on Tristan and operates a fleet of nine small inshore boats that are used by the islanders to fish for the Tristan rock lobster quota. The Tristan quota is caught primarily by the Tristan fleet, and only on days when the weather is fine. However, in the past few years, following an increase in the island quota, the island fishermen have not been able to catch it all because of adverse weather and harbour conditions and the Edinburgh has come in to catch the balance.

Tristan fishing days are decided by a team of two on a daily basis. If they agree on a ‘day, a ‘dong’ is then rung early in the morning and the fishermen and the factory workers are employed for that day. The rock lobster fishing season for the Tristan local fleet runs from July until April, or until the quota has been caught, and from August 1st until the end of April for the Edinburgh. The islanders only undertake daylight fishing and cease fishing at the end of April to allow two months (May–June) to carry out maintenance on the fishing boats and to allow the rock lobster to reproduce.

There is no trawling on the seamounts within the Tristan EEZ taking place at present. Tristan grants one licence for long-lining each year. The last licence was issued in 2008 to a vessel operated by Viking Fishing (Pty) Ltd. It is the intention to start experimental long-lining and trawling for bluenose and alfonsino in 2013, allowing one vessel in Tristan’s EEZ at any one time.

The present sea fisheries patrol boat is a Pacific 38-ft fibreglass boat with a range of about 170 miles. There is a limit to the size of fisheries patrol vessel that can be kept on Tristan due to the harbour restrictions (see below). The Fisheries Department uses its vessel to patrol the northern islands of Nightingale, Inaccessible and Tristan, but has no capability to patrol the waters around Gough. For the present Tristan relies on the Edinburgh and the occasional Naval vessel travelling through the area to report any illegal fishing. In the future it is hoped to use satellite surveillance to protect the Tristan fisheries.

The Fisheries Department is responsible for providing the information necessary to manage the fisheries, and now has a 100% observer coverage policy. Data taken from the catches are analysed and this information is used to set quotas. Five thousand rock lobster samples are taken from each island and measurements taken from these. The Fisheries Department also carries out independent biomass surveys before the start of the season and once the quota has been caught. These data, along with information on catch per unit effort (CPUE), used to be analysed by Marine Resource Assessment Group (MRAG) in the UK, but is now sent to Marine Resource Assessment and Management (MARAM) at the University of Cape Town and fed into a computer modelling programme. MARAM advise Tristan on replacement ranges, which assists the Fisheries Department with setting the Total Allowable Catch (TAC) for the next season.

The Tristan rock lobster fishery received Marine Stewardship Council (MSC) certification in 2010 and the Fisheries Department will carry out its first annual audit in 2012. In 2012 MARAM in conjunction with the Tristan Fisheries Department and MRAG will be producing Harvest Control Rules (HCR) and Operating Management Procedures (OMP) as part of the MSC certification.
The management of the fishery around the main island of Tristan is guided by a Fishing Council Committee, which has eight members representing the fishermen, the fishing company, the Fisheries Department and the Island Council. The Tristan fishery is controlled not only by the quota given for the island, but also by the amount of time boats are allowed to spend in the water on fishing days, gear restrictions and size limit.

The management of the rock lobster fishery around Tristan is considered to be sustainable. This was not always the case, and until the 1990s stocks were decreasing due to overfishing. The stocks now appear to be recovering, especially at Gough since the quota was reduced by 30 metric tonnes and the size limit increased from 70 mm to 75 mm carapace length (CL).

In March 2011, due to the grounding of the MS Oliva at Nightingale Island and the subsequent oil spill, the fishery at Nightingale and Inaccessible was closed. That at Inaccessible has since reopened with a reduced quota, but the fishery at Nightingale will only be reopened when both the product tests fit for human consumption and the test fishing results indicate that the CPUE levels are on the increase.

Tourism
Tourism has increased on the island since the establishment of a dedicated Tourism Department in 2008. A few tourists come on the fishing and cargo vessels run by Ovenstones when berth space is available, but the majority of tourists arrive on a cruise ship, although some of these do not land because of the harbour constraints (see below). Some tourists can also come to the island in September/October on the South African research vessel S.A. Agulhas (now replaced by the S.A. Agulhas II).

Tourists provide an important source of Government revenue in the form of landing fees and purchases from the Post Office. They also buy handicrafts and pay for islanders to guide them, and this forms an important part of the private income for some people. In 2010/11, eight cruise ships visited bringing in over £63,000 to the island. In 2011/12 revenue to the island from five cruise ships, two research vessels and one naval ship totalled more than £76,000. The Royal Mail Ship, which visited Tristan in January 2011 and where some passengers stayed on the island for three days, raised £14,000 in revenue.

There is no hotel on Tristan, and tourists that stay on the island stay either with an island family or rent one of the houses available for self-catering.

Harbour
The present harbour was built in the 1960s, after the previously used landing beaches were covered by the lava flow from the 1961 eruption. Unfortunately the harbour is shallow and very prone to being closed by bad weather and is only in use for 90-120 days of the year. Boats kept on Tristan are lifted in and out of the water by crane. This places severe restrictions on the island. There are many occasions when passengers and freight cannot be landed because of the weather conditions, and there is a limit to the size of boat that can use the harbour both because of the shallow depth and the need to be lifted by crane. DFID and EU funding have now been approved to improve the existing harbour, but there will still not be a jetty large enough or in deep enough water for cruise ships to come alongside. The much
needed longer term solution of building a new harbour or extending the existing harbour, is still being investigated.

Agriculture

Sheep
There are approximately 2,500 domestic sheep on Tristan. Approximately 1500 of these are grazed in the Settlement Plain in the north of the island. The numbers of sheep in this area are controlled and each person (adults or child), is only allowed to keep two breeding ewes and their offspring in this area. Before they are too old lambs are ear-marked, female lambs tailed and the male lambs castrated. Particularly good male lambs will be selected for breeding by the shepherd, with the ratio of ewes to billies on the Plain at approximately 50:1. Wethers born between June and October will be slaughtered in the December of the following year. Older ewes without lambs from the current breeding season are slaughtered in December. Those older ewes, with lambs, that are going to be replaced by younger ewes, are slaughtered at Easter after their lambs are weaned. The sheep are slaughtered either at home or in one of the two slaughterhouses in the Village. The meat is stored in home freezers and in crates in the island store freezer.

The sheep are sheared annually in December, and everyone on the island helps with this process. The sheep are gathered and those belonging to individual families are penned separately and then sheared and marked. This is also an occasion when many sheep are slaughtered.

On the mountain plateau (called ‘the Base’) there are a number of flocks of sheep owned by groups of people who are collectively responsible for bringing them down for slaughter and shearing them. Mutton from these animals is often given away to those who do not have mountain sheep. Some fences have been erected on the plateau to separate the different flocks but these are hard to maintain and in general the animals are free-ranging. Fencing materials are usually carried up to the Base, or on the very few occasions when this is possible taken by helicopter. The groups who own the mountain sheep only go up to gather them once or twice a year. The sheep are usually slaughtered up on the Base and the meat and wool carried down, or sometimes they are driven down the two access routes with the aid of dogs, and slaughtered in the Village.

Although there are fewer people maintaining flocks on the Base than in the past, there has been an increase in the number of islanders doing so in the last few years and sheep are still present in relatively large numbers. While some of the sheep are ‘hefted’, staying within a home range on the Base, many sheep have become feral, and there is nothing controlling their numbers. With increases in the cost of living and an increased demand for Tristan woollen goods abroad, it is possible that flocks will be watched and managed more closely on the Base.

Sheep grazing has almost certainly been responsible for the spread of introduced plants on the mountain. Uncontrolled grazing can have serious negative impacts upon the ecology and hydrology of the native vegetation, through grazing of rare flowering plants and ferns, trampling, facilitating the spread of introduced species and increasing the effects of erosion. Reducing the impacts of sheep
grazing on the mountain through improved stock management has to be a high priority for the next five years.

**Cattle**
Most of the island’s cattle are kept on the Settlement Plain – in fact many of them graze in the village itself. There are about 400 kept here, including two bulls. Each family is entitled to two breeding cows, one for a single adult. Young heifers and steers have to be slaughtered by the age of three years or breeding cows slaughtered and replaced by the young heifers. Slaughtering has to take place by the end of May each year.

There are also three herds of cattle on the other coastal plains, comprising a total of about 200 animals. These are owned privately, but not every family has cattle there and recently those who have animals in these herds have sold their surplus beef. Breeding heifers are taken to these areas by boat, while the animals that are killed are shot and butchered in the open before the meat is brought back by boat. At Sandy Point the number of cattle is restricted to 30 animals in this area due to the limited grazing available. Cattle have to be slaughtered by three years of age. At Stony Beach/the Caves, there are no restrictions on the number of cattle permitted or the age at slaughtering as cattle often die during harsh winters due to lack of grazing.

Hay is no longer brought in from Cape Town because it was the source of many of the introduced plant species. Imported pellets have been substituted for winter feed. Tristan has no tradition of producing its own hay, haylage or silage and the pastures of the coastal plain could only be managed to that end if new fences were erected and there was agreement on pasture management. The UK Government used to provide fertiliser for the island, but when this was stopped in the 1980s grazing was not rich enough to provide for all the cattle, and it was cheaper to import fodder than fertiliser. The Agriculture Department has a small budget to provide fertiliser for the pasture.

**Other livestock**
Since 2008, the Agriculture Department no longer keeps pigs. Almost all households have hens and ducks, which lay for most of the year. Twelve donkeys are still kept on Tristan although they have not been used for transport for many years. They are not able to breed and they must to some extent compete with the cattle and sheep for pasture.

**Crops**
Potatoes are the main crop and these are grown at the Patches, about three miles from the village. Other vegetables are also grown at the Patches as well as on plots within the Village. All families own potato plots, which are dug, planted and harvested by hand. Most of the seed stock is from the island, but occasionally fresh seed potatoes are brought in from Cape Town. Agricultural weeds (known locally as kikuyu grass, fumitory and milk weed) are a big problem, especially as the soil is turned by hand. Most plots are sprayed before planting, but several plots have now been abandoned, as they are overgrown with weeds. Some of these have been taken in for grazing cattle. Again it would serve both conservation and agricultural interests to investigate control methods for these introduced plants. However for the most effective control of agricultural weeds at the Patches methods would need to be
implemented collectively and simultaneously across all the patches rather than in isolation by individuals.

A school garden where vegetables are grown by the children has been in operation since 2009. Spare produce is sold on the island and the profits used to buy seed and tools. Two wooden-framed greenhouses have been erected and are run by the Agriculture Department for the production of salad crops and for raising seedlings.

**Seabird harvesting**

Since the earliest settlements on Tristan da Cunha seabirds have formed an important part of the diet of the islanders. Human pressure together with the impact of introduced rats and cats was almost certainly responsible for the elimination of the Tristan albatross, most burrowing petrels and the endemic Tristan moorhen from the main island. Atlantic yellow-nosed albatross were taken in some numbers for food as late as the 1950s. Until 1976 the seabird harvest was unregulated. With the introduction of the Tristan da Cunha Conservation Ordinance of 1976 and subsequent amendments, the taking of seabirds and their eggs was prohibited on Tristan, Gough and Inaccessible.

The taking of northern rockhopper penguin eggs and great shearwater (‘petrel’) eggs and chicks, is still permitted on Nightingale and its islets. The penguin eggs are normally taken from the largest colony on Nightingale and from the nearby islet known as Middle or Alex Island. The collection is made in September by a team of about six islanders, and the eggs are then distributed throughout the households. Only one egg is taken per nest, and this is the smaller first-laid egg. In 2009, 2,500 eggs were collected from Alex Island and none from Nightingale. In 2010, 5,000 eggs were collected from Nightingale, none from Alex. In 2011 none was collected from either island, nor will any eggs be collected in 2012. The small numbers collected are thought unlikely to have an effect on the population. Guano is still collected in small quantities from the main penguin colony on Nightingale, with ten sacks collected in 2011.

Great shearwater eggs and chicks are collected from burrows in a specific area of Nightingale Island. No eggs were collected in 2008, 2009 or 2010. In 2011, less than 100 eggs were collected. However the collection of chicks has continued and in the 2011/12 breeding season approximately 5,000 chicks were collected. It used to be traditional for eight long boats each with a team of at least six to eight men to go to Nightingale for shearwater chicks on a ‘fattening trip’. Long boats were last used on the trip in 2004 when four sailed to Nightingale. The shearwaters are still plentiful in the area where the collection takes place, however islanders observed in 2011 that numbers of broad-billed prions *Pachyptila vittata* in this area seemed to be on the increase, and that birds were taking over petrel burrows. Programmes to monitor the annual harvesting of great shearwater eggs and chicks will be implemented to assess the impact that collecting may be having on the populations.

**Settlement on the other islands**

The other islands are uninhabited, but there are trips during the summer to Nightingale Island for seabird and guano harvesting. About 20 wooden huts and shacks, and pathways, have been constructed on Nightingale for this purpose. Inaccessible Island has been less often visited since 1938, but before
then was visited more frequently than Nightingale. A research hut built on Inaccessible by the Denstone Expedition in 1982 was demolished and replaced with a new hut in January 2000. The only settlement on Gough is the South African meteorological station manned by six to eight persons, consisting of about 10 buildings, at Transvaal Bay in the south-east of the island.

**Biodiversity**

The islands are most famous for their birdlife and this has been most studied (see Annex 4 for breeding bird list). The seven species of breeding landbirds are all endemic, and there are millions of pairs of breeding seabirds. Four species of seabirds: the Atlantic yellow-nosed albatross, Tristan albatross, Atlantic petrel and spectacled petrel are endemic to the islands, and there are important breeding populations of some 18 other species. There are two Endemic Bird Areas covering the main Tristan group and Gough and all four main islands are designated Important Bird Areas as they support globally significant populations of numerous seabird species. There are no records of introduced birds other than poultry but the present population of endemic moorhens on Tristan is believed to descend from birds of the Gough Island sub-species liberated in 1956.

At least 287 plant taxa have been recorded (see Annex 6a and 6b), including 43 native ferns and clubmosses and 52 native flowering plants. Of these, 21 fern and clubmoss and 32 flowering plant taxa are considered to be endemic.

There are no native land mammals, reptiles, amphibians or freshwater fish on the islands.

The terrestrial invertebrate fauna (see Annex 7) is relatively depauperate, with approximately 430 species recorded from all the islands. Some 20% of these are parasitic including ticks, fleas, lice and louse flies, many of which are found only on birds. Insects comprise over 60% of all the terrestrial invertebrates with at least 270 species across 11 orders; close to half of these are thought to be native to the islands, and half of those, endemic. The role that invertebrates play in the islands’ ecosystem dynamics is poorly understood; further study of the terrestrial invertebrate fauna is a priority.

The rocky intertidal and shallow subtidal (to 40 m depth) are characterised by dense turfs of seaweeds and kelp forests, with a relatively diverse seaweed flora for such a small and isolated location of over 120 species, of which around a third are thought to be endemic to the Tristan islands. The marine macrofauna is relatively species-poor, but varies between animal groups. For example there are very few echinoderms, but the sponge fauna is more diverse, and still largely unstudied. Many of the invertebrate groups are of unusual species composition, reflecting chance colonisation mainly from drifting attached to kelp and other material. The fauna of the deeper seabed around the islands, which extends to depths of 3000 m within a few kilometres of the coast, is largely unknown, but includes seafans and corals.

Seals are the only native mammals breeding on land. There are two species, the Sub-Antarctic Fur Seal and Southern Elephant Seal, both of which have been exploited in the past. Five whale species: Southern Right Whale, Sperm Whale, Humpback Whale, Long-finned Pilot Whale and Shepherd’s Beaked Whale occur relatively frequently, the last with occasional strandings. Dusky Dolphin are common around Gough Island and Short-beaked Common Dolphin may be regular offshore.
Conservation Threats
The main threats to biodiversity on all the islands are introduced invasive species, pollution incidents from increased shipping traffic and long-line fishing. Introduced invasive species have the potential to alter native habitats and compete with native species in both the terrestrial and marine environments, including the economically important Tristan Rock Lobster. Climate change may also be a significant threat for the future. Long-line fishing is a major threat to some procellariiform seabirds, most notably the spectacled petrel, Tristan albatross, Atlantic yellow-nosed albatross and sooty albatross. Large-scale mortality of the first 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.
Summary descriptions of the Islands and their ecology

The six main islands of the Territory each have distinct characteristics, and these are outlined below, together with some information on their surrounding marine area. More information is available from www.tristandc.com, and in the many published books and reports about Tristan.

Tristan da Cunha

Area: 96 km²

Conservation status: The eight northern rockhopper penguin colonies on Tristan are all classified as nature reserves. Tristan, and all the Tristan Islands are subject to the Tristan da Cunha Conservation Ordinance. The south-eastern sector remains the largest refuge for the Tristan thrush and seabirds and is rarely visited (it has no official designation). The Tristan Islands Endemic Bird Area (EBA) covers Tristan, Nightingale and Inaccessible islands; Tristan Island is an Important Bird Area (IBA) in its own right.

Geology and geomorphology: Roughly circular in plan with an average diameter of some 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. A series of ravines, locally known as gulches, radiates from the central peak down to the coast. Tristan is geologically the youngest island in the group, at around 200,000 years old. At the summit there is an unbreached crater containing a shallow lake that is frozen in winter, and there are several crater lakes on the plateau (known as the 'Base') at just above 600 m. There are four significant coastal plains – the Settlement Plain in the north, a smaller one between Cave Point and Hackel Hill in the south-west, Stony Beach to Deadman’s Bay in the south, and Sandy Point in the east.

Terrestrial habitats: Nine broad vegetation zones can be identified on the island, defined by a dominant species or suite of species. Whereas they fall into bands roughly determined by altitude, most zones are mosaics where different vegetation types overlap to varying degrees, mostly dependant on the occurrence of suitable habitat. Aspect and topography, more than altitude, play a role in creating the tapestry which comprises Tristan’s vegetation zones – for instance areas designated as Blechnum palmiforme heath are often interspersed by patches of Phylica woodland in the hollows and protected valleys, or Empetrum-Rhacomitrium heath on the exposed ridges. The nine vegetation zones are as follows:

1. Lowland grassland: The lowland plains are dominated by alien grasses, which provide grazing for sheep and cattle. Apart from the four main lowland plains, lower slopes like those at Anchorstock and Rookery Point are good examples of where continued grazing has replaced native plants with lowland grassland. Tussock grassland was once widespread on the Settlement Plain but has been cleared and as a vegetation type no longer exists on Tristan. However tussock grass Spartina arundinacea, is widespread across the island but does not dominate in any of the vegetation types. There is no evidence that the subantarctic tussock grass, Paradichloea
**flabellata**, which dominates the coastal slopes of Gough ever occurred in the three northern islands.

2. *Blechnum penna-marina* sward. The sward is dominated by a low-lying fern, which thrives on the steepest of slopes. It is most common on the sea cliffs and the sides of gulches that intersect the base.

3. *Blechnum palmiforme* scrub. This habitat is dominated by small tree ferns, referred to as bog ferns on Tristan. It occurs at intermediate altitudes, from the upper levels of the sea cliffs to the steeper gradients on the base where it is replaced by grasses, sedges and mosses. The size of the ferns varies according to age and exposure; in a sheltered area they will grow to more than a metre in height whereas those on exposed ridges are much reduced in size.

4. *Phylica* woodland. Island trees *Phylica arborea* dominate this habitat. They are found at similar altitudes to the bog ferns, and are often found growing together. They tend to thrive better in slightly sheltered situations, and are commonly found at the bottom of gulches and throughout the side of the island sheltered from the prevailing westerly winds where they form an almost continuous cover. In unusual circumstances *Phylica* will grow to a considerable size, up to 10 m or so, but trees are usually no more than 2 or 3 m in height. *Phylica* also occurs in *Empetrum* heath or *Blechnum palmiforme* scrub in its less common procumbent form, rarely standing more than 50 cm tall.

5. *Empetrum rubrum* heath. This zone is rich in small native fern, grass and sedge species but is dominated by Island Berry *Empetrum rubrum*, which produces large numbers of berries which are collected by islanders and used in pies and puddings. *Empetrum* heath is also widespread in its distribution being the main vegetation type that occurs in patches throughout most of the other vegetation zones.

6. Wet heath and bog. A small number of places are permanently waterlogged and consequently support a different flora, dominated by mosses and sedges. The area known as Soggy Plain is the largest peat bog on the island. Wet heath is characterised by dwarf forms of small bog grass *Isolepis bicolor*, *Carex thouarsii*, *Uncinia* and *Agrostis* species all growing on more or less level ground.

7. Upland grassland. This zone is divided into two distinct types, introduced-species and native-species dominated grassland. Introduced-species dominated grassland, is dominated by farm grass (Yorkshire fog) *Holcus lanatus*, *Agrostis capillaris*, *Poa annua* and *Rumex acetosella*, locally known as 'sour-grass', though it is a sorrel, not a grass. Sheep grazing seems to favour the introduced species at the expense of native ones. The Humps, for example, are almost totally dominated by this vegetation type. Native-species dominated grassland, is rare and restricted to exposed ridges away from the main sheep grazing areas. Clumps of *Deschampsia christophersenii* and *Agrostis holgateana* interspersed with *Uncinia* sp., *Empetrum* and low growing *Blechnum palmiforme* are characteristic of this vegetation zone and tend to occur on the windward side of ridges or more exposed hills on the Base.

8. *Rhacomitrium-Empetrum* heath. The higher reaches of the mountain are dominated by this greyish, woolly, moss and 'Island Berry' as the islanders call *Empetrum rubrum*. Few plants can colonise the cinder slopes, but *Rhacomitrium-Empetrum* heath stabilises the loose cinders along with *Agrostis magellanica* and *Acaena stangii*. *Empetrum* forms dwarf dark green cushions
which, with their bright pink berries, stand out amongst the moss. The moss’s habit of colonising loose substrates means that it is easily dislodged by walkers and sheep; the few human visitors to this altitude tend to follow fixed routes and are therefore unlikely to create any significant impact at the present rate of usage but the trampling effect of sheep at higher altitudes is noticeably destructive.

9. Cinders. The highest reaches of the mountain are a cinder cone consisting of highly mobile scree slopes. More stable substrate in this zone is colonised by a few hardy lichens and mosses that can withstand the severe climatic conditions experienced at these altitudes.

In addition to the major vegetation zones outlined above there are areas of non-native grassland and woodland on the Settlement Plain. Within the Settlement in particular are dense stands of New Zealand flax, *Phormium tenax*, which was formerly cultivated to provide roofing materials for the islanders’ houses, whereas today its primary function is to provide gardens with a wind-break. New Zealand Christmas tree, *Metrosideros excelsa* has spread widely over the lava field from the 1961 eruption and is spreading up the cliffs above the Village and round to the Rookery. Control efforts have begun on the 1961 Volcano and in some parts of the Village but continuous sustained effort will be required to control this species and prevent its further spread up the cliffs. A plantation of Monterey pine trees *Pinus radiata* which is no longer managed, is located at Sandy Point on the east coast. All of these introduced species are now spreading further up onto the Base and threatening the native vegetation and biodiversity. Their control is an important element in this Action Plan.

**Marine habitats:** The shallow water marine habitats to a depth of 30-40 m comprise several distinct zones and communities depending on depth and seabed type. All shallow marine habitats around Tristan are extremely wave-exposed, but the north coast is slightly less exposed, and the effects of wave action decrease rapidly with depth. Because depths drop to over 3000 m within a few kilometres offshore, much of the seabed is beyond safe diving depths, so deep habitats and their species composition are largely unstudied.

- **Intertidal rock:** Bedrock shores are relatively rare on Tristan compared to the other islands, but there are some important habitats, particularly the rock flats on the west coast at Runaway Beach and the Caves, where there are numerous rock pools containing the endemic klipfish *Bovichthys diacanthus*, abundant juvenile Tristan rock lobsters and large common octopus. The tidal range is small, and waves and swell frequently cover the intertidal, so that seashore zonation is often not pronounced. Rocky shores are colonised by dense, short turfs of seaweeds, in places containing huge numbers of small animals, especially crustaceans, worms and tiny bivalve molluscs. Unlike temperate shores elsewhere, there are very few grazing molluscs.

- **Intertidal boulders and cobbles.** By contrast, boulder and cobble beaches, which surround most of Tristan, are mobile and highly scoured during storms, so tend to be bare of marine life. However a few characteristic ephemeral seaweeds grow on larger boulders during calm periods.

- **Barnacles.** On vertical rock at low water and down to 8m depth in the most exposed locations, a dense band of large barnacles *Austromegabalanus* may develop. This forms a very distinct structurally complex and biodiverse habitat. A wide variety of other marine life attaches to the barnacle shells, including seaweeds, hydroids, sponges, molluscs, sea squirts and anemones. The
dead shells of barnacles are a very important refuge from predatory fish for the pueruli larvae of native rock lobsters as they settle from the plankton. This habitat is also relatively rare on Tristan compared with the other top islands.

- Shallow subtidal seaweed turfs. At depths shallower than 10-12 m, rock surfaces tend to be clothed by a short, dense turf of seaweeds which provides cover for numerous small crustaceans, molluscs, worms and other animals, food for fish. The dense turf is also a particularly important refuge for young rock lobster. In the top few metres, jointed coralline seaweeds often form a pale pink-purple zone, especially on steep rocks, with patches of other non-calcareous red, green and brown algae. At the Tristan islands, a number of seaweeds are locally abundant that are not found on Gough, including the red seaweeds Gigartina stiriata and Gymnogongrus gregarious, forming dense turfs at depths between 4-8 m. Up to 40% of seaweed species at the islands are thought to be endemic.

- Kelp forests. The deeper subtidal zone from 10-40 m is characterised by forests of kelp. Giant kelp Macrocystis pyrifera grows in a band around most of the islands, apart from sandy areas and a few extremely exposed locations. Beneath the giant kelp, and on steeper rocks and more exposed sites where giant kelp does not usually grow, Pale kelp Laminaria pallida forms a much shorter but often dense forest. Rock surfaces beneath the kelp are usually heavily grazed by abundant urchins Arbacia crassispina, and covered with hard pink encrusting coralline seaweeds. Sessile invertebrates including sponges, hydroids, colonial anemones and bryozoans are frequent on rock walls and overhangs, where there are fewer grazing urchins, and rock lobsters are also frequent in these habitats. Kelp forests shelter large numbers of fish, mainly Five-finger Acantholatris monodactylus and Tristan wrasse Nelabrichthys ornatus.

- Subtidal sand: There are some extensive areas of rippled pale sand around Tristan, in depths of 10-40 m, especially in the north-west, in Seal and Deadman's Bay and around Trypot. This sand is largely devoid of macrofauna. The three-spot swimming crab Ovalipes trimaculatus is relatively common in places, and there are occasional polychete worms.

- Subtidal cobbles and pebbles: Cobbles and pebbles, either in sand or in patches between bedrock outcrops, carry a distinctive seaweed flora and encrusting animals, including species resistant to sand-scour, and ephemeral seaweeds that develop in periods of calm weather.

- Marine life below 40 m: Apart from fish, virtually nothing is known about the life in deep water around the Tristan islands, despite this being by far the largest marine habitat by area. The seabed drops to over 3000 m within a few kilometres of the islands. A few remote samples have been taken by passing survey vessels, and small corals are occasionally brought up on lobster traps. Diving surveys have observed sea fans, and increased abundance of bryozoans, hydroids and anemones below 40 m, but deeper depths are beyond the scope of diving. In other areas of the South Atlantic, great biodiversity has been recorded from deep marine habitats, and work is required to document the biodiversity of these deep habitats around the Tristan islands.

**Birds:** Although as many as 77 avian taxa have been recorded on or from the main island (including visitors and vagrants), there are now only 11 known species of breeding seabirds and two species of resident landbirds. The seabirds still occurring as breeding species are northern rockhopper penguin, Atlantic yellow-nosed albatross, sooty albatross, Atlantic petrel, great-winged petrel, soft-plumaged
petrel, broad-billed prion, grey petrel, Tristan skua (endemic sub-species), Antarctic tern and brown noddy (See Annex 4 for status and population estimates). Tristan is the only confirmed breeding site within the northern islands for Atlantic petrel while numbers of the endangered Atlantic yellow-nosed albatross are the highest for any island in the Tristan group. Kerguelen petrel and little shearwater may also breed. There are currently an estimated 20,000-40,000 breeding pairs of seabirds, most known from the south-eastern quadrant, which has suffered least from human disturbance. The terrestrial species include the Gough moorhen, introduced from Gough Island in 1956, and a subspecies of the Tristan thrush, confined to this island and numbering 50 – 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. 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. One such vagrant, the American purple gallinule Porphyrina martinica is so frequent that it has an island name ‘Guttersnake’.

The birdlife of Tristan requires further field study, especially in the southern and eastern quadrant.

Mammals: There are no endemic terrestrial mammals. The only breeding native mammal is the subantarctic fur seal Arctocephalus tropicalis, and there is a small colony at Cave Point on the south side of the island. Southern elephant seals Mirounga leonina haul out regularly on Tristan beaches and sporadically females give birth. Southern right whales occur in offshore waters between June and November, but in very low numbers. They were more abundant prior to the 1961 eruption, but many are believed to have been killed illegally while the islanders were absent. The waters of the Tristan archipelago were, and may in future again become important as a mid-oceanic nursery area for this species, and seem to be a concentration area for Shepherd’s beaked whales, one of the least-known of the world’s cetaceans.

The ship (black) rat arrived on Tristan in 1882 from the Henry B. Paul, which ran aground at Sandy Point. The house mouse was probably introduced by sealers during the 18th century. These rodents have had a negative impact on the biodiversity of Tristan, particularly the bird populations. Richardson (1984) suggests ‘the greatest present threat from introduced species to the birds of the group comes from the Ship Rat Rattus rattus’. The ship rat was almost certainly a significant factor in the severe depletion or local extinction of burrowing petrel populations and was likely a contributing factor to the extinction of the Tristan moorhen. It is likely they are also affecting invertebrates and vegetation but these areas are poorly studied. For this reason, a review of the feasibility study for possible rodent elimination is one of the actions proposed under the present Plan.

Domestic cats were present on Tristan from the time of settlement in 1811 and by 1824 a feral population had established itself. The domestic population was eradicated in 1974 due to the suspected link to a case of Toxoplasmosis. The feral population has apparently also died out, with no sightings or signs of cats since. No pet cats are allowed to be kept or brought ashore.
**Terrestrial invertebrates:** For the northern islands of the archipelago, the most comprehensive study was carried out by the Norwegian Scientific Expedition in 1937/38, which focused on Tristan, but also included Nightingale and Inaccessible. Despite the huge contribution this made, not all taxa known to exist at the islands could be covered in the limited time.

As part of the Darwin Initiative project ‘Empowering the people of Tristan da Cunha to implement the CBD’ an invertebrate project was conducted in 2005 with insect collections made at Tristan and Nightingale islands. The project yielded a substantial invertebrate collection for future reference and research at Tristan with many members of the community involved in collecting specimens and as well as members of the Darwin team trained in invertebrate fieldwork and collecting. The project made a valuable contribution to raising awareness on the diversity of the invertebrate world and the role invertebrates have in the island’s ecosystem, which contributed to overcoming the negative stigma often attached to this animal group. The collection yielded species previously unrecorded for the Tristan group and for Tristan itself.

Essentially the invertebrate fauna represented at the islands is an impoverished one, but includes a significant portion of flightless invertebrates, many of which are endemic to the archipelago and limited to individual islands. Using this as a baseline, subsequent collections have shown that alien species are increasingly colonizing the islands with many of them becoming pests on Tristan, affecting in particular crops and also the livestock of the islanders.

Of the currently estimated 96 native terrestrial invertebrates recorded from the island, at least 27 are rated as endemics. Of those, six species, are restricted to Tristan.

**Conservation issues/threats:** Tristan, as the only permanently inhabited island, has incurred the greatest impacts from human activity. Competition from invasive introduced species, predation by introduced mammals and overgrazing by feral sheep currently pose the most significant threats. For the future, climate change is a potentially serious threat, particularly for the marine environment.

Before the arrival of man, the island may have supported 19 seabird species and three landbird species. The Tristan albatross was extirpated between 1880 and 1907 due to excessive exploitation and possible disturbance by humans and pigs, and the southern giant petrel probably became similarly extirpated around 1870 due to disturbance and decrease in its food supply and is now only a non-breeding visitor to the top islands. The Tristan skua is under threat as a breeding species due to disturbance and a reduced food supply. On the main island alone, Tristan Islanders are allowed to kill adult skuas under defined circumstances according to the Conservation Ordinance. The Tristan bunting became extinct on Tristan between 1852 and 1873. The Tristan moorhen is thought to have become extinct between 1873 and 1906.

Seabird populations have been massively reduced since human occupation, as a result primarily of human, cat and rat predation, the latter ongoing. Many of the seabird populations on Tristan, such as that of the Atlantic Petrel, are now reduced to tiny remnants, and the smaller species (common diving petrel and several storm petrel species) are thought to be locally extinct. The current status of seabird populations on the main island of Tristan is very poorly understood. For the majority of species, there
has 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 likely. In 2009 a pair of Antarctic terns was first recorded as breeding at the Patches. It is thought that this was due to the control of rats around the Village and out at the Patches. Likewise, the control of rat numbers through the deployment of poisoned bait stations at Tommy’s Hill since 2009 has increased the breeding success of great-winged petrels.

The Tristan thrush has decreased markedly on Tristan, due to overgrazing, introductions of alien plants, predation by cats and nest predation by rats. The current population is patchily distributed and largely restricted to high alpine slopes, and gulches on the Base plateau. There are no accurate data on population status and trends, but there have been sightings of a pair of thrushes at Big Sandy Gulch and lower Molly Gulch since 2008. There are also reports of a few sightings in the Settlement in 2011-12. The genetic identity of the population is threatened by introgression from other subspecies brought over from Inaccessible and Nightingale Islands. The practice of bringing ‘starchies’ back to Tristan from the outer islands, had ceased before the eruption of the 1961 volcano. Under the latest Conservation Ordinance the inter-island transfer of live native biota is no longer allowed.

It would appear that indigenous invertebrate species, especially flightless ones such as the endemic moths Dimorphinoctua cunhaensis and D. pilifera are declining, possibly because they are vulnerable to predators and being out-competed for space and resources.

Although there are gaps in the knowledge on the current status of and threats to Tristan’s biota, it is clear that invasive alien plants and invertebrates are having a significant effect on the native biota of Tristan da Cunha. Effective and sustained conservation management is imperative to protect the biodiversity of the islands in the short and long term.

**Nightingale**

**Area:** 2.6 km²

**Conservation Status:** Nightingale Island has no formal protected area status although it is subject to the Tristan da Cunha Conservation and Fisheries Ordinances. Nightingale is part of the Tristan Islands Endemic Bird Area (EBA) and together with Middle (Alex) and Stoltenhoff Islands is an Important Bird Area (IBA). A separate management plan is in preparation.

**Geology and geomorphology:** Nightingale Island lies 38 km south-west of Tristan and 22 km south-east of Inaccessible Island. At 18 million years, Nightingale is the oldest of the islands in the Tristan group. It is the most eroded, and is now the smallest (<4 km² including all its islets). Erosion has separated Nightingale from the two large islets of Alex (Middle) Island and Stoltenhoff to the north. The highest part of Nightingale is High Ridge, which rises to 337 m. There are no streams or gulches, but on the western plateau there are four marshy areas known as ‘The Ponds’, in one of which are pools of open water (See Annex 3 for map). Rocky seashores generally slope steeply into the subtidal, where a variety of erosion products from huge boulders down to sand form patchy habitats. There is a less steeply
sloping area extending to 2-3 km offshore around the islands between 50-200 m deep where the majority of rock lobster fishing is concentrated. The seabed between Nightingale and Tristan is over 2000 m deep, with a shallower ridge around 500 m deep between Nightingale and Inaccessible.

**Terrestrial habitats:** The flora of the island is poor in species, due to the small size and narrow range of environments. Nineteen species of vascular plants and 18 pteridophytes and one clubmoss are native, and by 1968 only six alien vascular plants had been recorded. Eight alien species are currently present on Nightingale. 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 Island Trees Phyllica, occurring 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 Isolepis bicolour, small bog grass replaces the Spartina. These distinctive patches are known by islanders as 'lam-houses'.

**Marine habitats:** At Nightingale, similar habitats and communities to those on Tristan can be found. However, unlike Tristan the seashores are mainly steep rock and generally slope steeply into deeper water though there are some exposed boulder beaches in the south, and flatter rocky shores with rockpools accessible, at the west and east landing sites. The brown seaweed Zonaria tournefortii is relatively common in rockpools and shallow subtidal on the east coast, but rare on Tristan and Inaccessible. The barnacle zone on exposed vertical rock, an important habitat for newly-settled rock lobsters, is well-developed on the offshore stacks on the south east and on Stoltenhoff. Coralline seaweed turfs in the upper 5 m are particularly well developed on the Nightingale islands, and to 10-12 m dense seaweed turfs harbour young rock lobster and numerous other small crustaceans, molluscs and worms. The upper limit of pale kelp Laminaria pallida is at around 10-12 m and forests of this continue to at least 26 m. Giant kelp Macrocystis pyrifera is most abundant near the more sheltered north-easterly side of the island in the channel between Nightingale and Middle Island, and is absent from the most exposed southerly and westerly coasts. At 15-30 m, any accessible rock surfaces tend to be heavily grazed by the endemic urchin Arbacia crassispina.

**Birds:** Thirteen species of seabirds and three landbirds breed on the island. The seabirds comprise northern rockhopper penguin, Atlantic yellow-nosed albatross, sooty albatross, soft-plumaged petrel, broad-billed prion, great shearwater, little shearwater, white-faced storm petrel, white-bellied storm petrel, (black-bellied storm petrel), common diving petrel, Tristan skua, Antarctic tern and brown noddy. The breeding population of great shearwater is the largest known, and at the highest density in the world, with an estimated 2-3 million pairs. Kerguelen petrel may also breed. The terrestrial species include the Tristan thrush (a subspecies unique to the Nightingale group), the endemic Nightingale bunting, with approximately 4,000 breeding pairs, and Wilkins’ bunting, also endemic to the island, with fewer than 50 breeding pairs.

**Mammals:** The only breeding native mammal is the subantarctic fur seal Arctocephalus tropicalis. The population appears to be increasing. Southern right whales are seen around the island but in low numbers. There are no introduced mammals, and no historical records of any occurring.
Terrestrial invertebrates: Of the 430 species recorded for the Tristan da Cunha archipelago, at least 100 are known to occur at Nightingale. More than half of these are indigenous, with 20+ native and 30+ endemic. These include five endemic listroderine weevils, all of which are specific and restricted to Nightingale, and three of the nine endemic drosophilid flies *Scaptomyza* restricted to Nightingale including the strap wing fly *S. frustulifera*.

Conservation issues/threats: Nightingale has been less affected by alien animals than Tristan and no alien vertebrates have become established. Besides the annual collecting by Tristan Islanders of northern rockhopper penguin eggs, and great shearwater eggs and chicks, the remaining seabirds are little affected. The introduction of mammalian predators, tussock fires and pollution incidents from shipping, are the principal potential threats. The recent die-back of Island trees on Tristan and Inaccessible due to an attack from an introduced scale insect and sooty mould fungus is a serious threat to the endangered Wilkins’ bunting on Nightingale due to potential loss of its primary habitat and food source.

The presence of several alien plants, including New Zealand flax gives some cause for concern, although actions to eradicate the flax are ongoing. The number of seedlings found on each visit to the island is decreasing as a result of regular action to remove flax plants. Australian brass buttons *Cotula australis* seems to be spreading and has recently been found away from the main roads on some of the rocky outcrops and in the lam-house above Pond Four. The presence and impact of introduced invertebrates are not known.

Alien mussels were found on the wreckage of the *MS Oliva* which grounded on Nightingale in March 2011. These mussels have proved invasive and have altered marine communities in other parts of the world where they have been introduced. They live mainly in the intertidal and shallow subtidal where young rock lobsters live so are a serious concern for the lobster fishery. The South American silver porgy, which has become well established around Tristan since its introduction from a stranded oil rig in 2006, is a broadcast spawner so is likely to reach Nightingale in the future.

Nightingale is the main island for nature tourism so all visitors must be informed about the risk of accidental introductions and take necessary precautions. Islanders are the most regular visitors to Nightingale and given the high numbers of alien plant species present in and around the Settlement on Tristan, there is a high risk of introductions to the island. Implementing measures to eliminate the risk of introductions should be given the highest priority.

It is thought that the increase in seal populations may be negatively impacting on the rockhopper colonies but further research is required.

With the grounding of the *MS Oliva* in March 2011 the threat from shipping and its cargo and fuel as well as the potential for terrestrial and marine alien invasive introductions were graphically illustrated. The establishment of a Particularly Sensitive Sea Area (PSSA) around the Tristan islands could contribute to reducing the risks from such threats and should be investigated.
Alex Island

Area: 0.5 km²

Geology and geomorphology: Known also as Middle Island, Alex Island lies 100 m north to north-west of Nightingale Island and is geologically part of Nightingale. The older pyroclastic sequence that crops out in the northern and eastern sea-cliffs of Nightingale comprises most of Alex and contains the oldest rocks in the archipelago, at 18 million years. Alex Island rises to a height of 46 m and is largely composed of yellow volcanic agglomerates and tuff.

Terrestrial habitats: The island is covered in Spartina tussock and has a few boggy areas. Pin Rock, 9 m high, lies off the north-western extremity.

Marine habitats: Marine habitats are generally similar to those around Nightingale. However on the east coast of Alex Island there is a very large tidal pool and several smaller pools, a relatively rare and slightly more sheltered habitat on the island, although during storms they are still very wave-exposed and the bases of the pools are scoured clean by boulders and cobbles.

Birds: There is a large northern rockhopper penguin colony. Great shearwater and broad-billed prion breed on the island, with small numbers of yellow-nosed albatross, Antarctic tern, Tristan skua, Nightingale bunting and Tristan thrush (and possibly common diving petrel).

Mammals: The only breeding native mammal is the subantarctic fur seal Arctocephalus tropicalis.

Stoltenhoff Island

Area: 0.2km²

Geology and geomorphology: Stoltenhoff Island lies 1.5 km north of Nightingale Island, and is geologically part of Nightingale. It comprises a monolithic mass of trachyte and rises steeply to 99 m at its southerly point. Over 90% of the monolith is one island. To the east, separated from the island and each other by narrow chasms, are a high narrow pinnacle and a large, vegetated stack.

Terrestrial habitats: 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.

Marine habitats: Much of the coast of Stoltenhoff comprises of vertical rock dropping into relatively deep water at 30-50 m. The band of barnacles on the lower shore and shallow subtidal is well developed, and very high numbers of tiny rock lobsters have been recorded here, especially on the northeast side. The surf crab Plagusia chabrus is relatively common here, and a deep crevice on the northeast side is the only recorded shallow-water location for a solitary coral.
**Birds:** Great shearwater and broad-billed prion breed on the island and small numbers of yellow-nosed albatross, sooty albatross, Tristan skua, Antarctic tern, brown noddie, Tristan thrush and Nightingale bunting, and possibly common diving petrel.

**Inaccessible**

**Area:** 14 km²

**Conservation Status:** The island, including its surrounding waters up to 12 nautical miles, was declared a Nature Reserve in 1997, although islanders retain the right to visit. The Gough Island World Heritage Site was extended to include Inaccessible Island in 2004. Inaccessible Island is part of the Tristan Islands EBA and is an IBA in its own right. The island and its territorial waters are also a Ramsar Wetland of International Importance designated in November 2008.

**Geology and geomorphology:** Inaccessible Island lies 40 km south-west of Tristan. Roughly rhomboidal in plan, it is 14 km² in size, 5.7 km from west to east, and 4.6 km north-south. The highest part, Swales Fell, in the west, rises to 550 m. Geologically it is the second youngest in the Tristan group, with the oldest rocks dated to around three million years old, and it is a volcanic remnant dominated by interbedded basalt flows and pyroclastic deposits that dip gently towards the east. Cliffs rise sheer from sea-level round most of the coastline, to 500 m at Swales Fell. The inland plateau comprises three principal drainage systems, with numerous additional ravines and gulches, a shallow central basin and a few small, conical hills. Landslide material at West Point forms the only extensive, relatively flat land area near sea-level. A recent bog, about 400 years old, incorporates the only area of open standing freshwater on the island. Narrow boulder beaches are present at the base of most cliffs, but are wider at Salt Beach and Waterfall Beach, in the north-east. There is little intertidal bedrock except along a small section of the south coast and offshore rocks. In the subtidal there are extensive areas of boulders in relatively shallow water in the south and west, and an erosion plateau of rock and boulders less than 100 m deep extends to around 10 km offshore to the west. There are plains of sand at 30-40 m off the northeast coast. As with the other islands, within a few kilometres offshore the seabed slopes to depths of over 2000 m.

**Terrestrial habitats:** The vegetation comprises three main types. The lower slopes are blanketed with dense, uniform *Spartina* tussock-grassland, up to 2.5 m high interrupted by small stands of Island tree *Phylica arborea*. The tussock thins out on the shallower soils and grows up to about one metre in association with *Rumohra, Blechnum penna-marina* and native sedges, however the introduced *Mariscus congestus* is a major component within this vegetation. The western part of the plateau is largely covered by *Blechnum* tree-ferns, interspersed with stunted thickets (about 1 m) of *Phylica* trees. Dense stands of taller *Phylica* (3 m or more in height) 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’. Wet heath is found along the highest ridges and *Blechnum penna-marina* sward covers some of the steepest and most exposed cliffs.
**Marine habitats:** Marine habitats and communities on Inaccessible are generally similar to those on Tristan, but with particularly extensive shallow boulder fields on the west side. 48 species of seaweed and 76 animal species were recorded in the 2009 shallow sub-tidal marine survey (to a depth of 30 m). In shallow water the large brown seaweed *Desmarestia ligulata* grows on boulders. This cold-water seaweed is common around Gough but has only been recorded at Inaccessible in the top islands, and may be a useful indicator of seawater temperature changes. Little is known of benthic marine life on the extensive erosion platform less than 100 m deep to the west of Inaccessible, but these are productive rock lobster fishing grounds. Lobsters are more abundant on Inaccessible than on Nightingale, but of a smaller size at the same age.

**Birds:** Seventeen species of seabirds and three landbirds breed. The seabirds include northern 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, black-bellied storm petrel, common diving petrel, Tristan skua, Antarctic tern and brown noddie. It is possible that great-winged petrel, Atlantic petrel and grey petrel also breed here.

The spectacled petrel is, so far as is currently known, entirely restricted to Inaccessible Island for breeding. A census in 1999 estimated 6,000 breeding pairs; repeat censuses in 2004 and 2009 showed that the population increased by about 7% per year between 1999 and 2009, and has probably been increasing since the 1930s when introduced pigs disappeared from the island.

The island is one of only two breeding localities for the endangered Tristan albatross, although the Inaccessible population has been reduced to 2-3 pairs.

The terrestrial species comprise the endemic flightless Inaccessible rail, a subspecies of the Tristan thrush, and the Inaccessible bunting, with three distinct subspecies.

**Mammals:** The only breeding mammal is the subantarctic fur seal *Arctocephalus tropicalis*. Southern elephant seals haul out regularly. In the past the island was used to support sheep, goats, cattle and pigs, but none of these remain on the island.

**Terrestrial invertebrates:** At least 39 species of native terrestrial invertebrates are known. The island is particularly rich in the listroderine weevils, endemic to the Tristan group as a whole, with five species restricted to Inaccessible. However, further investigations into the invertebrate fauna are needed as Inaccessible is the least studied of the four islands in terms of terrestrial invertebrates.

**Conservation issues and threats:** Perhaps the island’s greatest value is its virtually unspoilt state. The greatest and most immediate threats are from the introduction of alien predators, most notably rats and mice from Tristan or shipwrecks, competition from introduced plants and pollution and oil spills from increased shipping traffic. The accidental burning of the tussock is also a serious potential threat. Fires have burnt parts of Inaccessible at least twice, in 1872 and 1909.
A number of invasive alien plants already occur. New Zealand flax, which has the potential to exclude native vegetation communities, was spreading around the cliff northwest of the Waterfall, until control efforts in 2004 removed most of the large plants. Eradication efforts have continued at irregular intervals, the last being undertaken in September/October 2011. Follow-up is required to remove seedlings and any small or mature plants that have been overlooked. Regular monitoring of the flax should be continued over the long term in order to ensure detection and removal of seedlings as they come up from the soil seedbank or existing dormant seed, to prevent plants from reaching maturity.

The introduced farm grass *Holcus lanatus* and broad-leaf dock *Rumex obtusifolius* are both widespread on the plateau, with the former apparently having the ability to exclude native species. Other localised alien plants such as soft rush *Juncus effusus* and ratstail grass *Sporobolus africanus* may cause problems in the future. A suite of introduced weed species is outcompeting native species in their ability to colonise faster and in larger numbers than the native species on loose scree or eroded soil on the lower slopes on the west side of the island. These include: *Prunella vulgaris*, *Veronica serpyllifolia*, *Poa annua*, *Holcus lanatus*, *Cynia sp.*, *Vellereophyton dealbatum*, *Sonchus oleraceus*, *Rumex obtusifolius* and *Plantago* major. The impact of this suite of species on native plant population dynamics and succession is unknown and in need of further study.

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.

The large brown seaweed *Desmarestia ligulata* is a cold-water species common around Gough to the south. So far for the top islands it has only been found on the shallow subtidal boulder fields to the south and west of Inaccessible. It may be a useful indicator of seawater temperature changes, and its presence and abundance should be monitored here.

Visits to the island must be carefully controlled as two new alien plant species were introduced in 1999/2000 during the reconstruction of the research hut. Tourist landings on Inaccessible Island are permitted, but are restricted to Blenden Hall (the coast and adjacent coastal lowlands) or the Waterfall and Salt Beach. Written permits must be issued to non-Tristan residents; Tristan residents only require verbal permission from the Administrator. Landings at other sites are limited to monitoring or research purposes.

**Gough Island**

*Area:* 65 km²

*Conservation Status:* In 1976 Gough Island was declared a Wildlife Reserve and in 1997 it was renamed a Nature Reserve with boundaries extending to 12 nautical miles from shore. It was listed as a World Heritage Site in 1995. The combined Gough and Inaccessible Islands World Heritage Site Management Plan came into effect in 2010. Gough Island is an Endemic Bird Area (EBA) and Important Bird Area (IBA).
It with its territorial waters is also a Ramsar Wetland of International Importance designated in November 2008.

**Geology and geomorphology:** Gough Island lies 350 km south-south-east of the main island of Tristan, and has the most complex terrain and structure of the four islands. It is a 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, it is 13 km in length from north-west to south-east, and over 5 km from south-west to north-east at its widest point. The summit, Edinburgh Peak, reaches 910 m, and the second highest point, Goncalo Alvarez Peak (previously Expedition Peak), 894 m. The upland plateau has deep glens running from it in the East and more convex slopes in the West.

**Terrestrial habitats:** 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. Although the large tussock grass found on Tristan, *Spartina arundinacea*, occurs on Gough the principal tussock grass there is *Paradichloa flabellata*, a species widespread in the circumpolar Subantarctic zone.

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 *Histiophyela incisa* forms the dominant climax assemblage. Fern bush is also characterized by Island tree *Phylica arborescens* and bog fern *Blythnia palmaformis*. *Sophora microphylla*, the only other woody tree on the island, is restricted to a few individuals in Sophora Glen. 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 recognized, dominated by *Blythnia, Empetraria* 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 *Empetraria rubrum*, *Lycopodium magellanicum*, *Huperzia insularis*, *Acaena stangii*, *Agrostis media*, *A. carmichaelii* and several sedges, mosses and lichens characterize 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 *Empetraria rugosa* and various grasses.

**Marine habitats & life:** The shallow subtidal marine life of Gough is not well known and requires further survey using comparable methods to those used at the top islands. Seawater temperatures at Gough are considerably lower than that of the top islands, and shallow water life is more subantarctic in nature. 40 species of algae have been recorded, of which two are endemic. From sea-level to 5 m depth, the most obvious large brown seaweed is the bull kelp *Durvillaea antarctica* which does not occur at the top islands. In the sublittoral fringe, this only forms a conspicuous and continuous band in the less exposed areas of the coast; in the shallow sublittoral, and in some places down to 8-10 m, it is more widespread. Another large brown seaweed *Desmarestia ligulata* is also common here. Where the *Durvillaea* is relatively sparse, rocks and boulders in the shallow sublittoral down to several metres depth are commonly covered by sheets of crustose coralline seaweeds or with a sward of turf-forming seaweeds.
Between 4-20 m in the sublittoral zone, the dominants are *Laminaria pallida* and the giant kelp *Macrocystis pyrifera*. Rocks in this zone are mainly covered with crustose coralline seaweeds. Between 20-30 m, the substratum is mainly black volcanic sand. Seaweeds are sparse and confined to scattered rocky outcrops or small boulders with *Macrocystis* present on these outcrops even at 30 m depth. Animal life in the intertidal and sublittoral zone is sparse and the diversity low, with few species of larger snail, bivalve, echinoderms or crustaceans. Endemic urchins *Arbacia crassispina* and Tristan rock lobsters are relatively abundant in the subtidal, and the lobsters support a productive fishery (also at the top islands). Virtually nothing is known of the deeper water marine life below 20-30 m.

**Birds:** Gough Island has been described as ‘a strong contender for the title of most important seabird colony in the world’. The breeding seabirds include northern rockhopper penguin (about 19% of the world population), Tristan albatross, Atlantic yellow-nosed albatross, sooty Albatross, southern giant petrel, Kerguelen petrel, great-winged petrel, soft-plumaged petrel, Atlantic petrel, broad-billed prion, grey Petrel, great shearwater, little shearwater, grey-backed storm petrel, white-faced storm petrel, white-bellied storm petrel, common diving petrel, Tristan skua, Antarctic tern and brown noddy. The island holds well over 99% of the world populations of the Tristan albatross and the Atlantic petrel. The endemic terrestrial species are the Gough moorhen and Gough bunting. Domestic chickens used to be kept on the island but are no longer present.

**Mammals:** There are only two native breeding mammals. In the 1970s 90% of the global subantarctic fur seal population was found on Gough. Numbers are about 300,000 individuals and increasing. The southern elephant seal *Mirounga leonina* (about 100 individuals) was in decline but recent counts indicate the population has stabilised. A possibly resident pod of around 500 dusky dolphins is also present.

House mice are the only introduced mammals, and there is no record of them on the offshore islets and stacks. Goats and sheep have been introduced in the past, but did not become feral and are no longer present.

**Terrestrial invertebrates:** 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 six endemic species are restricted to Gough, with 24 species endemic to the Tristan da Cunha island group.

**Conservation issues/threats:** The only introduced vertebrate is the house mouse. Recent evidence from other islands suggests that this species can have profound effects on invertebrate populations, plant population dynamics and nutrient cycling in subantarctic ecosystems. Perhaps even more importantly, recent evidence from Gough shows that the species has evolved to become a major predator of procellariiform seabird chicks. Predation on the Tristan albatross, sooty albatross, great shearwater and Atlantic petrel has been confirmed to date, but probably extends much more widely among the burrowing petrels. 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.
Pollution and oil spills from increased shipping traffic, potential impacts from IUU fishing vessels and by-catch of seabirds by longline fishing vessels pose significant threats. There is currently little information on marine life to form a baseline against which to measure the effects of any marine incidents or illegal fishing, and survey work is urgently required in the marine environment.

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. Eradication work is ongoing and will continue under an OTEP funded project until 2014.

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

Tourist landings on Gough Island are prohibited, but several cruise ships visit each year when small boats are launched and travel close inshore to view Gough buntings and Gough moorhens in particular.
The RSPB speaks out for birds and wildlife, tackling the problems that threaten our environment. Nature is amazing – help us keep it that way.

www.rspb.org.uk

We belong to BirdLife International, the global partnership of bird conservation organisations. The Tristan Conservation Department is responsible for biodiversity conservation on Tristan da Cunha. It works in partnership with organisations from around the world, especially the UK and South Africa, to reduce the rate of biodiversity loss in the Tristan islands.

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