

Gough Island Environmental Inspection Report September-October 2011

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MAIN RECOMMENDATIONS

NOTE: Nearly all of the main recommendations below have been made in previous environmental reports, some more than once. They are marked with asterisks.

In South Africa

Action: DEA Antarctica & Islands Directorate

1. The updated SANAP “Environmental Information about Gough Island” document should be distributed to all voyage participants planning to go ashore on Gough Island prior to sailing.*
2. The biosecurity capability at the DEA Antarctica & Islands stores at East Pier should be further enhanced by the installation and regular servicing of crawling invertebrate traps in the food-packing/storage areas and kitchenette, offices and toilets (ground floor) and clothing store, fitting room and offices (first floor).*
3. Gough containers should be inspected after cleaning and treated with insecticide immediately before being packed in the DEA Stores.*
4. Weeds growing along the full length of East Pier should be regularly removed mechanically and the infested sites treated with herbicide.*
5. Over-trousers with Velcro ankle cuffs should no longer be allowed ashore on Gough.*

Action: NDPW, with DEA oversight

The quarantine/biosecurity capability of the NDPW facilities in Customs House should be improved by the fitting and servicing of traps for crawling invertebrates.*

Aboard ship

Note: these recommendations should be applied to the *S.A. Agulhas II* before its first Gough relief voyage in 2012.

1. All biosecurity measures currently in place on the *S.A. Agulhas* should be applied to the *S.A. Agulhas II*.
2. The ship should maintain an adequate supply of mouse and rat back-break traps and extra poison bait for rodents.*
3. Spaces where food is stored, prepared and consumed should have crawling invertebrate traps installed and regularly serviced.*
4. Spare traps should be on hand to place in spaces (e.g. cabins) when crawling invertebrates are detected.

On Gough Island

1. The ban on fresh produce coming ashore should continue to be strictly enforced year round.*
2. Parcels and packages received from non-relief vessels should be opened in a sealed room ashore during daylight hours.*
3. Team waste containers should have poisoned rodent pellets added to them one to two weeks prior to the relief to reduce the risk of back-loading mice to the ship.*
4. The remaining redundant installations and waste stockpiles around and in the vicinity of the base should be removed to South Africa.*
5. Waste packing wood should be removed from the island at each relief.
6. The eroding plastic bags and builder's rubble exposed seaward of the crane platform should be secured with shade cloth, pending implementation of a permanent solution.

7. Introduction and itinerary

JC and HL acted as joint Environmental Inspectors for the 2011 annual relief of the South African meteorological station on Gough Island on behalf of the Conservation Department of Tristan da Cunha.

The m.v. *S.A. Agulhas* left Cape Town on 8 September and arrived at Tristan in the early afternoon of 14 September. JC and HL went ashore by Bell 212 helicopter (after four Tristan passenger flights) for an hour and a half in the late afternoon and met briefly with Trevor Glass (Tristan Conservation Department), James Glass (Tristan Fisheries Department) and with Katrine Herian and Lourens Malan, two of the three RSPB employees then on the island. A recreational fishing permit for the *S.A. Agulhas* was received from James Glass (copy available on request).

Due to rough weather on the 15th the ship proceeded to Inaccessible Island and put a three-person research group led by Peter Ryan (FitzPatrick Institute, University of Cape Town) ashore by helicopter at Blenden Hall. The *S.A. Agulhas* then returned to Tristan where rough weather stopped offloading passenger cargo by barge until the early morning of the 17th when Patrick Green and Julian Repetto (Tristan Conservation Department) came aboard to assist with conservation work on Gough Island for the duration of the annual relief.

The ship departed for Gough in the mid-morning of 17 September, arriving and going ashore on the 18th. The relief team left Gough one day later than scheduled on 5 October due to bad weather after 16 full days ashore and returned to Cape Town via Inaccessible and Tristan da Cunha, docking on 13 October. A ‘wash-up’ meeting was held aboard ship on 11 October.

Pre-sailing inspections and activities

JC attended the Gough Takeover Planning Meeting prior to the voyage.

The updated SANAP “Environmental Information about Gough Island” document (Appendix One) should be distributed to all voyage participants planning to go ashore on Gough Island prior to sailing.

Pre-voyage inspections were carried out by HL on 5 September (DEA and NDPW stores and East Pier). Informal observations also were made of the DEA stores on 6 September by JC. Titan Helicopter Group (THG) hangers at Cape Town International Airport and the *S.A. Agulhas* were not inspected.

No conservation lecture was given to the new (57th) year-round team member as part of their team-training, as has regularly occurred in previous years. However, the gist of this

talk was included in the environmental address given to all passengers expected to go ashore on Gough on board ship while en route to Tristan on 12 September.

DEA Antarctic Directorate facilities

Clothing store

The clothing store appeared clean and tidy. Mothballs had been placed and rodent bait stations had been installed. Electric insect traps were visible and in working order. Windows were kept closed.

The inner sole of a gum boot inspected had some plant material on it. Gum boots should be cleaned inside as well as out.

The large fan at the back of the store was not properly sealed, potentially allowing flying invertebrates to enter. It is recommended that a suitable mesh material, such as shade netting, be fitted to limit movement as it was reported that when the wind blows strongly the fan's shutters open and close.

Packing stores

New rodent bait stations were installed in August due to the previous company not being able to continue their contract. There were no dates of installation or servicing on the bait stations and some had been installed too high above the ground.

A mouldy piece of wood was found in the food-packing area. One of the panels in the main garage was missing, stated to be in the process of being repaired.

The stores had been fumigated prior to the voyage. Sticky traps for flying invertebrates were in working order.

The following recommendations are made:

1. Crawling invertebrate traps should be placed in the food-packing room, clothing store and the container packing and storage spaces.
2. Gaps around the fan in the clothes store should be sealed to halt the ingress of invertebrates.
3. Over-trousers with Velcro ankle cuffs should no longer be issued to personnel expecting to go ashore on Gough.

East Pier

Sagina was found growing right outside the packing area on East Pier. Seven plants were in areas where people walk before they board the ship. Four of these plants must have been overlooked for some time as they were fairly large. Assurance was given they would be removed before departure of the ship to Gough, but they were still present on 8 September.

Furthermore, on the ship's return on 13 October a large number of weeds of several species of plants were found at many localities along the whole length of East Pier, as well as adjacent to the entrance gate on the seaward side of the DEA building, and it therefore appeared that no action had been taken since the pre-voyage inspection. As well as being a significant environmental issue, their presence gave an untidy appearance to the locale, not in keeping with the "Antarctic Gateway" concept. Removal of these plants is considered to be a high priority. Photographs are available on request.

It is suggested that existing pest-control activities within DEA stores and the treatment (prompt removal, followed by regular herbicidal applications) of weeds along East Pier should be undertaken by the same pest-control company if feasible. The recent extension from which DEA operates to the whole length of East Pier has increased the area of infestation by *Sagina* and other weedy plants requiring treatment.

The dock-side waste skip lid was left open on 6 and 8 September.

The following recommendations are once more repeated:

1. Dock-side waste skips should have well-fitting lids that are kept closed when not in active use, especially overnight.
2. Weedy plants growing on the whole length of East Pier must be removed mechanically and the area treated with herbicide before each sailing and at regular intervals throughout the year.

S.A. Agulhas

The *S.A. Agulhas* was not inspected prior to sailing due to it being unexpectedly at sea on the day for which an appointment had been made. Rat guards were in place on most of the ship's hawsers with "glue boards and tunnels" (14 fitted on 31 August) on the remainder of the hawsers on the day of sailing.

NDPW facilities, Customs House

The rodent bait stations were pointed out and their service certificate produced. The bait stations had been last serviced on 11 August 2011. The general appearance of the packing stores was clean. Food was kept in the staff room and there were portable electrical invertebrate traps installed in the main packing area. The front gate had shade netting which should prevent the free movement of insects into the packing area. The packing area was not very well lit and could pose bio-safety and security hazards.

The following recommendation is made: crawling invertebrate traps should be placed in the packing area to check for the abundance and diversity of invertebrates in the stores.

Titan Helicopter Group (THG)

The THG facilities at Cape Town International Airport were not visited. However, a treatment report by Pest Relievers showed that two helicopters and five tool boxes were treated with Alphathrin against "all general pests" on 7 September, the day before sailing.

Activities aboard ship

An illustrated environmental talk (updated during the voyage) was given in the passenger lounge on 12 September during the voyage to Tristan. A signed register of those expected to go ashore on Gough was kept. All shore-going personnel attended, along with a number of passengers for Tristan da Cunha.

The obligatory boot-washing ceremony for all personnel intending to go ashore on Gough (including prospective day visitors) was held on the poop deck and in the aft wet lab on the afternoon of 17 September en route from Tristan to Gough. All personnel intending to go ashore attended and signed the register. Boot washing and kit inspection for the three-person Inaccessible Island party was conducted separately on 15 September.

Most DEA-issued and personal kit inspected was clean of propagules, but grass seeds and plant fragments were found on Velcro ankle cuffs of six pairs of DEA waterproof trousers that had been previously used. Velcro over-trousers should no longer be allowed ashore on Gough. A date stone (pip) was found wedged in the tread of a DEA rubber boot issued to a member of the Inaccessible Island party.

Both helicopters appeared to be clean. The Bell 212 had its skid flaps cleaned before commencing flying at Gough Island.

The 13 Viper II sticky traps for flying invertebrates in the officers' pantry, helicopter deck pantry, passengers' lounge and pantry, hangar (2), passenger, officer and crews messes, galley and in food storerooms and spaces aft of the galley (3) were checked twice on the outward journey, as well as once on the return voyage. All were operating properly. Compared to several previous voyages the number of invertebrates caught was not large. Only one crawling invertebrate sticky trap was found, in the hangar office. Few rodent bait traps were found, in contrast to past years.

Copies of service reports issued by SWAT Pest Control & Hygiene Services received from the ship's Captain showed that parts of the ship had been inspected and sprayed/fumigated against "general pest[s]" on 30 August and on 3 and 8 September.

Announcements were made and blinds were kept closed at night when the ship was close to islands in the Tristan Group, including Gough, to reduce the risk of bird strikes.

Recreational fishing by rod and hand line took place from the ship in both Tristan and Gough waters under License No. TDC-A 001/11 issued by the Fisheries Department of Tristan da Cunha. A copy of the permit will be made available on request.

The following recommendation is repeated: crawling invertebrate sticky traps (as previously used aboard) should be placed in areas where food and drinks are stored, prepared and/or consumed.

Inspections on Gough Island

The meteorological station and surrounding areas were inspected on 18 September, following the first flight ashore. It was evident that the Gough 56 team had kept the facilities in a tidy and clean condition. Little evidence of litter was seen around the buildings. The vegetation had been cut beneath catwalks, and in areas where containers are landed around the base.

Off-loading

DEA and NDPW containers and slung loads were landed either on structures (wooden helipad, crane platform) or at four sites on mainly alien vegetation adjacent to buildings (between the diesel tanks and Skivvygat, next to the fuel store and Sagina shed, and behind the base). Containers were inspected for propagules on opening from the top. What appeared to be invertebrate (spider?) cocoons were found in numbers inside the lids of several containers, which were sprayed with an insecticide before being emptied. Several cocoons were collected for possible identification. A similar infestation was reported in 2010. It is recommended that all Gough containers be inspected after washing and then treated with insecticide immediately before packing in the DEA Stores.

No fresh produce was brought ashore as part of official supplies. A naartjie (a citrus fruit), stated to have been brought ashore inadvertently, was handed in on the island. It was sealed in a plastic bag and taken back to the ship at the end of the relief for disposal at sea. Chicken eggs had been irradiated, and only de-boned poultry meat was sent ashore.

Small boat operations

Small boat operations were restricted to assisting with diesel pumping on 20[?] September, the deployment and recovery of a three-person team to The Glen and Capsize Sands on 2 October to take historical photographs of the old base remains and to conduct various monitoring activities, and the transfer of a number of the ship's crew ashore for recreational visits on 3 October.

Flying operations

All flying operations were conducted between the ship in and in the vicinity of Transvaal Bay and the base, except for two flights:

1. Deployment of six personnel with backpacks and seven tote bins of food and camping supplies to the Gonydale camp site (3 bins), Low Hump (1 bin, two pax) and Waterfall Camp (3 bins and four pax) took place on 19 September. Because of the limited lifting capacity of the helicopter the SANAP orange container placed in Gonydale in September 2010 was not removed and replaced as usually occurs. It is recommended that the accumulated tote bins at Waterfall Camp and the Gonydale DEA container should be removed in 2012, since the latter is now showing signs of rust. Any containers flown into the island interior must be thoroughly cleaned inside and out before packing and should not be flown from Crane Point or Skivvygat, to avoid the possibility of spreading *Sagina*. Alternatively, consideration should be given to using only tote bins at camping caches and not replacing the current container at Gonydale, noting that a heavy-lift helicopter is reported to be unlikely to be available from 2012.

2. The replacement high-pressure water pump was deployed at Snoekgat to support *Sagina* eradication efforts on 21 September.

Back-loading of containers (including those containing accumulated wastes) was undertaken over several days both before and after the buoy run. On 3 October the helicopter collided with an Atlantic Yellow-nosed Albatross over the sea in Transvaal Bay when flying between ship and base. The injured bird was subsequently observed to be attacked by giant petrels on the sea surface and appeared to have been killed by them.

Waste management and clean-up of rubble and redundant structures

As in previous years, solid wastes were separated into bones and eggshells, all other food wastes, metals, glass, plastics and 'burnables' (wood, cardboard and paper). Most food wastes were dumped untreated into Skivvygat. Bones and eggshells were kept frozen for return to South Africa. Untreated sewage and grey water from the main base were disposed of in Skivvygat. Sewage and grey water from the emergency base were piped untreated over the adjacent cliff into the sea.

No wastes were incinerated during the relief as is current policy. Open fires were limited to recreational braais (barbecues) using charcoal briquettes in the designated fireplace in the quadrangle. However, a large pile of wooden packing material was left behind against the NDPW shed (where it could be seen as a potential fire hazard) for use in braais. It is recommended that this not be adopted as a usual practice and that instead such waste wood should be removed from the island, as in recent years.

The VHF mast among tussock near the cliff edge above Diesel Cove was removed and replaced with a new lattice mast. The site will be monitored during the year for bird strikes by Great Shearwaters that breed in the vicinity.

Team waste containers had poisoned cereal bait pellets placed in them prior to takeover to reduce the risk of back-loading mice onto the ship, as occurred in 2009. It is again recommended this policy be adopted for all future reliefs. It will then be necessary to ensure that the waste is identified as hazardous material on unloading in Cape Town.

Four containers were part-filled with assorted waste collected from around the buildings. Items removed included rotten timber, rusted scaffold poles, metal sheeting, and piping and collapsed scaffolding from Diesel Cove. Two redundant embedded scaffold poles were removed from nearby to buildings. A further five embedded poles could not be dislodged.

Major redundant items still remaining for removal include the two fuel pumps mounted on a concrete base in Diesel Cove, redundant concrete structures/platforms in Diesel Cove, at Crane Point (old crane counter-weight) and near Skivvygat (site of the removed incinerator), the defunct catwalk lights and associated cabling leading from the main base to the helipad and to the crane platform, the disused sewage pipe between Gough House and Skivvygat, and remnants of three rope ladders at the Admiral's descent. A clean-up of rusted metal pipes, waste wood and plastic piping stored against two sides of the NDPW store is also required.

The seaward slope immediately below the crane platform continues to erode, continuously exposing fragmenting plastic bags that contain stone chips and river sand, as well as other metal and wooden items. This is causing an ongoing and unacceptable litter problem, despite regular clean-ups in recent years. It is recommended that a permanent solution be developed and implemented in the next few years to remove all this material from the island without causing further sagging of the platform. As a purely interim measure it is recommended that plastic shade cloth with a fine mesh (coloured green, or preferably brown if available) be obtained and securely pinned with battens or equivalent over the slope to reduce littering from the partially exposed plastic bags. Such action should also improve the poor aesthetic appearance at an entry point to the base, which reflects badly on its overall management and maintenance.

A "chicken run" clean-up was undertaken on 3 October. Only about half the personnel then ashore took part, which was disappointing. Small amounts of litter and other items were collected and added to one of the three waste containers containing rubble (which were all removed from the island the next day).

Alien plant eradication and monitoring

Sagina eradication

Alien plant eradication continued under the auspices of Tristan's Conservation Department and the Royal Society for the Protection of Birds with funding provided by the Overseas Territories Environment Programme via the FitzPatrick Institute, University

of Cape Town. The *Sagina* relief team was led by John Cooper, assisted by Jan Bradley (Level-3 rope-access technician/trainer), Rouberre Botha (rope-access technician), Patrick Green and Julian Repetto (Tristan Conservation Department), Henk Louw and Gough 56th and 57th Team members, Karen Bourgeois, Sylvain Dromzée and Nic le Maitre. Shiraan Watson (DEA DCO) helped on one day stripping peat and vegetation in Diesel Cove.

Approximately 70 rope-assisted descents were made between Seal Beach and Admiral's, covering all sections of the cliffs within the alien plant's known distribution. Large numbers of small plants and seedlings were found on many of the drops, as well as by scrambling at Seal Beach, Sagina Gully, Diesel Cove and Snoekgat. All these localities contained plants in greater abundance than during the 2010 relief. It was notable that spotting plants on stripped areas was far easier than in areas still vegetated.

Worryingly, a few tens of mature plants was found growing at several new sites on ridges and gullies in the more inland part of Snoekgat; all found were removed. One large plant was found near the E-base sewage pipe among *Spartina* tussock. No flowering plants were seen, but the larger plants (up to about A4 size) found had most likely set seed the previous summer. The sea cliffs from Snoekgat to Admiral's were not searched for *Sagina*. No *Sagina* was observed at Seal Beach, The Glen, along Capsize Sands, at the Gonydale camp site or along various paths transversed over the island.

As in recent annual reliefs, all plants found were removed mechanically using paint scrapers or spades, with some sites then spot-treated with a herbicide mixture (5% each of Glyphosate and Outpace Flowable) using 1.5-l hand-held pressure sprayers (of which only two of the four available were operable).

Following placement, anchoring and successful testing of the replacement water pump higher up above the Snoekgat Pond, a limited amount of stripping and spraying was undertaken over about five days. Because plants were found among vegetated ridges at Diesel Cove, stripping and hosing (using the hot-water boiler pump) was concentrated on this area over a period of about a week.

Only two 55-l tote bins were filled with three bags of *Sagina* and adhering soil during the relief. It appeared that no *Sagina* had been collected during the previous year by the three RSPB field assistants. The contents of the two bins were dumped overboard (without their plastic bags) at 34° 46.7'S; 09° 55.5'E at 09h00 on 11 October.

A training course over parts of two days was given by Jan Bradley to the new team members so that they would be able to undertake an upward cliff rescue of an incapacitated climber, using the Sagina Project safety equipment and the base rescue stretcher. The two new field assistants (Karen Bourgeois, Sylvain Dromzée) were

mentored on a number of drops, both to assess their skills and to increase their confidence on ropes.

All ropes, harnesses, slings and climbing hardware used during the relief were cleaned prior to leaving the island and a rescue bag made up with all the necessary items.

Other alien plants

No signs of Tall Vervain *Verbena bonariensis*, potatoes *Solanum tuberosum* or False Oat-grass *Arrhenatherum elatius* were found at previously known sites around the base buildings above Transvaal Bay. Relatively few Sow Thistle *Sonchus* spp. and Greater Plantain *Plantago major* plants were observed in the base environs, thought due to previous weeding efforts and herbicidal applications. No new species of alien plants were observed on the island, including at The Glen and along Capsize Sands.

Growing shoots of 12 Annual Meadow Grass *Poa annua* plants were collected from two localities near the base and at The Glen for genetic study, as was some *Sagina*.

Fuel pumping and diesel storage

Fuel pumping was successfully completed on 20 September, with approximately 69 000 litres pumped ashore. The few drips noted at connections were all contained.

Light pollution

Window blinds at the station were closed at dusk each evening to reduce the risk of bird strikes. No strikes were reported.

Paths and erosion issues

The condition of paths around the base was similar to previous years, including those to Gonydale and Tafelkop. Noticeable amounts of wear accumulated during the relief along the path to Snoekgat and on the descent to Seal Beach.

Controlling import of materials during the year

On more than one occasion the new team was informed that no fresh produce of any sort or non-irradiated eggs may be brought ashore, as being contrary to both a Tristan Government Public Notice (Appendix Two) and to SANAP's biosecurity policy for both Gough and the Prince Edward Islands. Any offers of fresh produce made to the island team from visiting vessels must be politely refused, explaining the reasons for so doing. Reports of smuggled items will be taken seriously and could lead to unfortunate consequences.

The Team Conservation Officer is required to inspect for both contraband and alien propagules by being present when incoming parcels are opened, which must be undertaken in a sealed room with a can of insecticide and collecting materials to hand. Any non-allowed items must be collected/confiscated and dealt with by killing or freezing as appropriate, and the matter reported to Tristan via DEA.

Appointment of a voluntary Team Conservation Officer

Brendan Dunne took up the voluntary responsibilities of an over-wintering Team Conservation Officer for the year. The TCO Guidelines were updated (Appendix Three).

General

The lists of field aids and field markers were updated (Appendices Four & Five). It is recommended that they be kept up-to-date on an annual basis.

Research activities

Research activities conducted ashore on Gough during the relief included:

1. Observations of breeding birds in the demographic study colonies of Tristan and Atlantic Yellow-nosed Albatrosses and Southern Giant Petrels.
2. A complete-island count of Tristan Albatross chicks.
3. Retrieval and deployment of GLS loggers with Northern Rockhopper Penguins.
4. Counting penguins, Southern Giant Petrels, Southern Elephant Seals and Subantarctic Fur Seal pups variously at The Glen, Capsize Sands and Long Beach.
5. Surveys of moorhens
6. Weighing of fur seal pups and collection of seal scats at Seal Beach and Tumbledown.
7. Collection of Broad-billed Prion wings from Subantarctic Skua middens.
8. Surveys for alien plants, including *Sagina*.
9. Collection of shoots of the introduced species *Poa annua* and *Sagina procumbens* for genetic analyses.
10. Taking photographs of framed pictures, artefacts etc. within the base and of the remains of the old base at The Glen.

Acknowledgements

We thank all the participants on the 2011 Gough relief, both aboard ship and ashore, for their willing help and support with environmental matters at Gough Island.

John Cooper and Henk Louw
12 October 2009

APPENDIX ONE

ENVIRONMENTAL INFORMATION ABOUT GOUGH ISLAND AND PRECAUTIONS TO BE TAKEN BY ALL EXPEDITION AND TAKE-OVER MEMBERS

Gough Island has been described as the most important seabird island in the world. It is a Nature Reserve of the Tristan da Cunha Government, and with Inaccessible Island forms one of the United Kingdom's very few World Heritage Natural Sites. It is also from November 2008 a Ramsar Wetland of International Importance.

Oceanic islands are very sensitive to human disturbance. This is mainly due to their evolution in the absence of human beings and other terrestrial mammals. The indigenous animals and plants of these islands, many of which occur nowhere else, are thus poorly adapted to direct human disturbance, trampling, pollution or competition from terrestrial predators, hardier plants, insects and diseases that could possibly be brought across from the mainland (referred to as alien species).

The following information is to advise you of some of the precautions you need to take before you reach Gough Island. The precautions to be taken during your stay on the island will be explained in more detail during the voyage (although some are summarized here). Please comply with the following precautions before boarding the *S.A. Agulhas II*.

PRECAUTIONS AGAINST INTRODUCING ALIEN SPECIES TO THE ISLAND

Personal clothes

Before packing your personal clothes, give them a thorough wash. Be especially careful with hiking socks, fleeces and rain jackets and any other clothing you have previously worn in an outdoors environment, including in city parks and on farms. These clothing items make excellent vectors for the transport of alien plants, especially of their seeds. Empty out all jacket pockets and clean seams that might have trapped plant material, especially seeds. Pay special attention to cleaning Velcro strips. Note that trousers with Velcro ankle cuffs are no longer allowed ashore on Gough Island.

Footwear

The soles of all footwear (shoes, boots, 'trainers', sandals and slippers) must be scrubbed thoroughly and cleaned of soil, stones and other dirt. Careful attention must be paid to cleaning any Velcro straps. In addition, a compulsory "Boot-washing Ceremony" (when footwear and other selected item will be inspected) will be held on the ship on the outward voyage for all those going ashore On Gough, even if only for a day visit.

Walking and hiking equipment (backpacks, daypacks, camera & video bags, walking sticks and tripods)

Wash and check these items thoroughly, especially Velcro seams and straps, pockets and below removable stiffeners. All these items will be inspected at the Boot-washing Ceremony for seeds and insects, etc., along with your issued and personal outer/protective clothing.

Personal packing containers

Take care while packing your equipment and personal belongings into trommels (metal trunks) and other containers. Ensure that containers are absolutely clean inside and outside before commencing packing. Pack in a secure environment in a pest- and plant-free closed room. Keep containers fully closed (preferably sealed) when not actually packing them and once fully packed. Store containers inside a building (not in the open), preferably lifted above the ground surface, in a pest/plant-free environment before transport to the SANAP stores and onto the *S.A. Agulhas II*.

Packing at night with a localized light source could attract flying insects into your containers, so do not pack after dusk.

PRECAUTIONS AGAINST POLLUTION

Due to the high risk of environmental pollution posed by Styrofoam packaging chips, these are not allowed onto the island. Nylon strapping can be lethal to seals and birds, which can become entangled in these straps. Once a young seal has become entangled the strap will slowly cut into the flesh of the seal as it grows, eventually killing it. For this reason the use of nylon strapping for packaging is strongly discouraged. All such straps must be cut before proper disposal.

No incineration of waste material is permitted on Gough. All solid wastes (other than human and some food wastes) generated on Gough are returned to South Africa for proper disposal. You are thus requested to minimize the amount of plastic and cardboard packaging used as far as practically possible, since storage space on the island for such wastes during the year is limited. Remove items from unnecessary cardboard boxes and wrapping whenever feasible. The only open fire that may be lit is in the braai/barbecue facility in the base quadrangle, using charcoal briquettes provided.

Old plywood or untreated wood is not to be used as packing material or brought to the island, since it may be contaminated with fungi, etc.

MINIMISING BIRD STRIKES ON THE ISLAND

Gough Island is the breeding ground for hundreds and thousands of night birds (also referred to as burrowing petrels due to their habit of making their nests in underground burrows). These birds have very acute night vision and only venture onto the island during the hours of darkness in order to avoid the larger predatory birds. Unfortunately, these birds become blinded by even a dim light and will then fly towards the light source. If this light emanates from a building or fixed structure they may collide with the structure and be injured or killed. In a dazed and injured state they become easy prey for predatory skuas, which soon learn that outside lights represent a potential food source.

For this reason no outside lights at the base are permitted to be left on at night. Bring your own small hand torch or a head torch for moving around outside the buildings at night. Blinds on all base windows must be fully closed by dusk and kept closed all night.

FRESH FOOD

No fresh fruit or vegetables of any sort whatsoever or non-irradiated eggs may be taken or brought ashore at Gough Island at any time. Serious consequences are likely to ensue if any smuggled items are detected.

LITTERING

Absolutely no littering or disposal of rubble, etc. is allowed anywhere on the island, including cigarette butts, matches, sweet wrappers, solid food remains, etc. The sole exception is used toilet paper while camping which must be deposited along with faeces, covered up with vegetation in a suitable natural hole or crevice at a distance from regularly used camp sites. Solid wastes should not be allowed to accumulate at camp sites but should be carried out on foot after each visit and placed in the base's waste stream.

Any rubble generated as a result of maintenance or other work that has been undertaken outside at the base (e.g. dropped nails and screws, pieces of metal, bits of wood, plastic piping off-cuts, etc.), should be picked up straight away in order to avoid loss in vegetation or dispersal by the wind.

DISTURBANCE

Birds and seals must be approached slowly and only to a distance that does not result in causing undue alarm (do not approach within five metres of seabirds or fur and elephant seals unless you have a proper reason to do so or it is unavoidable to keep your distance). If approached animals appear agitated retreat slowly until they calm down. Please remember that seabirds and fur seals can give nasty bites. The Tristan Albatrosses

breeding in Gonydale, Hummocks and Tafelkop, the Atlantic Yellow-nosed Albatrosses breeding south of the base towards Seal Beach and the Southern Giant Petrels breeding below Low Hump all form part of long-term population studies. Birds on nests in these areas are not to be approached closer than 10 m unless unavoidable, and all nest markers are to be left undisturbed.

FISHING

Over-wintering personnel are granted an open license by the Tristan Fisheries Department for recreational fishing from the shore with rod or hand line only for consumption during their years' stay. Such fish may not be removed from the island. Fishing must be undertaken in a responsible manner, catching only what is immediately required for consumption and throwing back unwanted and under-sized fish alive and uninjured whenever possible. No fishing line may be discarded at sea.

GENERAL

All relief visits to Gough Island are accompanied by Environmental Officer(s) appointed by the Tristan Conservation Department. These officers may be approached for advice, and their requests are to be followed at all times. A member of the overwintering team is selected and appointed during the relief to act as a voluntary Team Conservation Officer (TCO), reporting to DEA. A separate set of guidelines exists for this position.

Further environmental information may be found in the management plan for the Gough and Inaccessible Islands World Heritage Site of 2010.

We trust you will appreciate that you are among the privileged few to have the opportunity to visit the unique environment of Gough and that you will do your part in preserving it for posterity, as well as thoroughly enjoying your stay.

Updated 10 October 2011 by John Cooper, honorary Tristan Conservation Officer

APPENDIX TWO

TRISTAN DA CUNHA



PUBLIC NOTICE

BIOSECURITY ON GOUGH ISLAND

I'd like everyone to be aware of the rules about sending things to the South African weather station team on Gough Island. What follows also applies to any conservationists working there (including islanders).

Under no circumstances should anyone take or send fresh food to Gough. This especially applies to fruit and vegetables. It is against the South African Government's rules for anyone at the Gough Station to receive such items.

I know this seems a bit harsh, but there are sound conservation reasons behind this rule. So please don't think you are doing anyone on Gough any favours by sending them food parcels. You will just get them into trouble.

I am copying this to Ovenstone, who will ensure that Captain Clarence and his crew are aware of these rules. Anyone with any questions about this Notice should consult Trevor Glass at Conservation Department who will be able to offer good advice.

APPENDIX THREE

GOUGH TEAM CONSERVATION OFFICER GUIDELINES

The Gough Team Conservation Officer is responsible for conservation issues on Gough Island during the over-wintering period. Decisions regarding such issues should be made in conjunction with the Team Leader. This document is meant as a guideline and is not all-inclusive. All regulations pertaining to the Gough Island Nature Reserve are dealt with in detail in the 2010 management plan for the Gough and Inaccessible Islands World Heritage Site and related documents. If in doubt, please consult with the Tristan Administrator and Tristan Conservation and Fisheries Departments (see contact details below).

RELIEF DUTIES

Relief activities should be undertaken by the Environmental Inspector, appointed by the Tristan Conservation Department, in conjunction with the outgoing and incoming Team Conservation Officers:

1. Inspect all premises where cargo and equipment is stored (i.e. DEA, NPWD, Titan Helicopters Group (THG) and all freighting companies' stores), to ensure that their premises are clean, employ effective means of preventing rodent and invertebrate infestations, and are free of any other propagules.
2. Ensure that all DEA containers are clean and are dedicated to use at Gough Island only (marked with the suffix 'G').
3. Inspect the *S.A. Agulhas II* prior to sailing to ensure that the vessel has rat-free and fumigation certificates, rat guards are effectively deployed on all mooring lines and propagules are reduced to the minimum.
4. Inspect the holds and inner spaces of the *S.A. Agulhas II* before reaching the island, for any signs of rodents and other propagules (i.e. soils, seeds or insects).
5. Present a lecture aboard the *S.A. Agulhas II* to all personnel visiting Gough Island dealing with the conservation status, the ecological sensitivity of the island and environmental conduct while on the ship and on the island during the relief period.
6. Inspect the base environs at the start of the relief for the presence of litter, disturbance to natural vegetation, etc..
7. Inspect all food coming ashore, to ensure that no fresh fruit and/or vegetables are landed, that only de-boned poultry is supplied, and that eggs are irradiated.
8. Inspection of the base environs for signs of introduced weeds, especially *Sagina procumbens*. Affected areas should be clearly marked out and treated as soon as possible. All personnel should be advised about the position of affected areas.
9. Present an information session to all personnel on the island regarding alien plants, their whereabouts, and measures needed to avoid assisting their spread, the risks of bird strikes and how to avoid them, and all other provisions of the management plan, including minimum animal approach distances.

12. Provide the necessary information to helicopter crews regarding seabird and seal colonies and their proximity to flying operations. Monitor helicopter activities to ensure that sensitive areas on the island (especially the east coast Southern Elephant Seal colony) are avoided.
13. Monitor the pumping of diesel from the supply vessel to the base. Ensure that the line is pressure tested with air and that no leaks have been detected, before diesel is pumped through. Ensure that dispersant and buckets and brushes are placed at critical points along the line on the island. Dispersant should also be aboard the small boat monitoring the line between the supply vessel and the island.
14. Monitoring all logistic activities to ensure that they comply with the provisions of the management plan.
15. Update this document (with approval of the Tristan authorities).

ANNUAL DUTIES

These duties are to be performed and/or coordinated by the over-wintering Team Conservation Officer. The Team Conservation Officer is encouraged to consult with the Environmental Inspector, the Tristan authorities, the out-going Team Conservation Officer, any biologists present on the team and any other contact persons provided at the end of this document.

Alien Species

1. When feasible, lend support to ongoing efforts by field workers to eradicate alien plants, especially *Sagina*.
2. The over-wintering team should be reminded of the importance of washing their boots before and after leaving the base environs, in order to prevent assisting the spread of alien plants.
3. Areas where *Sagina* has been recorded should be avoided, except when absolutely necessary. In this case boots should be washed thoroughly immediately afterwards.
4. Ensure no fresh produce and non-irradiated eggs are brought ashore from visiting vessels.
5. Inspect all parcels and packages that come ashore in a closed room. Request to be present when team members open their private parcels to check for the presence of banned items, such as fresh produce.
6. Ensure all visitors to the island have either gone through a boot-washing ceremony prior to their arrival ashore, or scrub their boots in a bleach solution on stepping ashore at the helipad or crane platform.

Indigenous Species

1. The over-wintering team should be reminded to not disturb seals and birds in any way, especially when they are breeding.
2. Bird strikes should be minimized by keeping blinds drawn after dark. On misty nights, interior lighting should be kept to a minimum.

3. Birds that hit the base and are stunned should be collected in a container (beware of packing too many birds into a container) and released farther away from the base, once they have recovered and during the night. Do not release them during daylight hours or on the helipad as this is where skuas congregate.

Path Degradation and Peat Slips

1. The over-wintering team should be reminded of the danger of causing unnecessary peat slips through irresponsible hiking routes.
2. All walks should be restricted to existing paths as far as is possible.
3. A register of all walks should be kept by the Team Conservation Officer for safety reasons, as well to quantify the impact on various paths.

Visits by Ships

1. All visits are strictly regulated by the Administrator of Tristan da Cunha, who should be contacted for permission prior to landing any visitors or parcels. The exception is in the case of medical emergencies. In this case, DEA and the Administrator of Tristan da Cunha should be notified at the earliest possible opportunity (preferably prior to landing).
2. In the cases of approved visits and medical emergencies, the protocol for visiting ships should be followed.

Waste Management at the Base and Field Camps

1. The Team Conservation Officer must ensure that waste is separated and contained and/or disposed of as prescribe by the management plan and by current practices.
2. Special attention and precaution should be given to the storage of hazardous wastes.
3. Any serious chemical or fuel spills should be quantified and reported to the Tristan authorities and to DEA within 24 hours.
4. The only exposed fires allowed are in the braai/barbecue pits at the base quadrangle using charcoal briquettes. Braais with open fires are not allowed away from the base (e.g. at Swemgat).

Other Activities

1. The Team Conservation Officer will ensure that no human-made structures are erected on the island without approval from Tristan da Cunha.
2. The Team Conservation Officer should make detailed notes (including date, time and location) of any incidences of deleterious effects to the environment that could possibly be human-related (e.g. animals entangled in debris or oiled).
3. Collect and record debris washed up at Seal Beach.
4. Ensure poultry waste (including egg shells), meat bones and dried fruit, olive and prune pips go into the poultry waste container.

5. Remove and seal in plastic fertilizer bags any potato plants (including tubers) found growing at Skivvygat and elsewhere.
6. Weed out thistles and plantains when encountered around the base and away from the coast before flowering occurs.
7. Record ship and yacht visits (date, time, names etc.) and any evidence of poaching vessels.
8. Check pantry and food store for presence of invertebrates, especially weevils in flour, pasta etc. Collect specimens in alcohol. Fumigate if necessary.
9. Collect any “odd” invertebrates seen in base, including moths, etc.
10. Keep an approximate record of number of mice killed in and around the base.
11. Record all “bird strikes on buildings.
12. Record all birds killed by hitting aials, stays, etc. and keep corpses frozen.

CONTACT PERSONS ON TRISTAN DA CUNHA

Sean Burns, Administrator
Trevor Glass, Head, Tristan Conservation Department
James Glass, Head, Tristan Fisheries Department

Revised 11 October 2011

APPENDIX FOUR

REGISTER OF FIELD AIDS ON GOUGH ISLAND

A list of field aids (mainly fixed ropes, ladders and food caches) on Gough Island is given, as an aid to improving safety and access to various parts of the island, mainly away from the weather base.

It is suggested that the list be checked in the field, amended as necessary and kept up-to-date on an annual basis, and that field aids have their positions recorded by GPS as they are visited.

Field aids should be kept in good repair and redundant and unsafe aids (e.g. worn and/or rotten ropes and rope ladders with missing rungs) should be removed.

In terms of the island's management plan, placement of any new field aids will require prior approval from the Tristan Conservation Department

Tumbledown

40° 21.431'S; 09° 53.054'W: 31 m.

Rope fixed to an anchor pole leading down to the shore rocks.

Gonydale River

Rope(s) in vicinity of waterfall(s) require checking for exact positions and condition.

One rope is reported next to a waterfall about 200 m upstream from the Swemgat Waterfall.

Gonydale River crossing

Gonydale (south) riverbank; 40° 21.120'S, 09° 50.091'W; 21 m

Five-rung aluminium ladder.

Base (north) riverbank; 40° 21.105'S, 09° 53.089'W; 36 m

Short aluminium ladder fixed with a rope.

Seal Beach River crossing (base riverbank)

40° 21.089'S, 09° 50.058'W; 12 m

Short aluminium ladder fixed with a rope.

Swemgat, above Seal Beach

Short aluminium ladder above a rope ladder with several missing rungs tied to a tree and to a long scaffold pole.

Seal Beach Cliffs

South: Fixed rope allows descent to river mouth on south bank through fur seals and penguins. Ascent not advisable. Useful for river crossings at the mouth when rivers are in spate.

North: Fixed rope to gain access to the shore down a steep muddy and badly eroding slope.

Crane Lookout Site

Short fixed rope. To be used only for *Sagina* eradication work.

Sagina Gully

40° 21.014, 09° 52.805'W; 34 m

Knotted synthetic rope fixed to a scaffold pole in 2008. To be used only for *Sagina* eradication work.

Crane cliff

40° 21.022'S, 09° 52.699'W; 34 m

Fixed rope adjacent to crane. To be used only for *Sagina* eradication work.

Emergency Base cliff

40° 21.020'S, 09° 52.767'W; 33 m

Fixed rope among tussock below Emergency Base. Not in use as largely overgrown and should be removed.

Diesel Cove

40° 21.014'S, 09° 52.763'W; 35 m

A pilot-type wooden-rung synthetic rope ladder placed in 2010 gains access to Diesel Cove. Lower down a second rope ladder (fixed to poles and pitons by rope) allows access to the fuel-pumping coupling site. Two large metal pitons driven into rock cracks (currently unused) in the vicinity.

Snoekgat

40° 20.883'S, 09° 52.726'W; 44 m

Southern approach: three short ladders, the top two aluminum, the lowest rusted steel, and a fixed rope. This access is becoming severely eroded and care is required.

Northern approach: a short fixed (to a tussock) synthetic rope at entrance to bowl. Not used in last few years.

40° 20.878'S, 09° 52.699'W

At pond: short aluminum ladder and rope tied to an anchor pole.

Three other non-fixed aluminum ladders and a short fixed home-made rope ladder are currently in use at Snoekgat for access to *Sagina* eradication sites. They should not be used for other purposes.

“Nextgat”

40° 20.797'S, 09° 52.641'W; 26 m

A knotted synthetic rope (fixed round a rock and to a large steel piton) gains access to the lowest part.

Admirals, southern section

40° 20.756'S; 09° 52.690'W; 43 m

The remaining aids consist of remnants of three rope ladders with many missing or rotten wooden rungs which are deemed unsafe to use. They should all be removed. Climbing ropes and equipment are now required to gain access to the shoreline.

Admirals, northern section

40° 20.596'S; 09° 52.836'W

Little-known fixed rope above a short aluminium ladder high up below the ridge above the shore reported as present in 2007. Ability to reach the shore from these two aids still requires checking.

Tafelkop climb

Lower at 40 20.446'S, 09 53.485'W, 303 m.

Higher at 40 20.426'S, 09 53.507'W; 345 m.

Two short fixed ropes on path roughly half way up from the Golden Highway

Waterfall Point

A fixed rope (marked by a buoy) was placed in 2001 to allow access to the shore at the southern end of the boulder beach stretching north from Waterfall Point. Present condition requires checking. GPS required.

Archway Rock, The Glen

Remnants of rope and an anchor pole placed to allow access to the Sophora Glen rocky beach from The Glen over the archway rock were found in January 2008. No longer functional. Several (two?) short ropes are present along the course of the Glen River to aid in boulder scrambling. They are old and should be used with care.

Blechnum Bridge

A substantial metal and rope structure crossing a small stream on the path towards Tafelkop, about a hundred metres inland from the helipad. Erected in October 1986, now deteriorating due to rust, with one support rope trailing loose since 2009. The remaining remnants of an older wooden and rope suspension bridge at the site should be removed. Apparently these bridges, which fall outside the South African-leased area, were put up without Tristan approval. Not inspected in 2011.

South Peak

40° 20.303'S; 09° 54.503'W; 731 m

Overgrown rock cairn at top of path marks route to Michael's Col.

Gonydale

40° 20.452'S; 09° 55.129'W; 490 m

Orange DEA container containing food and camping equipment in tote bins at central camp site placed in September 2010 and restocked in September 2011. For non-emergency use by field researchers only.

Waterfall Camp

40° 18.6786'S; 09° 56.324'W; 631 m

Food and camping cache (seven or eight tote boxes) under a small overhang on the left bank adjacent to the top waterfall. Restocked in September 2011. For non-emergency use by field researchers only.

Low Hump vicinity

Food cache (one tote box) on ridge against a prominent rock with a small pond a little way down from the unnamed col between Low Hump and West Rowett.

Southern Giant Petrel Study Colony

40° 20.506'S; 09° 530'W; 403 m

Food and camping cache (one tote box) partially in a rock crevice with *c.* 30 1-m spare marker poles below Low Hump above Southern Giant Petrel study colony. For non-emergency use by field researchers only.

John Cooper, honorary Tristan Conservation Officer, updated 10 October 2011

APPENDIX FIVE

REGISTER OF FIELD MARKERS

This register lists long-term markers in use on the island, either for research or for management. No markers should be removed or tampered with without the prior approval of the person(s) designated as responsible for the study or activity.

Atlantic Yellow-nosed Albatross Demographic Study

Commenced: 1982, ongoing, no projected year of completion.

Between weather base at Transvaal Bay and Gonydale River, bounded by coastal cliffs and inland by the Golden Highway River from Tafelkop.

Markers: one-metre white plastic poles bearing yellow alpha-numeric tags in series A2-99 and C1-46 at nest sites. Poles are left in place at occupied nests and are not removed each year.

Contact person: Peter Ryan, FitzPatrick Institute, University of Cape Town;
Peter.Ryan@uct.ac.za.

Tristan Albatross Demographic Study

Tafelkop, Memorial Cross Valley and south slopes of South Peak

Commenced mid 1980s, ongoing, no projected year of completion.

Gonydale and Hummocks Path

Commenced 2007, no projected year of completion.

Markers for all three Tristan Albatross study colonies: 1.33- and 1.5-m white plastic poles bearing yellow alpha-numeric tags in series A2-99 and C1-99 at occupied nests. Poles are removed and repositioned annually.

Contact persons: Peter Ryan, FitzPatrick Institute, University of Cape Town;
Peter.Ryan@uct.ac.za, Richard Cuthbert, Royal Society for the Protection of Birds;
richard.cuthbert@rspb.org.uk and John Cooper, CORE Initiatives;
John.Cooper61@gmail.com.

Southern Giant Petrel Demographic Study

Below Low Hump close to the coastal cliffs overlooking Saddle Island.

Commenced 2010, no projected year of completion

Markers: one-metre white plastic poles bearing metal roofing washers stamped 1-164. Poles 165 to 169 marked with indelible felt pen only.

Poles are repositioned annually.

Contact person: John Cooper, CORE Initiatives; John.Cooper61@gmail.com.

Atlantic Petrel long-term monitoring transects

Before Blechnum Bridge to left of path to stream, past Blechnum Bridge on first rise and across Gonydale River to right of path

Commenced 2001, no projected year of completion.

Ten white plastic poles with aluminum tags punched AP 1 to AP 10 in a straight line at each locality.

Contact person: Richard Cuthbert, Royal Society for the Protection of Birds;
richard.cuthbert@rspb.org.uk.

Great Shearwater and burrowing petrel long-term monitoring transects

Commenced September 2010 and ongoing.

Transects established in three sites, over Gonydale River in area of coastal tussock on seaward side of path running out to Tumbledown, in coastal tussock close to base on seaward side of path heading to Seal Beach, and in coastal tussock on seaward side of Admirals Path. 11, 12 and 11 white conduit poles with drilled holes as markers in a straight line at each locality.

Contact person: Richard Cuthbert, Royal Society for the Protection of Birds;
richard.cuthbert@rspb.org.uk.

Vegetation transects

Ruin Ridge, Lower Slip

Markers: red metal poles on Ruin Ridge, top pole labeled “PFIAO vegetation transects, do not remove, C. Moloney, 1990”.

Contact person: Peter Ryan, FitzPatrick Institute, University of Cape Town;
Peter.Ryan@uct.ac.za.

Sagina Eradication Programme

Markers: 2two-metre white plastic poles labeled SAGINA marking most positions of steel scaffolding poles for attachment of ropes along the cliff top between Seal Beach and Admiral's.

Contact persons: Richard Cuthbert, Royal Society for the Protection of Birds;
richard.cuthbert@rspb.org.uk and John Cooper, CORE Initiatives;
John.Cooper61@gmail.com.

John Cooper, honorary Tristan Conservation Officer, updated 10 October 2011