

ANNUAL ENVIRONMENTAL INSPECTION REPORT, GOUGH ISLAND NATURE RESERVE, SEPTEMBER-OCTOBER 2007

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Summary of main recommendations

In South Africa

For Action: Antarctica & Islands, DEAT

1. The SANAP “Environmental Information about Gough Island” document should be distributed to all voyage participants planning to go ashore on Gough Island at least two weeks prior to sailing.
2. Suggested improvements to the quarantine capability at the new DEAT Antarctica & Islands stores at East Pier include provision of new rodent poison bait stations, flying and crawling invertebrate traps, rubbish bins with fitted lids and windows and roller doors kept closed.
3. Previously worn over-trousers with Velcro ankle cuffs should no longer be re-issued unless the Velcro has first been removed.
4. Plants growing on East Pier should be removed on a regular basis and their sites treated with herbicides.
5. Dock-side waste skips should have well-fitting lids that are kept closed when not in active use, especially overnight.
6. The dock and gangplank area should be kept well lit at night to deter rodents..

For Action: NDPW, with DEAT oversight

7. An audit is required of the NDPW facilities in Customs House and its quarantine capability drastically improved by provision of new, regularly serviced bait stations, invertebrate traps, regular cleaning and tidying, and a change in attitudes.

For Action: Table Bay Marine via Tristan da Cunha

8. Table Bay Marine should have rodent poison bait stations placed at the entrance to its store and a procedure adopted for washing down vehicles destined for Tristan.

Aboard the S. A. Agulhas

For Action: Smit Marine South Africa via Antarctica & Islands, DEAT

1. All non-freezer store rooms containing food should have flying invertebrate traps installed.
2. Spaces where food is stored, prepared and consumed and living spaces (including cabins) should have crawling invertebrate “sticky: traps” installed and regularly serviced.

On Gough Island

For Action: Antarctica & Islands, DEAT, with NDPW support

1. All redundant structures should be dismantled and removed to South Africa, including the incinerator and platform, crane lookout and steps, catwalk lights and cabling and the damaged fuel-pumping hut and adjacent concrete platform.
2. Sufficient dedicated containers should be sent with the 2008 relief for removal of accumulated rubbish and dismantled redundant structures.
3. The condition of the old wooden helipad should be re-assessed with a view to its eventual removal.
4. An evaluation of fuel-pumping procedures and shore fittings and equipment should be made by a visiting expert and new arrangements put in place following advice received.
5. All outside doors should have self-closing devices and outside lights should have automatic switch-off timers.
6. Field aids (mainly ropes and ladders) in the vicinity of the base in Transvaal Bay should be kept in good condition by replacement as necessary and by the removal of unsafe aids.

For Action: Tristan da Cunha

1. Alien plant eradication efforts should continue in Transvaal Bay, concentrating on *Sagina*.
2. Registers of field aids and markers should be kept up to date and any unregistered markers regularly removed by Environmental Inspectors.

Introduction and itinerary

I was appointed the Environmental Inspector for the 2007 annual relief of the Gough meteorological station by the outgoing Administrator of Tristan da Cunha. The *SA Agulhas* left Cape Town on 6 September and arrived at Gough via Tristan on 14 September, sailing for home, again via Tristan, on 2 October and docking in Cape Town on 10 October. I went ashore for the day on both Tristan visits.

Pre-sailing inspections and activities

On 8 August I attended the Gough Takeover Planning Meeting in the Antarctic Directorate's new premises at East Pier. At this meeting I emphasized the need to continue to follow the various "environmentally-friendly" procedures adopted by SANAP over the years. Following a request at the meeting, I updated the SANAP "Environmental Information about Gough Island" document (Appendix 1) with the understanding this would be distributed to all Gough relief participants in advance of sailing. In the event, it appears this document was only given to the new team members, although a copy was inserted in the takeover manual that is supplied to project leaders on the voyage. Since it includes, *inter alia*, information on packing of personal possessions for quarantine purposes it is recommended that the document be supplied to all Gough Takeover participants (not just team members) via their project leaders at least two weeks in advance of sailing.

On 31 August an illustrated conservation lecture was given to the new (53rd) meteorological team as part of their 10-day team-training period.

On 3 September the pre-voyage inspections were carried out. I was accompanied by Takalani Maswime (DEAT Antarctica and Islands Principal Environmental Officer), John Parkes (rodent eradication and quarantine expert, Landcare, New Zealand) and Norman Glass (Tristan Islander residing in Cape Town). We visited and inspected the new DEAT storage and packing facilities at East Pier, the dock side at East Pier, the *S.A. Agulhas*, the NDPW facilities in Customs House and Table Bay Marine, as reported below. Note that Takalani Maswime has made his own inspection report to DEAT's Antarctic Directorate. Lack of time precluded inspections of the CHC helicopter hangar at the airport and the V & A Logistics delivery warehouse in Paarden Eiland used by Zedcore (buying agent and exporter of Tristan cargo). However, an introductory visit was made to Bob Hindle of Zedcore at its office in Pinelands.

Antarctic Directorate facilities

The transfer of the Antarctic stores from Paarden Eiland to purpose-renovated facilities in the East Pier Building represents a hugely significant development in terms of improved quarantine abilities. All the facilities inspected were clean and tidy with no signs of plant material or invertebrates (but note that the visit was made after packing had been completed). The only exception was some accumulated rubbish on the floor at the

entrance to the clothing store (that bizarrely included an open jar of peanut butter!). This rubbish pile had been present since at least 30 August. It was cleared up immediately on our request. The number of rodent poison bait stations inside and outside the building was notable. All had been recently serviced. The reduction in the amount of Velcro on newly manufactured items of protective clothing (over-trousers and rain jackets) was noted with appreciation (but see report on the boot-washing ceremony below). Our inspection was accompanied by Henry Valentine, Director: Antarctica & Islands. Based on our inspection, the following recommendations are made:

1. Rodent poison bait stations and flying and crawling invertebrate traps should be placed in the clothing store and food-packing room.
2. Flying and crawling invertebrate traps should be placed in the container packing and storage spaces.
3. The clothing store windows should either be kept closed or fitted with fine screens to keep out flying insects.
4. Suitably-sized rubbish bins with well-fitting lids should be provided in the stores, including where relief and team personnel wait to receive and try on clothing, and where food and other items are packed. These bins should not be allowed to become over full, and should be emptied regularly.
5. Personal meals and food (e.g. packed lunches) and drinks taken into the SANAP stores should be kept in sealed containers and should be consumed elsewhere.
6. Any food spilled during packing operations should be cleaned up immediately, and definitely not left overnight.
7. All roller doors should be kept closed when movements in and out of the building are not taking place.
8. Gaps should be kept between containers, etc. and internal walls, so as to reduce the number of hiding places for pests and to allow for regular inspections.
9. Closed roller doors should be regularly checked to see that their rubber flanges continue to afford an adequate seal against rodents and crawling invertebrates.
10. Previously worn over-trousers with Velcro ankle cuffs should no longer be issued, unless the Velcro has first been removed.

East Pier

The pier was generally clean and tidy. However, growing plants were observed at several localities and the waste skip lid had been left open (Figs 1-3). The following recommendations are made:

1. The several species of weedy plants growing on the edge of the dock and on the dock wall adjacent to the ship's berth should be removed mechanically and their sites treated with herbicides, repeated as necessary once any re-growth is observed.
2. The waste skip adjacent to the ship's poop deck should have its lid kept closed at all times, most especially overnight, to deter access by rodents and invertebrates and should not be allowed to be overfilled.

3. Bright lights should be left burning on the pier at night (not checked) to discourage rodents from gaining access to the ship via the gangplank after dark.

S.A. Agulhas

The ship was inspected following the issue of an access permit (Appendix 2) by Sam Oosthuizen, DEAT Ship Operations Manager. As in previous years, the ship was found to be generally clean and tidy. However, access to holds and inspections of small boats and nets were not possible due to cargo-loading operations taking place at the time of our visit. All the flying invertebrate traps were inspected and found to be in good order. Poison bait stations were present in the helicopter hangar. However, fewer rodent bait stations appeared to be in place elsewhere than in previous years. Rat guards were in place on the ship's hawsers and "glue boards" were being fitted at the time. Based on our inspection, the following recommendations are made:

1. Crawling invertebrate "sticky" traps should be placed strategically around the ship, especially in areas where food and drinks are stored, prepared and/or consumed and in passenger, officer and crew cabins. It is noted that this is along-standing recommendation.
2. Poison bait stations for rodents should be replaced where found previously, such as holds (note not inspected), dining room, pantries, lounges, laboratories, etc.
3. A flying invertebrate "sticky" trap should be placed in the store room(s) where fresh vegetables, including pockets of potatoes, are kept.

NDPW facilities, Customs House

The NDPW Antarctic storage and packing facility in Customs House was, disappointingly, in a poor state. Accumulated materials (some of which seemed to be rubbish) along walls and in corners made a proper inspection difficult. Alarmingly, fresh soil and plant material and a piece of dried grass *Poa annua?* with inflorescences attached (Fig. 4) were present on planks on top of a box. Only one poison bait box could be found. It was empty of bait and had no service date.

While still at the ship we were informed that since the NDPW containers had already been sent to the ship there was no need to make an inspection. At the facility we were told that now the containers had been removed to the ship, the stores area would be cleaned and tidied. These comments reflect an apparent misunderstanding of how quarantine measures need to be practiced and were thus disappointing, especially given the long experience with SANAP of those who gave them.

It was noted with approval that the NDPW had obtained new (blue) steel containers with well-fitting lids, but it was uncertain if separate sets had been obtained for Marion and for Gough Islands, as has been recommended annually in previous reports since at least 2003 (and as has been in place with DEAT (orange) containers for some years).

A check of recent annual inspection reports shows that whereas the NDPW facilities were deemed to be in a satisfactory condition in the three years 2003-2005, they were not so in 2006, when large rodent faeces (not of mice) were present and some bait stations were empty. It is clear action needs to be taken to get this facility “back on track”. The following recommendations are made:

1. A professional audit should be undertaken and a written set of procedures put in place to make certain that sufficient filled poison bait stations are present at all times and are regularly serviced (when dated), that cobwebs are removed, that fumigation takes place from time to time, and that the facilities are kept clean and tidy, with suitable rubbish bins with fitted lids in place and used, especially prior to sailing when packing is being undertaken.
2. A designated senior member of the NDPW who is stationed at Customs House should be made responsible for seeing that the facility remains at the required quarantine standard throughout the year. Such a responsibility should be seen as part of the person’s job description.
3. Staff of DEAT’s Environmental Impact Evaluation (Antarctica & Islands) section should make unannounced inspection visits throughout the year to confirm that adequate practices are being followed, not restricted to shortly before sailing dates.

Table Bay Marine

The Table Bay Marine packing store was found to be reasonably clean and tidy and several filled rodent bait boxes were in place. Most of the cargo had already been sent to the ship. We were shown the new collapsible plastic boxes used for Tristan cargo, although wooden crates may still be used for large items. A second-hand bus was standing in the open prior to being taken to the ship for Tristan. Its exterior, including its tires, appeared clean. The following recommendations are made:

1. Poison bait stations should be placed either side of the roller door, as this would be the main entrance point for rodents.
2. Consideration should be given to installing flying and crawling invertebrate traps.
3. Vehicles (especially second-hand ones) destined for Tristan should be washed down, including tires, wheel arches and undersides, before being loaded onto the ship.



Fig. 1. Plants growing at East Pier on the edge of the dock next to the *S. A. Agulhas*.



Fig. 2. Plants growing on the dock wall at East Pier below the stern hawsers of the *S. A. Agulhas*.



Fig. 3. Dock-side skip on East Pier next to stern of *S. A. Agulhas* left open.



Fig. 4. Dried grass with inflorescences in NDPW Antarctic Store at Customs House.

Activities aboard ship

During the outward voyage, opportunity was taken to brief the incoming Tristan Administrator, Mr David Morley, on the planned environmental inspection and conservation matters in the Tristan group in general, especially as they pertain to Gough.

A second planning meeting was held with project leaders on 10 August, when arrangements were made for the environmental lecture and boot-washing ceremony (see below).

An illustrated environmental talk was given in the passenger lounge on 11 September. All persons planning to go ashore on Gough, including helicopter crew and day visitors, were required to attend. In the event a number of Tristan passengers also attended. Following this talk, the *Sagina* eradication training presentation was shown.

On 13 September (after the first Tristan visit), the obligatory boot-washing ceremony for Gough personnel was held in the aft wet laboratory and on the poop deck. All those planning to go ashore attended and signed the register. In the main SANAP-issued kit was clean of propagules, as were nearly all of the personal camera/video bags and packs presented. However, several re-issued (and therefore ostensibly cleaned) over-trousers had plant material on their Velcro ankle cuffs. It is strongly recommended that the issuing of previously worn over-trousers with Velcro cuffs for both Gough and Marion Islands be halted forthwith, unless the Velcro is first removed. I was able to carefully unstitch and remove the Velcro on the over-trousers issued to me with no loss of function..

With the support of the helicopter team leader the previously-used no-flight zone map for Gough Island was amended to include the several sites where Southern Giant Petrels *Macronectes giganteus* are known to breed, in addition to the major penguin colonies and Southern Elephant Seal *Mirounga leonina* concentrations already marked. (Appendix Three).

Prior to arrival at Gough and after the first Tristan visit the hangar and the outsides of the helicopters (especially their skids) were inspected and found to be clean.

Inspections on arrival and subsequently

The buildings of the meteorological station and its immediate surrounds were inspected on the morning of 14 September, immediately following the first flight ashore. It was evident that the South African weather team (the 52nd) had kept the facilities in a tidy and clean condition. No evidence of recently deposited litter was seen around the buildings (but see the comments on accumulated rubble and redundant structures below).

Other than the occasional mouse, no aliens were observed in the food store and pantry. It seems the switch to plastic boxes to store such food items as flour, cereals, rice and pasta has reduced the numbers of weevils that were present in earlier years.

During the relief, several crew members flew ashore unexpectedly from the *S. A. Agulhas*. On being informed, I met them on the helipad with a bleach solution and their boot soles were scrubbed. No propagules or soil were noted. The washing water was disposed off into the sea. In future, ship's personnel and guests coming ashore on unplanned visits should wash their boots, and check their bags for propagules, on the ship prior to departure.

Off-loading

Most landed containers were inspected on opening and no propagules were found. All containers inspected were clean outside and within. It was not possible to inspect all containers on opening as they were landed at five widely-separated sites, so those containing food were accorded a priority for inspection. Containers were landed on either structures (wooden helipad, crane platform) or an mainly alien vegetation adjacent to buildings.

No fresh produce, including potatoes, were taken ashore. It is now policy that potatoes will no longer be sent to the island. All eggs sent ashore had been irradiated. Only de-boned poultry meat was sent ashore.

Flying operations

Several flights were taken over the island, including to the interior. Food caches in plastic "tote" boxes were placed by air at the Gonydale and Waterfall Camp camping sites for field work planned for the 2007/08 summer. Previously placed food caches containing old food were removed on the same flight from the former locality (see details in Appendix Six).

A too-heavy container had to be set down away from the base in natural vegetation outside the logistic zone during back-loading. This was recovered some time later without any discernable harm to the environment. The sections of blown-away roof were also recovered. Back-loading of all other containers (including those containing accumulated wastes and boxed *Sagina* plants) and relief personnel proceeded without incident.

Waste management and a proposed clean-up of rubble and redundant structures

During the 2007 relief (and during the year by the weather team) most solid wastes generated were separated into four categories (metals, glass, plastics, and wood, cardboard and paper) and placed into dedicated containers for return to South Africa in a satisfactory manner. Sewage, kitchen and wash-room grey water and food wastes (with

the exception of meat bones, dried fruit/olive pips and poultry and egg wastes, which were kept deep-frozen for return to South Africa), were continued to be disposed of in Skivvy Gat without further treatment. An exception was the limited quantities of grey water and sewage from the emergency base in the food store which were piped over the adjacent cliff into the open sea.

As in recent years no incineration of wastes occurred and the only open fires lit were in the quadrangle barbecue/braai facility, using charcoal briquettes.

The appearance of the immediate surrounds of the meteorological station is not in keeping with the island's status as a nature reserve and a World Heritage Site. Leaving aside the generally run-down appearance of many of the buildings and associated structures themselves (with rust stains and peeling paint prevalent) there is far too-much accumulated material lying about that suggests a level of institutional neglect over the years. This situation gives a bad initial impression to island visitors, including on this relief the outgoing Tristan Administrator. It is to be noted that recommendations for a comprehensive clean-up (see below) were made in the 2003 and 2006 environmental inspection reports, without any action forthcoming to date.

A concerted effort should therefore be made during the 2008 relief to remove from the island to South Africa all redundant and disused structures around the meteorological station (e.g. the partially collapsed crane lookout platform and wooden steps, the no-longer used incinerator and its concrete stand, dilapidated light stands and associated cabling alongside the cat walk to the helipad and from Gough House to the crane platform, the disused sewage pipe between Gough House and Skivvy Gat, etc.) and accumulated building rubble and other material around and underneath buildings (e.g. broken trolleys, rusted loose piping, rotten wooden planking, discarded fire-hose boxes, etc.).

It is also recommended that the dilapidated and partially destroyed (by a peat slip) pump hut in Diesel Cove and its associated pump, electric cabling and piping be removed since it is now only used functionally for the storage of a roll of fuel hose which could best be kept elsewhere on the station in a more protected environment. The adjacent concrete platform of the fuel tank removed in 2003 should be broken up and removed as well.

Additionally, it was noted that the old wooden helipad has rotted through in several places, causing a hazard to foot and trolley traffic and exposing polystyrene blocks that are crumbling. This structure should be removed in its entirety before it rots through completely. Care should be taken to avoid the polystyrene blocks breaking down further during removal, perhaps by placing them individually into large heavy-duty plastic bags. The major rotted area was patched with metal sheeting during the relief, but this represents only a temporary solution to a steadily worsening problem that has been referred to in previous annual environmental reports.

A "chicken run" clean-up was held on 1 October, the day before departure. A quantity of rusted metal, rotten wood and disintegrating plastic bags (containing spilling sand and

stone chips) was then collected from immediately seaward of the crane platform. Much of this material still remains, representing a considerable eye-sore. How this can be removed in its entirety without causing any further collapse of the already cracking and slumping platform will require careful consideration.

It is intended to continue to gather loose waste material into stock piles (as was commenced during the 2007 relief) during the 2007/08 summer visit to continue the alien plant eradication programme. Providing the prior approval of the relevant South African authorities (DEAT and NDPW) is obtained, some redundant structures (e.g. the incinerator) may then be dismantled and stock-piled with the support of the 53rd weather team.

The South African authorities should be requested to make a minimum of four dedicated containers available for removal of the above (and other) examples of waste materials and rubble during the 2008 relief, as well as supplying sufficient person power (a dedicated two-person team is suggested) with the requisite skills (e.g. in the use of cutting equipment) to assist the 2008 Tristan Environmental Officer in undertaking the proposed clean-up.

Alien plant eradication

Alien plant eradication continued under the auspices of the Tristan Agriculture and Natural Resources Department with funding provided by the Overseas Territories Environment Programme. A four-person team was involved, made up of the Environmental Officer as Team Leader, two professional rope-access technicians (Eugene Breytenbach and Matthew Munting) and Andrea Angel (who also acted in support of other projects).

Sagina

No further spread of *Sagina* was found, beyond its known (July 2007) distribution from “Beach Rocks” (between the Archway rock and Seal Beach) and the northern bowl of Snoek Gat. No *Sagina* was found (working from south to north) at the following localities outside its known island distribution: Tumbledown, the south and north sections of Seal Beach, along the Gonydale River between the waterfall and the top of Seal Beach, “Next Gat” (immediately north of Snoek Gat), south and north (latter accessed from small boat) sections of the rocky shore opposite The Admiral, The Glen and Penguin Island. Further, no *Sagina* was found inland from the coastal cliffs save for one small plant adjacent to the entrance to the NDPW store. Within its known distribution, *Sagina* could not be found at several localities where it had previously been reported (although seedlings may continue to appear at some of these sites). These sites included previously heavily infested areas such as Sagina Gulch and Sagina Gully, cracks in the crane platform and the cliffs immediately below the crane. Only a few plants could be found on the peripheries of Diesel Cove.

It was notable that, in comparison to the 2006/07 summer, there was very little active growth of plants of most species (save for *Spartina* tussock and *Scirpus* sedges) on the more exposed parts of the cliffs. This seems due both to a severe storm in August when huge swells and wind-blown salt spray covered the cliffs and to the early nature of the season. Although germination of *Sonchus* thistles had commenced by the end of September, very little evidence of new *Sagina* plants was seen. At several localities, notably the Snoek Gat gully, evidence of *Sagina* plants apparently killed by salt spray was found. Importantly, no signs of flowering were seen, although a few mature plants (presumed missed by earlier eradication teams) were discovered, especially at Snoek Gat.

A total of 76 rope-assisted descents was made between Beach Rocks and Snoek Gat, covering all sections of the cliffs within the known distribution, save for the two outlying “pinnacles” at Snoek Gat and the lower cliff section between the southern and northern bowls at Snoek Gat. All double rope-descents were plotted by hand onto a photograph of the coastal cliffs taken from the ship on arrival and their general positions recorded by GPS. Sites where anchor poles have been left in position along the cliff top have been marked with 2-m white electrical conduit poles for ease of finding.

All plants found were removed mechanically using paint scrapers and the sites treated with a herbicide mixture (5% each of Glyphosate and Outpace Flowable), using mainly 1.5-l hand-held pressure sprayers. At a minority of sites that could be scraped down to bed rock, heat treatment with a hand-held blow torch was used prior to the application of herbicide. The boiler was not used due to the absence of *Sagina* within the immediate range of its hoses.

Four 55-l “tote” boxes were filled with bagged *Sagina* and adhering soil during the relief. This compares favourably with 26 boxes filled in summer 2006/07 and four in winter 2007. Thirty-one boxes containing bagged *Sagina* (including the summer 2006/07 and winter 2007 collections) were flown to the ship in three nets on 21 September. The final three boxes were back-loaded on 2 October (day of departure). Most unfortunately, it appears that the first consignment was not initially adequately secured on deck aboard the ship and during heavy weather two boxes then apparently disappeared and nearly all the remainder were severely damaged with, luckily, only very limited spillage of their contents (only one torn bag was noted). It is not known whether the two missing boxes were lost overboard adjacent to the island, but this seems possible. In future, alien plant material should only be back-loaded at the end of each island visit, and then only under the direct supervision of a member of the eradication team, and should be placed under cover and well-secured on the poop deck or in one of the aft wet laboratories (as requested during the 2007 relief).

The contents of the 32 remaining boxes were dumped overboard from their plastic bags at 35° 11'S; 05° 42'E. approximately xxx km from Gough.

Potatoes

Approximately five small potato *Solanum tuberosum* plants with a number of small tubers were dug out and removed from the long-standing site beside the Skivvy Gat waste food chute. The peat bank in which they were found was cut back half a metre or so with the dug-out material being shovelled down the hole. It is hoped that as a consequence this species has now been finally eradicated at the site where it has been reported annually since at least 2003 (note that as from the 2006 relief potatoes are no longer sent in the food supply to Gough). The collected potato plants and tubers were bagged along with *Sagina* and later disposed off at sea.

Other alien plants

No signs of *Senecio* or *Conyza* were found at the now well-overgrown site of the upper magnetometer hut. It seems certain that these two species, present for several years at this single site in the 1980s, have been successfully eradicated from the island.

Mature *Sonchus* thistles were noted for their rarity in the vicinity of the meteorological station, and within the distribution of *Sagina* (see above), when compared to previous island visits. All such plants found were pulled out. A few thistles growing on the now nearly-overgrown sand pile between Gough House and the helipad were weeded out. Many thistle seedlings appeared on the coastal cliffs near the base in Transvaal Bay in the last few days of the relief. All thistles encountered were pulled out of water course gullies on the Gonydale slopes of South Peak. However, the presence of thistles widely scattered over the island in favoured habitats (such as in upland water courses and along the coastline) makes this species' eradication from the island infeasible.

The wooden helipad now has large amounts of the alien grass *Poa annua* growing on it, some of which was scraped into heaps to improve footing.

No traces of the alien grass *Arrhenatherum elatius* could be found at the single known site in front of the outside door to the laboratory and it seems likely this alien has now been eradicated from the island, following herbicide treatment in 2005/06. This grass was first identified in 1998/99. Note that no plants were found in January-February 2006 at this site, and elsewhere in the vicinity of the weather station. The treated site remains bare of vegetation.

The Gonydale camp site appeared to be free of alien plants.

Fuel pumping

Diesel fuel was pumped ashore on two separate days. On 25 September the shore coupling commenced to leak (due to sideways strain from the drifting ship's hose at sea) and approximately 70 l of leaking fuel was collected in a hand-held 55-l plastic box and transferred to small-mouthed 20-l plastic drums on site. This makeshift arrangement was far from adequate and as a consequence a small amount of fuel (very roughly estimated as less than 5 l) was spilled onto the rocks in Diesel Cove, before pumping was halted for

the day. At the second attempt on 29 September a removable metal drip box had been constructed and installed below the coupling, made to drain via a hose into 20-l drums. No leaks occurred on this occasion. Overall c. 88 000 litres were transferred to the island

It is evident that the fuel-pumping operation needs improvement. It is to be noted that a similar incident occurred in 2005 when a recommendation was then made for improvements to reduce strain on the shore coupling. No action in this regard has apparently yet been taken.. It is recommended that advice from a visiting expert should be sought on the whole fuel-pumping operation and especially on the use of some form of strain-relieving attachment ashore so that the sideways pulling of the hose at sea does not directly act on the shore coupling, causing leaks.

Light pollution

No outside lights were left on and all window blinds at the station were closed prior to dusk each evening (but see below). As a consequence no evidence of birds colliding with buildings was noted.

An emergency landing and takeoff by helicopter at the station took place during the night of xy September. Fortunately, a partially clear sky and near full moon contributed to a relative paucity of flying “night birds” at the time and no evidence of injured or dead birds was found the next morning. The helicopter team reported no collisions. Lights were inadvertently left on with undrawn blinds in the locked hospital that night. The windows were sealed from the outside with black plastic refuse bags the next morning. These bags were left in place until a spare key could be found in the absence of the team’s medical orderlies aboard ship and the lights switched off.

All outside doors without them should be fitted with self-closing devices, including the new door to the emergency base in the food store. The outside door to the upper air building needs its self closer repaired as was it found ajar at night on more than one occasion. The two lights outside the upper air building should be fitted with timers to avoid them being left on for any length of time.

Information on birds coming aboard the ship while at Gough was sparse, although a Broad-billed Prion was rescued from inside the helicopter hangar and successfully released on 2 October. No incidents of “bird strikes” on base buildings during the year were reported to me.

Paths and erosion issues

I made only one excursion at any distance from the base: to Gonydale and Green Hill via the Gonydale River route. The path was well overgrown and did not seem to have eroded further from my previous visits since 2003. I inspected the usual camp site in Gonydale

and noted that the trampled areas seen in February 2007 and earlier were reasonably well recovered with natural vegetation.

Paths in the vicinity of the base at Transvaal Bay appeared much as in previous years: overgrown on our arrival but becoming more obvious during the takeover period with the increased level of foot traffic.

A list of field aids is given in Appendix Four. Unsafe aids should be removed and replaced as necessary.

Research activities

A report on research activities conducted ashore during the relief has been submitted to the Tristan Biodiversity Advisory Group by Richard Cuthbert.

A preliminary register of field markers has been drawn up (Appendix Five). It is recommended that this be kept up to date to halt any proliferation of redundant markers.

A permit was issued to collect and export blood samples from 20 each of Little Shearwaters *Puffinus assimilis* and White-faced Storm Petrels *Pelagodroma nivea* (Appendix Six). In the event, blood was collected from two storm petrels only.

It is intended to commence a register and photographic record of historical sites and artifacts (e.g. memorial crosses, engraved rocks at The Glen, etc.) in summer 2007/08.

Recreational fishing

A single fishing license for eight named individuals was issued (Appendix Seven). Fishing took place from the ship in both Tristan and Gough waters. As far as I was able to ascertain the permit holders fished in accordance with the permit.

Placement of a field hut/refuge in Gonydale

My earlier proposal to the Tristan Biodiversity Action Group to consider the pros and cons of placing a field hut or refuge in Gonydale to facilitate both conservation management and research activities engendered opposition from some T-BAG members. I visited a suitable locality for a hut in Gonydale, at the usual camping site. Whereas I feel that placing such a structure will not necessarily cause more erosion/trampling problems than as occurs from a tented camp, I decided that my proposal should stand in abeyance until (or if) a management or research programme in the vicinity warranted such an overnight facility. In such an event, an environmental impact assessment should first be carried out in terms of the island's management plan..

Appointment of a voluntary Team Conservation Officer

The medical orderly on the Gough 53rd team, Kholekhile Cita, has been asked to take up the voluntary duties of an over-wintering conservation officer during the year. As no up-to-date copy of the duty document (Appendix Eight) was available on the island, the 2003 version has been sent to him subsequently by e-mail and will be discussed with him in detail, updating and amending where necessary, during my summer stay on the island. Kholekhile accompanied day walks to Gonydale and Tafelkop to familiarize himself with these localities, as well as to several sites in the general vicinity of the base. He was also shown how to continue the monitoring of several bird species.

Acknowledgements

I thank the participants on the 2007 Gough relief, both aboard ship and ashore, for their willing help and support with environmental matters at Gough Island.

APPENDICES

Note those appendices included by title only are available as photocopies from the author on request

Appendix One: Environmental information about Gough Island and precautions to be taken by all expedition and take-over members

Appendix Two: Permit to visit the S.A. Agulhas: East Pier, V&A Waterfront

Appendix Three: Gough Island no-flight zones

Appendix Four: Register of field aids on Gough Island

Appendix Five: Register of field markers on Gough Island

Appendix Six: Government of Tristan da Cunha Export Permit

Appendix Seven: Government of Tristan da Cunha Fishing Licence TDC-A 001/07

Appendix Eight: Duty Statement: Team Conservation Officer – Gough Island

APPENDIX ONE

Dear SANAP Participant

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 it forms one of the United Kingdom's very few World Heritage Natural Sites.

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 message is to inform you of some of the precautions you need to take before you reach the islands. 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 research vessel SA Agulhas.

A. PRECAUTIONS AGAINST INTRODUCING ALIEN SPECIES TO THE ISLAND

1. CHECK ALL PERSONAL CLOTHES AND SHOES

1.1 Personal clothes

Before packing your personal clothes, please give them a thorough wash and iron. Please be especially careful with hiking socks, fleece and outer jackets and any other clothing you might have used previously in the natural environment, in city parks and on farms. These clothing items make excellent vectors for the transport of alien species, especially seeds. Empty all jacket pockets and clean seams that might have trapped plant material, especially seeds. Pay special attention to cleaning Velcro strips.

1.2 Footwear

The soles of all shoes, boots and sandals are to be scrubbed thoroughly and cleared of any soil, stones and other dirt. Canvas shoes should be washed and careful attention must be paid to cleaning Velcro straps.. In addition, a compulsory "Boot-

washing Ceremony” will be held on the ship on the outward voyage for all those going ashore, even if only for a day visit.

1.3 Walking and hiking equipment

Rucksacks, day packs, camera/video bags, walking sticks, tripods and protective clothing

Please wash and check these items thoroughly, especially Velcro seams and straps, pockets and below removable stiffeners. Gough Island has a fully equipped camping store with enough backpacks and day packs. You are encouraged to make use of these rather than bring down your own. All these items will be inspected at the outward boot-washing ceremony for seeds and insects, etc. along with your issued and personal outer/protective clothing.

2. Take care while packing equipment and personal belongings into trommels (metal trunks) and other containers
 - 2.1 Ensure that the container is absolutely clean inside and outside before packing.
 - 2.2 Pack in a secure environment in a pest and plant-free closed room preferably during daylight hours
 - 2.3 Keep containers fully closed (preferably sealed) once packed.
 - 2.4 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 *SA Agulhas*.
 - 2.5 Remember that packing at night with a localised light source could attract insects into your containers, so avoid packing at night whenever possible.

B. PRECAUTIONS AGAINST POLLUTION

1. STYROFOAM PACKAGING CHIPS ARE BANNED FROM THE ISLAND

Due to the risk of environmental pollution posed by Styrofoam packaging chips, these are not allowed onto the island.

2. NYLON STRAPPING IS STRONGLY DISCOURAGED

Nylon strapping is 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. This is an extremely slow and painful death.. For this reason the use of nylon strapping for packaging is strongly discouraged. All such straps must be cut before proper disposal.

3. MINIMISE PLASTIC AND CARDBOARD PACKAGING

Plastic cannot be incinerated on Gough due to the emission of PCBs, which have an adverse effect on birds and seals. Cardboard, especially in corrugated form, can harbour invertebrates, such as cockroaches and spiders and their eggs and larvae. This means that all plastic and cardboard (as well as all waste paper and wood) is stored on the island and later returned to South Africa for proper disposal. You are thus requested to minimise the amount of plastic and cardboard packaging used as far as practically possible, since storage space on the island for such wastes is severely limited. Rather use one large refuse bag than many small plastic bags and remove items from unnecessary cardboard boxes and wrapping whenever feasible. Note that incineration of any wastes (including wood) is not allowed on Gough Island. The only open fire that may be lit is in the braai/barbecue facility in the base quadrangle, using the charcoal briquettes provided.

4. OLD PLYWOOD IS NOT TO BE USED

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

C. 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 fly towards the light source. If this light emanates from a building or fixed structure the birds will fly straight into the structure and may then be injured or killed. In a dazed and injured state they make easy prey for predatory birds, which soon learn that outside lights represent a potential food source.

For this reason no outside lights are permitted to be left on at night. Therefore please bring your own small hand torch for moving around outside the buildings at night. Battery chargers are available on the island for those who wish to bring rechargeable batteries.

Blinds on all base windows must be fully closed by dusk and kept closed all night.

D. FRESH FOOD

No fresh fruit or vegetables of any sort may be taken ashore *at* Gough Island.

E. LITTERING

Absolutely no littering or disposal of rubble, etc. is allowed anywhere on the island, including cigarette butts, matches, sweet wrappers, food remains, etc.

Please immediately clean up any rubble that has been generated as a result of maintenance or other work that has been undertaken outside (e.g. pieces of metal, bits of wood, plastic piping off-cuts, etc.), to prevent dispersal by the wind.

F. 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 5 m of seabirds or 10 m of fur and elephant seals). If approached animals appear agitated retreat slowly until they calm down. Please remember that albatrosses, penguins and most especially fur seals can give nasty bites. The Tristan Albatrosses breeding in Gonydale and on Tafelkop and the Atlantic Yellow-nosed Albatrosses breeding south of the base towards Seal Beach form part of long-term population studies. Birds on nests in these areas are not to be approached closer than 10 m and the nest markers are to be left undisturbed.

G. FISHING

Over-wintering personnel only are granted an open license by the Tristan Government for recreational fishing from the shore only for domestic consumption only throughout their years' stay. Such fish may not be removed from the island.

All other shore-based and ship-based personnel during the relief must purchase a recreational fishing license for GB 150 that allows a maximum of 250 kg of fish (gutted, filleted or whole) to be caught. Licenses are to be purchased on arrival on Tristan da Cunha from the Agriculture and Natural Resources Department by individuals or groups of named individuals (syndicates) before they will be allowed to fish from the sea or shore. These fish may be removed to South Africa with a legitimate export license issued by the Tristan Government.

All fishers must fish in a responsible manner, throwing back unwanted and under-sized fish alive and uninjured.

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

All relief visits to Gough Island are accompanied by an Environmental Officer appointed by the Tristan Administrator on behalf of the Tristan Agriculture and Natural Resources

Department. This officer may be approached for advice, and his/her requests are to be followed at all times.

Further environmental information may be found in the management plan for Gough Island.

John Cooper, Environmental Inspector, Gough 2007 relief, honorary Tristan Conservation Officer and member, Tristan Biodiversity Advisory Group; John.Cooper@uct.ac.za

Updated 17 August 2007

APPENDIX FOUR

REGISTER OF FIELD AIDS ON GOUGH ISLAND

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

It is suggested that the list be checked in the field, amended as necessary and kept up-to-date, 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. rotten ropes and rope ladders with several missing rungs) should be removed.

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

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. The last remnants of an older wooden and rope suspension bridge at the site should be removed. Apparently, these bridges, falling outside the South African-leased area, were put up without Tristan approval.

Tumbledown

40° 21.434'S; 09° 53.0956'W

Synthetic rope and anchor pole(s) 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 next to a waterfall about 200 m upstream from the Swem Gat waterfall.

Swem Gat, Gonydale River

Broken wooden rope ladder (missing wooden rungs) fixed to an overly long anchor pole. Needs repair or replacement.

Gonydale River crossing

Short aluminium ladder on northern (base) side. Remnants of a wooden ladder at the site require removal.

Seal Beach

Fixed knotted synthetic rope to gain access to the shore down a steep muddy and eroding slope. Last remnants of a wooden ladder near the top of the descent require removal.

Sagina Gully and Crane Lookout

Three fixed old ropes. Strength of attachments and condition of rope uncertain. Used only for alien plant work.

Diesel Cove

Two wooden ladders fixed to metal poles and a short section of catwalk at bottom. The older ladder has a number of missing rungs and should be removed. Lower down is an aluminium ladder (fixed to poles and pitons by rope) to gain access to the fuel pumping coupling site. This ladder was fixed in place on 1 October 2007, replacing a previous ladder damaged by a storm. A large metal piton (currently unused) in the vicinity.

Snoek Gat

Southern ridge approach: three short ladders, two aluminium, one steel. One at least is not well anchored.

Northern approach: short fixed (to a tussock) synthetic rope at entrance to bowl.

At pond: short fixed aluminium ladder below a fixed rope tied round a rock, placed in 2007. A short rope ladder with missing rungs fixed to a pole at this site should now be removed.

“Next Gat”

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

Admirals

A difficult descent and an even harder ascent by a free-hanging rope ladder. From the top there are a fixed knotted rope and a 2006 (but already rotting) rope ladder with wooden rungs placed in position in September 2007, a long aluminum ladder and finally two rope ladders. One of the lower rope ladders has many rungs missing and should be removed. For ease of access and for safety purposes these aids need to be repositioned and/or replaced. Until then users should proceed with caution.

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. Ability to reach the shore from these two aids requires checking.

Tafelkop climb

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

Serengeti Plain descent

A fixed rope allows access to the shore at the southern end of the boulder beach between Waterfall Point(?) and Sophora Glen. Exact position and condition require checking

Sophora Glen, The Glen and the Glen River

Various fixed ropes are reported. Exact positions and current condition require checking. Some reported may no longer be present.

South Peak

Marker (rock cairn?) at top of path signalling route to Michael's Col.

Gonydale

A food cache has been placed in recent years in a small cave a few metres above the central camp site. Three 2006 boxes with old food and camping equipment removed and five tote boxes placed along with albatross nest marker poles by air on 14 September 2007. For non-emergency use by albatross researchers only.

Waterfall Camp

Food cache (two tote boxes) placed under a small overhang on the left bank adjacent to waterfall on 14 September 2007. For non-emergency use by albatross researchers only.

APPENDIX FIVE

REGISTER OF FIELD MARKERS ON GOUGH ISLAND

It is proposed to keep a register of scientific and conservation management markers used on Gough Island, to be updated annually. All markers not registered should then be removed by environmental inspectors on discovery. Temporary field markers deployed and removed during the annual relief voyage need not be listed.

The register should ideally list the study being undertaken, the year of initiation, the expected year (if known) of completion, locality name or description, position (GPS coordinates), type(s) of marker(s) used, and name, affiliation and e-mail address of the person responsible for the study.

Atlantic Yellow-nosed Albatross Demographic Study

Commenced: 1983, ongoing, no projected year of completion.

Between Meteorological Base at Transvaal Bay and Gonydale River, bounded by coastal cliffs and stream from Tafelkop.

Markers: 1-m white conduit poles bearing yellow alpha-numeric tags in series A2 to A99 at nest sites. Poles are left in place and are not removed each year.

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

Tristan Albatross Demographic Study

Tafelkop

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

Tafelkop, cross valley and south slopes of South Peak.

Gonydale and Hummocks path

Commenced 2007, no projected year of completion.

Green Hill

To be commenced 2008, no projected year of completion.

Precise area still to be defined.

Markers for all three Tristan Albatross study colonies: 1.33- and 1.5-m white conduit poles bearing yellow alpha-numeric tags in series A2 to A99 and C1 to C99 (not all yet used) at occupied nests. Poles will be removed and reused annually.

Persons responsible: Peter Ryan, FitzPatrick Institute, University of Cape Town; Peter.Ryan@uct.ac.za and John Cooper, Avian Demography Unit, University of Cape Town; John.Cooper@uct.ac.za.

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 conduit poles with aluminium tags punched AP 1 to AP 10 in a straight line at each locality.

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

Atlantic Petrel 2007 breeding success study

Base to helipad, initiated June 2007, ends December 2007.

c. 60 bamboo poles with plastic hazard tape streamers marking burrows with 5-l ice cream container “port holes”.

Person responsible: Ross Wanless, Fitzpatrick Institute, University of Cape Town; Ross.Wanless@uct.ac.za.

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”.

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

Sagina Eradication Programme

Markers: 2-m white conduit poles labeled SAG 1 to SAG x marking positions of steel poles for attachment of ropes on cliff top between Beach Rocks and Snoek Gat.

Person responsible: John Cooper, Avian Demography Unit, University of Cape Town;
John.Cooper@uct.ac.za.

APPENDIX EIGHT

DUTY STATEMENT: TEAM CONSERVATION OFFICER – GOUGH ISLAND

Note: this document will be amended and updated as necessary on the island during the 2007/08 summer

The 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 by no means all-inclusive. All regulations pertaining to the Gough Island Nature Reserve (GINR) are dealt with in more detail in the GINR management plan. If in doubt, please consult with the Tristan Administrator, Tristan Agriculture and Natural Resources Department and the Tristan Biodiversity Advisory Group (see contact details below).

RELIEF DUTIES

Relief duties should be undertaken by the Environmental Inspector, appointed by the Tristan Administrator, in conjunction with the outgoing and incoming team Conservation Officers:

1. Inspect all premises where cargo and equipment is stored (i.e. DEAT, NPWD and all freighting companies' stores), to ensure that these premises are clean, have a rat-free certificate, employ effective means of preventing rodent infestation, and are free of any other propagules.
2. Ensure that all containers are clean and dedicated Gough Island containers.
3. Inspect the *SA Agulhas* to ensure that the vessel has a rat-free certificate, that rat guards are effectively deployed on all mooring lines and that propagules are reduced to the minimum.
4. Inspect the hold of the *SA Agulhas* before reaching the island, for any signs of rodents and other propagules (i.e. soils, seeds or insects).
5. Present a lecture aboard the *SA Agulhas* 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 Zone 1, at the start of the relief, with the Team Leaders to ensure that the base is in an acceptable condition.
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 the number of eggs is kept to the minimum required and are irradiated.
8. Inspection of the logistic zone 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. The Environmental Inspector should ensure that the incoming Team Conservation Officer is completely with *Sagina* eradication procedures, as well as the working of the equipment (especially the boiler).
10. Inspect all paths leading out of the logistic zone for any signs of newly introduced species, especially *Sagina procumbens*.
11. 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 strike and how to avoid this, and all other provisions of the GINR management plan, including codes of conduct regarding 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 GINR 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. The logistic zone, as well the entire area where *Sagina procumbens* has been recorded, should be searched thoroughly at least two-month intervals during the summer (September to March) and three-month intervals during the winter. Any seedlings detected should be recorded and treated according the procedures set out in Niek Gremmen's "Manual for monitoring and eradication of invasive weeds". Detailed notes should be made in the "*Sagina* log-book".
2. The over-wintering team should be reminded of the importance of washing their boots before and after leaving the logistic zone, in order to prevent assisting the spread of alien plants.
3. The over-wintering team should be reminded to wash their boots after they have stepped off the catwalks within the logistic zone.

4. Areas where *Sagina* has been recorded should be clearly marked and avoided, except when absolutely necessary. In this case boots should be washed thoroughly immediately afterwards.

Indigenous Species

1. The over-wintering team should be reminded to not disturb animals in any way, especially when they are breeding.
2. Bird strikes should be minimized by turning off all outside lights and by keeping blinds drawn after dark. On misty nights, interior lights should also be kept to the 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 recreational hikes and commuting hikes (for scientists) should be restricted to approved hiking paths as far as 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.
4. The state of all hiking paths should be assessed regularly and modifications suggested.

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, DEAT and the Administrator of Tristan da Cunha should still 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 Conservation Officer must ensure that waste is separated and contained and/or disposed of as prescribe by the GINR 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 DEAT within 24 hours.

4. The incinerator is no longer to be used and the only exposed fires allowed are in the braai/barbecue pits at the base using charcoal briquettes. Braais with open fires are not allowed away from the base (e.g. at Swem Gat).

Other Activities

1. The Conservation Officer will ensure that no human-made structures are erected on the island without an Environmental Impact Assessment (EIA) being first conducted and subsequent approval from Tristan da Cunha.
2. The 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. Monitoring of the Yellow-nosed (Base) & Tristan (Gonydale and Green Hill Tafelkop) Albatross study colonies, following procedures set out in instructions in Gough Laboratory.
4. Collect and record debris washed up at Seal Beach.
5. Collect all used wood, paper, cardboard, plastics, glass, metals (including cans) for return to South Africa .
6. Ensure poultry waste (including egg shells), meat bones and dried fruit, olive and prune pips go into the poultry waste container.
7. Remove and seal in plastic fertilizer bags any potato plants (including tubers) found growing at Skivvy Gat and elsewhere.
8. Check the exposed sand about 20 metres past the German GPS receiver for alien plants. Remove any and keep herbarium specimens.
9. Weed out thistles as seen around base and anywhere away from coast before flowering.
10. Record ship and yacht visits (date, time, names etc.) and any evidence of poaching vessels.
11. Check pantry and food store for presence of invertebrates, especially weevils in flour, pasta etc. Collect specimens in alcohol. Fumigate if necessary.
12. Collect any “odd” invertebrates seen in base, including moths etc.
13. Keep an approximate record of number of mice killed in and around base.
14. Record all “night bird strikes” (on buildings).
15. Record all birds killed by hitting aials, stays, etc. and keep corpses.

CONTACT PERSONS

David Morley, Administrator, Tristan da Cunha; hmg@cunha.dernon.co.uk

James Glass, Head, Tristan Agriculture and Natural Resources Department;

Trevor Glass, Conservation Officer, Tristan Agriculture and Natural Resources Department;

John Cooper, Honorary Tristan Conservation Officer, John.Cooper@uct.ac.za

Tristan Biodiversity Advisory Group members, c/o the Tristan Administrator and/or James Glass

Amended by John Cooper, 9 October 2007