

Initial Environmental Evaluation for the eradication of rodents from Thatcher Peninsula, South Georgia*

South Georgia Heritage Trust

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*to be read in conjunction with 'Environmental Impact Assessment for the eradication of rodents from the island of South Georgia, version 2'.

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1 INTRODUCTION

The Thatcher eradication zone includes the Thatcher Peninsula and Teie Point. It is a suitable objective for Phase 1 of the South Georgia Habitat Restoration project as the main operating base for the eradication programme is located there. It is one of 21 identified rodent-infested treatment zones on South Georgia (EIA Appendix 5). Greene Peninsula and the Mercer eradication zone (to the west of Mercer Bay) will also be treated during Phase 1. Subsequent phases of the operation will eradicate rats from other discrete areas, leading to complete clearance of South Georgia over a period of several years.

The Thatcher eradication zone includes the main operating base for the eradication project at Grytviken and King Edward Point (KEP). Baiting operations, associated logistics and post eradication monitoring should therefore be relatively straightforward. Grytviken receives a large number of visitors and is also temporary home to researchers, museum staff and the Government of South Georgia and the South Sandwich Islands (GSGSSI) Government Officer.

The Thatcher eradication zone is an important area for both fauna and flora and includes the South Georgia's most important freshwater habitats (McIntosh and Walton, 2000). Thatcher Peninsula has been recognised for its conservation value and was previously identified as an Environmentally Sensitive Area in the *Environmental Management Plan for South Georgia* (McIntosh and Walton, 2000), due to the potential conflicts between visitors and the environment. It is one of the main areas where scientific research has been undertaken. The eradication of rats from this zone is therefore likely to have significant benefits.

This Initial Environmental Evaluation (IEE) assesses the site specific environmental impacts of the rat eradication operation on Thatcher Peninsula and Teie. It should be read in conjunction with the island-wide Environmental Impact Assessment for the eradication of rats from South Georgia, version 2 (SGHT, 2010a).

2 DESCRIPTION OF PROPOSED ACTIVITY

2.1 Proposed eradication methodology

The Thatcher zone is bounded by the Geikie Glacier and the Hamburg Glacier and includes Teie Point. The eradication zone is shown as the shaded area in Figure 1. Grytviken will be the main operating base for this zone. The area estimated as being available to rats in this zone is 9,510 ha, of which rather less than 17% is vegetated.

The broadcasting helicopter will distribute an estimated 27 tonnes of bait in this zone, flying for an estimated 58 hours. Baiting rates are given in the Operational Plan (SGHT 2010b).

Flight lines for helicopter operations into and out of Grytviken are shown in Figure 2.

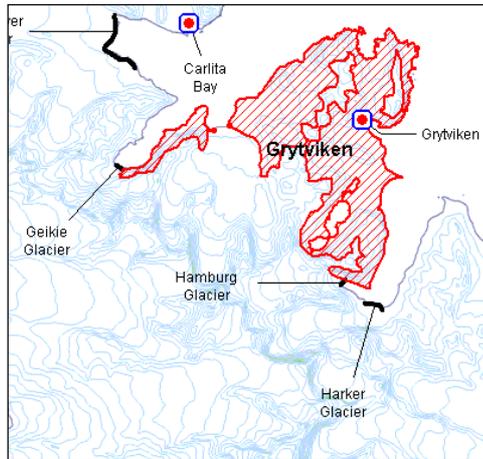


Figure 1. Thatcher eradication zone (Poncet & Poncet 2009).



Figure 2. Proposed flight lines out of Grytviken (Poncet & Poncet 2009).

2.2 Treatment of areas inaccessible by air

The many buildings and structures in and around Grytviken and King Edward Point must be hand-baited, as well as three field huts (see SGHT 2010b). The list of historic sites on this peninsula (given as Appendix 1 below) will be used to identify other structures that may harbour rodents and consequently need to be hand-baited. An inventory of sites requiring hand baiting has been prepared and will be used as a checklist to ensure that all are treated.

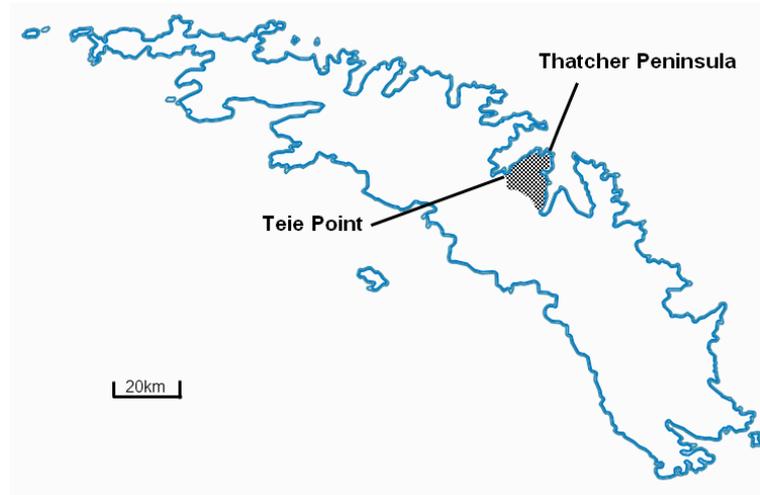
2.3 Monitoring

Approximately 15 South Georgia pintail and speckled teal ducks will be captured and fitted with VHF transmitters. The transmitters will be relocated around 10 days after the bait spreading to evaluate the fate of the ducks. Any dead birds will be preserved for assessment. Monitoring for the presence of rat sign will not be undertaken until a subsequent season.

3 STATE OF THE ENVIRONMENT

3.1 Location

The Thatcher eradication zone consists of Thatcher Peninsula and Teie Point, situated on the mid north-east coast of South Georgia between Cumberland Bay West and Cumberland Bay East (Figure 3). It is around 10km from north to south and around 12km from east to west.



3.2 Landforms, glaciology and hydrology

The peninsula has an undulating main central ridge, which rises to around 500m in the central to north-eastern parts. Further to the south and west the terrain rises to around 1,000m.

There are several lakes on the eastern side of the peninsula and this area represents South Georgia's most important freshwater habitat.

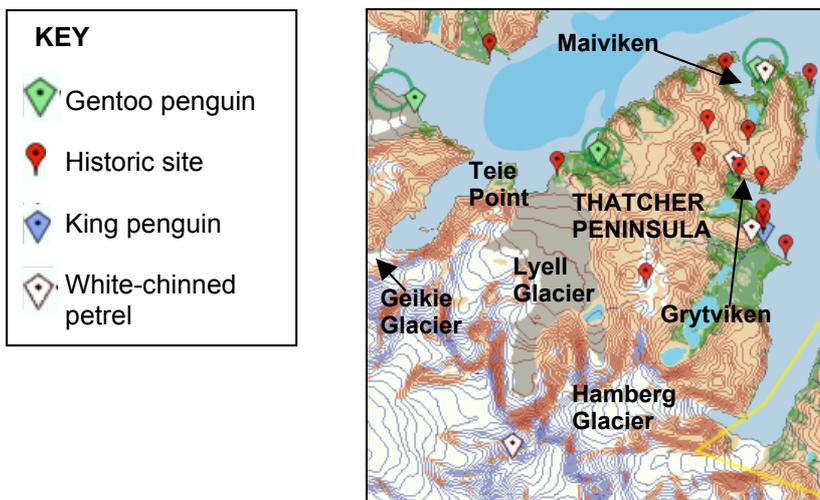


Figure 3. Topography, streams, lakes, bird colonies and location of historic sites (from South Georgia GIS www.sggis.gov.gs; British Antarctic Survey/GSGSSI)

3.3 Fauna

There are two gentoo penguin colonies, one at Maiviken and one on the west coast of the Thatcher Peninsula (see Figure 3). A very small breeding colony of king penguins has recently developed at Penguin River to the south of King Edward Cove.

Around 12 species of breeding birds occur on Thatcher Peninsula, including burrowing petrels, speckled teal, Antarctic tern, light-mantled sooty albatross, brown skua and kelp gull (McIntosh and Walton, 2000; Scott and Poncet, 2003). The presence of rats is a threat to the burrowing petrels.

3.4 Human habitation and visitors

King Edward Point is the main settlement on South Georgia. Government administration is undertaken by two Government Officers and a Deputy Postmaster also represents the GSGSSI on South Georgia.

The British Antarctic Survey (BAS) operates a research station at KEP. During the winter, there are around nine personnel increasing to around 20 during the summer.

King Edward Point is the port of call for all visitors to South Georgia, including up to 70 ships per year, for customs clearance and briefing. Most visitors walk around King Edward Cove and visit Grytviken. The only land-based tourism facility on the island is the South Georgia Museum at Grytviken, which is operated by the South Georgia Heritage Trust (SGHT). There are no accommodation facilities for tourists. Maiviken and Teie Point are also visited by cruise ships and yachts.

Military ships and personnel also visit South Georgia and conduct aerial survey work, foot patrols, search and rescue exercises and support scientific and conservation activities on the island.

3.5 Conservation Status

Thatcher Peninsula is not currently included within the list of proposed Specially Protected Areas included in the updated *South Georgia: Plan for Progress* (Pasteur and Walton, 2006).

3.6 Heritage sites and buildings

There are a significant number and variety of heritage sites in the Thatcher eradication zone, including shipwrecks, cemetery, whaling remains, military and scientific and research remains. These sites are indicated in Fig. 3 and further details are given in Appendix 1.

4 MITIGATION OF OPERATIONAL IMPACTS ON WILDLIFE

Operational changes in response to the presence of bird concentrations are set out in the EIA. In addition, the nascent king penguin colony at penguin river, which is near a direct flightline to Greene Peninsula, will not be overflowed except when the immediate area is being baited. An observer will, on occasion, be placed near to this colony to observe the reaction of the penguins to helicopters flying nearby.

Gentoo penguin colonies will be treated as late as possible, as fewer birds are then present. This will reduce the risks of disturbing birds and loss of bait through trampling.

5 EVALUATION OF ENVIRONMENTAL EFFECTS OF RAT ERADICATION FROM THATCHER ERADICATION ZONE

The environmental impacts of the proposed eradication of rats from South Georgia are described in the island-wide EIA (SGHT, 2010a). Key issues relating to the Thatcher eradication zone are discussed below.

5.1 Protection of fresh water supplies

Although brodifacoum is insoluble in water, measures will be taken to protect the water supply for Grytviken and KEP, which is taken from a pond formed by a dammed section of a stream near to Grytviken. Following aerial baiting, the station water system will be flushed and a member of the field team will check that the intake pipe is in open water to minimise sediment uptake. Immediately following bait spreading, pellets will be removed from within 2m of main water systems feeding base water supply and subsequently animal carcasses will be removed from within 20m of waterways feeding the base water supply.

5.2 Impacts on visitors, military and resident population

All visits to South Georgia are coordinated by the Government Officer at KEP, who will liaise with the Project Manager to ensure that access is restricted when helicopters are operating. Visitors, researchers and military will be briefed about the project, should they visit an area following baiting, so that they are aware of the possible presence of bait on the ground.

5.3 Effects of monitoring activities on the environment

In order to manage the risk to South Georgia pintails and speckled teal on South Georgia, a study of the effects of the aerial brodifacoum baiting on ducks on Greene and Thatcher Peninsulas is proposed (see Section 2.3 above and EIA Appendix 4).

The monitoring activities will require the researchers to capture ducks and attach transmitters. This will cause disturbance to the birds, but this will be temporary and best practice will be followed. The research work may also cause some trampling of vegetation as researchers walk to find and retrieve the ducks. However, care will be taken to avoid any sensitive vegetation.

5.4 Potential positive impacts of the operation in the Thatcher zone

The eradication of rats will allow burrowing petrels to re-establish. South Georgia pintail and speckled teal populations are also likely to benefit.

This initial phase will also provide valuable information for larger scale future work.

6 CONCLUSIONS

The Thatcher eradication has been selected for Phase 1 of the Habitat Restoration project on South Georgia as it presents a relatively straight-forward site and the operations base at Grytviken is within the zone.

The Thatcher eradication zone is an important area for both fauna and flora and has been recognised for its conservation value. It includes South Georgia's most important freshwater habitats (McIntosh and Walton, 2000).

The potential environmental impacts of the operation have been assessed in the island-wide EIA and site specific impacts are discussed in this IEE. These impacts will be minimised by following the measures described in both the EIA and IEE. The impacts will also be monitored in order to inform future phases of the operation.

The environmental benefits of this operation will far outweigh the temporary negative environmental impacts. The eradication operation will enable many more birds to nest on Thatcher Peninsula and Teie Point than at present, and will allow the recovery of some native vegetation in these areas.

7 REFERENCES

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8 ABBREVIATIONS AND ACRONYMS

Acronym	Meaning
BAS	British Antarctic Survey
EIA	Environmental Impact Assessment
GSGSSI	Government of South Georgia and the South Sandwich Islands
KEP	King Edward Point
SGHT	South Georgia Heritage Trust
IEE	Initial Environmental Evaluation

Appendix 1

List of Historic sites on Thatcher Peninsula

Sites are described from west to east around the coast from Maiviken to Discovery Point.

Type of site	Location	Lat / Long	Name of site
Sealing	Maiviken	54°14'S, 36°30'W	Sealers' cave with inscriptions and

Type of site	Location	Lat / Long	Name of site
			sleeping platform
Research sites and huts	Maiviken I	54°14'S, 36°30'W	A 2-berth hut for botanical research, built December 1976
Research sites and huts	Maiviken II	54°13'S, 36°30'W	A small instrument shelter for botanical research, built January 1977
Lighthouse/s/beacons	Sappho Point	54°14'S, 36°28'W	'Fyr' (beacon) (1907)
Expedition Sites	Hope Point	54°17'S, 36°29'W	Shackleton Memorial Cross
Military / Defence	Hope Point	54°17'S, 36°29'W	Gun emplacement foundation (from Second World War) Three commemorative crosses for garrison members. Defensive bunker above Hope Point
Shipwreck	King Edward Point	54°17'S, 36°30'W	Shallop
Research sites and huts	King Edward Point	54°17'S, 36°30'W	Discovery House (1924); Sites of other early buildings (most demolished in 1978-79, 1996 or 2000-01) Gaol (1912); Dam (1924)
Military / Defence	King Edward Point	54°17'S, 36°30'W	Argentine Landing Craft 'Fenix' Battlefield tour / Battle for KEP (1982) - notice/plaque Battle positions of Royal Marines from HMS Endurance in 1982 ie. where Marines took Argentine Corvette with anti-tank rocket
Sealing	King Edward Point	54°17'S, 36°30'W	Trypots removed to museum
Lighthouse/s/beacons	King Edward Point	54°17'S, 36°30'W	Beacon (1906) Wireless tower bases (1925), etc
Whaling	Grytviken	54°17'S, 36°31'W	Remains of whaling station
Whaling	Grytviken	54°17'S, 36°31'W	Norwegian Church (1913)
Sealing	Grytviken	54°17'S, 36°31'W	Trypots and other sealing equipment
Shipwreck	Grytviken	54°17'S, 36°31'W	<i>Dias</i> (1974)
Shipwreck	Grytviken	54°17'S, 36°31'W	<i>Albatros</i> (1975)
Shipwreck	Grytviken	54°17'S, 36°31'W	<i>Fenix</i> (1982)
Shipwreck	Grytviken	54°17'S, 36°31'W	<i>Albatros</i> (BAS) (1983)
Shipwreck	Grytviken	54°17'S, 36°31'W	<i>Petrel</i>
Shipwreck	Grytviken	54°17'S, 36°31'W	<i>Louise</i>
Cemetery	Grytviken	54°17'S, 36°31'W	Sealers' (1846) and whalers' cemetery (1912) [also including Shackleton's grave, magistrate, meteorologist, and others]. Memorial crosses (1911, 1998). Memorial cross to Walter Slossarczyk, third officer of Wilhelm

Type of site	Location	Lat / Long	Name of site
			Filchner's expedition ship Deutschland which visited in 1911. Another cross above this is a memorial to 17 men who died when the South African fishing vessel <i>Sudur Havid</i> sank in 1998.
Expedition Sites	Gull Lake	54°17'S, 36°32'W	Meridian transit beacons established by Shackleton's Endurance (1914)
Military / Defence	Brown Mountain / Gull Lake	54°17'S, 36°32'W	Argentine Puma helicopter wreck (1982)
Whaling	Gull Lake	54°17'S, 36°32'W	Whalers' dam (1914)
Shipwreck	Rookery Bay	54°17'S, 36°31'W	<i>Shoma</i> (1934)
Military / Defence	Horse Head	54°17'S, 36°30'W	Galvanized iron hut ruin (ammunition/explosives store)
Military / Defence installations	Horse Head	54°17'S, 36°30'W	Gun hut (from Second World War) Harbour defence gun (100mm) Observation post Magazine
Military / Defence	Towards N end of Hestesletten near the foot of W slope of Zenker Ridge	54°17'S, 36°30'W	A low stone wall forming a square, and ? some old corrugated iron (poss remains of an observation post during WWI, or horse shelter).
Sealing	Between Horse Head and Penguin River.	54°17'S, 36°30'W	Remains of a wooden hut (probably sealers' hut)
Sealing	Discovery Point	54°18'S, 36°29'W	Sealing remains

Reference: Historic sites on South Georgia: Evaluation and Protection. Bob Headland, 2005 (unpublished)
With comments and contributions from Bob Burton, Sally Poncet, Ron Lewis Smith and Pat Lurcock.