Surveys of islands in the Bleaker Island group:

First, Second, Third, Halt, North Point, Ghost and Sandy Bay Islands

View from Second Island, looking southeast towards Bleaker Island settlement, 12 April 2012.

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PROJECT SUMMARY

Environmental surveys of the Bleaker Island group were carried out in April and May 2012 by Sally Poncet and Ken Passfield of Beaver Island LandCare (BILC), under commission for the landowners Mike and Phyl Rendell.

The first section of the report presents details of logistics, methodology and fieldwork. Invasive species issues, and notably rats, are discussed in the section Non-native Species Assessment. Wildlife and habitat accounts for the seven islands surveyed are presented in the section Island Inventories.

BACKGROUND

The Bleaker Island group consists of Bleaker, First, Second, Third, Halt, North Point, Ghost and Sandy Bay Islands. They are described in the publication *Important Bird Areas of the Falkland Islands* (Falklands Conservation 2006) and are listed as Important Bird Area FK04. Bleaker Island's flora and fauna were surveyed in November 2003 by the British Schools Exploring Society and Robin Woods (Woods and Thompson 2004) and much of the information for FK04 is sourced from their report, and from the Survey of the Breeding Birds of the Falkland Islands 1983-1993 (Woods and Woods (1997).

A brief description of Sandy Bay and Ghost Islands was presented in Strange (1989) based on observations made during an aerial survey of southern sea lions in 1990; mention was made of "small grass and heath formation at southern end" of Sandy Bay Island, "large colony of rock shags at southern tip" and "evidence of ground burrowing petrels, possibly shearwaters of white-chinned petrels" on the west coast which "requires ground survey to confirm". Otherwise, little was known at this time of the ecological status of the group's outlying islands, prompting the remark in Falklands Conservation (2006) that "it is very important to establish whether rats are present on Sandy Bay, Halt, North Point and Ghost Islands" and "on the outlying islands, the main priority for future work is to assess their bird populations."

Observations on the status of rodents and of Cobb's wrens were made during the course of opportunistic visits to the group by Derek Brown in 2001 (FIG 2012) and by Nick and Mike Rendell in 2005 and 2006 (Mike Rendell pers. comm.). Some coastal bird and habitat surveys were carried out in December 2009 on Third, Halt and North Point Islands by Alastair Wilson and Susan Campbell (Shallow Marine Survey Group unpublished data) and in April 2011 on Halt and North Point Islands by Sally Poncet and Ken Passfield (Beaver Island LandCare unpublished data).

The 2012 survey provided the opportunity to assess the islands' bird populations, wildlife habitats and rodent status and to review our current state of knowledge for the group.

ACKNOWLEDGEMENTS

We gratefully acknowledge the in-kind contributions made by various organisations for the provision of fieldwork equipment and communications, notably Global Marine Services for the satellite internet connection and the Antarctic Research Trust for the iridium satellite phone. Thanks also to Robin Woods, Mike Rendell and Graham Bound for email exchanges on the status of Cobb's wrens and rats on Bleaker Island and to Finlay Ferguson and Arthur and Rhoda McBain for historical livestock and rodent information.

PRINCIPAL FINDINGS

- Sooty shearwaters were confirmed breeding on Ghost and Sandy Bay Islands; the latter site may prove to be the second largest breeding site for this species in the Falklands.
- Grey-backed storm-petrels were suspected breeding on Ghost and Sandy Bay Islands.
- Ghost Island was confirmed to be rat-infested, with abundant sign of rats predating sooty shearwaters and grey-back storm-petrels.
- North Point and Sandy Bay Islands were confirmed to be rat-free with breeding populations of Cobb's wrens.
- Halt Island (cleared of rats in 2006) remains rat-free with a high diversity and abundance of passerines (notably tussacbirds and Falkland thrushes) but no Cobb's wrens.
- First, Second and Third Islands were re-confirmed to be rat-infested.
- First, Second, Third and Halt Islands were found to have a diverse mix of wildlife habitats, with the potential to support an abundance of small passerines.
- Sandy Bay Island has a small area of bluegrass meadow that is of exceptional botanical value, with small stands of Falkland rock-cress, smooth ragwort and woolly ragwort.
- No mouse sign was seen on any of the islands.

RECOMMENDATIONS

The following activities would be beneficial for future habitat and wildlife protection:

- Eradication of rats from Third Island: this would create a buffer for preventing re-invasion by rats on Halt Island.
- Eradication of rats from Ghost Island: this would protect the island's population of sooty shearwaters (and possible grey-backed storm-petrels) from rat predation.
- Comparative genetic studies of rats from Ghost Island, Bleaker Island and Driftwood Point: this would provide information on rat swim distances, of use when considering the feasibility of eradicating rats from Bleaker Island.

FIELDWORK

Fieldwork logistics
Surveys were carried out during the period 8-12 April and on 3 May 2012, working from the support vessel *Porvenir* (skipper Ken Passfield). Care was taken to avoid disturbance to wildlife, and precautions were taken to avoid introducing non-native species.

Weather during the survey period was typically variable with a succession windy spells and the occasional day of calmer conditions. *Porvenir* arrived in Adventure Sound on 8 April and anchored at Low Bay for 2 days while waiting for the southwest wind and swell to decrease. Conditions improved on 10 April, allowing us to move to Sandy Bay off the east coast of Bleaker Island, 15km away, while the 20kt northwesterly gradually backed west 20kt and decreased to 10-15kt by evening. A southerly swell was breaking on exposed coasts but sufficient shelter was found for safe dinghy landings at the north ends of both Ghost and Sandy Bay Islands, with *Porvenir* anchored nearby on the east side of each island just inside the kelp. Ken Passfield remained on board while Sally Poncet surveyed both islands. Late afternoon, *Porvenir* moved 13km north to Weedy Pond Bay (between Turn Island and Bluff Head on the mainland) for the night. A strong northerly wind on the following day (11 April) presented reasonable conditions for anchoring off the south coast of North Point Island; Ken remained on board while Sally surveyed the entire coastline and part of the interior. By late afternoon, with the north wind backing northwest and decreasing to 20-25kt, we motored back to Weedy Pond Bay for the night.

Weather conditions on 12 April were favourable with the moderate northwest wind backing westerly during the morning and periods of sunshine. *Porvenir* anchored off the east coast of Halt Island and both Ken and Sally went ashore to survey, before re-locating to Third, Second and First Islands, with *Porvenir* anchored off the south coast of Third Island and mid-passage between First and Second Islands. On completion of surveys, *Porvenir* anchored off the jetty at the settlement at Bleaker for a brief visit ashore before departing for Beaver Island.

A second survey visit was made to Sandy Bay Island on 3 May, when Sally carried out further surveys of the coastline and interior. *Porvenir* then anchored for the night off the beach at Sandy Bay as the wind dropped to a light westerly; we sailed for Lively Island the next day.

Survey methodology
Fieldwork data were collected according to a biodiversity survey protocol designed primarily for recording wildlife and environmental variables (Poncet 2008, revised 2010). See Appendix 1 for details. Each island was surveyed for:

- birds and seals
- rodent presence
- plant species, plant communities, relative abundance of tussac
- wildlife habitats
- topography and coastline features
- past grazing history
- other features of interest e.g. wrecks

Digital images were taken of each island's coastline and interior. Co-ordinates for each feature were recorded using a handheld Garmin GPS60 unit. GPS data were downloaded using mapping software OziExplorer and MapSource. The locations of GPS waypoints, plants and birds (including census tallies) were recorded in Excel spreadsheets held by BILC.

Results
We completed coastal transects on all 7 islands visited and inland transects on 5 of them. A summary of key information for the group is presented in Table 1. The entire coastline perimeter of each island was surveyed, except for a 200m section along the west coast of Sandy Bay Island. Inland transects were completed from coast to coast across the longest axes of First, Second, Third and Halt Islands and from east to west across the middle of Sandy Bay Island. North Point Island's interior was surveyed along a circular route from the

south coast inland to the centre and back to the start point; the interior of Ghost Island was viewed from a high vantage point on the south coast.

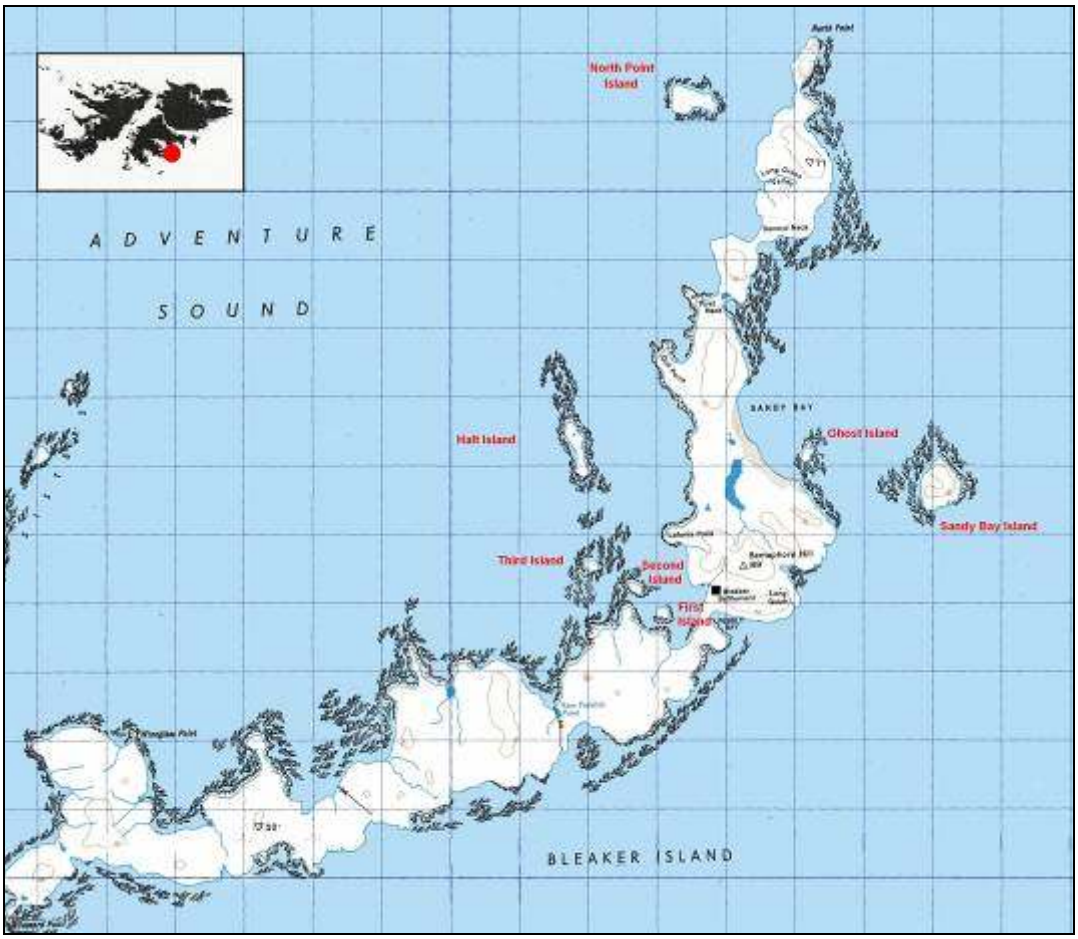
The breeding bird population estimates presented in this report's tables are based on a combination of the number of birds recorded in the field and our field experience and assessment of available breeding habitat. However, they are only very rough estimates due to the 'snapshot' nature of the count data which may be influenced by weather, time of day and year and detectability of birds.

Table 1. Islands in the Bleaker Island group

Island	Area (ha)	Rats	Mice	Cobb's wrens	Burrowing petrels	IBA	Grazing status
Bleaker Island	2070	Y	N*	N	N	/	Grazed
First Island	2.9	Y	N*	N	N	/	Ungrazed
Second Island	2.5	Y	N*	N	N	/	Ungrazed
Third Island	3	Y	N*	N	N	/	Ungrazed
Halt Island	11	E (2006)	N*	N	N	/	Ungrazed
North Point Island	22.4	N	N*	Y	N	/	Ungrazed
Ghost Island	2.7	Y	N*	N	Y	/	Ungrazed
Sandy Bay Island	32	N	N*	Y	Y	/	Ungrazed

Y = present and likely to breed; N = absent, N* = no sign seen, E (year) = rats eradicated (year treated with rodenticide), IBA = Important Bird Area

Figure 1. The Bleaker Island group



Copyright Ordnance Survey 1962; must not be used without permission. Scale is indicated by the blue grid squares which are 1 km square. Vertical grid line is aligned north-south.

NON-NATIVE SPECIES ASSESSMENT

The highest numbers of non-native plant species were recorded on those islands that had been grazed in the past: First, Second, Third, Halt and North Point. There was a scattering of non-natives on the north tip of Ghost Island, including prickly sow-thistle, and it is likely that these would have established by wind- or bird-borne seeds from nearby Bleaker Island. The only non-native plant recorded on Sandy Bay Island was procumbent pearlwort. Prickly sow-thistle, considered to be a high risk invasive species by Falklands Conservation (FC unpublished data 2011), was seen on Second, Halt Island, North Point and Ghost Islands.

The presence of cats was reported for the first time on Bleaker Island in the early 1980s during the course of the Breeding Birds Survey (Robin Woods pers. comm.; Woods and Woods 1997). They were introduced in about 1984 (Finlay Ferguson pers. comm.) and eradicated in the early 2000s (Mike Rendell pers. comm.). Mice are not known to be present.

Rats are currently present on Bleaker Island and on 4 of the 7 adjacent islands: First, Second, Third and Ghost Islands. They were also present on Halt Island up until 2006 when they were successfully eradicated (FIG 2012). The year of arrival of rats at Bleaker Island is unknown. One source suggests that they may have arrived in the mid-1980s (Falklands Conservation 2006); this information is from Roddy Napier who thought that rats “came off the *Penelope* in about 1984, when she was tied up at the jetty one night” (Roddy Napier pers. comm. to Robin Woods). Roddy also recalls hearing that rats were on board the grain ship *Cassard* which was wrecked in June 1906 on Cassard Point on Bleaker Island.

Of particular note however, are the first-hand accounts from Arthur McBain, former manager of Bleaker Island in the 1960s. He and Archie Short trapped a pregnant rat at the settlement in 1961 or 1962; the rat was seen in the cowshed shortly after a visit by the *Black Swan* which tied up alongside the old sheep jetty; the rat was trapped and killed shortly after and no further rats were seen. Arthur also recalls that there were definitely no rats (or mice) on Bleaker when he first went there to live in the early 1960s; however, when he returned to Bleaker Island in 1976 for shearing (at this time there were no people living on the island), he found rats "everywhere". Also of note is Arthur's recollection of finding rat sign on Halt Island in the early 1960s (rats had chewed the wooden handle of an old knife left in a tussac bog).

Indirect evidence of the arrival of rats may be gleaned from historic references to Cobb’s wrens. Arthur Cobb, who lived on Bleaker in the early 1900s, recorded Cobb’s wrens at several locations around the Falklands but curiously made no mention of seeing them on Bleaker although reported their presence on nearby Halt Island on 6 September 1910 (Robin Woods pers. comm.). Cobb’s wrens were recorded on Bleaker in 1961, when travelling teacher Bob Reid trapped and ringed birds for Robin Woods; he “caught an adult Cobb's on 9 Sept. 1961. He saw this bird again on 10, 11 & 14 Sept, again on 7 Oct. and re-trapped it on 18 Oct. He only caught this one on Bleaker but caught 13 on George I.” (Robin Woods pers. comm.). Another visitor, Susan Blake, said she “saw a number [of wrens] on the coast there in November 1968” (Robin Woods pers. comm.). Rhoda McBain, wife of the farm manager Arthur McBain, confirmed that they saw Cobb's wren whilst resident on Bleaker in the early 1960s (Mike Rendell pers. comm.). None were seen by Graham Bound in the early 1980s while collecting bird records for the 1983-1993 Breeding Birds Survey project in the early 1980s (Robin Woods pers. comm.; Woods and Woods 1997).

This Breeding Birds Survey project also collected information on non-native species and provided the first published record of rats on Bleaker Island (Woods and Woods 1997). Rats were confirmed on First and Second Islands in 2001 by Derek Brown who reported “rat sign moderately common but patchy” (FIG 2012). Mike and Nick Rendell found rat sign on Third and Halt Islands in 2005 (and no Cobb’s wrens or tussacbirds) but found no sign on Ghost Island during a brief landing there (there were no Cobb’s wrens or tussacbirds either). They also visited North Point Island and found it to be rat-free with numerous Cobb’s wrens and tussacbirds (Mike Rendell pers. comm.). The presence of rats on Ghost Island was confirmed in 2012, during a thorough search of the island on 10 April: no Cobb’s wrens were seen, only one tussacbird was present and there was evidence of high incidence of rat

predation on sooty shearwaters. Sandy Bay Island was also surveyed on that day and again on 3 May 2012, when it was confirmed to be rat-free with abundant populations of Cobb's wrens, tussacbirds and sooty shearwaters.

Wherever their point of introduction and whatever their year of arrival at the Bleaker Island group, rats have spread to all areas and islands except Sandy Bay and North Point Islands – the former is 800m from Bleaker and the latter 1.3km. First and Second Islands are tied to Bleaker at low water so are easily accessible overland; Third Island lies 450m from Second Island (with kelp beds reducing the passage of clear water to 100m), which is well within rat swim-distance. They may also have swum across the 300m of kelp-strewn waters between Bleaker and Ghost Islands. Curiously, Halt Island which, despite being 1.1km from the nearest rat-infested land (Third Island), was rat-infested prior to rats being removed in 2006.

The 2012 survey data for the seven outlying islands highlight the unique character of the group. Their varying rat status and grazing histories offer a range of natural experimental conditions for comparative studies of the impacts of rats on birds, invertebrates, soil and plants, for example, comparing islands with:
1) similar grazing history but differing rat status, namely Third Island (rat-infested), Halt Island (rat-free since 2006) and North Point Island (rat-free);
2) differing grazing history but identical rat status, namely First, Second and Third (formerly grazed) and Ghost Island (never grazed and with a population of burrowing petrels); and
3) differing grazing history and rat status, namely Sandy Bay Island (never grazed, no rats and with burrowing petrels) and First, Second and Third (rat-infested, previously grazed and no burrowing petrels).

Consideration could be given to eradicating rats from Third and Ghost Islands. Removal of rats from Third Island would effectively create a rat-free buffer zone around Halt Island, minimising the risk of rat incursions. The removal of rats from Ghost Island would ensure protection of the island's burrowing petrels (sooty shearwaters and possibly grey-backed storm-petrels). Although both islands are within the known swim distance of rats, the logistics, cost and labour required for a baiting operation are minimal given the small size of both islands and their proximity to facilities at Bleaker Island settlement. Similarly, the effort and cost of monitoring the islands for potential future rat incursions is minimal, and would provide useful information on re-incursions, and also the opportunity to trial the use of traps as preventative re-invasion measures.

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ISLAND INVENTORIES

The following section presents accounts for the seven islands surveyed. Note that the breeding bird population data presented in the tables are rough estimates only.

First, Second and Third Islands. *Copyright Google earth 2011.*

Ghost and Sandy Bay Islands. *Copyright Google earth 2011.*

North Point Island. *Copyright Google earth 2011.*

Halt Island. *Copyright Google earth 2011.*

First Island

Coordinates:	52° 12.59'S, 058° 51.73'W
Surface area:	2.9 hectares
Coastline perimeter:	0.75 kilometres
Owner:	Mike and Phyl Rendell
Land designation:	Private wildlife sanctuary Important Bird Area FK04
Survey date:	12 April 2012
Rodent status:	Rat-infested; No evidence of mice

Site description

First Island is the southernmost island in a chain of three small tussac islands aligned northwest-southeast off the north coast of Bleaker Island. The passage between First and Bleaker is 240m wide at high water and very shallow, with no kelp on either side although a band of kelp fringes the north coast; at low water, the islands are connected by expanses of sand flats and rock platform. The island is roughly oval-shaped and flat-topped, tapering at its southeast end to a spit of sand, limpet shells and calcified seaweed that extends south in the direction of Bleaker Island. Elsewhere, the beach along the high tide line consists of small angular boulders and the intertidal area is rock platform also overlain with boulders. No sources of permanent freshwater or seepage areas were found.

First Island's oceanic heathland interior, Bleaker Island settlement in the background, 12 April 2012.

Vegetation

The island was covered in open tussac with bogs becoming sparser in the interior where areas of oceanic heathland were common; heathland species included diddle-dee, small-fern and native wood-rush with occasional patches of Antarctic bedstraw, mountainberry, wild celery, native rush, chickweed and sheep's sorrel. The north shore's coastal tussac fringe was interspersed with a plant community that is typical of the shallow soils of coastal margins which have been severely burnt in the past: Fuegian couch and smooth-stalked meadow-grass were dominant, with some Yorkshire fog, native yarrow, goosefoot, lesser swine-cress and several introduced species including heath groundsel, groundsel and procumbent pearlwort. This community formed a coastal strip 5-10m wide and in places, the soil had eroded to expose a layer of red clay, indicating past burning. Along the south and west coasts, tussac bogs were more closely spaced and over 2m high. Yorkshire fog and sheep's sorrel grew between the bogs, and a small patch of field pansies was found at the southwest corner in the vicinity of an iron stake embedded in tussac peat about 5m inland from the beach.

A short sward composed predominantly of smooth-stalked meadow-grass and daisies covered the shingle and calcified seaweed spit at the southeast end, with patches of wild celery, Fuegian couch and some prickly-burr in places, and sea cabbage along the high tide line. Two unidentified cudweed plants were also found in this area.

Native plant species: Antarctic bedstraw, cudweed sp., diddle-dee, field mouse-ear, Fuegian couch, goosefoot, lesser swine-cress, mountainberry, native rush, native wood-rush, native yarrow, prickly-burr, sea cabbage, sea knotgrass, small-fern, tussac, wild celery
Introduced plant species: chickweed, daisy, field pansy, groundsel, heath groundsel, procumbent pearlwort, sheep's sorrel, smooth-stalked meadow-grass, Yorkshire fog

Wildlife
Although only 3 upland geese were seen, there were lots of droppings throughout the open tussac areas, indicating regular grazing by geese. Magellanic penguin burrows were scarce and overall density appeared to be low. No grass wrens were seen. Despite the abundance of suitable foraging habitat, the only other passerines recorded were 2 black-throated finches.

Species	Breeding status	Total number of individual adults & sub-adults counted	Estimated breeding population (pairs)
Magellanic Penguin	Confirmed	burrows	<50
Upland Goose	Probable	3	1-3
Falkland Steamer Duck	Probable	11	3-5
Crested Duck	Probable	4	1-2
Turkey Vulture	Probable	7	1-2
Magellanic Oystercatcher	Probable	6	1-2
Blackish Oystercatcher	Probable	1	1-2
Black-throated Finch	Probable	2	1-2

Wildlife counts and breeding population estimates for First Island, 12 April 2012.

Survey effort
Two surveyors (SP and KP) spent an hour ashore surveying the entire coastline and traversing the interior.

Human activity
In the 1960s and 70s the island was occasionally grazed by horses and on 2 occasions a mob of 80-100 mutton were landed for a short period while waiting for shipment to the Stanley butchery (Arthur McBain pers. comm.). Cattle frequently crossed back and forth between First and Bleaker at low water in the 1980s and 90s, but no sheep were put on the island in this period (Finlay Ferguson pers. comm.). The island was probably regularly grazed by horses and cattle throughout the 1900s, as reflected in its mix of open tussac and oceanic heathland. Since the last cattle were removed in the late 1990s, the island has remained ungrazed.

Invasive species
Some rat sign was found (feeding stations and a few droppings). Rats are likely to have arrived from Bleaker Island, either by swimming or by crossing the sand flats at low water.

Ecological value
First Island has a high potential ecological value due to its ungrazed open tussac habitat and large intertidal expanses. However, its value is greatly reduced by the presence of rats. Because it lies in close proximity to Second Island and is joined to Bleaker at low water, rats could be removed as part of a Bleaker Island rat eradication operation.

First Island (Bleaker Island in the background), 12 April 2012.

Second Island

Coordinates:	52° 12.41'S, 058° 52.08'W
Surface area:	2.5 hectares
Coastline perimeter:	0.7 kilometres
Owner:	Mike & Phyl Rendell
Land designation:	Private wildlife sanctuary Important Bird Area FK04
Survey date:	12 April 2012
Rodent status:	Rat-infested; No evidence of mice

Site description

Second Island lies 100m off the north coast of Bleaker Island to which it is connected at low water. First Island is 200m to the southeast, and Third Island 400m to the northwest. Oval-shaped and aligned northwest-southeast, Second Island is flat-topped and little more than 5m in elevation, with a level area of vegetated shingle at the southeast tip. The shoreline is mostly bedrock fringed by extensive intertidal rock platform and kelp beds, except along the southeast coast where kelp is entirely absent and the beach consists of shingle and calcified seaweed. The intertidal bedrock area dries out for over 100m along this southeast coast and the passage between First and Second Islands is very shallow with a sandy bottom. No sources of freshwater or seepage areas were seen.

Open tussac and oceanic heathland at the south end of Second Island, Bleaker settlement in the background, 12 April 2012.

Vegetation

The island was covered in open tussac with easy access between bogs. There was an area of more closely spaced bogs in the centre and along the northwest corner where bogs were up to 2.5m high. Introduced species, notably sheep's sorrel, Yorkshire fog and chickweed, were widespread amongst the tussac bogs over most of the island. At the south end, tussac was mixed with heathland species dominated by diddle-dee, small-fern, prickly-burr, field mouse-ear, mountainberry and native rush. Elsewhere, and particularly at the north end, the tussac opened up into large areas of Yorkshire fog and Fuegian couch. The latter was also abundant along the northeast-facing coastline where it formed part of a well-established plant community commonly encountered on islands that have been severely burnt in the past; other species included smooth-stalked meadow-grass, daisy, procumbent pearlwort, sea knot-grass, lesser swine-cress, shepherd's-purse, Yorkshire fog and wild celery. This mix of plants formed a 5-10m wide coastal fringe between the tussac margin and the top of a one metre high bank above the shoreline, with a layer of red clay visible in the thin soil. There was also a wide variety of plant species on the area of level ground at the southeast tip: goosefoot grew on the fine shingle along the top of the beach; above this was a mix of daisies, wild celery, lesser sea-spurrey with scattered bluegrass and Fuegian couch, mingling with

shepherd's purse, lesser swine-cress, buttonweed and the occasional sea knot-grass and thrift plantain.

Native plant species: Antarctic bedstraw, bluegrass, buttonweed, diddle-dee, field mouse-ear, Fuegian couch, goosefoot, lesser sea-spurrey, lesser swine-cress, mountainberry, native rush, native wood-rush, prickly-burr, sea cabbage, sea knot-grass, small-fern, thrift plantain, tussac, wild celery
Introduced plant species: chickweed, daisy, groundsel, heath groundsel, prickly sow-thistle, procumbent pearlwort, sheep's sorrel, shepherd's-purse, smooth-stalked meadow-grass, Yorkshire fog

Turkey vultures soaring over the northeast coast of Second Island; coastal fringe of Fuegian couch on bare clay in foreground, 12 April 2012.

Wildlife
Magellanic penguin burrows were seen at low density. The mix of open tussac, Fuegian couch and introduced plant species provided potentially favourable foraging habitat for upland geese and passerines. A pair of upland geese was feeding on grasses between tussac bogs and the abundance of goose droppings indicated that the island was often visited by geese. Passerines were relatively scarce: only one black-throated finch, grass wren, tussacbird (possibly a visitor from nearby rat-free Halt Island) and dark-faced ground-tyrant were seen, along with two small groups of black-chinned siskins. No Cobb's wrens or Falkland thrushes were recorded. Numbers of Falkland steamer ducks, kelp geese, crested ducks, blackish oystercatchers and Magellanic oystercatcher foraging along the shoreline were lower than expected, but it is possible that some of the island's resident breeding populations may have been feeding on adjacent islands. Two Falkland skuas were harassing rock shags that were feeding inshore; 4 turkey vultures were soaring overhead and are likely to breed on the island.

Species	Breeding status	Total number of individual adults & sub-adults counted	Estimated breeding population (pairs)
Magellanic Penguin	Confirmed	burrows	<50
Black-crowned Night Heron	Present	1	0
Upland Goose	Probable	7	3-5
Kelp Goose	Probable	2	1
Falkland Steamer Duck	Probable	7	3-5
Crested Duck	Probable	6	3-5
Turkey Vulture	Probable	5	1-2
Magellanic Oystercatcher	Probable	3	1-2
Blackish Oystercatcher	Probable	3	1-2
Falkland Skua	Present	2	0
Kelp Gull	Present	21	0
Tussacbird	Present	1	0
Dark-faced Ground-tyrant	Present	1	0
Grass Wren	Probable	1	1
Black-throated Finch	Probable	1	1
Black-chinned Siskin	Probable	9	1-2

Wildlife counts and breeding population estimates for Second Island, 12 April 2012.

Survey effort
Two surveyors (SP and KP) landed in favourable conditions on the southeast end shingle beach and spent 1.5 hours ashore surveying the entire coastline and interior.

Human activity
The island was grazed by bullock in the 1980s and 90s (Finlay Ferguson pers. comm.) and was probably stocked with cattle for many years prior to this. All stock were removed in the late 1990s. In the early 1960s, Arthur McBain, then manager of Bleaker Island, grew a productive crop of potatoes on the southeast spit of the island; however, the following year's efforts were destroyed by sea lions which trampled the plants well before harvesting (Arthur McBain pers. comm.).

The southeast shingle spit on Second Island, site of the 1960s potato patch, now colonised by bluegrass, Fuegian couch and wild celery; Bleaker Island in the background, 12 April 2012.

Invasive species
Rat sign was first reported on the island in 2001 by Derek Brown (FIG 2012) and several feeding stations were seen at the southeast end in the tussac above the beach in 2012. Rats are likely to have arrived from Bleaker Island, either by swimming or by traversing the intertidal area at low water.

Ecological value
The island is of high ecological value due to its mix of ungrazed open tussac habitats and large intertidal expanses, and despite the presence of rats which appear to have reduced the abundance of passerines. Because the island is connected to rat-infested Bleaker Island at low water and is also within rat swim-distance from First Island (also connected to Bleaker at low water), any development of the island's ecological potential would be dependent on removing rats from Bleaker.

Second Island's open grassland of tussac, Yorkshire fog and Fuegian couch, 12 April 2012.

Third Island

Coordinates:	52° 12.23'S, 58° 52.62'W
Surface area:	3 hectares
Coastline perimeter:	0.7 kilometres
Owner:	Mike & Phyl Rendell
Land designation:	Private wildlife sanctuary Important Bird Area FK04
Survey dates:	12 April 2012
Rodent status:	Rat-infested; No evidence of mice

Site description

This small oval-shaped tussac island lies 400m northwest of Second Island off the central north coast of Bleaker Island. Most of its shoreline is bedrock above an intertidal rock platform, and the sea reaches the edge of the tussac at high water. Maximum elevation is less than 10m. At the southwest corner, the intertidal area dries out to over 100m width while at the southeast point, a small spit of shingle and deposits of calcified seaweed, washed up kelp and limpet shells curves around to partially enclose a north-facing indentation that dries out at low water. All coasts are fringed with dense kelp which extends over 500m off both the east and southwest points; there is a kelp-free passage between the island and Bleaker and Second Islands, bordered by dense kelp on both sides. No freshwater bodies were found but water seeped on to the beach from damp areas along the south coast tussac banks.

Shingle spit on southeast point of Third Island; Second and First Islands upper left and Bleaker Island in background, 12 April 2012.

Vegetation

The island is covered in healthy tussac which has recovered well from past grazing. Tussac bogs are up to 2m high in places and are densest along the west coast. There was a small triangle of level ground at the southeast point spit covered in a short sward composed of a variety of species dominated by daisy, goosefoot, shepherd's purse, lesser swine-cress and wild celery; along the seaward margin of this short sward was a scattering of sea knotgrass, sea cabbage, lesser sea-spurrey and tussac bogs growing on shingle. Sword-grass merged with the tussac on the north side of the triangle, and extended upslope into the tussac area above the spit. There was evidence of past burning along a 100m long section of the east coast margin where a layer of red clay in shallow soil was visible on the top of the 2m high cliff; here, tussac had been replaced by a narrow fringe of daisy, smooth-stalked meadow-grass and wild celery. About halfway along was a single large boxwood bush amongst the tussac with a scattering of small seedlings around it. Nearby, was a scattering of native wood-rush, berry-lobelia, chickweed, procumbent pearlwort and heath groundsel.

Native plant species: Antarctic bedstraw, berry-lobelia, bittercress, boxwood, fire liverwort, goosefoot, lesser sea-spurrey, lesser swine-cress, native rush, native wood-rush, sea cabbage, sea knotgrass, sword-grass, tussac, wild celery
Introduced plant species: chickweed, daisy, goosegrass, groundsel, heath groundsel, procumbent pearlwort, shepherd's purse, smooth-stalked meadow-grass, Yorkshire fog

Patch of sword-grass in tussac, southeast point of Third Island, 12 April 2012.

Shingle margin with sea knot-grass and sea cabbage on southeast point, Third Island.

Wildlife
Magellanic penguins breed on the island but at low density as only a few burrows were recorded in the coastal tussac and the interior. Three tussacbirds were present and there were numerous droppings on the damp tussac peat banks at the southwest corner. These birds may have been dispersing juveniles from nearby Halt Island. However, 4 individuals were seen on 20 November 2009 (Shallow Marine Survey Group data), and it is possible that this species may attempt to breed. The only other passerine recorded in 2009 was a female black-throated finch, in contrast to the April 2012 survey's records of several black-chinned siskins, a pair of dark-faced ground-tyrants and a male black-throated finch.

Large numbers of non-breeding rock shags, South American terns, brown-hooded gulls, kelp gulls and dolphin gulls were seen in 2009, as well as breeding pairs of turkey vultures, upland geese, ruddy-headed geese, Falkland steamer ducks, crested ducks, kelp geese and Magellanic and blackish oystercatchers. In April 2012, there was a flock of 27 juvenile Falkland steamer ducks and over 25 Magellanic oystercatchers resting on the southwest point intertidal platform and over 70 rock shags were on the shingle spit, accompanied by a Falkland skua. No Cobb's wrens or Falkland thrushes were seen on either survey.

Species	Breeding status	Total number of individual adults & sub-adults counted	Estimated breeding population (pairs)
Magellanic Penguin	Confirmed	burrows	<50
Rock Shag	Present	72	0
Kelp Goose	Probable	11	2-3
Falkland Steamer Duck	Probable	35	5-7
Crested Duck	Probable	9	3-5
Turkey Vulture	Probable	4	1
Magellanic Oystercatcher	Probable	32	1-3
Blackish Oystercatcher	Probable	2	1-3
Magellanic Snipe	Present	1	0
Kelp Gull	Present	2	0
Tussacbird	Present	3	0
Dark-faced Ground-tyrant	Probable	3	1
Black-throated Finch	Probable	1	1
Black-chinned Siskin	Present	4	0
Southern Sea Lion	Present	3	0

Wildlife counts and breeding population estimates for Third Island, 12 April 2012.

Survey effort
Two surveyors (SP and KP) were ashore for an hour on 12 April 2012 in favourable conditions and surveyed the entire coastline and sections of the interior. A previous survey was carried out on 20 November 2009 by Alastair Wilson and Susan Campbell who were ashore for an hour in strong winds and rain; they surveyed the entire coastline but not the interior (SMSG data).

Human activity
In the early 1960s, the island was stocked in the summer months (October-March) with 2 or 3 bullock destined for the MV *Darwin* (Arthur McBain pers. comm.). Finlay Ferguson stocked the island with 2 bullock at a time during the period 1984-1997 (Finlay Ferguson pers. comm.). The island has been ungrazed since the late 1990s.

Tussacbird among daisies, Third Island.

Rat droppings, east coast of Third Island.

Invasive species
Rat sign was seen at several locations: fresh rat droppings were found in the seep area on the south coast and there were dry droppings next to a feeding station near a burrow entrance on the east coast. Rat sign was also recorded in 2006 (Mike Rendell pers. comm.) and in 2009 (SMSG data).

Ecological value
Despite the presence of rats, Third Island has a high ecological value as an ungrazed tussac island with a potential breeding population of tussacbirds and an excellent mix of habitats for passerines. Removal of rats is recommended as this would also create a buffer zone against re-invasion of nearby Halt Island; the latter was successfully baited for rats in 2006 and has remained rat-free since that operation.

Continuous canopy of tall, dense tussac in the interior of Third Island, 12 April 2012.

Halt Island

Coordinates:	52° 11.8'S, 58° 52.50'W
Surface area:	11 hectares
Coastline perimeter:	1.9 kilometres
Owner:	Mike & Phyl Rendell
Land designation:	Private wildlife sanctuary Important Bird Area FK04
Survey date:	12 April 2012
Rodent status:	Rat eradication July 2006; No evidence of mice

Site description

Halt Island lies 1.3km off the central northwest facing coast of Bleaker Island. It is aligned north-south (being 830m long and 100-200m wide), rises to around 10m elevation and is flat-topped, mostly tussac-covered and fringed with kelp around all coastlines. The closest land is Third Island, 1.1km to the south across a kelp-strewn channel.

Most of the north half of the east coast shoreline is bedrock alternating with boulder and shingle beaches while the southern half is nearly all shingle, tapering to a shingle spit that dries out over about 50m at the southeast point. Midway along the east coast is a short section of 1m high rock outcrop. The south coastline is boulder and shingle with a 1.5m high rock outcrop at the southwest corner above a bedrock shoreline which dries out at low water to form an extensive rock platform nearly 100m wide. The south half of the west coast's shoreline is boulder and shingle while that of the north half is predominantly bedrock overlain with boulder and shingle in places, with the sea coming to the edge of the tussac at high water.

East coast of Halt Island, looking towards the north tip from the southeast point, 12 April 2012.

The interior is characterised by a slight depression which runs for nearly the full length of the island. The depression drains into two shallow ponds (one at the north end and the other at the south) which may fill with water in the winter months; both were completely dry in April.

Vegetation

The tussac has recovered well from past grazing, with 90% of the island covered in mostly open tussac, the densest areas being along the west and north shorelines. In the interior, bogs were up to 2m high and widely spaced, with areas between bogs colonised by small-fern as well as diddle-dee, mountainberry, native wood-rush, sheep's sorrel, heath groundsel, procumbent pearlwort, fire liverwort and a dry moss species. The variety of introduced

species (heath groundsel, stinging nettle, annual meadow-grass, daisy and sheep's sorrel in particular) is no doubt a result of past grazing. However, the oceanic heathland species may have colonised earlier, following a period of burning; the fires appear to have had less impact on the north and west coast tussac fringes as there was a deeper accumulation of tussac peat here than on the east coast which appears to have been more severely burnt.

The centre of the southern dry pond was damp and covered in lesser sea-spurrey and some goosefoot; the pond margin was fringed for about 5m by a short sward of daisies in flower; pigvine, procumbent pearlwort, smooth-stalked meadow-grass, annual meadow-grass, heath groundsel, lilaeopsis and prickly sow-thistle were also present. Grazing by upland geese maintained the short sward and goose droppings were seen throughout the scattered tussac areas. The northern pond was slightly larger, with a 10m wide damp centre covered in lesser sea-spurrey and a 15m wide fringe of short sward composed of a similar mix of plants, as well as native rush, buttonweed and lesser swine-cress. Large areas of goosefoot with some daisies and lesser sea-spurrey grew at the southeast corner amongst the tussac bogs.

The southern pond, fringed with daisies, Halt Island, 12 April 2012.

Native plant species: Antarctic bedstraw, Antarctic buttercup, buttonweed, cudweed sp, diddle-dee, goosefoot, lesser swine-cress, lesser sea-spurrey, lilaeopsis, mountainberry, native wood-rush, pigvine, sea knot-grass, small-fern, thrift plantain, tussac, wild celery
Introduced plant species: annual meadow-grass, chickweed, daisy, goosegrass, heath groundsel, prickly sow-thistle, procumbent pearlwort, sheep's sorrel, smooth-stalked meadow-grass, stinging nettle

Wildlife
Wildlife records are available for 3 survey visits: 20 November 2009 (SMSG data), 11 May 2011 and 12 May 2012 (BILC data). On each of these visits, no Cobb's wrens were seen. Survey data indicate that the island's coastal habitat appears to provide excellent foraging for shorebirds; records include large numbers of South American terns, Falkland steamer ducks, Magellanic oystercatchers and rock shags resting and feeding around the island.

Magellanic penguins were confirmed breeding in 2009, but the low density of burrow distribution indicates a small population, possibly no more than 50 pairs. Rock shags were not breeding but groups of over 60 birds were resting on the intertidal rock platforms on the west coast. Large groups of Falkland steamer ducks were gathered off the north and south ends of the island on each of the 3 survey visits; in November 2009, 17 breeding pairs were recorded, some with ducklings (SMSG data). Magellanic oystercatchers were present in large numbers outside the breeding season: 100 were feeding on the intertidal rock platforms at the north end of the island in May 2011, and in April 2012, there were 80 resting on the east coast; their estimated breeding population in November 2009 was 6-8 pairs. Blackish oystercatchers were less abundant, but at least 5 pairs were recorded nesting in 2009.

The mix of open tussac, short sward and heathland around both ponds appeared to provide favourable foraging habitat for passerines (tussacbirds, black-throated finches, Falkland thrushes and black-chinned siskins) and upland geese. A pair of crested ducks was also

seen at the north pond in May 2011; in November 2009 this species' population was estimated at 7-10 breeding pairs. Seven breeding pairs of kelp geese and around 5 pairs each of upland geese and ruddy-headed geese were also recorded in 2009; the latter were not present in May 2011 and May 2012.

Falkland thrushes and tussacbirds were very abundant, feeding in the strand line kelp debris and in clearings in the tussac. Over 50 individuals of the latter species were recorded along the coast in May 2012; this is in contrast to coastal survey counts in November 2009 and May 2011 when only 15 and 22 birds respectively were recorded. The increase may well be a result of the removal of rats in 2006, with the population gradually increasing each year as has been observed on other islands cleared of rats, for example Top and Bottom Islands (Poncet and Passfield 2009) and Harpoon, Outer and Double Islands (Woods 2008). Black-throated finches were present in all areas walked and black-chinned siskins were seen flying over coastal tussac. In May 2011, several long-tailed meadowlarks were recorded in the area behind the landing beach; one male was present in November 2009 and although none were seen during the 2012 survey, it is likely that at least one pair nest on the island. A single Magellanic snipe was recorded in the interior in 2012 and is likely to nest here. Grass wrens were seen and heard on all 3 survey visits; in 2012, 9 individuals recorded, including one bird that was feeding in typical Cobb's wren habitat on the boulder and kelp-covered beach; their breeding population was estimated at 3-5 pairs. Three dark-faced ground-tyrants were seen in 2011 and 2012 but none recorded in November 2009; it is possible that a pair nests on the low coastal rock outcrops along the west coast.

Turkey vulture roosts were seen in tussac along the east coast and they probably nest on the island in small numbers. No striated caracaras have been recorded on the island; a nest similar to a striated caracara's was found in tussac on a coastal ledge on the east coast, but it was not possible to determine whether it had been in use in 2012.

Species	Breeding status	Total number of individual adults & sub-adults counted	Estimated breeding population (pairs)
Magellanic Penguin	Confirmed	burrows	<50
Rock Shag	Present	129	0
Black-crowned Night Heron	Present	10	0
Upland Goose	Probable	7	3-5
Kelp Goose	Probable	7	7-8
Falkland Steamer Duck	Probable	105	15-20
Crested Duck	Probable	28	7-10
Turkey Vulture	Probable	8	3-5
Magellanic Oystercatcher	Probable	84	3-5
Blackish Oystercatcher	Probable	2	2-3
Magellanic Snipe	Probable	1	1-2
Dolphin Gull	Present	3	0
Kelp Gull	Present	15	0
Tussacbird	Confirmed	60	10-15
Dark-faced Ground-tyrant	Probable	3	1-2
Grass Wren	Probable	9	3-5
Falkland Thrush	Probable	19	4-8
Black-throated Finch	Probable	10	3-5
Black-chinned Siskin	Probable	10	3-5
Southern Sea Lion	Present	1	0

Wildlife counts and breeding population estimates for Halt Island, 12 April 2012.

Survey effort

Two surveyors (SP and KP) landed for 2 hours (0900-1100) and surveyed the entire coastline and completed an inland transect along the length of the interior. Conditions were favourable with a moderate northwest wind and sunshine.

Previous wildlife and habitat surveys were carried out in 2009 and 2011. Alastair Wilson and Susan Campbell landed for 2 hours on 20 November 2009 and surveyed the entire coastline

but not the interior (SMSG data). Sally Poncet and Ken Passfield completed coastal and inland transects on 19 May 2011 (BILC data).

Human activity
The island was stocked with a few cattle up until 1997 (Finlay Ferguson pers. comm.) and parts of a bullock skeleton were found in tussac at the north end of the island in May 2012. In the late 1970s, the island was grazed for a while by sheep, which resulted in much of the tussac being eaten out (Arthur McBain pers. comm.).

Invasive species
The earliest information that this island may once have been rat-free dates from 6 September 1910, when Arthur Cobb saw Cobb's wrens there (Robin Woods pers. comm.). Evidence of rats was noticed by Arthur McBain in the early 1960s when he landed to shoot bullock and found an old knife with a wooden handle which had been chewed by rats. Abundant rat sign was found in 2005 by Mike and Nick Rendell (Mike Rendell pers. comm.).

In July 2006 a rat eradication operation was carried out by Nick Rendell and Darren Christie. 100kg of Pestoff pellets (20 ppm brodifacoum) were hand broadcast around the coastline and in the interior. The bait was 7 years old and mouldy and the high regime (9 kg/ha) was a safeguard against the bait's potentially reduced toxicity (Nick Rendell pers. comm.).

No fresh rat sign has been seen on subsequent survey visits in winter 2007, December 2010 (Mike Rendell pers. comm.), November 2009 (SMSG data) and May 2011 (BILC data). An old rat feeding station and burrow were still visible however in May 2011, with shell fragments in tussac peat at the northwest corner.

Two of 4 chewsticks deployed on 19 May 2011 (at the southeast point, next to the north pond and on the east coast) were checked on 11 April 2012; no rat teethmarks were noted. The chewsticks were replaced with 4 fresh sticks: one at the southeast point in tussac close to the top of the beach (52 11.511'S, 58 52.341'W), two close together at the east coast landing beach (52 11.311'S, 58 52.349'W) and one at the north pond (52 11.207'S, 58 52.527'W).

Ecological value
The island's ecological value is very high as an ungrazed rat-free tussac island with a rich intertidal foraging zone for shorebirds and a diverse mix of plant communities. These provide favourable foraging and shelter for passerines which were very abundant, especially Falkland thrushes and tussacbirds. Passerine abundance is markedly higher than on nearby rat-infested First, Second and Third Islands and this is undoubtedly due to the success of the 2006 rat eradication operation.

A flock of Magellanic oystercatchers on the east coast of Halt Island, 12 April 2012.

North Point Island

Coordinates:	52° 08.5'S, 58° 51.2'W
Surface area:	22.4 hectares
Coastline perimeter:	2.2 kilometres
Owner:	Mike & Phyl Rendell
Land designation:	Private wildlife sanctuary Important Bird Area FK04
Survey date:	11 April 2012
Rodent status:	Rat-free; mouse-free

Site description

North Point Island lies 1.7km southwest of North Point on Bleaker Island, and is 800m from the closest point on Bleaker. It is roughly rectangular in shape and flat-topped, rising to less than 10m elevation. Kelp beds fringe the coastline but the passage between the islands is kelp-free. The island's south coast shoreline curves gently to form a sheltered landing beach in northerly winds; the beach consists of cobbles and small rounded boulders and is about 100m long. At its west end is a short section of low cliff above an intertidal bedrock platform which fringes the entire coastline, interrupted in a few places by short sections of boulder beach. There is a small area of level rounded boulders midway along the east coast, sloping gently down to the intertidal zone. Although there were no permanent fresh water bodies on the island, fresh water seeped continuously from the tussac edge on to the shoreline along the southwest coast.

Landing beach with area of eroded black ground and burnt clay in foreground on the south coast of North Point Island, 11 April 2012.

Vegetation

The island was covered in moderately dense tussac; the densest, tallest stands were along the west coast shoreline. Elsewhere bogs were less than 2m high, and more openly spaced. In the interior of the west half of the island there was about 2ha of open tussac mixed with small remnant patches of diddle-dee and mountainberry and the occasional sheep's sorrel and heath groundsel. Many of the diddle-dee bushes were dead, and in the process of being grown over by young tussac plants. Small patches of Falkland strawberries were found in this open tussac behind the landing beach. The healthy tussac cover and absence of an inland bluegrass and wavy hair-grass meadow possibly indicate that the island was originally entirely covered in tussac, before being modified by burning many years ago. This was followed by a period of recovery and then light grazing by cattle which resulted in the introduction of oceanic

heathland species. After de-stocking, the island is once again reverting to its original 100% tussac cover, with tussac successfully re-colonising on diddle-dee and mountainberry.

There was clear evidence that the island had been burnt: a thin layer of red clay in the tussac peat was noted at several places around the coastline, and was particularly conspicuous at the east end of the landing beach. Here, wind erosion had exposed large areas of bare red clay and bedrock just above the shoreline, with deep, loose, black tussac peat and open tussac bogs behind and extending about 100m inland. There was another small area of loose tussac peat in the west half of the interior.

Left: Inland tussac area on North Point Island with remnant patches of diddle-dee and mountainberry. Below: Falkland strawberry.

Burning has also reduced the depth of tussac peat along sections of the east and north coast shorelines, resulting in a 5-10m wide strip of shallow peat along the top of the beach, backed by a bank of tussac peat about 2m high with dense tussac on top. This coastal strip was a mix of loose peat, scattered tussac bogs and extensive stands of wild celery interspersed with introduced plants that included procumbent pearlwort, sheep's sorrel and heath groundsel. A patch of thrift plantain and a 20m long strip of sea knotgrass were noted at the northwest corner amongst areas of native rush and lilaeopsis; lesser sea-spurrey and native stonecrop grew in discrete patches on the south and west coasts and buttonweed, sea cabbage and lesser swine-cress on the east half of the north coast. Water-starwort was recorded along the southwest corner tussac in the areas of freshwater seeps. Several tall prickly sow-thistle plants were noted near the southeast corner, and there was a single patch of stinging nettles nearby.

Native plant species: buttonweed, diddle-dee, fire liverwort, lesser sea-spurrey, lesser swine-cress, lilaeopsis, mountainberry, Falkland strawberry, native rush, native stonecrop, sea cabbage, sea knotgrass, thrift plantain, tussac, water-starwort, wild celery
Introduced plant species: annual meadow-grass, groundsel, heath groundsel, prickly sow-thistle, procumbent pearlwort, sheep's sorrel, stinging nettle

Wildlife
A few sparsely scattered, recently occupied Magellanic penguin burrows with moulted feathers in the entrance were recorded in tussac a short distance inland from the south coast landing beach; scattered burrows and access paths were also seen along the west coast; the breeding population is likely to be less than 50 pairs. There were remarkably few birds present in the interior, with only a single tussacbird recorded, but the abundance of goose droppings indicated that the area was regularly used for foraging by upland geese. The area of highest passerine activity was along the sheltered south shoreline where Falkland thrushes, Cobb's wrens and tussacbirds were feeding. The latter were seen along the entire coastline with a total of 53 individuals recorded. Only 4 Cobb's wrens were seen on this visit compared to 6 in May 2011 (BILC data) and 8 in November 2009 (SMSG data); the variation is likely to be due to both seasonal and weather conditions.

A small group of black-crowned night herons was resting on the rock ledges at the west end of the landing beach; no old nests were found but they may possibly breed here. Three turkey vultures were seen and probably nest on the island, with a roost area and recently used nest site recorded in the coastal tussac at the southeast point.

The intertidal area and inshore kelp beds appeared to be favoured foraging areas for Falkland steamer ducks, kelp geese, crested ducks and Magellanic oystercatchers which were present in large numbers. A few blackish oystercatchers, kelp gulls and dolphin gulls were also seen, and a large group of rock shags was resting at the water's edge on the southwest corner.

A southern sea lion coming ashore on the east coast of North Point Island, 11 April 2012.

During the November 2009 survey, several species were recorded that were not present in April 2012. These included king shags, brown-hooded gulls and South American terns, as well as 3 Falkland skuas, 2 striated carcaras, a Magellanic snipe and a pair of ruddy-headed geese (SMSG data). None of them was recorded as breeding on the island; however, it is possible that the last 3 species were occupying breeding territories.

A large bull southern sea lion and 2 females with pups were hauled out in the tussac behind the east coast's level shingle and boulder point, and there were signs of seals having rested in the tussac behind the landing beach. It is not known to be a breeding site for this species.

Species	Breeding status	Total number of individual adults & sub-adults counted	Estimated breeding population (pairs)
Magellanic Penguin	Confirmed	burrows	<50
Rock Shag	Present	170	0
Black-crowned Night Heron	Probable	8	1-2
Upland Goose	Probable	3	5-10
Kelp Goose	Probable	24	8-10
Falkland Steamer Duck	Probable	76	14-15
Crested Duck	Probable	28	8-10
Turkey Vulture	Probable	3	3-5
Magellanic Oystercatcher	Probable	58	3-5
Blackish Oystercatcher	Probable	5	3-5
Dolphin Gull	Present	8	0
Kelp Gull	Present	5	0
Tussacbird	Confirmed	53	12-15
Dark-faced Ground-tyrant	Probable	2	1-2
Cobb's Wren	Confirmed	4	5-10
Falkland Thrush	Probable	2	3-5
Black-throated Finch	Probable	1	1-3
Southern Sea Lion	Present	8	0

Wildlife counts and breeding population estimates for North Point Island, 11 April 2012.

Survey effort
One surveyor (SP) spent 3 hours ashore surveying the entire coastline and a 1km circular transect around the west half of the interior. Conditions were very windy on exposed north side of the island and therefore not favourable for surveying passerines. Previous coastal wildlife and habitat surveys were carried out on 20 November 2009 (SMSG data) and 11 April 2011 (BILC data).

Human activity
The remains of a bullock skull and skeleton were found in the interior. The island was traditionally stocked with bullock for Goose Green up until the 1970s; Arthur McBain recalls landing 5 cattle with Chris Bundes on the *Penelope* in the early 1960s (Arthur McBain pers. comm.). Finlay Ferguson said it was not stocked during the time he was share-farming Bleaker from 1984 to 1997.

North coast of North Point Island with coastal strip of wild celery and heath groundsel along the coastal tussac fringe, 11 April 2012.

Invasive species
No rodent sign was recorded during this survey or on previous surveys.

Ecological value
The island's ecological value is very high, being an ungrazed rodent-free tussac island with a healthy population of tussacbirds and Cobb's wrens.

Prickly sow-thistle,
North Point Island, 11 April 2011.

Ghost Island

Coordinates:	52° 11.38'S, 58° 49.89'W
Surface area:	2.7 hectares
Coastline perimeter:	0.8 kilometres
Owner:	Mike & Phyl Rendell
Land designation:	Private wildlife sanctuary Important Bird Area FK04
Survey date:	10 April 2012
Rodent status:	Rat-infested; No evidence of mice

Site description
Ghost Island is situated in Sandy Bay, 300m off the east coast of Bleaker Island; beds of dense kelp extend between the two islands. It is aligned roughly north-south, is flat-topped and rises to about 10m elevation. Cliffs 2-3m high extend around the south coast and along a small section of the north end, while the remainder of the coastline is mostly gently sloping. A large intertidal rock platform extends from the north end halfway down the east coast and in places is over 100m wide. A 20m long section of boulder and shingle beach is tucked into the top of the rock platform on the sheltered east side of the north tip. The west coast shoreline is mostly boulder beach covered in washed up kelp debris. No freshwater bodies were found but freshwater seeping from the tussac peat accumulated in small brackish pools on the upper levels of the east coast rock platform. The names of Ghost and Sandy Bay Islands appear to have been confused when the DOS map was compiled: in local usage, Ghost Island is known as Sandy Bay Island (from its position in the middle of Sandy Bay), and the outer island is called Ghost Island (not Sandy Bay Island) (Arthur McBain and Finlay Ferguson pers. comm.).

Northeast coast of Ghost Island; Sandy Bay and the east coast of Bleaker Island beyond, 10 April 2012.

Vegetation
The island was entirely covered in tussac on a deep layer of peat. Bogs were up to 2m high; in places, passages were kept open by Magellanic penguins and sea lions, notably along the northern half's coastline tussac. Narrower paths, probably used by sooty shearwaters, were evident in tussac along the edge of the cliffs at the south end. A layer of red clay deep in the tussac peat indicated that the island had been burnt many years ago.

There was a scattering of annual meadow-grass, native stonecrop and a few tussac bogs on the upper level of rock platform at the north end of the island amongst pools of brackish water and accumulations of Falkland steamer duck guano. *Ramalina* sp. and bright orange lichens covered the upper areas of the east coast rock platform.

Native plant species: lesser swine-cress, native stonecrop, tussac
Introduced plant species: annual meadow-grass, prickly sow-thistle, procumbent pearlwort

Wildlife
Magellanic penguin burrows were seen at low density. Rock shags were resting on the intertidal rock platform but did not nest or roost on the island. The rock platform on the east

side of the north point appeared to be a favoured resting place for Falkland steamer ducks, as indicated by the abundant accumulation of shellgrit guano. Up to 10 pairs may breed; several pairs still with fledged young were feeding and swimming in the kelp close inshore. About 20 Magellanic oystercatchers and 8 kelp geese were feeding in the intertidal zone; 3 or more pairs of the latter may nest; only one pair of crested ducks was seen. A few turkey vultures were flying overhead and several roosts under tussac bogs were found. An empty nest of tussac with pieces of sheep's wool, located on the low cliffs at the north end of the island, may have been that of a striated caracara but no birds were present.

Passerines were not abundant; two black-chinned siskins were seen flying over the inland tussac, and a male black-throated finch and one tussacbird were seen on the sheltered east coast; the latter exhibited territorial behaviour with wings held outstretched and small passerine droppings were noted on the tussac peat banks at the northwest corner.

Remains of sooty shearwater (left) and grey-backed storm-petrel (right) on Ghost Island, 10 April 2012.

Sooty shearwater burrows were found in dense tussac along the east and south coast cliff tops. Feathers and the occasional bone of a freshly dead sooty shearwater were also scattered throughout the tussac, with some grey-backed storm-petrel feathers. From the abundance of fresh rat sign (droppings, feeding stations and holes) it was apparent that rats were very active in this area and were likely to be killing fledgling sooty shearwater chicks in their burrows. The feather-scattered tussac contrasted markedly with sooty shearwater colonies on nearby, rat-free Sandy Bay Island where no feathers or dead birds were found.

Species	Breeding status	Total number of individual adults & sub-adults counted	Estimated breeding population (pairs)
Magellanic Penguin	Confirmed	burrows	50-100
Sooty Shearwater	Probable	burrows	n/a
Grey-backed Storm-petrel	Probable	remains	n/a
Rock Shag	Present	20	0
Upland Goose	Present	2	0
Kelp Goose	Probable	8	3-4
Falkland Steamer Duck	Probable	27	8-10
Crested Duck	Present	2	1
Turkey Vulture	Probable	2	1-2
Magellanic Oystercatcher	Probable	26	2-3
Dolphin Gull	Present	2	0
Kelp Gull	Present	4	0
Tussacbird	Present	1	0
Black-throated Finch	Present	1	1-2
Black-chinned Siskin	Probable	2	1-2
Southern Sea Lion	Present	1	0

Wildlife counts and breeding population estimates for Ghost Island, 10 April 2012.

Survey effort
One surveyor (SP) spent two hours (0930-1130) surveying the entire 800m perimeter of the coastline. Landing was made on the west side at the north end of the island in a small indentation which was protected from the slight southerly swells by an intertidal rock platform. The interior was viewed from vantage points on the top of the coastal slopes around the south end, and by walking short distances through the dense inland tussac. With the exception of a short stretch along the south coast where cliffs were sheer, the coastline was accessible on foot, with easy walking along the extensive rock platforms and beach shoreline.

Human activity
There was no sign that the island had ever been grazed. Arthur McBain had no recollection of there being livestock on the island during the years he was on Bleaker Island in the 1960s and there were none there in the 1980s and 90s (Finlay Ferguson pers. comm.).

Invasive species
A few old dry rat droppings and some freshly nibbled tussac stems were found above the beach in the north end tussac. However, the most abundant and recent signs (piles of droppings and occupied burrows) were seen in the east and south coast tussac in those areas where sooty shearwater burrows and remains were most abundant.

Ecological value
Despite the presence of rats, the ecological value of Ghost Island is very high due to its healthy ungrazed stands of tussac and populations of sooty shearwaters and potentially grey-backed storm-petrels. Eradication of rats would be a simple solution for ensuring the long-term survival of the burrowing petrel population which is currently being impacted by rats. Although regular monitoring for rat presence would be required in order to detect and then deal with possible re-invasions by rats from the Bleaker mainland, this effort would be justified in order to protect these burrowing petrel populations.

Abundant rat sign (fresh droppings) at the entrance of a sooty shearwater burrow on Ghost Island, 10 April 2012.

Sandy Bay Island

Coordinates:	52° 11.66'S, 58° 48.00'W
Surface area:	32 hectares
Coastline perimeter:	2.4 kilometres
Owner:	Mike & Phyl Rendell
Land designation:	Private wildlife sanctuary Important Bird Area FK04
Survey date:	10 April, 3 May 2012
Rodent status:	Rat-free; mouse-free

Site description

Sandy Bay Island lies 1.3km off the east coast of Bleaker Island. It is roughly triangular in shape with a maximum elevation of 20m. Over 1.5km of the island's 2.4km long coastline is 5-15m high cliffs above a wave-cut intertidal rock platform. The cliffs start midway along the northeast facing coast and continue around the south coast and up the entire west coast. The shoreline around the north end consists of a beach of large rounded boulders overlain with deep layers of kelp debris and holdfasts; this boulder beach runs for 300m along the northwest shore and for 250m along the northeast shore.

North end boulder beach and Porvenir *at anchor, Sandy Bay Island, 10 April 2012.*

An extensive intertidal rock platform fringed with bull kelp runs around most of the island. This intertidal area is generally 5-20m wide at low water, with a 100m wide section at the easternmost point. Along the west and south coasts, the platform is narrower and intersected by several deep gulches and indentations, with extensive kelp beds extending over 500m offshore. The platform extends south off the southwest point as an awash reef, parts of which break in slight swell, surrounded by kelp. The coast trends roughly east-west between the southwest and southeast points; the cliffs here are 10-15m high and intersected by four deep narrow gulches, with a small arch in the cliffs at the southeast point. The cliff top margin is level bare rock up to 20m wide. No sources of permanent freshwater were found, but there were numerous seeps flowing from the tussac on to the rock margins of the south coast cliff tops and in one place formed small pools; the ground in the level parts of the tussac interior was also very damp in places.

Vegetation

Most of the island was covered in very dense tussac bogs up to 2m high on a deep layer of tussac peat, with the tallest and densest tussac areas on the coastal slopes. Along the south coast cliff tops, bogs were less than 1m high and wind-pruned; in places there were patches of dead bogs on slopes of brown tussac peat. At the north end of the island, open passages beneath the 2m high tussac canopy were probably maintained by the passage of southern

sea lions. Narrower passages along the cliff top tussac around the south half of the island were formed by sooty shearwaters. Paths between bogs in the interior also appeared to be due to both sooty shearwaters and Magellanic penguins. There was an area of more open tussac towards the north end about 100m inland from the east coast sea lion beach. The tussac here was less than 1.5m high and some of the bogs were dead; fire liverwort and water-starwort with a few small patches of procumbent pearlwort, wavy hair-grass (tbc), Antarctic buttercup and smooth ragwort were growing between the bogs, and small-fern and Falkland strawberry were growing on some of the dead bogs.

Native stonecrop and *Ramalina* lichen covered the large areas of level rock that were common along the edge of the south coast cliff tops; in places they were mixed with patches of thrift plantain, lilaeopsis, Andean pearlwort (tbc), nodding club-rush (tbc) and wild celery near the tussac margin. A few scattered plants of lesser swine-cress grew in shallow shellgrit between the tussac bogs on level ground above the boulder beach at the north tip.

A small area (0.7ha) of bluegrass meadow and oceanic heathland was found at 15m elevation at the south end of the island about 100m inland from the coast. This area can be seen from Bleaker Island (Mike Rendell pers. comm.), but is not visible from a boat passing close inshore. Oceanic heathland species included diddle-dee, mountainberry, Christmas-bush, Falkland strawberry, land-tussac, pigvine and native wood-rush. Bluegrass meadow species were principally Fuegian couch, bluegrass, native wood-rush, land-tussac, field mouse-ear, scurvygrass and wild celery with a scattering of the endemic Falkland rock-cress, smooth ragwort, woolly ragwort and marsh daisy. The scarcity of introduced species (apart from a few procumbent pearlwort plants) reflects the pristine state of this island's vegetation which has never been grazed.

Area of bluegrass meadow and oceanic heathland on south end of Sandy Bay Island, Bleaker Island's east coast in the background, 3 May 2012.

Native plant species: Antarctic buttercup, Christmas-bush, wavy hair-grass (tbc), diddle-dee, emerald-bog, Falkland rock-cress, Falkland strawberry, land-tussac, lesser swine-cress, lilaeopsis, marsh daisy, mountainberry, native mouse-ear, native rush, native stonecrop, nodding club-rush (tbc), pigvine, scurvygrass, small-fern, smooth ragwort, thrift plantain, tussac, water-starwort, wild celery, woolly ragwort
Introduced plant species: procumbent pearlwort

Wildlife
A few Magellanic penguin burrows with penguin moult feathers at their entrance were seen while crossing the interior; access to burrows is likely to be from the east coast boulder beach, and the breeding population is probably very small. An estimated 100 pairs of rock shags nested on ledges along the west coast cliffs; there were also 3 small groups on the northwest facing coastline and about 150 pairs on the southeast coast cliffs; none were seen on the northeast coast cliffs. Areas of bare ground above the cliff tops along the southeast

coast were traditional roost sites used by both rock and king shags and possibly old colony sites. Over 20 sheathbills were on the rock platform along the northeast coast and eastern point; there were also several groups of adult dolphin gulls with this year's fledglings and a few adult kelp gulls.

Sooty shearwater burrows in deep soft tussac peat were distributed regularly along the coastal tussac slopes of the southern half of the island on both east and west coasts; they decreased in density from the top of the coastal slope inland and only a few sparsely scattered burrows were seen in the interior. Although no carcasses or feather remains were found, the small rounded peat pellets at well-used burrow entrances combined with narrow, well-used paths between tussac bogs and the musty odour distinctive of petrels were similar to those seen on nearby Ghost Island and typical of sooty shearwaters. The overall impression gained was that in areas of highest burrow concentrations, burrow density may be close to that of Kidney Island.

Mottled tussacbird (left) and Cobb's wren (right) on Sandy Bay Island, 10 April 2012.

Tussacbirds were abundant in all coastal areas, and a few were also seen in the interior; a single brown and white mottled individual with very pale yellow colouring around the neck was photographed on the west coast. Cobb's wrens were also widely distributed around all coastlines including the cliff tops. Two dark-faced ground-tyrants and 6 Falkland thrushes were feeding on the shoreline around the north tip and thrushes were also seen along the south end cliff tops and at the inland bluegrass meadow. Two black-chinned siskins were seen flying over tussac and there was one male black-throated finch in the bluegrass meadow. Crested ducks, kelp geese and Falkland steamer ducks were feeding on the intertidal rock platforms. The north tip appeared to be a favoured resting place for the latter species, with a layer of guano on shallow shellgrit soil between the tussac bogs. Accumulations of empty limpet shells along the west coast cliff top indicated the presence of blackish oystercatchers, and a probable nest site was seen at the southwest point.

Striated caracara, rocks shags in background, west coast of Sandy Bay Island, 10 April 2012.

Adult striated caracaras were present at several locations around the island: there was a pair in attendance at the group of sea lions on the east coast boulder beach, another in the vicinity of the north end rock shag colony on the west coast and another at the south end; a pair was also present at the bluegrass meadow. Possibly at least 4 pairs nest on the island.

Ten sub-adult southern elephant seals were resting on the beach and in tussac at the north tip of the island. A group of southern sea lions which included 3 large males and 8 females and their pups were hauled out at the south extremity of the east coast's boulder beach. No breeding sea lions were seen on the island during an aerial survey on 8 February 1990 (Strange 1990).

Southern elephant seals hauled out in tussac at the north end of Sandy Bay Island, 10 April 2012.

Species	Breeding status	Total number of individual adults & sub-adults counted	Estimated breeding population (pairs)
Magellanic Penguin	Confirmed	burrows	n/a
Southern Giant Petrel	Present	2	0
Sooty Shearwater	Probable	burrows	n/a
Rock Shag	Confirmed	67	150-200
King Shag	Present	19	n/a
Upland Goose	Present	1	3-5
Falkland Steamer Duck	Probable	47	10-15
Kelp Goose	Probable	6	3-5
Crested Duck	Probable	22	5-10
Striated Caracara	Probable	10	4-5
Blackish Oystercatcher	Probable	2	3-5
Dolphin Gull	Present	28	0
Kelp Gull	Present	7	0
Snowy Sheathbill	Present	5	0
Tussacbird	Confirmed	52	15-20
Dark-faced Ground-tyrant	Probable	2	3-5
Cobb's Wren	Confirmed	9	5-10
Falkland Thrush	Probable	10	3-5
Black-throated Finch	Probable	1	3-5
Black-chinned Siskin	Probable	2	3-5
Southern Elephant Seal	Present	8	n/a
Southern Sea Lion	Present	29	n/a

Wildlife counts and population estimates for Sandy Bay Island, 10 April and 3 May 2012.

Survey effort

One surveyor (SP) was ashore for 4.5 hours on 10 April, landing on the east coast boulder beach at the north end of the island. This boulder beach shoreline was surveyed, as well as a 250m long section of dense tall tussac above the northwest cliff coastline; total transect length was 700m. In places, access was only possible by crawling on hands and knees along tunnels between bogs or by jumping from the top of one bog to the next; on the cliff top edge, bogs were slightly less dense and it was possible to force a zigzag passage between bogs. The intertidal rock platform at the base of the west coast cliffs was intersected by the occasional deep water gulch which prevents access around the shoreline, unlike the east

coast intertidal platform which extends unbroken to the easternmost point of the island. This platform narrows along the south coast and is intersected by deepwater gulches. Fieldwork was completed on 3 May 2012, when S. Poncet landed for 5 hours and surveyed the remaining 1.5km of coastline not visited on 10 April, as well as a 700m east-west transect across the interior at the island's widest point and a 400m transect around the perimeter of the bluegrass meadow.

Human activity

There was no indication that the island had been stocked with cattle, and there are no anecdotal records of it having been grazed in the past. A single horse skull found on the strand line at the north end of the island probably originated from Bleaker Island.

Southern sea lion bulls, cows and pups on east coast boulder beach, Sandy Bay Island, 10 April 2012.

Invasive species

The remains of a dead rat (bones and fur) were found on top of a dead tussac bog in the interior in a bird pellet (probably that of a striated caracara or short-eared owl that caught a rat on Bleaker Island). There was no sign of live rats or mice on the island. The lack of fresh rodent sign and the high numbers of sooty shearwater burrows, tussacbirds and Cobb's wrens indicate that this island is rodent-free.

Ecological value

This island has an extremely high ecological value, as an ungrazed rodent-free tussac island with no history of having been stocked. Of particular importance is the population of sooty shearwaters which may prove to be the second largest in the Falklands after Kidney Island.

Dense dark green coastal tussac slopes with sooty shearwater burrows above rock shag colony and roosts on the west coast of Sandy Bay Island, 10 April 2012.

APPENDIX 1 – SURVEY METHODOLOGY

Surveys were conducted according to a standardised biodiversity survey protocol (Poncet 2008, revised 2010). This includes:

1. Coastline transects

At least one kilometre of coastline, and where possible the entire perimeter, of each island is surveyed by walking around the shoreline and recording the following information:

- GPS track of the route walked – used for calculating coastline perimeter, length of shoreline sections (e.g. cliff, beach), surface area of the island and of vegetation cover
- The nature of the beach (e.g. boulder, shingle) and shoreline substrate
- Rodent sign (burrows, tracks, droppings, feeding stations) at the beach margin and in the tussac
- Birds and seals (species and abundance) and their breeding status
- Plants (species)
- Topography and presence of freshwater seeps
- Kelp debris washed up on the shoreline
- Beached debris e.g. fishing gear, wreckage
- Distance to the nearest land or island and the extent of kelp between
- Evidence of fires or past grazing activities e.g. stock pens, fences

2. Inland transects

If time and access permit, the interior of each island is surveyed by completing an inland transect from coast to coast across the longest axis of the island. The following details are noted:

- GPS track of the route walked
- Rodent sign
- Birds (species and abundance) and their breeding status
- Plants (species)
- Topography and presence of any freshwater ponds or seeps
- Evidence of fires or past grazing activities

3. Other sources of information

We interviewed former farmers and farm managers to confirm the grazing history of each island and wherever possible referred to relevant publications and reports. Google Earth images were used to confirm topographic and cartographic details.

Individuals of all bird species, with the exception of those seabirds that flew past without landing, were counted. Coastal and inland transect counts were combined to produce a tally of birds counted. This tally provides an assessment of relative abundance but it is not an absolute population count. The breeding status of each species was assessed on the basis of the number of birds recorded on the day, their behaviour, the habitat they were seen in, the time of year and our field experience. Common names for birds were taken from Robin and Anne Woods' *Atlas of Breeding Birds of the Falkland Islands* (1997). We also recorded the number of southern sea lions that were present, and noted known and possible breeding sites.

Where rat sign was found, we assumed that the species present was Norway rat *Rattus norvegicus* as all sign found appeared typical of that species. Those islands where no mouse sign of any kind was found and where Cobb's wrens were present, were recorded as 'mouse-free'.

The surface area of each island was derived from GPS tracks recorded when following the mean high water mark around the coastline. Although we were not able to take into account topography, all of the islands surveyed were more or less level, so measured surface areas are likely to correspond to actual surface area.

APPENDIX 2 - PLANT LIST FOR THE BLEAKER ISLANDS GROUP

The following is a list of plant species recorded on the seven islands surveyed. Note that the species list compiled for each island may not be complete.

Common Name	*Latin Name*
Andean pearlwort	*Colobanthus quitensis*
Annual Meadow-grass*	*Poa annua*
Antarctic Bedstraw	*Galium antarcticum*
Antarctic Buttercup	*Ranunculus biternatus*
Berry-lobelia	*Pratia repens*
Bluegrass	*Poa alopecurus* ssp. *alopecurus*
Boxwood	*Hebe elliptica*
Buttonweed	*Leptinella scariosa*
Chickweed*	*Stellaria media*
Christmas-bush	*Baccharis magellanica*
Cinnamon-grass	*Hierochloe redolens*
Coastal Nassauvia	*Nassauvia gaudichaudii*
Cudweed sp.	*Gamochaeta sp.*
Daisy*	*Bellis perennis*
Diddle-dee	*Empetrum rubrum*
Emerald-bog	*Colobanthus subulatus*
Falkland Rock-cress	*Phlebolobium maclovianum*
Falkland Strawberry	*Rubus geoides*
Field mouse-ear	*Cerastium arvense*
Field pansy*	*Viola arvensis*
Fire Liverwort	*Marchantia berteroana*
Fuegian Couch	*Elymus magellanicus*
Fuegian Fescue	*Festuca magellanica*
Goosefoot	*Chenopodium macrospermum* ssp. *macrospermum*
Goosegrass*	*Aira praecox*
Groundsel*	*Senecio vulgaris* ssp.*vulgaris*
Heath Groundsel*	*Senecio sylvaticus*
Land-tussac	*Festuca contracta*
Lesser Sea-spurrey	*Spergularia marina*
Lesser Swine-cress	*Coronopus didymus*
Lilaeopsis	*Lilaeopsis macloviana*
Lilaeopsis	*Lilaeopsis macloviana*
Marsh Daisy	*Aster vahlii*
Mountainberry	*Gaultheria pumila*
Native Rush	*Juncus scheuchzerioides*
Native Stonecrop	*Crassula moschata*
Native Wood-rush	*Luzula alopecurus*
Native Yarrow	*Acaena lucida*
Nodding Club-rush	*Isolepsis cernua*
Oval-leaved Prickly-burr	*Acaena ovalifolia*
Pigvine	*Gunnera magellanica*
Prickly-burr	*Acaena magellanica*
Prickly sow-thistle	*Sonchus asper*
Procumbent Pearlwort *	*Sagina procumbens*
Scurvygrass	*Oxalis enneaphylla* ssp. *enneaphylla*
Sea Cabbage	*Senecio candidans*
Sea Knotgrass	*Polygonum maritimum*
Sheep's Sorrel*	*Rumex acetosella*
Shepherd's Purse*	*Capsella bursa-pastoris*
Small-fern	*Blechnum penna-marina*
Smooth Falkland Daisy	*Senecio vaginatus*
Smooth-stalked Meadow-grass*	*Poa pratensis*
Stinging Nettle*	*Urtica dioica*
Sword-grass	*Carex trifida*

Thrift Plantain	*Plantago barbata* ssp. *monanthos*
Tussac	*Poa flabellata*
Water-starwort	*Callitriche antarctica*
Wavy Hair-grass	*Deschampsia flexuosa*
Wild Celery	*Apium australe*
Woolly Falkland Daisy	*Senecio vaginatus*
Yorkshire Fog*	*Holcus lanatus*