

Important Plant Areas of the Falkland Islands



Important Plant Areas of the Falkland Islands



Dr. Rebecca Upson

Published December 2012



In association with RBG Kew and Plantlife International

With financial support from



Falkland Islands Government

First published in Great Britain in 2012 by Falklands Conservation.

14 East Hatley, Sandy, Bedfordshire SG19 3JA

Website: www.falklandsconservation.com

UK Registered charity: 1073859

In the Falkland Islands:

41 Ross Road, Stanley

Postal address: PO Box 26, Stanley, Falkland Islands FIQQ 1ZZ.

Telephone: (500) 22247

E-mail: info@falklandsconservation.com

Copyright © Falklands Conservation

Copyright in the photographs remains with the individual photographers.

All rights reserved. No part of this publication may be reproduced or used in any form or by any means – photographic, electronic or mechanical, including photocopying, recording, taping or information storage and retrieval systems – for commercial use without permission of the publishers.

For citation:

Upson, R. (2012). Important Plant Areas of the Falkland Islands. Unpublished Report, Falklands Conservation. 80 pp.

Disclaimer: The information given in this publication on behalf of Falklands Conservation is believed to be correct, but accuracy is not guaranteed and the information does not obviate the need to make further enquiries as appropriate.

Contents

Foreword - Falkland Islands Government	5
Foreword - Plantlife	6
Acknowledgements	7
PART I	8
The Falkland Islands	8
Falkland globally threatened species	12
Falkland threatened habitats	22
PART II	27
Important Plant Areas - overview	27
The Important Plant Areas of the Falkland Islands	29
Albemarle	30
Cross Island	31
Beaver Island (including Rat Island)	32
Channel S16D2 Island	33
Cape Pembroke	34
Carcass Island	36
Chartres Horse Paddock	38
Hill Cove Mountains	40
Hornby Mountains	42
Keppel Island	44
Middle Island	46
Motley Island	48
Port Stephens	50
Saunders Island (including Rat Island)	52
Split Island	54
Tea Island	55
Weddell Island	56
PART III	58
Appendices	58
1: Falkland Islands Countryside Code	59
2: Falkland Island habitat classification summary	60
3: Checklist of Falkland native vascular plants	67
4: Plant species assessment form	75
5: References	76

Foreword - Falkland Islands Government

A major part of what makes the Falklands special and unique is its wildlife. We have a responsibility as Falkland Islanders to look after our natural resources so that they are there for the benefit of future generations and the wildlife that depends on them. Those natural resources we use must be sustainably managed.

Sustainable management of the environment cannot occur without a detailed knowledge of which areas of the Falklands hold the most vulnerable biodiversity. This document represents the first attempt to identify key areas for plants across the Islands, documenting 17 Important Plant Areas for the Falkland Islands. We should view this as both a celebration of the unique plant diversity to be found here in the Falklands as well as a vital tool to aid conservation planning and ensure that these plants and their unique habitats remain part of the Falkland Islands in perpetuity.

I am delighted to see the results of so many years of dedicated work come to fruition and be available to everyone in such an accessible format as this excellent publication.

A handwritten signature in black ink, appearing to read 'B. Elsby', with a long horizontal flourish underneath.

Dr Barry Elsby

Member of the Legislative Assembly

Falkland Islands Government
Stanley
FIQQ 1ZZ
Falkland Islands

Foreword - Plantlife

Wild plants are essential to life – they clean our air and water, provide food and shelter for insects, birds and mammals and are critical in the fight against climate change. This is recognised by the Convention on Biological Diversity in its endorsement of the Global Strategy for Plant Conservation (GSPC) which requires each CBD member state to undertake a series of actions to conserve their wild plant heritage.

Falklands Conservation and the Falkland Islands Government should be congratulated for the work they have done to produce this directory of Important Plant Areas (IPAs); responding directly to the world-wide need for renewed efforts to conserve essential wild plant resources, expounded by the GSPC. This IPA directory provides a solid scientific basis for implementing a whole range of plant conservation activities that contribute to the GSPC. At the core of the directory, the identification of seventeen Important Plant Areas as immediate targets for conservation measures begins the implementation of target 5 of this Strategy; the *effective management of at least 75% of important areas for plant diversity*. Elsewhere the directory brings together considerable historical and current data on the native wild plants of the Falkland Islands - their distribution, ecology, uniqueness and the threats to their survival – crucial information to support the implementation of a number of GSPC targets.

The engagement of IPA landowners during the process of IPA selection, and the identification of opportunities to take forward conservation reaffirms the commitment of the Islanders to use this directory to guide action on the ground. This follow up action is essential to ensure the Falkland's unique and threatened species and habitats are secured for the future.

The hope now is that the considerable commitment to plant conservation in the Falklands, demonstrated within the pages of this directory can be capitalised upon; that government, non-government and community-based support for direct conservation measures will increase. Such support will be an important contribution to safeguarding the native plants which are the heart of these wild and wonderful islands in the South Atlantic.



Elizabeth Radford

International Programme Manager

Plantlife
14 Rollestone Street
Salisbury
Wiltshire
SP1 1DX
United Kingdom

Acknowledgements

This Directory is part of a commitment by Falklands Conservation to meet targets set by the Global Strategy for Plant Conservation in improving the status of the rare, threatened and native flora of the Falkland Islands.

The Directory uses data gathered over a number of years by Falklands Conservation staff, local and international volunteers and affiliated researchers; this publication would not have been possible without their contributions. Amongst this group I would like to mention Jess Abbott, Ragnhild Bränström, David Broughton, Richard Lewis, Mike Morrison, Sally Poncet and Robin Woods for their valuable records. In particular major contributions to botanical records have been made through the Overseas Territories Programme (OTEP) projects FAL401 and FAL601 and a Department for Environment, Food and Rural Affairs (DEFRA) Darwin Initiative programme (Broughton and McAdam, 2002a).

I am grateful to everyone who has contributed to the botanical survey work in the Islands. They include the owners of all sites listed as Important Plant Areas, managers of farms and those who provided assistance with transport to remote areas of camp including offshore islands.

For sharing their time and expertise, I am particularly grateful to everyone in the UK Overseas Territories (UKOTs) team at RGB Kew, in particular Colin Clubbe and Martin Hamilton, as well as technical assistance from RGB, Kew's GIS team. I am grateful to Liz Radford (Plantlife) for valuable discussions over the course of this project. Thanks also to those who made time to proof-read and give thoughtful feedback on the various drafts of this Directory.

I would not have been able to produce this Directory without funding support from OTEP and the Falkland Islands Government. For valuable information relating to introduced plant species across the Islands, this project has also been supported in part by funds from the European Union's EDF-9 programme through the South Atlantic Invasive Species Project (Project No 20 9 PTO REG 5/1) administered by RSPB.

The Falkland Islands

Climate and geology

Situated in the South Atlantic, some 500 km from mainland South America, the Falkland Islands are a remote archipelago formed of two larger islands (East and West Falkland) and over 700 smaller islands. In total, these islands cover an area of approximately 12,200 km².

The islands experience a cool temperate oceanic climate and temperatures are generally moderate with a mean for January and July of 9.4°C and 2.2°C respectively (McAdam, 1985). With ground frost a possibility throughout the year, all seasons can be experienced in a day. Rainfall is low with a mean annual precipitation of 585 mm recorded at Mount Pleasant Complex on East Falkland during the periods 1987-2009 (data provided by UK Met Office). Climatic variation across the Islands is poorly understood but in general West Falkland, particularly in the northwest, experiences lower rainfall, milder temperatures and more sunshine than East Falkland.

Rock-building ceased in the Falklands around 250 million years ago Mya, which means that the archipelago is almost entirely composed of Palaeozoic and Mesozoic sediments (Cruickshank, 2001; Aldiss & Edwards, 1999). The highest point on the Islands is Mt. Osborne on East Falkland, which stands at 705 m above sea level.

Soil development is poor due to low temperatures and low soil activity. Soils are characterised by a thin, fibrous surface peaty layer, usually no deeper than 38 cm, above compact, poorly drained, silty-clay subsoil (Cruickshank, 2001). Mineral soils are less common but do occur where underlying rocks are exposed, such as on mountain summits and along the coast. In the latter case, nutrient inputs from seabirds and marine mammals also improve soil fertility. In general however, Falkland soils are acidic (pH range 4.1-5.0) and deficient in calcium and phosphate (Cruickshank, 2001). The main vegetation types supported are acid grasslands dominated by Whitegrass *Cortaderia pilosa* and dwarf shrub heathland dominated by Diddle-dee *Empetrum rubrum*.

Botanical importance of the Falkland Islands

The Falkland Islands are important biogeographically owing to their position between the Antarctic and South American continents. It is worth remembering that many plant species are at the eastern and southern limits of their range in the Islands. Therefore, these species are also likely to be at or near the limit of their tolerance for environmental factors and such populations may be genetically or physiologically distinct (Davey *et al.*, 2005; Lesica & Allendorf, 1995). Conserving a species throughout its range will generally conserve the range of genetic variation within it and the need to conserve such genetic variation is recognised in the IUCN threat criteria (Wigginton, 1999).

With recent additions to the flora, there are now 178 vascular plant species recorded as native to the Islands as well as one hybrid (Upson, 2012a; see Appendix 3). Fourteen vascular plant species are endemic to the Falklands and two are near endemics (Upson, 2012a; Upson *et al.*, in prep.; Broughton & McAdam, 2002a). Globally six species are threatened, one near threatened; nationally (including globally threatened species) a total of 40 species are threatened, three near threatened and four data deficient (Upson, 2012b, c).

As expected, the majority (91%, excluding one hybrid) of native species are distributed to a greater or lesser extent through South America including south of lat. 40°S (Upson, 2012a). All except two of the remaining species, *Calandrinia* cf. *axilliflora* (of uncertain taxonomic affinities) and *Polystichum mohrioides* (a near endemic of the Falkland Islands and South Georgia) are endemic to the Falklands. Of the Falkland native flora, 34 species (20%) are also native in the sub-Antarctic zone, New Zealand or southeastern Australia (Moore, 1968). In contrast 16 species (9%) have a

bipolar distribution, occurring in the higher latitudes of North America and to a lesser degree Europe (Moore, 1968).

Conservation issues

As a result of their isolation and small size, remote islands like the Falklands are naturally vulnerable to ecological change. There are several major factors that are affecting natural ecosystems in the Falklands and which threaten some elements of the native flora. It is vital that opportunities are taken to act now to develop management practices that can benefit both livelihoods as well as the unique flora of the Falklands. Science, partnership, land management and restoration are all needed to address the conservation issues outlined here so that development of the Islands does not conflict with maintaining biodiversity.

Vegetation mapping through the use of satellite imagery combined with good ground-truthing is urgently needed to help assess the scale of habitat alteration across the Islands. Accompanied by notes on where threatened species occur, this can provide a useful tool to inform land management and development decisions.

Agriculture

Sheep were first introduced to the Falklands in the 1860s and grazing of grasslands for the production of wool and meat continues to form the major income of those living outside Stanley; all but one farm currently graze sheep on their land (DoA, 2010). Often grazed year-round, however, and primarily grazed through set-stocking, sheep farming has dramatically altered the vegetation of the Islands (e.g. Munro, 1924; Davies, 1939). This same pattern is seen in many places worldwide to the extent that temperate grasslands are considered to be one of the most altered and least conserved ecosystems (Hoekstra *et al.*, 2005).

Grazing by sheep in particular is thought to have caused the decline in many plant taxa in the Falklands. This is due both to direct grazing of the species concerned and through habitat loss and degradation. There are various ways in which the impacts of grazing could be lessened and sustainable grazing of native pastures promoted to the advantage of all. With appropriate management, livestock and native plants and animals can thrive alongside one another on the same grassland areas. Agricultural advisors, farmers and conservation workers need to work together to develop sustainable grazing regimes and other management practices that can enhance the natural functioning of grassland areas.

Sustainable grazing methods, such as pasture rotation can improve forage quality by, for example, allowing resting periods and promoting botanical diversity including native fine grass species (Gerrish, 2004). Such systems also encourage healthy root growth, which in turn helps to keep rivers and lakes in better condition through minimising run-off and silting. Rotational grazing trials have been started at several farms in the Falklands and the effects of such a management change on botanical diversity and livestock production should be monitored.

As well as sheep, 68% of farms also graze cattle on their land; the number of cattle per farm varies from 2 to 484 (DoA, 2010). In addition 149 goats are grazed across 7 farms on the Falklands (DoA, 2010).

184 reindeer are present on the Islands across three farms; reindeer are not currently managed commercially in the Falklands (data from Department of Agriculture, FIG, 2010). The impact of reindeer on the vegetation of South Georgia, in particular on Tussac, is well documented (Christie, 2010; Upson, 2009). In contrast the long term impact of reindeer on the vegetation of the Falklands, where there is a less severe winter and wider choice of species than on South Georgia, is not yet known and should be investigated. Field studies suggest that lichens on rocks are, as expected, severely depleted in reindeer areas, as are certain vascular plant species such as the Prickly-burr (unpublished data). In particular the impact of reindeer on Tussac stands should be investigated.

There are several other threats to the native flora that come under the broad banner of agriculture – burning and erosion from failed re-seed areas; competition from introduced grasses and the application of fertilisers.

Soil erosion

Soil erosion is a major concern across the Islands for both farmers and conservationists alike. Coastal areas are particularly vulnerable and this is an area that needs urgent attention. It is likely that a combination of management practices and the effects of climate change has led to the current level of erosion present across the Islands today. Intentional (Munro, 1924) as well as accidental burning and human disturbance through recreational land use and vehicle damage have also exacerbated the problem. The latter activities continue to hinder full recovery of sites such as the National Nature Reserve at Cape Pembroke, East Falkland. Research into restoration practices is urgently needed to begin to tackle the large areas that are currently devoid of vegetation. In some coastal areas it is appropriate to plant Tussac *Poa flabellata*, and several such projects have and are currently taking place across the Islands. Again, further research is needed to inform best practices.

Invasive plants

241 introduced vascular plant species have been recorded in the Falkland Islands (R Lewis, pers. comm.; Broughton and McAdam, 2002c). Of these, 139 species have become naturalised with a subset of these having the ability to become invasive and out-compete the native flora, thereby also posing a serious threat (Lewis, 2012; Whitehead, 2008; Broughton and McAdam, 2002c). The introduced plant species currently posing the highest threats are Calafate *Berberis microphylla*, Gorse *Ulex europaeus*, Creeping Thistle *Cirsium arvense* and Spear Thistle *Cirsium vulgare* (Belton, 2008a; Belton, 2008b; Whitehead, 2008; Hartikainen, 2009). Such species are of equal concern to farmers and conservationists alike with their ability to smother native vegetation and to contaminate wool with serious economic implications.

Development (recreation/tourism and transport/infrastructure)

The drive for further development of the Islands is necessary for future safeguarding of the Falkland economy and is actively promoted by FIG policies. Development strategies should, however, be fully reconciled with the government's aim to safeguard threatened species and habitats (FIG, 2008a). A growing tourism industry is based on the wildlife of the Islands and therefore should not come at the expense of the latter. This also provides a key economic motivation for active conservation of threatened species and habitats as well as restoration projects to increase the wildlife value of sites. As new developments expand such as oil exploration so too are the transport capabilities and infrastructure of the islands. All these, again need to occur without degrading key biodiversity sites.

In terms of plant conservation in the Falkland Islands, major threats within the theme of development are irresponsible recreational activities, such as off-road driving, at key vulnerable sites and the building of roads etc. on sites of high biodiversity value.

Small population sizes

Small, isolated populations that characterise the majority of threatened plant species in the Falklands are inherently vulnerable to chance natural events. For example, there is a history of destructive fires from lightning strikes on islands across the archipelago.

Reduction in genetic diversity

Genetic erosion may be severely affecting populations of all threatened plant species by altering their genetic structure, reducing genetic diversity and thereby potentially decreasing their ability to cope in the face of, for example, climate change. Further research is needed to identify the most genetically diverse populations of each of our threatened species and so better inform conservation work. In the meantime, *ex-situ* conservation measures such as seed banking are being used to safeguard the flora.

Climate change

Climate change is an over-arching threat and it is very uncertain how species and habitats will respond. In the face of this uncertainty it is clear, however, that diverse ecosystems (both natural and managed) are the most resilient against changing conditions. So management of natural and productive landscapes should try to focus on maintaining high levels of diversity. Favourable management of plant diversity is vital both for limiting the impact of climate change, through plants' ability to fix carbon, as well as for giving species the best chance of coping with changes in their environment.

Site protection in the Falkland Islands

In the Falkland Islands, National Nature Reserves (NNRs) are currently the only way of legally designating a protected area. These sites are designated under the Conservation of Wildlife and Nature Bill (FIG, 1999). NNR designation signifies the biodiversity importance of a site within the Falkland Islands. Such sites can be either privately owned or Government owned. Where the site is privately owned it can be designated an NNR 'with the agreement of every owner, lessee and occupier' (FIG, 1999).

In addition to legally protected sites are the areas which several land owners across the Islands have chosen to manage as private reserves. This includes sections of coastline which have been fenced off in order to plant up eroded areas with Tussac.

Meeting targets of the Global Strategy for Plant Conservation

The Global Strategy for Plant Conservation (GSPC, <http://www.cbd.int/gspc/>) outlines 16 global targets for plant conservation that have been adopted by those countries which have ratified the Convention on Biological Diversity (CBD, <http://www.cbd.int/>). The adoption of the GSPC marks a major step forward for conservation by, for the first time, providing a means by which the aims of the CBD 'can be measured against targets and the progress made in achieving them assessed' (Anderson, 2002). Although the UK's ratification of the CBD has not yet been extended to the Falkland Islands, it is important that the Islands maintain an awareness of the current legislation with a view to complying wherever possible.

The 16 targets of the GSPC are grouped under five main objectives: Understanding & Documenting Plant Diversity; Conserving Plant Diversity; Using Plant Diversity Sustainably; Promoting Education & Awareness about Plant Diversity; and Building Capacity for the Conservation of Plant Diversity. Excellent progress has been made in understanding and documenting the plant diversity of the Falkland Islands (Broughton & McAdam, 2005; Broughton & McAdam, 2002a; Broughton & McAdam, 2002b). Baseline surveys carried out by Falklands Conservation and the Royal Botanical Gardens, Kew, between 2007 and 2010 have enabled an updated vascular plant list for native and naturalised taxa of the Falklands to be produced (Upson, 2012a; Lewis, 2012) and an updated international Red List has been submitted to the IUCN for review (R. Upson pers. comm.). A national Red List has now also been produced, which includes all globally threatened species as well as those species which may not be threatened worldwide but which are in danger of becoming extinct in the Falkland Islands (Upson, 2012b).

Now that such progress has been made in documenting the flora of the Falklands, the next vital step is to move forward in active conservation. With limited resources available it is important that priority sites are identified in order to protect those species and habitats most at risk. The next section outlines the globally threatened Falkland species and habitats.

Falkland globally threatened species

The following section brings together key information about the globally threatened species of the Falkland Islands; the aim is to promote their conservation by providing background information on their identification and biology. By defining a species as 'globally' rather than 'nationally' threatened we are specifying that the entire world's population is at risk of extinction.

Each species in this section has been assigned to its particular threat category through the application of accepted criteria developed by the World Conservation Union (IUCN). Overall there are nine Red List Categories for which a species can qualify: Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Near Threatened, Least Concern, Data Deficient, and Not Evaluated (IUCN, 2001). Every species can be placed into one of these categories and those that qualify as Critically Endangered, Endangered or Vulnerable can all be described as 'threatened' and are the focus of this section.

It is primarily their small population sizes and restricted ranges that make these six endemic Falkland species vulnerable to extinction.

Antarctic Cudweed



Family: Asteraceae

Common name: Antarctic Cudweed

Latin name: *Gamochaeta antarctica* (Hook. F.) Cabrera

Growth habit: Biennial herb

Flowering season: December – March

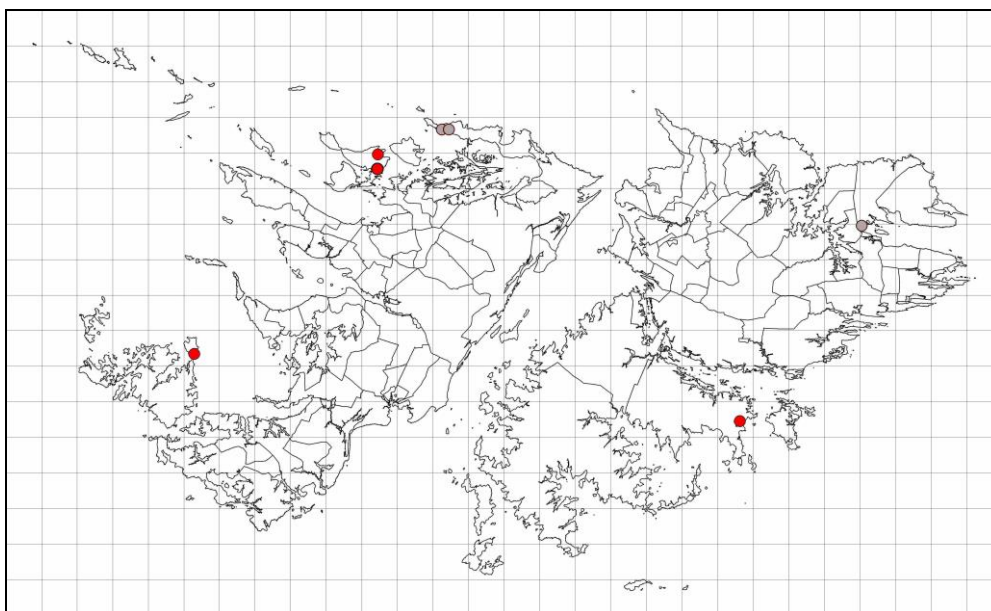
The rather delicate and hard to spot endemic Antarctic Cudweed *Gamochaeta antarctica* belongs to a genus within the Daisy family that includes 80 other species (Cabrera & Correa, 1971). Cudweed *Gamochaeta* species can be extremely difficult to differentiate, but the traits most commonly used are root structure, leaf shape, type and distribution of hairs and the shape of their floral bracts. All Cudweed species are native to the Americas, with most being known only from South America (Cabrera & Correa, 1971).

Identification

Reaching only 2-5 cm in height the Antarctic Cudweed *G. antarctica* is a tiny and delicate perennial/ biennial herb. Its leaves (5-15 x 2-6 mm) are hairless, shaped like a lance point or spoon in outline and attached at the narrower end. Leaves have a smooth margin and a central vein that extends beyond the leaf tip and is inwardly curved. The flower head is a terminal cluster of 2-5 (rarely solitary) tiny flowerheads (each 3-5 x 1.5-2.0 mm) which are more or less cylindrical, stalkless and surrounded by acutely pointed scales up to 5 mm in length. The minute seeds are cylindrical with a feathery white parachute about four times the length of the seed.

The Antarctic Cudweed *G. antarctica* could be confused with the Falkland Cudweed *Gamochaeta malvinensis*. However, the latter has leaves that are moderately hairy on both sides. Although much smaller than both, the Antarctic Cudweed *G. antarctica* also bears some resemblance to the Spiked Cudweed *G. spiciformis* and American Cudweed *G. americana*, but these species have leaves that are moderately hairy above and densely hairy below giving the underside of the leaves a white appearance.

Distribution



Distribution of Antarctic Cudweed *Gamochaeta antarctica* across the Falkland Islands, showing populations recorded in the mid 1990s which have not been relocated since (grey), populations recorded/ last surveyed since 1980 (red).

Habitat

First described by Hooker (1847), the Antarctic Cudweed *G. antarctica* was found 'amongst grass... very sparingly'. It is currently known from diverse inland and coastal Diddle-dee *Empetrum rubrum* dwarf shrub heath and Whitegrass *Cortaderia pilosa* acid grassland, and has previously been recorded growing on sand with Sea Cabbage *Senecio candidans*, Native Rush *Juncus scheuchzerioides* and Sheep's Sorrel *Rumex acetosella* as well as in rock crevices. Its altitudinal range is 0–73 m.

Threat status

Antarctic Cudweed *G. antarctica* is currently known from only three IUCN locations, although populations have been recorded at 3 additional sites in the past. However, whilst these latter populations are in doubt, the red-listing cannot take them into account. This species qualifies for the IUCN threat category Endangered B2ab(iii) (Upson *et. al.* 2012c).

Ecology

Little is known about the ecology of this species but it appears to occur in the same range of habitats as the Falkland Cudweed *G. malvinensis*, with both co-occurring at the two sites most recently surveyed.

It is thought that most species within the genus *Gamochaeta* produce seeds through self-fertilisation, owing to the tiny, non-showy flower heads that barely open. In general, it is common to find several different species of *Gamochaeta* growing at the same site, as has been found for the Falkland species. Because of their tendency for self-fertilisation, these can occur in close proximity without hybridisation.

Falkland Rock-cress



Family: Brassicaceae

Common name: Falkland Rock-cress

Latin name: *Phlebolobium maclovianum* (d'Urv.) O.E. Schulz

Growth habit: Perennial herb

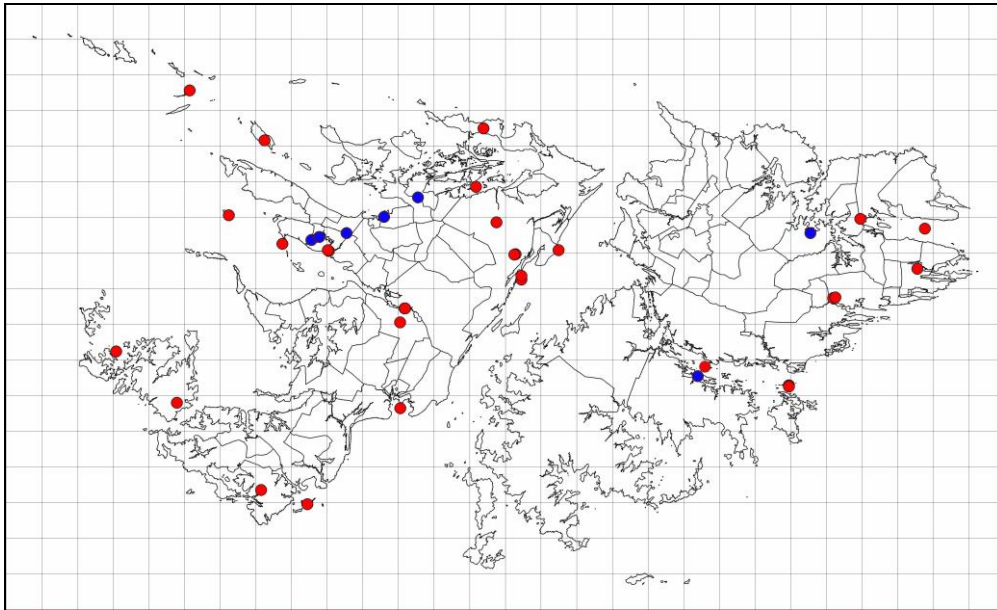
Flowering season: November – January

There are few members of the Cabbage family (Brassicaceae) that are native to the Southern Hemisphere, with most species occurring around the Mediterranean basin and southwestern/central Asia (Heywood *et al.*, 2007). The Falkland Islands have five native Cabbage family species with Falkland Rock-cress *Phlebolobium maclovianum* being the only endemic and also the only species in this genus.

Identification: An erect, hairless perennial with a distinctive growth form, it can reach up to 60 cm in height. It has simple leaves and usually more than one tough stem rising from the base. The basal leaves all have stalks, are arranged in a rosette and are oblong to elliptic/ lance-shaped (about 32-40 x 6-11 mm) with a pointed tip and margins which are serrated to smooth. Leaves attached to the stems are positioned alternately, much narrower and without an obvious stalk. Flowers are arranged in dense clusters (5-20 cm in length) at the top of stems. Each tiny white flower has four petals (each 6-8 x c. 3 mm) arranged in a cross. The seed pods are long and thin (17-25 x 2.0-2.5 mm) and open from the base to release the seeds.

The flowers and fruits of the Falkland Rock-cress *P. maclovianum* could be confused with the common Bitter-cress *Cardamine glacialis*, however the latter has divided rather than undivided leaves.

Distribution



Distribution of *Phlebotobium maclovianum* across the Falkland Islands showing subpopulations recorded/last surveyed since 1980 (red) and those recorded/last surveyed before 1980 (blue).

Habitat

Ranging in altitude from sea level to 300 m, Falkland Rock-cress *P. maclovianum* is generally known to grow tucked away on rocky outcrops, ledges of sheltered coastal cliffs or within upland Small-fern *Blechnum penna-marina* beds. Occurrences on ungrazed islands suggest a broader habitat range, with records of subpopulations within coastal Bluegrass *Poa alopecurus*/ Fuegian Couch *Elymus magellanicus* grassland, Tussac *Poa flabellata*, Native Boxwood *Veronica elliptica* scrub, Cinnamon-grass *Hierochloa redolens*-dominated grassland with scattered Tussac *P. flabellata*, lowland Small-fern *B. penna-marina* beds and coastal Diddle-dee *E. rubrum* dwarf shrub heath. All data on maximum vegetation height for the various sites suggest a minimum of 0.5 m in the grazed sites, possibly reflecting a less accessible refuge site.

Threat status

This species was reported as 'abundant on the sea coast' by Hooker (1847), one of the early botanists to visit the Falklands but is now considered rare. This provides evidence of a significant population reduction. There is evidence that grazing has caused this inferred contraction in range and most extant subpopulations are severely fragmented, small and restricted to areas free of livestock. Approximately 29 subpopulations are currently known, although some of these are historical records that have not been relocated since 1867-1951. Detailed data are available for 13 subpopulations, the average size of which is 16 individuals. The largest two subpopulations have roughly 100 individuals. Overall, there are estimated to be fewer than 1000 individuals in the total population.

The species qualifies for listing as Vulnerable under the criteria for extent of occurrence and area of occupancy plus the population size, however, it also qualifies for an Endangered listing under the area of occupancy, hence following the rules the Falkland Rock-cress is listed as Endangered B2ab(iii) (Upson *et. al.* 2012d).

Ecology

Little is known about the ecology of this species. It does not appear to have a preferred aspect, having been recorded at east-, west-, south- and northwest-facing sites.

False-plantain



Family: Calyceraceae

Common name: False-plantain

Latin name: *Nastanthus falklandicus* Rahn

Growth habit: Perennial rosette

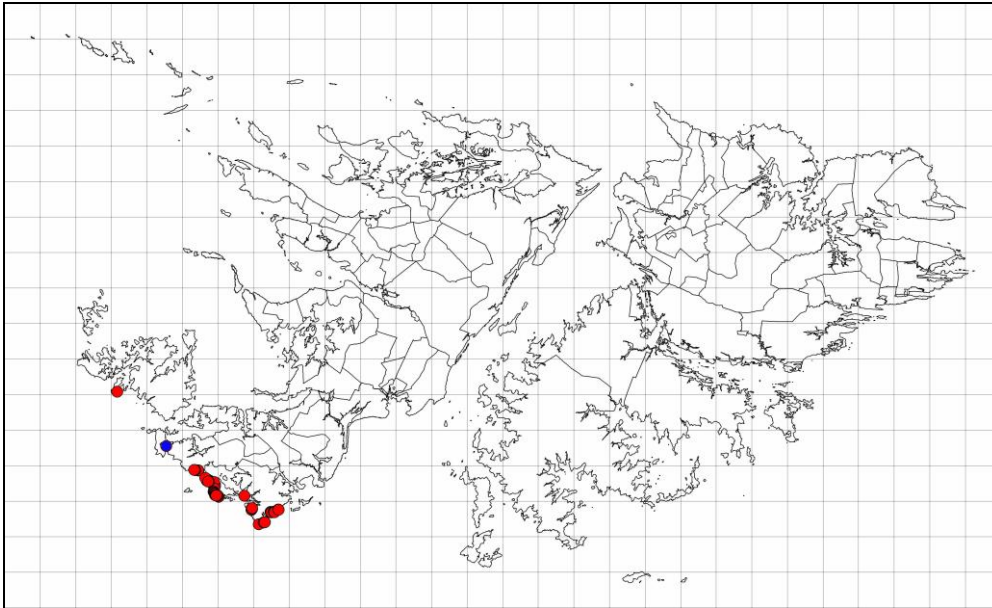
Flowering season: December – March

First recorded in 1964 in the Ten Shilling Bay area of Port Stephens (Moore, 1968), the False-plantain *Nastanthus falklandicus* is one of the most range-restricted endemics of the Falkland Islands. This unusual-looking plant is a member of a rather exclusive family, the Calyceraceae, which is restricted to South America (Heywood *et al.*, 2007). The Calyceraceae is closely related to the Daisy family (Asteraceae) and includes around 60 species grouped into six genera (Heywood *et al.*, 2007). *Nastanthus* is one of the most species-rich of these genera and grows mostly in dry open scrub or steppe vegetation (Heywood *et al.*, 2007).

Identification

False-plantain *N. falklandicus* has acquired its local name because from a distance it is possible to mistake the compact circular mounds of some smaller non-flowering individuals for particular growth forms of the native Thrift Plantain *Plantago barbata*. The False-plantain *N. falklandicus* has hairless, rather fleshy leaves (12-40 mm x 2-4 mm), which are spatula-shaped and a brighter green than the Thrift Plantain *P. barbata*. Its flowers are very different from the latter species with stems up to 20 mm bearing a group of tightly packed white flowers. The cluster of flowers is 4-8 cm in diameter and most commonly hemispherical but can take on a range of beautifully abstract shapes. Each flower is a delicate five-lobed tube and at just 3 mm in length it is tiny.

Distribution



Distribution of False-plantain *Nastanthus falklandicus* across the Falkland Islands showing populations recorded/ last surveyed since 1980 (red) and those recorded/ last surveyed before 1980 (blue).

Habitat

False-plantain *N. falklandicus* can be found between 15-100 m above sea level, growing in exposed coastal sites that are strongly influenced by sea-spray and where ground cover is generally low with a sand, sandy peat or gravel substrate. Co-occurring species are the coastal Shore Meadow-grass *Poa robusta*, Wild Celery *Apium australe* and Emerald-bog *Colobanthus subulatus*.

Threat status

False-plantain *N. falklandicus* qualifies for the IUCN threat category Endangered B1ab(i,ii,iii,v)+2ab(i,ii,iii,v) (Upson *et al.* 2012e)

Ecology

Little is known of the biology of the False-plantain *N. falklandicus*. With its close to the ground rosette habit, the False-plantain *N. falklandicus* is well adapted to dry and windy conditions. The rosette arrangement of leaves affords protection from the wind to the inner, younger leaves as well as to the developing flowers and helps to reduce evaporative water loss. Its strong taproots make it ideally suited to the well-drained, erosion-prone sites where it grows.

The subterranean stem of an individual plant can branch to create a group of rosettes and thereby almost form a cushion in some cases. Each individual rosette dies after fruiting. Individuals that only form a single rosette are therefore monocarpic – these are frequently observed in the field (R. Upson pers. comm.). This habit is also found in other *Nastanthus* species (Ladd and Arroyo, 2009) and helps to explain why the population structure of False-plantain *N. falklandicus* is skewed towards non-reproductive rosettes (Upson, unpublished data). Further research is needed into the reproductive biology of False-plantain *N. falklandicus* as it is not known, for example, what pollinates the flowers.

Hairy Daisy



Family: Asteraceae

Common name: Hairy Daisy

Latin name: *Erigeron incertus* (d'Urv.) Skottsberg

Growth habit: Perennial herb

Flowering season: November – early January

Hairy Daisy *Erigeron incertus* is a widespread but rare endemic of the Falkland Islands. There are over 400 species of *Erigeron* worldwide, with the genus being particularly numerous/ species rich in arid and semiarid regions of subtropical and lower to middle temperate latitudes.

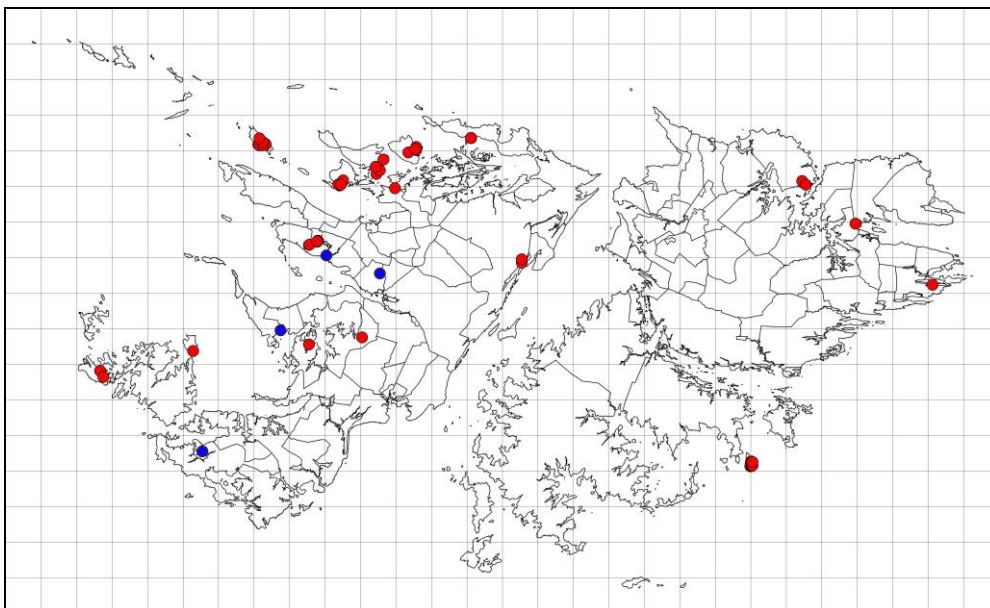
Identification: Perennial grey-green daisy. It has densely hairy, oblong leaves (15-30 x 5-10 mm) in a rosette at the base from which the flower stem ascends (up to about 15 cm) and smaller, narrower leaves below the single large flower head. The flower head is 10-15(-20) mm in diameter and surrounded by reddish-purple leaf-like scales that are hairy on the outside. Outer flowers in the flower head are white or pinkish-purple, whereas inner flowers are yellow. The seeds are densely hairy, with a bristly, yellowish parachute (c. two-thirds as long as the seed).

In the Falkland Islands, Hairy Daisy *E. incertus* could be confused with the Marsh Daisy *Aster vahlii* or the introduced Daisy *Bellis perennis*. Marsh Daisy *A. vahlii* has hairless or only sparsely hairy leaves and a parachute that is longer in length than the seed. Daisy *B. perennis* on the other hand has no stem leaves and its seeds do not have a parachute. The habitats of these species also differ to Hairy Daisy *E. incertus*, with Marsh Daisy *A. vahlii* occurring in damp places and Daisy *B. perennis* generally only found on greens, disturbed ground or grassland near settlements.

Habitat

The Hairy Daisy *E. incertus* occurs in dry places within Diddle-dee *Empetrum rubrum* dwarf shrub heath on coastal slopes or farther inland on exposed rocky ridges. On Motley Island, which has been ungrazed since 1992, several populations occur within open Bluegrass acid grassland. This calls into question the extent to which its current distribution is a result of seeking refuge from grazing rather than a preference.

Distribution



Distribution of *Erigeron incertus* across the Falkland Islands, showing locations of populations recorded/ last surveyed since 1980 (red) and those recorded/ last surveyed before 1980 (blue).

Threat status

Hairy Daisy *E. incertus* qualifies for the international IUCN Red List threat category of Endangered, B2ab(iii) (Upson *et. al.* 2012f).

Ecology

At present the distribution of the Hairy Daisy *E. incertus* appears to be at least partly determined by grazing pressure, with the largest populations occurring where there is light or no grazing. Its shade tolerance is not known, however it is generally found in open vegetation.

Hairy Daisy *E. incertus* can spread vegetatively via rhizomes. It is most likely that this occurs only over very short distances as the plant has the appearance of growing in 'clumps'. Because of this it can be difficult to identify individuals.

Pollination of the Hairy Daisy *E. incertus* is most likely facilitated by insects but there are no records of those species involved. The breeding system of Hairy Daisy *E. incertus* is unknown. Some species of *Erigeron* have evolved to produce seed asexually (Noyes, 2000). Therefore, research is needed to find out whether this is the case for *E. incertus* and, if so, what impact this has had on levels of genetic heterogeneity across and within subpopulations.

Falkland Nassauvia

Family: Asteraceae

Common name: Falkland Nassauvia

Latin name: *Nassauvia falklandica* *in ed.*

Growth habit: Perennial herb

Flowering season: December – January

The Falkland Nassauvia *Nassauvia falklandica* *in ed.* (Upson *et al.*, in prep.) is the most recent addition to the endemic species list of the Falklands and has yet to be fully described. Further information on this exciting find will be included in this directory after its formal publication.

Moore's Plantain



Family: Plantaginaceae

Common name: Moore's Plantain

Latin name: *Plantago moorei* Rahn

Growth habit: Perennial cushion

Flowering season: December – January

The beautiful silvery Moore's Plantain *Plantago moorei* cushion plant is endemic to the Falkland Islands. Being a member of the Plantain family, its closest relative within the Islands is likely to be the native Thrift Plantain *Plantago barbata* which is also morphologically most similar. The latter species is widespread and common across the Islands, whereas Moore's Plantain *P. moorei* has a very narrow geographical range. The reason for its rarity is not yet understood.

Identification:

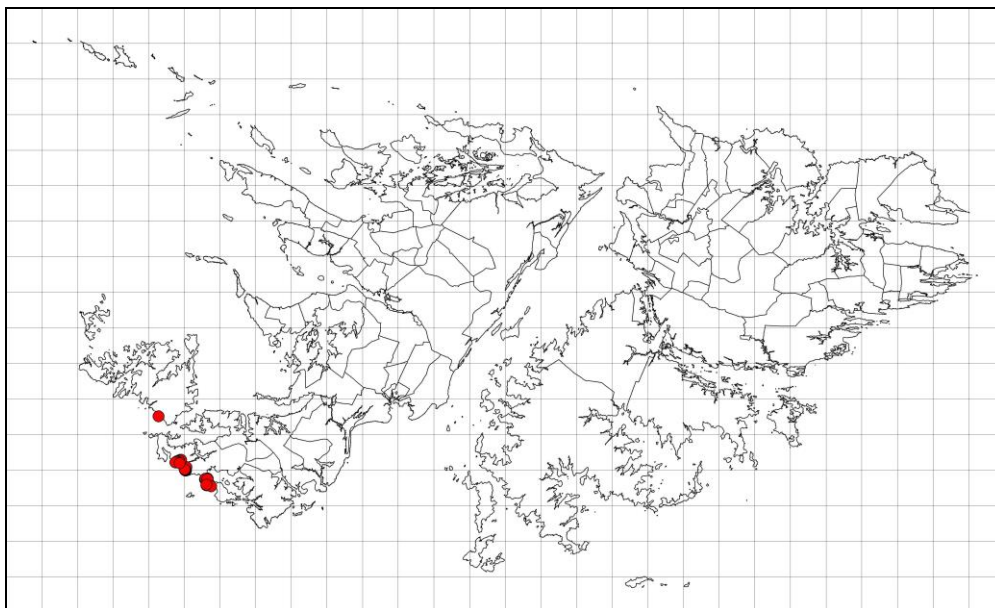
Moore's Plantain *Plantago moorei* forms small, flat groups of rosettes that grow into low cushions and large hummocks up to 1.5 m in diameter and 23 cm high. It is distinguished by its leaves (up to 13 mm long and 3.6 mm wide), which are densely white-hairy on the upper surface and smooth beneath. There are usually two tiny flowers, occasionally only one, below a pair of hooded scales (about 3 mm long). The most prominent feature of this plant is the hummock of densely packed silvery-grey leaves.

Although superficially resembling the Thrift Plantain *Plantago barbata*, it can be identified by the hairy leaves, the generally grey appearance of the plant and the fact that the leaves are not shiny. There is also some similarity to the Balsam-bog *Bolax gummifera*, but the leaf shape is different, with Moore's Plantain *P. moorei* having a simple pointed tip while the Balsam-bog *B. gummifera* has a prominently three-lobed tip which is often strongly curved.

Habitat

Moore's Plantain *P. moorei* is associated with dry, exposed, strongly salt-spray influenced N/ NW/ W/ SW-facing slopes. Most populations occur within coastal dwarf shrub heath but also coastal cushion heath dominated by Coastal Nassauvia *Nassauvia gaudichaudii* or the Wiry Azorella *Azorella filamentosa*-Thrift Plantain *Plantago barbata* association. Several populations also occur within coastal (saline) grassland dominated by Fuegian Fescue *Festuca magellanica*. The maximum vegetation height across all populations is 25 cm, showing that individual cushions, although in some cases attaining large diameters, are remaining close to the ground.

Distribution



Distribution of Moore's Plantain *Plantago moorei* across the Falkland Islands showing populations recorded/last surveyed since 2007.

Threat status

Moore's Plantain *Plantago moorei* qualifies for the IUCN threat category Endangered, B1ab(i,ii,iii,v)+2ab(i,ii,iii,v) (Upson *et al.* 2012g).

Ecology

One of the key morphological traits of Moore's Plantain *Plantago moorei* that distinguishes it from the co-occurring Thrift Plantain *Plantago barbata* is that its leaves are densely covered by white and coarse hairs. Leaf hairs can perform a variety of functions and their benefit to Moore's Plantain *P. moorei* has yet to be investigated. It may be that its leaf hairs increase the boundary layer of still air around the leaves to such an extent that there is a reduction in evaporative water loss during the prevailing dry and windy conditions (Lambers *et al.*, 1998). An increased boundary layer around the leaves may also act to increase leaf temperature in this cool temperate climate to levels more favourable for physiological processes. Alternatively, with the Falklands exposed to relatively high levels of UV, the white leaf hairs' primary role may be to reflect short peaks of high UV radiation, preventing cell damage (Yang *et al.*, 2008). Moore's Plantain *P. moorei* is also likely to be exposed to high levels of salty sea spray, so perhaps the leaf hairs are beneficial through providing an increase in leaf water repellence.

The tightly packed leaves of cushion plants such as Moore's Plantain *P. moorei* make them ideally adapted to exposed conditions as the whole cushion effectively behaves as one giant leaf, substantially increasing the boundary layer of still air around the plant, which in turn can increase water use efficiency and leaf temperature as mentioned above. These conditions suggest that Moore's Plantain is likely to act as a useful 'nursery' plant for other species, as has been shown for Balsam-bog *Bolax gummifera* and other cushion plants (Cavieres *et al.*, 2007; Cavieres *et al.*, 2002). Recent molecular work suggests that this function may also apply to the establishment of Moore's Plantain itself as it appears that a single cushion is made up of more than one individual (RS Cowan pers. comm.).

Molecular work has also shown that the outlying subpopulation of Moore's Plantain on Weddell Island is genetically distinct from those subpopulations on West Falkland (Stevens *et al.*, in prep.). This emphasises the importance of conserving Moore's Plantain across its range in order that the maximum within-species diversity is safeguarded.

Falkland threatened habitats

The following section summarizes key features of five threatened habitat types in the Falkland Islands: Bluegrass acid grassland, Bluegrass dune grassland, native Boxwood scrub, Fachine Scrub and mainland Tussac. The list of threatened habitats should be considered preliminary at this stage as it is based on our current limited knowledge of the extent of these habitat types and the degree to which they are likely to be threatened. Individual species have to date received more attention than particular habitats because of the greater knowledge base we have in this area.

The data we have on habitat distributions is growing year on year and as this accumulates we can, in turn, update the current list of vulnerable habitats. It is worth remembering that the IPA project is dynamic and therefore as more knowledge is gained it can be incorporated into the system.

Initially mainland Tussac was included as a primary selector of an IPA site where it was possible to identify the sites which together contain roughly 20-60% of the national resource; Tussac can be easily spotted using GoogleEarth imagery. Upon further consideration, this cannot be classed as a threatened habitat of global concern because the distinction between mainland Tussac and other Tussac stands, such as those on outer islands in the Falklands, is relevant only on a national scale. Mainland Tussac has still been included here simply because it is such an ecologically important habitat. No sites were selected solely on the basis of this habitat but where it occurs it is highlighted in the site summary.

At present, the extent of Bluegrass grasslands or Native Boxwood scrub in South America is unknown, thus it was not possible to assess the threat status of these habitats from a regional perspective. In the absence of such data it is assumed that their threatened status within the Falklands is globally significant. Fachine scrub covers large areas of Tierra del Fuego but is included here because of the unique associations formed with species endemic to the Falklands.

The current analysis has highlighted other habitat types that may be threatened but for which we need to gather more detailed information; a variety of wetland communities, in particular, deserve more attention.

Bluegrass acid grassland and Bluegrass dune grassland

As commented by Hooker (1847), aside from Tussac, Bluegrass 'is the largest grass in the Falkland Islands'. Bluegrass is extremely variable in form to the extent that in the past it has been split into two species (e.g. Skottsberg, 1913).

Description

Bluegrass-dominated grasslands occur on dunes and other sandy coastal sites, as well as farther inland on peat soils. At lowland sites on peat the main associated species appear to be the same as those that would be found in equivalent Whitegrass acid grassland. For example, Christmas Bush and Small-fern alternate to form the dominant ground covers. At upland sites where Bluegrass meadow occurs, Magellanic Fescue forms a prominent component of the vegetation, along with extensive lichen cover. The endemic Silvery Buttercup has been recorded within this latter association. On coastal sites on sand, the most commonly co-occurring species in Bluegrass meadow is Wild Celery.

Distribution

Bluegrass was assessed by Hooker (1847) as being 'most abundant' and he described it occurring on sandy shores and in rocky places both near the sea and up on the hills. In contrast and over 60 years later, Skottsberg (1913) states that the form he distinguished in part owing to the rigidity of its leaves 'I have met with it only once: West Falkland Fox Island, among rocks near the shore.'



Inland across East and West Falkland, the majority of lowland acid grassland is currently dominated by Whitegrass, whereas on some ungrazed offshore islands, such as Motley Island, it is Bluegrass which dominates inland on peat soils. At present, there are only two inland East/ West Falkland records of extensive areas covered by Bluegrass meadow, which are both ungrazed upland sites.

There are currently no records of mainland coastal sites dominated by Bluegrass, although this habitat appears to be in recovery on the sand/ dunes north and directly south of Surf Bay, East Falkland. On offshore islands, this habitat occurs on the coast on sand and inland on peat at ungrazed/ inaccessible locations.

Although assessed as 'so harsh and rigid as to be quite unpalatable to cattle' by Hooker (1847), it is clear from early records and present day observations in several un-grazed areas that the introduction of livestock had a great impact on the occurrence of Bluegrass-dominated grasslands.

Ecological importance

It is not clear how/ whether these habitat types differ ecologically from Whitegrass acid grassland or introduced dune communities dominated by Marram grass *Ammophila arenaria*. Studies are needed to investigate their ecological importance and possible associated fauna such as particular invertebrates/ fungi etc. As colonisers of sand this is a possible native alternative (to Marram monocultures) for the planting of eroded sandy sites and dune stabilisers. It is expected that the

grazing value of Bluegrass acid grassland be higher than that of Whitegrass acid grassland, owing to the fact that livestock appear to selectively graze it, however this needs research.

Boxwood scrub

Boxwood is a coastal shrub that is shared with Tierra del Fuego and southern Chile as well as North, South, Stewart, Snares, Auckland and Campbell Islands of New Zealand (Wagstaff and Garnock-Jones, 1998). Molecular studies point towards a relatively recent origin for Boxwood in South America, around the late Miocene/ Pliocene (Wagstaff *et al.*, 2002; Wagstaff and Garnock-Jones, 1998). Oceanic birds are suggested as the vector of such long range dispersal (Godley, 1967).



Mature Boxwood growing on Split Island. Photograph by R. Woods.

Description

In contrast to Fachine scrub, Boxwood scrub is formed entirely by this and no other vascular species. Boxwood scrub can reach heights of up to 2 m.

Distribution

The original distribution of Boxwood within the Falkland Islands appears to have been restricted to West Falkland and the western outer islands, with all historic records originating from these areas.

In terms of fully developed scrub, this is currently only known to occur on Split Island and Tea Island. Previously it would have most likely extended over larger areas but it is noted that 'sheep nibble the bark on branches, thus killing them' (Skottsberg, 1913) so its current distribution is mostly represented by individual shrubs growing along the coast, on steep cliffs or sections of inland rock which are reasonably inaccessible.

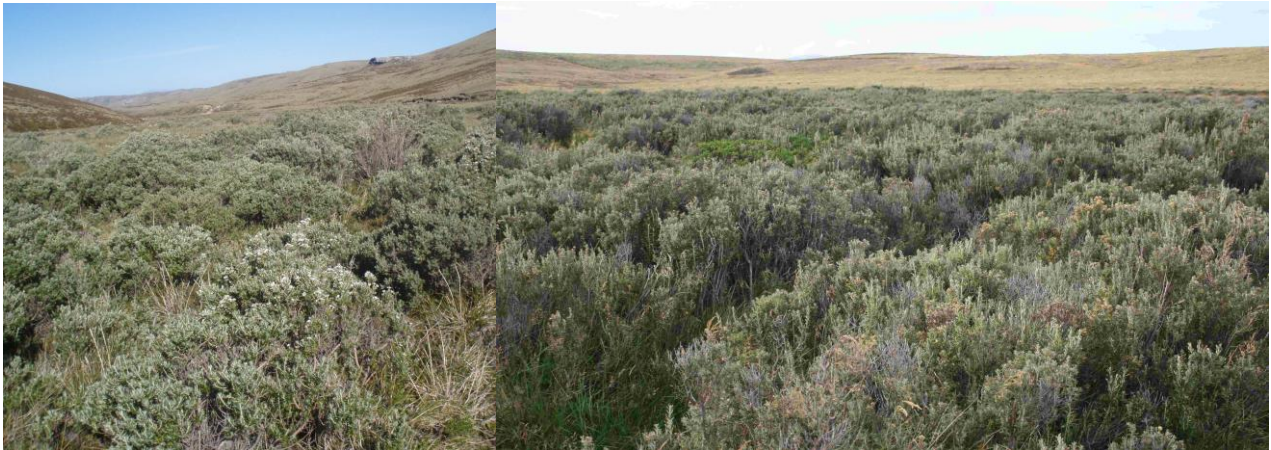
Skottsberg (1913) describes scrub formed on Fox Island as 'some of the most luxuriant specimens of the Falklands and in fact, I never saw larger ones in South America. The two tallest bushes were 1.5 m with thickest stem 5.7 cm in diameter, and 2 m, 5.5 cm respectively.' These stands of Boxwood scrub are now gone from Fox Island (S Poncet, pers. comm.).

Ecological importance

In an environment where scrub forms one of the tallest habitats, Boxwood scrub may serve a variety of roles relating to its ability to act as a windbreak and shelter. For example, its ability to decrease wind speed close to the ground may be important in some areas in acting to decrease wind erosion, especially where it occurs at coastal sites. Boxwood appears to be able to grow on a range of soils including clay and so may be a useful species for replanting of eroded areas.

Native Boxwood scrub is likely to be an important habitat for lichens (A Fryday, pers. comm.), invertebrates and fungi and also in providing shelter and nesting habitat for birds such as thrushes and siskins.

Fachine scrub



Description

Areas of scrub generally have an understorey dominated by Small-fern, Whitegrass and Pigvine or alternatively by Native Rush. Christmas Bush can produce lush growth in association with Fachine scrub, reaching up to 0.7 m. At maturity, individual Fachine bushes may reach up to 2 m in height.

Distribution

Hooker (1847) noted Fachine to be the tallest dicot in the Falklands, other than the native Boxwood. Fachine can form dense, continuous scrub in damp areas with reasonable drainage, often in association with running water. There are no records of mature continuous Fachine scrub currently occurring on East Falkland despite many apparently suitable locations (e.g. in the extensively surveyed Elephant Beach Farm). This trend may be linked to the longer grazing history of the East or to other land management practices.

There are currently four locations on West Falkland known to have reasonable stands of Fachine scrub and large stands were also observed on Weddell Island. Keppel and, to a greater extent, Saunders Island have several areas with reasonable stands of Fachine scrub. These data suggest that if managed correctly Fachine scrub can survive in grazed areas and should also be of benefit to livestock in the form of shelter. Posse *et al.* (1996) note that in the steppe region of Tierra del Fuego, Fachine tends to be only eaten by sheep during seasonal food scarcity.

In contrast to all sites from which Fachine scrub is currently known, Skottsberg (1913) recorded it growing on loose sand on Fox Island. What was not noted, however, was whether the depth down to soil was measured, as it is likely that the Fachine roots would have reached far down to the underlying substrate.

Ecological importance

In an environment where scrub forms the tallest inland habitat type, Fachine scrub may serve a variety of roles relating to its ability to act as a windbreak and shelter. As for Boxwood scrub, its ability to decrease wind speed close to the ground may be important in some areas in acting to decrease wind erosion.

This habitat also appears to provide suitable conditions for the establishment of other plant species. Fachine scrub is known to grow in association with the endemic Silvery Buttercup at three sites on West Falkland and several sites on Weddell Island. In addition, the endemic Snakeplant is found growing within Fachine scrub at four sites on West Falkland. A possibly unique association is also formed between Fachine scrub and the scarce Coral Fern in at least one and possibly several locations on West Falkland.

Fachine scrub is an important habitat for birds such as the Grass Wren and also likely to be a good habitat for lichens, bryophytes, invertebrates and fungi (Jalink & Nauta, 1993).

Mainland Tussac



It is likely that the Falkland Islands hold a significant proportion of the world's Tussac and are therefore of international importance for this habitat.

Description

Tussac is formed by almost pure stands of the grass *Poa flabellata*. Mainland tussac, occurring on either East or West Falkland, has suffered the greatest overall decline in area coverage. It is these areas that have been inhabited for longer periods of time.

Distribution

During his visit to the Falklands, Skottsberg (1913) noted that at that time, although 'frequent on small, unstocked islands', Tussac was hardly found 'except on rocky, inaccessible places'. In comparison, Hooker (1847) recorded Tussac as abundant in the Falklands. This suggests that over the 60 years between the two dates, which corresponds to the time that sheep farming began, there had been a serious decline in the amount of Tussac.

Hooker (1847) notes the ability of Tussac to thrive in 'pure sand near the sea', where it gained nutrients from decaying seaweed as well as copious amounts of animal manure from birds and seals. Governor Moody (in Hooker, 1847) noted 'Tussock flourishing most rigorously in spots exposed to the sea, and on soil unfit for any other plant, viz. the rankest peat-bog, black or red.' In contrast, Skottsberg (1913) commented 'mostly one sees nothing at all of *Poa flabellata* on sandy sea-shores'. Instead, Skottsberg saw coastal sites backed by mobile sand where from Hooker's accounts Tussac would be expected (Skottsberg, 1913). Skottsberg (1913) recorded sites where the remains of dead Tussac pedestals were still visible and heath plants were beginning to encroach.

Early accounts generally suggest that East and West Falkland were not once entirely encircled by a rim of Tussac. It is clear, however, that the extent of cover was significantly greater than today, with a reduction of over 80% estimated by Strange *et al.* (1988). Specifically, Strange *et al.* (1988) estimate that c. 9,900 ha of Tussac historically occurred along the coasts of East and West Falkland. In 1988 only c. 65 ha of mainland Tussac remained.

Ecological importance

Tussac forms a significant habitat for birds including, petrel and prion species, the endemic Cobb's Wren *Troglodytes cobbi* and Short-eared Owl *Asio flammeus sanfordi*, and a globally important Falkland Islands population of Striated Caracara *Phalacrocorax australis*. A unique invertebrate fauna is also associated with the habitat (Fuller, 1995). Tussac stands are almost pure monocultures, but they do appear important for the conservation of Sword-grass *Carex trifida* which is almost entirely restricted to this habitat.

Uncontrolled grazing of Tussac leads to coastal erosion. Therefore, Tussac also has a high soil and landscape conservation value.

PART II

Important Plant Areas - overview

The Important Plant Areas concept

The Important Plant Areas (IPA) programme, coordinated by Plantlife International and IUCN, provides a framework for the identification of those areas most important for plant conservation. The identification of such sites is a first step towards working with landowners to develop favourable management of sites for any species at risk. The IPA programme aims to: 'identify and protect a network of the best sites for plant conservation throughout Europe and the rest of the world, using consistent criteria' (Anderson, 2002).

The IPA label is not a legal designation and 'protect' in this context encompasses a broad spectrum of actions from setting up long term monitoring schemes for key species, setting the land aside, managing it in a way that has minimal impact upon vulnerable species to organising urgent work needed, for example to prevent the spread of invasive species. A key benefit of identifying such sites is to allow better targeting of long term monitoring and survey work so that we can better understand, for example, how broader factors such as climate change are impacting on the environment. In addition, these sites enable rational prioritisation of conservation action, such as the control of invasive species, to sites that are most important from a global perspective.

The 'importance' of a given area with respect to plant diversity is defined on a national and/ or regional basis according to whether a natural or semi-natural site exhibits botanical richness and/ or supports an outstanding assemblage of rare, threatened and/or endemic plant species and/ or vegetation of high botanic value (Anderson, 2002). To qualify as an IPA, a site needs to satisfy one or more of the following criteria:

Criterion A: The site holds significant populations of one or more species that are of global or regional conservation concern.

Criterion B: The site has an exceptionally rich flora in a regional or national context in relation to its biogeographic zone.

Criterion C: The site is an outstanding example of a habitat or vegetation type of global or regional plant conservation and botanical importance.

The identification of IPAs is intended to include data on algae, fungi, mosses, liverworts and lichens as well as vascular plants. Due to limited resources these taxa have not been included in identifying Falkland IPAs.

Important Plant Areas of the Falklands

Using all known botanical records and two years of targeted field work, the application of the above criteria has identified 17 Important Plant Areas (IPAs) across the Falkland Islands (see Upson *et al.* 2010 for detailed discussion of methodology). This marks a vital step forward for plant conservation work in the Falkland Islands.

In the Falkland Islands, 14 IPAs were selected primarily on the basis of criterion A. One IPA was selected solely on the basis of criterion B and two primarily through criterion C. This reflects the greater knowledge held on individual species' distributions than habitat coverage and also the larger amount of presence-absence rather than community level data.

Across the Falklands two IPA sites are National Nature Reserves (Cape Pembroke and Chartres Horse Paddock) and two are Falklands Conservation reserves (Middle and Motley Islands). Two IPAs are owned by the Falkland Islands Government (Cape Pembroke and Hill Cove Mountains).

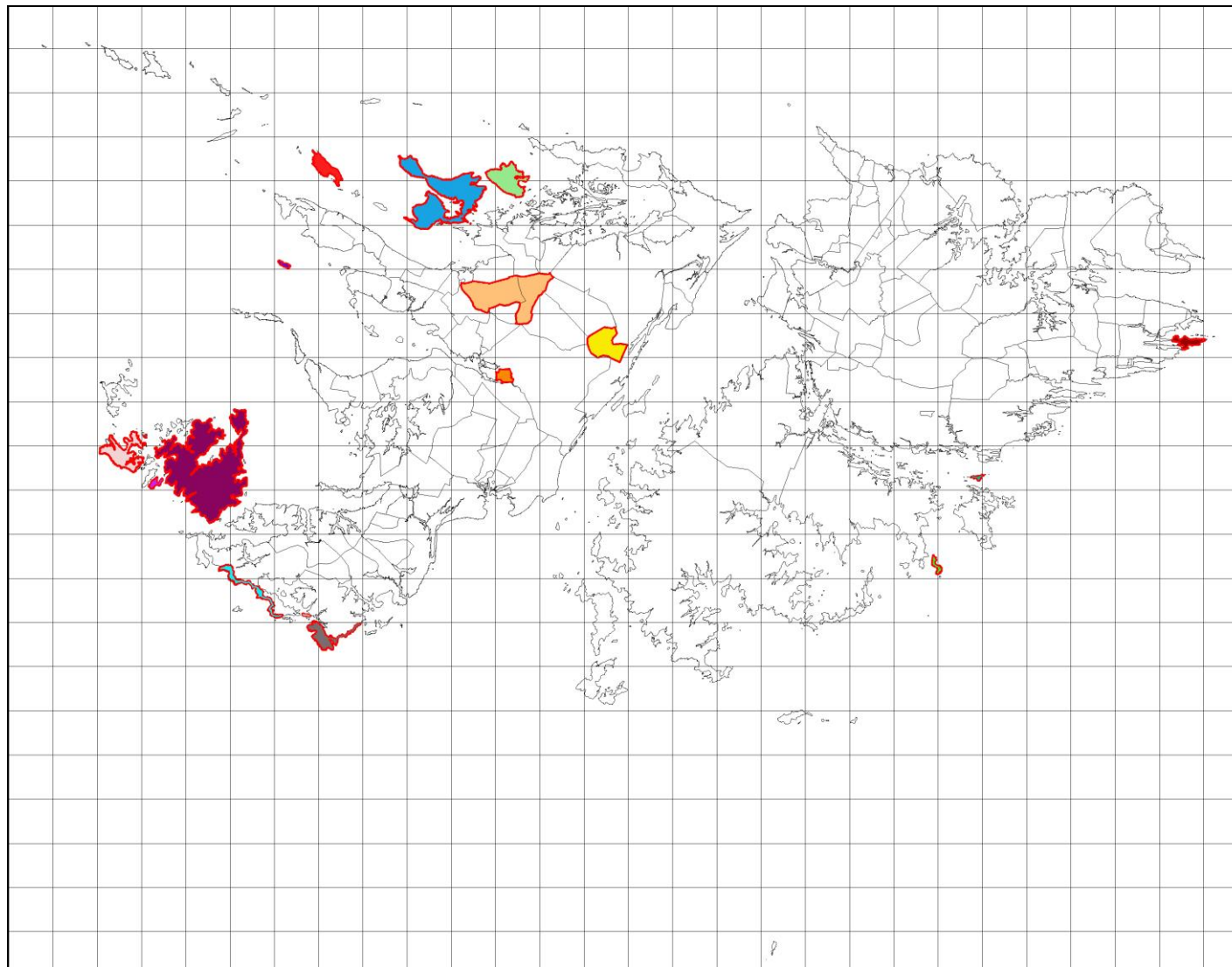
All other IPA sites are privately owned. Progress with plant conservation in the Falkland Islands is therefore dependent on developing workable solutions with individual landowners, using a site-based approach to address the particular needs of a given IPA.

With only three IPA sites also identified as Important Bird Areas (Saunders Island, Beaver Island and Keppel Island; Falklands Conservation, 2006), it is clear that sites that are vital to key threatened plant species are not necessarily associated with key bird colonies. More broadly, this emphasises the importance of considering as many taxa as possible when identifying key areas for conservation.

An analysis of threats to plants and habitats across the 17 IPAs (using procedure for classifying threats outlined by Anderson, 2002) has shown that soil erosion and invasive species pose a high threat at two and three IPA sites respectively. Agriculture and recreational off-road driving each pose a high threat at single IPA sites. Soil erosion and livestock grazing threaten particular species or habitats at the largest number of sites, with 12 (71 %) and 10 (59 %) of the IPA sites affected respectively.

The identification of IPAs allows an objectively justified plant conservation strategy to be developed around these key sites. It must be remembered that there are also sites of national importance that have not been included in this directory but which are still important to plant conservation. These will be highlighted in later work and are largely based around the national Red List (Upson, 2012b). Although not threatened on a global scale, these species are locally in danger of extinction and therefore of national importance.

The Important Plant Areas of the Falkland Islands



Key to IPA sites

- IPA01 Albermarle
- IPA02 Cross Island
- IPA03 Beaver Island
- IPA04 Channel S16D2 Island
- IPA05 Cape Pembroke
- IPA06 Carcass Island
- IPA07 Chartres Horse Paddock
- IPA08 Hill Cove Mountains
- IPA09 Hornby Mountains
- IPA10 Keppel Island
- IPA11 Motley Island
- IPA12 Middle Island
- IPA13 Port Stephens
- IPA14 Saunders Island (incl Rat Island)
- IPA15 Split Island
- IPA16 Tea Island
- IPA17 Weddell Island

Albemarle

Ref number	IPA01
Coordinates	52°15'50" S, 60°38'30" W
Altitude	0-221 m
Area	2073 ha
IPA categories	A
Status	Privately owned, P. Berntsen
No. of native plants	46
No. of endemic plants	4
No. of habitat types	16



False-plantain is found growing above steep cliffs on exposed sites along the coast at Albemarle.

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	False-plantain <i>Nastanthus falklandicus</i>	Roughly 1000 flowering rosettes and over 11,000 individual vegetative rosettes	19 subpopulations recorded varying in size from 5 to over 500 mature individuals.
Additional importance			
	Mainland Tussac	Not calculated	Largest stand of mainland Tussac, a nationally threatened habitat.

Site description

The area of Albemarle qualifying as an IPA includes the most southerly point of West Falkland. It stretches from the Three Crowns paddock south to Cape Meredith and east along the coast until the breathtakingly steep, vertical cliffs characteristic of this coastline reach an end. The majority of this IPA stretches just 200 to 500 m inland from the cliff tops, reflecting the importance of this site for vulnerable coastal species and habitats.

Farther inland, the health of this IPA is reflected in the lush stands of Cinnamon-grass and diverse marshy grassland that holds large populations of Smooth Ragwort and Vanilla Daisy. Giant Balsam-bog cushions can be found around Marble Shanty on flat ground in the raised valley within heath and grassland, again reflecting a lack of disturbance.

Flora

Albemarle IPA is vital to plant conservation in the Falklands because it is one of two major strongholds for the globally Endangered False-plantain. From the Three Crowns paddock down to

the Lighthouse paddock, this IPA also holds the largest extant stand of mainland Tussac in the Falklands. Such is the extent of this important habitat that flying over the site it is possible to mistake it for one of the outer islands.

Forty-six vascular plant species have been recorded within this IPA, including four endemics: False-plantain, Coastal Nassauvia, Smooth Ragwort and Vanilla Daisy. Overall, there are 43 native species and three introduced species.

Threats to IPA

Agriculture (livestock/ grazing) - medium

Reindeer, horses and sheep graze different parts of this site. Livestock appear to show a preference for grazing flower heads of False-plantain but the habitat within which it occurs is not generally of high grazing value and several of large populations are not currently managed for livestock grazing.

Soil Erosion - medium

Coastal habitats are vulnerable to erosion and, as the majority of False-plantain subpopulations occur on such sites, there is a risk from disturbance. Long term monitoring of at least one of the largest subpopulations is a priority.

Cross Island

Ref number	IPA02
Coordinates	52°11'10" S, 60°41'40" W
Altitude	0-15 m
Area	67 ha
IPA categories	A
Status	Privately owned, P. Berntsen
No. of native plants	28
No. of endemic plants	2
No. of habitat types	Unknown (at least 8)

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	False-plantain <i>Nastanthus falklandicus</i>	Unknown	

Situated in the southwest of the Islands, near Kits Creek, Cross Island qualifies as an IPA owing to its status as one of only four areas where the globally Endangered False-plantain has been recorded. Unfortunately, there is little additional information on this island, which was last surveyed briefly in 1998 by R. Woods. Thirty-two vascular plant species have been recorded, 28 of which are native. One other endemic species occurs: Coastal Nassauvia. The near endemic Falkland Cudweed also grows here.

Threats to IPA

Agriculture (livestock/ grazing) - low

The island is sometimes used for horse grazing.

Soil Erosion - medium

Coastal habitats are vulnerable to erosion and, as the majority of False-plantain subpopulations occur on such sites, there is a risk from disturbance. Long term monitoring of at least one of the largest subpopulations is a priority.

Beaver Island (including Rat Island)

Ref number	IPA03
Coordinates	51°50'10" S, 61°16'30" W
Altitude	0- 234 m
Area	3918 ha
IPA categories	A, B
Status	IBA, privately owned, S. Poncet
No. of native plants	62
No. of endemic plants	7
No. of habitat types	15



Hairy Daisy is found within coastal dwarf shrub heath on Beaver Island.

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Hairy Daisy <i>Erigeron incertus</i>	Around 200	Distinguishable rosette 'clumps' counted as individuals. Three subpopulations.
B	See below	N/A	High number of endemic species (7).
Additional importance			
	Adder's-tongue <i>Ophioglossum crotalophoroides</i>	Unknown	Nationally threatened species
	Dwarf Saltmarsh-grass <i>Puccinellia pusilla</i>	Unknown	Nationally threatened species

Site description

Occurring in the far west of the archipelago, Beaver Island shares the dramatic coastline of nearby New and Weddell Islands, Port Stephens and Albemarle. The geology of the island is predominantly of medium to coarse sandstones with various fossil traces (Aldiss & Edwards, 1999).

The western coast of Beaver Island is formed of dramatic steep cliffs. The cliff tops are covered by extensive stands of native coastal saline grassland dominated by Shore Meadow-grass alternating with coastal cushion heath and sparsely vegetated sections of coastal feldmark on more mineral soils. There are several impressive Tussac plantations, some more vigorous than others with the largest being that on Stickout Bluff. Valleys are dominated by stands of introduced grasses, whereas inland areas of higher ground are dominated by dwarf shrub heath. Unusually for the Falklands, there appears to be no Whitegrass acid grassland on Beaver Island.

Flora

Beaver Island qualifies as an IPA primarily because it currently holds one of the five largest subpopulations of the globally Vulnerable Hairy Daisy.

A total of 91 vascular plant species have been recorded on Beaver Island - 62 are native (36% of the total native flora) and 29 introduced. Along with the Hairy Daisy, six other endemic species are

present: Lady's Slipper, Vanilla Daisy, Coastal Nassauvia, Clubmoss Cudweed, Woolly Ragwort and Smooth Ragwort. There are also small populations of Gaudichaud's Orchid (S. Poncet, pers. comm.) and the Yellow Orchid as well as the nationally EN Dwarf Saltmarsh-grass. A population of the nationally VU Adder's-tongue has also been recorded on Beaver Island (S. Poncet, pers. comm.). The Adders-tongue is known from only seven sites on East Falkland, making the Beaver population particularly important as the only West Falkland population. The unidentified possible endemic hybrid *Calandrinia* species is also found on Beaver Island. Further research is needed to investigate the importance of the latter species and determine if it is truly endemic (see Hershkovitz, 2006 for most recent data).

Threats to IPA

Agriculture (livestock/ grazing) - low

Shell Point (218 hectares) and the settlement paddocks are grazed by sheep. The rest of the island, except for 'Small Plantation' paddock (53 hectares), which is cut off by a large gorse hedge, is grazed by reindeer.

In order to assess the impact of reindeer and any increase in their numbers, long term monitoring of the Hairy Daisy populations and lichen cover should be considered.

Invasive species (plant) - low

Gorse has spread beyond its original use as shelter/ hedging.

Soil Erosion - medium

Erosion caused by past grazing and burning resulting in areas of bare ground is a concern for Beaver Island as the size and number of these areas is increasing (J. Poncet, pers. comm.).

Channel S16D2 Island

Ref number	IPA04
Coordinates	51°48'10" S, 61°11'40" W
Altitude	0-60 m
Area	26 ha
IPA categories	A, C
Status	Privately owned, S. Poncet
No. of native plants	30
No. of endemic plants	6
No. of habitat types	Unknown (at least 3)

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Falkland Rock-cress <i>Phlebotobium maclovianum</i>	c. 40	Spread across three subpopulations.
C	Bluegrass acid grassland and Bluegrass dune grassland	Unknown	

Channel S16D2 Island is the southeastern island of the two Channel Islands, lying c. 1 km off the north coast of Beaver Island. It has not been grazed for many years, perhaps ever (S. Poncet, pers. comm.) and little information exists about this island other than that it holds three populations of the globally Vulnerable Falkland Rock-cress with mature stands of Bluegrass meadow (S. Poncet, pers. comm.). There are also five other endemic species present: Lady's Slipper, Vanilla Daisy, Coastal Nassauvia, Woolly and Smooth Falkland Daisy (S. Poncet, pers. comm.).

Threats to IPA

None known.

Cape Pembroke

Ref number	IPA05
Coordinates	51°41'00" S, 57°43'00" W
Altitude	0-15 m
Area	923 ha
IPA categories	B
Status	Owned by Falkland Island Government, NNR
No. of native plants	66
No. of endemic plants	4
No. of habitat types	21



Pale Yellow Orchid (left) and Spider-flower (right) are two of the nationally threatened species found at Cape Pembroke.

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
B	Neutral grassland	Unknown	
B	Spider-flower <i>Arachnitis uniflora</i>	Around 30 (but see notes)	Neutral grassland indicator species. Nationally threatened species. This is the largest population on record in the Falkland Islands and only one of two known locations. The number of individuals that flower can vary widely from year to year and it is only the flower which is visible above ground.
B	Dusen's Moonwort <i>Botrychium dusenii</i>	Over 400 individual fronds	Neutral grassland indicator species. Nationally threatened species. This is one of only four Falkland areas known to support this species.
C	Recovering Bluegrass dune grassland	Unknown	Present at the site but not the primary justification for selection.
Additional importance			
	Sage's Sedge <i>Carex sagei</i>	Unknown	Nationally threatened species.
	Pale Yellow Orchid <i>Gavilea australis</i>	Over 600	Nationally threatened species. The largest population of this species occurs at this site.

Site description

Cape Pembroke is part of the Stanley Common NNR, East Falkland. It is a low-lying area containing a wide range of habitats including mobile and stabilised dunes with both native and introduced vegetation, species-rich dune slacks, marshy grassland and attractive sand beaches. There are extensive areas of dwarf shrub heath that include sites where Pale Maidens are locally dominant in the springtime. Small areas of Tussac (currently around 1.5 ha) are recovering as are stands of Bluegrass grassland. There are also freshwater ponds that support interesting communities at their margins, including a range of sedges. Rocky outcrops are covered in a range of lichens and provide sheltered spots for a range of species. However, there are also large areas that have been eroded to bare rock, sand or peat producing a lunar-like landscape.

Flora

Cape Pembroke holds botanically rich examples of marshy grassland including the largest populations in the Falkland Islands of the nationally EN very rare Spider-flower and nationally VU rare Pale Yellow Orchid. This site is also one of the strongholds for the nationally EN very rare Dusen's Moonwort. The nationally EN Sage's Sedge, rare Small Dusky Sedge and scarce native Antarctic Eyebright are also flourishing across Cape Pembroke within areas of marshy grassland and pond margins.

Eighty-six vascular species have been recorded from this IPA, with 66 of these being native (38% of the national total). Four endemic species, Coastal Nassauvia, Lady's Slipper, Vanilla Daisy and Woolly Falkland Ragwort, are present, as well as the near endemic Falkland Cudweed.

Threats to IPA

Agriculture (livestock/ grazing) - low

The Yorke Bay Pond site is also grazed by horses in the winter, but has been fenced off to prevent vehicle access (FIG, 2008b; FIG, 2007). Research into the impact of light grazing by horses on populations of the rare species at this site would be extremely informative for future management plans.

Development (recreation/ tourism) – high

Large areas of Cape Pembroke are used for recreational off-road driving, with some areas severely damaged by vehicle tracks. Such activity threatens vegetation stability that in turn threatens the wildlife value of the Cape Pembroke area. It may also heighten sand blow through dune erosion that could adversely affect the operational capability of nearby Stanley Airport.

Invasive species (plant) – low

Introduced species are common across Cape Pembroke and there are several that pose a threat to the native flora through their ability to invade natural communities. These are Dove's-foot Crane's-bill, European Eyebright, Glaucous Sedge, Rosebay Willowherb, Yellow Bartsia and Gorse (Lewis, 2010). There is also a population of Field Horsetail near Stanley that could pose a serious threat if not eradicated. Eradication/ control programmes are needed to tackle these invasive species.

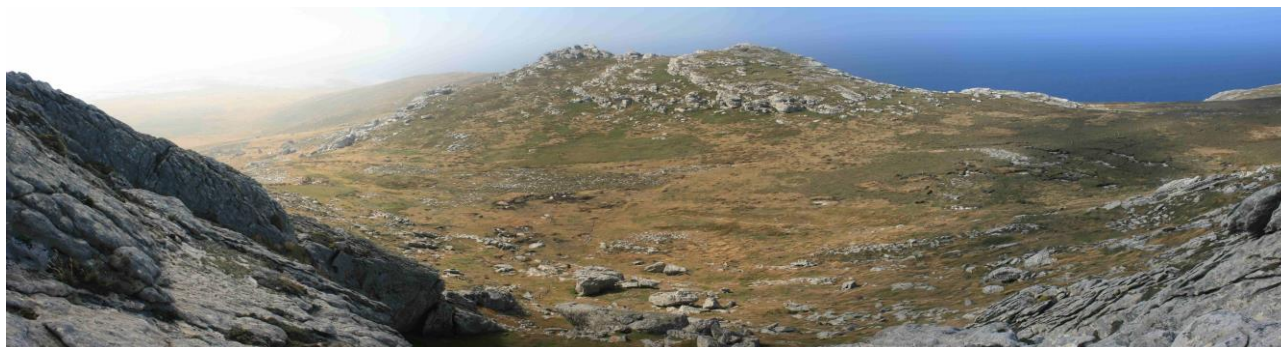
Soil erosion – high

Development (transport/ infrastructure) – low

A single properly constructed access road to the Cape Pembroke Lighthouse would prevent damage from the heaviest traffic flow to and from the Lighthouse.

Carcass Island

Ref number	IPA06
Coordinates	51°17'20" S, 60°33'50" W
Altitude	0-220 m
Area	1894 ha
IPA categories	A, B
Status	Privately owned, R. and L. McGill
No. of native plants	89
No. of endemic plants	6
No. of habitat types	18



Panoramic view from Mt Byng, Carcass Island

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Hairy Daisy <i>Erigeron incertus</i>	c. 140	Distinguishable rosette 'clumps' counted as individuals. Subpopulations occur across two sites.
B	See below	N/A	Reasonable number of endemic species (6).
Additional importance			
	Brittle Bladder-fern <i>Cystopteris fragilis</i>	Unknown	Nationally threatened species.

Site description

Situated in the northwest of the archipelago, off West Falkland, Carcass Island is topographically varied and supports a wide variety of habitats. Of particular note are the examples of species-rich dwarf shrub heath on Stanley Hill and the large *Acaena* herbfields found on the low-lying northwest of the island. Carcass holds reasonably large stands of impressive, mature Tussac and several interesting upland areas with botanically varied inland rock sites. There are good-sized ponds present, streams with lush marginal vegetation, sand dunes and a variety of coastal habitats including coastal cushion heath, coastal feldmark, shingle and sandy beaches and steep coastal cliffs on the north side with good native Boxwood growth. Also occurring are stretches of acid grassland mostly dominated by introduced grasses, with much of Carcass dominated by Yorkshire Fog and Common Bent. The Island is predominantly used for wildlife tourism and farming, although sheep numbers have been reduced to c. 500.

Flora

Carcass is currently one of the five best sites for the globally Vulnerable Hairy Daisy. Five other endemic species occur on Carcass Island: Lady's Slipper, Clubmoss Cudweed, Vanilla Daisy, Coastal Nassauvia and Woolly Ragwort. The near endemic Falkland Cudweed is also present. There is a previous record for the Falkland Rock-cress for Carcass Island but this has not been relocated between 2007 and 2009. There is also an historical (1940s) record for the nationally VU Brittle Bladder-fern which should be updated.

The flora of Carcass Island includes one species, Hooker's Sweet Cicely, which is restricted to the Falkland Islands, Tierra del Fuego and southern Patagonia. Four of the eight taxa with a distribution in South America only south of 50°S are also found on Carcass Island: Fuegian Couch, Bluegrass, Tussac and Silky Buttercup. One orchid species, the scarce Yellow Orchid, is also present.

The Hairy Daisy is found within Diddle-dee dwarf shrub heath at two sites; on the north side and upper south side of Stanley Hill and on the south-facing side of the hill north of Carcass settlement. The largest numbers of plants are found on Stanley Hill with over 100 counted in 2007. The dwarf shrub heath supporting Hairy Daisy populations on the north side of Stanley hill is relatively rich, with 18 vascular species recorded across the two vegetation assessment points taken in that area.

Threats to IPA

Invasive species (plant) - high

The main threat to the core zone of this IPA is Gorse, which is spreading over Stanley Hill. The problem is recognised by the owners and a programme of control has been started (Belton, 2008).

Agriculture (livestock/ grazing) – medium

Sheep and cattle are farmed on the island but at a low density; only horses graze the Stanley Hill site.

Development (recreation/ tourism) – low

Tourism is an important part of the management of Carcass and does not appear to be having adverse effects on the wildlife.



One of the largest populations of Hairy Daisy is found on Stanley Hill, Carcass Island.

Chartres Horse Paddock

Ref number	IPA07
Coordinates	51°42'45" S, 60°01'40" W
Altitude	0-98 m
Area	930 ha
IPA categories	A, C, B
Status	Privately owned NNR, W. Luxton
No. of native plants	102
No. of endemic plants	8
No. of habitat types	19



Large, lush stands of Fachine scrub are found in the Chartres Horse Paddock.

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Falkland Rock-cress <i>Phlebotobium maclovianum</i>	22 mature individuals	These were spread across three subpopulations along cliff ledges.
C	Fachine Scrub	Not calculated	Associated with endemic species.
B			High number of endemic species (8).
Additional importance			
	Pale Yellow Orchid <i>Gavilea australis</i>	c. 15 individuals	Nationally threatened species.
	Brittle Bladder-fern <i>Cystopteris fragilis</i>	Unknown – 1 patch	Nationally threatened species.
	Fuegian Foxtail <i>Alopecurus magellanicus</i>	Not calculated	Nationally threatened species.
	Fuegian Sedge <i>Carex magellanica</i>	Not calculated	Nationally threatened species.
	Sea Plantain <i>Plantago maritima</i>	<100 individuals	Nationally threatened species.
	Silvery Buttercup <i>Hamadryas argentea</i>	c. 100 'leaf clusters'	Near threatened species. Four subpopulations recorded. Cannot be certain how much growth is due to vegetative spread.

Site description

The Chartres Horse Paddock lies on the west coast of West Falkland and is bounded by the Chartres River inlet on its southern side. The site lies over sandstones, siltstones and mudstones,

which formed in the Devonian Period 416 - 359.2 million years ago (Aldiss & Edwards, 1999). This is an area of low rolling hills and ridges with run-off gullies feeding into streams attractively vegetated with lush Fachine scrub. The central valley holds the largest Fachine scrub stand, one of the many havens for Grass Wrens which can be seen in large numbers here. Most of the Chartres Horse Paddock is covered by dwarf shrub heath, acid grassland and many intergradations of the two. There are species-rich communities, such as the coastal heath on a low dry ridge at the far southeast of the paddock.

There are low cliffs south of Teal Duck pond with overhanging coastal heath and a varied flora growing on ledges and crevices on the cliff face. Inland cliffs north of Old House Bridge support interesting fern populations. Species-rich bog communities occur at three main areas across the site and include reasonable *Sphagnum* moss stands near the largest pond and rare sedges west of Portuguese Ditch. Several small areas of fen occur including at the mouth of Portuguese Ditch and at the south of the paddock near Loafer's Corner (Upson, 2008a).

Flora

There are three subpopulations of the globally Vulnerable Falkland Rock-cress along the Chartres river cliffs. The site also contains large areas of the nationally threatened habitat, Fachine scrub in association with the endemic species Silvery Buttercup and, at one site, the Snakeplant.

This IPA has been a horse paddock for over 100 years and it is the low grazing intensity here that has led to such a species-rich site in the context of the Falkland Islands. A total of 103 native (c. 59% of the total Falkland native flora) and 18 introduced vascular species occur in the Chartres Horse Paddock (Upson, 2008a). To date, a total of eight of the 14 endemic plant species have been found growing in the horse paddock. In addition to those mentioned above, these are: Woolly Ragwort, Vanilla Daisy, Clubmoss Cudweed, Smooth Ragwort and Coastal Nassauvia. Both near endemic plant species, Falkland Cudweed and Shield-fern, are present.

Other notables are subpopulations of the nationally VU Brittle Bladder-fern, nationally CR Sea Plantain, nationally VU Pale Yellow Orchid and two other orchid species Gaudichaud's Orchid and Dog Orchid. In addition, the nationally rare American Willowherb can be found growing on the eastern side of the lower reaches of the Old House Stream and at one other run-off site at the base of the central hills. Populations of the nationally VU Fuegian Foxtail and rare Blood-beak sedge occur in fen areas and the nationally EN Fuegian Sedge can be found in one of the bog communities and along stream margins in the north of the site.

Threats to IPA

Agriculture (livestock/Grazing) - low

A small number of horses graze the site.

Development (recreation/tourism) - low

Invasive species (plant) - low

There is extensive gorse growth to the north of the Old House Bridge within valley greens. This is left from the time when the settlement was on this side of the Horse Paddock and needs to be brought under control.

There are several populations of Marram on the coast at the south side of the Paddock. These could be removed and replaced with native coastal grass species to prevent the Marram invading the site extensively and increase the biodiversity value of the site yet further.

Several Mouse-ear-hawkweed plants have been recorded and should be removed. The potential risk of this introduced species has been noted, but at present no control measures are in place (Whitehead, 2008).

Soil erosion – low

Hill Cove Mountains

Ref number	IPA08
Coordinates	51°33'00" S, 60°05'00" W
Altitude	75-640 m
Area	12,126 ha
IPA categories	B, C
Status	Owned by Falkland Island Government
No. of native plants	65
No. of endemic plants	7
No. of habitat types	At least 11



Diverse examples of stone run plant communities can be found in the Hill Cove Mountains.

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Falkland Nassauvia <i>Nassauvia falklandica</i> in ed.	Unknown	This species still has to be described and formerly published.
B			Reasonable number of endemics (5).
B	Mountainberry Hybrid <i>Gaultheria antarctica x pumila</i>	Unknown	Criterion B indicator species for acid grassland.
B	Falkland Filmy-fern <i>Hymenophyllum falklandicum</i>	Unknown	Criterion B indicator species for inland rock.
B	Twisted Filmy-fern <i>Hymenophyllum tortuosum</i>	Unknown	Criterion B indicator species for inland rock. Recorded from two sites but most likely an underestimate because this species is easily overlooked.
Additional importance			
	Antarctic Prickly-burr <i>Acaena antarctica</i>	Unknown (at least 3)	Nationally threatened species. Three subpopulations known, two of which only have single plants. No data available for the third site.
	Silvery Buttercup <i>Hamadryas argentea</i>	600+	Nationally threatened species. Largest subpopulation on record. Three subpopulations recorded within IPA. Cannot be certain how much growth is due to vegetative spread.

Site description

The area of the Hill Cove Mountains which qualifies as an IPA includes the Mt. Adam reserve and Rat Castle. This IPA lies within an area of outstanding natural beauty. At roughly 700 m, Mt. Adam with its steep slopes is the second highest peak in the Falkland Islands and the highest point on West Falkland. The geology of the IPA belongs to the Port Stanley Formation, which is composed of medium quartz sandstones, with some fine sandstones and shales. Soils are generally thin and peaty but in places, particularly ridge-tops, exposure of the underlying rocks and resultant weathering have resulted in a fine mineral soil. The valleys have features indicating a glacial past as well as providing examples of braided streams and alluvial terraces.

Two major vegetation types dominate the IPA, acid grassland on the ridge tops and dwarf shrub heath, which is mainly restricted to the valley sides. Of particular note are upland sites with Bluegrass-Fescue acid grassland, totally lacking in Whitegrass. In addition there are areas of bog dominated by Soft-camp-bog, forming large stands at the head of some valleys; neutral grassland dominated by Cinnamon-grass and Whitegrass, which forms narrow stands along the margins of streams; and inland rock which is notable for several species.

Flora

The Hill Cove Mountains IPA holds botanically rich examples of native Bluegrass-Fescue acid grassland at upland sites. The altitudinal range and geographic location of the Hill Cove Mountains have produced a relatively rich vascular plant flora with this IPA containing at least 65 native species (Broughton, 2002), including the globally threatened Falkland Nassauvia (Upton *et al.* in prep.) and six other of the 14 national endemics: Silvery Buttercup, Vanilla Daisy, Coastal Nassauvia, Snakeplant, Woolly Falkland Ragwort and Smooth Falkland Ragwort. The largest subpopulation of the globally Near Threatened Silvery Buttercup is found on the southern side near the summit of Mt Adam. The hybrid Mountainberry is currently known only from this IPA and this is one of the two locations known for the Twisted Filmy-fern. Other species of note are the nationally VU Antarctic Prickly-burr, rare Dwarf Prickly-burr, rare Cushion Azorella, rare Small Dusky Sedge and scarce Arrowgrass.

Overall, introduced plants are rare within the IPA, which increases this site's botanical value. The bryophyte and lichen flora are also likely to be significant and should be studied further.

Threats to IPA

No threats currently known. However the military buildings on the summit of Mt. Adam are a health and safety issue, with scattered broken glass around the site. Cooperation is needed with the military in order to get the buildings dismantled and removed from the site. – Buildings have been removed (2012) – follow-up survey needed

Hornby Mountains

Ref number	IPA09
Coordinates	51°39'15" S, 59°40'30" W
Altitude	0-564 m
Area	4222 ha
IPA categories	A, B, C
Status	Privately owned, M. & C. Lee
No. of native plants	77
No. of endemic plants	8
No. of habitat types	16



Falkland Nassauvia is currently only known from only two sites, including the Hornby Mountains (above).

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Falkland Nassauvia <i>Nassauvia falklandica</i> in ed.	133	This species still has to be described and formerly published.
B	Inland rock	N/A	Three criterion B species for inland rock present.
B	See below	N/A	High number of endemic species (8).
C	Bluegrass grassland	Unknown	
Additional importance			
	Antarctic Prickly-burr <i>Acaena antarctica</i>	12 individual clumps	Nationally threatened species. Recorded at 11 sites.
	Fir Clubmoss <i>Huperzia fuegiana</i>	c.250	Nationally threatened species.
	Comb fern <i>Schizaea fistulosa</i>	15 discrete patches of fronds within 40 x 2 m	Nationally threatened species.
	Silvery Buttercup <i>Hamadryas argentea</i>	300+	Near Threatened species. At least 4 subpopulations. Cannot be certain how much growth is due to vegetative spread. Hairless-leaf form occurs within this IPA.

Site description

The section of the Hornby Mountains that qualifies as an IPA encompasses an area of outstanding natural beauty. Hillsides and valleys within the Double Stream Basin are predominantly vegetated with moist acid grassland and Bluegrass and Land-tussac occur frequently. There are many Soft-camp-bog mats scattered through the valley indicating impeded drainage. The numerous streams running down hillsides are generally surrounded by stands of Tall-fern and also the occasional Fachine shrub. In the central valley there are large stands of semi-continuous Fachine scrub and several oxbow lakes hold good sedge communities

In upland areas there are extensive open Bluegrass acid grasslands and raised ponds associated with Soft-camp-bog and *Sphagnum* moss beds. There are also large and, in places, richly vegetated, stoneruns on the hillsides. A series of glacially eroded hollows (corries) contain raised tarns and sheltered wet rock faces which support a lush bryophyte community and also provide an excellent habitat for many rarer vascular plant species.

Flora

This site is particularly noteworthy for the only known occurrence of a new species of *Nassauvia* endemic to the Falklands, *Nassauvia falklandica* in ed. (Upson *et al.*, in prep.). In addition, is the recent record of the very rare Comb Fern, last spotted in 1820 by the botanist Gaudichaud (Moore, 1968; Upson, 2012a, c). This IPA is also remarkable for the lack of introduced species and good sized subpopulations of several nationally threatened species. A total of 77 vascular native species have been recorded so far within this IPA with no introduced species. Of these there are seven further endemic species: Clubmoss Cudweed, Coastal *Nassauvia*, the Near Threatened Silvery Buttercup, Smooth Ragwort, Snakeplant, Woolly Ragwort and Vanilla Daisy.

Upland stoneruns hold good populations of Snakeplant, near endemic Shield-fern and three of the four filmy ferns, including plentiful growth of the very rare Twisted Filmy-fern. Of note is the occurrence of scarce filmy ferns as components of the ground layer of wet acid grassland in a raised valley below The Gun, so far not seen elsewhere in the Falklands.

Upland moist Bluegrass or Whitegrass acid grasslands also provide a good habitat for the nationally VU Fir Clubmoss which is locally frequent at one site. Upland areas of cushion heath include reasonable subpopulations of the rare Cushion Azorella, only known from five other sites across the Islands.

The nationally CR Comb Fern is currently only known from one site in the Hornby Mountains, growing beside Double Stream.

There are many other interesting features of this site including the largest known subpopulation of the nationally VU Antarctic Prickly-burr, the farthest inland record for the (usually) coastal Fuegian Couch and frequent records for the Dwarf Prickly-burr within or in association with *Astelia* stands. A small subpopulation of the nationally VU Fuegian Foxtail was also recorded in a raised valley along a stream margin. Fachine scrub in the central valley provides a good habitat for species such as the Dog Orchid. Oxbow lakes and damper sections of the central valley hold good stands of several sedges, including the rare nationally EN Fuegian Sedge. The scarce Arrowgrass is also locally abundant. The scarce Coral-fern forms large stands on these lower valley slopes and river banks.

Threats to IPA

Agriculture (livestock/Grazing) - low

The level of grazing on across this area is low with stocking occurring over roughly 2 summer months every other year.



Double Stream in the Hornby Mountains.

Keppel Island

Ref number	IPA10
Coordinates	51°19'50" S, 59°56'20" W
Altitude	0-342 m
Area	3987 ha
IPA categories	A
Status	Privately owned, L. Fell
No. of native plants	95
No. of endemic plants	6
No. of habitat types	17



View looking west from Gull Hill, Keppel Island.

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Hairy Daisy <i>Erigeron incertus</i>	c. 138	Distinguishable rosette 'clumps' counted as individuals. Across four subpopulations.
B	See below	N/A	Reasonable number of endemic species (6).
Additional importance			
	Dusen's Moonwort <i>Botrychium dusenii</i>	100+ within 10 x 10 m	Nationally threatened species. There are likely to be further subpopulations in suitable habitat on Keppel.
	Fir Clubmoss <i>Huperzia fuegiana</i>	Unknown	Nationally threatened species. 1 km grid square reference for subpopulation from 1990s

Site description

Keppel Island is situated in the northwest of the archipelago, between Saunders and Pebble Islands. This IPA is dominated by a range of low hills on its western side that rise to a height of 342 m at Mt. Keppel. To the east side of these hills is a large open valley where run off from these and Cove Hill feed a wetland area with two large ponds in the north.

The majority of Keppel Island is vegetated with dwarf shrub heath that has a prominent grass component. Low coastal heath on dry ridges provides some of the most species-rich habitat. Whitegrass acid grassland is almost entirely limited to the east-facing hill slopes of Mt. Keppel and within the central valley. Sheep farming has ceased and all livestock was removed in 1992. This perhaps explains why the majority of the island's grasslands is dominated by either Wavy Hair-grass or Cinnamon Grass.

Also of note is the extensive lichen cover within areas of dwarf shrub heath. Tussac is predominantly limited to steep cliffs, with the densest stand on the west side of Dish Cover Hill. Fachine scrub occurs over two small areas to the southeast of Cove Hill and in a coastal gully on the easternmost promontory. Extensive fern beds occupy hillsides and gully margins. Rocky outcrops on higher ground and a stretch of low coastal cliffs southeast of Cove Hill provide a variety of habitats for nesting birds as well as flora. There are sand dunes and several sandy beaches as well as a c. 2 km long stonerun on the west of the Island.



Nationally threatened species Dusen's moonwort (left) and a range of endemic species such as the Falkland Woolly Daisy (right), are flourishing on Keppel Island.

Flora

Keppel Island IPA is notable for holding one of the five largest subpopulations of the globally Vulnerable Hairy Daisy. Four subpopulations of this species occur across areas of lowland coastal Diddle-dee dwarf shrub heath on the east of the island (Upson, 2008b).

A total of 133 vascular species (95 native and 38 introduced) have been recorded across Keppel Island. Of these six are endemic species: Clubmoss Cudweed, Vanilla Daisy, Coastal Nassauvia, Hairy Daisy, Woolly Ragwort and Smooth Ragwort. Both the near endemic Falkland Cudweed and Shield-fern have also been recorded.

Otherwise only known from East Falkland, Keppel Island holds a small population of the nationally EN and protected Dusen's Moonwort, found in coastal grassland at the northern end of the central valley. Keppel also supports a population of the rare Southern Mudwort.

Threats to IPA

Development (recreation/tourism) - low

Invasive species (plant) - high

The threats of most concern to this IPA are the invasive species Calafate and Spear Thistle. Calafate covers a large area (c. 0.5 km²) surrounding the settlement (Upson, 2008b). Five subpopulations of Spear Thistle have recently been recorded on Keppel Island in the northeast of the island (Lewis, 2010). Eradication work is urgently required as these species will spread quickly if left unchecked. Extensive gorse cover is also present and needs regular control.

Soil erosion - medium

The low coastal flats north of Cove Hill, previously Tussac ground, are severely eroded and would benefit from restoration work. Bluegrass would be the preferred native species to begin restoration trials within this area which is now mostly sand and clay and so no longer suitable for the immediate re-establishment of Tussac.

Middle Island

Ref number	IPA11
Coordinates	51°57'20" S, 58°28'00" W
Altitude	0-15 m
Area	150 ha
IPA categories	A, C
Status	Owned by Falklands Conservation
No. of native plants	66
No. of endemic plants	4
No. of habitat types	14



Bluegrass dominates the dune communities (left) and acid grassland (right) on Middle Island.

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Falkland rock-cress <i>Phlebotobium maclovianum</i>	29 mature individuals	These were spread across two subpopulations.
C	Bluegrass acid grassland and Bluegrass dune grassland	Not calculated	
Additional importance			
	Fuegian Foxtail <i>Alopecurus magellanicus</i>	Unknown number but a single stand covering 10x25 m is recorded	Nationally threatened species.

Site description

Middle Island is located in the east of the Falklands archipelago, lying due south of Mare Harbour. Geologically the island is formed of sandstones, siltstones and mudstones that date back 251-299 million years (Aldiss & Edwards, 1999). Middle Island is low-lying with a rocky coastline of extensive ledges exposed at low tide, boulder beaches and offshore kelp beds. There are sandy beaches and associated dunes on the eastern and southeastern coasts of the island. The highest rocky cliffs, up to c. 10m, occur along part of the northern coast bordering eroding black ground.

Middle Island has been largely free of grazing since 1988 (Upson & Woods, 2010a). There are good signs that the vegetation is recovering well, with the development of lush stands of Sword-grass, bogged Cinnamon-grass over 1 m tall, as well as small Prickly-burr herbfields. Owing to its grazing and fire history the most mature, dense Tussac stands occur along the southern and eastern coasts. Several small, permanent freshwater pools and at least one shallow, seasonal pool are supplied by rainwater and by run-off. Middle Island contains a good variety of habitats including vegetated dune areas, lush grasslands and areas of semi-permanent water with several interesting plants.

Notably, no Whitegrass is found on Middle Island. Instead Bluegrass is the dominant grass across the island within acid grassland on damp peat and coastal grassland/ dune habitats on sand. In contrast the dry peaty inland slopes of the western section of the island are dominated by species-poor Diddle-dee dwarf shrub heath interspersed with stands of Tall-fern and scattered with large Woolly and Smooth Ragwort plants.

Flora

Middle Island IPA is notable for holding one of the largest subpopulations of the globally Vulnerable Falkland Rock-cress. It can be found growing among tall bogged Cinnamon Grass and within a Small-fern bed.

Eighty-five vascular plant species have been recorded on Middle Island (66 native, 19 introduced). This includes three other endemic species: Smooth Ragwort, Woolly Ragwort and Vanilla Daisy.

The rare Southern Mudwort occurs on seasonally wet, largely un-vegetated mud. With just a few individuals recorded in 1997, the nationally VU Fuegian Foxtail has expanded its population to form a stand roughly 10 m by 25 m in 2010 (Upson & Woods, 2010a; Woods, 2007).



Aerial view of Middle Island from the west side.

Threats to IPA

Soil erosion - medium

There is a risk that the erosion along the northwest of the island will spread without intervention. Tussac planting should be considered in these areas.

Falklands Conservation has set up vegetation transects which will be re-surveyed at regular intervals in order to better understand the processes of recovery from grazing and fire. Two permanent monitoring sites were also set up to track the re-colonisation of bare peat on former tussac ground (Upson & Woods, 2010a).

Motley Island

Ref number	IPA12
Coordinates	52°08'00" S, 58°36'30" W
Altitude	0-15 m
Area	330 ha
IPA categories	A, C
Status	Owned by Falklands Conservation
No. of native plants	67
No. of endemic plants	6
No. of habitat types	16



Aerial view of Motley Island from southern end.

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Hairy Daisy <i>Erigeron incertus</i>	70	Distinguishable rosette 'clumps' counted as individuals. Likely to be an underestimate given the time limitation during this visit.
C	Bluegrass acid grassland and Bluegrass dune grassland	Not calculated	
Additional importance			
	Fuegian Foxtail <i>Alopecurus magellanicus</i>	Not calculated	Nationally threatened species.

Site description

Motley Island lies within Lively Sound, 1 km west of Motley Point, East Falkland. It is a low-lying island, reaching a maximum height only 15 m at several inland locations. Geologically, Motley Island is formed of sandstones, siltstones and mudstones dating back to the Permian, some 251-299 million years old (Aldiss & Edwards, 1999). The coastline is generally rocky with many 3-4 metre cliffs as well as extensive wave-cut rock ledges exposed at low tide. All coastal rocks are formed from alternating layers of sandstones and siltstones (Porter, 1995). Motley Island's superficial deposits of beach substrate, blown sand and peat were formed within the Quaternary period (from 2.5 million years ago, Porter, 1995). There are two sandy beaches deposited by wave action on Motley with the largest, c. 800 m long, on the east coast in the northern half of the island.

The white silica sands, predominantly formed from quartz, are typical of the Falkland Islands (Porter, 1995).

Windblown dunes are found at two sites on Motley and sand deposition has clearly been interspersed with peat deposition as can be seen by the layering of the substrate (Porter, 1995). The rest of Motley Island is covered by peat, either derived from Tussac stands or a thinner layer derived from a mix of other vegetation, most likely predominantly Bluegrass. The island was stocked with sheep up until 1992 (Alec Jaffray, pers. comm.) but there appears to have been more impact on the vegetation in the north than south of the island. Tussac forms an almost entire coastal band, with the densest stands at the northern tip and around the southern half of the island. Inland areas of Motley Island support a mosaic of dwarf shrub heath on drier ground and Bluegrass acid grassland in damper areas, with gradation between the two. Species-rich coastal cushion heath is found on dry raised ridges in the southern half of the island. There are several stream-fed ponds with the largest (c. 50 m at its longest) in the southeastern part of Motley Island. Damp, most likely seasonally flooded, depressions are vegetated with varied marshy grassland as are much of the dune slacks.

Flora

Motley Island holds one of the largest recorded subpopulations of the globally Endangered Hairy Daisy *Erigeron incertus* occurring over at least eight sites in the southern half of the island. It is also home to outstanding examples of Bluegrass acid and coastal grassland. Four other Falkland endemic plant species occur: Coastal Nassauvia, Lady's Slipper, Smooth Ragwort and Vanilla Daisy. One of the two near endemic plant species, Falkland Cudweed, is also present.

Sixty-seven native and 18 introduced vascular plant species occur at this IPA. Noteworthy amongst these are large subpopulations of the protected Yellow Orchid found within areas of dwarf shrub heath in the southern half of the island. The nationally VU Fuegian foxtail is flourishing in several damp seepage areas within stands of Bluegrass acid grassland.

Whitegrass, the dominant species within acid grassland on East and West Falkland, only grows at a few sites on Motley Island. The larger stands are found growing in damp gullies in the north of Motley and around the margin of a patch of marshy grassland in the southern half (Upson *et al.*, 2010).

Threats to IPA

Soil erosion - low

There are several large areas formerly vegetated with Tussac which are currently devoid of plants and in need of replanting with Tussac tillers.



Bluegrass is the dominant grass on Motley Island (left) and Smooth Falkland Daisy (right) is locally frequent.

Port Stephens

Ref number	IPA13
Coordinates	52°08'05" S, 60°50'30" W
Altitude	0-224 m
Area	1606 ha
IPA categories	A
Status	Privately owned, P. & A. Robertson
No. of native plants	74
No. of endemic plants	8
No. of habitat types	14



View looking north along the west coast of Port Stephens (above) and south from the summit of Stephens Peak (below).

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Moore's Plantain <i>Plantago moorei</i>	>1200 cushions	Spread over several sites. Separate subpopulations not always clearly distinguishable.
A	False-plantain <i>Nastanthus falklandicus</i>	c. 9000 rosette 'clusters'	Spread over many populations.
B	See below	N/A	High number of endemic species (7).
B	Tasselweed <i>Ruppia filifolia</i>	Unknown	Open water indicator species. Nationally threatened species. Occurs within one pond across c. 15x20 m.

Site description

The area of Port Stephens qualifying as an IPA stretches along the western coastline between Carancho Bluff and Pea Point and includes steep, impressive cliffs and dramatic natural archways in an area of outstanding natural beauty. Inland there are relatively low-lying rolling hills with occasional rocky exposures that form some spectacular, surreal landscapes. The highest point is Stephens Peak at 224 m. Geologically, the southern part of the IPA up to Calm Head is composed of pale grey or red-coloured medium-grained quartz sandstones formed in marine and fluvial environments during the Silurian period, 443-417 million years ago (Aldiss & Edwards, 1999).

Farther north to Carancho Bluff are coastal exposures of coarser sandstones formed during the same period (Aldiss & Edwards, 1999).

The exposed cliff tops are vegetated with alternating Shore Meadow-grass-dominated coastal (saline) grassland, coastal feldmark and coastal cushion heath whereas further inland and along the lower coastal sections Diddle-dee dwarf shrub heath generally predominates. There are sandy coves and both freshwater and brackish ponds across the IPA.

Flora

Port Stephens holds over 95% of the world's population of the globally Endangered Moore's Plantain and is one of the two strongholds for the globally Endangered False-plantain (Upson, 2008c).

A total of 89 vascular species have so far been recorded within the IPA with 74 being native (43% of the total native flora) and 15 introduced species. Six further endemic species are present: Lady's Slipper, Vanilla Daisy, Coastal Nassauvia, Silvery Buttercup, Woolly Ragwort and Smooth Ragwort.

A population of the nationally VU Tasselweed occurs in the brackish water of a small pond within the Empire Beach Camp. Also of interest are inland sites where the scarce Coral-fern grows within Diddle-dee dwarf shrub heath.

Threats to IPA

Invasive species (plant) - high

One of the main threats to this site, which affect both species of international importance, is the increasing spread of the Mouse-ear hawkweed.

Soil erosion - high

One of the main threats to this site, which affect both species of international importance, is erosion. Coastal habitats are vulnerable to erosion and, as the majority of key Moore's Plantain and False-plantain subpopulations occur on such sites, there is a risk from disturbance. Long term monitoring of at least one of the largest subpopulations for each species is a priority.

Agriculture (livestock/Grazing) - medium

Livestock appear to show a preference for grazing flower heads of False-plantain but the habitat within which it occurs is not generally of high grazing value. Moore's Plantain is vulnerable to trampling.

Development (recreation/tourism) - low



Population of False-plantain on the west coast of Port Stephens. Photograph by T. Heller, RGB Kew.

Saunders Island (including Rat Island)

Ref number	IPA14
Coordinates	51°20'30" S, 60°07'00" W
Altitude	0-433 m
Area	12,356 ha
IPA categories	A, B
Status	IBA, Privately owned, D.L. Pole-Evans
No. of native plants	121
No. of endemic plants	9
No. of habitat types	19



Stands of Chilean Tall-fern on the north coast of Saunders Island (left) and Shrubby Seablite on nearby Rat Island (right).

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Antarctic Cudweed <i>Gamochaeta antarctica</i>	Unknown	Not possible to make an accurate count.
A	Hairy Daisy <i>Erigeron incertus</i>	c. 400 flowering stems	Three subpopulations.
B	See below	N/A	IPA with the second highest number of endemic species (9).
B	Shrubby Seablite <i>Suaeda argentinensis</i>	c. 40	Criterion B indicator species for coastal shingle. Nationally threatened species.
B	Maidenhair-fern <i>Adiantum chilense</i>	c. 10 patches	Criterion B indicator species for maritime cliff. Nationally threatened species. Two sites.
Additional importance			
	Brittle Bladder-fern <i>Cystopteris fragilis</i>	Not possible to distinguish individuals	Nationally threatened species.
	Chilean Tall-fern <i>Blechnum chilense</i>	Not possible to distinguish individuals	Nationally threatened species.
	Leathery Shield-fern <i>Rumohra adiantiformis</i>	1	Nationally threatened species.
	Pale Yellow Orchid <i>Gavilea australis</i>	c. 40	Nationally threatened species. Known at one site.
	Patagonian Hawkweed <i>Hieracium patagonicum</i>	300+ leaf rosettes	Nationally threatened species. Recorded within six 1 km grid squares. Only have counts for one of these.
	Silvery Buttercup <i>Hamadryas argentea</i>	Unknown	Near threatened species.

Site description

Saunders Island in the northwest of the archipelago is the third largest offshore island in the Falklands. The Saunders IPA includes Rat Island off the east coast. Saunders has low-lying areas

as well as three series of hills, with several peaks reaching over 300 m. The south and east of the Island are more sheltered owing to close proximity to the mainland and Keppel Island.

This IPA includes a wide variety of habitats that support rare upland, inland rock and heath species. The major habitat types are dwarf shrub heath dominated by Diddle-dee and semi-improved neutral grassland dominated by introduced grass species. Plant communities up on dry ridges, less accessible cliffs and flush areas are amongst the most diverse.

Reasonable stands of Fachine scrub are found in valleys across the island and there are extensive fern beds on many hillsides and gully margins. Steep cliffs occur along the north and western coasts of Saunders and lower cliffs can be found along large areas of the remaining coastline. There are sheltered coves, sandy beaches, wetland areas, large ponds and several stoneruns, with the largest occurring on the south side of Mt. Richard.

Rat Island lies to the south of Saunders settlement, off the east coast of Saunders Island. It is a low lying, ungrazed island under 10 m a.s.l. The predominant vegetation is Bluegrass grassland with scattered Tussac plants within.

Flora

Saunders Island holds the largest known population of the globally Endangered Antarctic Cudweed and supports one of the five largest subpopulations of the globally Vulnerable Hairy Daisy.

There is a rich vascular plant flora of 121 native species (70% of the native flora) and 54 introduced species. In addition to the two globally threatened species there are seven further endemics: Lady's Slipper, Clubmoss Cudweed, Silvery Buttercup, Vanilla Daisy, Coastal Nassauvia, Snakeplant, Woolly Ragwort and Smooth Ragwort. Both near endemic species, Shield-fern and Falkland Cudweed, are also present. It is perhaps the combination of a milder climate and high number of different habitats that explains the relative richness of the Saunders Island flora.

All four native orchid species are found on Saunders Island, including the second largest population of the nationally VU rare Pale Yellow Orchid. The nationally VU Brittle Bladder-fern grows southwest of Brett Hill and the rare Southern Dock is also found on Saunders Island.

The flora also includes four taxa recorded only from the islands of West Falkland: the nationally EN Maiden-hair Fern, nationally VU Chilean Tall-fern, nationally EN Patagonian Hawkweed and the nationally EN Leathery Shield-fern. Rat Island is unique because it holds the only known population of nationally EN Shrubby Seablite across the Islands. Further islands in the area should be surveyed for this species.

Threats to IPA

Agriculture (livestock/Grazing) - medium

One site containing a population of the Hairy Daisy, Antarctic Cudweed and the Pale Yellow Orchid will be fenced off from livestock grazing. Permanent monitoring sites have been set up for the Hairy Daisy. Sheep, cattle, horses and goats graze the island.

Development (recreation/tourism) - low

Invasive species (plant) - low

Both Spear Thistle and Prickly Sow-thistle occur on Saunders in areas away from the core IPA zones; the landowners are aware of the issue and are supporting eradication work at affected sites (Lewis, 2010; Summers, 2008).

Soil erosion - low

Although not directly affecting the IPA status of the site, there is severe erosion at several places on Saunders, including The Neck. Options for preventing the rapid spread of this erosion are being considered by the landowners.

Split Island

Ref number	IPA15
Coordinates	51°28'25" S, 60°42'45" W
Altitude	155 m
Area	220 ha
IPA categories	A,C
Status	Privately owned, R. Gibbons
No. of native plants	41
No. of endemic plants	5
No. of habitat types	9

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Falkland Rock-cress <i>Phlebotobium maclovianum</i>	Several mature plants recorded in 2001 (Woods, 2009)	
C	Boxwood Scrub	Unknown	Largest stand of mature Boxwood Scrub recorded
C	Bluegrass grassland	Unmeasured but dominant over much of the island above Tussac	



Mixed Bluegrass (left) – Fuegian Couch grassland covers large areas of Split Island with endemics such as the Falkland Smooth Daisy (right) occurring within. Photographs by R. Woods.

Site description

Split Island lies in the mid northwest of the archipelago, 10 km south of West Point Island and roughly 7.5 km southwest of Boxwood Point, the nearest location on West Falkland. 'The island is spectacular when viewed from the sea to the southwest, with sheer cliffs over 135 m high' (Woods, 2009). The underlying geology is predominantly formed from sandstones (including quartzites) and mudstones (Aldiss & Edwards, 1999).

The island is vegetated with dense Tussac, coastal (saline) grassland, coastal feldmark and coastal cushion heath (Woods, 2009). In addition, a dense 20-50 m belt of Boxwood scrub occurs inland of the coastal rim of Tussac, particularly along northeast- and southeast-facing slopes (R. Woods, pers. comm.). A shallow freshwater pond occurs behind cliff peaks in the southeast of the island and there are also several streams, with one fed by the pond.

Split Island was used as wintering ground for rams and cattle for roughly 20 years in the late 19th century but it is believed that it has not been grazed since (Woods, 2009).

Flora

This site qualifies as an IPA primarily because it is one of only two sites (along with Tea Island) known to hold fully developed stands of Boxwood, which in some parts reach 3 m tall (Woods, 2009). There are also very extensive stands of Bluegrass grassland and a small population of the globally threatened Falkland Rock-cress (Woods, 2009). In addition there are four other endemic

species present on the island: Coastal Nassauvia, Vanilla Daisy, Woolly Falkland Daisy and Smooth Falkland Daisy.

Threats to IPA

None known – South America Grey Foxes *Lycalopex griseus*, released on Split Island by John Hamilton in the 1930s, are not known to have significantly altered the vegetation of the island. However, dug sections of horizontal-growing *Nassauvia gaudichaudii* had apparently been excavated by foxes, presumably to obtain invertebrate food (R. Woods, pers. comm.). *Coleoptera elytra* and some vegetable matter have been found in old faeces. No evidence was found for the presence of rats or mice in 1997 or 2001 (R Woods, pers. comm.).

Tea Island

Ref number	IPA16
Coordinates	51°54'10" S, 61°10'00" W
Altitude	198 m
Area	320 ha
IPA categories	A, C
Status	Privately owned, S. Poncet
No. of native plants	Unknown
No. of endemic plants	6
No. of habitat types	6

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	False-plantain <i>Nastanthus falklandicus</i>	221	Number of rosettes. Subpopulation occurred within an area of 75 x 20 m.
C	Boxwood Scrub	Unknown	Restoration work planned

Site description

Lying east of Staats Island and roughly 1 km off the west coast of Weddell Island, Tea Island is in the extreme west of the archipelago. Its geology is composed predominantly of sandstones and quartzites (Aldiss & Edwards, 1999). The island is vegetated with coastal (saline) grassland, coastal feldmark, coastal cushion heath, Boxwood scrub and Tussac (S. Poncet, pers. comm.). The coastal grassland includes extensive areas of Bluegrass grassland.

Flora

This site qualifies as an IPA firstly because it is one of only four areas known to support the globally Endangered False-plantain. Secondly, Tea Island is one of only two sites (along with Split Island) known to hold a fully developed stand of Boxwood Scrub.

In addition there are five other endemic species present on the island: Coastal Nassauvia, Lady's Slipper, Vanilla Daisy, Woolly Falkland Daisy and Smooth Falkland Daisy. The unidentified possible endemic hybrid *Calandrinia* species is also found on Tea Island. Further research is needed to investigate the importance of the latter species and determine if it is truly endemic (see Hershkovitz, 2006 for most recent data).

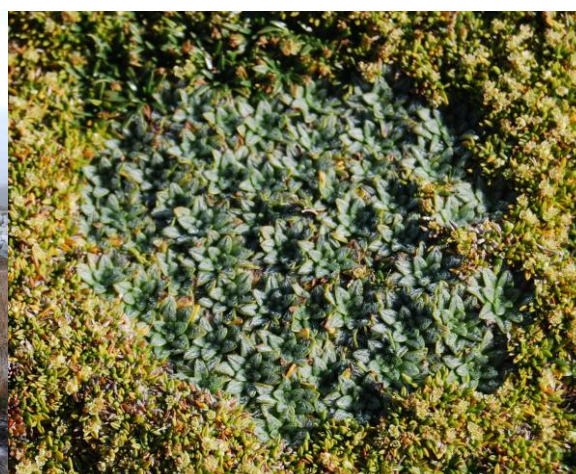
Threats to IPA

Soil erosion - low

There are large eroded areas on the island. Restoration work is planned for the Boxwood scrub habitat. The restoration work involves planting Tussac in areas adjacent to the Boxwood scrub in order to prevent Tussac peat blowing and burying emerging Boxwood seedlings (S. Poncet, pers. comm.). Coastal habitats are vulnerable to erosion and, as the majority of False-plantain subpopulations occur on such sites, there is a risk from disturbance.

Weddell Island

Ref number	IPA17
Coordinates	51°55'25" S, 60°57'00" W
Altitude	0- 383 m
Area	25,625 ha
IPA categories	A, C, B
Status	Privately owned, Strachan Visick PLC
No. of native plants	114
No. of endemic plants	12
No. of habitat types	25



The largest recorded population of the Falkland Rock-cress grows around a rocky outcrop on Weddell Island (left) and the only known population of Moore's Plantain (right) outside of Port Stephens can be found on Weddell's west coast.

IPA criteria	Key species/ habitats	Number of individuals/ area covered (if known)	Notes
A	Moore's Plantain <i>Plantago moorei</i>	16-20 cushions	Only population known outside Port Stephens.
A	Falkland Rock-cress <i>Phlebotobium maclovianum</i>	91-100 plants	
A	Antarctic Cudweed <i>Gamochaeta antarctica</i>	<10 plants	One of only 3 locations from which this species is currently known
A	Hairy Daisy <i>Erigeron incertus</i>	1 leaf rosette	Likely to be further individuals in un-surveyed areas
B	See below	N/A	IPA with the highest number of endemic species (10).
C	Fachine Scrub	Unknown	Fachine scrub associated with endemic species. Aerial photography would help to ascertain total area covered.
C	Boxwood Scrub	Unknown	Recovering Boxwood Scrub. Aerial photography would help to ascertain total area covered.
Additional importance			
	Chilean Tall-fern <i>Blechnum chilense</i>	Not possible to distinguish individuals but stands cover several hectares in total	Nationally threatened species.
	Fuegian Foxtail <i>Alopecurus magellanicus</i>	Two patches close together (10x5m, 5x5m)	Nationally threatened species
	Pale Yellow Orchid <i>Gavilea australis</i>	34 flower spikes (R. Lewis pers. comm.)	Nationally threatened species.
	Silvery Buttercup <i>Hamadryas argentea</i>	c. 500 leaf rosettes	Near Threatened species. 6 subpopulations. Number of individuals is uncertain owing to unknown extent of vegetative spread.

Site description

Weddell Island, situated in the far west of the archipelago, is the largest offshore island in the Falklands. There is a wide variety of different habitats supporting a rich and varied flora. Dwarf shrub heath is the dominant habitat inland and along coastal slopes with low cliffs. Along the west coast above high cliffs, coastal cushion heath and coastal feldmark are the dominant habitats with scattered patches of coastal (saline) grassland.

Across the island there are clear indications of a recovery from past intensive grazing with large areas of dwarf shrub heath now being grown over by Cinnamon Grass, a trend also seen on un-grazed Keppel Island.

Extensive fern beds occur on many hillsides and in gullies, as do impressive stoneruns. Large stands of Fachine scrub can also be found within several valleys in association with watercourses. There are pebble beaches as well as sandy beaches backed by dunes. Tussac is also recovering at several coastal sites, as is Boxwood scrub.

Flora

Weddell Island qualifies as an IPA primarily because it contains the largest population of the globally Vulnerable Falkland Rock-cress and the only population of the globally Endangered Moore's Plantain outside the Port Stephens IPA. Small numbers of the globally Endangered Antarctic Cudweed and globally Vulnerable Hairy Daisy have also been recorded.

A total of 114 native (65% of the Falkland native flora) and 41 introduced species have so far been recorded on Weddell but, with over half the island still to be surveyed, this number is likely to rise. Eight further endemics grow on Weddell: Coastal Nassauvia, Clubmoss Cudweed, Lady's Slipper, Silvery Buttercup, Smooth Ragwort, Snakeplant, Vanilla Daisy and Woolly Ragwort. Five Snakeplant populations have so far been recorded growing outside stone runs and several large Silvery Buttercup populations occur, predominantly associated with areas of Fachine scrub. In addition both of the near endemic species, Falkland Cudweed and Shield-fern, have also been recorded on Weddell.

Three different nationally threatened species are found on Weddell. The nationally Vulnerable Chilean Tall-fern forms large fern beds within dwarf shrub heath on coastal hillsides either side of Wood Cove, in the French Hills and probably in further un-surveyed locations. The nationally VU grass Fuegian Foxtail forms two nearby stands.

All four species of orchid, native to the Falklands, are also found on Weddell Island: Dog Orchid, Gaudichaud's Orchid, Yellow Orchid and the nationally Vulnerable Pale Yellow Orchid.

Threats to IPA

Agriculture (livestock/Grazing) - low

The last sheep outside the Mark Point Paddocks (166 hectares) were culled in 2009. Nine male reindeer are still present but will not be restocked and are single sex. These reindeer were not seen during the last survey and there were no obvious impacts noted.

Invasive species (plant) - low

Gorse has spread beyond its original use as shelter/ hedging.

Soil erosion - medium

There are large eroded areas along the coast where bare rock/ clay or sand are exposed. At least one site has been burnt by lightning and is still in recovery with bare peat exposed, but Tussac grass is beginning to re-establish here.

South America Grey Foxes *Lycalopex griseus* were released on Split Island by John Hamilton in the 1930s but these have no known significant negative impacts on the vegetation of the island.

PART III

Appendices

1: Falkland Islands Countryside Code

- Always ask permission before entering private land.
- Keep to paths wherever possible. Leave gates open or shut as you find them.
- Be aware of the high fire risks throughout the Islands. Be extremely careful when smoking not to start fires. Take cigarette butts away with you.
- Do not drop litter*. Take your rubbish home with you.
- Do not disfigure rocks or buildings.
- Do not touch, handle, injure or kill any wild bird or other wild animal*.
- Never feed wild animals.
- Always give animals the right of way. Remember not to block the routes of seabirds and seals coming ashore to their colonies.
- Try to prevent any undue disturbance to wild animals. Stay on the outside of bird and seal colonies. Remain at least 6 m (20 ft) away. When taking photograph or filming stay low to the ground. Move slowly and quietly. Do not startle or chase wildlife from resting or breeding areas.
- Some plants are protected and should not be picked*. Wildflowers are there for all to enjoy.
- Whalebones, skulls, eggs or other such items may not be exported from the Falkland Islands*. They should be left where they are found.

* Such actions (with a few special exceptions) may constitute an offence in the Falkland Islands and could result in fines up to £3,000.

Adapted for the Falkland Islands from guidelines adopted by members of IAATO, South Georgia Management Plan, Galapagos Rules for Preservation and the Code of Conduct for visitors to the Antarctic

2: Falkland Island habitat classification summary¹

© Falklands Conservation

	1 st level	2 nd level	3 rd level	4 th level	Description	Characteristic species
A	Tussac	1. Dense/ continuous 2. Scattered			This is confined to coastal areas including small offshore islands, usually below 200 m altitude. At its maximum development it comprises almost a pure stand of 'tussac' <i>Poa flabellata</i> .	Tussac grass
B	Grassland	1. Acid grassland	1. Unimproved 2. Semi-improved	1. Upland 2. Lowland	This includes all semi-improved and unimproved grassland dominated by <i>Cortaderia pilosa</i> occurring on acid soils, and includes wet acidic grasslands typified by Juncaceae, particularly <i>Rostkovia magellanica</i> . Acid grassland often grades into wet or dry dwarf shrub heath, although it must always have less than 25% dwarf shrub cover.	Whitegrass Where grazing is absent or low, Bluegrass and/ or native Fescue species can be common/ dominant
		2. Neutral (including 'greens') grassland			This type includes all semi-improved and unimproved grassland occurring on circumneutral soils or in areas of nutrient flushing on otherwise acid soils (locally termed greens). It includes a range of grass-dominated vegetation, which are inundated with water periodically, permanently moist or even waterlogged grassland where grasses are dominant in the sward (c.f. marsh/ marshy grassland). It includes the fine grassy vegetation (often grazed) found in coastal and valley areas and in areas of flushing, and other ranker grasslands, including stands of Cinnamon grass <i>Hierochloa redolens</i> . Stands of Tall rush <i>Marsippospermum grandiflorum</i> (Juncaceae) that occur in areas of flushing, often in association with grass communities, are also included.	*Smooth-stalked meadow grass *Annual meadow grass Cinnamon grass Tall rush Native rush *Yorkshire fog *Common Bent
		3. Improved/ reseeded			This type includes species poor, grass dominated swards occurring on all soil types that have either been sown, or created by modification of unimproved grassland by fertilisers and selective herbicides, for agricultural or recreational purposes. It includes the species-poor 'lawn' vegetation, resulting from intensive grazing, that is associated with settlements, and grassland that has been reseeded for more than one year.	*Yorkshire fog *Common Bent *Early hair-grass *Red Fescue

C	Dwarf shrub heath	1. Dry dwarf shrub heath 2. Wet dwarf shrub heath 3. Dry dwarf shrub heath/ acidic grass mosaic 4. Wet dwarf shrub heath/ acidic grass mosaic	1. Upland 2. Lowland		This includes vegetation dominated (over 25% ground cover) by ericoids and other dwarf shrub species, typically found overlying acid, free-draining often rather shallow soils. Diddle-dee <i>Empetrum rubrum</i> is usually the dominant species, however Christmas bush <i>Baccharis magellanica</i> and Mountainberry <i>Gaultheria</i> species can be locally important. The type includes <i>E. rubrum</i> -Balsam bog <i>Bolax gummifera</i> heath.	Diddle-dee Christmas Bush Mountainberry Small-fern Balsam Bog (e.g. at coastal sites and at higher altitude)
D	Fern beds	1. <i>Blechnum magellanicum</i> 2. <i>Blechnum penna-marina</i> 3. <i>Blechnum cordatum</i> 4. <i>Gleichenia cryptocarpa</i>	1. Continuous 2. Scattered		This type includes areas with a continuous cover of fern such as <i>Blechnum magellanicum</i> . It does not include areas that are less than 0.25 ha (c. 50 m x 50 m) and these should be included in the broad habitat type that they are associated with.	Tall-fern
E	Cushion heath	1. Cushion heath - coastal 2. Cushion heath - inland			This includes vegetation with high ground cover, dominated (over 25% ground cover) by cushion plants	Coastal Nassauvia Tufted Azorella Magellanic Fescue Native Wood-rush
F	Montane/ Feldmark	1. Cushion plant dominated 2. Moss and lichen dominated			This type includes vegetation dominated by cushion plants with low ground cover. It also includes moss and lichen dominated heaths of mountain summits. It does not include montane dwarf shrub heaths, flushes, grasslands and rock and scree communities that can also be found at lower elevations with little change in floristics and which should be treated as components of other broad habitat types.	Lichen species Cushion-plant
G	Bog and flush	1. Bog	1. Blanket bog 2. Raised bog 3. Wet modified bog 4. Dry modified bog		This type includes wetlands that support vegetation that is usually peat forming which receive nutrients only from precipitation (ombrotrophic). It includes cushion bog dominated by <i>Astelia pumila</i> , <i>Caltha appendiculata</i> , <i>Gaimardia australis</i> and <i>Drosera uniflora</i> covering 0.25 ha (50*50 m) or more, and valley raised bog communities dominated by <i>Sphagnum</i> , <i>Carex microglochin</i> and <i>Montia fontana</i> .	Soft-camp-bog Sundew Sphagnum species

		2. Flush			This type is associated with water movement and may or may not form peat. Flushes generally occur on gently-sloping ground, are often linear or triangular and may include small water courses. If too small to map they should be target noted. Typically have an open or closed ground layer of <i>Sphagnum</i> and/ or other bryophytes. This well-developed bryophyte layer distinguishes flush habitats from marshy grassland and from wet acid or neutral grassland.	Well-developed bryophyte ground layer Bristle sedge
	Fen, marsh and swamp/ marginal communities	1. Fen and swamp	1. Fen 2. Swamp		This type includes vegetation that is ground water fed, and permanently, seasonally or periodically waterlogged peat, peaty or mineral soils where grasses do not predominate. In this case the water table is distinctly above the level of the substrate for most of the year. This does not include wet grassland. It includes emergent vegetation e.g. 'reed beds' composed of <i>Schoenoplectus californicus</i> , or frequently inundated vegetation occurring over peat or mineral soils.	Blood-beak sedge American Willowherb California club-rush (in reed beds)
		2. Marginal			Strips of fen or swamp less than 5 m in width and bordering watercourses are termed 'marginal communities'.	Native willowherb
H		3. Marsh/ marshy grassland	1. Marsh 2. Marshy grassland		A broad category covering a gradation between grasslands with a high proportion of <i>Juncus</i> or sedge species and wet vegetation where grasses are subordinate to forbs A herb-rich, grass-poor vegetation found on damp level ground near the coast, and dominated by <i>Juncus scheuchzerioides</i> and/or <i>Gunnera magellanica</i> , also belongs to this type.	Pigvine Native rush

	Open Water	1. Standing water	1. Eutrophic 2. Mesotrophic 3. Oligotrophic 4. Dystrophic 5. Brackish	[1. Small ponds] [2. Ponds, etc <0.5 ha] [3. Lakes 0.5 ha] [4. Large lakes >0.5 ha] [5. Ditches]	This type includes natural systems such as lakes (c. 0.5 ha), large lakes (> 0.5 ha), small ponds and ponds (< 0.5 ha), as well as man-made waters such as ditches. It includes the open water zone, which may contain submerged, free floating or floating-leaved vegetation, and water fringe vegetation such as <i>Ranunculus</i> spp., shoreweed <i>Littorella australis</i> & water-starwort <i>Callitriche antarctica</i> . It also includes adjacent wetland habitats with contiguous water levels that are less than 0.25 ha. Small areas of open water in a predominately terrestrial habitat such as bog pools or temporary pools on heaths and acid grassland should be included in the appropriate broad habitat type.	Water-starwort Spike-rush Water-milfoil Tasselweed Pondweed
		2. Running water	1. Eutrophic 2. Mesotrophic 3. Oligotrophic	[1. Spring and small stream <1 m wide] [2. Streams and rivers 1-3 m wide] [3. Rivers > 3 m wide]	This type includes rivers and streams from bank top to bank top. This includes the open water zone, which may contain submerged, free floating or floating-leaved vegetation, water fringe vegetation and exposed sediments.	Water-starwort Spike-rush Water-milfoil
I					Relevant extra classification for open water: 1. Eutrophic – water often strongly discoloured by algae. PH usually over 7. Substrate often highly organic mud. 2. Mesotrophic – Water sometimes discoloured by planktonic algae. PH usually around or slightly below neutral. 3. Oligotrophic – Water very clear, pH usually less than 7. Substrate rocky, sandy or peaty 4. Dystrophic – Water usually peat-stained. PH very low (3.5-5.5). Alkalinity very low.	

J	Coastland	1. Littoral sediment	1. Intertidal	1. Mud	A shoreline with grains not visible to the naked eye. On lower mud flats <i>Spergularia marina</i> may be important.		Littoral sediment occurs between the upper margin of the littoral zone (corresponds to the upper limit of lichen <i>Verrucaria</i> where it occurs) to the lower margin. Thus, a wide range of communities are included from intertidal mudflats and beaches to saltmarsh.	Thrift plantain Shore Meadow-grass Andean Pearlwort Antarctic hair-grass Stonecrop Sea Knotgrass
				2. Sand	A shoreline with visible grains averaging < 2 mm in diameter.	On these coarser sediments <i>Chenopodium macrospermum</i> & <i>Polygonum maritimum</i> may be found.		
				3. Shingle/ cobbles	A shoreline with stones averaging 2 - 300 mm in diameter.			
4. Boulders	A shoreline with stones averaging > 300 mm in diameter.							
5. Rocks	Rocky shores have exposed bedrock and rock pools.							
			2. Saltmarsh	1. <i>Plantago barbata</i> 2. <i>Poa robusta</i> 3. Other	Saltmarsh forms a very narrow fringe around the sheltered muddy mouths of larger creeks. Saltmarsh in the Falkland Islands is typified by extensive mats of <i>Plantago barbata</i> or <i>Poa robusta</i> , with <i>Colobanthus quitensis</i> , <i>Deschampsia antarctica</i> and <i>Crassula moschata</i> .			
		2. Sand dunes			This type includes areas of loose, shifting or semi-stabilised sand found both in coastal areas and further inland. It includes the vegetation of the supralittoral zone, such as <i>Senecio candidans</i> and <i>Rumex crispus</i> , and more permanent vegetation types dominated by <i>Ammophila arenaria</i> and <i>Leymus arenarius</i> .		*Marram grass Sea Cabbage	
		3. Rock/ boulders 4. Shingle 5. Strandline vegetation			This type occurs above high water mark, in areas influenced by wavesplash and seaspray (supralittoral zone). Features that may be present include vertical rock, boulders, gullies, ledges and pools, depending on the wave exposure of the site and its geology. The type includes the very species poor habitat type dominated by <i>Stellaria media</i> , <i>Rumex acetosella</i> & sparse grasses, associated with seabird colonies, particularly penguin rookeries. It also includes the variously combined communities of very-limited extent found in rock crevices, that includes taxa such as <i>Colobanthus</i> species, <i>Crassula moschata</i> & <i>Ranunculus acaulis</i> , and vegetated shingle which is often dominated by <i>Armeria maritima</i> , <i>Apium australe</i> & <i>Isolepis cernua</i> .		Wild celery Thrift Andean Pearlwort Emerald bog Stonecrop *Procumbent pearlwort Sea Cabbage Antarctic hair-grass	

		6. Maritime cliff	1. Hard 2. Soft	1. Crevice/ ledge vegetation 2. Coastal heath 3. Bird cliff vegetation		
		7. Coastal (saline) grassland			In some areas seaspray influenced coastal grassland dominated by <i>Poa robusta</i> occurs above the high tide mark and sometimes on exposed cliff tops (e.g. at Port Stephens, West Falkland).	Shore Meadow-grass Wild celery Bluegrass Antarctic hair-grass
		9. Coastal fieldmark			Cushion, moss or lichen dominated areas on coastal sites at low altitudes with low ground cover.	Coastal Nassauvia Tufted Azorella
K	Inland rock	1. Natural rock exposure	1. Inland cliff 2. Scree 3. Stone run 4. Other	1. Acidic 2. Basic	This type includes both natural and artificial exposed rock surfaces where these are almost entirely lacking in vegetation, as well as various forms of excavations and waste tips. It includes inland cliffs, ledges and caves, screes, stone runs, quarries and quarry waste.	Snakeplant (stone runs) Shield fern
		2. Artificial rock exposures	1. Quarry 2. Spoil heap 3. Mine			
L	Scrub	1. Dense/ continuous 2. Scattered	1. <i>Chilotrichum diffusum</i> 2. <i>Hebe elliptica</i> 3. <i>Ulex europaeus</i> 4. <i>Berberis buxifolia</i>		This type includes patches of scrub, which form a continuous canopy. It includes stands dominated by Fachine <i>Chilotrichum diffusum</i> , Native Boxwood <i>Hebe elliptica</i> and Gorse <i>Ulex europaeus</i> . It does not include loose associations of bushes in a vegetation otherwise of another broad habitat type. Ideally this type would only include scrub areas over 50 m x 50 m (in line with other broad habitats). However, very few such sites still exist in the Falkland Islands due to the high numbers of grazing livestock that have been present since human occupation. In terms of the two native scrub communities it is important to raise awareness of the conservation needs of the broad habitat type, and consequently a more lenient approach in recognising the broad habitat type is desirable. Small stands are often remnants of previously much larger stands. Dominant species should always be noted.	Fachine Boxwood *Gorse

M	Woodland	1. Coniferous 2. Broadleaved (may occur in the future) 3. Mixed	1. Semi-natural (this is possible in future) 2. Plantation		This type includes all mature coniferous stands where broad-leaved trees make up less than 20% cover (effectively all woodland sites). Other integral features of woodland such as glades and rides are included. Young plantations should be considered a part of the broad habitat type they were planted in until the canopy closes over. This broad habitat type is scarce at present but may well increase in importance in the future due to forestry activity.	*Lodgepole pine *Monterey Cypress
	Other	1. Arable and horticulture			This type is of relatively minor importance but has the potential to increase with farm and economic diversification. It includes, for example, arable cropland, commercial horticultural land, freshly ploughed land, annual leys. It does not include domestic gardens.	
		2. Built up areas and garden			This type includes urban and rural settlements, farm buildings, and other man made built structures such as industrial estates, waste and derelict ground, and transport infrastructure. It also includes domestic gardens and allotments. This type does not include amenity grassland, which should be included in the " <i>Improved grassland</i> " broad habitat type.	
		4. Bare ground			Patches of bare soil or other substrate more than 0.25 ha (approx 50 m x 50 m) are possible to map otherwise a target note will suffice	*Sheep's sorrel *Early hair-grass
		5. Introduced vegetation			Covers areas dominated by introduced species that don't fit into any of the above categories – i.e. areas dominated by almost single species stands of Sheep's Sorrel	*Sheep's sorrel

¹Developed from Broughton et al. (2000)

*Introduced species

3:

Checklist of Falkland native vascular plants

© Falklands Conservation

Species sorted by common name:

Common name	Latin name	Frequency across the Falkland Islands	Conservation notes ¹
Adder's-tongue	<i>Ophioglossum crotalophoroides</i>	Rare	Protected
Almond-flower	<i>Luzuriaga marginata</i>	Frequent	
American Cudweed	<i>Gamochaeta americana</i>	Rare	
American Willowherb	<i>Epilobium ciliatum</i>	Rare	
Andean Pearlwort	<i>Colobanthus quitensis</i>	Frequent	
Antarctic Bedstraw	<i>Galium antarcticum</i>	Frequent	
Antarctic Buttercup	<i>Ranunculus biternatus</i>	Frequent	
Antarctic Cudweed	<i>Gamochaeta antarctica</i>	Very rare, ENDEMIC	Endangered
Antarctic Hair-grass	<i>Deschampsia antarctica</i>	Occasional	
Antarctic Hawkweed	<i>Hieracium antarcticum</i>	Scarce	
Antarctic Mountainberry	<i>Gaultheria antarctica</i>	Occasional	
Antarctic Prickly-burr	<i>Acaena antarctica</i>	Very rare	
Arrowgrass	<i>Tetroncium magellanicum</i>	Scarce	
Arrow-leaved Marigold	<i>Caltha sagittata</i>	Occasional	
Balsam-bog	<i>Bolax gummifera</i>	Frequent	
Bank's Sedge	<i>Carex banksii</i>	Very rare	
Barros Sedge	<i>Carex sagei</i>	Very rare	
Beadplant	<i>Nertera granadensis</i>	Frequent	
Berg's Hair-grass	<i>Koeleria permollis</i>	Very rare (1937-1938)	
Berry-lobelia	<i>Lobelia pratiana</i>	Frequent	
Bitter-cress	<i>Cardamine glacialis</i>	Occasional	
Blinks	<i>Montia fontana</i>	Occasional	
Blood-beak Sedge	<i>Carex aematorryncha</i>	Rare	
Bluegrass	<i>Poa alopecurus</i>	Frequent	
Bramble-fern	<i>Hypolepis poeppigii</i>	Very rare	
Bristle Sedge	<i>Carex microglochin</i>	Rare	
Brittle Bladder-fern	<i>Cystopteris fragilis</i>	Rare	
Buttercup-parsley	<i>Schizeilema ranunculus</i>	Frequent	
Buttonweed	<i>Leptinella scariosa</i>	Frequent	
Caducous Sedge	<i>Carex caduca</i>	Rare	
California Club-rush	<i>Schoenoplectus californicus</i>	Rare	
Chilean Tall-fern	<i>Blechnum cordatum</i>	Rare	
Christmas-bush	<i>Baccharis magellanica</i>	Common	
Cinnamon-grass	<i>Hierochloa redolens</i>	Frequent	
Clubmoss Azorella	<i>Azorella lycopodioides</i>	Frequent	
Clubmoss Cudweed	<i>Chevreulia lycopodioides</i>	Frequent, ENDEMIC	
Coastal Nassauvia	<i>Nassauvia gaudichaudii</i>	Frequent, ENDEMIC	
Comb fern	<i>Schizaea fistulosa</i>	Very rare	
Common Clubmoss	<i>Lycopodium magellanicum</i>	Frequent	
Common Violet	<i>Viola maculata</i>	Occasional	
Coral-fern	<i>Gleichenia cryptocarpa</i>	Scarce	
Creek Sedge	<i>Carex deciduala</i>	Rare	
Creeping Clubmoss	<i>Lycopodium confertum</i>	Scarce	
Cushion Azorella	<i>Azorella selago</i>	Rare	
Darwin's Filmy-fern	<i>Hymenophyllum darwinii</i>	Rare	
Diddle-dee	<i>Empetrum rubrum</i>	Common	
Dog Orchid	<i>Codonorchis lessonii</i>	Occasional	

Common name	Latin name	Frequency across the Falkland Islands	Conservation notes¹
Drapetes	<i>Drapetes muscosus</i>	Occasional	
Dusen's Moonwort	<i>Botrychium dusenii</i>	Very rare	Protected
Dusky Sedge	<i>Carex fuscula</i>	Occasional	
Dusty Miller	<i>Primula magellanica</i>	Occasional	
Dwarf Daisy	<i>Lagenophora nudicaulis</i>	Occasional	
Dwarf Hair-grass	<i>Deschampsia parvula</i>	Rare	
Dwarf Marigold	<i>Caltha appendiculata</i>	Occasional	
Dwarf Prickly-burr	<i>Acaena pumila</i>	Rare	
Dwarf Saltmarsh-grass	<i>Puccinellia pusilla</i>	Very rare	
Emerald-bog	<i>Colobanthus subulatus</i>	Frequent	
Eyebright	<i>Euphrasia antarctica</i>	Rare	
Fachine	<i>Chiliodrichum diffusum</i>	Frequent	
Falkland Buttercup	<i>Ranunculus maclovianus</i>	Occasional	
Falkland Cudweed	<i>Gamochaeta malvinensis</i>	Frequent	
Falkland Filmy-fern	<i>Hymenophyllum falklandicum</i>	Scarce	
Falkland Lavender	<i>Perezia recurvata</i>	Frequent	
Falkland Nassauvia	<i>Nassauvia falklandica in ed.</i>	Very rare, ENDEMIC	Critically Endangered
Falkland Rock-cress	<i>Phlebotobium maclovianum</i>	Scarce, ENDEMIC	Endangered, Protected
Falkland Sedge	<i>Carex macloviana</i>	Rare	
Falkland Strawberry	<i>Rubus geoides</i>	Frequent	
False Ladle-leaved Buttercup	<i>Ranunculus pseudotrullifolius</i>	Scarce	
False-plantain	<i>Nastanthus falklandicus</i>	Rare, ENDEMIC	Endangered, Protected
Felwort	<i>Gentianella magellanica</i>	Occasional	
Field Mouse-ear	<i>Cerastium arvense</i>	Frequent	
Fir Clubmoss	<i>Huperzia fuegiana</i>	Rare	Protected
Foxberry	<i>Nanodea muscosa</i>	Occasional	
Fuegian Bent	<i>Agrostis magellanica</i>	Occasional	
Fuegian Couch	<i>Elymus magellanicus</i>	Occasional	
Fuegian Fescue	<i>Festuca magellanica</i>	Frequent	
Fuegian Foxtail	<i>Alopecurus magellanicus</i>	Rare	
Fuegian Hawks-beard	<i>Agoseris coronopifolium</i>	Occasional	
Fuegian Sedge	<i>Carex magellanica</i>	Rare	
Fuegian Violet	<i>Viola magellanica</i>	Very rare	Protected
Fuegian Whitlowgrass	<i>Draba magellanica</i>	Very rare	
Gaimardia	<i>Gaimardia australis</i>	Scarce	
Gaudichaud's Orchid	<i>Chloraea fonckii</i>	Scarce	Protected
Gillie's Dandelion	<i>Taraxacum gilliesii</i>	Scarce	
Goosefoot	<i>Chenopodium macrospermum</i>	Occasional	
Hairy Daisy	<i>Erigeron incertus</i>	Scarce, ENDEMIC	Endangered, Protected
Hooker's Sweet Cicely	<i>Oreomyrrhis hookeri</i>	Frequent	
Hook-sedge	<i>Uncinia macloviana</i>	Occasional	
King's Hook-sedge	<i>Uncinia kingii</i>	Rare	
Ladle-leaved Buttercup	<i>Ranunculus trullifolius</i>	Occasional	
Lady's Slipper	<i>Calceolaria fothergillii</i>	Occasional, ENDEMIC	
Land-tussac	<i>Festuca contracta</i>	Occasional	
Leathery Shield-fern	<i>Rumohra adiantiformis</i>	Very rare	Protected
Lesser Sea-spurrey	<i>Spergularia marina</i>	Occasional	
Lesser Swine-cress	<i>Coronopus didymus</i>	Occasional	
Lilaeopsis	<i>Lilaeopsis macloviana</i>	Frequent	
Maidenhair-fern	<i>Adiantum chilense</i>	Very rare	Protected
Marsh Buttercup	<i>Ranunculus hydrophilus</i>	Occasional	

Common name	Latin name	Frequency across the Falkland Islands	Conservation notes¹
Marsh Daisy	<i>Aster vahlii</i>	Frequent	
Marsh Pennywort	<i>Hydrocotyle chamaemorus</i>	Occasional	
Marsh Sedge	<i>Carex vallis-pulchrae</i>	Vary rare	
Meyen's Bent	<i>Agrostis meyenii</i>	Scarce	
Moore's Plantain	<i>Plantago moorei</i>	Very rare, ENDEMIC	Endangered
Mountain Violet	<i>Viola tridentata</i>	Scarce	
Mountainberry	<i>Gaultheria pumila</i>	Common	
Mountainberry hybrid	<i>Gaultheria antarctica x pumila</i>	Very rare	
Native Boxwood	<i>Veronica elliptica</i>	Occasional	
Native Pondweed	<i>Potamogeton linguatus</i>	Rare	Protected
Native Rush	<i>Juncus scheuchzerioides</i>	Frequent	
Native Stitchwort	<i>Stellaria debilis</i>	Scarce	
Native Stonecrop	<i>Crassula moschata</i>	Frequent	
Native Wood-rush	<i>Luzula alopecurus</i>	Frequent	
Native Yarrow	<i>Acaena lucida</i>	Frequent	
Nodding Club-rush	<i>Isolepis cernua</i>	Frequent	
Notched moss-bog	<i>Abrotanella emarginata</i>	Occasional	
Oreob/ Prickly-bog	<i>Oreobolus obtusangulus</i>	Frequent	
Oval-leaved Prickly-burr	<i>Acaena ovalifolia</i>	Rare	
Pale Maiden	<i>Olsynium filifolium</i>	Frequent	
Pale Yellow Orchid	<i>Gavilea australis</i>	Rare	Protected
Patagonian Hawkweed	<i>Hieracium patagonicum</i>	Rare	
Pigvine	<i>Gunnera magellanica</i>	Common	
Pimpernel	<i>Anagallis alternifolia</i>	Frequent	
Prickly-burr	<i>Acaena magellanica</i>	Frequent	
Red-haired Filmy-fern	<i>Hymenophyllum caespitosum</i>	Scarce	
Sand Cat's-ear	<i>Hypochaeris arenaria</i>	Occasional	
Saxifrage	<i>Saxifraga magellanica</i>	Very rare	Protected
Scurvygrass	<i>Oxalis enneaphylla</i>	Frequent	
Sea Cabbage	<i>Senecio candidans</i>	Frequent	
Sea Knotgrass	<i>Polygonum maritimum</i>	Scarce	
Sea Plantain	<i>Plantago maritima</i>	Very rare	
Shield-fern	<i>Polystichum mohrioides</i>	Scarce	
Shore Meadow-grass	<i>Poa robusta</i>	Frequent	
Shore Pimpernel	<i>Samolus repens</i>	Very rare	
Shoreweed	<i>Littorella australis</i>	Rare	
Short Rush/ Brown Rush	<i>Rostkovia magellanica</i>	Frequent	
Shrubby Seablite	<i>Suaeda argentinensis</i>	Very rare	Protected
Silky Buttercup	<i>Ranunculus sericocephalus</i>	Occasional	
Silvery Buttercup	<i>Hamadryas argentea</i>	Scarce, ENDEMIC	Near Threatened
Skottsberg's Buttercup	<i>Ranunculus acaulis</i>	Occasional,	
Skullcap	<i>Scutellaria nummulariifolia</i>	Very rare (1916)	
Small Dusky Sedge	<i>Carex acaulis</i>	Rare	
Small-fern	<i>Blechnum penna-marina</i>	Common	
Smooth Falkland Daisy	<i>Senecio vaginatus</i>	Occasional, ENDEMIC	
Snakeplant	<i>Nassauvia serpens</i>	Scarce, ENDEMIC	
Soft-camp-bog	<i>Astelia pumila</i>	Occasional	
Southern Dock	<i>Rumex magellanicus</i>	Rare	
Southern Mudwort	<i>Limosella australis</i>	Rare	
Spider-flower	<i>Arachnitis uniflora</i>	Very rare	
Spiked Cudweed	<i>Gamochaeta spiciformis</i>	Frequent	
Spiked Oat-grass	<i>Trisetum phleoides</i>	Frequent	
Spike-rush	<i>Eleocharis melanostachys</i>	Occasional	
Spleenwort	<i>Asplenium dareoides</i>	Very rare	

Common name	Latin name	Frequency across the Falkland Islands	Conservation notes¹
Strap-fern	<i>Grammitis poeppigiana</i>	Very rare	
Sundew	<i>Drosera uniflora</i>	Occasional	
Sword-grass	<i>Carex trifida</i>	Scarce	
Tall Rush	<i>Marsippospermum grandiflorum</i>	Frequent	
Tall-fern	<i>Blechnum magellanicum</i>	Frequent	
Tasselweed	<i>Ruppia filifolia</i>	Rare	
Teaberry	<i>Myrteola nummularia</i>	Frequent	
Thrift	<i>Armeria maritima</i>	Occasional	
Thrift Plantain	<i>Plantago barbata</i>	Frequent	
Tufted Azorella	<i>Azorella monantha</i>	Scarce	
Tussac/ Tussac-grass	<i>Poa flabellata</i>	Frequent	
Twisted Filmy-fern	<i>Hymenophyllum tortuosum</i>	Very rare	
Valerian-bog	<i>Valeriana sedifolia</i>	Scarce	
Vanilla Daisy	<i>Leucheria suaveolens</i>	Frequent, ENDEMIC	
Water-milfoil	<i>Myriophyllum quitense</i>	Frequent	
Water-starwort	<i>Callitriche antarctica</i>	Frequent	
Waterwort species	<i>Elatine triandra</i>	Very Rare	
Wavy Hair-grass	<i>Deschampsia flexuosa</i>	Frequent	
White Sedge	<i>Carex canescens</i>	Scarce	
Whitegrass	<i>Cortaderia pilosa</i>	Frequent	
Whitlowgrass	<i>Draba funiculosa</i>	Scarce	
Wild Celery	<i>Apium australe</i>	Frequent	
Wiry Azorella	<i>Azorella filamentosa</i>	Frequent	
Woolly Falkland Daisy	<i>Senecio littoralis</i>	Occasional, ENDEMIC	
Yellow Lady's Slipper	<i>Calceolaria biflora</i>	Vary rare	
Yellow Maiden	<i>Sisyrinchium chilense</i>	Scarce	
Yellow Orchid	<i>Gavilea littoralis</i>	Scarce	
Unidentified species	<i>Calandrinia cf. axilliflora</i>	Rare	

¹Protected = protected by Conservation of Wildlife and Nature Ordinance 1999
Critically Endangered/ Endangered/ Vulnerable = the international IUCN threat category which applies to this species

Species sorted by Latin names

Latin name	Common name	Frequency across the Falkland Islands	Conservation notes ¹
<i>Abrotanella emarginata</i>	Notched moss-bog	Occasional	
<i>Acaena antarctica</i>	Antarctic Prickly-burr	Very rare	
<i>Acaena lucida</i>	Native Yarrow	Frequent	
<i>Acaena magellanica</i>	Prickly-burr	Frequent	
<i>Acaena ovalifolia</i>	Oval-leaved Prickly-burr	Rare	
<i>Acaena pumila</i>	Dwarf Prickly-burr	Rare	
<i>Adiantum chilense</i>	Maidenhair-fern	Very rare	Protected
<i>Agoseris coronopifolium</i>	Fuegian Hawks-beard	Occasional	
<i>Agrostis magellanica</i>	Fuegian Bent	Occasional	
<i>Agrostis meyenii</i>	Meyen's Bent	Scarce	
<i>Alopecurus magellanicus</i>	Fuegian Foxtail	Rare	
<i>Anagallis alternifolia</i>	Pimpernel	Frequent	
<i>Apium australe</i>	Wild Celery	Frequent	
<i>Arachnitis uniflora</i>	Spider-flower	Very rare	
<i>Armeria maritima</i>	Thrift	Occasional	
<i>Asplenium dareoides</i>	Spleenwort	Very rare	
<i>Astelia pumila</i>	Soft-camp-bog	Occasional	
<i>Aster vahlii</i>	Marsh Daisy	Frequent	
<i>Azorella filamentosa</i>	Wiry Azorella	Frequent	
<i>Azorella lycopodioides</i>	Clubmoss Azorella	Frequent	
<i>Azorella monantha</i>	Tufted Azorella	Scarce	
<i>Azorella selago</i>	Cushion Azorella	Rare	
<i>Baccharis magellanica</i>	Christmas-bush	Common	
<i>Blechnum cordatum</i>	Chilean Tall-fern	Rare	
<i>Blechnum magellanicum</i>	Tall-fern	Frequent	
<i>Blechnum penna-marina</i>	Small-fern	Common	
<i>Bolax gummifera</i>	Balsam-bog	Frequent	
<i>Botrychium dusenii</i>	Dusen's Moonwort	Very rare	Protected
<i>Calandrinia cf. axilliflora</i>	Unidentified species	Rare	
<i>Calceolaria biflora</i>	Yellow Lady's Slipper	Vary rare	
<i>Calceolaria fothergillii</i>	Lady's Slipper	Occasional, ENDEMIC	
<i>Callitriche antarctica</i>	Water-starwort	Frequent	
<i>Caltha appendiculata</i>	Dwarf Marigold	Occasional	
<i>Caltha sagittata</i>	Arrow-leaved Marigold	Occasional	
<i>Cardamine glacialis</i>	Bitter-cress	Occasional	
<i>Carex acaulis</i>	Small Dusky Sedge	Rare	
<i>Carex aematorryncha</i>	Blood-beak Sedge	Rare	
<i>Carex banksii</i>	Bank's Sedge	Very rare	
<i>Carex caduca</i>	Caducous Sedge	Rare	
<i>Carex canescens</i>	White Sedge	Scarce	
<i>Carex decidua</i>	Creek Sedge	Rare	
<i>Carex fuscula</i>	Dusky Sedge	Occasional	
<i>Carex macloviana</i>	Falkland Sedge	Rare	
<i>Carex magellanica</i>	Fuegian Sedge	Rare	
<i>Carex microglochin</i>	Bristle Sedge	Rare	
<i>Carex sagei</i>	Barros Sedge	Very rare	
<i>Carex trifida</i>	Sword-grass	Scarce	
<i>Carex vallis-pulchrae</i>	Marsh Sedge	Vary rare	
<i>Cerastium arvense</i>	Field Mouse-ear	Frequent	
<i>Chenopodium macrospermum</i>	Goosefoot	Occasional	
<i>Chevreulia lycopodioides</i>	Clubmoss Cudweed	Frequent, ENDEMIC	
<i>Chilotrichum diffusum</i>	Fachine	Frequent	
<i>Chloraea fonckii</i>	Gaudichaud's Orchid	Scarce	Protected
<i>Codonorchis lessonii</i>	Dog Orchid	Occasional	
<i>Colobanthus quitensis</i>	Andean Pearlwort	Frequent	
<i>Colobanthus subulatus</i>	Emerald-bog	Frequent	
<i>Coronopus didymus</i>	Lesser Swine-cress	Occasional	
<i>Cortaderia pilosa</i>	Whitegrass	Frequent	
<i>Crassula moschata</i>	Native Stonecrop	Frequent	

Latin name	Common name	Frequency across the Falkland Islands	Conservation notes ¹
<i>Cystopteris fragilis</i>	Brittle Bladder-fern	Rare	
<i>Deschampsia antarctica</i>	Antarctic Hair-grass	Occasional	
<i>Deschampsia flexuosa</i>	Wavy Hair-grass	Frequent	
<i>Deschampsia parvula</i>	Dwarf Hair-grass	Rare	
<i>Draba funiculosa</i>	Whitlowgrass	Scarce	
<i>Draba magellanica</i>	Fuegian Whitlowgrass	Very rare	
<i>Drapetes muscosus</i>	Drapetes	Occasional	
<i>Drosera uniflora</i>	Sundew	Occasional	
<i>Elatine triandra</i>	Waterwort species	Very Rare	
<i>Eleocharis melanostachys</i>	Spike-rush	Occasional	
<i>Elymus magellanicus</i>	Fuegian Couch	Occasional	
<i>Empetrum rubrum</i>	Diddle-dee	Common	
<i>Epilobium ciliatum</i>	American Willowherb	Rare	
<i>Erigeron incertus</i>	Hairy Daisy	Scarce, ENDEMIC	Vulnerable, Protected
<i>Euphrasia antarctica</i>	Eyebright	Rare	
<i>Festuca contracta</i>	Land-tussac	Occasional	
<i>Festuca magellanica</i>	Fuegian Fescue	Frequent	
<i>Gaimardia australis</i>	Gaimardia	Scarce	
<i>Galium antarcticum</i>	Antarctic Bedstraw	Frequent	
<i>Gamochaeta americana</i>	American Cudweed	Rare	
<i>Gamochaeta antarctica</i>	Antarctic Cudweed	Very rare, ENDEMIC	Endangered
<i>Gamochaeta malvinensis</i>	Falkland Cudweed	Frequent	
<i>Gamochaeta spiciformis</i>	Spiked Cudweed	Frequent	
<i>Gaultheria antarctica</i>	Antarctic Mountainberry	Occasional	
<i>Gaultheria antarctica x pumila</i>	Mountainberry hybrid	Very rare	
<i>Gaultheria pumila</i>	Mountainberry	Common	
<i>Gavilea australis</i>	Pale Yellow Orchid	Rare	Protected
<i>Gavilea littoralis</i>	Yellow Orchid	Scarce	
<i>Gentianella magellanica</i>	Felwort	Occasional	
<i>Gleichenia cryptocarpa</i>	Coral-fern	Scarce	
<i>Grammitis poeppigiana</i>	Strap-fern	Very rare	
<i>Gunnera magellanica</i>	Pigvine	Common	
<i>Hamadryas argentea</i>	Silvery Buttercup	Scarce, ENDEMIC	Near Threatened
<i>Hieracium antarcticum</i>	Antarctic Hawkweed	Scarce	
<i>Hieracium patagonicum</i>	Patagonian Hawkweed	Rare	
<i>Hierochloa redolens</i>	Cinnamon-grass	Frequent	
<i>Huperzia fuegiana</i>	Fir Clubmoss	Rare	Protected
<i>Hydrocotyle chamaemorus</i>	Marsh Pennywort	Occasional	
<i>Hymenophyllum caespitosum</i>	Red-haired Filmy-fern	Scarce	
<i>Hymenophyllum darwinii</i>	Darwin's Filmy-fern	Rare	
<i>Hymenophyllum falklandicum</i>	Falkland Filmy-fern	Scarce	
<i>Hymenophyllum tortuosum</i>	Twisted Filmy-fern	Very rare	
<i>Hypochaeris arenaria</i>	Sand Cat's-ear	Occasional	
<i>Hypolepis poeppigii</i>	Bramble-fern	Very rare	
<i>Isolepis cernua</i>	Nodding Club-rush	Frequent	
<i>Juncus scheuchzerioides</i>	Native Rush	Frequent	
<i>Koeleria permollis</i>	Berg's Hair-grass	Very rare (1937-1938)	
<i>Lagenophora nudicaulis</i>	Dwarf Daisy	Occasional	
<i>Leptinella scariosa</i>	Buttonweed	Frequent	
<i>Leucheria suaveolens</i>	Vanilla Daisy	Frequent, ENDEMIC	
<i>Lilaeopsis macloviana</i>	Lilaeopsis	Frequent	
<i>Limosella australis</i>	Southern Mudwort	Rare	
<i>Littorella australis</i>	Shoreweed	Rare	
<i>Lobelia pratiana</i>	Berry-lobelia	Frequent	
<i>Luzula alopecurus</i>	Native Wood-rush	Frequent	
<i>Luzuriaga marginata</i>	Almond-flower	Frequent	
<i>Lycopodium confertum</i>	Creeping Clubmoss	Scarce	
<i>Lycopodium magellanicum</i>	Common Clubmoss	Frequent	

Latin name	Common name	Frequency across the Falkland Islands	Conservation notes ¹
<i>Marsippospermum grandiflorum</i>	Tall Rush	Frequent	
<i>Montia fontana</i>	Blinks	Occasional	
<i>Myriophyllum quitense</i>	Water-milfoil	Frequent	
<i>Myrteola nummularia</i>	Teaberry	Frequent	
<i>Nanodea muscosa</i>	Foxberry	Occasional	
<i>Nassauvia falklandica</i> in ed.	Falkland Nassauvia	Very rare, ENDEMIC	Critically Endangered
<i>Nassauvia gaudichaudii</i>	Coastal Nassauvia	Frequent, ENDEMIC	
<i>Nassauvia serpens</i>	Snakeplant	Scarce, ENDEMIC	
<i>Nastanthus falklandicus</i>	False-plantain	Rare, ENDEMIC	Endangered, Protected
<i>Nertera granadensis</i>	Beadplant	Frequent	
<i>Olsynium filifolium</i>	Pale Maiden	Frequent	
<i>Ophioglossum crotalophoroides</i>	Adder's-tongue	Rare	Protected
<i>Oreobolus obtusangulus</i>	Oreob/ Prickly-bog	Frequent	
<i>Oreomyrrhis hookeri</i>	Hooker's Sweet Cicely	Frequent	
<i>Oxalis enneaphylla</i>	Scurvygrass	Frequent	
<i>Perezia recurvata</i>	Falkland Lavender	Frequent	
<i>Phlebotobium maclovianum</i>	Falkland Rock-cress	Scarce, ENDEMIC	Vulnerable, Protected
<i>Plantago barbata</i>	Thrift Plantain	Frequent	
<i>Plantago maritima</i>	Sea Plantain	Very rare	
<i>Plantago moorei</i>	Moore's Plantain	Very rare, ENDEMIC	Endangered
<i>Poa alopecurus</i>	Bluegrass	Frequent	
<i>Poa flabellata</i>	Tussac/ Tussac-grass	Frequent	
<i>Poa robusta</i>	Shore Meadow-grass	Frequent	
<i>Polygonum maritimum</i>	Sea Knotgrass	Scarce	
<i>Polystichum mohrioides</i>	Shield-fern	Scarce	
<i>Potamogeton linguatus</i>	Native Pondweed	Rare	Protected
<i>Primula magellanica</i>	Dusty Miller	Occasional	
<i>Puccinellia pusilla</i>	Dwarf Saltmarsh-grass	Very rare	
<i>Ranunculus acaulis</i>	Skottsberg's Buttercup	Occasional,	
<i>Ranunculus biternatus</i>	Antarctic Buttercup	Frequent	
<i>Ranunculus hydrophilus</i>	Marsh Buttercup	Occasional	
<i>Ranunculus maclovianus</i>	Falkland Buttercup	Occasional	
<i>Ranunculus pseudotrullifolius</i>	False Ladle-leaved Buttercup	Scarce	
<i>Ranunculus sericocephalus</i>	Silky Buttercup	Occasional	
<i>Ranunculus trullifolius</i>	Ladle-leaved Buttercup	Occasional	
<i>Rostkovia magellanica</i>	Short Rush/ Brown Rush	Frequent	
<i>Rubus geoides</i>	Falkland Strawberry	Frequent	
<i>Rumex magellanicus</i>	Southern Dock	Rare	
<i>Rumohra adiantiformis</i>	Leathery Shield-fern	Very rare	Protected
<i>Ruppia filifolia</i>	Tasselweed	Rare	
<i>Samolus repens</i>	Shore Pimpernel	Very rare	
<i>Saxifraga magellanica</i>	Saxifrage	Very rare	Protected
<i>Schizaea fistulosa</i>	Comb fern	Very rare	
<i>Schizeilema ranunculus</i>	Buttercup-parsley	Frequent	
<i>Schoenoplectus californicus</i>	California Club-rush	Rare	
<i>Scutellaria nummulariifolia</i>	Skullcap	Very rare (1916)	
<i>Senecio candidans</i>	Sea Cabbage	Frequent	
<i>Senecio littoralis</i>	Woolly Falkland Daisy	Occasional, ENDEMIC	
<i>Senecio vaginatus</i>	Smooth Falkland Daisy	Occasional, ENDEMIC	
<i>Sisyrinchium chilense</i>	Yellow Maiden	Scarce	
<i>Spergularia marina</i>	Lesser Sea-spurrey	Occasional	
<i>Stellaria debilis</i>	Native Stitchwort	Scarce	
<i>Suaeda argentinensis</i>	Shrubby Seablite	Very rare	Protected
<i>Taraxacum gilliesii</i>	Gillie's Dandelion	Scarce	
<i>Tetroncium magellanicum</i>	Arrowgrass	Scarce	
<i>Trisetum phleoides</i>	Spiked Oat-grass	Frequent	

Latin name	Common name	Frequency across the Falkland Islands	Conservation notes¹
<i>Uncinia macloviana</i>	Hook-sedge	Occasional	
<i>Uncinia kingii</i>	King's Hook-sedge	Rare	
<i>Valeriana sedifolia</i>	Valerian-bog	Scarce	
<i>Veronica elliptica</i>	Native Boxwood	Occasional	
<i>Viola maculata</i>	Common Violet	Occasional	
<i>Viola magellanica</i>	Fuegian Violet	Very rare	Protected
<i>Viola tridentata</i>	Mountain Violet	Scarce	

¹Protected = protected by Conservation of Wildlife and Nature Ordinance 1999
 Critically Endangered/ Endangered/ Vulnerable = the international IUCN threat category which applies to this species

4: Plant species assessment form

The most important information to provide is your name, the date, the species you are recording, where the plants you find are located and how many are present. If you don't have a GPS then giving a nearby place name will help us to locate the spot within at least a 10 km grid square. Where specific options are given, please circle the one which applies. If you are unsure about any aspect of the form please contact Falklands Conservation.

Collector Name(s)	
Date	
GPS datum	WGS 84 (preferred) Other
Lat (or Grid Reference)	
Long	
Name of Island	
Sample plot: total area covered by population or a random 5x5m plot within this (state which)	metres X metre
No. of mature plants	
Location notes	
Estimated slope in degrees (to nearest 5%)	
Aspect	N NE E SE S SW W NW ALL
Estimated altitude (in metres)	
Habitat code – see sheet	
Common name or Latin name	
Plant description – e.g. what is the maximum height of target species?	
Is it in flower?	
Are fruits or seeds present?	
Signs of recruitment	Seedlings Vegetative spread
Frequency within plot	Common Frequent Occasional Rare
% bare ground within sample plot	
Soil Type	Peat Sand Clay Rock Mineral Other:
What is the tallest plant species within plot and what is its height?	
Are there any obvious threats to the target species? E.g. erosion, grazing, invasive species	
Notes, e.g. What other plants are present? Any livestock present? Human land use e.g. peat cutting?	
Photos – who and file name/ no.	

5:

References

- Aldiss, D.T. & Edwards, E.J. (1999). The Geology of the Falkland Islands. *British Geological Technical Report WC/99/10*.
- Anderson, S. (2002). Identifying Important Plant Areas. Plantlife International, London.
- Belton, T. (2008a). Calafate (*Berberis buxifolia*) on the Falkland Islands. An assessment of this species and recommendations for management. SAIS Project Report, RSPB.
- Belton, T. (2008b). Gorse (*Ulex europaeus*) on the Falkland Islands. An assessment of this species and recommendations for management. SAIS Project Report, RSPB.
- Broughton, D.A. (2002). Management plan for the proposed Hill Cove Mountains National Park, West Falkland. FC report to FIG.
- Broughton, D.A. & McAdam, J.H. (2005). A checklist of the native vascular flora of the Falkland Islands. *Journal of the Torrey Botanical Society*, 132(1):115-148
- Broughton, D.A. & McAdam, J.H. (2002a). The vascular flora of the Falkland Islands: An annotated Checklist and Atlas. A report to Falklands Conservation
- Broughton, D.A. & McAdam, J.H. (2002b). A Red Data List for the Falkland Islands vascular flora. *Oryx*, 36(3), 279-287.
- Broughton, D.A. & McAdam, J.H. (2002c). The non-native vascular flora of the Falkland Islands. *Bot. J. Scot.* 54: 153-190
- Broughton, D.A., McAdam, J.A. & Brännström, R. (2000). A Combined Checklist and Ecogeographic conspectus for the Vascular Flora of Saunders Island, Falkland (Malvinas) Islands. *Annales Instituto Patagonia, Serie Cs. Nat. (Chile)*. 28: 57-88.
- Cabrera, A.L. & Correa, M.N. (1971). Flora Patagonica. Parte 7. Compositae.
- Cavieres, L.A., Badano, E.I., Sierra-Almeida, A. and Molina-Montenegro, M.A. & Torres, C. (2007). Microclimatic modifications of cushion plants and their consequences for seedling survival of native and non-native herbaceous species in the high Andes of central Chile. *Arctic, Antarctic and Alpine Research*. 39(2): 229-236.
- Cavieres, L.A., Arroyo, M.T.K., Peñaloza, A., Molina-Montenegro, M.A. & Torres, C. (2002). Nurse effect of *Bolax gummifera* cushion plants in the alpine vegetation of the Chilean Patagonian Andes. *Journal of Vegetation Science*. 13(4):547-554.
- Christie, D. (2010). Reindeer on South Georgia, literature review and discussion of management options. Unpublished report to the Government of South Georgia and the South Sandwich Islands.
- Cruickshank, J.G. (2001). Falkland Soils – Origins and Prospects. Report for the Department of Agriculture of Northern Ireland.
- Davey, M.P., Burrell, M., Woodward, F.I. & Quick, P. (2005). Metabolite fingerprinting of plants at range margins. *Comparative Biochemistry & Physiology Part A Supplement*. 141(3): S288.P7.33.
- Davies, W. (1939). Grasslands of the Falkland Islands. Published by FIG.

- Department of Agriculture (2010). 2009/2010 Farming Statistics. Published by the Department of Agriculture.
- Falklands Conservation (2006), Important Bird Areas of the Falkland Islands. ISBN 0953837165, 160 pp.
- FIG (2008a). Falkland Islands Biodiversity Strategy, 2008-2018. Falkland Islands Government, Stanley.
- FIG (2008b). http://www.epd.gov.fk/?page_id=304 (last accessed 29/10/09).
- FIG (2007). Final Yorke Bay Pond Management Plan - A plan to manage an important site at Cape Pembroke within Stanley Common. Accessible through http://www.epd.gov.fk/?page_id=304
- FIG (1999). Conservation of wildlife and nature ordinance 1999. *The Falkland Islands Gazette Supplement*, 10, 2-18.
- Fuller, J.A. (1995). Studies on the invertebrate fauna of Tussac grass communities in the Falkland Islands. Department of Applied Plant Science, The Queens University of Belfast.
- Gerrish, J. (2004). Management-intensive Grazing: The Grassroots of Grass Farming. Ridgeland, MS: Green Park Press.
- Godley, E.J. (1967). Widely distributed species, land bridges and continental drift. *Nature* 214: 74-75.
- Hartikainen, M. (2009). South Atlantic invasives species project, risk assessment. Unpublished report to the Royal Society for the Protection of Birds.
- Hershkovitz, M.A. (2006). Ribosomal and chloroplast DNA evidence for diversification of western American Portulacaceae in the Andean region. *Gayana Bot.* 63(1): 13-74.
- Heywood, V.H., Brummit, R.K., Culham, A. & Seberg, O. (2007). Flowering Plant Families of the World. Royal Botanic Gardens, Kew.
- Hoekstra, J.M., Boucher T.M., Ricketts T.H. & Roberts C. (2005). Confronting a biome crisis: global disparities of habitat loss and protection. *Ecology Letters* 8: 23-29.
- Hooker, J.D. (1847). *Botany of the Antarctic voyage. Vol. I. Flora Antarctica. Pt. 2. Botany of Fuegia, The Falklands, Kerguelen's Land, etc.* London, Reeve, 209-574.
- IUCN. (2001), *IUCN Red List Categories and Criteria: Version 3.1*. IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK. ii + 30 pp.
- Jalink, L.M. & Nauta, M. (1993). The mycoflora of the Falkland Islands - I. Introduction and preliminary results. *Bibliotheca Mycologica* 150: 105-120.
- Ladd, P.G. & Arroyo, M.T.K. (2009). Comparisons of breeding systems between two sympatric species, *Nastanthus spathulatus* (Calyceraceae) and *Rhodophiala rhodolirion* (Amaryllidaceae), in the high Andes of central Chile. *Plant Species Biology* 24: 2-4.
- Lambers, H., Chapin III, F.S. & Pons, T.L. (1998). *Plant Physiological Ecology*. Springer-Verlag.
- Lesica, P. & Allendorf, F.W. (1995). When are peripheral populations valuable for conservation? *Conservation Biology*, 9, 753-760.

- Lewis, R. (2012) Checklist of Falkland introduced vascular plants. <http://www.falklandsconservation.com/wildlife/plants/native-vascular-plant-checklist>
- Lewis, R. (2010). Invasive Plant control and Native Plant Conservation. Report on Fieldwork November 2009 to May 2010. Unpublished report.
- McAdam, J.H. & Walton, D.W.H. (1990). *Ecology and agronomy of Tussac grass*. Department of Agricultural Botany, The Queens University of Belfast, Belfast.
- McAdam, J.H. (1985). The effect of climate on plant growth and agriculture in the Falkland Islands. *Progress in Biometeorology*, 2, 753-760.
- Moore, D.M. (1968). The Vascular Flora of the Falkland Islands. *British Antarctic Survey Scientific Reports*. No. 60. Natural Environment Research Council, London.
- Munro, H. (1924). Report of an investigation into the conditions and practice of sheep farming in the Falkland Islands. FIG.
- Noyes, R.D. (2000). Biogeographical and Evolutionary Insights on *Erigeron* and Allies (Asteraceae) from ITS data. *Plant Syst. Evol.* 220: 93-114.
- Porter (1995). The Geology of Motley Island. Unpublished report.
- Posse, G., Anchorena, J. & Collantes, M.B. (1996) Seasonal diets of sheep in the steppe region of Tierra del Fuego, Argentina. *Journal of Range Management* 49: 24-30.
- Schulz, O.E. (1933) *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 66: 93. (for genus).
- Schulz, O.E. (1932). *Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem* 11: 641. (for species).
- Skottsberg, C. (1913). A botanical survey of the Falkland Islands. *K. Vetensk Akad. Handl.*, 20(3):1-129.
- Smith, J. & Doherty, S. (1999). Report on a Visit To Port Harriet 28.1.99. Report to Falklands Conservation.
- Strange, I.J., Parry, C. J., Parry, M.C. & Woods, R.W. (1988). *Tussac grass in the Falklands*. Falkland Islands Foundation Report. Falkland Islands Foundation, Brighton.
- Summers, B. (2008). Spear Thistle (*Cirsium vulgare*) Elephant Point, Saunders Island. SAIS report.
- Upton, R. Clubbe, C. & Hind, N. (*in prep*) *Nassauvia falklandica*, a new endemic vascular species for the Falkland Islands.
- Upton, R. (2012a). Checklist of Falkland native vascular plants. <http://www.falklandsconservation.com/wildlife/plants/native-vascular-plant-checklist>
- Upton, R. (2012b). Updated Red List for the Vascular Plants of the Falkland Islands. Report to the Falkland Islands Government.
- Upton, R., McAdam, J.H., Clubbe, C.P. & Lewis, R. (2012c). *Gamochoaeta antarctica*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <www.iucnredlist.org>. Downloaded on 19 October 2012.

- Upson, R., McAdam, J.H. & Clubbe, C.P. (2012d). *Nastanthus falklandicus*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <www.iucnredlist.org>. Downloaded on 19 October 2012.
- Upson, R., McAdam, J.H., Clubbe, C.P. & Lewis, R. (2012e). *Phlebodium maclovianum*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <www.iucnredlist.org>. Downloaded on 19 October 2012.
- Upson, R., McAdam, J.H., Clubbe, C.P. & Lewis, R. (2012f). *Erigeron incertus*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <www.iucnredlist.org>. Downloaded on 19 October 2012.
- Upson, R., Clubbe, C.P. & McAdam, J.H. (2012g). *Plantago moorei*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <www.iucnredlist.org>. Downloaded on 19 October 2012.
- Upson, R. (2012h). Identification Guide to Nationally Threatened Vascular Plants of the Falkland Islands. Unpublished report to the Falkland Islands Government.
- Upson R, Hamilton M and Clubbe C (2011). Important Plant Areas Programme provides framework for Conservation in the Falkland Islands (Malvinas). CSUWPD2010 (Conservation and Sustainable Use of Wild Plant Diversity), pp 187-194
- Upson, R. & Woods, R (2010a). Middle Island Management Plan: 2010-2014. Report to Falklands Conservation.
- Upson, R. & Woods, R (2010b). Motley Island Management Plan: 2010-2014. Report to Falklands Conservation.
- Upson, R. (2009). Monitoring the effects of reindeer on South Georgia's most vulnerable vegetation types. Report to the South Georgia Government and the RSPB.
- Upson, R. (2008a). Chartres Horse Paddock Botanical Survey. Falklands Conservation Report.
- Upson, R. (2008b). Keppel Island Botanical Survey. Falklands Conservation Report.
- Upson, R. (2008c). Port Stephens Botanical Survey. Falklands Conservation Report.
- Wagstaff, S.J., Bayly, M.J., Garnock-Jones, P.J. & Albach, D.C. (2002). Classification, origin, and diversification of the New Zealand Hebes (Scrophulariaceae). *Annals of the Missouri Botanical Garden* 89(1): 38-63.
- Wagstaff, S.J. & Garnock-Jones, P.J. (1998). Evolution and biogeography of the *Hebe* complex (Scrophulariaceae) inferred from ITS sequences. *New Zealand Journal of Botany*. 36: 425-437.
- Whitehead, J. (2008). Priorities for Control: A Risk Assessment of Introduced Species on the Falkland Islands. South Atlantic Invasive Species Project.
- Wigginton, M.J. (1999). *British Red Data Books 1. Vascular plants*. 3rd Ed. JNCC, Peterborough, UK.
- Woods, R. (2009). Island Visit Reports: Split Island, south of West Point Island. Unpublished report to Falklands Conservation.
- Woods, R. (2007). Island Visit Reports: Middle Island, Choiseul Sound, A Falklands Conservation Nature Reserve. Unpublished report to Falklands Conservation.

- Woods, R. & Woods, N. (1997). Middle Island and Motley Island Nature Reserves: Report on field survey work in January 1997. Report to Falklands Conservation.
- Yang, Y., Körner, C. & Sun, H. (2008). The Ecological Significance of Pubescence in *Saussurea Medusa*, a High-Elevation Himalayan "Woolly Plant". *Arctic, Antarctic, and Alpine Research* 40(1):250-255.
- Zuloaga, F. (1997). Catálogo de las plantas vasculares de la Argentina. *Monographs in Systematic Botany from the Missouri Botanical Garden* 74 (2 parts).