

## FALKLAND ISLANDS

### INTRODUCTION

by Andrew F. G. Douse

The Falkland Islands are located about 550 km east of the tip of South America between latitudes 51° and 52° South, and longitudes 58° and 61° West. The population of about 2,500 depends almost entirely on sheep farming for wool. Ranches are large and under thirty landowners manage the total of about 12,170km<sup>2</sup>. The islands are gently sloping with hills up to 700m, but the southern portion of East Falkland is low and level, rarely exceeding 90m.

The climate is cold temperate with an annual mean temperature of 5.6°C and extremes from about -8 to 25. Annual rainfall varies from about 635 mm in the east to less than 405 mm on West Falkland. The dominant vegetation is the grass *Cortaderia pilosa* and the low shrub *Empetrum rubrum*. Tussock grass *Poa flabellata* is now confined to small islands and other areas where sheep cannot graze.

The wetland habitats have been described in some detail by Weller (1973). Except for a very small proportion of the total land area, the soil is blanket peat of variable thickness, and thus under the definition of wetlands in the Ramsar Convention, almost the whole of the Falklands can be termed wetland. However estuaries are very small and there are no large lakes or extensive marshes. Instead there is a very large number of shallow freshwater ponds, up to several hundred hectares in extent, marshes and streams scattered throughout the islands. The ponds are acid (pH mainly in the range 4.0 to 5.3) with sand or clay bottoms. Most ponds have beds of *Myriophyllum* and the alga *Nitella*, and some have marginal stands of the emergent spikerush *Eleocharis melanostachys*. Sea shores are mainly rocky; on exposed shores water worn strata have formed shelves exposed at low tide and with abundant marine algae. Sandy beaches fringe many bays, and there are some small coastal sand-bottomed ponds with *Ruppia*.

The avifauna of the islands has been documented by Woods (1975), and more recently Standring (1982) has reviewed the status of the waterfowl. Amongst the numerous breeding waterfowl, there are endemic subspecies of the grebe *Rollandia rolland* and the night heron *Nycticorax nycticorax*, and an endemic species of steamer duck, *Tachyeres brachypterus*. Also of particular note is the large population of the Ruddy-headed Goose *Chloephaga rubidiceps*, a species now facing extinction in the remainder of its range in continental South America. Few Nearctic shorebirds reach the Falkland Islands, but one species, *Calidris fuscicollis*, does so in large numbers, while *Calidris alba* is not uncommon.

Standring (1982) also notes that there are two endemic species of freshwater fishes, *Aplochiton zebra* and *Galaxias maculatus*. Both have suffered marked declines in recent years and have been supplanted in many waters as a result of the introduction of the Brown Trout *Salmo trutta*.

### Institutional Base for Wetland Conservation and Research

The Agricultural Research Centre, Port Stanley, carries out research into sheep husbandry, grassland improvement and veterinary matters. The research into the Upland Goose *Chloephaga picta* is undertaken on behalf of this organization. It is funded and run by the Overseas Development Administration in the United Kingdom.

The Falkland Islands Trust, Port Stanley, is the only locally based conservation organization. It has responsibility for wildlife and objects of historical interest.

The Falkland Islands Foundation, c/o World Wildlife Fund - UK, is a private foundation based in the United Kingdom and dedicated to nature conservation in the Falkland Islands. The Foundation owns or leases sixteen small tussock islands in the archipelago, and intends to acquire other important wildlife areas, particularly those under threat, as and when they become available. The Foundation also provides both the military and the schools with educational material on Falklands wildlife. The work of the Foundation has been described by Lyster (1984).

### Progress in Wetland Conservation and Research

The ordinance governing the protection of wild birds and other animals dates from 1964, and is due for revision. However, such revision is not to the author's knowledge in preparation, nor is it likely to be for some time. In particular, no action has been taken by the Government of the United Kingdom or the Falkland Islands Government to implement the principles of the Ramsar Convention. Standring (1982) has made a variety of recommendations with respect to the application of the Ramsar Convention in the Falkland Islands, and it is to be hoped that these will be acted upon in the future.

The legislation for the creation of reserves is included in Standring (1982) and a detailed critique is also given. Since most land is privately owned, there is little that the Falkland Islands Government can do, other than to enter into some voluntary agreement with landowners. However, in the last four years, the Government has purchased three farms from their respective owners and then resold them to individuals after subdivision into smaller "family units". The last farm to be purchased was Packe's Port Howard which incorporated the important waterfowl site Hawk's Nest Ponds. The Government agreed with the purchasing landowner that the ponds should be preserved in their natural condition and the Falkland Islands Trust has undertaken to carry out a systematic survey of the site and to provide advice for its conservation and development as a tourist attraction. Future land sales will however be direct, and it will therefore be difficult for the Government to obtain such agreements.

The following reserves and sanctuaries have been established to date:

#### Reserves

- Kidney Island and Cochon Island
- Flat Jason Island
- Bird Island
- Crown Jason Island
- Sea Dog Island and Arch Island

#### Sanctuaries

- The Twins, off Carcass Island
- Low Island
- Beauchene Island
- Elephant Jason Island
- Middle Island
- Volunteer and Cow Bay
- Cape Dolphin
- Bleaker Island
- Stanley Common and Cape Pembroke

In the case of development projects, such as the new airport at Mount Pleasant, the Falkland Islands Government can either obtain the advice of local scientists and naturalists, or employ a scientist to carry out an environmental impact assessment. The latter course was taken for the Mount Pleasant airport; Dr John Miles of the Institute of Terrestrial Ecology in the United Kingdom was contracted to make an impact assessment. The report (Miles, 1984) includes information relevant to at least two areas of importance to waterfowl: Bertha's Beach and Swan Inlet. The Government does not have its own conservation/environment officer despite the requirement for one pointed out by Lord Shackleton in his 1982 report.

A programme of research is currently being undertaken into the ecology of the Upland Goose *Chloephaga picta* and its role as an agricultural pest. The research has been in progress since 1974 and is due to continue for at least another two years. The main theme at present is the effect of the geese on introduced reseeded pasture. Information is also being collected on habitat dispersion and it is hoped to obtain an accurate estimate of the population size. A banding programme was carried out in 1977-1979 involving the use of colour rings, metal rings and neck collars. Some banding is still in progress but at a much reduced level. Recent publications on this research include Harradine (1982), Summers (1979, 1983a, 1983b, in press-a & in press-b), Summers & Dunnet (1984) and Summers & Grieve (1982).

Some work has been conducted on *Chloephaga rubidiceps* (Summers *et al.*, in prep.), and there is a proposal to initiate a more detailed research programme on the species, but this has not as yet been confirmed.

Recently, Dr P. Humphrey of the University of Kansas has undertaken field work on the endemic Falkland Islands Steamer Duck *Tachyeres brachypterus* as part of his research into steamer ducks in general. His research also touches on the status of the Falkland Islands Flying Steamer Duck *T. patachonicus*.

The Falkland Islands Foundation has recently initiated a small-scale breeding bird survey by distributing survey forms to interested islanders and visitors. The results of this survey will be collated by Robin Woods and published in the Foundation's newsletter. A more detailed survey will be conducted when adequate funds and logistic support become available.

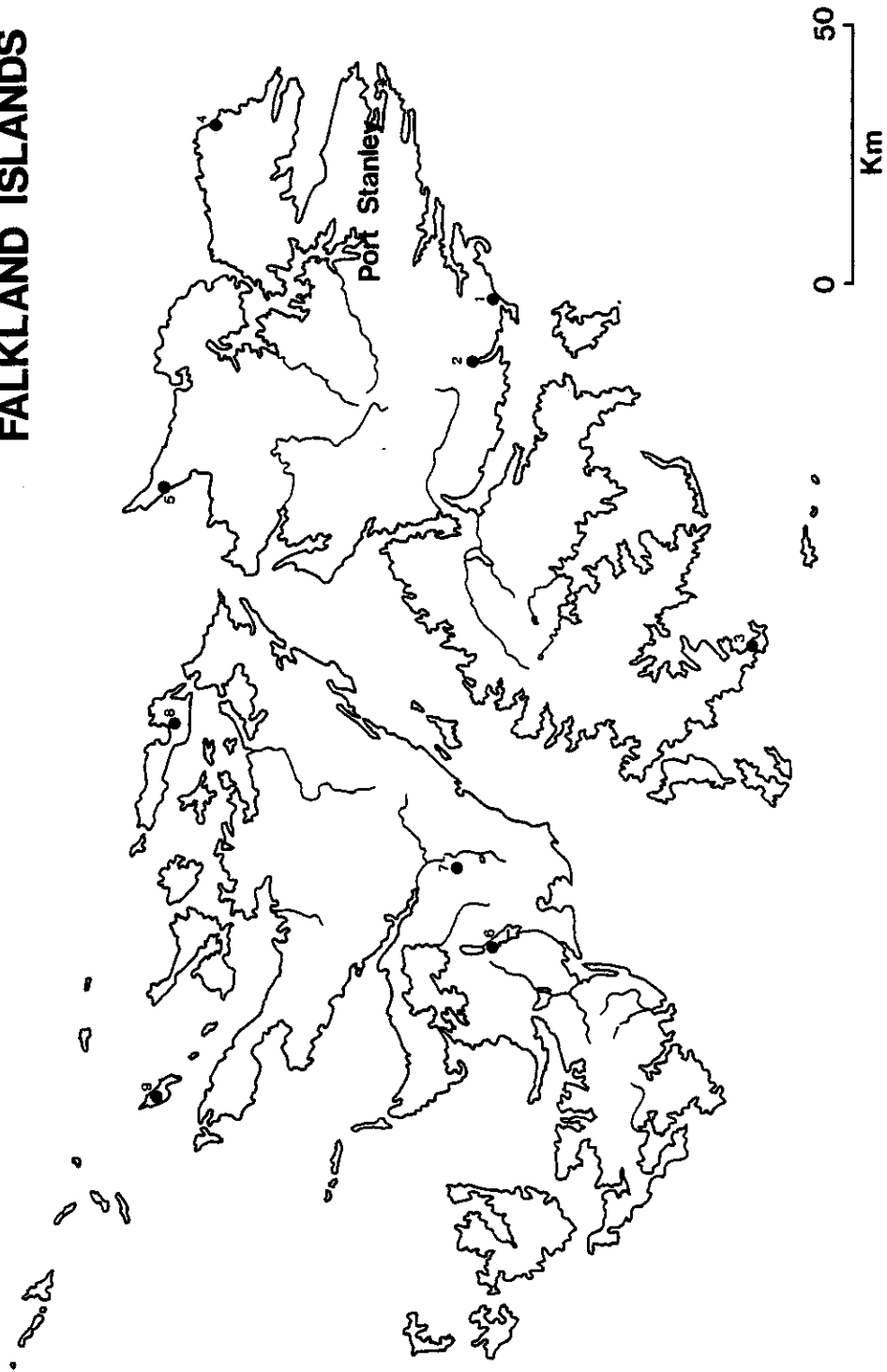
#### **Major Threats to Wetlands and Waterfowl**

In general, industrial development, pollution and hunting are not considered to be sources of pressure on wetland habitat or their waterfowl. The one possible exception to this is the new Mount Pleasant airport. The potential environmental problems associated with this development have been discussed by Miles (1984).

The major industry of the Falkland Islands is sheep farming, and consequently any development of the farming sector may put pressure on some waterfowl habitat. At present, most sheep farms in the Falklands are operated on an extensive scale in which sheep are generally set stocked on natural pasture. However the present trend is towards subdivision and greater intensification. One of the main priorities of the Agricultural Research Centre is to investigate the potential for reseeding areas of natural pasture to provide high quality feed at particular times of the year. It is unlikely that more than about 5-10% of the total land surface would ever be reseeded and thus it is unlikely that the bird communities of the natural pastures would be seriously threatened.

In developed countries, agricultural drainage schemes are a frequent source of pressure on wetland ecosystems. In the Falklands, such drainage schemes have been carried out on a very limited scale in the past, and are unlikely to become more widespread in the future. The areas involved would be small and unlikely to repay the investment in machinery and labour costs that would have to be met.

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WETLANDS

Site descriptions based on data sheets provided by Andrew F. G. Douse.

**Bertha's Beach and associated ponds (1)**

**Location:** 51°50'S, 58°20'W; southwest of Fitzroy Settlement, East Falkland.

**Area:** 2,000 ha.

**Altitude:** 5-10m.

**Province and type:** 7.4.9; 05, 12 & 13.

**Site description:** A sandy beach backed by coastal sand dunes and a series of permanent small shallow freshwater ponds and marshes, occasionally icing over in winter.

**Principal vegetation:** *Eleocharis* sp.

**Land tenure:** Owned by the Falkland Islands Company.

**Protection:** None.

**Land use:** None.

**Waterfowl:** The ponds appear to support most if not all of the Falkland breeding species, including the relatively uncommon *Podiceps occipitalis*. There is a large population of *Charadrius falklandicus* in the area, and substantial numbers of *Calidris alba* occur on the beach. Large numbers of *Chloephaga picta* feed on the short grassland behind the dunes.

**Other fauna:** There are large penguin rookeries nearby.

**Threats:** There is some tourist pressure, and potential threats from the extraction of sand from the beach and disturbance from the nearby airport.

**References:** Miles (1984).

**Source:** Andrew F. G. Douse.

**Criteria for inclusion:** 3a.

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**Swan Inlet (2)**

**Location:** 51°50'S, 58°35'W; southwest of Fitzroy Settlement, East Falkland.

**Area:** 1,000 ha.

**Altitude:** 0m.

**Province and type:** 7.4.9; 01, 02, 10 & 19.

**Site description:** A small coastal inlet and estuary of a fast-flowing river, with associated bogs.

**Principal vegetation:** No information.

**Land tenure:** Owned by the Falkland Islands Company.

**Protection:** None.

**Land use:** Fishing for sea trout.

**Waterfowl:** An important site for *Cygnus melancoryphus*; a large flock (up to 100 birds) is usually present. The birds moult there and many presumably breed.

**Other fauna:** No information.

**Threats:** Pollution from an oil jetty in nearby Mare Harbour, and some disturbance from tourism.

**References:** Standring (1982).

**Source:** Andrew F. G. Douse.

**Criteria for inclusion:** 1b.

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**Bull Point (3)**

**Location:** 52°20'S, 59°20'W; south of North Arm Settlement, East Falkland.

**Area:** 4,000-5,000 ha.

**Altitude:** 0-40m.

**Province and type:** 7.4.9; 01, 04, 05, 12, 13 & 19.

**Site description:** Sea bay with rocky and sandy shores and coastal sand dunes backed by a complex of permanent freshwater ponds, marshes and peat bogs.

**Principal vegetation:** No details, but the area is noted for its rich native flora.

**Land tenure:** Owned by the Falkland Islands Company.

**Protection:** Protected by the North Arm Manager until 1984, but status now uncertain.

**Land use:** Until recently none, but possibly now to be grazed.

**Waterfowl:** Little studied, but the area is known to be an important site for Anatidae and shorebirds, with a diverse breeding waterfowl community.

**Other fauna:** Gentoo Penguins *Pygoscelis papua* and Elephant Seals *Mirounga leonina* occur.

**Threats:** None known.

**References:** Standring (1982).

**Source:** Andrew F. G. Douse.

**Criteria for inclusion:** 2b & 3a.

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#### Cow Bay, Volunteer Point and Seal Bay (4)

**Location:** 51°23'S, 57°53'W; northeast of Johnsons Harbour, northeastern East Falkland.

**Area:** 10,000 ha.

**Altitude:** 0-50m.

**Province and type:** 7.4.9; 01, 04, 05, 06, 12, 13 & 19.

**Site description:** Sea bay with rocky and sandy shores and intertidal mudflats, backed by coastal sand dunes and extensive area of small freshwater lakes, ponds, marshes and peat bogs.

**Principal vegetation:** No information.

**Land tenure:** On a privately owned estate.

**Protection:** Volunteer Point and Cow Bay are included in a Nature Sanctuary.

**Land use:** Sheep grazing over most of the land.

**Waterfowl:** There is a very diverse breeding community of Anatidae in the marshes, and the beaches and mudflats are important for shorebirds, notably *Charadrius falklandicus*, *C. modestus* and "wintering" *Calidris fuscicollis*.

**Other fauna:** An important site for breeding sea-birds including three species of penguins. Elephant Seals *Mirounga leonina* also occur.

**Threats:** None known.

**Source:** Andrew F. G. Douse.

**Criteria for inclusion:** 2a & 3b.

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#### Cape Dolphin (5)

**Location:** 51°20'S, 58°52'W; north of Port San Carlos, East Falkland.

**Area:** 15,000 ha.

**Altitude:** 0-80m.

**Province and type:** 7.4.9; 01, 04, 05, 12 & 13.

**Site description:** Sea bay with rocky and sandy beaches and coastal sand dunes backed by a complex of freshwater lakes, ponds and marshes.

**Principal vegetation:** Short grass communities with freshwater plant associations in the ponds. The Tussock Grass *Poa flabellata* and sandy grassland communities are of considerable botanic interest.

**Land tenure:** Owned by Port San Carlos Ltd. and the Falkland Islands Company.

**Protection:** There is a Nature Sanctuary at Cape Dolphin.

**Land use:** Sheep grazing over a part of the land.

**Waterfowl:** The area has an important breeding population of Anatidae and shorebirds. There are large populations of *Chloephaga picta* and *C. rubidiceps*, and a number of breeding pairs of *Tachyeres patagonicus*, a species very sparsely distributed in the islands.

**Other fauna:** The area has breeding colonies of sea-birds, and rookeries of Elephant Seals *Mirounga leonina* and Southern Sea-lions *Otaria flavescens*.

**Threats:** None known.

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**Research and conservation:** The fencing of the Nature Sanctuary to exclude sheep grazing has resulted in a recovery of the Tussock Grass communities.

**Source:** Andrew F. G. Douse.

**Criteria for inclusion:** 2b & 3a.

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**Lake Sullivan (6)**

**Location:** 51°53'S, 60°10'W; north of Fox Bay, West Falkland.

**Area:** 2,500 ha.

**Altitude:** 0-80m.

**Province and type:** 7.4.9; 12 & 19.

**Site description:** Shallow freshwater lake, maximum depth 3m, with associated ponds and marshes, and areas of peat bog. Large areas of the marshes dry out in summer.

**Principal vegetation:** *Eleocharis* sp and *Myriophyllum* sp.

**Land tenure:** Owned by the Falkland Islands Company.

**Protection:** None.

**Land use:** Sheep grazing.

**Waterfowl:** Most if not all of the Falkland Anatidae breed on Lake Sullivan or in the surrounding marshes, including *Cygnus melancoryphus*, *Anas sibilatrix* and *A. versicolor*. The lake also supports a breeding population of *Rollandia rolland* and a colony of *Sterna hirundinacea*.

**Other fauna:** Endemic fish species are known to be present.

**Threats:** None known.

**Source:** Andrew F. G. Douse.

**Criteria for inclusion:** 2b & 3a.

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**Hawk's Nest Ponds (7)**

**Location:** 51°48'S, 59°57'W; NNE of Fox Bay, West Falkland.

**Area:** 500-1,000 ha.

**Altitude:** 50m.

**Province and type:** 7.4.9; 12, 13 & 19.

**Site description:** Two small permanent freshwater lakes, numerous small ponds, their associated marshes and surrounding peat bogs. The lakes and marshes ice over occasionally in winter.

**Principal vegetation:** Extensive areas of *Eleocharis* sp and *Myriophyllum* sp.

**Land tenure:** Privately owned.

**Protection:** The owners have agreed voluntarily to conserve the area.

**Land use:** Sheep grazing in the surrounding areas.

**Waterfowl:** The area has a particularly diverse breeding population of waterfowl and is one of the richest areas in the Islands. Of particular note is a colony of about 40 pairs of the endemic *Nycticorax nycticorax cyanocephalus*.

**Other fauna:** Both endemic fish species *Galaxius maculatus* and *Aplochiton zebra* are common.

**Threats:** None.

**Research and conservation:** The fauna and flora of the area remain largely unmodified by man. The owners have agreed to fence off the area from sheep grazing, and a systematic survey is to be carried out.

**References:** Standring (1982).

**Source:** Andrew F. G. Douse.

**Criteria for inclusion:** 123.

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**The eastern part of Pebble Island (8)**

**Location:** 51°19'S, 59°30'W; off the north coast of West Falkland.

**Area:** 7,500 ha.

Altitude: 0-20m.

Province and type: 7.4.9; 01, 04, 05, 12 & 13.

Site description: Rocky and sandy sea coasts, coastal sand dunes, and a complex of small freshwater lakes, ponds and marshes. The lakes are shallow (under 4m deep) and several dry out almost completely during the summer.

Principal vegetation: Mainly *Myriophyllum* associations, with some *Eleocharis* sp.

Land tenure: Privately owned.

Protection: None.

Land use: Sheep and cattle grazing.

Waterfowl: There is a very large and diverse breeding community of Anatidae, particularly around Green and Ship Harbour Ponds. There are some 50 pairs of *Cygnus melancoryphus* and significant numbers of *Anas versicolor* and *Podiceps occipitalis*. Both *Chloephaga picta* and *C. rubidiceps* are common, and *Tachyeres patachonicus* probably breeds.

Other fauna: Substantial numbers of three species of penguin Spheniscidae breed in the area.

Threats: Probably none.

Research and conservation: It has been proposed that a study of the ecology of *Chloephaga rubidiceps* should be initiated on the island.

Source: Andrew F. G. Douse.

Criteria for inclusion: 1b, 2b & 3a.

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#### Carcass Island (9)

Location: 51°16'S, 60°35'W; off the northwest coast of West Falkland.

Area: 200-300 ha of wetlands on an island of 1,800 ha.

Altitude: 0-200m.

Province and type: 7.4.9; 03, 04, 05, 13 & 19.

Site description: A small peat covered island with rocky and sandy beaches, sand dunes, and a number of small freshwater ponds and marshes.

Principal vegetation: Mainly short grassland, with some extensive areas of Tussock Grass *Poa flabellata*.

Land tenure: Privately owned.

Protection: The owners protect the area voluntarily.

Land use: Sheep farming. Tourism is being encouraged and is run successfully.

Waterfowl: There is a large population of waterfowl in a nearly natural state, including a colony of 50 pairs of *Nycticorax nycticorax cyanocephalus*, a particularly dense breeding population of *Chloephaga rubidiceps*, and a number of pairs of *Tachyeres patachonicus*.

Other fauna: The avifauna in general is very rich because of the absence of feral cats. The passerine populations are very dense, and the tameness of the birds is almost unique in the Falklands. There are large breeding colonies of penguins Spheniscidae and *Sterna hirundinacea*, and a colony of Elephant Seals *Mirounga leonina*.

Threats: None.

Source: Andrew F. G. Douse.

Criteria for inclusion: 123.