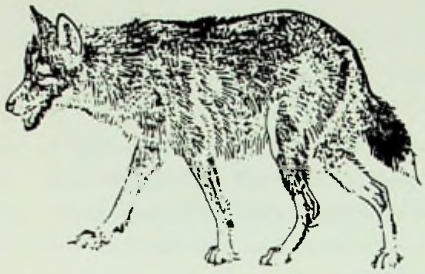
the **WARRAH**
Newsletter of Falklands Conservation



May 1997 - Number 11 Editor Ann Brown

OIL DEVELOPMENTS AND WILDLIFE PROTECTION – A RACE AGAINST TIME?

The first oil exploration well is due to be drilled in Falkland waters during the 1997/98 summer season. Adequate safeguards to protect the wildlife and environment should now be in place. Jeremy Smith reports on progress to date and the role of Falklands Conservation in this unfolding debate

The Wildlife Issue

Our prime concern is to ensure that all possible threats to wildlife from hydrocarbon exploitation are adequately addressed. Such threats include disturbance, disruption of feeding and migration activities, pollution from drilling operations, attraction of birds to flares and the potential for a major oil spill occurring as a result of a shipping accident or rig blow-out.

Unique Marine Wildlife is at Risk

Two thirds of Falklands breeding bird species are associated with the marine environment. Many species (eg. penguins, steamer ducks) have habits that make them especially vulnerable to oil pollution. Some of the Falkland bird populations, seabirds in particular, are of international significance. The Islands support over 80% of the world's population of Black-browed Albatross, they still remain the most important site in the world for Rockhopper Penguins, and are widely regarded as the main global site for the Thin-billed Prion. Many species

Two rock cormorants, held by Mike Bingham, killed by a grease lubricant slick in Stanley Harbour, October 1996. Falklands Conservation want to see a tougher stance adopted towards boats over operational discharges. We have been informed that an oil spill contingency plan is now being drawn up.

of marine mammals including seals, whales and dolphins are found in Falkland waters and are at risk.

The waters around the Falklands are the most important feeding ground for marine life in the area of ocean that lies between the South American mainland and the Islands.

Those same waters also support large numbers of migrant seabirds (especially albatross and petrels) from Antarctica and the sub Antarctic which move north to warmer seas at the start of the southern winter. Several albatross species reliant on Falkland waters are categorised as threatened or near-threatened under international criteria: it is of paramount importance to ensure that their status is not worsened still further.

Very Different from the North Sea

The declining populations of many of these species makes the Falklands situation very different from that in other areas where oil related activities are taking place. In the North Sea, for example, many bird populations are expanding. The oceanography and nature of the sea bottom is also very different from much of the UK continental shelf. It is thus imperative that essential information unique to the Falklands be gathered so that 'best practice' and legislation from elsewhere can be adapted to suit Falklands' needs.

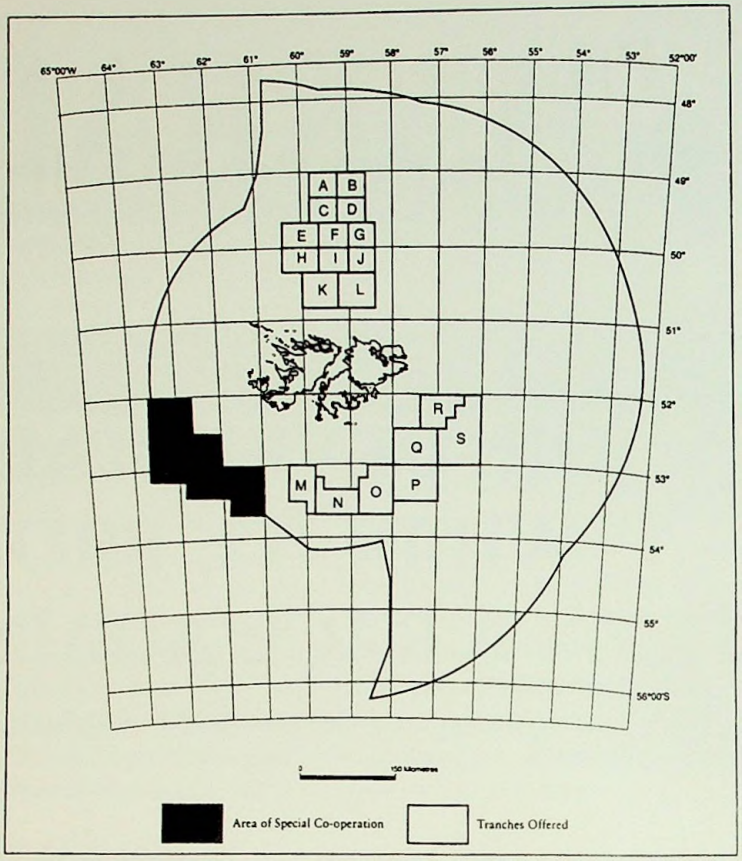
A Serious Lack of Data

The major problem in attempting to forecast potential impacts from the oil and gas industry is lack of data. In particular, there is virtually no information relating to the distribution at sea of birds, seals or whales.

No one yet knows where the most important feeding areas are or where many of these species move to in winter. At this stage, it is impossible to say whether or not an area which might hold significant oil and gas reserves might also be an area of paramount importance for wildlife. Neither is there a detailed picture of what lives on the seabed in areas likely to be explored and possibly exploited.

Extension of FISMP Called For

We now have ten years of continuous data from the Falkland Islands Seabird Monitoring Programme (FISMP). This is, however, largely restricted to what is collectable about sea birds on land. To address threats from offshore hydrocarbon activities, this work must be expanded to include the offshore environment. Technology now exists to track larger seabirds (and seals, even whales) using satellite transmitters to map their movements whilst at sea. Standardised methodologies have also been developed to map seabird distribution at sea from ships.



Map: Showing Licensed blocks.
A - L have been awarded licences. Those in the Joint Co-operation Area will be awarded early in 1998. First oil production is likely early in the next century.

Initial Inshore Surveys Completed

A good start has been made in addressing our knowledge of coastal areas. The Falkland Islands Government commissioned a comprehensive Desk Study of Falklands wildlife and of an Inshore Marine Study.

The latter was carried out in 1996 at 14 sites representative of the Islands' coastal zones. The work involved both diving surveys down to 30 metres depth, and shoreline surveys (carried out by Falklands Conservation) in the vicinity of dive sites.

Preliminary analysis suggests that a series of different sponges (*Porifera*) are key inshore faunal species, and Giant or Basket Kelp *(Macrocystis pyrifera)* is the key macroalga. Lobster krill *(Munida gregaria)* appears from its distribution, abundance and place in the food web to also be one of the key species. A very large number (445) of apparently different taxa and species were found, a significant number of which could not be easily identified, some of which are likely to be new to science.

These studies highlight how much we still have to discover about life in the sea around the Islands and how great the challenge is to find out sufficient to put adequate safeguards in place in time. The surveys provide an initial basis for establishing the requirements of more detailed and essential long-term studies for the vulnerable inshore environment.

The Need for Offshore Studies

Studies of the offshore system have not yet begun. Baseline and long-term data are urgently needed to understand both how this physical environment operates, where the most sensitive areas for wildlife are, for predicting impacts of any possible exploitation, and to investigate

the reasons for any changes in the future. What is required now is agreement on an appropriate research programme followed by an agreed process for carrying out and financing the different parts of that work.

Research is Essential Before Exploitation

One of the great problems in initiating a research programme which is both comprehensive and focused is the uncertainty over whether or not there is any oil 'out there'. There is a natural reluctance to pay for expensive science until there is a certainty of exploitation potential. This misses the point. The bottom line remains that we know very little about our surrounding marine environment. If we are to safeguard it in the future, a precautionary approach is essential until further information has been collected. We need to know a great deal more about exactly how the system works, and at least need to know what is there before exploration drilling starts.

An Environmental Forum

We have proposed the establishment of a forum comprising FIG interests (including fisheries), Falklands Conservation and other conservation groups and individuals, and oil company representatives. This group would amongst other things be tasked with defining the scope of environmental work that will be necessary during all phases of oil-related activities. Its composition should reflect both the interests of the Falklands environment and the wealth of knowledge that has been built up in connection with oil-related activities elsewhere. We are hopeful that the first meeting of the Forum will be held at the end of April 1997.

The Right Legislation and Control

The environmental importance of some sea areas may mean that certain blocks that have so far been identified for licensing may conceivably need to be withdrawn. Alternatively, with blocks that have already been licensed, it may be necessary to refuse certain well consents. We are seeking to have these provisions built into Falklands legislation.

In areas that have been licensed, a key process that should inform decisions on the issue of well consents is environmental impact assessment (EIA). We are pushing for EIAs to inform judgements on both exploration and production activities. For these EIAs to be possible and timely, it is crucial that environmental information is collected from now onwards. The need to carry out EIAs should be enshrined in the law.

Much emphasis is often placed on the fact that Falklands oil and gas legislation is based on (and in some cases exceeds) current best practice by Operators in the North Sea and other areas of the British Isles and that FIG are likely to adopt an approach to monitoring oil activities similar to that of the UK Department of Trade and Industry (DTI). However, the DTI's approach has not been above criticism and this body was recently described by one leading conservation body in the UK as 'toothless, blind and lame' as far as enforcing legislation has been concerned. Falklands Conservation, both locally and through its links with organisations such as the Royal Society for the Protection of Birds in the UK, will continue to press for the most effective possible controls on all oil-related activities within the Falklands and surrounding seas.

***Macrocystis pyrifera* (Giant or Basket Kelp) is an important and ubiquitous feature of the shallow subtidal environment around the Falkland Islands (it was found at all diving survey locations – 187 sites), where it occurs in very large 'holdfasts'. Once established this kelp is an extremely important primary producer. With reported frond growth rates of up to 50cm per day, it is probably the fastest growing of any known plant. It can also support an abundant and wide range of taxa - between 12,200 and 222,900 individuals have been found per square metre of frond blade in California. Observations made during the Inshore Marine Survey suggest that holdfast associations in the Falklands may yield assemblages of organisms of similar or even greater abundance and diversity than that found in California.**

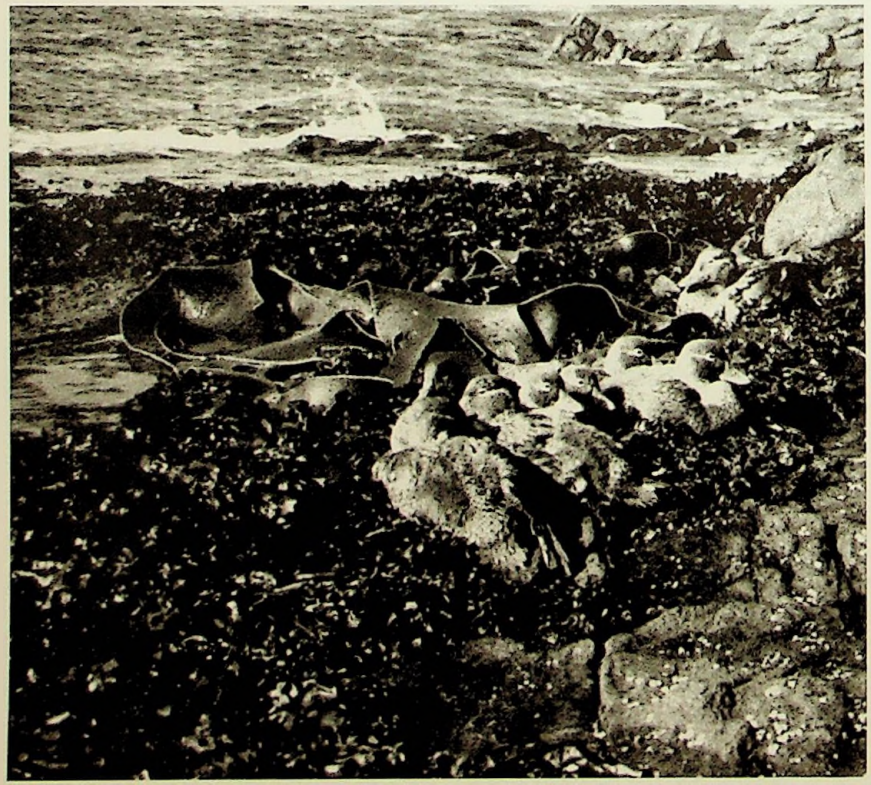


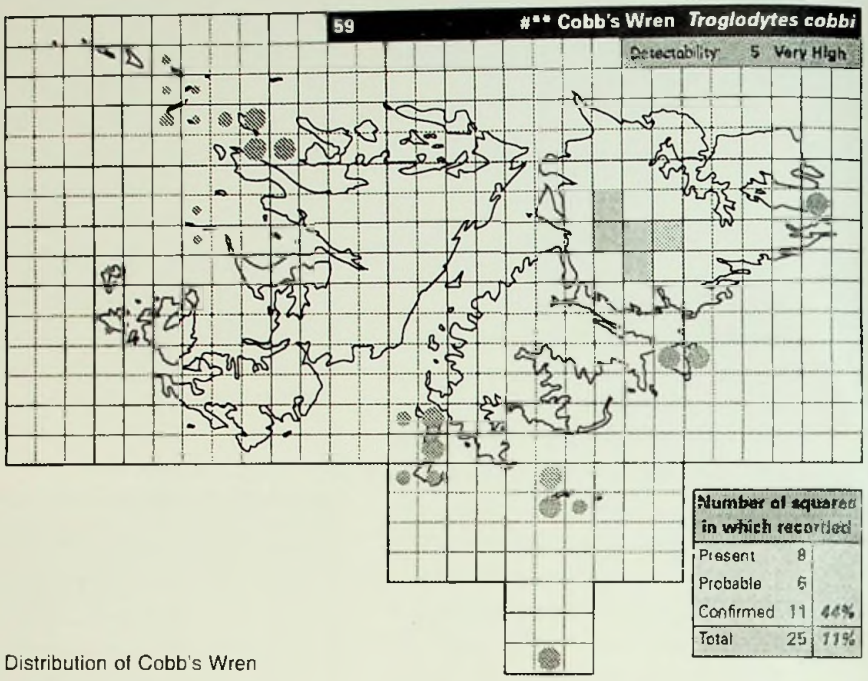
Photo: Giant Kelp (Macrocystis pyrifera) with Logger ducklings. *Photo:* Mike Bingham

Atlas of Breeding Birds of the Falkland Islands

Dr John Croxall, Chairman of Falklands Conservation, assesses the significance of this eagerly awaited publication.

This book represents a milestone in the study of birds of the Falkland Islands - the first systematic record of their distribution (indeed the first bird atlas for the whole South American region) and the first attempt to estimate the abundance of the landbird species.

It was nearly 14 years ago in 1983 that Robin Woods thought of mapping the distribution of Falklands birds. With support from the Falkland Islands Trust and Falkland Islands Foundation (subsequently to merge to form Falklands Conservation), a pilot study was undertaken in 1984/85, converting to a full-scale study, based on the 10km grid square system, from 1985/86 onwards. By 1992 a total of about 160 observers had completed over 550 survey forms, covering 92% of the grid squares on the Islands. The data collected by this survey are the basis of this book, mapping the distribution of 65 species and estimating population sizes for 55 of them.



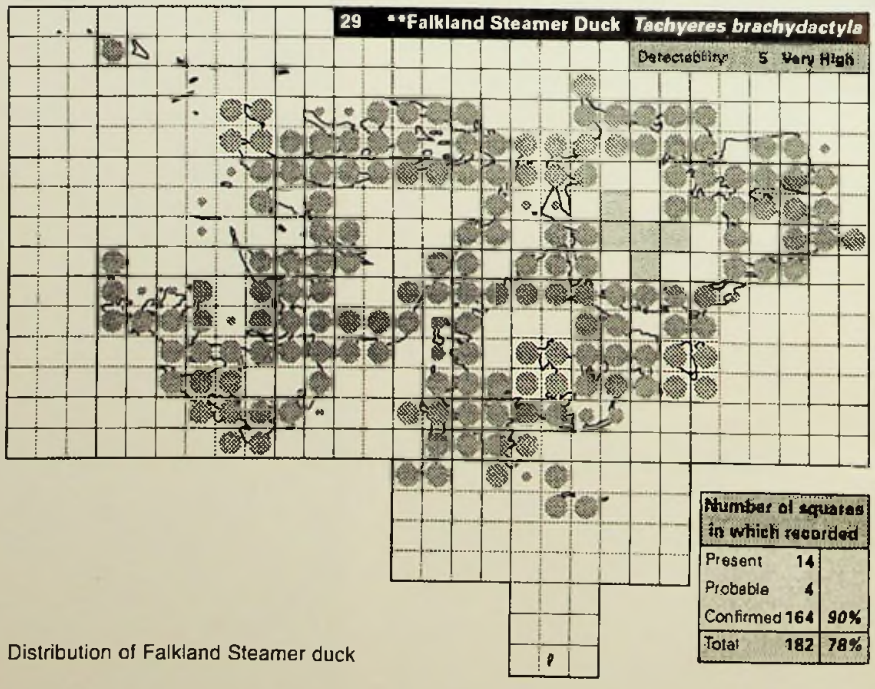
Distribution of Cobb's Wren

The book contains much more than the maps, valuable though these are in providing the first comprehensive picture of the distribution of Falkland Islands birds. Text for each of the 65 species summarises the history of knowledge of the species and describes its breeding habitat. The distribution records are analysed in terms of basic topography (inland vs. coastal, upland vs. lowland, dry vs. wet habitats) and a section on further species-specific details is included. Implications for species conservation are not overlooked, with a special feature on this topic for all species.

In addition they have been able to draw on the results of recent global analyses of bird distributions by BirdLife International. Thus the Falklands, with two endemic species (Cobb's Wren and Falklands Steamerduck), is classified as an Endemic Bird Area - one of 221 worldwide. With Southern Patagonia it forms another EBA, sharing four species not found elsewhere in the world (Tussacbird, Ruddy-headed Goose, Striated Caracara, Black-throated Finch).

The survey reveals that the two endemic Falklands birds have very different distributions, abundance and conservation status (see maps).

Thus Cobb's Wren is confined to about 25 squares 11% of total) with a total population of about 2,000 pairs and is classified as a Threatened species (in the Vulnerable category) in the most recent global review by BirdLife International. In contrast, the Falklands Steamerduck was recorded in 182 squares (78%) and its population is estimated at around 12,000 pairs. Given these data, it does not, at present, qualify as a species of any special conservation concern.



Distribution of Falkland Steamer duck

The Atlas also emphasises that for several other landbird species the Falklands hold the bulk the world population. In some cases (eg Ruddy-headed Goose, Black-throated Finch) the species has declined seriously on the South American mainland and the Falklands is, effectively, their only secure refuge at present. The Falklands are of even greater global importance in terms of their seabird populations and the Atlas provides a comprehensive survey of their distribution and abundance - the first for more than a decade - although inevitably information on the nocturnal burrow-dwelling species is still very incomplete.

Overall, this book provides an exceptional overview of the distribution and abundance of the birds of the Falklands. However, it must not be regarded as an end in itself but rather as a stepping stone to ensuring that we obtain the detailed data necessary to achieve proper protection of the habitats critical to all bird species breeding in the Falklands.

It is pleasing to note that new initiatives are already underway. Major new surveys of the distribution and abundance of Gentoo and Rockhopper Penguins were conducted by Falklands Conservation in 1995/96 and similar work on Magellanic Penguin is planned in the next couple of years. Detailed coastal surveys have enabled the distribution and abundance of birds to be recorded in much greater detail than on the 10km^2 scale - though it will take a considerable time to survey the rest of the Islands at these smaller scales! A particular challenge, therefore, is to focus on those sites and habitats of greatest bird diversity, particularly those where Globally Threatened and Near-Threatened species occur. We need to ensure that we have enough information about the populations of these species and these areas both to serve as baselines against which to assess future change and also as a basis for ensuring the best protection possible for these critical habitats.

In addition to its importance as a 'long-exposure' snapshot of the status of Falkland birds and as an essential tool in developing adequate protection for Falkland habitats and their avian inhabitants, this Atlas contains a wealth of additional information that makes it an invaluable reference book. While all those who contributed to the work itself will doubtless read it eagerly, most Falkland Islanders and visitors to the Islands will find a great deal of interest and value in this book.

Atlas of Breeding Birds of the Falkland Islands
by Robin and Anne Woods. 190 pages.
Published by Anthony Nelson in association with Falklands Conservation with support from WWF-UK.
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PO Box 9, Oswestry, Shropshire SY11 1BY.
Also available to personal callers at Falklands Conservation, Stanley, FI.

Black-chinned Siskin, one of many illustrations in the Atlas by Geoffrey McMullan

Book Review: The Striated Caracara *by Ian Strange*

This is an attractive publication on the 'Johnny Rook' - one of the world's more extraordinary raptors because of its cheeky foraging behaviour patterns. It has one of the most southerly-centred distributions of all birds of prey and depends heavily on the Falklands. It is the first monograph of a species with a restricted range and classed as 'Near Threatened' under IUCN criteria. The author's aim was to present a 'broad picture' of its ecology and 'develop a better understanding' of it amongst Falkland Islanders.

For the first of these aims this is on balance a useful publication. The author's own observations date back as far as 1962 and show an obvious care and enthusiasm for the species. The treatment is comprehensive and gives an interesting in-depth historical perspective too. Predictably, the difficulties encountered include quantification of diet (especially in the equally crucial winter months), which requires specialist methods, and full census coverage of scattered islands. The photographs depict a broad range of attitudes and behaviours, including the inevitable attempt to raid the author's rucksack! Unfortunately, the reference information is scattered throughout the text and nowhere listed in full.

Regarding the author's second aim, if I were a non-specialist Falklands naturalist I would need a certain amount of determination to assimilate the whole text - a section summarising the main points would have been useful.

The conflict with sheep farming interests is examined and some interesting points are made, but the author's recommendations for future conservation of the species place emphasis on the implementation of short-term measures such as compensation payment and diversionary feeding. A more thorough understanding of the ecosystem at play should surely be the aim, before attitudes are allowed to be further influenced by such actions. In this respect, the mechanisms that cause differences between islands in the winter emigration and flocking on sheep farms may hold an important key to the situation and merit in-depth study.

Despite my few grumbles, this is a publication full of interest that considerably expands our understanding of a vulnerable species shown to depend primarily on conservation of tussac grass nesting habitat, ready access to seabird colonies, a largely unknown winter dispersal and feeding regime, and the Falklands.

Review by Roger Clarke, The Hawk & Owl Trust.

The Striated Caracara *Phalcoboenus australis* in the Falkland Islands, *by Ian J Strange MBE.* 56 pages, soft colour cover, 16 full-page colour photographs, black and while photos, maps, drawings and figures, published August 1996 by the author.

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Sub-Fossil Bird Bones in a Falkland Island Peat Bog

By Mark Adams and Robin Woods

Since the earliest recorded settlement by French colonists at Port Louis, the natural peat beds of the Falkland Islands have been used as a relatively convenient source of fuel. Peat is traditionally cut to expose a vertical face, one yard in depth. In peat beds of sufficient depth, successive yards of peat may be cut, which therefore exposes deeper and hence older peat layers.

West Point Island lies about 1/4 mile off the north-west arm of West Falkland. Sheep farming started on its 3,100 acres (1255ha) in 1879 and peat has been excavated for at least a century. About 3/4 miles west of the settlement lies a previously heavily used peat bog, which is now rarely cut. It is situated on a small plateau in the centre of a valley at an altitude of 220-250ft, between two peaks (Black Hog Hill and Rocky Ridge Hill), each of 500ft. The valley slopes north-east to south-west, from sea level at Cat Cove, to 100ft cliffs at Devil's Nose.

It is in this peat bog that large numbers of bird bones have been found. This is by no means a recent discovery. Such bones were originally noticed whilst excavating the peat for fuel. Their presence was first noted by Hattersley-Smith and Hamilton in 1950 who implied that bones were first noticed there in the early 1930s. Robin Woods examined the deposit in 1962 and observed that bones were distributed in a vertical layer of at least one foot (30cm). According to Hattersley-Smith and Hamilton, three successive layers of peat, each a yard deep, have been removed, which means that the bones originally lay beneath at least nine feet of peat. It is not known how deep the 'layer' of bones, or indeed the peat bed, extends. The lateral extent of the bone deposit is also unknown.

During December 1996, we visited the site where we excavated bone material from a small sample area. The bones are situated in very dense peat and are relatively abundant. Having been preserved in moist peat, they are particularly soft and fragile. Once exposed to the sun and air, the bones rapidly dry and become extremely brittle. The density of the peat surrounding the bones also makes their location and removal an awkward procedure.

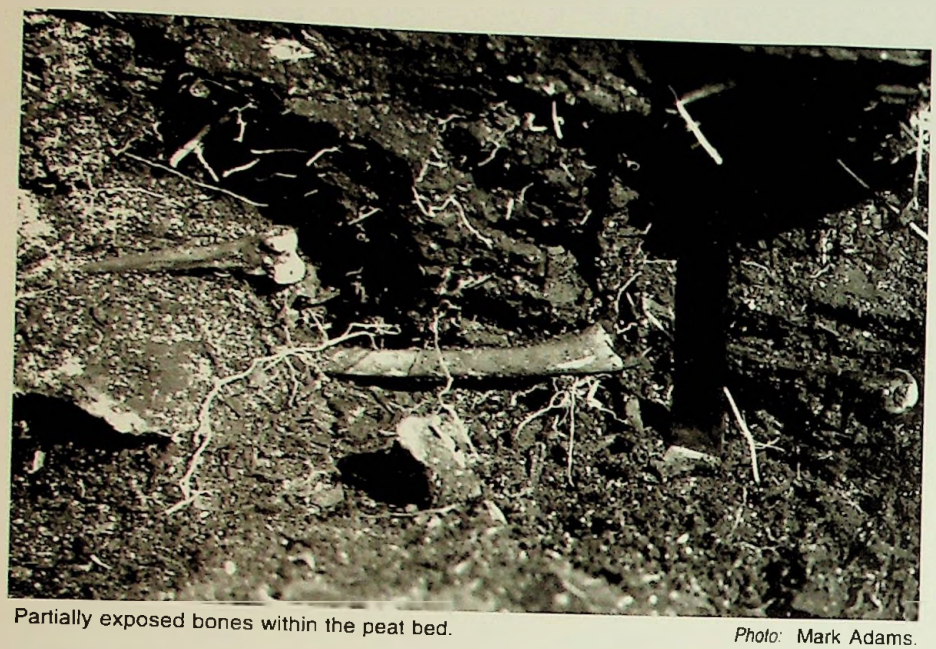
As Hattersley-Smith and Hamilton found, the bones appear to be exclusively avian. The majority of them are complete, undamaged limb bones, although some more fragile skulls and synsacra (pelvis) were also found, as well as toes and claws of birds of prey. A surprisingly diverse number of species were found, ranging in size from a probable finch (maybe the resident Black-throated Finch *Melanodera melanodera)* to Striated Cararcara *Phalcoboenus australis* .

In order to identify the bones they were taken to the Natural History Museum at Tring, England, where more detailed studies can be carried out. However, to prevent the bones from drying and becoming brittle, they must first be cleaned and treated with a dilute PVA glue solution. This delicate and time-consuming procedure will ensure that the bones are preserved in a suitable condition for handling. They can then be identified, using the large collection of comparative material housed at the Natural History Museum.

Identifying the bones will show whether they are of species still present in the Falklands, or of species now only recognised on the South American mainland. It is also possible that new species, previously unknown, may be found.

These bones were probably deposited many hundreds of years ago, long before the human occupation of the past 220

Complete limb bones. *Photo:* Harry Taylor, Photographic Unit, NHM.



Partially exposed bones within the peat bed. *Photo:* Mark Adams.

We are extremely grateful to Roddy Napier for allowing us access to the peat bog and permission to remove a sample of bones. His hospitality during our stay was overwhelming. Staff at the Department of Agriculture in Stanley gave help freely, particularly in obtaining the relevant permits required for shipment of bone material. The staff of the Palaeontology Department of the NHM, particularly Adrian Doyle, are also acknowledged for instruction in preservation techniques.

years. We therefore intend to request that samples of bone are subjected to a carbon-dating process because they could provide information that far pre-dates any current knowledge of the Falkland Islands' avifauna.

The dating, preservation and identification procedures are currently at an early stage. When more information has been gathered, we intend to publish the results and shall also inform members of Falklands Conservation through the pages of 'TheWarrah'.

Reference: Hattersley-Smith, G and Hamilton JE. 1950. *A Recent Deposit of Bird Bones in the Falkland Islands.* Nature, 166.

1996/97 Fieldwork Report

by Mike Bingham

Following the Penguin Census and FIG Coastline Survey during 1995/96, the 1996/97 fieldwork season could have been an anti-climax but it turned out to have many interesting facets of its own.

We began with negotiations to find two new sites. Our monitoring programme had never covered the south-west of the Islands, and did not include a study site on West Falkland, so Port Stephens was chosen to cover this region. In addition, Saunders Island was selected for a monitoring and banding programme on Albatross, but it also turned out to be one of our best sites for monitoring Penguins. At one location here there are six species of Penguin and thousands of Albatross within one kilometre of coast.

The six sites now being monitored are the limit for the current level of resources.

The first counts are of occupied nests during incubation of eggs, and this must be completed as soon as possible after egg-laying in November. These counts allow us to observe changes in population.

The second round counts numbers of chicks reared, and this must be completed before chicks fledge and leave the rookery (February for Penguins and April for Albatross). From the data gathered we determine how successful a reproductive season each species has had and build up a picture of the factors which influence breeding success rates.

Fieldwork is concentrated into these two periods as close to the optimum time as possible. Unfortunately, this season a flu epidemic spread through the Falklands just after Christmas, knocking people for six, including my field assistant Carol Aldiss, who was taking time off from her usual work for the British Geological Survey. Her illness created a temporary crisis, but the gap was filled by Jeremy Smith, David Green and Dan Holland, a GAP student loaned to us from the Department of Fisheries. Thanks go to them all for their valuable contributions.

Thanks also go to our trusty band of volunteer counters, who monitor certain colonies each year on our behalf. This enables us to greatly increase the number of colonies being monitored.

Virtually without exception, the Penguin and Albatross rookeries had an excellent season, successfully rearing large numbers of chicks. The Gentoo and Magellanic Penguins often exceeded 100% productivity (ie one chick per nest), and the Rockhoppers and Albatross averaged around 80% and 50% respectively. These differences in productivity do not so much reflect differences in seasonal success, but rather differences in breeding strategy.

But the high points of the season for me were seeing a Chinstrap Penguin on Saunders Island, and a Striated Caracara nest at Port Stephens. Not only was this the first I had been close enough to photograph, but it was also the first confirmed breeding of a Striated Caracara on mainland Falklands.

It's now time to enter all the data into our databases and GIS, and to determine what conclusions can be drawn. Plenty to keep me occupied during the winter months I'm sure.

Middle Island: More Secrets of our Nature Reserves Revealed

By Robin Woods

Middle Island and Motley Island, lying off East Falkland, are the two largest reserves owned by Falklands Conservation, containing more than two-thirds of our landholdings. My brother Nick and I visited both in January 1997. Middle Island (150ha or 370 acres) is about three miles south of Mare Harbour and is quite easily reached by boat. The Island has not been stocked since 1988 and one surviving sheep was disposed of in July 1994, when Sally Poncet made a preliminary survey before the purchase.

Vegetation and Erosion

We walked round most of the coast on the first two days. We were struck by the abundance of Mountain Blue Grass in seed. We found it from the low lying plain behind our landing bay to the ridges of large sand dunes and it graded into Tussac grass stands near the cliffiops. On the western half of the Island, the slopes were dominated by old, dense Diddle-dee with an undergrowth of Almond Flower, several good patches of Tall Fern and even a few Native Strawberry plants. Further west the ground was eroded badly, with many grotesquely shaped decaying Tussac bogs and dead Diddle-dee plants being swamped by blowing peat dust.

Discoveries of Rare Plants

In complete contrast was the dry bed of a pond (45m x 10m) at the base of the sand dunes towards the eastern side of the Island. Here the vegetation was lush and around the pond depression was a solid growth of Prickly Burr already with ripe seed-cases that stuck to our socks. On the slightly sloping sandy ground, was a green mat of Native Water-milfoil with dissected leaves. It would have had its strangely different, entire, dark reddish upper leaves floating, if there had been any water. Further towards the centre of the basin we found four tiny but interesting plants. One was the endemic Falkland Lilaeopsis, a rush-like plant with clusters of minute, whitish five-pointed flowers. This plant is widespread, but so inconspicuous that it is often overlooked. Surprisingly, it is a fairly close relative of the Balsam Bog and Wild Celery. Lurking among the Lilaeopsis we found patches of a plant that looked similar, but it had tiny purple tips to the outer parts of the pale mauve, five-petalled flower. We eventually identified this as the Southern Mudwort, a plant of wet mud or sand that occurs in many other parts of the world. We found more in another drying pond on Middle Island, but I have not seen it elsewhere in the Falklands. The third unusual plant was similar to the others, but with fatter leaves. This we discovered was the Lesser Sea Spurrey which is not in Moore's 1968 Flora but in his Flora of Tierra del Fuego (1983) he notes that it has been recorded in the Falklands. It is widespread in Europe and North America. We also found a few examples of the Ranunculus called 'False Ladle-leaved Buttercup' by FI Tourism in 1987 which David Moore (1968) believed was 'uncommon' in the Falklands.

Presence of Endemic Species

Near this drying pond basin, grasses were growing luxuriantly, including large Tussac bogs and the rare Antarctic Foxtail. Among them we found at least ten healthy examples of the endemic Falkland Rock Cress. David Moore comments that it was reported as relatively common in the early 19th century and that 'its present rarity is probably the result of sheep-grazing'. The Rock Cress and Felton's Flower are the only two endemic Falkland plants listed by IUCN as 'Endangered'.

In hollows among the Diddle-dee we found both endemic species of Yellow Ragwort, often close together. The greener-coloured Smooth Falkland Ragwort *S. vaginatus* had overlapping yellow petals forming a solid head and the flowers were almost scentless. In contrast, the Woolly Falkland Ragwort *S. littoralis* plants looked grey-green, had single flower spikes with furry white buds and narrow petals, which smelled strongly of old straw from a horse's stable. The Woolly Ragwort plants had flowered earlier on Middle Island and were mostly in seed but we found the Smooth Ragwort in full bloom.

Falklands Flora Well Represented

To date, we have identified 58 plant species. Specimens of others were picked and pressed to be identified later with Jim McAdam. This Island therefore carries at least 60 species of which 45 (78%) are native and 13 (22%) are thought to be introduced from Eurasia. We were pleased to find five of the twelve endemic Falkland plants. In addition to Rock Cress, Lilaeopsis and two ragworts, we identified Falkland Cudweed, a greyish plant with small brownish flowers. All appeared to be thriving in different habitats.

Bird Records

We recorded a total of 35 bird species, including 21 definitely breeding, two probably breeding and six that may have been breeding, which suggests that 29 species could be breeding on Middle Island. Six other species were seen offshore.

Petrels, Shags and Geese

No live petrels were seen or heard on the Island but there were tantalising signs that petrels were present. We found a fresh Diving Petrel corpse near a Falkland Skua's nest on the ridge and many small burrow entrances were found in steep Tussac-peat slopes. At least one burrow had the musky smell

Magellanic ('Jackass') Penguins were present in most parts of the Island, particularly the lower slopes. One of the problems of camping on an island in the Falklands became evident the first night. It was difficult to get to sleep without earplugs because the 'Jackasses' nearby brayed intermittently throughout the night!
Photo: Robin Woods

typical of petrels and the holes were too small for shearwaters or 'Jackass' Penguins. Rough weather, other field work and our fatigue after tramping the Island from early morning prevented us from investigating these burrows after dark, when adult birds could be present.

There was a colony of about 300 pairs of King Shags on the low northern cliffs bordering eroded ground. Several Rock Shags nested along the seaward side. Altogether, we counted more than 100 Rock Shag nests in the four small colonies along the northern coast. A few pairs of Falkland Skuas occupied the Diddle-dee ridge behind the King Shags and more skuas nested on a sand beach to the east.

Various plants were affected by geese grazing on coastal slopes; plants were cropped short and there were many droppings. Upland and Kelp Geese also grazed inland on Diddle-dee berries. A few Ruddy-headed Geese were breeding and several pairs of the endemic Falkland Flightless Steamer Duck held territories along the shore.

Songbirds

All nine Falkland songbirds were present, suggesting that Middle Island has no cats, rats, or mice. Tussacbirds, Falkland Thrushes, Black-throated Finches, Black-chinned Siskins and the endemic Cobb's Wrens were plentiful, particularly among the Tussac along the southern coast. We saw only one Pipit but there were Grass Wrens singing in Mountain Blue Grass and on Diddle-Dee. Several family parties of Long-tailed Meadowlarks moved about the Island, feeding on the ground and we saw a few Dark-faced Ground-Tyrants. Tussacbirds and Thrushes were very tame, frequently visiting our tents. We often saw a pair of Black-chinned Siskins around our camp. One early morning, I found their newly built nest in the outer leaves of a large Tussac bog, reinforcing my belief that Tussac can replace trees or shrubs for this species, which inhabits wooded country in southern South America.

Sea Lions

We saw two bull Sea Lions near the beach on the western point. One galloped into the sea with a great splash but the other looked old and had nasty flesh wounds on his head and back and seemed too tired to move. We came across another large bull and a female on a sand beach, and although found no evidence of breeding on Middle Island, we could hear and see adults with pups on Green Island nearby.

Survey Records and Collections

We took many photographs on Middle Island. Nick took mostly close-ups to show the details of flower formation and I photographed birds, plant associations and habitats. Sample plant specimens were picked of species that could not be identified easily in the field. These have all been labelled, pressed and dried and are now ready for detailed examination. A full report on our field work is held by Falklands Conservation.

Acknowledgements and Thanks

Several people provided services which contributed to the success of our work. They are John Willie Jaffray, manager at Walker Creek with mv *Chevron* and his Zodiac rubber boat, Trevor Lowe of Stanley and John Berntsen of Goose Green with their 4WD transport. Phyllis Jaffray and Sonia Felton gave us excellent stopover facilities, between and after our two camping episodes, Hay and Sam Miller of Stanley loaned us an essential second tent and Conor Nolan of the Fisheries Department loaned a 2m radio for use in emergencies. Without their invaluable help we could not have surveyed Middle and Motley Islands.

References

Falkland Island Tourism, 1987. Check List of Falkland Islands Wildlife.

McAdam J. 1994. List of Falkland Islands Flora. Unpublished list for Falkland Islands Wildflower Survey.

Moore, DM 1968. The Vascular Flora of the Falkland Islands. British Antarctic Survey, Scientific Reports No.60.

Moore DM 1983. Flora of Tierra del Fuego. Anthony Nelson, Oswestry.

Note:

A report on the Motley Island 1997 survey will be published in the next edition of The WARRAH.

Felton's Flower: A Recovery Plan

Felton's Flower *(Calandrinia feltonii)* is endemic to the Falklands. It had been generally regarded as extinct in the wild for a number of years with the surviving population restricted to a tiny number of private gardens. There has been a great deal of interest in recent plans for a re-introduction of the plant to its natural habitat.

In 1996, Sinead Doherty, then employed as a temporary assistant at the Falkland Islands Department of Agriculture (DoA) successfully completed a seven week plant conservation course at the Royal Botanic Gardens (RBG) at Kew. On her return to the Falklands, Sinead drew up a recovery plan for Feltons Flower *Calandrinia feltonii* (Doherty , 1996), the primary objective of which is the re-introduction into the wild of a genetically viable population of Felton's Flower to the Falkland Islands. Having developed the project thus far, the DoA handed over responsibility for its continuance to Falklands Conservation in late 1996, although they will continue to provide specialist advice and support when required.

Felton's Flower is a low growing prostrate annual. It is highly attractive, with brilliant magenta flowers which open their widest in bright sunshine. The seeds, which are small, shiny and black, usually germinate in late summer, and the plant overwinters as a small seedling. In spring it grows rapidly and the flowers often appear by October, a time when little else is in bloom. The plant stems may reach up to 35cm or more in length while the basal leaves can be up to 1 cm long. Its nearest relatives occur in South America between 35° and 50° South. *Photo:* R. Lewis-Smith.

'the Islands support flourishing populations of Felton's Flower'

The past summer has seen a number of developments. In particular, it has been a surprise to all concerned just how many private gardens across the Islands support flourishing populations of Felton's Flower. A number of the owners of these gardens are assisting Falklands Conservation by answering a questionnaire regarding details of growing conditions, annual success etc. and by providing seed for future work. Mention should also be made of the gardening staff of Government House who, in early summer, planted 60 seeds which successfully germinated providing additional seed for work next season.

But perhaps the most significant development has been the possible 'discovery' of plants in the wild. It was reportedly present in the Roy Cove area during the 1970s but there had been no recent confirmed sightings. It appears though, that lower than normal stocking rates of land in the Roy Cove area on West Falkland during the last twelve months has allowed at least one plant to flourish in areas normally grazed by sheep. The overall number of plant species, particularly flowering plants, in this area was also reported to be noticeably higher than normal this summer.

As far as the Recovery Plan goes, we now have a great deal more information available relating to propagation and cultivation, and we also have a good store of seed in hand. This winter it is hoped that 'genetic fingerprinting' will be conducted by Dr Mike Maunder at the RBG at Kew to determine if seed currently being collected is in fact a pure strain native to the Islands. Providing this is the case, the next stage will be to identify sites in the wild where the species might be successfully reintroduced (and protected). A site in the Hill Cove region has already been offered, and it is hoped that others will follow.

Reference

Doherty S. 1996. Recovery Plan for Felton's Flower *Caladrinia feltonii.* Report for Department of Agriculture, Stanley, FI.

Prospects for Future Protection of Important Wildlife Areas

Jeremy Smith looks to the future for possible new nature reserves and sites deserving special Ramsar status

The purchase by the Falkland Islands' Government (FIG) of land formerly owned by the Falkland Islands Company (FIC) and now managed by Falkland Landholdings Ltd (FLH) has resulted in a number of important wildlife sites being transferred to public ownership. Falklands Conservation believe that this has created a valuable opportunity for FIG to take a lead role in protecting such sites and the wildlife that they support.

New Legislation, New Opportunities

Current legislation makes provision for the establishment of Nature Reserves and Sanctuaries, but this is likely to be replaced during 1997 by new Nature Conservation legislation (Standring 1995) (See Warrah 10). This proposes that the current system be replaced by a single category of National Natural Reserves (NNRs) and designation would cover a wider range of purposes than is currently the case. The rationale for designation as an NNR might include:

- public enjoyment of flora and fauna
- education
- protection of biological, geological and geophysical features
- preservation of natural areas for science
- the control of high visitor pressure
- protection of marine areas

Important Sites on FLH Land

The **northern area of Bleaker Island** is a Sanctuary under present legislation, and to date this remains the only site on FLH land to be afforded protected status. Other sites though are equally valuable. These include **Bull Point** with its major Jackass and Gentoo Penguin colonies, **Swan Inlet** as the Islands most important area for the Black-necked Swan, and **Bertha's Beach** with important wildfowl and wintering wader populations. Flora too is well represented with important stands of Tussac Grass at sites such as **Bull Point** and **Port Harriet Point.** Falklands Conservation has recently submitted proposals to FIG for the designation of these areas as Sanctuaries under present legislation. Following adoption of new legislation, these would automatically become National Nature Reserves.

The Ramsar Convention

One important advantage of the proposed single, integrated system of NNRs is that it would ensure compliance with international conventions. One that could easily be applied to the Falklands at present is the Ramsar Convention (Thompson, 1992), or to use its full title "The Convention on Wetlands of International Importance. Especially as Waterfowl Habitat" which aims to stop the loss of wetland habitats world-wide. Ecologically, wetlands are amongst the world's most productive environments, supporting high biological diversity. They are particularly important to populations of native waterfowl, and to populations of migratory species whose long term survival is dependent on the preservation of suitable habitat during migration journeys. Within this Convention, the classification of wetlands includes both freshwater and shallow marine areas.

Ramsar designation does not automatically result in restrictions on activities within a site, but it does provide for international recognition of an area's conservation importance and there is a duty on governments to promote the site's conservation. The Falklands are not signatories, but are included in the UK's ratification of the Convention. HMG therefore has a responsibility for implementing the Convention in Dependent Territories where it may be applied. Nevertheless, it remains the primary responsibility of the government of any Dependent Territory to implement nature conservation policies of their own and FIG could thus initiate the process on behalf of HMG.

The application of the Ramsar Convention in the Islands would significantly enhance the Falklands' reputation for wildlife protection at an international level, particularly as oil and gas related activities gather momentum in Falkland waters. A number of the sites proposed as NNRs apparently meet the ecological criteria for designation as Ramsar sites, and there are others which merit further study in this context (Hepburn et al. 1992a and 1992b). Falklands Conservation are actively seeking funds to carry out detailed surveys to obtain further information on the flora and fauna at a number of these sites, and to delineate possible site boundaries.

National Nature Reserves

At a local level, it represents a valuable opportunity for FIG to promote the concept of National Nature Reserve to private landowners in the Islands, and to show that nature conservation, and site protection in particular can be compatible with farming. There is a perception held by some in the Islands that NNR status would result in restrictions on farming practices, but recent initiatives by Falklands Conservation, in particular the involvement by local staff in the visit of Kevin Standring in late 1996 to discuss proposed new legislation, has helped to alay many of these fears.

Perhaps the most important justification for early action is the possibility of the sale or leasing of land currently under FLH control. Valuable wildlife sites are likely to be included in any transfer of ownership or management, and their designation as NNRs would then require negotiations and agreement with new owners. There is no reason to suppose that this would be a problem but Falklands Conservation believe that action now would guarantee protection for the future.

References

Hepburn I, Oldfield S, & Thompson K. (1992a) UK *Dependent Territories Ramsar Study: Stage 1.* Submitted to the Dept of the Environment, European and International Habitat Protection Branch by the International Waterfowl and Wetlands Research Bureau and the NGO Forum for Nature Conservation in the UK Dependent Territories.

Hepburn I, Oldfield S. & Thompson K. (1992b) *UK Dependent Territories Ramsar Study, Stage 1 Supplement.* Submitted to the Dept of the Environment, European and International Habitat Protection Branch by the International Waterfowl and Wetlands Research Bureau and the NGO forum for Nature Conservation in the UK Dependent Territories.

Standring K T (1995). *A New Look at Nature Conservation Law in the Falkland Islands.* Report for Falklands Conservation.

Thompson K (1992) Wetlands Conservation in the Falklands *The Warrah* No. 3 p4.

Falklands Conservation

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Member of IUCN

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Patron
HRH The Duke of York CVO
UK Chairman
Dr John Croxall
FI Chairman
Lewis Clifton

Offices:
UK: 1 Princes Avenue, Finchley, London N3 2DA.
Tel/Fax: 0181 343 0831
email: falklands-nature.demon.co.uk
FI: PO Box 31, Stanley, Falkland Islands.
Tel: 500 22247
Fax: 500 22288.
Website: http://www.oneworld.org/falklands-conservation/index.html.

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The Warrah, or Falkland Fox (*Canis antarcticus*), was the only endemic Falklands mammal. This bold and inquisitive animal was never very numerous but, with the introduction of sheep, farmers backed by a Government bounty were encouraged to hunt them. The last one was killed in 1876. We hope this publication will play a small part in preventing any other Falkland wildlife following the same path to extinction.

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Falklands Conservation Goes International

Marine Biological Research in South America and Antarctica

Falklands Conservation was represented at a workshop this April at the University of Magellanes in Punta Arenas discussing marine biological research in the waters around the Falklands, South America and the Antarctic. Organised by the Institute of Patagonia and the Alfred Wegener Institute for Polar Research, all aspects of marine biology, from invertebrates living on the seabed to seabirds and seals were discussed. Almost one hundred scientists from around the world were in attendance displaying a wide range of expertise.

The Workshop revealed the similarities between the marine ecology of the Falkland waters, and those around the southern Pacific coast of Chile, not only amongst the seabird species held in the two regions but also marine invertebrates. In view of the lack of knowledge on shallow marine and deep water communities in the Falklands, much could be learned by looking at the extensive research carried out around the coast of Chile.

By contrast the Falkland Islands hold a good reputation for work on seabirds and marine mammals. The invitation for Mike Bingham to attend the Workshop came largely as a result of his work on penguins around the Falklands and South America. During the summer of 1996/97 Mike had privately organised and funded a census of the Chilean population similar to the Falklands census of 1995/96, enabling him to compile a database of the world population of Southern Rockhoppers. The Southern Rockhopper Penguin is only found around the Falkland Islands and South America, and in order to help understand the huge decline that has occurred in the Falklands, it seemed imperative to determine its status throughout the rest of its breeding range. Good information has previously been held for the very small colony breeding in Patagonia, but very little was previously known about the large breeding colonies around Tierra del Fuego and the Pacific coast of Chile.

The results of this work show that the Falklands hold about two thirds of the world population, with 300,000 nests at 36 breeding sites, while South America holds the remaining one third with 175,000 nests at 15 breeding sites. The world population of Southern Rockhoppers currently stands at 475,000 nests.

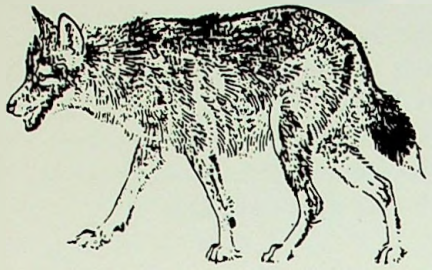
This information, along with the current status of other penguins in the Falklands, formed the basis of Mike's lecture at the Workshop, the official proceedings of which will eventually be published. All in all the Workshop proved to be a very valuable opportunity both to acquire information from research being conducted in the wider region of direct interest to the Falklands, and to promote the Falklands as an area of scientific excellence. It is nice to think that the Falklands, small as it is, can hold its head so high in the world of environmental research.

Important Bird Areas Programme for the Americas

Falklands Conservation participated in the first ever meeting of the BirdLife Partners and Representatives of the Americas. This was the most important bird conservation meeting ever held in this Region with the aim of progressing the process of identifying sites critical for birds and so provide for their long-term conservation. Each country gave a presentation giving an insight into the status and problems facing bird conservation throughout the Continent. Seabirds were rarely mentioned, perhaps emphasising the Falklands' importance for the marine environment. This was a great opportunity to network with bird conservation organisations across the Americas, but more importantly, to explore and develop the concept of Important Bird Areas. This status gives international recognition to sites with globally threatened species, restricted range species, biome restricted assemblages or major congregations. Falklands Conservation are now considering how an IBA programme could be applied to the Falklands.

Participants at the BirdLife Americas Workshop, Quito, Ecuador, February 1997. Ann Brown and Mike Bingham attending on behalf of Falklands Conservation are just visible third and fourth from the left. *Photo:* Mike Bingham.

the **WARRAH**
Newsletter of Falklands Conservation



November 1997 - Number 12 Editor Ann Brown

Falklands Needs Marine Clean Up

The shores of the Falkland Islands are remote, but in today's throwaway culture even here there are beaches strewn with rubbish. With an exceptionally rich marine environment to protect, steps to reduce this growing menace in the Islands are urgently needed.

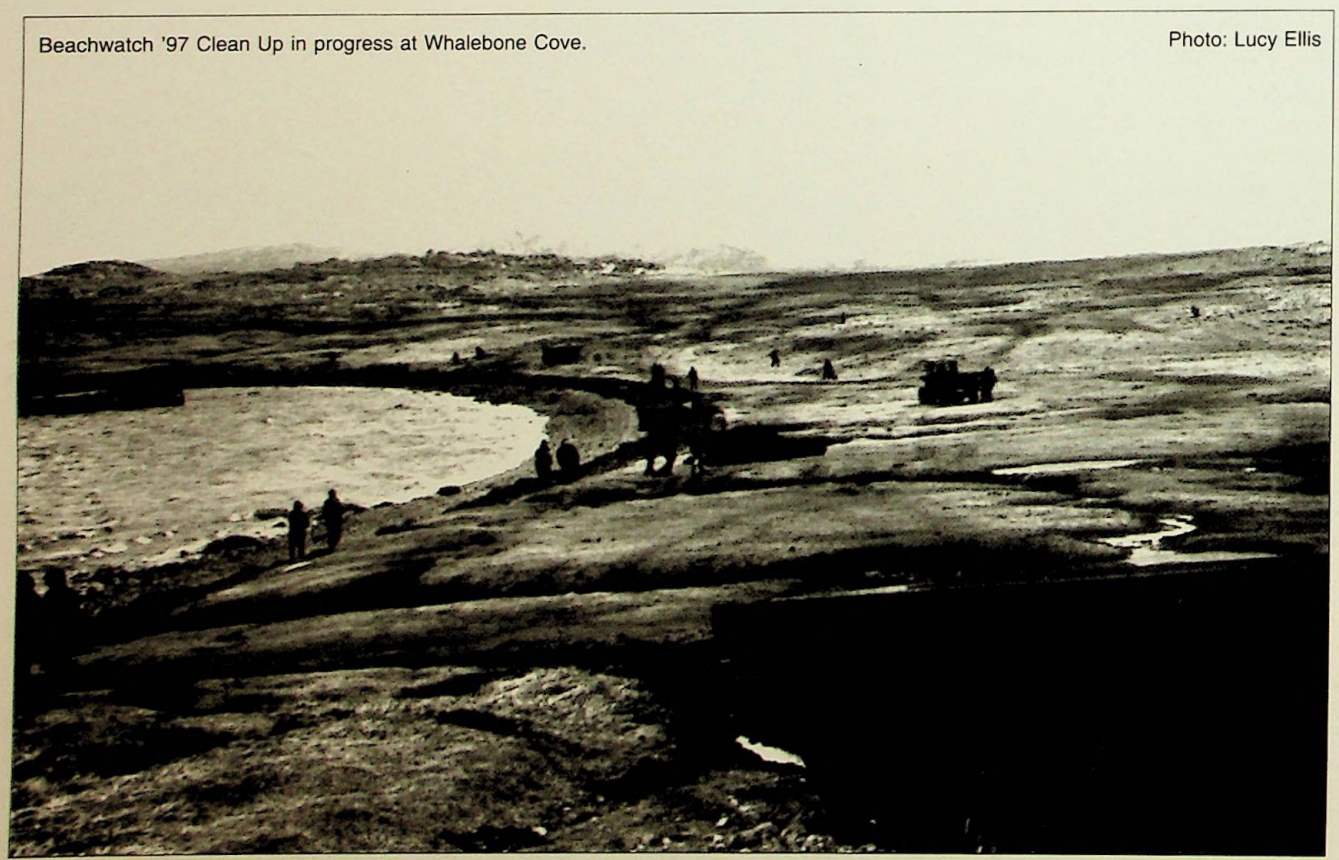
Becky Ingham, our newly appointed Field/Science Officer based in Stanley, reports on the problems associated with marine debris, how the current situation could be improved, and on the recent Beachwatch '97 Clean Up

An International Problem

Marine garbage has long been recognised as an international problem. The sources of the debris can be widespead from sewage discharges, illegal dumping by ships and marine craft, direct littering by tourists, discards of fishing gear from fishing vessels, and litter carried by rivers and streams from inland sources. According to the Marine Conservation Society, an estimated 100,000 marine mammals and a million birds die every year from entanglement in, or ingestion of, debris.

The Suffering of Wildlife

Entanglement can either constrict growth and circulation, causing eventual slow



Beachwatch '97 Clean Up in progress at Whalebone Cove. Photo: Lucy Ellis

In This Issue: Grazing Systems and Bird Monitoring Trial – Observations of Birds At Sea Around the Falklands – Motley Island Revisited – Appeal to Purchase Tussac Islands

death, or trap marine animals within large debris, leading to asphyxiation, starvation or predation. At the very best it increases their drag coefficient through the water, and animals simply starve due to their inability to catch prey.

Ingestion also has a wide range of lethal or sub-lethal effects. Physical damage can occur to the digestive tract, or mechanical blockage of the digestive system which leads to starvation and death. Some man-made plastics may also be a source of toxic pollutants, which can be gradually released as the animal attempts to break it down. All of these effects in turn lead to a reduced ability to reproduce successfully, catch prey and avoid predation. In the natural environment, this leads to certain death.

Many animals in the Falklands are already under significant threat. These include the Rockhopper Penguin *Eudyptes chyrosocome*, which has suffered a dramatic population decline in recent years, for which the reasons are still largely unknown. Also thought to be in decline are the Southern Elephant Seals *Mirounga leonina*, with just 4,000 animals remaining, and the Southern Sea Lion *Otaria flavescens*, which reproduce just 2,000 pups per annum within the Islands. All of these species are already vulnerable, and an increase in the potential threats to them via marine garbage is of grave concern.

Where does the Falklands Garbage Come From?

The remoteness of much of the Falkland Islands coastline has acted as a protection from some threats. Tourism is much reduced compared to the UK, due to smaller numbers of people on the shore for less time and an environmental approach to tourism in the Islands. Inland sources of litter are limited by a small and careful population, who re-use many articles which are disposed of in other countries, and burn a large percentage of their domestic rubbish. The main sources of our marine garbage are from sewage, fishing and shipping.

Stanley's Sewage Problem

Currently all the sewage waste from Stanley is pumped out into the Harbour without so much as primary screening treatment. With a relatively small population and limited development in the past this has been a problem which has crept up on many people. New developments taking place, such as the East Stanley housing, came with promises of better solutions, including pumping the effluent away for release in the more open waters to the south of Stanley. In reality, this waste too enters straight into the Harbour, through a septic treatment unit. The recent visit to the Islands by the waste disposal experts Halcrow brought to light many of the downfalls of this waste-disposal system.

The current situation is one of no action until it is deemed necessary. The necessity for action is related to the capacity of the waters to degenerate and recycle waste and nutrients. This can be monitored by the biological oxygen demand of the water, and counts of bacteria in certain organisms and sediments. This essential monitoring is not, however, performed on a regular basis and there would appear to be a lack of anyone to take responsibility for this. As and when a change in the situation is, therefore, deemed necessary is of some speculation. Hopefully, this will be a prime candidate for recommended improvements from Halcrow when they return to the Islands later this year.

Sections of nets, chains, rope and cord are frequently discarded once broken or damaged. Fishing debris on Governor Island.
Photo: Ann Brown

In addition to problems generated on land with sewage, wind blown rubbish is generated by the Eliza Cove dump. Rubbish is regularly bulldozed here and although there has been an improvement over the last year, much could still be done. A fence to reduce the problem has been discussed but has not yet been put up.

Fishing Wastes Go Into the Sea

Most vessels operating in the Zone do not have any facility for waste disposal. Therefore, during fishing for a four-month or longer period, all the wastes go into the sea, including domestic refuse, food waste and sewage. On each vessel there are 25–70 persons. In 1996 there were over 150 vessels in the zone, only about 15 of which are FI registered and under any water management controls.

(Whilst on the fishing vessels myself, as I was for eight months, there was a daily routine of the cook and assistant – usually two or three trips each – throwing overboard all the galley waste.) In the factory, fish are wrapped in plastic sheets prior to freezing, which gets blown around the factory and out into the sea.

Shipping Waste Is Not Controlled

A review of the legislation controlling the actions of ships operating in Falkland waters is desperately needed. In 1992, with the Adoption of Legislation Ordinance, the Islands adopted the Merchant Shipping Prevention of Pollution by Garbage Regulations 1988. However, the particular paragraph which applies this legislation to *all* vessels instead of purely Falklands vessels was strangely missed out. This, therefore, only applies to those vessels bearing a Falklands flag, and not, as is the case in the UK, to any vessel operating within our territorial waters. Effectively, this means that any ship arriving in Falkland waters from another country is bound by no rules other than a 95-year-old Harbour Ordnance.

Under this Ordnance, any vessel dumping garbage (excluding oily waste) within our 12-mile limit can be charged £50. Thanks to the Oil Pollution Ordinance the dumping of oily wastes is rather more limited, with a maximum penalty of £100,000 to vessels within territorial waters. 1996 saw 165 vessels operating in Falkland waters, of which only 12 were FI registered and under obligation to dispose of their waste correctly. A similar number is expected this year, highlighting the urgent need for something to be done.

Shipping Measures which Should be Adopted

Several options exist for the removal of waste from ships. Oil collection facilities using a tug and barge within Berkeley Sound, or a road tanker for collection whilst vessels are alongside, would provide a solution to the problem of oily wastes. Compulsory slop tanks, incinerators or compactors on board vessels would reduce pollution by other materials. International cruise ships which enter the zone do have a waste management policy, and all have an International Oil Pollution Prevention Certificate, which requires a separator for oily wastes. The application of these measures to all vessels entering our territorial waters would prevent much of the pollution from shipping.

Admittedly, none of these are cheap options, however, the next few years could well see a huge increase in the level of shipping activity around the Islands. The first step needs to be the adoption of the Merchant Shipping Act and attendant legislation. A new Harbour Ordnance for the Islands would be heading in the right direction. None of this, of course, takes into account the problems of policing and enforcing such legislation once it is in place. Without it, however, our marine environment is open to abuse.

A Call for Urgent Action

A recent questionnaire, devised and distributed by the Fisheries Department and Halcrow for the fishing and shipping companies, will hopefully provide an insight from the operators' point of view and ascertain the level of wastes being dumped into Falkland waters.

It is essential for the safety of our wildife and protection of seas and shorelines that these findings are acted upon in order to reduce this growing problem.

Two Tonnes of Rubbish Cleared from Whalebone Cove

Over 100 civilian and military helpers turned up on 20 September to help with the Beachwatch '97 Clean Up at Whalebone Cove organised by Falklands Conservation in association with the Marine Conservation Society. Approximately 170 bags full of rubbish, old tyres and discarded nets weighing over two tonnes were collected from 1.5km of shoreline. The majority of the rubbish was plastics, from industrial strapping bands used in packaging to plastic bags and hundreds of plastic bottles and containers. The second most common form of waste was rope, cord and partial sections of nets, presumably from fishing and shipping activities. A high level of sanitary waste was found, highlighting the increasing need to 'bag it and bin it" instead of flushing away into the Harbour. The effort to clean up the beach, however, came too late for several seabirds. One Rock Shag *Phalocrocorax magellanicus* was found dead inside a plastic sack, and two Falkland Flightless Steamer Ducks *Tachyeres brachypterus* were found entangled, one in cord and rope and one with a plastic drinks yoke around its neck.

A big thank you to everyone who participated in Beachwatch '97 and in particular:

Eurofishing
Polar Ltd
SFS Navegantes Ltd
Argos Ltd
Consolidated Fisheries Ltd
Synergy Information systems Ltd
Seafish (Falklands) Ltd
BJ's Butchery
HM Forces (FI)
Stanley Bakery
Falkland Islands Company
Stanley Scouts
Department of Agriculture
Byron SWA Ltd
KEMH

Motley Island Revisited

A report on the second visit to our nature reserve off East Falkland, 11–16 January 1997
by Robin Woods

Motley Island (330 hectares or 815 acres) is 12 miles (20km) southwest of Middle Island, in the lee of the Seal Cove camp of Walker Creek farm and less than 1km from the mainland. After an hour's Landrover run from Walker Creek, the crossing took only a few minutes by Zodiac from one sand beach to another on the northwestern coast of Motley. John Willie Jaffray provided transport and collected us five days later. The preliminary survey for Falklands Conservation with a party from Britannia Royal Naval College, Dartmouth in January 1995 (Woods 1995a, 1995b) showed that this Island carried a good variety of plants and birds. This year my brother Nick and I camped over 2km northwest of the 1995 site and were better placed to survey the plants and birds of the northern section.

The Effects of Over-Grazing

As far as we know, Motley has not had permanent human inhabitants, though there was formerly a shanty on the northwestern coast used as a temporary shelter for sheep gatherers. Sally Poncet reported that the Island was heavily grazed until about 1992. Local information is that about 800 sheep were put on the Island annually and that the Falkland Islands Company vessel, RMS Darwin, took off 400 at a time for shipment to Stanley. It is unpleasant to see the effects of over-grazing in the extensive coastal slopes of eroded ground with dead Tussac bogs in various states of decay. However, the vegetation is now recovering and Tussac is growing strongly on the far northern peninsula and around the southern coast, while Mountain Blue Grass and Land Tussac are thriving in several sections.

Motley has low cliffs above wide rock shelves on the northeastern, southeastern and central western coasts, a large sand beach in the centre of the east-facing coast and smaller sand beaches towards the northwestern point. There are boulder beaches at the extreme northeastern point and in a wide southwest-facing bay. The Island has a low, rounded profile and reaches an altitude of 15m (50ft) at a few places inland. Walking is strenuous because the ground is very uneven. The surface varies between eroded Tussac peat or loose sand dunes with Magellanic Penguin burrows, low springy Diddle-dee, dense grass up to 1m and Tussac up to 3m tall. The coastline alone extends for more than 7km and a circuit to collect data on the occurrence of plants and birds requires at least two days.

One Third of Falkland Native Flowering Plants

This survey has increased the number of species identified on Motley to 82, including 56 of the 163 species classed as native to the Falklands. The remaining 26 aliens were mostly introduced from

The King Penguin came ashore near our camp on 14 January, stayed over 24 hours and allowed very close approaches. Photo: Robin Woods

Europe (Moore 1968). Of the ten endemic Falkland plants, four were found in 1995 (Falkland Cudweed, Hairy Daisy, Smooth Falkland Ragwort and Coastal Nassauvia) and this year, the widespread but very inconspicuous Falkland Lilaeopsis was added. Some introduced plants, notably Groundsel, Pineapple Mayweed, Small Nettle and Shepherd's Purse have become locally dominant in small areas on eroded sand dunes near our camp, but further inland native plants tend to be dominant. The appearance of several stands of different plants was studied to help the interpretation of aerial photographs taken in 1995. Motley has a wide plain of Mountain Blue Grass across the northern section, adjoining a prominent, dark green strip of dense Wild Celery up to 1m tall which covers an area of about 50m by 300m. Diddledee was present, but only as low plants and on inland ridges. We did not identify any Whitegrass; the plants described as this in the 1995 reports was found to be Land Tussac growing in large tough clumps.

A Good Cross-section of the Breeding Birds

During two visits, 41 bird species were recorded. 28 were confirmed as breeding, four more probably breed and another three possibly breed making a possible total of 35 breeding species. Six species were noted as present but showing signs of breeding. Magellanic penguins were numerous all around the Island. Their 'song' was almost continuous throughout the 24 hours, though more birds 'sang' simultaneously at dusk and dawn. Solitary adult Gentoo and King Penguins were recorded.

The small pool south of our camp held a pair of Speckled Teal and, although the water level was low, the large pond held a family of nine Speckled Teal and pairs of Crested Ducks, Chiloe Wigeon and Yellow-billed Pintail.

A Peregrine Falcon eyrie with two fledged juveniles was found on low cliffs. One adult buzzed a Turkey Vulture and later swooped aggressively over us. The only evidence of petrels was a picked corpse of a Diving Petrel, found beneath the eyrie on 12 January. Specific identification of this and the Middle Island Diving Petrel corpse await investigation by Mark Adams at the Tring Natural History Museum. A single pair of Crested Caracaras mobbed us along the western coast but we could not find a juvenile. Passerines were plentiful, especially Tussacbirds, Cobb's Wrens, Thrushes, Black-throated Finches and Black-chinned Siskins. There were several family parties of Long-tailed Meadowlarks, several singing Grass Wrens in Celery and Mountain Blue Grass and a few Ground-tyrants. No Pipits were seen, perhaps because we were unable to spend long in the southeastern section where a nesting pair was found in 1995. A female Black-chinned Siskin was flushed from a nest with four eggs on the southeastern side of a mature Tussac plant, north of our camp. Two individual Short-eared Owls were flushed from among clumps of Land Tussac on boggy ground near the large pond. The feathers of another full grown Short-eared Owl were found among Tussac nearby, where it had possibly been killed and plucked by a Peregrine.

Introduced and Native Mammals

The two heavily fleeced sheep noted on 7 January 1995 were seen again in the central part of the Island. Though we had no time to visit the small colony of Southern Sea Lions at the southeastern tip, we saw a bull and two cows up in Tussac at the northern point and later saw a large bull, a young bull and 33 cows, but no pups. A very old skeleton of a large Beaked Whale was found on the boulder beach at the extreme northwestern corner. On 12 January we had brief glimpses of two cetaceans cruising in the extensive kelp beds offshore, but could not identify them.

A Few Insects Noticed

Most obvious were 11-spot Ladybirds (Woods 1996). We frequently saw adults at our camp sites on sand with low Sheep's Sorrel, Prickly Burr, Groundsel and Sea Cabbage. We also saw several larval Ladybirds in our tents, indicating that their species was breeding. Some aphids were found on a specimen of the slightly succulent Andean Pearlwort but it is not known whether this plant species alone supported aphids for the Ladybirds. A single Queen of the Falklands Fritillary butterfly was seen briefly in bright sunshine.

The Value of Middle and Motley Islands as Nature Reserves

A report on Middle Island was published in *The Warrah* (Woods 1997a). The extensive eroded slopes of loose sand and peat dust clearly show that both Islands have been heavily grazed, but they still carry substantial amounts of Tussac grass and good stands of other grasses. Their total area is about 480 hectares (1185 acres) and between them, they hold at least 96 species of flowering plants, including seven of the ten endemics, and the general quality of habitat is remarkably good. More than 30 bird species are breeding, including all nine native songbirds. There are no surveys with which to compare present observations, but there is evidence that since grazing ceased the vegetation is regenerating. A detailed report (Woods 1997b) has been given to Falklands Conservation and recommendations for habitat improvement and monitoring have been made. Both Islands are free of cats, rats and mice and while actions are taken to improve habitats for birds and invertebrates and increase their value as reserves, it is more important to guard against the introduction of predators.

References

Moore, D. M. (1968), 'The Vascular Flora of the Falkland Islands'. British Antarctic Survey Scientific Reports, no. 60, NERC.

Woods, R. W. (1995a), 'Motley Island Expedition January 1995', unpublished report to Falklands Conservation, February 1995, pp. 32.

Woods, R. W. (1995b), 'Motley Island: On the Falklands Ecology Map', *The Warrah*, May 1995, no 7, pp 8–9.

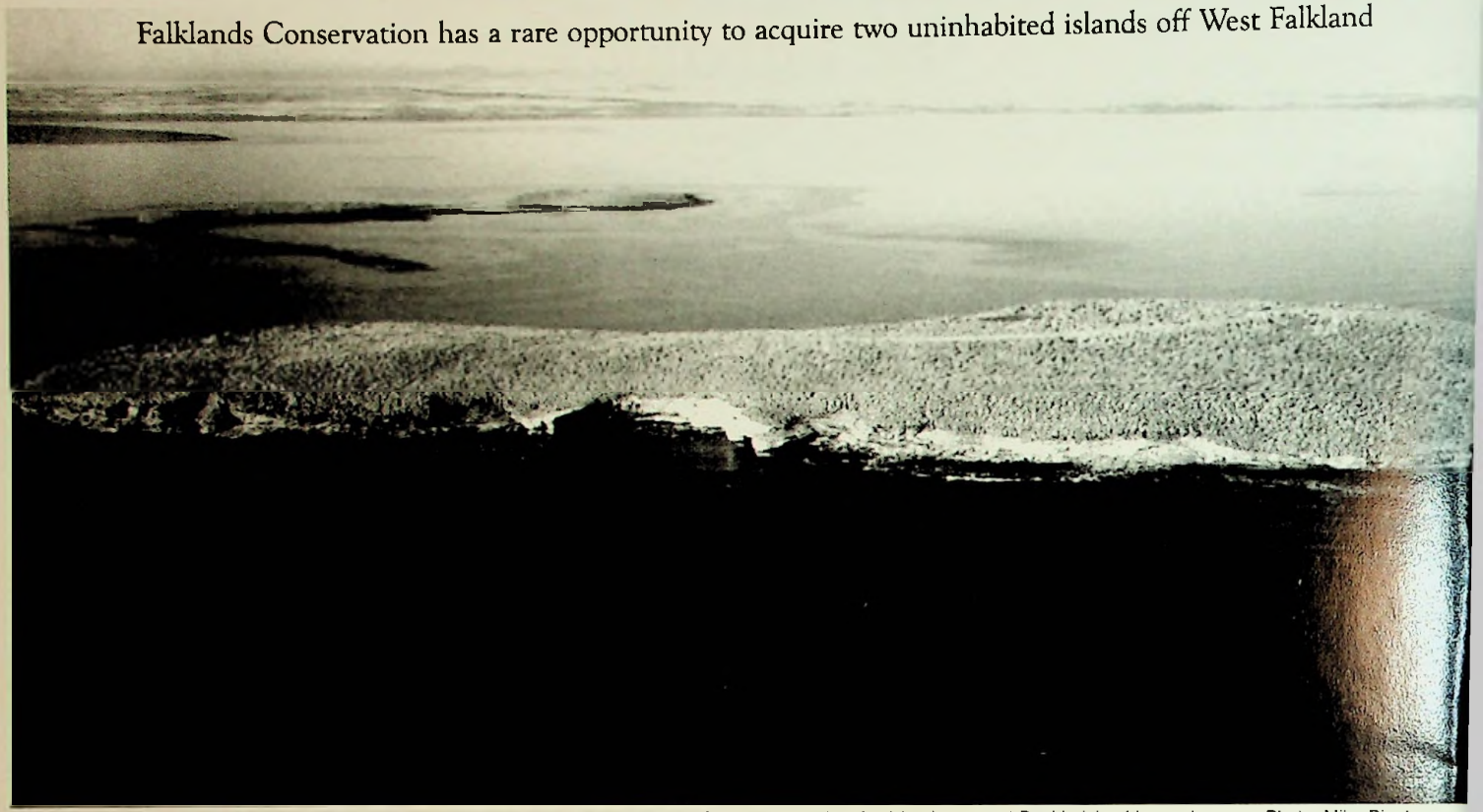
Woods, R. W. (1996), 'The Eleven-spot Ladybird in the Falkland Islands', *The Warrah*, November 1996, no. 10, p. 10.

Woods, R. W. (1997a), 'Middle Island: More Secrets of our Nature Reserves Revealed', *The Warrah*, May 1997, no. 11, pp. 8–9.

Woods, R. W. (1997b), 'Middle Island and Motley Island Nature Reserves', unpublished report to Falklands Conservation on field survey work in January 1997, p. 19.

Outer and Double Islands

Falklands Conservation has a rare opportunity to acquire two uninhabited islands off West Falkland



Aerial view showing Outer Island, with its dense tussac cover reaching a height of three metres (ten feet) in places, and Double Island beyond. Photo: Mike Bingham

Outer and Double Islands have an exceptional wildlife including a large colony of breeding Southern Sea Lions and a significant population of Johnny Rooks (the 'near threatened' Striated Caracara). We have launched an appeal for funds to purchase them as nature reserves, but also hope to raise sufficient to undertake a programme to rid both islands of rats. This will encourage additional native species such as the endemic Cobb's Wren and Tussacbird. We need to raise a minimum of £20,000 – every donation will help us reach this target and secure the islands for wildlife.

Outer Island

Totalling nearly 49 acres (20 hectares) this Island has a rocky shore with mussel beds backed by low cliffs, surrounded by kelp. It is believed never to have been stocked with sheep or cattle. The most striking feature of Outer Island is its tussac which covers 43 acres. The only areas where this has been eroded are in the south-east corner where large numbers of sea lion have worn highways up into it. In Feburary 1995 a sea lion census conducted for Falklands Conservation recorded a breeding colony totalling 47 animals here. A brief visit in May 1997 noted the following birds: Rock Shag, King Shag, Dolphin Gull, Falkland Flightless Steamer Duck, Crested Duck, Night Heron, Blackish Oystercatcher, Pied Oystercatcher, Turkey Vulture, Ground-tyrant and Snow Sheathbill, and some 30 Johnny Rooks.

Double Island

This Island, less than half the size of Outer Island, covers just over 22 acres (nine hectares). It is made up of two small islands (hence 'double'), joined in the centre by a neck of sand dune and beach. Much of the shore is rocky and surrounded by kelp. Nine acres are tussac grass, and there is an abundance of the native Mountain Blue Grass. It is home to a breeding population of Sooty Shearwaters – one of ten confirmed breeding sites in the Falklands. Other birds species recorded here include the Falkland Flightless Steamer Duck, Crested Duck, Blackish Oystercatcher, Pied Oystercatcher, Ground-tyrant, Turkey Vulture, Upland Goose and Johnny Rooks. Sea Lions are present, though there is no record of breeding here.

Observations of Birds At Sea Around the Falklands

By W. R. P. Bourne and W. F. Curtis

In our capacity as surgeon and radio officer on Royal Fleet Auxiliaries, we have each made over 300 hours of timed observations of the density of the birds around the Falklands throughout the year. Since naval activity is now declining, we are preparing a detailed analysis of the results. Meanwhile, it may be useful to indicate the scale of the cover achieved, comment on new records and some of our conclusions.

General observations of birds at sea by members of the Royal Naval Bird-watching Society during patrols off the Falklands described in the *Falkland Islands Foundation Newsletter,* no. 4 in October 1985 (Bourne & Curtis 1985a) have continued to be reported at intervals in their annual report, *Sea Swallow* (Bruce 1983, Macgregor & Pringle 1984, Bourne & Curtis 1985b, 1986, and Curtis 1988a, 1994), and those on shore by the Army and Royal Air Force Ornithological Societies (Stanford 1989, Osborn 1992). It will be seen from Figure 1 that the main concentrations of seabirds were found in the areas of marine turbulence around the headlands and entrances to the sounds offshore. Here thousands of birds may sometimes be seen, both when they are breeding in the Islands in the summer and with onshore winds in winter. In addition, hundreds of birds per hour may normally be seen along the edge of the continental shelf out at sea, and tens of thousands around the fishing vessels that also frequent this area.

A dozen seabird records new to the Falklands have already been listed by Robin Woods (1988). Since then Curtis has seen the first Mottled Petrel *(Pterodroma inexpectata)* for the South Atlantic at 54.1°S 59.0°W over the Burdwood Bank to the south on 28 December 1994 (Curtis 1995), a Herald Petrel *(Pterodroma arminioniana)* at 54.0°S 54.8°W on 12 October 1994, two British Storm Petrels *(Hydrobates pelagicus)* among the birds around a trawler thirty miles off Cape Carysfort on 7 December 1994, and a Trudeau's Tern *(Sterna trudeau)* being harried by two Striated Caracaras three miles north of Steeple Jason Island on 30 April 1992. Bourne has also seen a White-bellied Storm Petrel *(Fregetta grallaria)* at 52.1°S 53.8°W on 24 February 1990, and to complete the recent additions to the local list, Dave Osborn (1992) saw what may have been Sandwich Terns *(Sterna sandvicensis)* at Bertha's Beach on 28 November and 29 December 1989, while Phil Gregory (1994) reports a Georgian Diving Petrel *(Pelecanoides georgicus)* picked up dead at Stanley swimming pool in late March 1990.

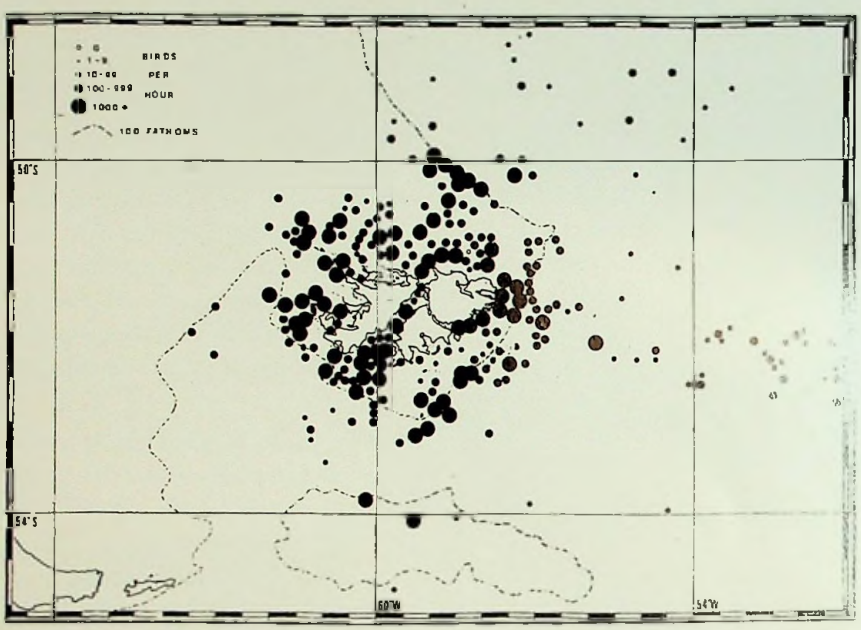


Figure 1: Seabirds seen per hour in Falkland waters 1983–95.

Among other observations, Bourne (1987b) has also had a melanistic Wilson's Storm Petrel (*Oceanites oceanicus*) with only small pale patches on either side of the rump come to the ship's lights in San Carlos Water on the evening of 18 March 1986. Curtis saw no less than 44 Long-tailed Skuas *(Stercorarius longicaudus)* in Falkland waters early in 1994, of which 23 were adult, including one uniformly dark bird with a long tail, and four were immature.

Dead Rockhopper Penguins *(Eudyptes chrysocome)* were seen at sea early in 1986, probably due to a natural oceanographic fluctuation (Bourne 1987a). However, no dead birds have been recorded of the sort that might be expected from long-lining fishing. It appears that the present fishing activity is frankly beneficial for the seabirds, which feed on the split fish, offal and vomited stomach contents of deep-water species otherwise inaccessible to them. While we agree with Thompson *et al.* (1989, 1992, 1995) that this might change if there were overfishing, ultimately the fishery will doubtless be regulated to give the maximum sustainable yield, in which case there should still be some fish for birds as well.

Since we have long experience of both North Sea oil development and tanker operations, it may also be useful to record a personal reaction to the imminent petroleum development around

the Falklands. Around Britain the main environmental problems have not occurred with exploration and production out at sea, where the worst Ekofisk and Piper Alpha disasters caused more problems for the operators than the environment. They have occurred ashore, where development of support facilities results in a major upheaval for local communities. In Shetland, it seems wise for them to take extreme measures both to control the character of the initial development, and provide for rehabitation and alternative employment when it ends. What has repeatedly caused environmental problems is the transportation of oil, both in ports with complacent management and neglected facilities, and in unsatisfactory tankers. Last year the shameful Sea Empress disaster hit the formerly proud, clean, well-disciplined port of Milford Haven in South Wales. If that had happened off Port Stanley, who would have cleaned up the mess?

Our conclusion from studying birds at sea from patrolling vessels is that it is difficult to assess precisely what is happening because birds tend to move around in large mobs both with meteorological and oceanic fluctuations, and also with the movements and variations in the activity of shipping. Better ways to deal with this might be, firstly, to try and secure an overall view from aircraft. This seems to have been dismissed far too lightly though it may be highly enlightening. It may show how the birds tend to move around from vessel to vessel and fleet to fleet to feed, and then rest in inconspicuous flocks on water highly vulnerable to oil pollution while awaiting the next meal. They may be missed by observations on the surface. Secondly, consideration should also be given to recruiting or placing observers on fishing boats and oil installations.

While it remains important to maintain some qualitative observations out at sea, it is questionable if it will ever be easy to measure any but the largest fluctuations in bird (and mammal) distribution, numbers and welfare. Marine animals tend to show irregular fluctuations in both their reproduction and mortality over both short and long periods. To be sure what is happening to them it is desirable not only to have occasional brief intensive studies, but also to have at least rough regular records over many decades of such critical factors as their approximate numbers, breeding success, movements and winter mortality.

While there may now be more such observations in the Falklands than in the past (when they provided infinite scope for scepticism), they apparently still only involve the larger and more conspicuous species at the most obvious sites. This is inadequate to deal with such problems as the distribution and numbers of the Storm and Diving Petrels (photo, opposite), leave alone the impact of all the changes in the local environment now starting to take place.

What is needed in the Falklands is not casual observations for limited periods out at sea, but a permanent, scientific presence with its own facilities, including a headquarters ashore, boat and access to aircraft. This would aim to com-

Black-browed Albatrosses scavenging on spilling squid during a haul on a Spanish trawler. Photo: K Thompson

Diving Petrel which came on board RPA Diligence between Albemarle and Fox Bay, 2 June 1990. Photo: Cdr M. [illegible]

plete the biological exploration of the Islands and maintain regular observations both from the shore and fishing boats, oil installations and any marine and aerial patrols. It would build up a more solid and continuous body of knowledge about the Islands, keep watch on their welfare, and provide indefinite expertise to handle any future disasters.

This would be a southern, temperate equivalent of the Charles Darwin Research Station in the Galapagos. It would maintain sustained biological investigations and watch over future developments, and would doubtless soon receive ample support. It might be appropriate to call it after the person who started surveying the Falklands, and has received rather little recognition for his many contributions both there and elsewhere, Darwin's patron and preceptor, Admiral Robert Fitzroy.

References

Bourne, W. R. P. (1984), 'An Alternative View of Falkland Conservation', *Oryx*, no. 18, p. 116.

Bourne, W. R. P. (1987a), 'Penguin Breeding Failure and Mortality', Oryx, no. 2, pp. 112.

Bourne, W. R. P. (1987b), 'Parallel Variation in the Markings of Wilson's and Leach's Storm-Petrels', *Sea Swallow*, no. 36, p. 64.

Bourne, W. R. P. and W. F. Curtis, (1985a), 'Birds At Sea Around The Falkland Islands', *Falkland Islands Foundation Newsletter*, no. 4, pp. 2–4.

Bourne, W. R. P. and W. F. Curtis (1985b), 'South Atlantic Seabirds', *Sea Swallow*, no. 34, pp. 18–38.

Bourne, W. R. P. and W. F. Curtis, (1986), 'South Atlantic Bird Islands', *Sea Swallow*, no. 35, pp. 24–34.

Bruce, D.G. (1983), 'Observations of Seabirds from HMS Hecla during the Falklands Campaign April–July 1982, *Sea Swallow*, no. 32, pp. 54–8.

Curtis, W. F. (1988a), 'Highlights of a South Atlantic Tour – 1986/87', *Sea Swallow*, no. 37, pp. 3–7.

Curtis, W. F. (1988b), 'First Occurrence of Buller's Albatross in the Atlantic Ocean', *Sea Swallow*, no. 37, pp. 62–3.

Curtis, W. F. (1994), 'Further South Atlantic Records', *Sea Swallow*, no. 43, pp. 19–28.

Curtis, W. F. (1995), 'Mottled Petrel near the Falkland Islands', *Sea Swallow*, no. 44, pp. 63–4.

Gregory, P. (1994), 'Notes on New and Scarce Birds in the Falkland Islands 1988–1990', *Bulletin of the British Ornithologists' Club*, no. 114, pp. 12–20.

MacGregor, C. and C. P. O. Pringle (1984), Some Notes from the South Atlantic, *Sea Swallow*, no. 33, pp. 69–71.

Osborn, D. (1992), 'A Summary of Observation made in the Falkland Islands. 7 September 1989 to 4 January 1990', *Royal Air Force Ornithological Society Journal*, no. 21, pp. 5–27.

Thompson, K. R. (1989), 'An Assessment of the Potential for Competition between Seabirds and Fisheries in the Falkland Islands', Falkland Islands Foundation.

Woods, R. W. (1988), *'Guide to the Birds of the Falkland Islands'*, Anthony Nelson, Oswestry.

The Falkland Oil Operators have recently agreed in principle to fund a Seabirds at Sea Survey. This will hopefully involve a UK-based organisation with experience in this type of work, and who are currently working on project details with Falklands Conservation. The project will initially be for one year with a good chance of extending support should the exploratory drilling programme activity continue, as it is expected to do. The Falkland Islands Government has also agreed to the placement of observers on Fishery Patrol vessels.

Grazing Systems and Bird Monitoring Trial

by Aidan Kerr, Senior Agronomist (FI Department of Agriculture),
and Becky Ingham (Falklands Conservation)

Falklands Conservation and the Department of Agriculture have successfully joined forces for the last two years on a grazing systems trial at Fitzroy, East Falkland

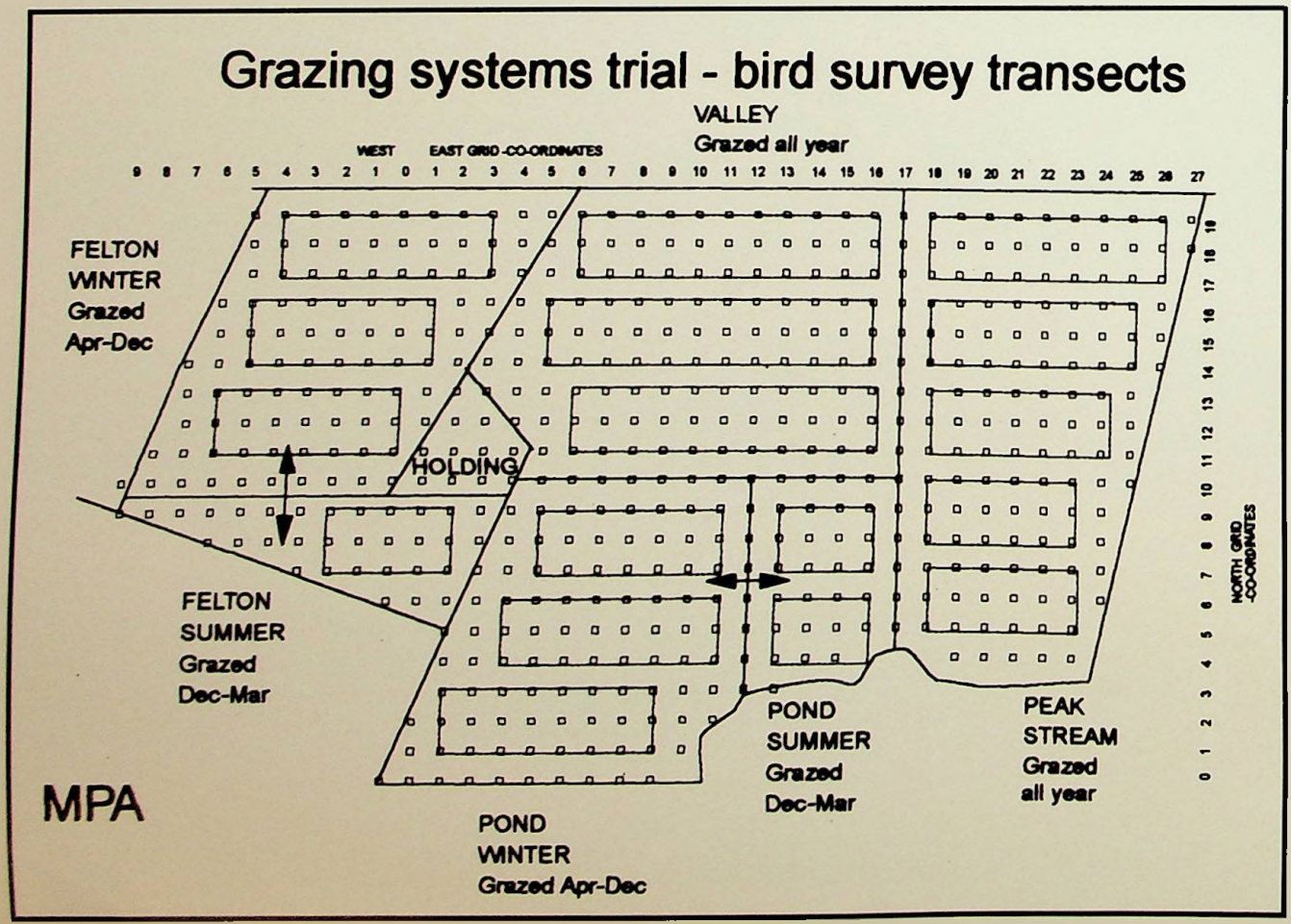
The trial sets out to maximise benefits to livestock, farmers and the environment. It was designed to demonstrate that rotation grazing can improve wool production and minimise adverse impacts on vegetation and soils, compared to the traditional set-stocked grazing systems. Consequently, economic and environmental benefits would result.

The trial is on 530 hectares of low-lying Whitegrass *(Cortadera pilosa)* dominated 'camp', adjacent to Mount Pleasant Airport. Short patches of 'Greens' containing Meadow and Bent Grasses *(Poa* and *Agrostis* spp.) and herbs such as Pig Vine (*Gunnera magellanica*), Rushes (e.g. *Marsippospermum grandiflorum)* and dwarf shrubs such as Diddle-dee *(Empetrum rubrum)* are also present in the heathland mosaic. Numerous eroded clay scars also make up a small proportion of the area. The site was divided by marker posts into a grid of one hectare squares, which has been invaluable for mapping vegetation, physiography and wildlife resources. The land and sheep have been provided by Falkland Landholdings Ltd farm at Fitzroy.

Two rotation systems (called Felton and Pond) and two set-stocked systems (called Peak Stream and Valley), each about 130 hectares (320 acres) were established (see diagram). 25% of the area in each of the rotation systems was fenced for intensive grazing in late summer (December–April), and rested from grazing thereafter. The summer areas are relatively flatter and dominated mainly by long, lax Whitegrass. The remaining 75% of the areas is rested during late summer and grazed only from April to December. They are more rugged and sheltered with a high proportion of better quality pasture namely greens and tussock ('bog') Whitegrass.

Initially, sheep were stocked at the normal annual Fitzroy rate of one per 1.2 hectares (3 acres). Thus the summer areas of the rotations were grazed at one sheep per 0.3 hectares (0.7 acres) and the winter areas at one sheep per 0.9 hectares (2.3 acres). Sheep numbers have been increased by 10% each year.

The rotation grazing system is expected to benefit pasture composition and sheep performance in the following ways. Heavier grazing pressure, specifically on Whitegrass, would lead to a more balanced utilisation of the pasture – by making more use of unused Whitegrass and reducing grazing pressure on preferred or sensitive vegetation. Resting pastures in late summer



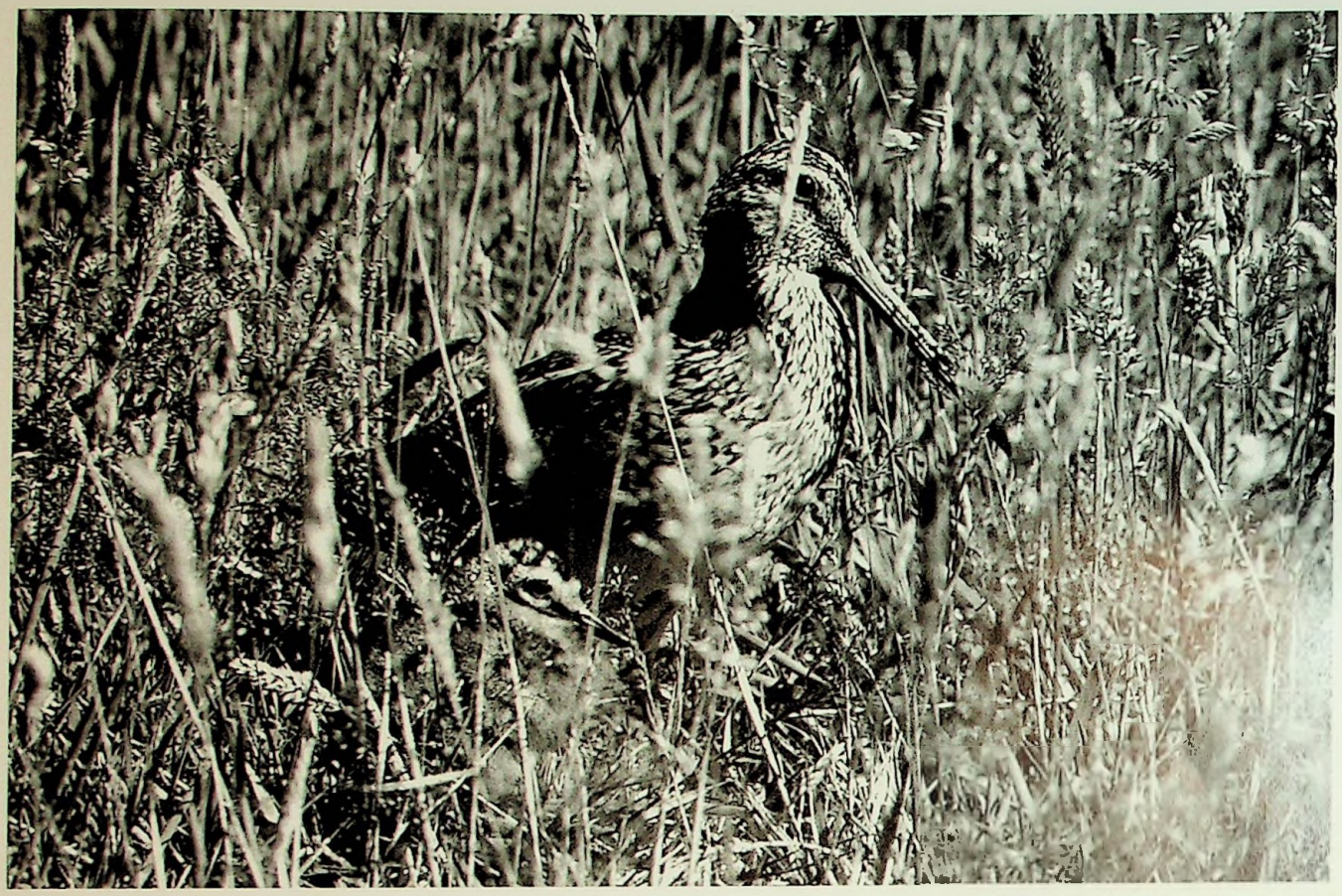


Photo: Magellanic Snipe is common at the site, though often very inconspicuous

should allow finer grasses to seed, while heavy grazing of Whitegrass would create gaps for the finer grasses to establish in. Resting pastures may also allow enhanced recovery of erosion patches.

Also resting the winter pastures from summer grazing is expected to allow the build up of preferred grasses for winter grazing. This extra feed then is expected to improve sheep nutrition and, in turn, their body weights and condition. Overall wool production would benefit through better survival rates and/or improved fleece weights.

Sheep grazing began in December 1995. The performance of sheep (e.g. body and fleece weights), pasture (e.g. amount and composition), and soils (e.g. eroded area) are regularly monitored and compared between rotation and the set-stocked grazing systems. Preliminary analyses of the data indicate that greater utilisation of Whitegrass is occurring in the rotation system and that sheep in the rotation system are performing better.

Like many other range lands the effects of livestock grazing on wildlife habitat are gaining considerable importance and require objective study. On the inland 'camp' the most conspicuous animals are birds. Aidan was aware that, apart from studies of the Upland Goose, little scientific information existed on the density of birds, particularly Passerines, on inland vegetation in the Falklands. Even less information was available on the likely impacts of livestock grazing on their population and habitat.

With the purpose of providing such knowledge, Aidan approached Falklands Conservation for their co-operation and expertise in monitoring the bird population of the area. After a method-testing survey, Jeremy Smith (FC) and Sinead Doherty (DoA) began monitoring in Spring 1995. The monitoring will continue annually and changes in bird density will be compared between the two types of grazing system.

There are several species of birds which are common at the site. These include the Black-throated Finch *Melanodera melanodera*, Falkland Pipit *Anthus correndera*, Magellanic Snipe *Gallinago magellanica magellanica*, and the Upland Goose *Chloephaga picta*. Birds represent the highest points in the natural food chain and are thus susceptible to environmental changes. The effects of grazing, the dominant environmental impact, on the local bird population and their habitat need to be defined and quantified.

The trial is now in its second year of study. Each year Falklands Conservation has undertaken a survey of the birds present on the site to build up a picture of any changes that may be occurring. Taking place in October, this requires a week in the field, surveying transects across each of the treatment areas and recording all the birds seen.

Whitegrass communities are known not to support particularly diverse assemblages of birds. One of the most interesting outcomes of the study so far has been the difficulty in applying standard density methods and formulae to the Falklands situation. Equations, which would normally provide a sensible number of birds per unit area, when applied to this situation are proving to be inadequate. The development over the next year of a method and analysis suitable for the open grasslands of the Islands will be just one of the valuable findings of this research, and provide a methodology which is useful for many other projects in the future.

Falklands Conservation

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Lewis Clifton

Offices:
UK: 1 Princes Avenue, Finchley, London N3 2DA
Tel/Fax: 0181 343 0831
email: falklands-nature.demon.co.uk
FI: PO Box 26, Stanley, Falkland Islands
Tel: 500 22247
Fax: 500 22288
Website: http://www.falklands-nature.demon.co.uk

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Copy date for next issue:
3 April 1998
Back issues available:
£1 each (*WARRAH* 1–11; Falkland Islands Foundation 5–10)

The Warrah, or Falkland Fox (*Canis antarcticus*), was the only endemic Falklands mammal. This bold and inquisitive animal was never very numerous but, with the introduction of sheep, farmers backed by a Government bounty were encouraged to hunt them. The last one was killed in 1876. We hope this publication will play a small part in preventing any other Falkland wildlife following the same path to extinction.

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FI Stamp Issue: Wildlife Under Threat

On 6 October 1997 the Falkland Islands issued a set of four stamps with the theme 'Species Under Threat'. They depict the Johnny Rook, the Southern Sea Lion, Felton's Flower and the Local (or Zebra) Trout. The stamp issue was produced at the suggestion of Falklands Conservation and carries our logo. A limited number of first day covers are available personally signed by Sir David Attenborough, Bill Oddie or Professor David Bellamy to personal callers at our Stanley office, or by post from the UK office (£9.95 each post paid).

Changes in FC Stanley Office

Mike Bingham, Conservation Officer from October 1993, left us at the end of June 1997. His contribution to the development of our activities and achievements in the Islands is gratefully acknowledged. Jeremy Smith has taken over as Conservation Officer, but with a refocused role particularly with respect to hydrocarbon exploration and development. Becky Ingham has been appointed to the new post of Field/Science Officer with responsibility for research and projects.

Our Stanley base has also moved to larger premises and is now in Ross Road. Newly decorated, visitors are welcome to call for information and sales. Please note the change of address from PO Box 31 to PO Box 26.

Obituary: E. W. H. Christie

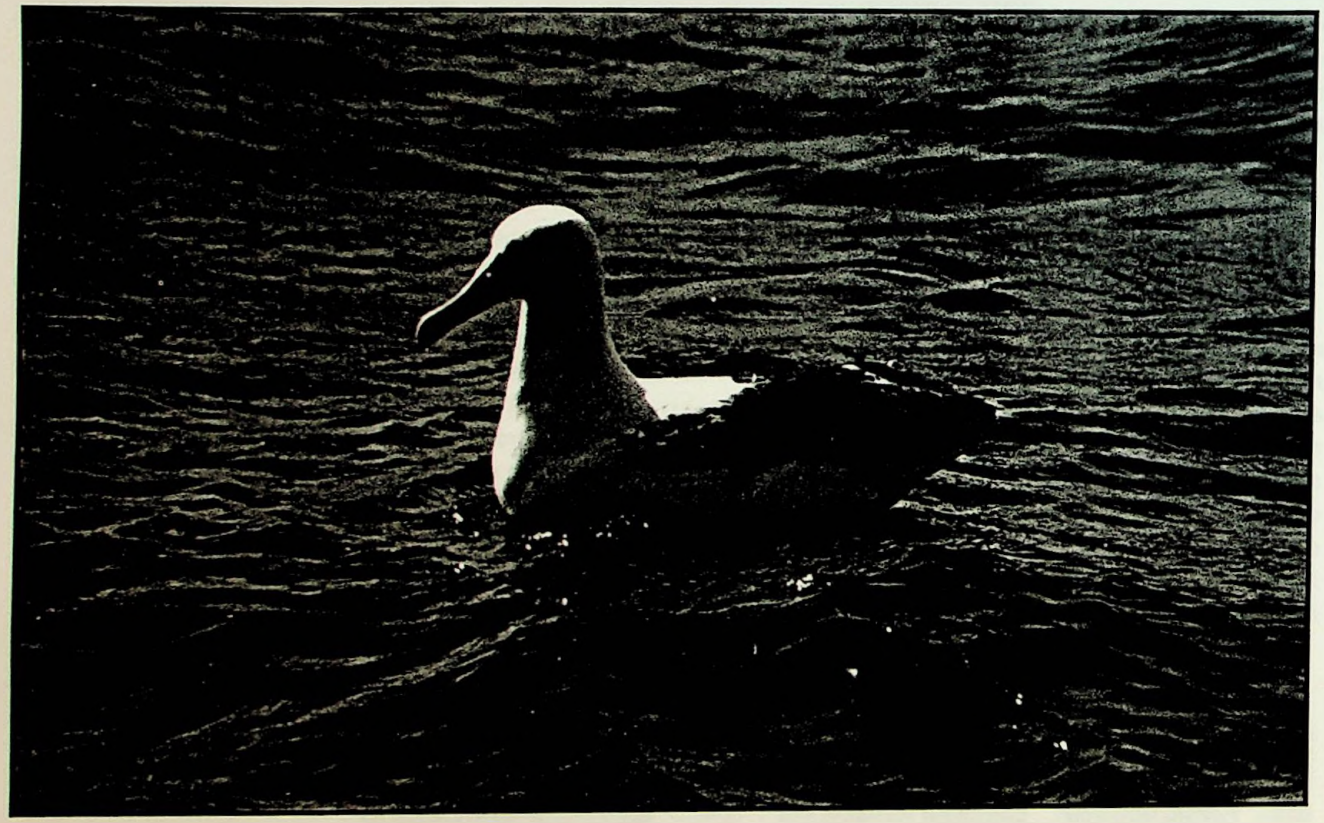
Bill Hunter Christie, who died at the end of September, was one of the founder members of Falklands Conservation alongside Sir Peter Scott. Many tributes have been paid to his key role in Falkland affairs, particularly in the years from 1968 through the early seventies and both during and after the 1982 conflict. For his help and support to the Islanders he was honoured with the grant of the Freedom of Stanley. But he also cared deeply for the wildlife and served Falklands Conservation as a Trustee for many years. He had a particular interest in whales and dolphins, as he put it: 'amongst so many experts on birds and wrecks'. We remain indebted to him for the considerable support and time he generously gave to our cause and for the significant part he played in our early years.

the **WARRAH**

from Falklands Conservation May 1998 - Number 13

Search for Seabirds at Sea Begins

Jeremy Smith outlines the start of two long-awaited projects intended to safeguard Falklands wildlife in the face of oil development



One of many Royal Albatrosses recorded on the initial voyages of the Seabirds at Sea team. A number of important species are only found offshore
Photo: Richard W. White/JNCC

FC Initiates Major Research Projects in Offshore Waters

The potential impacts on wildlife from hydrocarbon related activities in waters around the Falklands have long been a concern of many people, not least those of us within Falklands Conservation. Much of this concern relates to the problem of not being able to predict any impacts because we simply do not have sufficient information on 'what is out there' to be impacted.

Thankfully, and thanks to generous financial support from the Falklands Operators Sharing Arrangement (FOSA), and some logistical support from the Falkland Islands Government, Falklands Conservation have recently been able to launch two major initiatives to fill in some of the gaps in our understanding of the Falkland's offshore ecosystem.

Dr Klemens Putz fixing a tagging transmitter to a Magellanic Penguin. Photo: K Putz

At Sea Surveys Get Underway with Expert Support

The first, is to begin surveying the at sea distribution and abundance of seabirds and sea mammals in Falklands waters. Information of this nature is increasingly regarded as critical in planning hydrocarbon related developments in other parts of the world, and not least in the waters surrounding the UK where much valuable experience has been gained in both carrying out the surveys and using the information as part of the planning process. The major 'player' in carrying out this work has been the Joint Nature Conservation Committee (JNCC) of the UK who have amassed over 20 years experience and wide ranging expertise in this type of work. Falklands Conservation have been fortunate to engage JNCC as partners in the work around the Falklands.

The First Survey Voyages

Richard White, a member of JNCC's staff in Aberdeen, arrived in the Falklands in early February to begin the process of data collection and to establish a base for the longer term team. Within days of arriving Richard had sailed aboard the Fishery Protection Vessel MV Cordella for his first trip which included some time spent in the vicinity of the tranches licensed to the north of the Falklands. This was closely followed by a trip aboard the MV L'espoir which is on charter to FOSA and on this occasion was engaged in a programme of benthic sampling in the vicinity of the proposed wells. These initial voyages have had a number of benefits apart from the value of the data collected. The methods used in other areas of the world have been found to be appropriate for Falklands waters and considerable experience has been gained in identification of unfamiliar species.

The project has been further strengthened by the recent arrival of Andy Black as a team member. Andy is no stranger to the Islands or their wildlife having previously worked for Consolidated Fisheries Ltd and spending much of his time at sea. By the end of May of this year it is hoped that a three-person team will be well established in the Falklands, with the aim initially of gathering 12 months of data as a basis for future work.

Where the Surveys will Be Done

The seas around the Falklands cover a vast area and data collected for one part of that area needs to be considered in its regional context. This first phase of the work will concentrate on the area of the northern tranches as this is where the project's sponsors have their interests. In the longer term however it is critical that other areas receive equal attention. This

Becky Ingham and Klemens Putz with FOSA environmental representatives at Seal Bay. Photo: K Putz

is particularly true of the Joint Co-operation Area where the collection of such data over a twelve month period should precede any issuing of licences for further exploration to ensure that the environmental sensitivities of any tranches offered have been properly evaluated.

Magellannic and Rockhopper Penguins to be Tracked

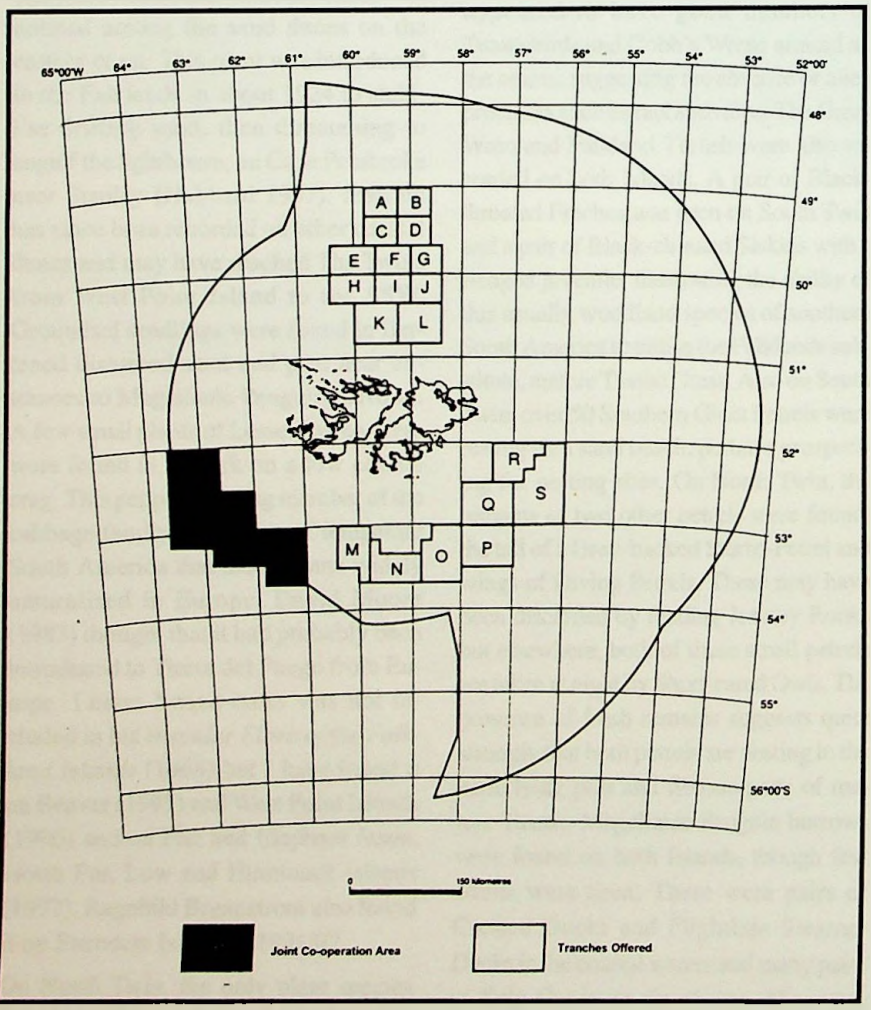
The second project, smaller but no less important, is a pilot project to track the movements at sea of Magellanic and Rockhopper Penguins over the next year. A small number of devices paid for by the Antarctic Research Trust will also be deployed on Rockhoppers at the same time. Whereas the Seabirds at Sea Survey relies on the relatively low-tech equipment comprising binoculars and warm clothing, this project will utilise the very latest in satellite tracking technology. Satellite transmitters, which are smaller in size than two matchboxes, along with a small antenna, are attached to the base of a penguins back and will periodically transmit the animal's position via a satellite to a receiving station which will then pass the data to ourselves. It is hoped that data can be collected for the whole period when the birds are away from colonies in the winter, and the devices recovered when they return in the spring.

To begin this project for us we have been fortunate to engage the services of Dr Klemens Putz who has had considerable experience of this type of work in the Antarctic regions and also at Volunteer Point, East Falkland, where he has spent two summer seasons working with Magellanic and King Penguins. Klemens and Becky Ingham (our Field Science Officer) travelled to Seal Bay on the north coast of East Falkland at the end of March to attach the devices following the moulting of the birds and prior to their departure for the winter. Klemens will now return home to Germany but will hopefully return in the Spring to deploy new devices during the summer and to begin writing up the results of the winter work.

Falklands Conservation gratefully acknowledge the financial support of the Falklands Operators Sharing Agreement (FOSA) who are Shell Exploration and Production South West Atlantic B. V., Amerada Hess (Falklands Islands Limited), LASMO International Limited and IPC Falklands Limited for funding the Seabirds at Sea Survey, FIG for provision of space for observers aboard Fishery Protection Vessels during the course of this work, FOSA, the Antarctic Research Trust (ART) for supporting the Penguin Tagging Project, and to Pete and Melanie Gilding of Port Louis for permission to use Seal Bay as our study site.

Antarctic Research Trust

A new charitable trust, The Antarctic Research Trust (RT) has recently been registered in the Falklands. The Trust has been set up by a number of persons who were passengers aboard MV World Discoverer during an Antarctic cruise in 1996/97. Also aboard at the time was Dr Klemens Putz, a name familiar to many in the Islands from his work at Volunteer Point, and he has been appointed as an ART Trustee. In the first instance ART has sought to raise funds from amongst passengers aboard recent cruises of World Discoverer with a view to using money collected to support penguin research currently being undertaken by Falklands Conservation. This has so far proven very successful and funds have been raised to purchase a number of satellite tags for deployment on Rockhopper Penguins. These will be additional to those deployed as part of the Penguin Tagging Programme funded by the Oil Operators (FOSA).

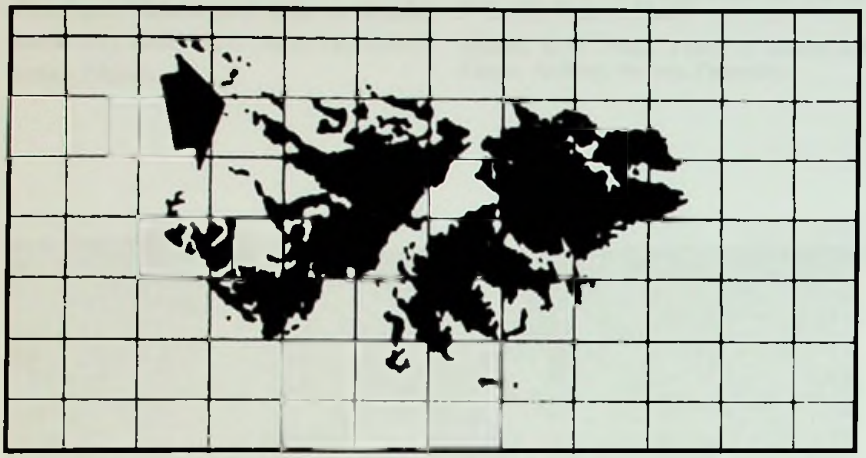


Map: Defined tranches for oil exploration

The Twins

Robin Woods reports on a rare, but brief, visit to a remote Falklands Conservation Nature Reserve in November 1997

The Twins, about 3km west of the North West Point of Carcass Island, were leased to the Falkland Islands Foundation, which formed part of Falklands Conservation, by the Royal Society for Nature Conservation in 1984. The freehold was acquired from RSNC in 1993.



Map showing location of The Twins (arrowed)

South Twin

South Twin (15ha) is about 1km long and about 250m across at its widest point. Around the northern point, a wide fringe of shelf rock is exposed at low tide. The island is generally very low lying, the highest point being only 8m (25 feet) above sea level. There are sand dunes behind a noticeable white sand beach on the northeastern side and some low rocky points. A large accumulation of dead, rotting kelp was found to the north of the southeastern point along a narrow boulder beach.

North Twin

North Twin (8ha) is about 600m long and generally less than 100m in width. There is a wide rocky reef at the southwestern point which is exposed at low tide. A narrow reef extends along the western coast with a boulder beach on which dead kelp and a few bleached, drifted tree trunks have become stranded. The island barely reaches 5m (about 16 feet) at a few small rocky points.

Plants

There are extensive beds of giant kelp in the surrounding waters, particularly to the east and north. Tussac grass is dominant on both islands, covering most of the ground down to high water mark and clothing the tops of even narrow rocky points. On South Twin, much of the tussac is dense, up to 2.5m tall and the bogs are surrounded by deep tussac leaf litter. There was little variety in the plants, only seven species being identified. Four of these are native species commonly found on small outer islands: Tussac grass, the large sedge known as Swordgrass, Wild Celery and Antarctic Starwort. The Swordgrass occurred in small patches at damp places on the outer fringe of the dense Tussac but seemed to be shorter than plants seen elsewhere. The Celery plants were more widely spread around the Tussac fringe and were particularly noticeable among the low sand dunes. Only one small patch of Starwort was found. Marram Grass was noticed among the sand dunes on the eastern coast. This plant was introduced to the Falklands in about 1924 to stabilise drifting sand, then threatening to engulf the lighthouse, on Cape Pembroke near Stanley (Hubbard 1937). Marram has since been recorded on other coastal dunes and may have reached The Twins from West Point Island to the SSW. Groundsel seedlings were found in flattened disturbed sand and peat near entrances to Magellanic Penguin burrows. A few small plants of Lesser Swine-cress were found in a crack on a low coastal crag. This peppery-tasting member of the cabbage family is a native of temperate South America that has become widely naturalised in Europe. David Moore (1983) thought that it had probably been introduced to Tierra del Fuego from Europe. Lesser Swine-cress was not included in his *Vascular Flora of the Falkland Islands* (1968) but I have found it on Beaver (1995) and West Point Islands (1996) and on Flat and Elephant Jason, North Fur, Low and Hummock Islands (1997). Ragnhild Brannstrom also found it on Saunders Island in 1991/92.

On North Twin, the only plant species found was Tussac Grass. It was healthy but tended to be shorter and more open than on South Twin, probably because Sea Lions hauled out and rested on the Island.

Birds

A total of 24 species was recorded, 20 on South Twin and 19 on North. Both Islands appeared to have good numbers of Tussacbirds and Cobb's Wrens around all the coasts, suggesting the absence of alien predators such as rats and mice. The Grass Wren and Falkland Thrush were also recorded on both Islands. A pair of Black-throated Finches was seen on South Twin and a pair of Black-chinned Siskins with a fledged juvenile, illustrating the ability of this usually woodland species of southern South America to utilise the Falklands substitute, mature Tussac Grass. Also on South Twin, over 50 Southern Giant Petrels were resting on a sand beach, perhaps prospecting for nesting sites. On North Twin, the remains of two other petrels were found; the tail of a Grey-backed Storm-Petrel and wings of Diving Petrels. These may have been discarded by feeding Johnny Rooks but elsewhere, both of these small petrels are taken at night by Short-eared Owls. The presence of fresh remains suggests quite strongly that both petrels are nesting in the underlying peat and fibrous parts of mature Tussac. Magellanic Penguin burrows were found on both Islands, though few adults were seen. There were pairs of Crested Ducks and Flightless Steamer Ducks in the coastal waters and many pairs of Kelp Geese on the shores. About ten Snowy Sheathbills were seen near Sea Lions on the rocks of both Islands.

Several adult Black-crowned Night Herons were seen in rock pools and at least 16 immature birds were gathered around a large accumulation of drifted dead kelp on the eastern side of South Twin. A noisy pair of Crested Caracaras was seen there, probably with a hidden nest. A few Dolphin Gulls and more Kelp Gulls were seen on the coasts of both Islands and it is possible that there is a small colony on South Twin.

On both islands we found Johnny Rook nests with clutches of three eggs but surprisingly, each nest appeared to have three fully adult birds in attendance.

On North Twin, a third adult arrived and landed by one of a pair standing near the nest while the mate was incubating. In both cases, the three birds showed no sign of antagonism towards each other, in complete contrast to the behaviour of a pair when an 'immature' bird approaches close to an occupied nest. The adult usually attacks the immature and chases it far away. The breeding behaviour of these most unusual birds of prey deserves much closer attention. There were at least two, possibly three, pairs of Johnny Rooks breeding on each island.

Mammals

On South Twin, one bull and three cow Sea Lions were found in a small bay while on North Twin a fortnight later, two bulls and at least 13 immatures were seen. More animals were almost certainly present, but remained hidden in the Tussac. A pair of Elephant Seals was found on the shore of North Twin but no pups were seen.

Conclusions

The Twins are good examples of low lying, Tussac-covered islands that have not been grazed by herbivores or invaded by alien predatory mammals. Their status as Nature Reserves owned by Falklands Conservation should ensure that they remain in their present natural condition. Limited time was available for field work. It is very probable that other bird species breed, particularly Short-eared Owl and small petrels. It is almost certain that other plant species occur and it would be interesting to examine North Twin in detail to discover whether it supports any flowering plant apart from Tussac Grass.

Acknowledgements

The survey team are very grateful for the tremendous support received from Michael and Jeanette Clarke of King's Ridge Farm, who own and crew the Penelope. Without their help we should know very little about these two interesting islands.

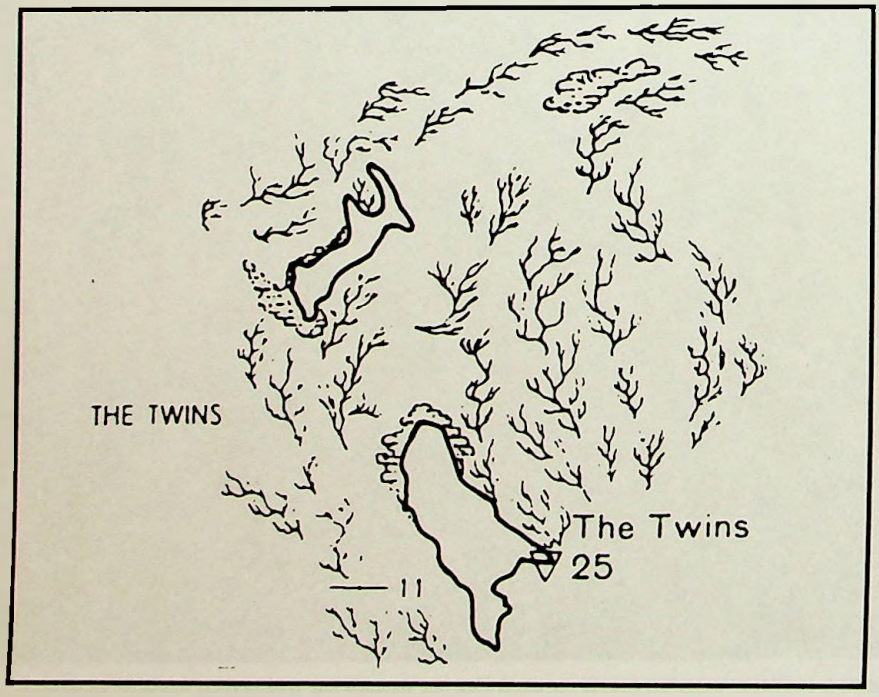
References

Hubbard, C.E. 1937. *Sand-Binding Grasses in the Falkland Islands*. Kew Bulletin of Miscellaneous Information, 1937, p. 274.

Moore, D.M. 1968. *The Vascular Flora of the Falkland Islands*. British Antarctic Survey Scientific Reports No.60.

Moore, D.M. 1983. *Flora of Tierra del Fuego*. Anthony Nelson, Oswestry.

On South Twin, these three birds displayed and screeched together within a few metres of the nest and then flew back and stood, apparently admiring it from the surrounding Tussac. Photo: R. Woods



Map: The Twins Nature Reserve: designated as a Wild Animal and Bird Sanctuary.

Fieldwork Report 1997-98

Rebecca Ingham, our Field/Science Officer, reports on an exceptionally busy summer with field work in all four corners of the Falklands from the Jason Islands, Sea Lion Island, Port Stephens, Seal Bay and much of the land (and sea!) in between

Survey of Wetlands of International Importance

Given that 1997 was the wettest summer on record in the Islands, this seems like a good place to start! Michael Smart and Paul St Pierre set out in October to progress the designation of a number of Falkland sites as internationally important wetlands under the Ramsar Convention. This is an intergovernmental treaty with over 100 Contracting Parties around the world (the UK Government commitment includes the Falklands as one of its Overseas Territories) and it covers all aspects of wetland conservation and wise use.

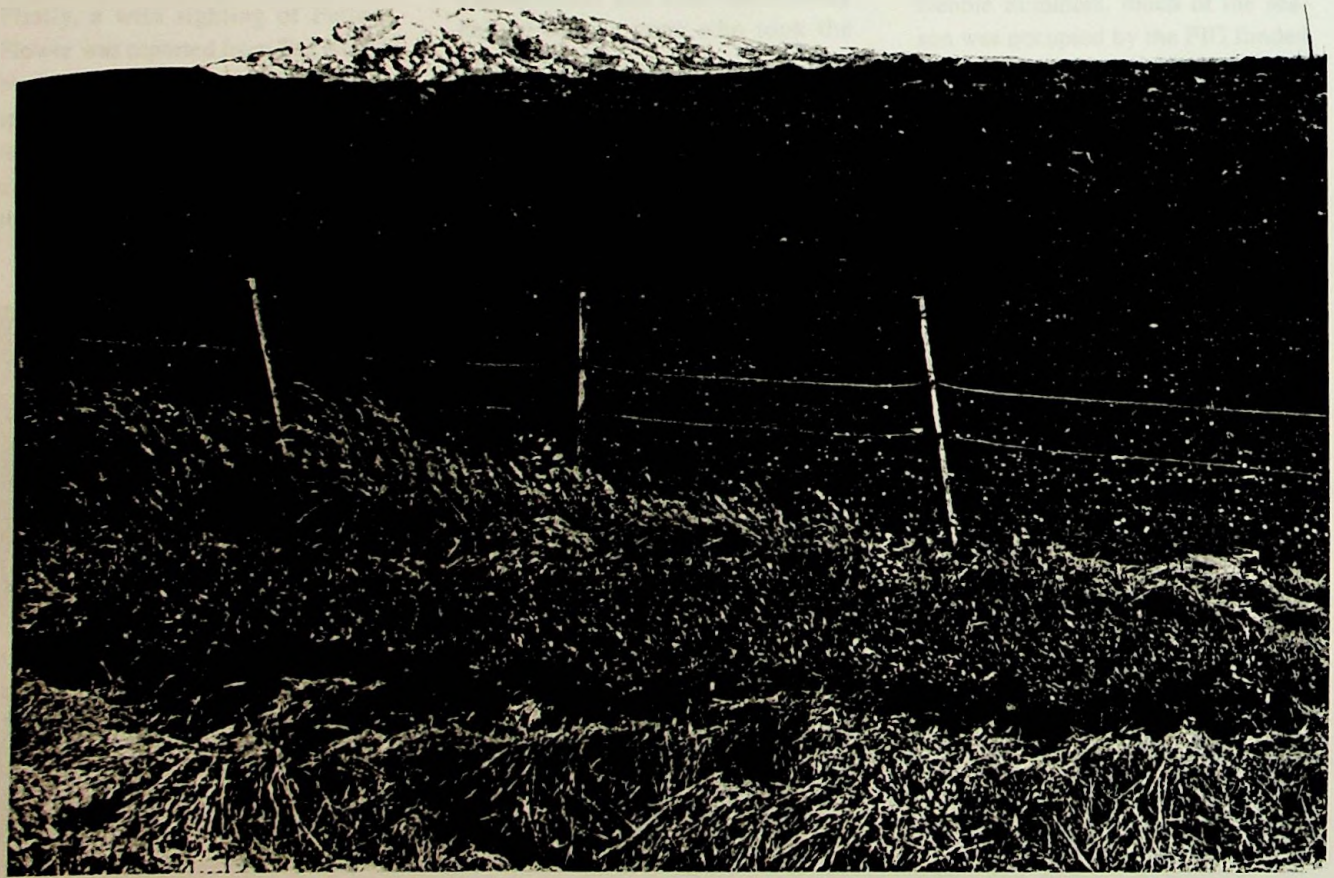
Michael was ideally placed to carry out the work, having worked for the Ramsar Bureau in Switzerland for many years, whilst Paul's experience at the RSPB provided him with knowledge of birds, habitats and field skills. Four sites, identified as potential Ramsar sites, were surveyed to draw up Ramsar Information Sheets and Maps. These included Sea Lion Island which qualifies as a major site for breeding mammals, Elephant Seal and Sea Lion, and for its Tussac grass stands, and Berthas Beach as a representative showcase of a Falkland coastal wetland type, within easy reach of Mount Pleasant and Stanley and with great potential for environmental education and tourism. A number of privately owned sites are also being considered.

The reports and recommendations produced have been submitted to FIG and will hopefully result in the designation of the sites as Wetlands of International Importance before the next Ramsar Conference (May 1999). The designation of areas within the Islands as internationally important will be a significant milestone in the protection of sensitive and unique areas, whilst raising the international profile of the Islands for their wildlife and unequalled environment. We are very grateful for funding provided by the Foreign and Commonwealth AUSPB grant aid and support from the RSPB which enabled us to undertake this important work.

Caracara Counting

Whilst the Ramsar work was being carried out on land, Falklands Conservation took to the high seas with Michael and Jeanette Clarke on board the *Penelope* to count breeding pairs of the Striated Caracara (or Johnny Rook) on remote islands along the northwest coast.

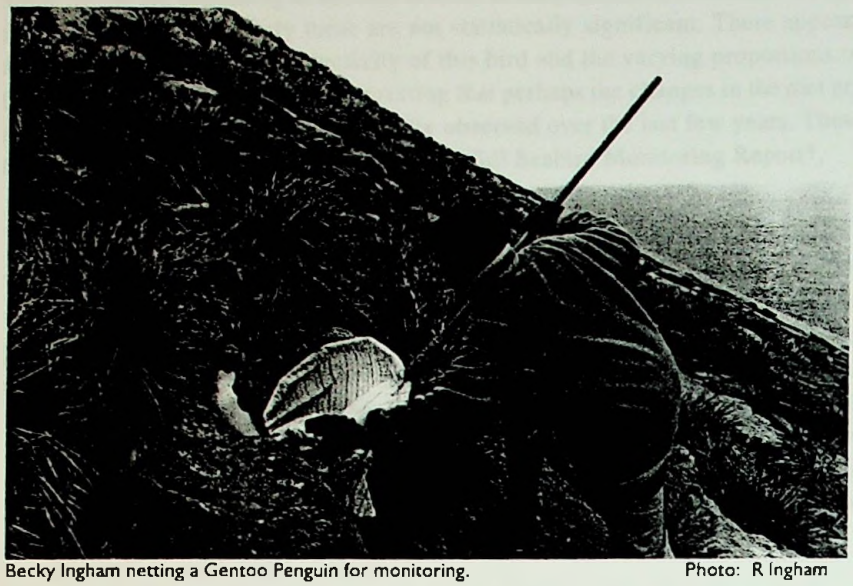
The Johnny Rook was recently given 'near threatened' status by BirdLife International due to its restricted geographic distribution and small population. Bounty payments ceased over 70 years ago, but the relationship between Johnny Rooks and the sheep farming industry is still controver-



The first Feltons Flowers from the reintroduction programme bloomed spectacularly this summer and Sally Blake has already collected seed from them to propagate further. Photo: Sally Blake

sial. FIG asked us to undertake a study to determine the status of the current population.

Heading the team was Robin Woods, ably assisted by Ann Prior, Mike Morrison and Jonathon Meiburg. Starting at the Jason Islands, they gradually worked their way southwards, counting breeding pairs of Johnny Rooks and developing an essential and repeatable methodology for carrying out surveys of this nature. The end result was a map for each site (comprising 26 individual islands) visited, a record of the details of each nest and a collection of prey remains for further identification. First impressions seem to be that there are more Johnny Rooks around than might have been expected. This will become clearer after next season's fieldwork, when those islands which time prevented surveying this season will be visited and a population figure for the entire archipelago can be accurately estimated.



Becky Ingham netting a Gentoo Penguin for monitoring. Photo: R Ingham

The Return of Feltons Flower

For all the keen botanists in the Falklands, 1997 marked two milestones in the reintroduction of Feltons Flower in the wild to the Islands. Firstly, a wild sighting of Feltons Flower was reported from Tea Island, by Jeremy Poncet. This is the first specimen to be seen in the wild since the species was nearly grazed to extinction following the introduction of sheep.

Secondly, thanks to the enthusiasm shown by local landowners Sally and Tim Blake, a suitable site for reintroduction was identified and cleared, at the base of a stone run behind Hill Cove settlement, West Falkland. (See photo page 6)

Hopefully this year's plants will be self-generating here, allowing further sites to be identified and recolonised around the Roy Cove and Hill Cove area where it was originally found. Once again, the work of Falklands Conservation has been enormously helped by everyone who took the time to collect seed, plant out seedlings and help preserve a small part of the Falklands flora, including a Government House team, and many private growers. Thank you all very much!

At the same time Royal Botanic Gardens, Kew, have included Felton's Flower in their Threatened Plants Programme. Tests to establish its genetic 'fingerprint' are to be undertaken so that its relationship to South American species can be established and stocks in European collections analysed to determine that they are pure strains.

Seabird Studies

As for myself and field assistant Debbie Summers, much of the season was occupied by the FIG funded Seabird Monitoring Programme. Each year since 1986-87, Falklands Conservation has carried out regular monitoring work on several penguin and one albatross species, to monitor productivity, diet and population trends at selected sites around the Islands.

This year saw a refocusing of the project, with improvements in the study of the seabird diets, increased fieldwork at one major site, Seal Bay, and a complete review of all the data collected so far to determine what we have learned and what work there is still to do.

During November counts were made of the breeding pairs of seabirds at six sites with a wide geographical spread: Volunteer Point, Bull Point, Stephens Peak, Fanning Head, Paloma Beach and Seal Bay.

Data provided by volunteer counters from a number of other sites forms an additional and important part of our overall programme. We are very

Falklands Conservation seabird monitoring unit at work in the field. Becky and Debbie are taking a penguin diet sample. Photo: R Ingham

grateful to all those who have helped with our work over the past season, including landowners who kindly allowed access to sites.

Following this up in January with counts of nearly fledging chicks provides us with a productivity figure for those colonies studied. Analysis of the bird's diet fills in the picture and suggests reasons for any trends in the population that may have occurred over the period of study, related to the availability of food, interaction with fishery activity and ecological changes within the marine environment.

A Good Year for Gentoos

1997-1998 proved to be a successful year for the Gentoo Penguin (Pygoscelis papua) in the Falklands, with productivity figures up slightly on previous years. The huge variations in productivity between sites were reflected in the diet, with southern and northern birds displaying entirely different feeding preferences. Temporal changes in the diet were also noted throughout the breeding season as the birds requirements increase to rear chicks and they utilise the range of food available to them in the inshore waters where they feed.

Some trends are beginning to become evident in the population fluctuation of this species, although currently these are not statistically significant. There appears to be a link between the productivity of this bird and the varying proportions of fish, squid and krill in the diet, suggesting that perhaps the changes in the diet are responsible for the variable productivity observed over the last few years. These factors will be thoroughly examined in the full Seabird Monitoring Report*.

More Magellanic Penguins

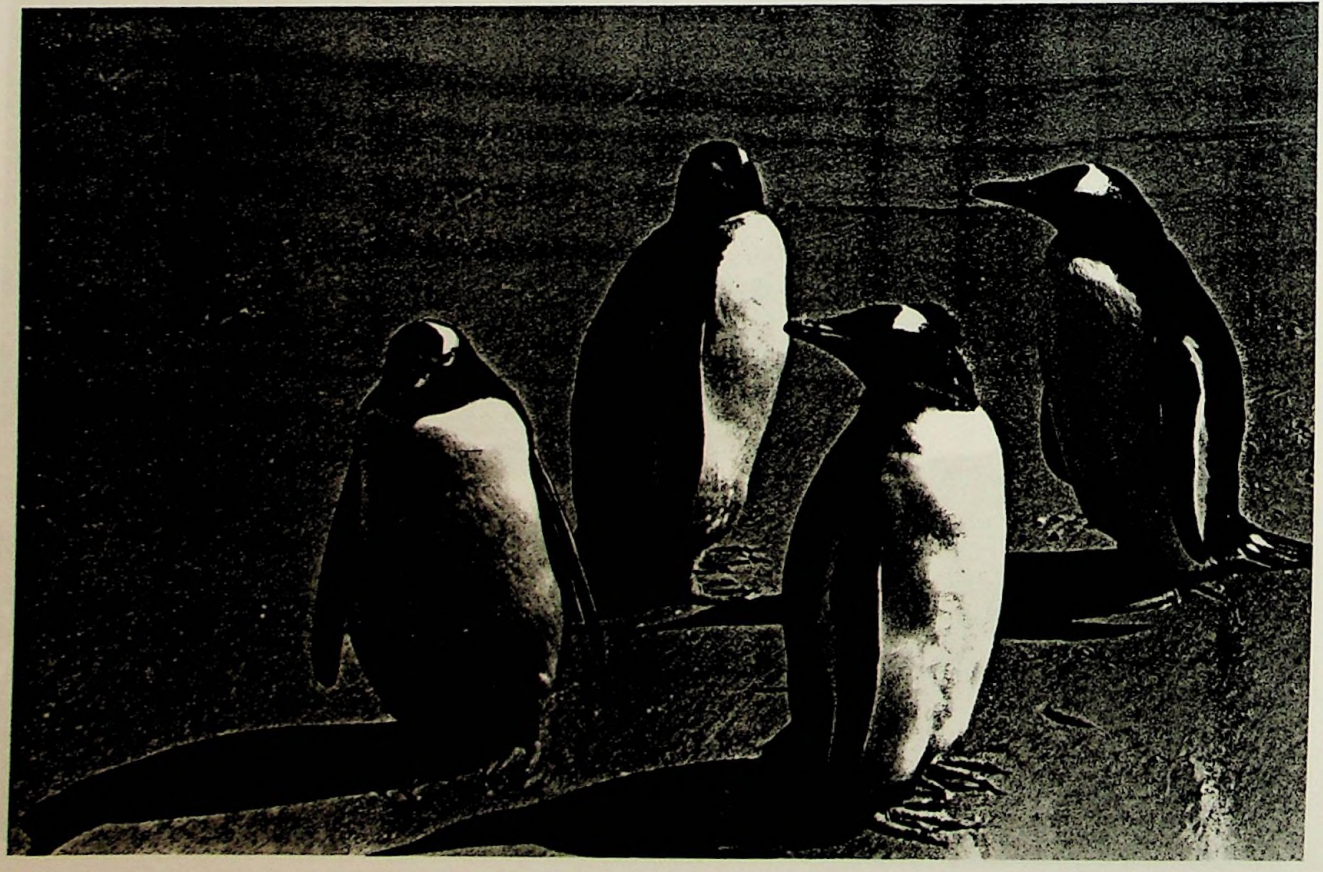
The productivity for Magellanic Penguins (Spheniscus magellanicus) in 1997-1998 was high. Because of the difficulties of counting whole colonies of burrowing penguins, the productivity is monitored by means of representative study plots in several areas, where individual burrows are marked and monitored throughout the breeding season. Although geographic differences are evident, the trend would seem to be that both northern and southern colonies have increased productivity over the last few years. The diet during the entire breeding season showed a similar shift to that displayed by Gentoo Penguins, from a largely krill based diet during the incubation period to a fish based during chick rearing.

Rockhopper Penguin Trends

The Rockhopper penguin (Eudyptes c.chrysocome) displayed variable productivity rates. There was some concern at the beginning of the breeding season that Rockhoppers along the coast of Berkeley Sound were thin and in poor condition. Measurements of the morphometrics of these animals compared to those from Port Stephens showed no significant differences in weight. Indeed, following this, the northern population achieved higher productivity. There were, however, some interesting differences in bill length and flipper length between the populations of northern and southern animals. This will be investigated further in the field-work season of 1998–99.

During 1997-98, the animals were shown to be feeding primarily on a small, swarming lobster krill species. Changes in the diet of Rockhoppers were seen this year compared to previous years - details of which can be found in the full Seabird Monitoring Report*.

Gentoo Penguins had a good year - a group on the beach at Carcass Island. Photo: A Brown



Need for More Information

All of the above species demonstrate large inter-annual variation in both productivity and dietary composition. Long term continuation of the Programme is essential if we are to fully understand the ecology of these birds. Satellite tracking (see page 1) this autumn will help to fill in the gaps in our knowledge. Equally important is the need for regular censuses of all breeding species, as inter-island differences in breeding success and diet are just some of the problems faced when trying to interpret data from a small data set in the context of island wide populations. A repeat of the 1995 penguin census carried out by Falklands Conservation will be essential at some point in the future, and it is hoped to carry out a census of Magellanic Penguins during the 1998/99 season.

Albatrosses Had a Good Year

Our regular monitoring of Black-browed Albatross continued this year on Saunders Island. A discrete colony of around 370 nesting pairs was visited three times over the season, and subsequently, to determine breeding success. First indications are that this season has been exceptionally good in terms of chicks surviving to fledge.

Seabird Monitoring is of Crucial Importance

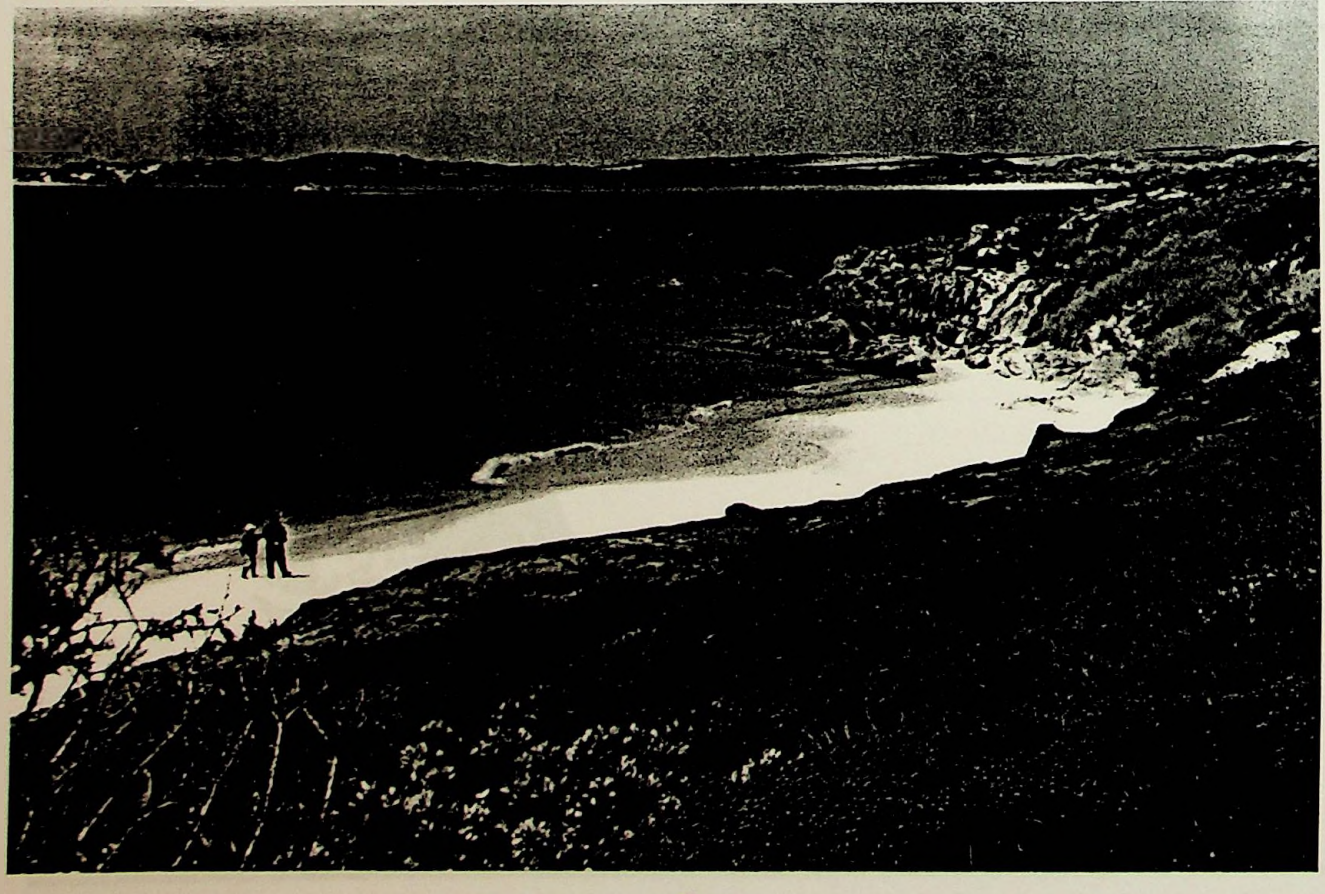
The Falkland Islands Seabird Monitoring Project was set up to investigate the potential link between the large-scale fisheries in Falkland waters and the internationally important populations of seabirds. At present there is no clear evidence of a link between fisheries and seabirds in the Falklands, but it is perhaps worth noting that experiences from fisheries elsewhere in the world would suggest that such links are only to be taken as statistically significant once established populations have crashed. The importance of monitoring the changes that are happening, therefore, has never been greater. Perhaps by learning from the mistakes made by others, it may be possible to detect early warnings which may have been missed in the past and ensure the long-term well being of Falkland Island seabird populations.

* A Review of the Seabird Monitoring Programme in the Falklands 1987–1998 (£5) and the Seabird Monitoring Report 1997–98 (£3) are available from Falklands Conservation.

Gypsy Cove

Falklands Conservation and the Falkland Islands Tourist Board (FITB) have this summer carried out a survey to determine the usage by, and impacts of, visitors to the Gypsy Cove area close to Stanley. Within a short taxi ride from the town, it is an increasingly popular destination for tourists arriving aboard cruise vessels which include Stanley as a day visit on their itineraries. The number of cruise ship visitors is expected to rise from around 7,000 last year to something in excess of 20,000 during 1997/98. Inevitably there has been a corresponding increase in the number of visitors wishing to view the Magellanic Penguins at Gypsy cove, and the results of our survey will be used as a basis for a possible Management Plan for the area. Our report and recommendations will be passed to FIG in order to allow full consideration of the issues involved prior to the 1998/99 season.

Tourists approach a group of Magellanic Penguins on the 'Suspect Area Out of Bounds' beach at Gypsy Cove. Photo: R Ingham.



Southern Patagonia: A World Endemic Bird Area

BirdLife International has just published the first detailed account* of the world's Endemic Bird Areas

Over 25% of all birds (2,561 species) have restricted ranges, being confined to areas of less than 50,000km². These small areas overlap to form what are called Endemic Birds Areas such that the majority of restricted range species (93%) of them are encompassed by 218 EBAs on only 5% of the Earth's land surface.

The Falkland Islands form part of a large EBA at the southernmost tip of South America, which coincides with the distribution of the Patagonian grasslands (see map below). The status awarded to this area and its recognition as a special area for birds confirms the high importance of the Islands for wildlife. Ten bird species are entirely restricted to the Southern Patagonia EBA, at least during the breeding season. Two of these (the Falkland Steamer Duck *Tachyeres brachypterus* and Cobb's Wren *Troglodytes cobbi*) are restricted and endemic to the Falklands, whilst two others (Tussacbird *Cinclodes antarcticus* and Black-throated Finch *Melanodera melanodera*) are endemic sub species in the Islands. The particular importance of the Falklands for seabirds, with a wider distribution outside the EBA, is also recognised.

Two species are singled out for conservation concern and categorised as 'Near Threatened'. The Ruddy-headed Goose *Chloephaga rubidiceps*, which has declined dramatically on the mainland and Tierra del Fuego in recent years, now finds its remaining stronghold in the Falklands. The Striated Caracara, *Phalcoboenus australis*, much reduced in numbers over a longer period, has a small and vulnerable population in the Islands. Work currently being undertaken by Falklands Conservation should shed more light on the status of this species.

There is a broad overlap between endemic birds and other fauna and flora, and it is emphasised that saving habitats for birds in these areas protects all wildlife. As a Representative for BirdLife International, Falklands Conservation will be addressing the key recommendations in this important publication aimed at saving the unique biodiversity in Endemic Bird Areas. In particular, over the next few years we will be identifying and working with landowners in the Falklands to protect the most important sites for restricted-range species as Important Bird Areas.

***Endemic Bird Areas of the World: Priorities for Biodiversity Conservation** by Alison J. Stattersfield, Michael J. Crosby, Adrian J. Long and David C. Wege.

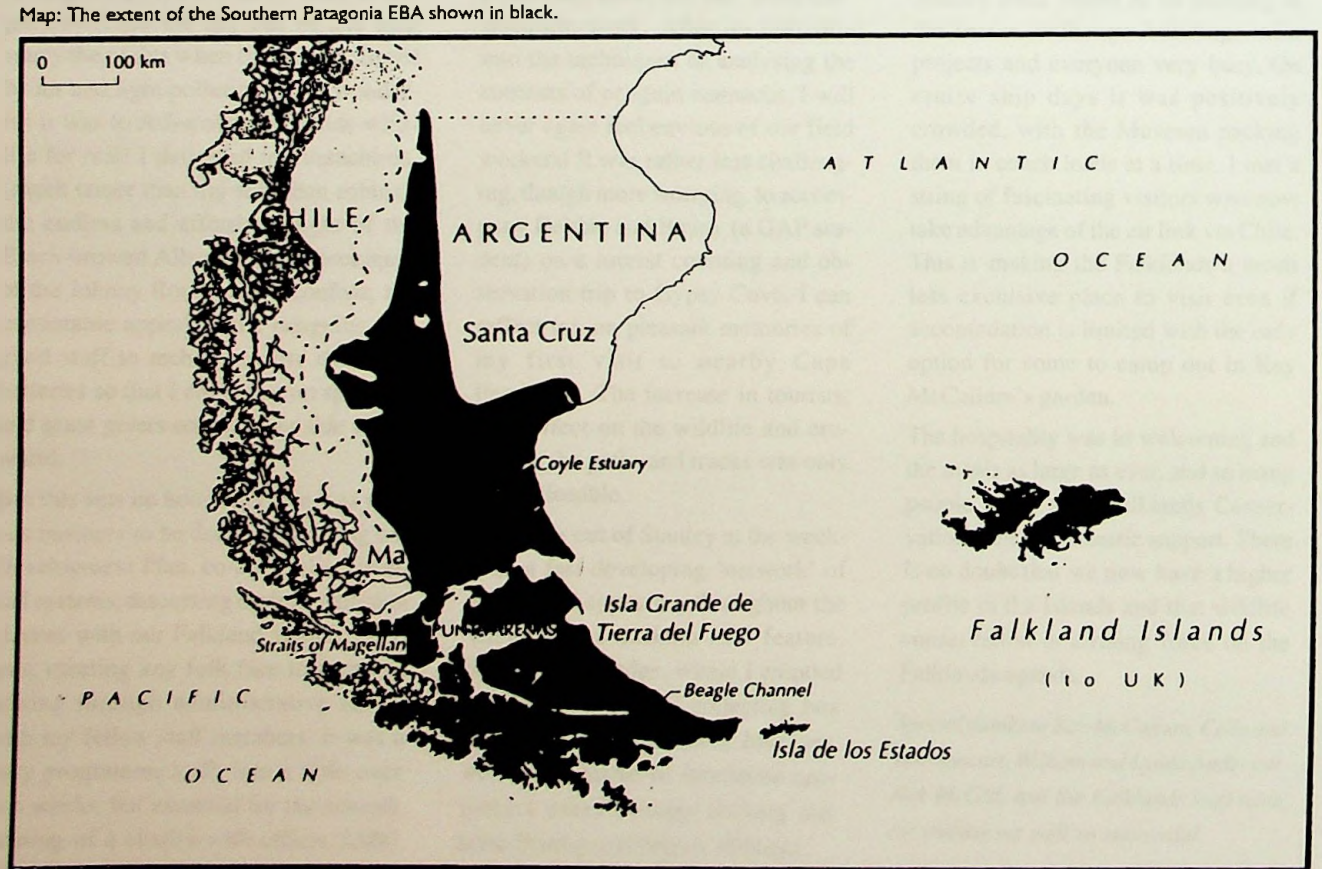
860 pages. 1998.

BirdLife International.

£37.00/$60 (paperback).

ISBN 0 946888 33 7.

Map: The extent of the Southern Patagonia EBA shown in black.



UK Office Goes to Stanley

Ann Brown, UK Secretary to Falklands Conservation, reflects on a recent trip to the Islands, returning after her first visit in 1995.

A rare staff get-together: L to R Debbie Summers, Carol Miller, Becky Ingham, Jeremy Smith and Ann Brown. Photo: A Brown

Living in London it is all too easy to forget how clear the sky can be and how starry the nights when they are untainted by air and light pollution. How wonderful it was to rediscover Falklands wildlife for real! I delighted in Tussacbirds, (much tamer than my suburban robins), the endless and effortless flight of the Black-browed Albatross, the cheekiness of the Johnny Rooks and, I confess, the irresistable appeal of the penguins. All good stuff to recharge a city dweller's batteries so that I could fire up sponsors and grant givers on the other side of the world.

But this was no holiday. There was serious business to be done – reviewing our Development Plan, co-ordinating financial systems, discussing draft constitution clauses with our Falkland Islands Trustees, meeting key folk face to face and talking through administrative issues with my fellow staff members. It was a busy programme to fit into a little over two weeks, but essential for the smooth running of a charity with offices 8,000 miles apart.

I was keen too to see our 'front line' scientific work. After an initiation into the techniques of analysing the contents of penguin stomachs, I will never again feel envious of our field workers! It was rather less challenging, though more worrying, to accompany Debbie and Benny (a GAP student) on a tourist counting and observation trip to Gypsy Cove. I can reflect too on pleasant memories of my first visit to nearby Cape Pembroke. The increase in tourists, their effect on the wildlife and erosion of the paths and tracks was only too noticeable.

Escaping out of Stanley at the weekend, a fast developing 'network' of new roads appearing throughout the Camp was a striking new feature. Blue Beach Lodge, where I emptied our Penguin Appeal collecting box and visited the excellent Museum, now has a queue of lunchtime customers every Sunday driving out from Stanley and Mount Pleasant.

Stanley itself seems to be bursting at the seams, with new buildings, new projects and everyone very busy. On cruise ship days it was positively crowded, with the Museum packing them in coach loads at a time. I met a string of fascinating visitors who now take advantage of the air link via Chile. This is making the Falklands a much less exclusive place to visit even if accomodation is limited with the only option for some to camp out in Kay McCallum's garden.

The hospitality was as welcoming and the meals as large as ever, and so many people I met gave Falklands Conservation their enthusiastic support. There is no doubt that we now have a higher profile in the Islands and that wildlife conservation is a rising force on the Falklands agenda.

Special thanks to Kay McCallum, Celia and Bob Stewart, William and Lynda Anderson, Rob McGill, and the Falklands staff team for making my visit so successful.

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Offices:
UK: 1 Princes Avenue, Finchley, London N3 2DA
Tel/Fax: 0181 343 0831
email:ABrown@falklands-nature.demon.co.uk

FI: PO Box 26, Stanley, Falkland Islands
Tel: 500 22247
Fax: 500 22288
e-mail: conservation@horizon.co.fk
Website: http://www.falklands-nature.demon.co.uk

The Warrah is the newsletter of Falklands Conservation, published twice a year. The Editor (Ann Brown) welcomes letters and articles for publication.

Copy date for next issue:
30 September 1998
Back issues available:
£1 each (*WARRAH* 1–12; Falkland Islands Foundation 5–10)

The Warrah, or Falkland Fox (*Canis antarcticus*), was the only endemic Falklands mammal. This bold and inquisitive animal was never very numerous but, with the introduction of sheep, farmers backed by a Government bounty were encouraged to hunt them. The last one was killed in 1876. We hope this publication will play a small part in preventing any other Falkland wildlife following the same path to extinction.

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Peter Prince

We were greatly saddened in February at the sudden death of Peter Prince at the age of 49. Peter had served as a Trustee for Falklands Conservation from 1993. His considerable knowledge of the Islands' birds stemmed largely from his work with the British Antarctic Survey. He was actively involved in our bird research programmes (particularly albatross) but keenly interested in all Falklands Conservation issues. He generously gave his considerable expertise to assist with many projects, not least supervision of our bird ringing work as part of the Seabird Monitoring Programme. His wise counsel on wildlife matters will be sadly missed. Ways of commemorating Peter's work with Falklands Conservation are currently under discussion and will be announced in the next issue.

Annual General Meeting 1998

Please note the date for the AGM in London, UK:

The evening of Thursday 26th November 1998.

Trustees have approved steps to change the status of Falklands Conservation from a Trust to a Company Limited by Guarantee (continuing, of course, as a registered charity). This will provide greater safeguards for our operations against the background of an active and expanding organisation. This change will enable members both in the UK and the Falklands to have a greater involvement in the management of Falklands Conservation. We are currently consulting with the Charity Commissioners and expect to report fully on this at the AGM.

Penguin Appeal

Chris Page, who has been our consultant running Penguin Appeal, is finishing his work for us on 30th June 1998. We are very grateful to Chris for all the hard work he has undertaken on our behalf over the past five years. Penguin Appeal will be continuing as our main fundraising campaign. The need to research and protect penguins is all the more important now that exploration for oil has begun in Falkland offshore waters.

British Birdwatching Fair

Falklands Conservation will be having a stall at the BBF held from 21-23 August 1998 at Egleton Nature Reserve, Rutland Water. Offers of help would be gratefully received. If you are visiting the Fair, come and meet us in person! Our participation has been made possible with generous support from Zeiss.

Outer & Double Islands Appeal

A grand total of £10,436 has been raised enabling Falklands Conservation to proceed with the purchase these two small islands off the coast of West Falkland. Negotiations are now nearing completion. There will be sufficient funds to undertake survey work, but we are still seeking support to undertake a programme to eradicate the rats. We are very grateful to the following who generously contributed to the Appeal:

P Abbott
M P Adams
Mrs R Alexander
Mr & Mrs Atkins
A K Backus
A Bailey
N Ball
W L Banks
William D Barham
Sir Thomas Barlow
A W Barnett
Mrs J Bates
M W Biggs
Cmdr Bird
Mrs D Bradley
T Bradshaw-Isherwood
R Bryant
G & E Burman
A S Butler Charitable Trust
Hon Lucinda Buxton
A N Carlier
David Carstairs
J Chamberlin
Sir John Chapple
Dr R Clark
Col C N Clayden
W F Curtis
W Dacombe
D Dalgleish
Tom Davies
Desire Petroleum
Wendy Dickson
R Dryland
Dr D P Duckett
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Miss D Evans
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Mrs M Keijzer
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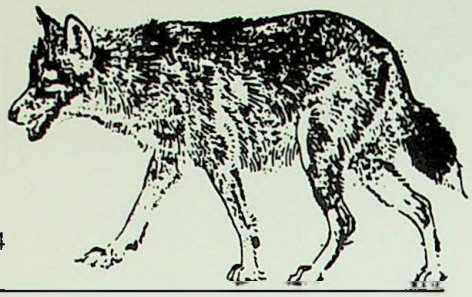
Don Kroodsma
Mr P Lapsley
S M Lever
E G Lewis
T P Maitland
Mrs D Mew
Miss E A Morse
Mr & Mrs P Mould
E Neild
A M H Nixon
E R Osick
Daniel Owen
M Page
Mr & Mrs P Palk
C C Peach
J Peatfield
Gordon Petersen
Cassandra Phillips
M Pilkington's Charitable Trust
David Powling
Mr & Mrs Roberts
Dr S Ross
A J Shaw
N M Simpson
Marigold Speir
Stephen Spring
David Starkey
J A Stearn
Miss E Stronach
C Talbot-Ponsonby
Miss E J Thomas
K Thompson
S J Tonge
Alan Tritton
G Williams
S Wolsey
A F Wright

the WARRAH

from Falklands Conservation November 1998 - Number 14



Launch of Native Plants Survey

Falklands Conservation, supported by WWF-UK, has produced a Native Plants Survey Guide. With ever-increasing changes within the Islands, new road systems and improvements in agriculture, the need to identify areas of high botanical diversity is of paramount importance. Volunteers are needed to help us with this important Project.

The Hairy Daisy is most appropriately named! It is found on dry heathland slopes often in association with Diddle-dee, Scurvy Grass, Falkland Lavender and Tall Fern but currently known only from nine locations in the Islands. It is hoped that the Plant Survey will reveal more information on the distribution of rare Falkland plants such as this. *N. Woods.*

Woolly Falkland Ragwort is widespread throughout the Islands, though care is needed to distinguish it from its close, and also endemic relative, the Smooth Falkland Ragwort. Clear descriptions, detailed line drawings and colour photographs will all help volunteers to accurately identify and map the correct species. *N. Woods.*

Felton's Flower is an annual plant found only in the Falkland Islands. Until recently it was thought to be extinct in the wild until a few specimens were discovered by Robin Woods on Grand Jason Island and Hummock Island, and by Jeremy Poncet on Tea Island. The Native Plants Survey Guide includes all 13 plants endemic to the Islands. *N. Woods*

The Snake Plant is quite the most unusual plant in the Falklands. It produces a strong, sweet scent when the plant is in full bloom. It prefers to grow amongst the largest boulders in the unique Falkland stone runs and is even found near the summits of mountains. It seems to be locally common in this special habitat but the Survey should reveal its particular strongholds. *R. Lewis-Smith*

In this Issue: **Native Plants Survey – Changes to Falkland Plant Names – Where Do Falkland Penguins go in Winter? – Oiled Seabirds in Falkland Waters – Plans and Planning for Nature Reserves**

Our Botanical Projects

As the austral summer approaches, the emphasis for our fieldwork will be on the flora of the Islands. Having just returned to the Falklands following completion of the International Certificate in Cultivation and Conservation of Threatened Plant Species at the Royal Botanic Gardens, Kew, Becky Ingham, our Field/Science Officer, reports on botanical projects - old and new.

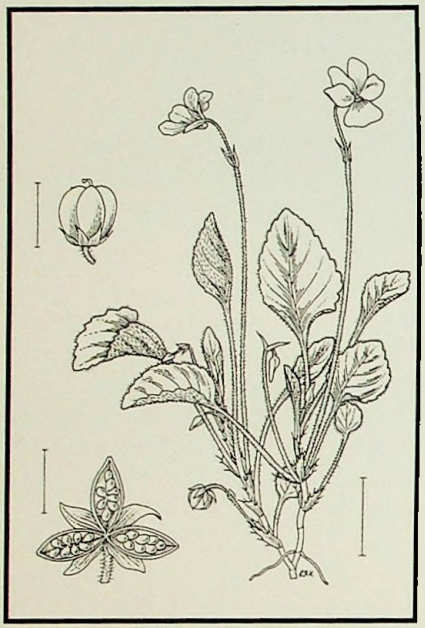
The Native Plants Survey

The first stage of this Survey, takes the form of a Native Plants Survey Guide. This first edition, covers all thirteen of the endemic species and a further thirteen key native species. It is a pilot to trial the system and contents before a more complete version, including most of the Falkland native species, is produced.

Plants Featured in the Survey Guide

Endemics	
Arabis macloviana	Falkland Rock Cress
Calandrinia feltonii	Felton's Flower
Chevreulia lycopodioides	Clubmoss Cudweed
Erigeron incertus	Hairy Daisy
Gnaphalium affine	Falklands Cudweed
Hamadryas argentea	Silver-leaved Ranunculus
Lilaeopsis macloviana	Falkland Lilaeopsis
Nassauvia gaudichaudii	Coastal Nassauvia
Nassauvia serpens	Snake Plant
Nastanthus falklandicus	Falkland False Plantain
Plantago moorei	Moore's Plantain
Senecio littoralis	Woolly Falkland Ragwort
Senecio vaginatus	Smooth Falkland Ragwort
Native Species	
Aster vahlii	Marsh Daisy
Calceolaria fothergillii	Lady's Slipper
Caltha sagittata	Arrow-leaved Marigold
Chiliotrichum diffusume	Fachine
Chloraea gaudichaudii	Gaudichaud's Orchid
Codonorchis lessonii	White/Dog Orchid
Gavilea littoralis	Yellow Orchid
Hebe elliptica	Native Boxwood
Leucheria suaveolens	Vanilla Daisy
Perezia recurvata	Falkland Lavender
Primula magellanica	Dusty Miller
Sisyrinchium pubatum	Pale Maiden
Viola maculata	Native Yellow Violet

The aim, over a period of years, is to build up a comprehensive picture of plant distribution around the Islands, whilst providing walkers, tourists and locals with an easy-to-use field identification guide and the means to record the location of key plants found around the Islands. Over the next season, Falklands Conservation will be setting up a database and mapping the location of each species.



The Native Yellow Violet (*Viola maculata*) as shown in the new Guide. Each plant has a clear and detailed line illustration drawn by Christabel King, an expert botanic artist .

In the past, study of the Islands flora has been largely limited to experts and keen botanists, due to the lack of non-scientific material available for identification purposes. The Survey Guide has been designed for use by people without a significant prior knowledge of botany.

There are full colour pictures, with simple text covering the description and likely habitats of each species.The pocket size format of the Guide, along with waterproof recording sheets, makes it ideal for use in the field. We are very grateful for all the help we have received in producing the Guide, in particular to Robin Woods for the text, to Dr Jim McAdam, Brian Summers and Professor David Moore for their expert advice and to Sally Robertson for 'putting it all together'.

Each Survey Guide contains recording sheets for site and plant details, which can be removed and returned to FC for entry on to the database. In addition, we can provide people with maps of specific areas they wish to visit, so plant locations can be assessed accurately. This will enable us to begin filling in a picture of the botanical hotspots, to identify those areas which may need to be protected, and to improve our current inadequate knowledge of the habits and habitats of our most important wild flowers.

We hope that the survey guide will be used by a wide range of people from casual walkers with a general interest in wildlife to qualified botanists. All of the information gathered, however insignificant it seems, will prove valuable in building up a picture of the distribution of Falklands flora. Those people who have been sending in records to Jim McAdam over the years need not worry as their records will be incorporated into the current scheme.

Felton's Flower Reintroduction

Two years ago, Sinead Doherty attended the same Darwin Initiative course for Overseas Territories in threatened plant cultivation and conservation at the Royal Botanic Gardens, Kew. From this came the Re-introduction Plan for Feltons Flower, and the successful attempt to replant this endemic flower in the wild, where it was believed to be extinct.

The Feltons Flower project has been successful, mainly due to the hard work and dedication of those involved. There is now a wild population at Hill Cove, which, although protected from grazing, marks the first wild re-introduction site. Luckily, however, several wild populations of the plant have since been found which indicate that the extinction from the wild was not as complete as first thought! Obviously this bodes well for the future of the plant in the Islands. FC, in conjunction with landowners and Government House gardeners, will continue to collect and store seed, as well as identify suitable sites for further introductions. Kew have included Felton's Flower in their Threatened Plants Pro-

gramme and are currently undertaking genetic finger-printing tests on their seed bank samples and on those from other botanic collections. This will determine whether these are 'pure' Falklands strain, hybrids or closely related South American species.

Tussac Restoration

Tussac grass is a unique plant, forming the Islands' most important ecological niche.

This year we are hoping to re-plant some Tussac around the eroded areas of the Cape Pembroke Peninsula. By using Cape Pembroke as a site to begin any re-planting, we can get local people involved, including the schools, giving an educational value to the project as well as increasing the coverage of this important plant. The experience of practical plant cultivation from Kew along with local knowledge from within the Islands will be used to get the project started.

Help, or advice, with any of the above Projects would be gratefully received. For all those of you who may have an opportunity to assist in the data collection regarding plant distribution, the Native Plants Survey Guide will be available from early November to personal callers at the Stanley office. A limited number are available for purchase.

A training session in Falkland plant identification to be led by Dr Jim McAdam and Brian Summers will be held in November in Stanley with a field identification visit. Please contact the Stanley office if you are interested in participating.

The importance of tussac grass as breeding and feeding habitat for birds, mammals and insects make it one of the Falklands' most valuable assets. Only 65ha of tussac remains on the two main islands. This is Third Passage Island - one of the few examples of a near perfect offshore tussac island. Falklands Conservation.

13th Endemic Falkland Plant Discovered

A new plant has been added to the list of those plants unique to the Islands. It is Moore's Plantain, named after David Moore who found the plant at the south side of Empire Beach on the west coast of Ten Shilling Bay Peninsula in Port Stephens in 1964.

However it has only recently been recognised as a new endemic. When Knud Rahn of the University of Copenhagen Botanical Garden examined known specimens of the Plantaginaceae from southern South America he realised that the plant collected by David Moore represented a previously undescribed species.

It is a perennial plant which forms small flat groups of rosettes of densely packed grey leaves, which grow into low cushions and large hummocks up to 50cm in diameter and 23cm high. It has tiny flowers. Although superficially resembling the Thrift Plantain *Plantago barbata* the hairy leaves of Moore's Plantain, the generally grey appearance of the plant and the fact that the leaves are not shiny, make it fairly easily distinguished. There is also some similarity to the Balsam-bog, but the leaf shape is quite different. Moore's has a simple pointed tip while the Balsam-bog has a prominently three-lobed tip which is often strongly curved.

This is the second endemic plant to have it's stronghold in the Port Stephens area. The Falkland False Plantain *Nastanthus falklandicus* has also only been recorded along this part of the southwestern coast of West Falkland. It may be that there are local geological or soil conditions in this area which make it of very special botanic interest.

Changes to Falkland Plant Names

David A Broughton and Jim McAdam

There is a need for a strong and accurate taxonomic base as a starting point for any biological research, as well as for drawing up plans to effectively conserve biodiversity. To coincide with the launch of our Native Plants Survey Guide it is appropriate to consider the accuracy and consistency in naming Falkland plants. In fact, changes to the Latin names used to identify Falkland Islands flora have passed by largely unrecognised since the publishing of the definitive The Vascular Flora of the Falkland Islands by D M Moore in 1968. The table below summarises the thirty changes that have occurred, which apply to 10% of the flora.

Summary Table of Taxonomic Changes to Falkland Flora

Common Name	Old Name	New Name
American Cudweed	Gnaphalium americanum	Gamochaeta americana
Bead Plant	Nertera depressa	Nertera granadensis
Berg's Hair-grass	Koeleria bergii	Koeleria permollis
California Club Rush	Scirpus californicus	Schoenoplectus californicus
Common Mouse-ear	Cerastium holosteoides	Cerastium fontanum ssp. holosteoides
Couch Grass	Agropyron repens	Elytrigia repens
Falkland Cudweed	Gnaphalium affine	Gamochaeta affine
Falkland Hook Sedge	Uncinia brevicaulis	Uncinia macloviana
Falkland Rock Cress	Arabis macloviana	Phlebolobium maclovianum
Fir Clubmoss	Huperzia selago	Huperzia fuegiana
Fuegian Couch Grass	Agropyron magellanicum	Elymus glaucescens
Lyme Grass	Elymus arenarius	Leymus arenarius
Mountain Berry	Pernettya pumila	Gaultheria pumila
Native Rush	Juncus scheuzerioides	Juncus scheuchzerioides
Nodding Scirpus	Scirpus cernuus	Isolepis cernua
Orange Hawkweed	Sisyrinchium filifolium	Olsynium filifolium
Rescue Grass	Ceratochloa uniloides	Ceratochloa cathartica
Round-seeded Sheep's Sorrel	Rumex angiocarpus	Rumex acetosella spp. pyrenaicus
Sea Cabbage	Senecio candicans	Senecio candidans
Spider Flower	Arachnitis uniflora	Arachnitis quetrihuensis
Spiked Cudweed	Gnaphalium spicatum	Gamochaeta spiciformis
Spring Beauty	Montia perfoliata	Claytonia perfoliata
Soft Brome	Bromus mollis	Bromum hordaceus spp. hordaceus
Southern Cudweed	Gnaphalium antarcticum	Gamochaeta antarcticum
Thrift	Armeria macloviana	Armeria maritima spp. andina
Vanilla Daisy	Leuceria suaveolens	Leucheria suaveolens
Yellow Lady's Slipper	Calceolaria biflora	Calceolaria dichotoma

A paper on this subject *Taxonomic Changes in the Falkland Islands Vascular Flora* describing the changes with references to appropriate literature and, where possible, brief justification for the changes has been produced. A further paper *Variety is the Spice of Life: Infraspecific Taxa in the Falkland Islands* is also available from the authors at:

Department of Applied Plant Science, Queens University of Belfast, Newforge Lane, Belfast BT9 5PX, UK.

Falkland Rock Cress, an endemic plant with a new latin name: *Arabis macloviana*

Plans and Planning for Nature Reserves

The long awaited new Nature Conservation legislation for the Falklands should be in place during the first half of next year, if the Draft Bill, soon to be published, is accepted.

However, getting the legislation right is one thing, applying much of its content as quickly as possible in a meaningful way is another. This is particularly the case for the new classification system for protected areas. Currently there are two categories of areas protected for nature conservation - 'Nature Reserve' and 'Wild Animal and Bird Sanctuary'. The new proposal is for a single classification of National Nature Reserve (NNR), with a different definition from the same name in the UK. Within this there will be a range of categories covering all manner of reasons for designating a protected area for nature conservation purposes.

It is also proposed that areas currently designated as either Sanctuaries or Nature Reserves will automatically become NNRs on adoption of the new legislation. This has created an urgent need to review these sites, not only in terms of their nature conservation value, but also how that value should be preserved, and in some cases enhanced. In order to achieve this, Falklands Conservation will be working closely with the Falkland Islands Government Environmental Planning Department, and landowners in cases where land is privately owned, to prepare reviews of each individual site. For the majority this will be long overdue.

Designation in the past has been an ad hoc process with little or no attempt made to place a proposed site in a wider context of what needs to be preserved and why. Furthermore, a majority of sites currently protected are offshore islands with few sites protected on the two mainland islands. It is also the case that many sites in the past were protected by virtue of their importance to seabirds and marine mammals whilst other aspects of Falklands biodiversity, such as the flora or value as wetland sites, have been largely ignored. A review process will hopefully help to focus efforts towards developing a more strategic site protection plan.

It will also be invaluable in developing a framework for preparing Management Plans for all existing sites as well as those designated in the future. Historically, designation has been regarded as the end rather than the beginning of efforts to safeguard particular features of interest. For many of the smaller offshore islands, this has probably been sufficient in the short term. In other cases, considerable loss of conservation value has resulted from a lack of planning to meet specific objectives. Work during the summer months will begin the process of identifying some of those objectives as well as considering possible action plans which might be adopted whilst recognising the resource constraints.

In the longer term, it is hoped that we will be able to use Falkland Conservation's links with organisations such as the Royal Society for the Protection of Birds to develop in the Falklands the capacity to more fully protect and manage sites in a way which meets obligations of international treaties, such as the Biodiversity Convention.

Falklands Conservation will continue to consider the option of purchase of land with a high nature conservation value should it become available. With the recent acquisition of Outer and Double Islands, our charity now holds title to eighteen offshore islands supporting a wide variety of habitats, flora and fauna. A start has already been made by Robin Woods in preparing Management Plans for each of them. To date, only one of our island reserves has been afforded statutory protection. The Twins, an island in the north west adjacent to Carcass Island, is designated a Wild Animal and Bird Sanctuary. Under the new legislation we will be actively seeking statutory protection for many more of our reserves. We hope that such an active and positive approach will encourage other landowners to protect, in perpetuity, the wildlife which they themselves value so highly.

Subsidiary Legislation

Stanley Common (Birds' Eggs) Regulations 1998

Notice is hereby given that, under Section 16 of the Wild Animals and Birds Protection Ordinance 1964 (a), regulations have been introduced to prohibit the taking, removal, collection or wilful destruction of any birds' eggs (excluding the eggs of pest species)on or in the boundaries of the Stanley Common (including Cape Penbroke and Gypsy Cove).

Any person who takes, removes, collects or wilfully destroys the egg of any bird (other than that of a bird which is a pest species) in or from the Stanley Common commits an offence and is liable on conviction to a fine of £200.

These regulations apply to any person whether or not that person has been issued with a licence to collect birds' eggs under the Penguin and Albatross Regulations 1964.

Falkland Islands Government
21 October 1998

In box:
The Stanley Common & Cape Pembroke area is currently designated a Wild Animal and Bird Sanctuary. Additional regulations to protect its bird life have recently been introduced:

Where Do Falkland Penguins Go in Winter?

Dr. Klemens Pütz reports on the results of our Satellite Tracking Study of the Winter Migration of Magellanic and Rockhopper Penguins breeding in the Falkland Islands

This study forms part of an overall plan to gain more information about the Falklands offshore ecosystem, a particularly important priority in view of the current hydrocarbon exploration and exploitation activities.

Fifteen Penguins Were Tagged at the Beginning of the Winter

A pilot study was initiated in late 1997 to study the winter migrations of Magellanic and Rockhopper Penguins breeding in the Falkland Islands. At the end of March 1998, ten Magellanic and five Rockhopper Penguins were successfully equipped at the end of their moult with satellite transmitters (platform transmitter terminals, PTTs) at Seal Bay in the north-east of the Falklands, using the method described by Wilson *et al.* (1997). The PTTs were programmed to transmit for eight hours only every three days and included a saltwater switch to suppress transmission while underwater.

The Performance of Each Penguin was Analysed

The data collected was analysed with respect to migration routes, travelling speeds and the overall performance of the trip. Values calculated for travelling speed are minimum values as they are based on the assumption that the penguins move in a straight line between two locations. Furthermore, the analysis of the quantity and quality of the locations revealed relationships between time of day and activity of the birds.

During the migration of the birds, all PTTs stopped transmitting after different time periods. Locations were received for periods of between 15 and 99 days from Magellanic and for periods of between 54 and 111 days from Rockhopper Penguins. The failures are most likely to be linked to a detachment of the devices rather than being due to other reasons such as predators or starvation. However, one Magellanic Penguin was found dead on the beach near Puerto Madryn, Argentina, and the PTT was recovered.

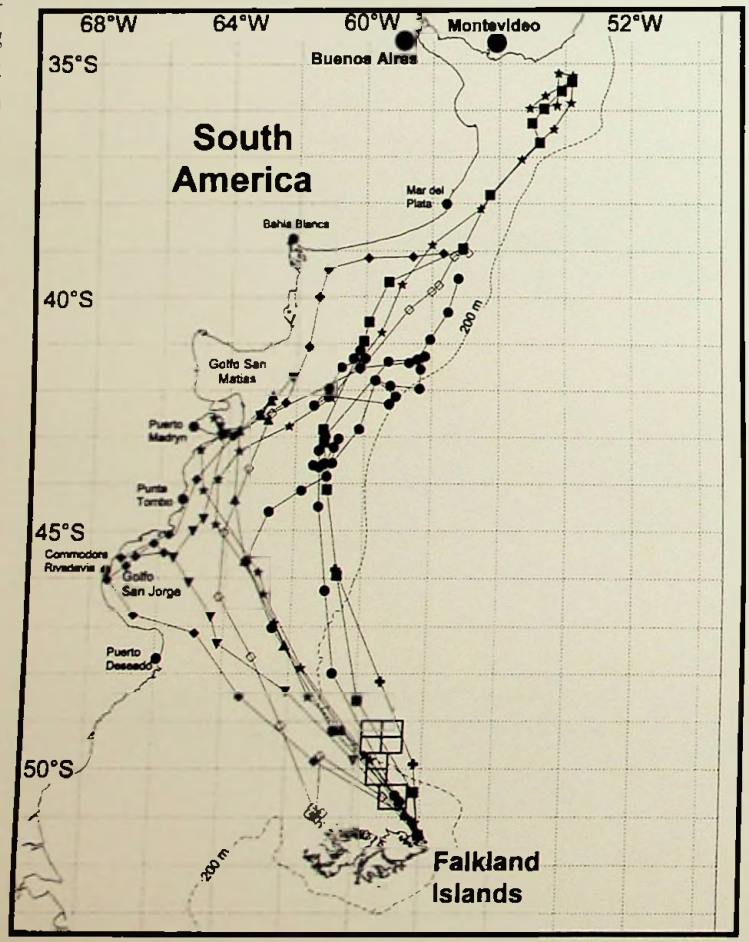


Figure 1:
Migration routes of 10 Magellanic Penguins from Seal Bay, East Falkland, between April and June 1998. The dotted line indicates the 200m water depth isobath. The squares to the north of the Falkland Islands are the blocks licensed for oil exploration and exploitation.

Magellanics are 'Long Haul' Travellers

All Magellanic Penguins initially headed north-west swimming either offshore over the Patagonian Shelf or in coastal waters of the South American continent. The birds migrating offshore typically had higher travelling speeds than those swimming inshore. The Magellanic Penguins finally reached an area around 35°S, 54°W, more than 1,800km (1,125 miles) away from the colony, where they stayed for some time before transmissions stopped. Another bird remained for several weeks in an area at 42°S, 60°W, about 1,000 km (625 miles) north of the breeding site. The highest total distance travelled for a single bird was calculated to be 2,661km (1663 miles) within a time period of 75 days.

Rockhoppers Stay Closer to Home

The movements of the Rockhopper Penguins did not follow such a clear pattern. At least three birds travelled in a more westerly direction compared to that of Magellanic Penguins and stayed for some time close to the main-

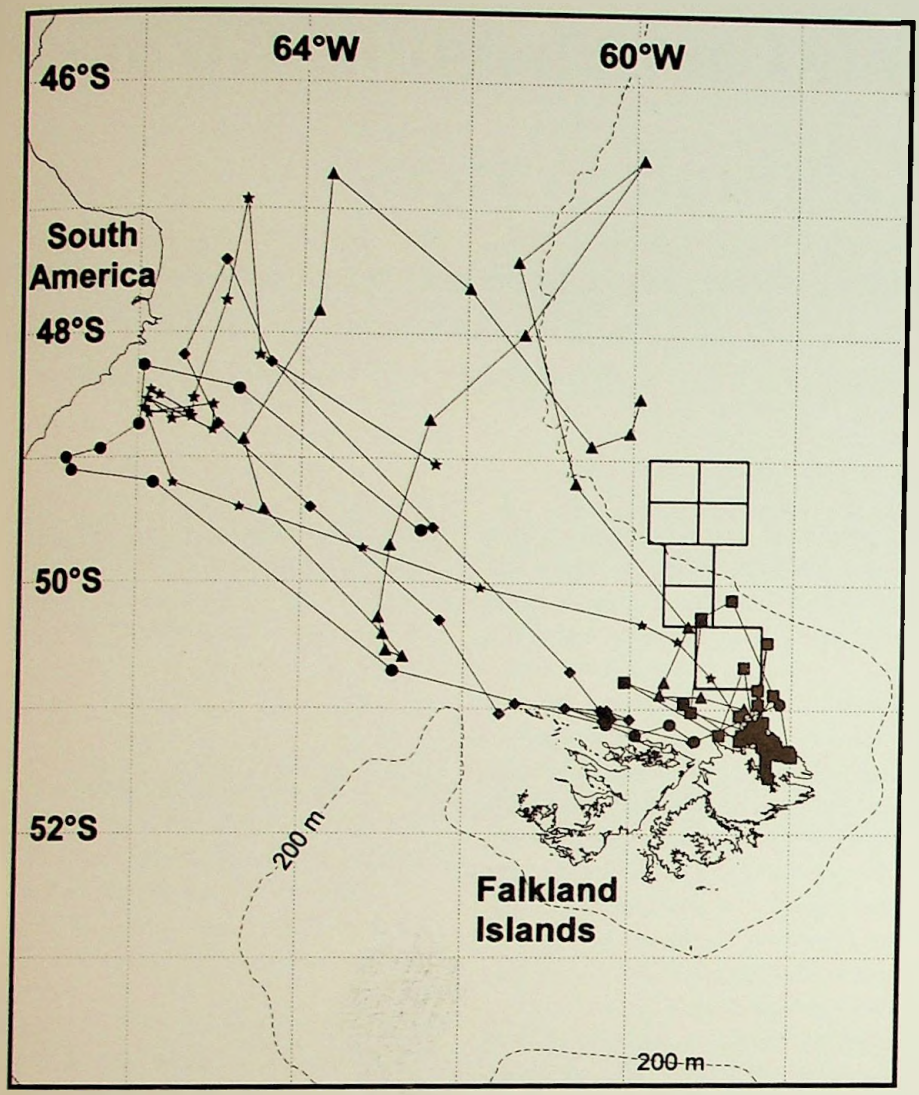


Figure 2:
Migration routes of 5 Rockhopper Penguins from Seal Bay, East Falkland between April and June 1998. The dotted line indicates the 200m water depth isobath. The squares to the north of the Falkland Islands are the blocks licensed for oil exploration and exploitation.

land at about 48°S, 65°W before returning to the Islands during which time the signals stopped. The highest distance to the colony was calculated to be less than 700km (437 miles) for these birds. Two Rockhopper Penguins stayed to the north of their colony, one bird close inshore, even returning several times to the colony. The other penguin remained offshore and travelled a total distance of 2,119 km (1,324 miles) within 75 days.

Travelling Speeds

The different performance of the winter foraging trips in the two species is further reflected in the individual travelling speeds. On average, the Magellanic Penguins travelled at about 35km/day (22miles/day) nearly twice as fast as the Rockhopper Penguins with average speeds of some 20km/day (12miles/day). In contrast to this, the highest speeds calculated did not differ between the two species.

Potential for Improving and Increasing Data Collection

However, although transmission periods were much longer than in a comparable study (Stokes et al. 1998: average 24 days, maximum 36 days), the devices did not stay on the birds long enough to cover the whole period. Based on the experience gained in this study further improvements of the method of attachment, as well as a reduction in the hydrodynamic drag, were proposed and are very likely to enable us to track individual birds over longer time periods. The alterations will be integrated in the PTTs to be deployed during the next breeding season and their effectiveness can be considered.

In the next breeding season Magellanic and Rockhopper Penguins will again be equipped with PTTs to follow their movements during the incubation period, during which time both sexes alternate foraging trips of a duration of up to two weeks. It is not reasonable to continue this study over the chick-rearing phase as birds have to feed their chick daily, thus being time limited and unable to reach offshore areas. However, in the coming winter period it would be reasonable to deploy PTTs on penguins from different colonies in order to be able to compare the findings from different places.

Pilot Project Provides Vital Information for Penguin Protection

The results of this pilot study provide for the first time highly valuable insights into the winter foraging patterns and migrations of Magellanic and Rockhopper Penguins breeding in the Falkland Islands. It could be shown that there is a clear potential for both species to be impacted by activities in the northern tranche areas licenced for exploration of oil. Consideration of how to limit any such impact will now have to be addressed. It has also provided us with a more precise picture of the areas of the Patagonian Shelf on which these species depend during winter. Greater knowledge of the role these areas play in the life of Falkland penguins through the collection of additional data is an important priority and will be a focus of future work for the Tagging Project.

Falklands Conservation gratefully acknowledge the financial support from the Falkland Operators Sharing Agreement (FOSA) and the Antarctic Research Trust (ART). Peter and Melanie Gilding kindly provided access to the penguin colonies at Seal Bay.

References:

Stokes, D L, Boersma P D, and Davis J S. 1998. Satellite Tracking of Magellanic Penguin Migration. The Condor 100: 376-381.
Wilson, R P, Putz K, Peters G, Culik B, Scolaro J A, Charrassin J-B & Ropert-Coudert Y. (1997). Long-term Attachment of Transmitting and Recording Devices to Penguins and Other Seabirds. Wildlife Society Bulletin 25: 101-106.

Oiled Seabirds in Falkland Waters

Jeremy Smith, Conservation Officer, reports on record numbers of oiled seabirds appearing on the shores of the Falklands Islands this winter, incidents which have highlighted the vulnerability of Falklands wildlife

Although not new to the Falklands, oiled seabirds have been mercifully few around our shores. Until recently that is. The winter months of 1998 will be remembered by many as not only being the mildest for many years, but also so the time when we in the Islands were faced with the reality of the impact of oil on wildlife. Despite having been exposed to relentless media coverage of oil related impacts in other parts of the world, it is nonetheless a shock to come face to face with it on our doorstep.

Initial reports of oiled penguins were received by Falklands Conservation during early August, although it appears that they were first noted in Camp as early as mid July. For the next two and a half months we received a steady trickle of reports of contaminated birds involving at least three separate incidents.

The Three Incidents

Between July and October, a total of 23 King (including two dead) and 12 Gentoo Penguins were reported as heavily oiled, mainly from Pebble and Saunders Islands, but also from other areas along the north and east coasts, including one from Stanley Harbour! In most cases both species had been contaminated down one side with a thick, heavy black oil.

It is possible that the source of this oil was at some distance from the Falklands. King Penguins are known to travel long distances from the Islands in winter, although it is not yet clear if affected birds were even from the Falklands. Twenty three King Penguins would represent an important proportion of the Falklands population of around 400 breeding pairs but no oiled birds were seen during winter visits to check the Falklands largest colony at Volunteer Point. Gentoo Penguins, although not a migratory species in the Falklands, have this year been observed well beyond Falklands shores to the north and north-west of the Islands. The poor physical state of both species on reaching shore, with weights considerably lower than would be expected for this time of year, would also indicate a long period at sea when no feeding had taken place, perhaps as a consequence of contamination.

During mid September, a second incident occurred in the south east of the Islands mainly affecting Imperial Cormorants. The oil was reported as being lighter in both colour and nature than that affecting the King Penguins. A total of 44 birds were heavily contaminated birds along a 25km stretch of coastline. Given the very limited foraging range of this species, it seems likely that the source of this oil was close to shore. During the same period, a small number of Gentoo Penguins were recorded as oiled with a similar oil, possibly from the same source, along the north coast. Winter populations of Gentoo in the south of the Islands appear to have been greater than normal this year, with a corresponding reduction in numbers at sites in the north. It is possible therefore that birds were contaminated in the south just prior to their return to their preferred breeding colonies in the north.

A third incident occurred at the beginning of October amongst Rockhoppers returning to breed at Saunders and Pebble Islands. This was potentially the most serious incident with thousands of birds expected to return within days of the first reports. In all a total of 24 heavily oiled birds were reported with a larger number showing signs of some oiling. Again, the type of oil appeared lighter than that affecting birds earlier in the winter.

The Rescue Effort

Thankfully there has been a remarkably successful operation to first recover contaminated birds, then to clean and care for them until they are ready to return to the sea.

Although we have no firm evidence as yet, it would appear that released birds do survive once released and we will be monitoring marked birds over the coming breeding season where this is possible. Certainly experience from elsewhere would suggest that penguin survival rates after cleaning and release are greater than for less 'robust' species.

To date, a total of 19 Kings, 10 Gentoo and 22 Rockhoppers have been de-oiled and eventually released. The success so far has been due largely to the dedication and commitment of the band of cleaners and feeders both in Camp and Stanley. The cleaning and care operation has been a truly community effort. Those taking part have included staff of FC and the Department of Agriculture, residents of Saunders and Pebble Islands, volunteers in Stanley, FIGAS for transporting birds and food around the Islands, and Eurofishing Ltd. who have provided the bulk of the fish and squid for feeding. Falklands Conservation extends grateful thanks to all.

However, the release back to sea of a

clean and healthy penguin comes at a cost of both time and money. It has been found, for example, that to clean and care for a single King Penguin until release, can take up to 90 person hours. The initial cleaning requires two people; one to hold the bird and one to clean. Feeding is again best carried out by two people, with one holding and one feeding. All birds require twice daily hand feeding with fish and squid, seven days a week. As well as time, the financial cost includes wages, the capture and transport of birds, and the cost of veterinary materials. A large spill involving potentially hundreds of birds might also create a requirement for the bulk purchase of large quantities of squid and fish.

At present, the Falkland Islands Government Department of Agriculture (DoA) veterinary staff are responsible for the initial cleaning of any birds sent in. Once cleaned, Falklands Conservation co-ordinate the day to day care until they are ready for release. We are particularly grateful to those persons who have taken on the bulk of this responsibility for us. We are now gradually building a team of volunteers who can be called upon to assist us should there be a requirement in the future. In order to ensure that lessons learnt in recent months are taken into account in response to future incidents involving contaminated wildlife, Falklands Conservation and the veterinary staff of the DoA are working together to prepare a list of proposals for consideration by FIG. A particular recommendation is likely to be the provision of a dedicated facility in Stanley to deal with large numbers of birds.

Review of Oil Spill Procedures

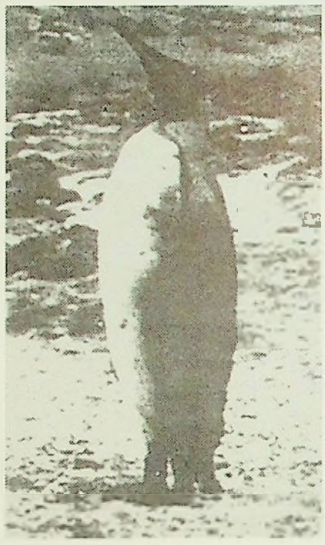
However, dealing with oiled wildlife is only one aspect of the required response to situations where significant levels of contaminants are released into the environment. A second major issue to be addressed relates to the application of clear and focused oil spill contingency planning to deal with such incidents. Following the first appearance of oiled birds this winter, Falklands Conservation called for progress to be made in applying the recommendations of the National Oil Spill Contingency Plan recently adopted by the Falkland Islands Government. This process has now been initiated and significant improvements have been made in a number of key areas. In future all reports of spills received by the Fisheries Department will be automatically copied to both Falklands Conservation and FIGs Environmental Planning Department. This will allow for consideration of the likely significance of a spill to be based on the threat to wildlife rather than the size of spill as has often been the case in the past, and hence the appropriate action can be agreed and subsequently taken.

The Importance of Training

There is also a commitment to initiate a training programme as soon as possible for all those likely to be involved in applying the recently adopted Oil Spill Contingency Plan. This should be regarded as critical, not only because it should focus efforts to identify procedures to be applied at particular sites around the Islands, but also to ensure that everybody involved has a clear idea of exactly what they might be expected to contribute. At the end of the day, the greatest single limiting factor in determining the Islands' ability to respond is people, and the Falklands have only a very small number who would be available to help deal with the impacts of a large spill at a major wildlife site. It is therefore of prime importance that these same people are used in the most appropriate and efficient manner and this can only be achieved with regular training, and by constant attention to changing circumstances and requirements.

Where Did the Oil Come From?

A big disappointment of the past few months has been the lack of success in identifying the source of contamination. Illegal discharges by shipping, and in particular the cleaning of ballast tanks, is a major contributor of oil in the marine environment across the globe. It is certainly recognised as a serious threat to populations of Magellanic Penguins in Argentina where tens of thousands may die each year from oil contamination. Given the high level of shipping activity around the Falklands it is very likely that it is also a source of our problems. As always, prevention is better than cure. Adequate reception facilities for ship generated waste are urgently needed in the Falklands as a step towards reducing the type of incidents we have witnessed recently. The resources of the marine environment are, and will remain, vital to the long term prosperity of the Falklands. Oiled seabirds are a sign that constant vigilance and commitment is required to protect them.



One of the King penguins rescued on Pebble Island. Photo from Penguin News by Trudi Clarke

Oil Exploration Update

Amerada Hess, LASMO International Ltd and Shell have now all drilled their first exploratory wells in the North Falkland Basin, 100 miles north of the Islands. Shell's well reached a total depth of 4,525 metres after 57 days of drilling - one of the deepest offshore wells ever drilled in the South Atlantic. Amerada Hess and Shell have both announced that traces of hydrocarbon were found but not in commercial quantities.

Drilling is expected to last until early next year when, depending on the results, a decision will be taken whether to extend the drilling programme. It is thought unlikely that oil would be discovered from the first six wells drilled. Even if oil is found in commercial quantities it may be up to ten years before production is under way.

Falklands Conservation on the Web

Falklands Conservation has its own internet site developed for us by Chris Page. You can find it at http://www.falklands-nature.demon.co.uk. For those with access to the Web it provides a substantial amount of information on Falklands wildlife. We are continually adding to and updating the contents.

The latest addition is a Wildlife Checklist including all the marine mammals, birds and plants of the Islands. There are special sections on Species' Reports and Conservation Issues, which it is intended to expand over the coming months. There is a full index to past issues of the WARRAH and its predecessor, the Falkland Islands Foundation Newsletters and, more topically, it contains 'News from the Falklands' – articles and extracts from the local Falklands Conservation Newsletter produced in Stanley for our Falkland Island members.

We would very much like to have feedback from members who have visited our site - comments on the content, suggestions for further sections and additional links to other relevant sites would be most welcome.

This site is designed to be viewed in Netscape Navigator 3. Pages are constantly updated so use RELOAD to make sure you see the latest edition. If you find any faults, please let us know. Don't forget to bookmark the pages on this site for easy access next time.

Contents

Book Reviews

Collins Illustrated Checklist: Birds of Southern South America and Antarctica

by Martin R. de la Pena and Maurice Rumboll,

HarperCollins, 1998. 304 pages.

ISBN 0 00 220077 5, £19.99

A quick look at the high quality bird pictures on the cover of this substantial flexibacked book, led me to open it with some excitement and anticipation. The preface explains that it is an English language adaptation of 'the now classic work by Martin R. de la Pena, Guia de las Aves Argentinas' (1992, volumes I to VI). Much material on breeding and other aspects had to be excluded to make this volume pocket-sized, but, 'it has also been expanded to include some 200 species of birds from neighbouring countries - Chile, Bolivia, Paraguay, southern Brazil and Uruguay.' It may seem pedantic to dwell on the preface of a book, but I feel that this partly explains its very limited use to birders in the Falkland Islands.

At first sight, the colour illustrations are excellent. However, it is clear that the artist(s) were unfamiliar with several southern species. For example, the Striated Caracara is shown incorrectly with continuous cinnamon sides from the neck and flanks to the thighs and with white tips to the secondaries. The adult Dolphin Gull lacks the distinctive, very heavy, deep red bill and the red eye ring.

A close examination of the maps reveals that only 83 of the 200+ species on the Falkland list, are shown as occurring in the Falklands. Notable omissions are the Silvery Grebe, Black-necked Swan, Turkey Vulture, Sanderling, White-rumped Sandpiper (which may be seen in large numbers during the summer), Barn Owl, Dark-faced Ground-tyrant, House Sparrow and the Black-chinned Siskin.

Unfortunately there is no indication that the authors have referred to any ornithological publications specifically describing the birds of the Falklands. The very poor representation of our bird records appears to follow from a political viewpoint, that the Falklands (Malvinas) are assumed to be part of Argentina and are therefore not worth considering as an entity with a distinct avifauna.

This book could be confusing to anyone who does not already know which species of birds breed in the Falkland Islands, or which species are regular non-breeding visitors or vagrants. It could easily lead to misidentifications and cannot be recommended for use in the Falkland Islands. For the visitor to the Southern South American mainland however it is an attractive, handy guide and may be worth a place in the luggage.

Robin W. Woods

Place Names of the Falkland Islands

by Richard Munro

Shackleton Scholarship Fund, 1998.

Available from Leif Pollard in Stanley, and c/o Falkland Islands Association, Douglas House, 16-18 Douglas St, London SW1P 4PB, UK. Price £5.50. 68 pages.
Published by Bluntisham Books.
ISBN 1 871999 09 X.

This is a fascinating little book, explaining in over 600 entries how places in the Falklands came by the names they have today. There are additional panels of information on particularly significant events or people, for example see box right:

Most names are, of course, inextricably linked to the history, geography, local characters, and indeed the wildlife: Albatross Island, Bird Island, Celery Island, Curlew Bay, Diddle Dee Island, Dotterel Point, Loggerduck Point and Elephant Bay/Beach/Island to select but a few. Don't be mislead however, a close study of the small print will reveal some surprises of very recent history: 'Elephant Canyon' does not relate to 'elephant seals' at all, but 'to refresh themselves whilst working at this borrow pit for the new Stanley-Darwin road in the 1980s, workers drank copious quantities of Carlsberg 'Elephant' beer!

I found a number of our own nature reserves included in the list. Motley Island is thought to be named 'after one of several officers of the name Mottley serving in the Royal Navy during the first half of the 19th century'. Sal Point nearby 'possibly comes from Spanish 'sal' - because there may formerly have been salt pans here'. Coffin Island is possibly from 'one of the many whaling captains'. I warmly recommend you buy this book to look up your own special Falkland places and to enjoy learning about the origins of their intriguing names.

Ann Brown

British Explorers

John Davis of the *Desire*, the first to record a sighting of the Islands in 1592, is commemorated in Davis Street, Stanley. Captain John Strong of the *Welfare* named the passage between the two main islands Falkland Sound after the Treasurer of the Navy whilst Captain John Byron, taking possession of the Islands in 1765, used the name for the whole archipelago. As well as Byron Heights he was instrumental in naming Fox Bay (after the local fox - warrah), Cape Dolphin (after his ship), Port Howard (Earl of Carlisle, the First Lord of the Treasury) and Port Egmont, after the Earl of Egmont, First Lord of the Admiralty. In 1833 Captain Robert Fitzroy, in command of HMS *Beagle*, called at the Islands. This visit is reflected in such names as Mount Kent, Port William, Hammond Cove and Darwin, after the eminent naturalist Charles Darwin who accompanied Fitzroy. A Lieutenant in the ship, Bartholomew Sulivan, later returned in command of HM Survey Ships *Arrow* (1838) and *Philomel* (1862) and settled in the Islands for a while building the original Sulivan House in Stanley. MacKinnon's Creek, Mounts Doyle and Richard, and Philimore Island were named at these times whilst his ships are remembered in many locations throughout the Islands.

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The Warrah is the newsletter of Falklands Conservation, published twice a year. The Editor (Ann Brown) welcomes letters and articles for publication.

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Hon Lewis Clifton

Offices:
UK: 1 Princes Avenue, Finchley, London N3 2DA.
Tel/Fax: 0181 343 0831
email: ABrown@falklands-nature.demon.co.uk
FI: PO Box 31, Stanley, Falkland Islands.
Tel: 500 22247
Fax: 500 22288.
Web Site:
http://www.falklands-nature.demon.co.uk

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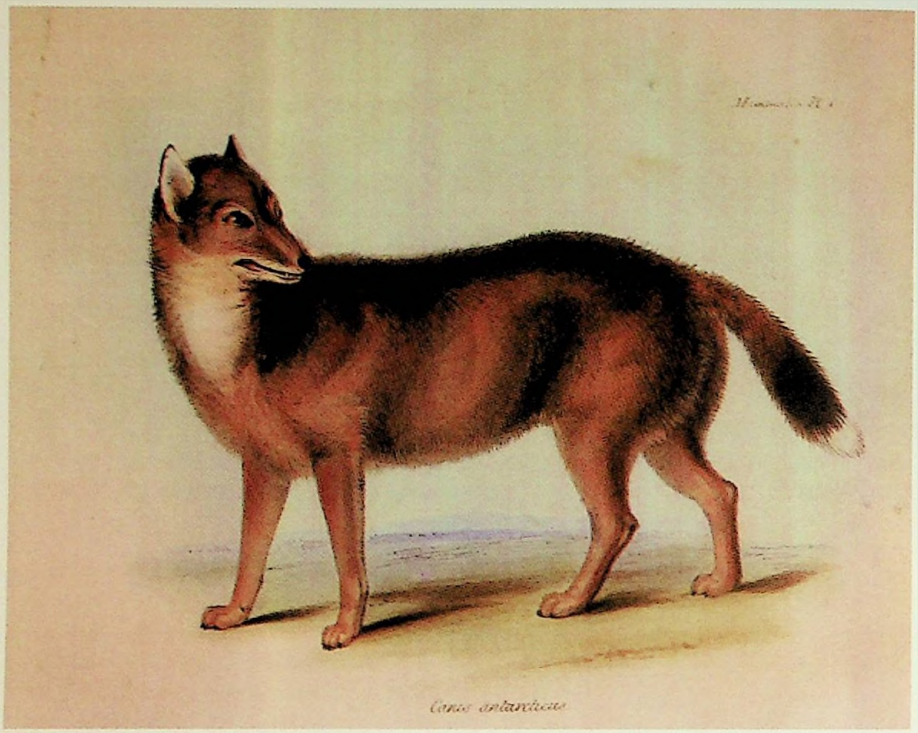


The Warrah, or Falkland Fox (Canis antarcticus)

This picture is reproduced by kind permission of Quentin Keynes, a direct descendent of Charles Darwin. We print it here to mark the first colour issue of our newsletter, named after the Warrah, which was the only endemic Falklands mammal. It is taken from a colour plate illustration in Darwin's Zoology of the Voyage of the Beagle. Darwin describes the animal as *'considerably larger than the common fox, and stouter in its proportions, and in fact, appears to be intermediate between the ordinary foxes and the wolves. They range over the whole island, but perhaps are most numerous near the coast; in the inland part they must subsist almost exclusively on the upland geese. These wolves do not go in packs; they wander about by day, but more commonly in the evening. They burrow holes and are generally very silent, except during the breeding season. I entertain no doubt that it is peculiar to this archipelago. It is found on both East and West Falkland.'*
This bold and inquisitive animal was never very numerous but, with the introduction of sheep, farmers backed by a Government bounty, were encouraged to hunt them. The last one was killed in 1876. We hope this publication will continue to play a small part in preventing any other Falkland wildlife following the same path to extinction.

Spreading the Word and Raising Funds

Fay Crofts, a UK member, writes about Falklands Experience:
In January the Falklands Experience 1998, led by Major Ronnie Spafford, spent 15 days exploring these enchanting Islands and soaking up their unique atmosphere. On 7th March 1998, Frank and Janet Schofield held a 'Falklands Experience Evening' at Kinstock School Hall, Oxfordshire.
The evening began with Frank's superb array of slides which concentrated on the 1982 Falklands War. Frank, having a keen and abiding interest in the Conflict, had wanted to see the battlefields for himself, and also to pay his respects to the fallen at the various and lovingly cared for memorials. After a short interval Janet showed an expertly edited video from the camcorder tape. The film captured everyday life on the Islands and the wonderful wildlife we saw. A raffle for Falklands Conservation raised a total of £67. The evening was enjoyed enormously by all and provided a marvellous insight to life on the Falklands and brought the Islands and their magical qualities to Oxfordshire.

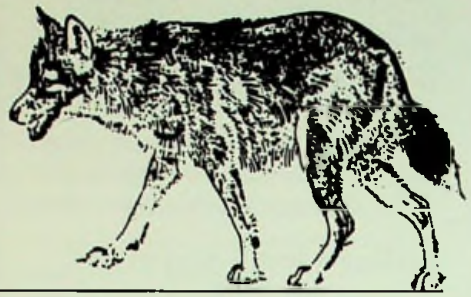
Penguin Appeal - Zoos

A special Penguin Week at Marwell Zoological Park has raised over £2,000 for Penguin Appeal. Visitors to a number of other UK zoos have also generously supported our work. These include Paradise Park, Southport Zoo and Conservation Trust, and the Cotswold Wildlife Park. Their contributions are much appreciated. We are also assisting Bristol Zoo's Cold Coasts project through provision of two of our penguin collecting boxes.

These Zoos all have a strong conservation policies and are members of the Federation of Zoological Gardens of Great Britain and Ireland, whose four main principles cover welfare, conservation, education and scientific studies. Penguin Appeal has worked constructively with the Federation for a number of years.
Assistance from members in promoting Falklands Conservation at penguin collections in the UK would be much appreciated. A list of all the Zoos where we have collecting boxes is available from the UK office.

the **WARRAH**

from Falklands Conservation April 1999 - Number 15



What Future for the Johnny Rook?

Tourists, including many birders, are amazed when they first encounter a Johnny Rook. They admire the handsome markings of the adults, the impudence of the immatures, their agility on the ground and in the air. As a large bird of prey, it is a powerful predator yet it is ridiculously tame and very vulnerable to persecution.

Johnny Rook (Phalcoboenus australis) in flight

Published courtesy of Kevin Schafer, winner of the Gerald Durrell Award for Endangered Species Photography, who joined Falklands Conservation as a Life member in February 1999.

In this Issue: **Seabird Monitoring 1998/99 – The FI Geological Map – Plant News – Visit to Outer and Double Islands – Work of the Environmental Planning Department – Seabird Mortality in Longline Fisheries**

What Future for the Johnny Rook?

In 1994 Birdlife International published *The World List of Threatened Birds* and gave the Johnny Rook Near-threatened status due to its restricted geographic distribution and small population. Falklands Conservation has recently concluded a two year survey on the status of this unusual bird. Robin Woods and Jeremy Smith report in this issue on the results.

Once a Very Common Bird

The Johnny Rook, or Striated Caracara *Phalcoboenus australis*, has been recognised as a very unusual bird of prey in the Falklands for two centuries. Charles Darwin visited Port Louis, East Falkland, in autumn 1833 and 1834. He was one of the first to report on the Johnny Rook's behaviour and wrote that it was 'exceedingly numerous', 'constantly haunted the neighbourhood of houses to pick up all kinds of offal', was 'extraordinarily tame and fearless' and 'very mischievous and inquisitive, quarrelsome and passionate'. Sheep were introduced and farming developed from about 1850 on East Falkland and 1867 on West Falkland. From February 1858 to December 1860, Captain Abbott of the Falkland Islands Detachment of Royal Marines travelled widely on East Falkland. His account (Woods & Woods 1997) of the Johnny Rook began with the statement, 'This is one of the commonest birds in East Falkland.' Abbott recorded that he visited North Camp (East Falkland) in December 1860 and, 'found at least 15 nests along the cliffs'.

Conflict with Sheep Farming leads to Decline

Less than 50 years later, in 1908, this intriguing bird was classified as a pest of sheep farming when it was included in an Ordinance for the Destruction of Birds of Prey. The FI Government agreed to pay bounties for Johnny Rooks killed and by 1910, Arthur Cobb, the Bleaker Island farm manager, wrote that it had decreased in numbers. In 1922, the Government Naturalist, James Erik Hamilton, wrote to FI Government that its numbers on East and West Falkland were very low because it had been subjected to 'a remorseless process of extermination' (Woods & Woods 1997). Hamilton pointed out to the FIG that ceasing the payment of bounties 'would remove from Government the liability to reproach from scientists that encouragement was given to the extermination of one of the ornaments of the local avifauna'. Hamilton also believed that 'the persistent plentifulness of the Upland Goose could be attributed at least in part to the diminution of the Johnny Rook and the senseless killing of hawks'.

Bounty payments ceased over 70 years ago, but the relationship between Johnny Rooks and sheep farming has remained controversial and large numbers were still being killed on the outer Jason Islands during the annual sheep-shearing visits in the 1960s.

Investigation on Status Initiated

There is now much international concern

Surveyors Ann Prior and Robin Woods on Steeple Jason, October 1997. Nine islands within the Jason Islands group together support about 250 pairs while Beauchêne Island and Bird Island are the two other most important breeding sites.
Photo: R. Woods

The survey confirmed that the more numerous breeding populations are mainly restricted to islands with considerable amounts of the native Tussac Grass *Parodiochloa flabellata*.

about bird species that are becoming rare or endangered through human activities. In November 1995, almost three-quarters of a century after Hamilton's warnings, the Islands' Legislative Council discussed the relationship between Johnny Rooks and sheep farming. It was agreed that Falklands Conservation should be asked to investigate the Islands' Striated Caracara population.

The Survey - 55 Islands Visited

Fieldwork started in the 1997-8 season with a team of three to four surveyors visiting about 30 islands to the west and northwest of West Falkland during five weeks in October and November 1997. Visits were made to the Bense Islands in January 1998. During three weeks from late October 1998, two surveyors landed on more than 20 islands, including Bird Island, the Ten Shilling Bay Islands, the Arch Islands and the Sea Lion Islands group. Altogether, 55 islands were surveyed, where populations of Johnny Rooks were known (or expected) to breed.

Breeding Population of 500 Pairs

In these two seasons, the nesting sites of almost 300 breeding pairs have been plotted on maps and located by using a Global Positioning System instrument while 70 more probable territories were also mapped. These figures and data from other sources for islands which were not visited due to lack of time or finances, suggest that the breeding population in the Falklands is probably no larger than about 500 pairs.

Information Collected on Prey, Behaviour and Nests

Detailed information on nest sites, nest materials and the behaviour of the pairs was collected and notes were taken on prey species. It was fascinating to observe behaviour at several sites where three adults each appeared to have an equal interest in the nest. At Bird Island, south of Port Stephens, a high density of breeding pairs was found and their main prey appeared to be Thin-billed Prions *Pachyptila belcheri*, nesting in thousands in burrows excavated in the soft peat below very dense Tussac. The detailed records made during the 1997-98 survey will be available to surveyors wishing to reassess the population in future.

How can we help Johnny Rooks survive?

This survey has shown that the Falkland population of about 500 pairs is now concentrated on remote, uninhabited islands when breeding. The main prey species are colonial seabirds. Non-breeding immatures tend to flock in autumn at settlements, particularly those at West Falkland, where they scavenge and take geese. Weak or sickly sheep and lambs are also inevitably attractive prey.

The survey methods developed and the data collected during the last two summer seasons will provide the basis for a programme of long term monitoring of the species. Such a programme is considered essential if the Islands are to fulfil their responsibility of ensuring the continued survival of species within the Islands (and very likely globally). In addition, a monitoring programme should include, or be supported by, research to further increase knowledge of the Johnny Rook's ecology and investigate its interactions with agriculture. The latter is of particular importance as continued persecution by landowners is apparantly one of the most serious threats to its long-term survival. Raising public awareness of the issues surrounding the Johnny Rook would also help considerably in promoting initiatives to protect the species in the future.

Johnny Rooks rely on the Falklands for their Future

Taking into account information from the extreme southern regions of Chile and Argentina, it is likely that the Falkland Islands contain the great majority of the world population. The human inhabitants of the Falklands therefore have an international responsibility to conserve this extremely unusual bird of prey.

Acknowledgements

This Survey would have been impossible without the local knowledge, seamanship and great support given by Michael and Jeanette Clarke, owners of the auxiliary ketch Penelope. Falklands Conservation is equally appreciative of the access allowed by landowners or their agents to privately owned islands.

Particular thanks are also due to the intrepid team of surveyors: Ann Prior, Jonathan Meiburg, Falkland Island Trustee Michael Morrison and UK Trustee Robin Woods (who also compiled the Survey data and fieldwork report).

References

Collar, N.J., Crosby, M.J. & Stattersfield, A.J. (1994) Birds to Watch 2, The World List of Threatened Birds. Cambridge, UK: BirdLife International.

Woods, R.W. & Smith, J. (1999) Survey of the distribution and abundance of the Striated Caracara (Johnny Rook) Phalcoboenus australis within the Falklands, 1997-1998; Report to Falklands Islands Government.

Woods, R.W. & Woods, A. (1997) Atlas of Breeding Birds of the Falkland Islands. Oswestry, Anthony Nelson.

Seabird Monitoring 1998-1999

Becky Ingham, Field/Science Officer, outlines results from the fourteenth year of the Falkland Islands Seabird Monitoring Programme

Sites Surveyed

Once again this season saw a high variation in the productivity of penguin colonies around the Islands. A wide geographic area was covered, using sites from all over East Falkland, north at Seal Bay, east at Volunteer Point, west at Fanning Head and the far south at Bull Point. Colonies were also studied from Port Stephens on West Falkland and two offshore islands – to the north west, Saunders Island, and to the south west New Island.

A Troubled Season for Gentoos?

Gentoo penguins had a variable season. Productivity ranged from 0.35 to 1.10 chicks per breeding pair. One of the most noticeable traits was the large number of birds that returned to the colonies but did not breed. The behaviour of these birds was very similar to those breeding and care needed to be taken when assessing the genuine number of breeding pairs at a site. Generally, figures for breeding success were lower than last year for this species. An unusually high mortality of Gentoo chicks was noted at Volunteer Point, but strangely limited to only one of the four Gentoo colonies here. Samples of faeces and dead chicks were collected and examined. The likely cause of death was found to be a high number of stones in the stomach, causing rupturing of the stomach walls. No explanation has been found for this as yet. Department of Agriculture veterinary scientists are still investigating.

Rockys are More Productive

Rockhopper penguins had a much more successful year, with two of the study colonies achieving over 1 chick per breeding pair. Although considered by some seabird biologists to be impossible, this has been regularly seen around the Islands. Next year the FISMP will focus in on this and monitor the phenomenon closely. Two nests at Saunders Island were even noted to have three eggs, two of which hatched healthy chicks - and both survived. More fish was seen in the diet of Rock hoppers than last year, mainly small juvenile Falkland herring, a local inshore species. Both Magellanic and Gentoo penguins appeared to be eating largely Nototheniid fish (Rock Cod) and large krill, which form aggregations around the Islands during summer.

Magellanic Survey Gets Underway

Magellanic penguins also had a relatively highly productive year, with birds at Gypsy Cove producing 1.49 chicks per breeding pair, and Volunteer Point 1.42 chicks per breeding pair. Several test areas were used to determine densities of penguin around the coastline. This work will be continued by determining the area of nests over the austral winter. By use of a hand-held GPS system. A correlation of the areas occupied and the density of nests should enable the Falklands population to be assessed accurately for the first time.

All the 98/99 Seabird Monitoring Data will be available in an annual report from the end of April, price £5.

Falklands Conservation are very grateful to Amerada Hess Ltd for the donation of 3 waterproof suits, 2 padded boiler suits, 3 waterproof jackets, a carry-all and some luminous overalls which were used during the course of this year's fieldwork programme. We would also like to thank all the land owners who gave us access to the penguin colonies including George and Jenny Smith, FIG Landholdings, Eric Goss, Peter Gilding, Tony Anderson, Tony Chater, Stephen Poole, David Pole-Evans and James McGhie.

The 1998 Beach Clean Up was held at Whalebone Cove on 12th December. Over 150 people turned up to lend a hand . There were opportunities to win prizes for guessing the weight of rubbish collected over two tons) and for enthusiastically filling bags! Once work was complete all those taking part were able to enjoy an excellent barbeque kindly prepared by the Scouts.

Photo: R Woods.

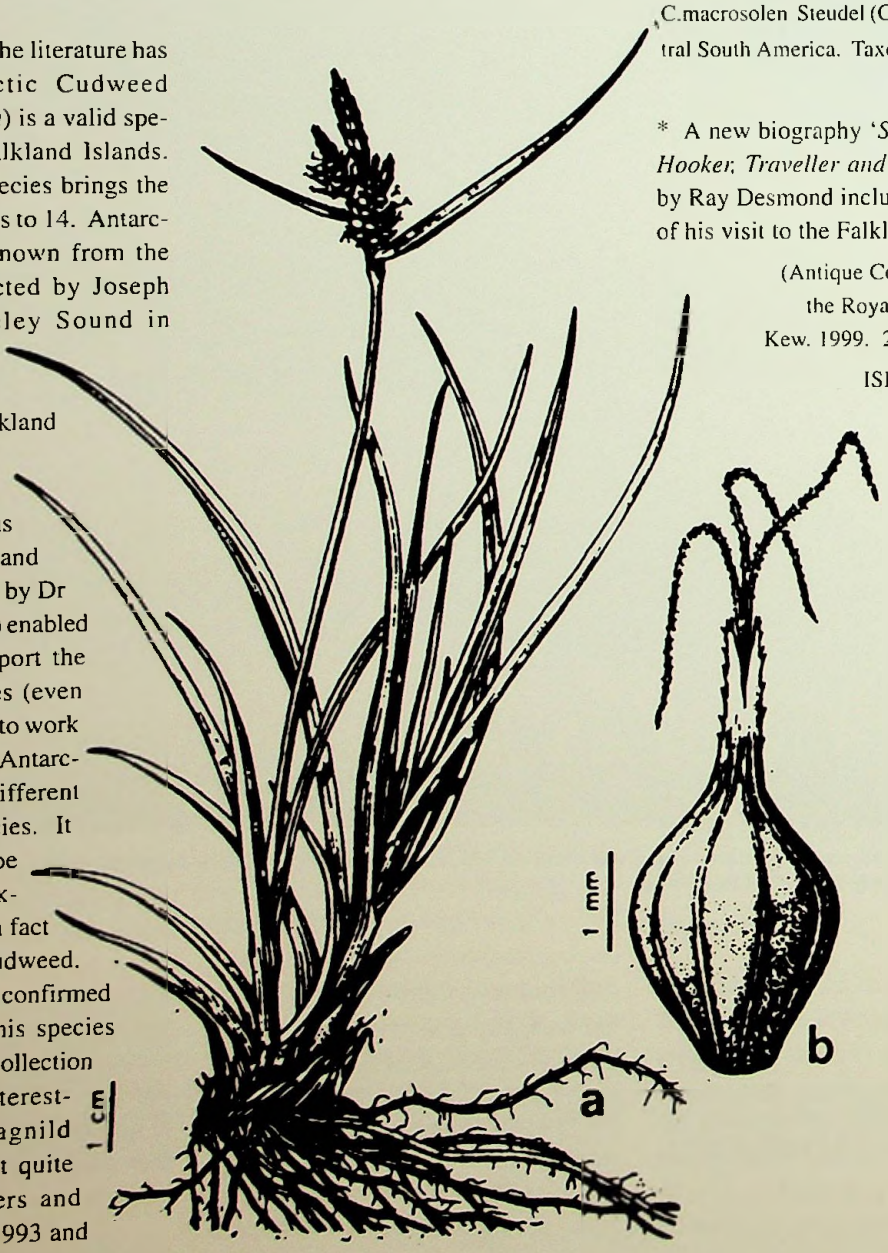
A New Native Plant for the Falkland Islands and a New Endemic

D Broughton and J McAdam

Research on sedges of South America by Gerald Wheeler of the University of Minnesota (Wheeler, 1988) has resulted in the identification of a 'new' native species for the Falkland Islands. This plant, *Carex barrosii* (suggested common name Barros Sedge), was identified from a herbarium specimen collected in the Roy Cove area of West Falkland which had been misidentified as *Carex acaulis* (Small Dusky Sedge). With the addition of this species the native flora of the Falkland Islands now stands at 169 species, with 13 being sedges.

Meanwhile, a survey of the literature has revealed that Antarctic Cudweed (*Gamochaeta antarctica*) is a valid species endemic to the Falkland Islands. The inclusion of this species brings the total number of endemics to 14. Antarctic Cudweed is only known from the plant originally collected by Joseph Hooker* near Berkeley Sound in 1847. It was briefly mentioned in David Moore's Flora of the Falkland Islands where it was suggested that this plant appeared to be a glabrous (hairless) form of Falkland Cudweed. Further work by Dr M Correa (Correa, 1971) enabled her to confidently support the existence of this species (even with only one specimen to work with). This was because Antarctic Cudweed was so different from other related species. It also turned out not to be closely related to Falkland Cudweed, being in fact closer to American Cudweed. Although there are no confirmed modern sightings of this species (this would require the collection of specimens) it is interesting to note that Ragnild Brännström recorded it quite frequently on Saunders and Pebble Islands during 1993 and 1994. However, as this species is so distinctive (it lacks the covering of downy hairs characteristic of all other Falkland Islands Cudweeds) these records are likely to be genuine.

These two species which have taken 11 and 28 years (50 and 152 years if you work from the point of their collection!) respectively to be 'discovered' in the literature illustrate just how much we still have to learn about the Falklands flora.



Sources

Correa, M.N. (1971) Flora Patagonia, Part VII: Compositae. Instituto Nacional de Technologia Agropecuaria, Buenos Aires.

Moore, D.M. (1968) The Vascular Flora of the Falkland Islands. British Antarctic Survey Scientific Reports No. 60. British Antarctic Survey, London.

Wheeler, G.A. (1988). The Distribution of Carex acaulis Urv., C. barrosii Nelmes, and C.macrosolen Steudel (Cyperaceae) in Austral South America. Taxon 37 (1): 127-131.

* A new biography '*Sir Joseph Dalton Hooker, Traveller and Plant Collector*' by Ray Desmond includes a description of his visit to the Falklands.

(Antique Collectors Club with the Royal Botanic Gardens, Kew. 1999. 286 pages. £29.50. ISBN 1 85149 305 0)

New Geological Maps of the Falkland Islands - and Origin of the Falklands Pebble

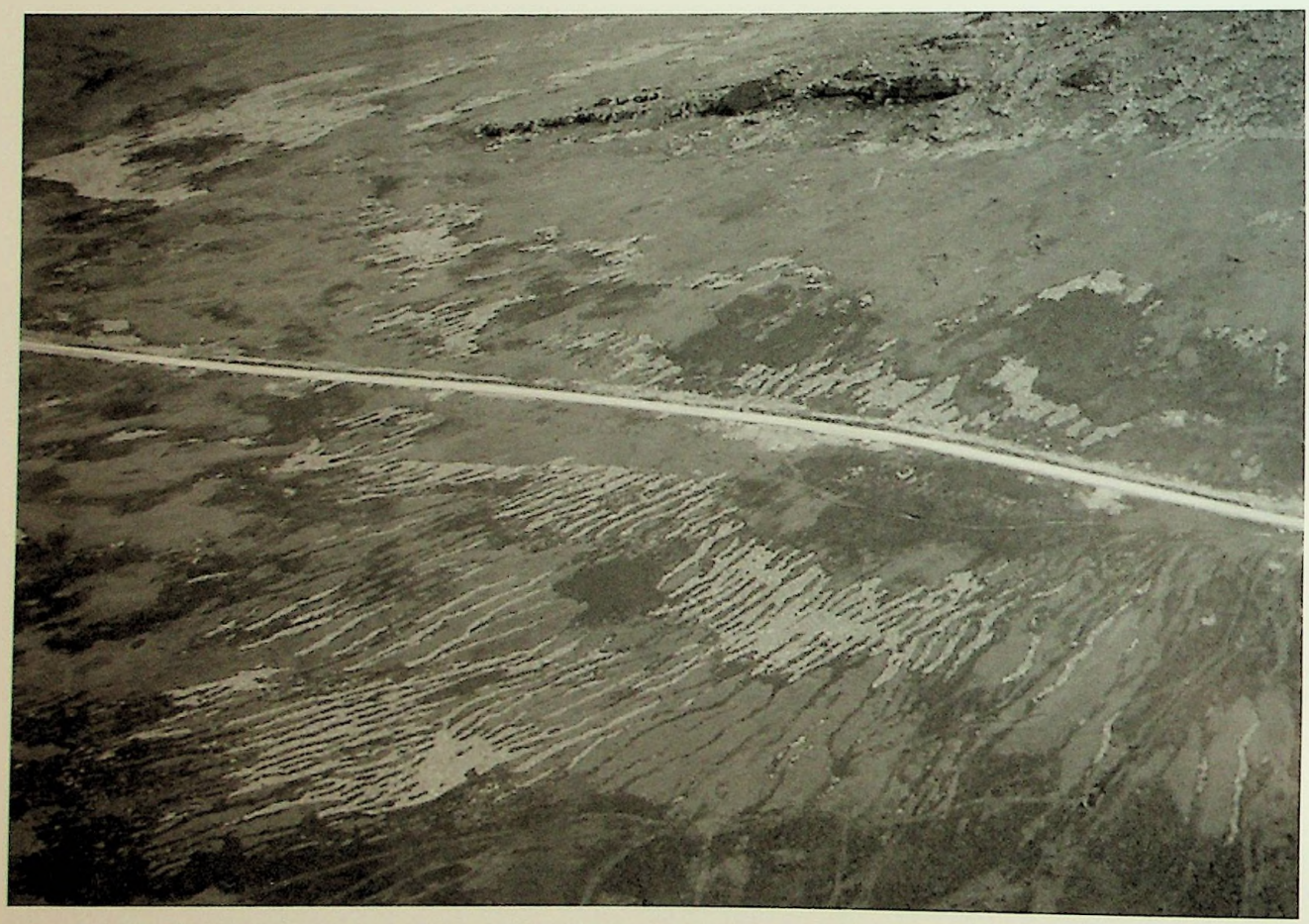
by Don Aldiss of the Bitish Geological Survey

New Maps will Lead to Better Understanding of the Falklands Environment

Landscape and vegetation are determined partly by climate and partly by the soil, and so by what lies beneath the soil. Newly published maps of the solid geology of the Falkland Islands show the distribution and structure of the various geological formations which make up the local bedrock. A reconnaissance geological map of the superficial deposits (including stone runs, peat, and wind-blown sand amongst other types) has also been produced (although not printed) – the first of its kind. Together with a descriptive report, these maps provide an authoritative framework for investigations of the geology of the Islands, and should contribute to a better understanding of their natural environment.

The Mapping Project

The maps and the report were produced during the Falkland Islands Geological Mapping Project (1996-1998) by Don Aldiss of the British Geological Survey and Emma Edwards, an Islander working for the Falkland Islands Government. Although a geological map of the Islands had existed since 1972, its deficiencies had become increasingly apparent and the Falkland Islands Government decided to fund its revision. With only two field seasons, two geologists were always going to be thinly spread over the 12,000 square kilometres of land. Fortunately, there is commonly a close relationship between the shape of the land and the geology that lies beneath it. Also, the Falkland Islands Government holds complete cover of aerial photographs for the Islands. Viewed stereoscopically, aerial photographs show a 3D image of the topography, which can then be interpreted in terms of the underlying geological formations. Fieldwork concentrated on understanding this relationship in typical areas and the correlation was then extrapolated across the intervening ground on the aerial photographs.



The most conspicuous products of the severe periglacial conditions which affected most of the Islands are the stone runs - such as these on East Falkland, shown here either side of the Mount Pleasant road.

Photo: A Brown.

Soil Types and Wind-blown Deposits

Soil type in the Islands seems to be more closely related to the superficial deposits than to the local bedrock geology. Several different processes were involved in the formation of these deposits. Some are fairly obvious, like peat development and sediment transport in streams. Wind erosion was also an important factor in some areas, such as the 'Lakeland' terrain of central West Falkland. It seems that many of the lakes formed in deflation hollows created when the wind removed soil and the fine-grained debris of weathered bedrock. This erosion is likely to have been far more active in the past, especially when the climate was dryer or colder, and so when water tables were lower and vegetation would have been less. Some wind-blown sands were carried off west-facing beaches.

Lasting Effects of the Ice Age

Deposits formed during repeated freezing and thawing of the ground during the last Ice Age are some of the most important elements of the Falklands landscape. There is some evidence for the previous existence of permafrost, indicating the likely severity of the past climate, although glaciers were small and confined to the three highest hill areas.

In addition to the unique stone runs, solifluction deposits which cover most of the rest of the high ground are also important. These are typically composed of impure sandy stony clay, which crept gradually down slopes of as little as 1¼ each time the ground thawed, eventually forming a layer several metres thick. This clay penetrated the fractures in the bedrock and now forms a very effective seal. Hence, although rainfall is not great, drainage is very poor. Not only is the ground boggy, but many individual ponds are effectively isolated from each other, from nearby water courses and from the bedrock. Consequently the water in adjacent ponds can have different chemical composition, and their ecology could be quite different.

Sea Levels

Changing sea level has also been important. There is evidence that at times during the last million years or so the sea level has been as much as 50 metres lower or 70 metres higher than at present. This occurred partly as the oceans expanded and shrank in response to global climate change but also because the Islands themselves have gradually been raised and lowered by regional earth movements. The most conspicuous product of these processes are the ancient marine erosion levels, which are seen as broad areas of gently sloping or undulating ground in the north of the Islands. These are most obvious on Pebble Island, where there are steep-sided hills which rise abruptly from the surrounding low-lying ground. The base of each hill was once at sea level, so Pebble Island would once have been made up of three much smaller islands. In places on these erosion levels there are marine deposits, including sand, shingle and some smooth clay. This clay probably has a similar effect to the solifluction deposits in sealing the bedrock and impeding drainage.

The 'Falkland Pebble' Mystery

A reconnaissance survey needs all the help it can get and we benefited from local geological studies carried out by university researchers and consultants. We were able to visit some of the key uninhabited islands, including Grand Jason, Steeple Jason, Keppel and Beauchêne, but had neither the time nor resources to visit many others. Therefore I was delighted to learn that Robin Woods was to undertake a survey of the Striated Caracara. Ian Strange had already demonstrated the value of opportunist geological observations made by an experienced naturalist. When I suggested that Robin and his team might help us, they took to the idea with enthusiasm and provided many valuable samples and photographs. Indeed, these sprang a few surprises, including an important clue to the likely origin of the famous 'Falklands pebbles', whose source has long been a mystery.

The Falklands pebbles are especially common on Pebble Island. They are composed of agate, which forms in association with volcanic rock, but no bedrock exposures of volcanic rock (or agate) are known on the Islands. Although we did find that pebbles of volcanic rock are widespread on the beaches, many could have been carried onshore in the guts of penguins or sea lion, and so might be very far-travelled. Then Robin observed that some of the beaches on South Fur Island are littered with pebbles of a distinctive, fine-grained black rock. The bedrock of South Fur is part of a dolerite sill, originally emplaced as a thick sheet of molten rock, and these dark pebbles turned out to be volcanic rocks which had been altered by very high temperature. Their concentrated presence on South Fur suggests that they are part of the local bedrock which was baked by the intrusion of the sill, and so that they are not far-travelled. We concluded from this and other clues that volcanic rocks occur offshore quite close to the north of the Islands – and that they are the most likely source of the pebbles of Pebble Island.

The new geological maps and the complementary report can be obtained from the Department of Mineral Resources, Stanley, or from the Sales Desk, British Geological Survey, Keyworth, Nottingham, NG12 5GG, UK, telephone 0115 936 3241.
(£20 + £2.50 postal charge if ordering from BGS).

Seabird Mortality in Longline Fisheries: A Global Problem Being Addressed

by John Cooper

Longline Fishing is Focus of Global Concern

In every ocean of the World, longline fishing vessels set and haul their lines, bringing aboard cod, hake, tuna, swordfish and Patagonian toothfish - and seabirds. Longlining has been commonly regarded as an 'environmentally friendly' fishing technique. Yet it now has the concerted attention of environmental NGOs such as the World Conservation Union (IUCN) and BirdLife International (BLI), as well as a number of intergovernmental organizations – the Food and Agriculture Organization of the United Nations (FAO) and the Commissions for the Conservation of Antarctic Marine Living Resources (CCAMLR) and Southern Bluefin Tuna (CCSBT).

Reports in the early 1990s from Australia of tens of thousands of albatrosses being killed in the Southern Ocean by tuna longliners first led to this attention. A resolution 'Incidental Mortality of Seabirds in Longline Fisheries' adopted by IUCN at its First World Conservation Congress in Montreal, Canada in October 1996 (officially supported by Falklands Conservation) led BirdLife International to inaugurate its Seabird Conservation Programme in 1997, with a global review of seabird mortality caused by longline fisheries as its first major project.

Longlines Cause Extensive Killing of Seabirds

Seabirds are being killed in large numbers in the North Atlantic, northeastern Pacific, South Atlantic and Southern Oceans. Only in the warm seas of the tropics, where seabirds are generally few in number, are reports of mortality few or lacking. In the Northern Hemisphere the species of greatest conservation concern is the Short-tailed Albatross *Phoebastria albatrus*, an IUCN Endangered species because of its very small population. U.S. regulations allow for fishery closures in the Gulf of Alaska and the Bering Sea if four birds are hooked within two years. In fact two birds have been killed on U.S. longlines in 1998, so the fishers are understandably worried and are working closely with government and NGOs towards altering their fishing practices to avoid killing any more birds in 1999 and placing their livelihoods in jeopardy.

Problems in the South Atlantic

In the Southern Hemisphere, apart from albatrosses such as the Black-browed Mollymauk *Thalassarche melanophrys*, large numbers of petrels are killed on hooks, especially the Whitechinned Petrel *Procellaria aequinoctialis*, by the hake fisheries off southern Africa and South America and for Patagonian toothfish off South America, in the vicinity of the Falklands and elsewhere in the Southern Ocean. A closely-related and only recently described species, the endemic Spectacled Petrel *P. conspicillata* of Inaccessible Island in the South Atlantic, has an estimated population of only about a thousand breeding pairs. The hundreds that are thought to be killed annually by longliners off Brazil suggest this Endangered species is in grave danger.

Research into Mitigation Methods

In both hemispheres seabird mortality has encouraged research into mitigation methods.

Early work was conducted in Australia, pioneered by Nigel Brothers of the Tasmanian Parks & Wildlife Service. Several longlining nations are now experimenting with underwater-setting devices which have been designed to keep baited hooks out of sight of birds. Since every hooked bird is one less fish potentially caught (and many baits are taken by birds without themselves becoming hooked) fishers should be quick to see the economic advantages of reducing bird bycatch.

In 1997 the FAO's Committee on Fisheries (COFI) agreed to hold a consultation on Reduction of Incidental Catch of Seabirds in Longline Fisheries. A Seabird Technical Working Group drafted an International Plan of Action in Tokyo, Japan in March 1998 for adoption by COFI in February 1999. The voluntary IPOA-SEABIRDS will require longline fishing nations adopting it to practice mitigation methods and to report on progress to the FAO in 2002. Three members of the working group, Nigel Brothers, John Cooper and Svein Lokkeborg, have written a monograph for the FAO that describes longline fishing and fisheries, seabird bycatch on a global scale and recommended mitigation measures. The FAO intends to publish the review in both English and Spanish texts in early 1999.

Another exciting development are plans to negotiate a 'Range State Agreement' for albatrosses under the terms of the Bonn Convention on Highly Migratory Species of Wild Animals. Such an Agreement, in which the Valdivia Group of Temperate Southern hemisphere Countries on the Environment is taking the lead, would require signatory nations to improve the conservation status of their breeding albatrosses, and so further con-

Mitigation measures (such as weighting lines to sink more quicklty, setting lines only at night when few seabirds forage and deploying bird-scaring streamer lines as shown here in Falkland waters) shouyld be readily adopted by longline fisheries keen to retain their clean image. *Photo*: A. Black

trol of longliner-caused mortality would be expected.

Concerns about Pirate Fishing

Although the above activities should go a long way to reducing seabird mortality from longline fisheries, there remains one area of serious concern: pirate fishing. In the Southern Ocean especially, many illegal and unregulated longliners, often sailing under flags of convenience, have greatly overfished Patagonian Toothfish stocks, killing huge numbers of seabirds in the process. Only concerted efforts through international agreements such as CCAMLR, with penalties imposed at home and unloading ports, as well as spy satellites tracking and naval patrols arresting miscreant vessels, will result in longline fisheries being managed sustainably and in far fewer birds being killed.

Towards a Safe Future for Seabirds

With the collaboration of governments, international organizations, environmental NGOs and the fishing industry it is hoped that come the next millenium, longlining can once more be regarded as an environmentally friendly fishing technique, and the World's seabirds will be able to fly their oceans without risk of being hooked.

John Cooper is the co-ordinator of BirdLife International's Seabird Conservation Programme based in the Avian Demography Unit, University of Cape Town, South Africa. Information on the Programme can be found on its web site: www.uct.ac.za/depts/stats/adu/seabirds.

The waters of the Falkland Islands are subject to a small fishery for Patagonian toothfish, with two licensed longline fishery vessels. Both licenses are held by Consolidated Fisheries Limited, a company which has consistently shown a responsible attitude to the problems of seabird incidental mortality. In recent years they have assisted in the research of seabird specialists and the results of such work have been used to reduce seabird mortality rates. However, this fishery does represent a small risk to seabirds breeding in the Falkland Islands. Black-browed albatrosses *Thalassache melanophris* are the most vulnerable species as they often attempt to feed on baited hooks as they leave the vessel. Although the number of longliners operating in Falkland Island waters is low, native seabirds are unlikely to be restricted to these waters. Equally, the waters of the Falkland Islands are visited by many species of seabirds that don't breed in the Islands. The problem of seabird/longliner interactions is truly international.

As a Representative of BirdLife International and a member of the World Conservation Union, Falklands Conservation is contributing to the efforts to regulate longline fisheries and reduce the slaughter of thousands of the world's seabirds.

The Work of the Environmental Planning Department

by Tom Eggling

The Environmental Planning Department (EPD) was set up in 1997 and is a small branch of the Secretariat of the Falkland Islands Government (FIG). It is headed by Tom Eggeling, a planning officer with a keen interest in natural history. He is ably assisted by his deputy, Sinead Doherty, who is an environmental scientist, and by his secretary, Paula Newell.

Functions of the Department

The Department is mainly concerned with the use and apportionment of land for development (development planning) and the guidance and control of development (development control), but also includes conservation and protection of the natural and built environment (environmental conservation). This is an area of work which is likely to assume greater importance once the new environmental legislation has been enacted, and National Nature Reserves and wetland sites of international importance (under the Ramsar Convention) are designated, management plans drawn up and agreements concluded.

Designation of Ramsar Sites

FIG recognises the national and international importance of its wildlife habitats and communities, and is committed to their conservation. However, new environmental legislation is required if the wildlife communities in the Falklands are to be afforded adequate protection. For instance, candidate sites for designation under the Ramsar Convention as wetland sites of international importance have been identified by Falklands Conservation but cannot be designated until they are given adequate protection (i.e. National Nature Reserve status). The Department will shortly be recommending to ExCo that, with the agreement of the landowners concerned, at least four of those sites (Pebble Island East, Lake Sulivan/R Doyle, Bertha's Beach and Sea Lion Island) are submitted for designation as soon as they have been given statutory protection.

Overseeing New Wildlife Bill

The Conservation of Wildlife and Nature Bill has been drafted by the Attorney General to provide that protection. The Bill has been advertised widely and a number of representations have been submitted for consideration by the The Environment Committee. A report, recommending that the Bill be amended and forwarded to Legislative Council, is now being prepared for the Executive Council (ExCo).

Site Rehabilitation at Albemarle, West Falkland

Over the last two years, the EPD has been responsible for the incineration of heavy fuel oil and limited site rehabilitation around the former sealing station at Albemarle, West Falkland. In summer, when the oil becomes warm enough to run, it has been seeping from the old storage tank and over the years has contaminated the ground and foreshore. All the oil in the storage tank has now been burnt and the remaining oily water decanted into 40-gallon drums for final disposal. By the end of April, all the scrap metal and other rubbish will have been landfilled and the storage tank dismantled for re-use or disposal.

Habitat Restoration at Cape Pembroke

The Department has also been working closely with Falklands Conservation on a Management Plan for Cape Pembroke. Under the Military Aid to Civil Communities (MACC) scheme, large areas of damaged sand dunes at Yorke Bay will be fenced off to prevent access, allow sand to accumulate and encourage the re-establishment of tussac grass. Limited sand extraction will continue in other areas but will be closely monitored. The Deparment of Agriculture has established a number of experimental plots to ascertain the best means of encouraging re-vegetation of eroded areas, and the results of this work will be used by the EPD to further increase the conservation value of the site.

Environmental Forum and Committee

To address early concerns about the potential environmental impacts of oil-related activities in offshore waters around the Falkland Islands, the Falklands Environmental Task Group (FENTAG) was established in 1994 to provide advice to the oil management team on environmental matters. In 1997, the Falkland Islands Exploration and Production Environmental Forum (FIEPEF) replaced it. The Forum provides a mechanism whereby representatives from the oil industry, Government and other interested parties can come together to discuss measures to protect the environment from oil-related activities or proposals for ongoing environmental baseline survey work.

An Environmental Committee has also been established to consider, discuss and make recommendations to ExCo on a wide variety of environmental issues. Recommendations from FIEPEF are channelled to ExCo via the Environmental Committee, which has a much wider remit to consider such things as national parks, marine and terrestrial conservation, waste management and disposal, environmental pollution and ongoing environmental baseline survey or research work.

The EPD is represented on and provides the secretariat for both the Forum and the Environmental Committee.

The Environmental Studies Budget

The Department also manages or supervises environmental baseline surveys and research sponsored by FIG under its Environmental Studies Budget.

Over the four-year period 1998–2001, approximately £500,000 will be provided by FIG to fund environmental baseline surveys and research. The British Antarctic Survey has been contracted to undertake research into the foraging range of Black-browed Albatrosses from breeding colonies on Saunders Island. Preliminary results highlight the importance of the northern part of Falkland Sound as a feeding area and complement data collected from the Seabirds at Sea Survey. Funding for the second year of this Survey is to be provided by FIG to Falklands Conservation, working with a UK Joint Nature Conservation Committee Team on this Project.

A Key Role to Play

The results from these and future studies will provide a baseline for assessing the impact of commercial fisheries and oil-related activities around the Falkland Islands and for addressing other environmental concerns. A start has been made but a lot more work is required. The Department's role is a challenging and wide ranging one with a crucial and important part to play in the environmental future of these Islands.

Book Review

A Guide to the Birds and Mammals of Coastal Patagonia

by Graham Harris

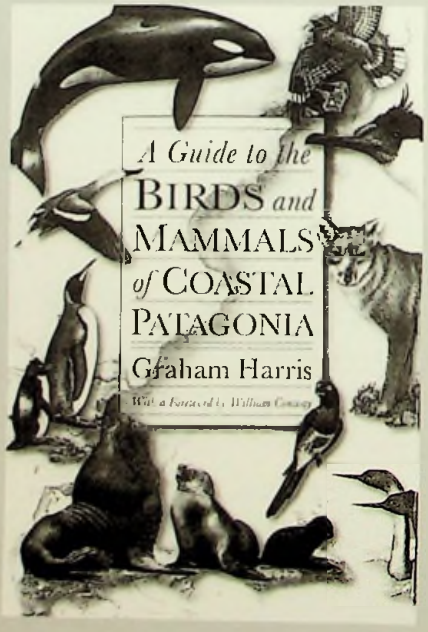
Princeton University Press, 1998. 231 pages. ISBN 0 69 105831 8. £45.

This is a beautifully produced and authoritative field guide to the birds and mammals of a part of Argentina that is relatively little known but of global importance for wildlife. It also has close biogeographic affinity to the Falklands. It treats 185 bird species (including two-thirds of the species which breed in the Falklands and almost all of the species which visit or are vagrant there) and 61 mammal species, 28 of which are marine mammals.

For a long time there has been little information readily available on the birds and mammals of Patagonia. This book comprehensively covers the mammal and bird faunas of a region stretching from just north of Peninsula Valdez (the region's premier wildlife site) to the Straits of Magellan. There are many spectacular concentrations of wildlife in this region, particularly seabirds; one species, the white-headed steamer duck, is confined to the area. In general the seabirds and marine mammals and the landbirds of the Patagonian grasslands have great similarities to those found in the Falklands.

This book provides a superb, fully illustrated (with colour plates for all species and line drawings showing many behaviours) guide, enabling visitors to identify all the birds and mammals of the region. Graham Harris should be warmly congratulated on this achievement. He is uniquely qualified to have produced this book, as a life long resident of the region, one of its foremost naturalists (and President of its equivalent of Falklands Conservation, the Fundacion Patagonia Natural) and an excellent artist. For many of the birds – and most of the mammals (including regional specialities such as the mara, tuco-tuco and Magellanic mouse-opossum and various armadillos and weasels) these are the best illustrations yet published. The brief text accounts for each species are accurate and informative, though many species (especially the mammals) remain little known and rarely seen. The maps are generally excellent but the Falkland Island range of quite a few species has been omitted (eg black-necked swan, red-backed hawk, brown-hooded gull, dark-faced ground tyrant, black-throated finch). Nevertheless these small errors should not detract from the achievement of the book. Refreshingly treating birds and mammals together, describing and illustrating them to such a high standard, it will be the leading field guide for a long time. It will surely encourage, stimulate and satisfy many more tourists and naturalists to visit, enjoy and help protect the unique wildlife of this spectacular region.

Review by Professor John Croxall who after six years as Chairman of Falklands Conservation Trustees handed over this role to Major Ronnie Spafford at the AGM last November. John continues to serve as a UK Trustee.



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Offices:
UK: 1 Princes Avenue, Finchley. London N3 2DA.
Tel/Fax: 0181 343 0831
email: ABrown@falklands-nature.demon.co.uk
FI: PO Box 26, Stanley. Falkland Islands.
Tel: 500 22247
Fax: 500 22288.
email:conservation@horizon.co.fk
Web Site:
http://www.falklands-nature.demon.co.uk

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Update on Outer and Double Islands

Outer and Double Islands were purchased as nature reserves by Falklands Conservation in early 1998, largely with donations from members. On 30th October 1998 they were visited by Michael Morrison and Robin Woods as part of the second season's work on the Johnny Rook Survey. Robin Woods reports here on what they found.

Double Island, with an approximate area of 9ha is in the eastern margin of Queen Charlotte Bay. It consists of two large hummocks, fairly densely covered in tussac grass up to a height of at least 2m, which are joined by a low sandy ridge. Ten sea lions were seen including one bull on the sand beach area. Twenty three bird species were recorded, of which 13 were probably breeding. These included Ruddy-headed Goose, Falkland Steamer Duck, Magellanic Penguin, Kelp Goose, Magellanic Oystercatcher, Blackish Oystercatcher, and Dark-faced Ground-tyrant. A flock of about 100 South American terns were observed fishing along an offshore reef, and some 70 Dolphin Gulls on the sandy beach where we found the wing of a Thin-billed Prion. A Johnny Rook, a second year bird, was present and it followed us to Outer Island.

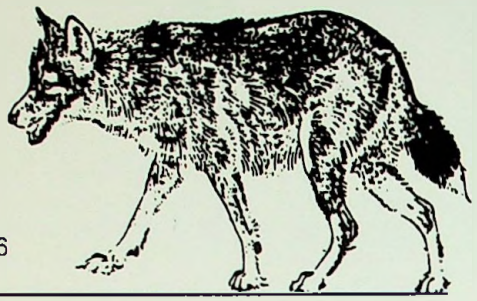
Outer Island lies only 250m to the west of the westward-projecting reef of Double Island. It covers approximately 20ha and carried some taller and more dense tussac than Double Island. The tussac in the centre of the Island had been flattened and well-used by sea lions in many places, though only four young ones were seen on the eastern shore. An ancient cow's skull was found suggesting former usage for fattening beef (a common use of tussac islands in the past). Twenty four bird species were recorded here. In addition to those on Double Island, a single Gentoo Penguin was seen preening on the beach rocks, a colony of about 200 pairs of Rock Shags were discovered on the north-western cliffs, a Crested Caracara was heard calling at the southern point, and a Falkland Thrush singing on the east-facing slope.

These two Islands carry good stands of mature, and in places very dense, tussac grass. Sea lions use both Islands, with apparently far more on Outer Island. Outer Island had a larger and less disturbed flora than Double Island. The endemic Falkland Cudweed was found growing here, and ten of the 16 species identified were native plants. The extreme shortage of songbirds however, with no Black-throated Finches, Cobb's Wrens, Long-tailed Meadowlarks or Tussacbirds on either island was most noticeable. Unfortunately, both islands are infested with rats. Whilst Falklands Conservation as owners can protect these islands from herbivores, their conservation status would be greatly enhanced if the rats could be eradicated. How we can undertake a project to do this is now being investigated.

Photo: HRH The Prince of Wales on his recent visit to the Islands talking to Conservation Officer Jeremy Smith and Field/Science Officer Becky Ingham in front of a Falklands Conservation display at the Department of Agriculture.

the **WARRAH**

from Falklands Conservation November 1999 – Number 16



Surveys At Sea Advance Knowledge of Falklands Marine Life

Since February 1998 the South West Atlantic Seabirds at Sea Team, under contract to Falklands Conservation, has travelled over 50,000 kilometres in the waters around the Falkland Islands. It has collected more than 100,000 records of more than a quarter of a million seabirds of 57 species and over 4,000 records of marine mammals of 17 species. The Team of three intrepid surveyors, who have been observing at sea in all months and weathers of the year, report here on the results of their first year.

Peale's dolphin is found only around the southern tip of South America and the Falkland Islands. Up to September 1999 the Team has sighted it on 607 occasions recording 1,846 animals. *Photo: R White*

In this Issue: WATCH Group Launched - New Wildfowl Stamps - Update on Johnny Rook - Our Five Year Plan - Overseas Territories Conservation Forum

Off-Shore Wildlife Mapped for the First Time

Survey results have been used to map dispersion patterns of all seabird and marine mammal species in the waters of the Falkland Islands for the first time. A significant part of the work has been computer coding this data and maintaining the resulting database. However, after just 12 months of survey work the results need to be interpreted with caution, as it is possible that observations made in 1998/99 may not be typical. Future survey work will attempt to determine how representative these results are.

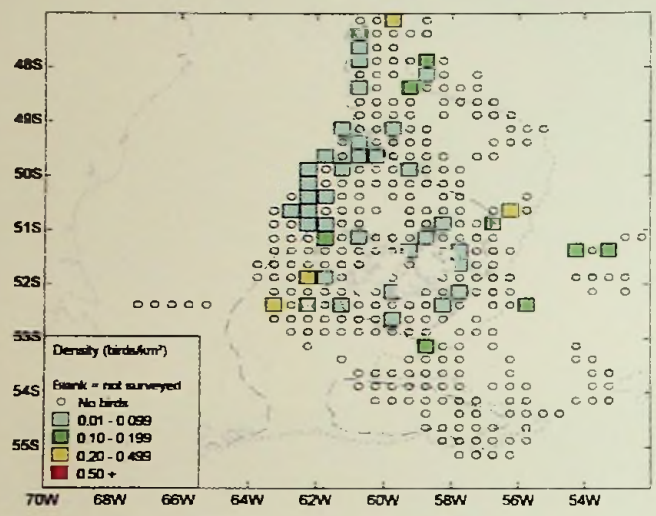


Figure 1: Rockhopper Penguin Dispersion, April – September.

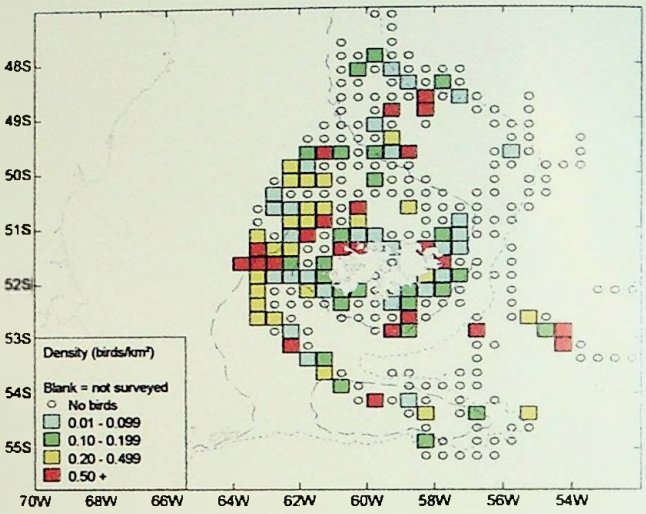


Figure 2: Rockhopper Penguin Dispersion, October – January.

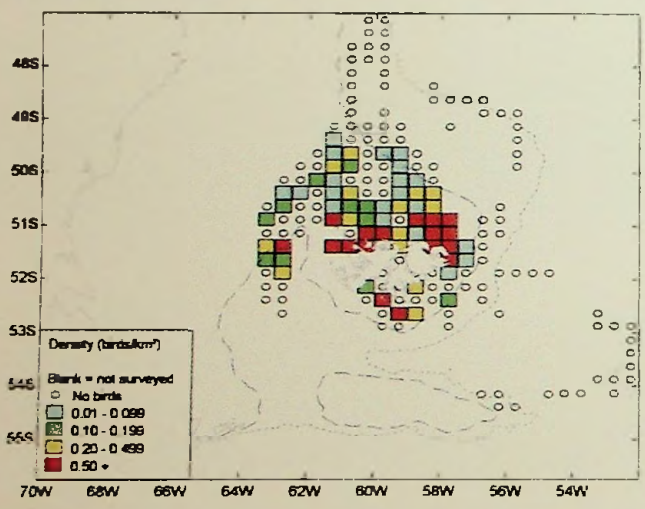


Figure 3: Rockhopper Penguin Dispersion, February – March

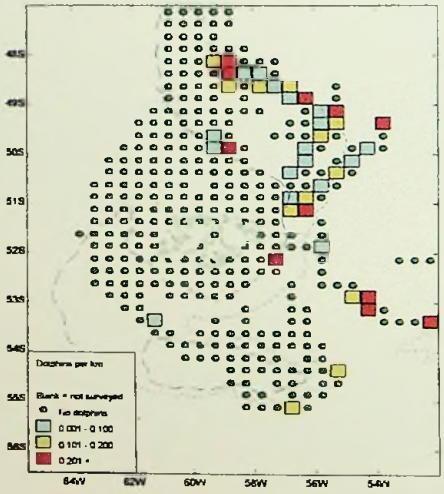


Figure 4: Hourglass Dolphin Dispersion, September – March.

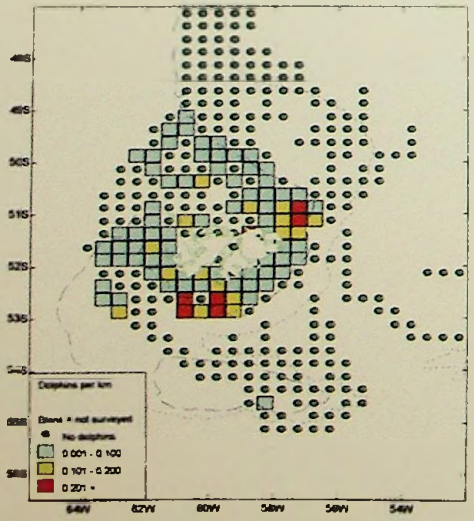


Figure 5: Peale's Dolphin Dispersion, all months.

Survey Methods

The survey method is the same as that developed for north-west European waters (Tasker *et al.* 1984; Webb and Durinck, 1992). An observer on a vessel with a known position, heading and speed counts all birds in a 300 metre wide strip – the transect – on one side of the vessel. Flying birds are sampled using a 'snapshot' technique, the frequency of which varies depending on the speed of the vessel and the range at which flying birds are detected. The results are used to produce distribution maps using densities calculated as the number of 'in transect' birds per km^2 of sea surveyed. Results can be summarised for any given area, the standard area used being one quarter International Council for the Exploration of the Sea (ICES) rectangle (15° latitude by 30° longitude).

Distribution of Rockhopper Penguins

Data from different months are usually amalgamated to depict dispersion in seasons that have some biological meaning. For example, Rockhopper penguins *Eudyptes chrysocome* are widespread at low densities in the non-breeding season, between April and September, with most records to the north and west of the Islands and few birds present in inshore waters (*Figure 1*). In the early part of the breeding season, October to January, the number of Rockhopper penguins increases, with high densities of birds recorded patchily in inshore waters, Patagonian Shelf waters and deeper oceanic waters (*Figure 2*). Later in the breeding season, February and March, Rockhopper penguins show a more inshore distribution with fewer birds present in deeper oceanic water and high densities widespread in inshore waters (*Figure 3*).

Marine Mammal Distribution

The distribution of marine mammals is also noteworthy. Clear differences between Peale's dolphin *Lagenorhynchus australis* and the Hourglass dolphin *Lagenorhynchus cruciger* were identified. Hourglass dolphins were recorded only during the summer months and only, in waters deeper than 200 metres (*Figure 4*). By contrast, Peale's dolphins occurred in all months and only in the shallower waters of the Patagonian Shelf or on the continental shelf slope (*Figure 5*). The two species were only rarely seen in the same area and were never recorded together.

Survey Continues for a Second Year

The Joint Nature Conservation Committee remains under contract to Falklands Conservation for a second year. The first year's funding for the Survey came from a consortium of oil companies (FOSA) operating the licence blocks to the north of the Islands. The Falkland Islands Government (FIG) has stepped in to provide the second year of funding. The majority of work is being conducted from the Fishery Patrol Vessels of the FIG Fisheries Department, the MVs *Criscilla* and *Dorada*.

Information is Vital to Ensure Adequate Protection

A sound knowledge of the at-sea dispersion pattern of Rockhopper penguins and other seabirds and marine mammals is a vital part of the information required to ensure that marine life in the waters of the Falkland Islands is adequately protected. Together with the Falkland Islands Seabird Monitoring Programme (eg Ingham 1998) and satellite tracking work (eg. Putz *et al.* 1998) the full database will form the basis of conservation advice aimed at minimising the impact of human activities, such as fishing and hydrocarbon exploration. The results can also be incorporated into oil spill response plans enabling an informed reaction and an appropriate use of resources to deal with any threat posed to seabirds by surface pollution.

Surveys at Sea Report

A report covering the first 12 months' survey work is soon to be published. *Seabird and Marine Mammal Dispersion in the Waters of the Falkland Islands* (White *et al*) will be obtainable from Falklands Conservation (price on application).

References

Ingham, R J. 1998. *A Review of the Falkland Islands Seabird Monitoring Programme 1986/1998*. Falklands Conservation, Stanley.

Putz K, Ingham R J and Smith J G. 1998. *Satellite Tracking of the Winter Migration of Rockhopper Penguins Breeding in the Falkland Islands.* Falklands Conservation, Stanley.

Smith, J. 1998. *Search for Seabirds Begins*. Warrah 13. Falklands Conservation.

Tasker M L, Jones P H, Dixon T J, and Blake B F. 1984. *Counting Seabirds at Sea from Ships: A Review of Methods Employed and a Suggestion for a Standardised Approach*. Auk 101: 567–577.

Webb A and Durinck J. 1992. Counting Birds from Ship. In: *Manual for Aeroplane and Ship Surveys of Waterfowl and Seabirds*, ed. by J Komdeur, J Bertelsen and G Cracknell, 24-37. IWRB Special Publication No. 19 Slimbridge.

White RW, Reid JB, Black AD and Gillon KW. In press. *Seabird and Marine Mammal Dispersion in the Waters of the Falkland Islands*, February 1998–January 1999. JNCC, Peterborough.

Richard W White, Keith W Gillon and Andrew D Black,

PO Box 705,

Stanley,

Falkland Islands.

Tel: + 500 22792; Fax: +500 22791

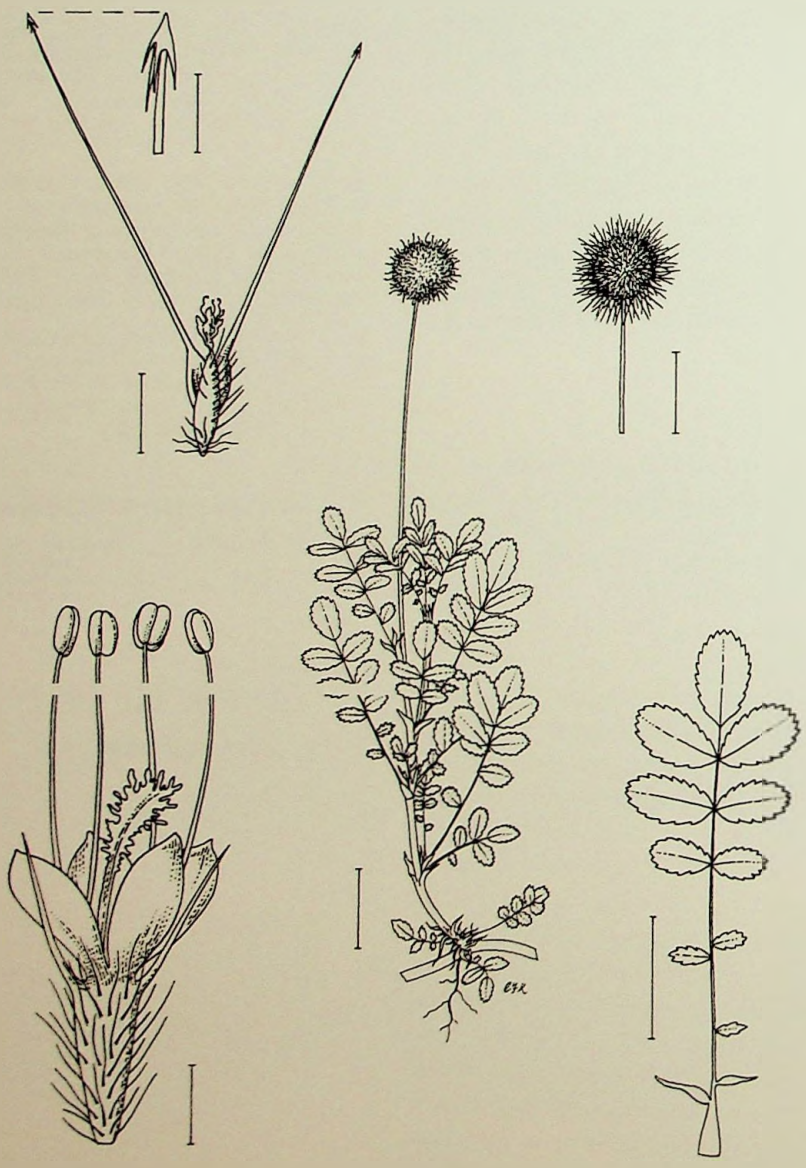
Email: seabirds@horizon.co.fk

Flowering Plants of the Falkland Islands

A second edition of the Native Plant Survey Guide is in the final stages of production and should be published by the end of the year. Robin Woods has put in an enormous amount of time and energy to produce an easy to follow text for non-botanists ensuring that anyone with a bit of time and interest can use this enlarged guide and contribute to a major project recording the Islands' flora. Christabel King has produced a further collection of stunning botanical drawings for all additional species.

In 1998 Falklands Conservation began a project to record the location of the plants of the Falkland Islands with the production of a small ring-bound booklet. This year, the text has been revised, a further twenty plants have been included and a glossary of botanical terms has been added. In this new edition, 13 species are endemic plants not found naturally anywhere else in the world, 32 species grow wild in the Falklands and elsewhere, and one was introduced, almost certainly by accident, many years ago.

The Patagonian Hawkweed (*Hieracium patagonicum*) is one of two hawkweeds in the new guide. It is native to the Falklands, but found only in low lying coastal districts.



The Oval-leaved Prickly Burr (*Acaena ovalifolia*) is a rare plant with records from as far apart as West Point Island and Tumbledown Mountain. However it may be more abundant than the few records suggest.

With radical changes in access to sites that were previously very remote and rarely visited, and developments in agriculture and tourism, the need to identify areas of high botanical interest is increasing. It is therefore important that these endemic, interesting and potentially useful Falkland plants are discovered and recorded.

Our Plant Survey project has grown in importance since 1998. Jim McAdam's success in obtaining funding under the Darwin Initiative for a plant recording and computer-based information gathering project means that any records collected can now be entered on the Geographic Information System database being used by Falklands Conservation in Stanley.

We expect the new edition to be as popular as the first. We hope it will encourage many Islanders and visitors to discover more about the beautiful plants of the Falklands and help us to protect them.

New Falkland Wildfowl Stamps

A set of stamps, issued in Stanley on 9 September 1999, attractively depict drawings by Ian Strange of six of the Islands' wild ducks. They are reproduced below with comment on each bird by Robin Woods

9p — Chiloe Wigeon *Anas sibilatrix*

Uncommon but widely distributed in the Falklands, this distinctive duck also occurs in much of Argentina and the southern half of Chile. It seems to occur more frequently where wetlands are extensive and, unlike other Falkland ducks, it grazes on short grasses near ponds.

Crested Duck *Anas (Lophonetta) specularioides* — 17p

This is one of the more numerous and widespread ducks around the coasts of the Falklands and it may also be seen on freshwater ponds near the sea. It is famed for its potentially long breeding season as ducklings have been seen in every month between July and May.

30p — Brown Pintail *Anas georgica spinicauda*

Better known as Yellow-billed Pintail, it is thinly distributed in the Falklands and seems highly dependent on the few wetland areas. Most of these sites with lakes or large freshwater ponds are now under consideration for declaration as protected lands under the terms of the RAMSAR.

Silver Teal *Anas versicolor* — 35p

A duck that is particularly adapted to freshwater wetlands with emergent vegetation (rushes, Water-milfoil), it tends to be shy of humans and usually occurs in pairs, sometimes in small flocks in winter. Apparently sedentary in the Falklands, it could be a local race but detailed studies of its behaviour and characteristics have yet to be made.

40p — Yellow-billed Teal *Anas flavirostris*

Commonly known as simply 'Teal' or 'Speckled Teal', the Falkland population of this duck, which is widespread in South America, is only a small fraction of the world population. Though classed as a game bird for over two centuries, it has remained fairly common and is often remarkably tame.

Falkland Flightless Steamer Duck *Tachyeres brachypterus* — 65p

An endemic species, known locally as the Logger, it is primarily a bird of the coastal waters, widely distributed and familiar to residents at all the settlements. In Stanley, several pairs defend their chosen stretches of the foreshore vigorously against adjacent pairs and any other intruders. Up to twelve ducklings in a brood may be seen from the sea wall, but they rapidly fall prey to marauding Kelp Gulls or Giant Petrels. Two other species of Flightless Steamer Duck occur in southern South America.

A mint set (£1.96) and First Day Cover (£2.70) are available from the Philatelic Bureau, Stanley, or mint set only (£2.84) from Sovereign Stamps, PO Box 123, Sutton, Surrey SM1 4WH.

Update on the Johnny Rook

Intertidal feeding by Bill Merilees

Following a visit to West Point Island in February 1999 as one of the lecturers on the World Discoverer, the Canadian naturalist Bill Merilees has sent some interesting observations on the feeding habits of the Striated Caracara (Johnny Rook).

We arrived at West Point early in the afternoon and walked to the Rockhopper Penguin and Black-browed Albatross colonies at Devil's Nose and back. During this time the tide at our landing site (the Napier farm) had dropped, possibly 1.5 metres, exposing a wide band of rocky/muddy beach covered by sea lettuce. Over this area a 'band' of up to nine Striated Caracaras were bickering and squabbling as they fossicked and prowled, searching for things that moved. By the time we returned, the crop of each bird was well distended, protruding through its upper breast feathers. Further watching indicated that they were catching small light brown fish (up to 10cm) and possibly other intertidal life, which they appeared to detect from the prey's movements. Sometimes they appeared to lift sea lettuce blades with their bills or move them aside with their feet to locate what was underneath. Judging from the extension of their crops, these caracaras were having a 'good' day. During the brief opportunity the writer had to observe this activity, they were seen to capture and eat quite a number of fish. Only the small fish were seen to be eaten but two small octopus were caught by ship's personnel who were attending the loading and unloading of the zodiacs.

In a search of the literature available on board *World Discoverer*, Bill could find no accounts of these birds catching fish and therefore thought that a short note describing this activity would be interesting. It certainly is a valuable record. Robin Woods adds that he has twice seen adult Striated Caracaras eating limpets freshly picked from intertidal rocks. These observations all contribute to the developing understanding of this rare and handsome species as an opportunistic, highly adaptable bird of prey.

A Johnny Rook with extended crop having had a good day's fishing in the inter-tidal zone on West Point Island. *Photo: Bill Merilees*

New Law will Protect this Rare Bird

As from 1st November the new Conservation of Wildlife and Nature Ordinance 1999 came into effect and will offer greater protection to the Johnny Rook. Shooting a Johnny Rook now can result in a fine of £3000, even if it is causing damage to livestock or property. The only way a rogue bird can be killed if it is a problem in a specific area and following an application to Government for a licence. This can only be granted for 2 years and must then be reviewed. This bird of prey is one of the rarest birds in the world. Falklands Conservation welcomes this first step in protecting it and ensuring its survival in the Falklands, which could hold up to 75% of the world's population of this fascinating and unique bird.

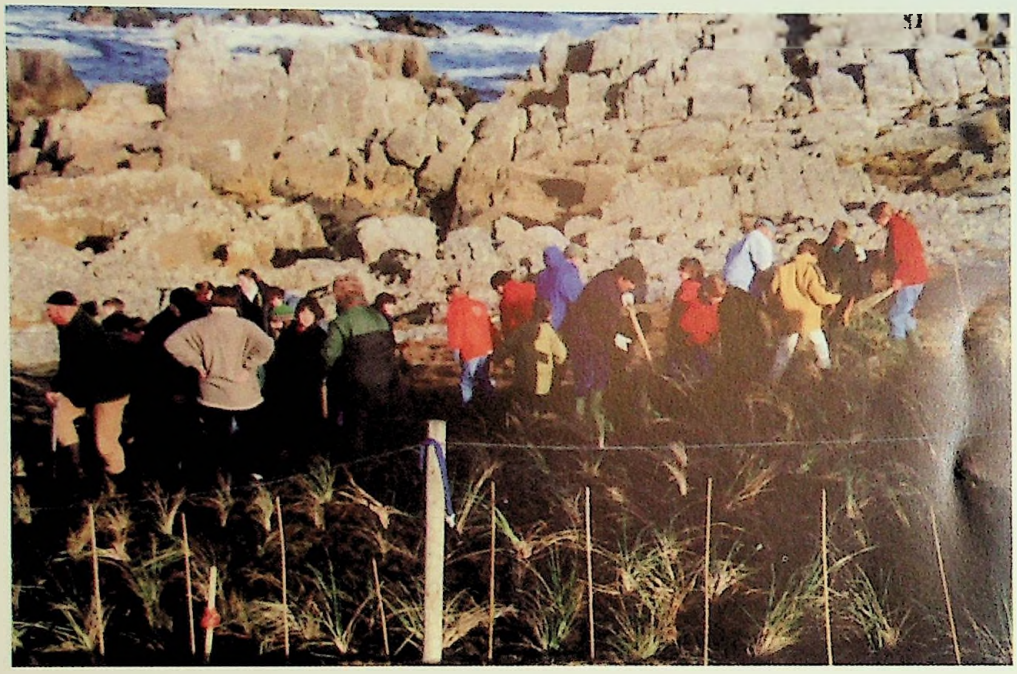
WATCH – This Space is Filled!

Jane Hill reports on the setting up of a wildlife club for young Islanders

A brand new club for children in the Islands was launched in June by Falklands Conservation. The club is a branch of Wildlife Watch, run by the Wildlife Trusts in the UK for children between 8 and 14 years. Our group in Stanley is the first to be set up outside the British Isles, which is quite exciting. The whole scheme came together as a combination of events – Becky Ingham's suggestion that a children's group be started, along with the realisation that we have at least two contract workers here who have run WATCH Groups in the UK, namely Wendy Mackney Mills and myself. There was also a great enthusiasm from the children and parents that guaranteed success. Following discussions held at the headquarters of the Royal Society for Nature Conservation, the details were finalised and we were in business!

The first meeting was held on a wet Saturday afternoon in July at the Junior School in Stanley. We had a very good turn out and spent the time giving out membership packs, having a talk on birds from Keith, an observer from the Seabirds at Sea Project, and finally playing a game of Blockbusters.

Since that first meeting we have had several outdoor activities. On 28 August we went down to Cape Pembroke and planted an area with Tussac grass. There was one new plant for each child under the age of 16 years in the Falklands at the beginning of the new millennium, a total of 400 in all. The site had been kindly prepared by the Agriculture Department, who were also on hand to offer assistance.



The Stanley based WATCH Group planting tussac at Cape Pembroke: the weather was very kind, the sun was warm and there was a very good turn out of children and helpers. *Photo: Penguin News*

The next meeting was a colder day but, nevertheless, we needed two minibuses to take us on a trip led by the geologist Emma Edwards. We visited the stone quarry, and then travelled out toward Estancia as we looked at rock formations and stone runs.* Finally we ended up at the raised beach opposite Surf Bay. The time just seems to go so quickly on our sessions, and everyone learns something new, children and leaders alike.

The calendar for future meetings is already filling up with exciting plans. We have a trip to the Fisheries Department next on the list, with future visits to the Museum, a ramble to look at native plants, beachcombing and more ambitious ideas of camps and expeditions further afield. The news is travelling fast about the Group with interest being shown at MPA and from the children in Camp. Thirty-one children are now enrolled in the Stanley Group.

So as we approach the year 2000 the newly formed WATCH group is poised to play a very important part in the appreciation and care of Falklands nature. It presents the issues in an informative yet fun way, drawing on the expertise of people from all walks of life. I am hoping there will be further articles on our projects as the year progresses so WATCH to see how we fill this space!

** Stone Runs*

Correction: In the article *'New Geological Maps of the Falkland Islands and Origin of the Falklands Pebble'* (WARRAH 15) we stated that stone runs are 'unique'. Don Aldiss says; 'this is not accurate – stone runs are not unique to the Falkland Islands, except in terms of their size and abundance. I know of stone runs in three places in the UK, for example'.

Our New Field Science Officer and the Season Ahead

by Dr Andrea Clausen

There have been a few staff changes in Stanley following the departure of Jeremy Smith at the end of June. We owe Jeremy an enormous thank you for all his hard work over four years with Falklands Conservation first as a field assistant and then as Conservation Officer. Becky Ingham has been promoted to Conservation Officer and Andrea Clausen has been appointed Field Science Officer. She is looking forward to her first field season and introduces herself and her forthcoming work here.

My family emigrated to the Falkland Islands in 1974 when I was just 3 years old. I grew up at Goose Green and was lucky enough to travel around a good bit of the Islands when I accompanied my father in his job as FIC Electrician. I enjoyed many summers at Sea Lion Island with Terry and Doreen Clifton until my parents moved there in 1985. After leaving school I worked in the Falkland Island Fisheries Department for 6 months before doing my A levels in the UK at Peter Symonds College. It was during my time in the Fisheries Department that I decided marine science was for me. I attended Bangor University (the very same as our Conservation Officer!) and completed a degree in Marine Biology which was then followed by a PhD on the common mussel, *Mytilus edulis chilensis*, here in the Islands.

I returned to the Falklands for good in February 1997 and started a job with the Byron Marine Group as manager of a joint venture with the Japanese fishing company KSJ. Two years later the opportunity arose to work for Falklands Conservation – so here I am, having started work on the 14th September.

The field season is almost upon us and with all the preparations for the 1999–2000 Seabird Monitoring Programme (FISMP) there is never a dull moment. Our field assistant this season will be Colin Patterson-Smith. Following an in-depth report by Dr Klemens Putz on FISMP work to date, we will be making minor adjustment to the Programme structure to re-focus and gain higher quality data. Monitoring will continue at some of the established FISMP sites together with one or two new ones. Dr Klemens Putz will also be continuing with his work satellite tracking Magellanic and Rockhopper penguins.

We will also have Dr Nic Huin returning to continue his study on the foraging behaviour of Black-browed Albatross (*Diomedea melanophris*). Following the successful study carried out on Saunders Island last season we have secured funding from the Foreign and Commonwealth Office to investigate and compare the Albatross population on Beauchene Island.

New this year will be a study to investigate whether or not Rockhopper penguins really do raise 2 chicks in the Falkland Islands. There has been much controversy with regard to the number of eggs and chicks that Eudyptid penguins lay, hatch and rear. Most leading penguin scientists do not believe that Rockhopper penguins successfully rear more than one chick, so this season we will monitor one or more sub-populations of Rockhoppers along the north coast of East Falkland in the hope that we can resolve this long disputed matter.'

As Jeremy Smith said on leaving Falklands Conservation

'Undoubtedly there will be challenges to be met and the odd hurdle to be overcome in the future but Becky and her team possess considerable skills, talent and enthusiasm for moving Falklands Conservation ahead still further and meeting those challenges. And that can only be good news for Falklands wildlife which is why we are here in the first place.'

Photo: Dr Andrea Clausen

Falklands Conservation

Our Growing Role and Activities

Falklands Conservation has played a leading role in the unfolding conservation and environmental agenda of the Falkland Islands and its surrounding seas. The primary focus of our work remains the annual Falkland Islands Seabird Monitoring Programme but our activities now stretch well beyond this core operation. The launch of the Native Plant Survey in 1998 was a significant milestone in progressing work on the Islands' botanical diversity. Oil exploration gave an opportunity to play a significant role in ensuring the beginnings of an environmental assessment of the seas surrounding the Islands. We play a crucial role in advising the Falkland Islands Government and others on all manner of conservation issues and are an active member of FIG's Environment Committee. If the recent expansion in our role and workload are to continue and if we are to achieve successful development in the years ahead we have to address how we should run Falklands Conservation in the future

A New Structure to Suit our Needs

To meet the increasing complexity of our operations including a growing number of employees and landholdings, Trustees decided that our old trust structure was no longer appropriate. On 4th November 1998 a new charitable company was registered in the name of Falklands Conservation. This took over our activities on 1st July 1999. It confers limited liability on our Trustees and a wider involvement of members in the charity's affairs. In future (from 2000 AGM) Trustees will be elected by the members (previously they were appointed by existing trustees). This change will give a modern framework for our organisation.

Planning into the Next Century

Along with the new structure we agreed that a clear plan of action to focus our efforts on priority issues was also needed. A Five Year Plan has now been drawn up. This directs Falklands Conservation in contributing significantly to the implementation of a National Biodiversity Strategy for the Falkland Islands. In eight major sections all aspects of our work are addressed, ranging from improving organisational efficiency to acquisition of sufficient funds and recruiting more members. However, the directing of our conservation work forms the heart of the Plan.

Conservation Priorities for the Future

Several major sections cover all aspects of our conservation work. These all relate back to our 'mission': '*to ensure the conservation and protection of wildlife in the Falkland Islands for future generations by providing advice, education and practical action.*' Some specific activities included in the Plan are:

- Carrying out an Important Bird Areas programme
- Surveying priority species
- Promoting the designation of 8 Ramsar sites
- Initiating a programme to eradicate rats from key sites to protect key species
- Ensuring our database shows current and up-to-date knowledge of Falklands wildlife
- Lobbying for the application of relevant conservation conventions in the Falklands
- Participating in international conservation partnerships.

There are many more. We aim to achieve them all, but the effectiveness of the Plan relies on all parts of the charity – trustees, staff, members and volunteers – working together to achieve these ambitious goals. We feel confident that this can be done.

Falkland Island Trustees and FC staff at a brainstorming workshop held in Stanley to discuss plans for the future of Falklands Conservation. We are very grateful for the expert guidance and advice received from Dieter Hoffman and Jim Stevenson of the RSPB's Interntional Department who helped make the workshop and the process so worthwhile.

Photo: Jim Stevenson

Book Reviews

Sir Joseph Dalton Hooker
Traveller and Plant Collector

by Ray Desmond

Antiques Collectors' Club (with Royal Botanic Gardens, Kew)

286 pages. ISBN 18514 93050. Price £29.50.

This beautiful book is the tale of the travels of Sir Joseph Hooker as he wandered the globe in search of plants.

Hooker was born in 1817. His father was a botanist and the son absorbed an interest from him and from his friends. His first voyage was with James Clark Ross. He was appointed assistant surgeon and botanist to HMS Erebus. They left England in September 1839. From the beginning of his travels Hooker kept very full journals and sketched exhaustively. He also had his orders, as the Royal Society required 'herbaria of representative vegetation of all the places the ships visited'. These places included stops at the Canary Islands, St Helena, Kerguelen Land and thus to Tasmania.

Fifteen months after leaving England they sailed from Hobart for Antarctica, only to return to Hobart five months later for a refit. The second tour of Antarctica was on a more easterly course and by New Years Day of 1842 they had crossed the Antarctic Circle. In April the two ships sailed into Berkeley Sound in the Falklands.

Hooker had been corresponding with Darwin and on his return to England was a frequent visitor to Darwin's home in Kent. Hooker left for India in November 1847 and visited Nepal, Sikkim and Assam. After he returned to England he married in 1851 and four years later was appointed Assistant Director to his father at Kew. His travels were not over however, and he visited Syria, and Lebanon in 1860, and 1871 found him in Morocco. Hooker became President of the Royal Society in 1873, and was knighted in 1874. His last journey was in 1877, this time to North America. Sir Joseph's Hooker's travels were at an end, but he wrote and worked ceaselessly, still dissecting and drawing flowers until his death in 1911 in his 95th year.

This superb book with its numerous and beautiful illustrations must be at the top of a Christmas wish list for 1999.

Review by Sally Blake.

Note: Actual specimens collected by Hooker from the Falklands, now in the Kew Herbarium, have been used by Christabel King as a basis for some of her drawings in the second edition of our native plants guide.

The Search for the Giant Squid

By Richard Ellis

Robert Hale. 322 pages.

£25. ISBN 0709064330

The Giant Squid is a lot, lot bigger than any of its relatives found in waters around the Falklands – it is up to 17m long with eyes the size of dinner plates! It lives in the gloom of the ocean abyss and is the largest living invertebrate, still shrouded in mystery.

Recent research on this creature has focused on the Kaikoura submarine canyon off New Zealand but no living specimen has yet been found even though a number of giants have been washed ashore. This account covers most of the facts that are currently known about the Giant Squid and its smaller relatives. It is a thoroughly researched book and makes a good read for those curious to learn more about squid in general and this mysterious monster in particular.

The Great Auk

by Errol Fuller

448 pages. Price £45.

ISBN 09533 55306

This super book is about a strange bird, 'half guillemot, half-penguin' which lived in huge colonies widely dispersed throughout the North Atlantic. The Great Auk was an agile swimmer, only coming ashore for a few weeks to breed in huge nesting sites as far apart as Canada and the Orkneys.

There is a catalogue of man's exploitation of the Great Auk. It was known to be very tame. Indeed 'it could be herded down a gangplank' right on to boats as food for sailors. It was avidly sought by Victorian naturalists to exhibit as a stuffed bird or for egg collections.

The last Great Auk was sighted in 1844. Despite the role played by man, it is one of the great unexplained extinctions. Once colonies fell below a critical number – perhaps many thousands – it appears that the bird was doomed. As this book implies, its fate may hold lessons for the future of some of our modern birds – what therefore is the future for the so similar penguins of the South Atlantic?

Penguin

by Frans Lanting

Published by Taschen, 1999. 168pp.
Price £12.99. ISBN: 38228 65192

This is a superb collection of penguin photos taken from three expeditions to the Falklands, South Georgia and Antarctica by one of the world's leading wildlife photographers. The 110 pictures of rockhopper, chinstrap, gentoo, king and emperor penguins are simply breathtaking. There is a short section on photographing penguins and some natural history insights, but the delight of this book is its depiction of the wonderful world of this wonderful bird. Lanting says in his Introduction 'I wanted to create an impression of who these penguins are and what they go through.' He certainly succeeds in a book to delight any penguin enthusiast.

Penguin Appeal T Shirt

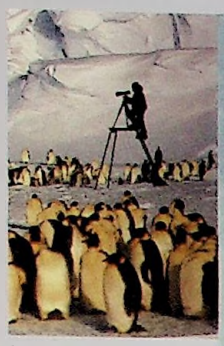
Below, Ann Brown (UK Secretary) wearing the new Penguin Appeal T Shirt

Available now from the UK office:

Price £10 + 80p post & packing

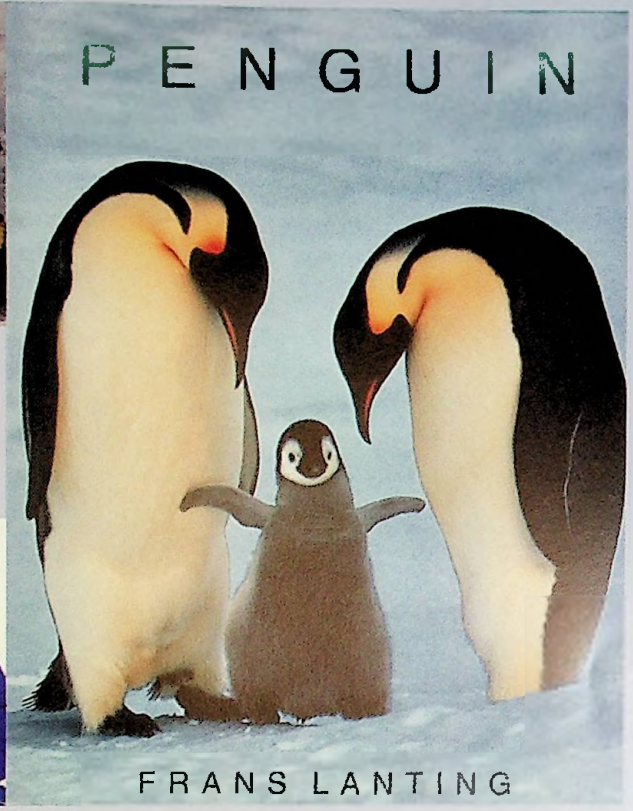
(XL size only)

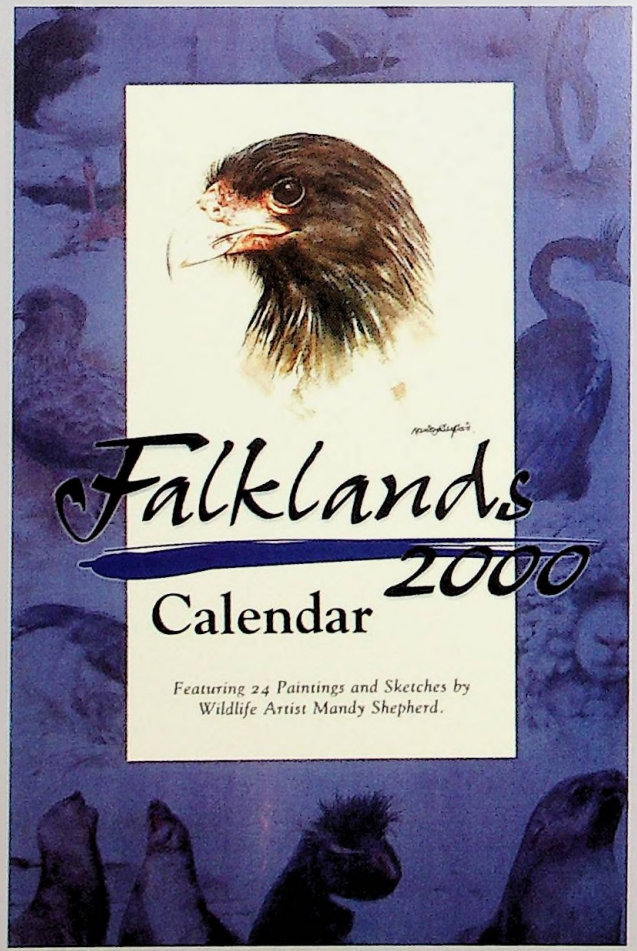
What better gift for Christmas!



Right: The stunning cover photograph of 'Penguin'.

[above and below]. photographer Frans Lanting in action





Falklands 2000 Calendar

Featuring 24 Paintings and Sketches by Wildlife Artist Mandy Shepherd.

£8 inclusive of postage & packing

(includes a contribution to Falklands Conservation)

Available from: Mandy Shepherd, Kingfisher Cottage, Watery Lane, Funtington, Chichester, West Sussex. PO18 9LF.

Falklands Conservation

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Offices:
UK: 1 Princes Avenue, Finchley, London N3 2DA.
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Tel: 500 22247
Fax: 500 22288.
email:conservation@horizon.co.fk
Web Site:
http://www.falklands-nature.demon.co.uk

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Overseas Territories Conservation Forum

The Forum exists to promote and support conservation of wildlife habitats in the 14 United Kingdom Overseas Territories. Most of these are, like the Falklands, islands with large areas of marine eco-systems and great biodiversity. Together they are home to more than 200 endemic plant species, about 500 endemic invertebrates and 16 endemic birds. The Forum's members are the UK's leading conservation organizations including the World Wildlife Fund, RSPB, Plantlife, Zoological Society of London, Fauna and Flora International, and the Royal Botanic Gardens, Kew. Falklands Conservation, along with many other Territory-based groups, is now an Associate Member. We regularly attend Forum meetings and participate in the South Atlantic Working Group, chaired by David Taylor, one of our UK Trustees. The Forum provides an invaluable network, technical assistance and advice for conservation activity in the Territories. Falklands Conservation has benefitted from all these, and more. Falklands Conservation is grateful for the support the Forum has given to safeguarding wildlife in the South Atlantic, and in particular for the splendid series of display boards on the Territories' unique wildlife.

This display board is one of a series produced by the Forum to help raise awareness about the wealth of biodiversity in the UK Overseas Territories. The RAF have kindly agreed to put this up in the Departure Lounge at Brize Norton.

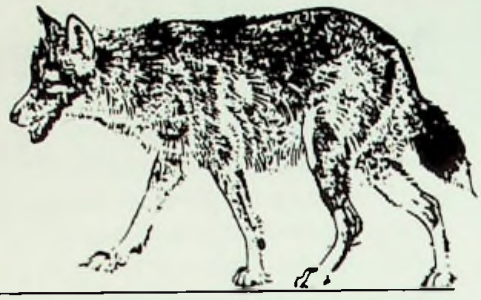
Photo: Becky Ingham, who attended the Conference with Ann Brown, addressing delegates.

Breath of Fresh Air Conference

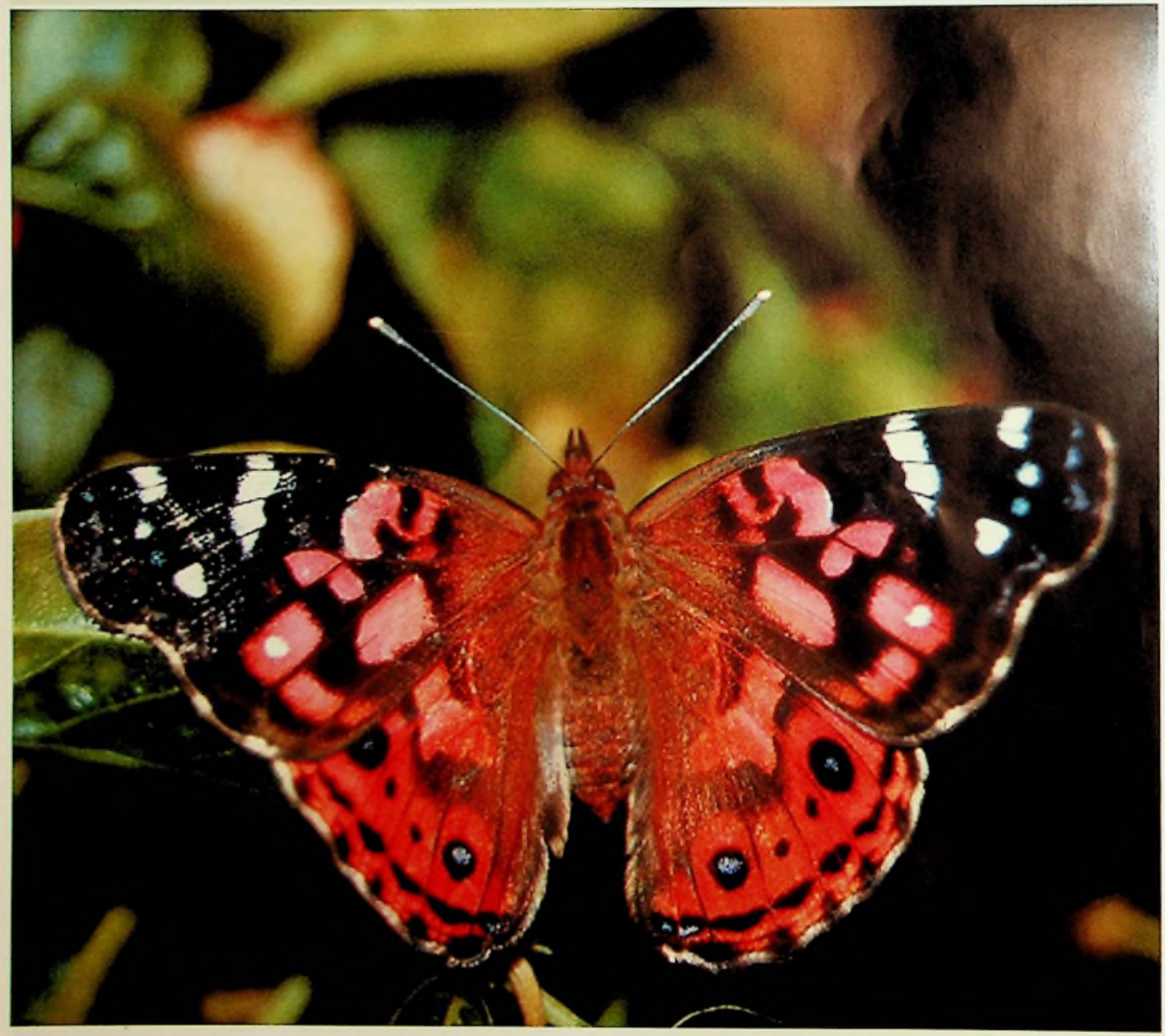
This meeting, organised jointly by the Foreign & Commonwealth Office and the UKOT Conservation Forum, provided a first opportunity for environmental representatives from many Overseas Territories (normally remote from each other) to come together to discuss common issues. It was surprising how much they had in common. There was widespread support for setting up a special fund for conservation projects. Several Territories, including the Falklands have a levy on tourists but it was felt that such funds raised should be spent on environmental projects only. Environmental education was seen as the key to the protection of the Territories' biodiversity – and should be aimed at everyone. Invasive species were of concern, being the second greatest threat to global biodiversity after habitat loss, and a primary threat in many small island states. Most importantly the Conference supported the idea of an Environmental Charter for Overseas Territories aiming to set standards and codes of practice. The Foreign Office is tasked with producing a suggested model – but this has yet to materialise. We look forward to contributing to discussions on this important step forward and hope this can be sooner rather than later.

the **WARRAH**

from Falklands Conservation May 2000 – Number 17



A New Falklands Butterfly



The summer of 1999/2000 was an exceptional one for records of migrant butterflies in the Falkland Islands. The Brazilian Painted Lady *Cynthia braziliensis* (above) was recorded for the first time. Photo: R. White

FALKLANDS CONSERVATION

In this Issue: Migrant Butterflies 1999–2000 - Falkland Islands Cruise Ship Study - Birds on Beauchêne Island - Status of Cobb's Wren - A New Relative of Felton's Flower? - Seabird Monitoring Results

Migrant Butterflies in the Falkland Islands
Summer 1999-2000

by Richard White[1] and Alan Henry[2]

An Exceptional Summer

The summer of 1999/2000 in the Falkland Islands was an exceptional one for sightings of migrant butterflies. The influx began in mid-November when Robin Woods reported a relatively high number of Southern Painted Ladies at a wide range of locations. Records continued until April 2000. Breeding was reported at one location, Pebble Island, where J McGhee saw many unfamiliar caterpillars on nettles *Urtica sp.* The scale of the arrival can only be guessed at but must have totalled hundreds, if not thousands of individuals.

Falkland Butterflies

Butterflies are poorly represented in the Falkland Islands with only one regular breeding species, the Queen of the Falkland Fritillary *Issoria cytheris cytheris*. In addition, the Southern Painted Lady *Cynthia carye* is recorded as 'not uncommon' and 'probably a migrant' by Strange (1992), and a species of blue butterfly *Parachilades sp.* has also been recorded (Strange 1992, Samson 1996).

A New Record

On 21 February 2000 Ann Reid trapped a butterfly in the gardens of Government House, Stanley. It was taken to Falklands Conservation office and shown to Richard White and several others. Richard recognised that it was not a Southern Painted Lady but was not able to specifically identify it. The butterfly was photographed and released. Subsequently, there have been a further five records of the species on East Falkland (Table 1). A specimen and photographs were sent to Phil Ackery at the British Museum of Natural History in London who identified the butterfly as *Cynthia braziliensis* (Brazilian Painted Lady).

Figure 1: *Cynthia Carye* upperwing

Figure 2: *Cynthia braziliensis* upperwing

Figure 3: *Cynthia Carye* underwing

Figure 4: *Cynthia braziliensis* underwing

All Photos: *R W White*

Table 1. Records of Brazilian Painted Lady *C. braziliensis* in the Falkland Islands, February-April 2000

Date	Location	Number	Observer(s)
12 February	Elephant Beach, East Falkland	1	Mike & Sue Morrison
21 February	Stanley, East Falkland	1	Ann Reid *et al.*
12 March	Salvador, East Falkland	1	Mike & Sue Morrison
18 March	Pedro River, East Falkland	2	Alan Henry
18 March	Stanley, East Falkland	1	Alan & Trish Henry
4 April	Stanley, East Falkland	1	Alan Henry *et al.*.

These are the first records of this South American species in the Falkland Islands. The location of these records probably reflects the location of observers rather than the distribution of the butterflies. Given the similarities in appearance between this species and the Southern Painted Lady it is possible that small numbers of this species may have been overlooked in the past.

About *Cynthia braziliensis*

This butterfly is on the wing year-round in South America. Its larval food plants are members of the family Compositae, include Gnaphalium sp., of which there are several species in the Falklands. It is therefore possible that this species could breed in the Islands. At least six specimens were collected from Tristan da Cunha in the 1940s.

The main differences between the two species are clearly shown in Figures 1 to 4, which are not to scale as the two species are about the same size. The most prominent feature is the colour of the forewing, which is boldy patterned pink, black and white in *braziliensis* compared with the orange and black of *carye*. The hindwing markings differ in that *carye* has three even sized 'eyes' on each hindwing while *braziliensis* has two large 'eyes' with two smaller black spots between them. The underwing markings are much stronger on *braziliensis* than on *carye*. This is particularly true of the hindwing pattern, which on *braziliensis* has two well defined 'eyes' and a blue subterminal bar.

Acknowledgements

Thanks to Phil Ackery for identifying the butterfly and providing background information. Also to Tom Eggeling of the Falkland Islands Government Environment Planning Department for his interest and assistance.

References

Samson, C. 1996. Falkland Blue Butterfly. The Warrah 10: 9.
Strange, I J. 1992. A Field Guide to the Wildlife of the Falkland Islands and South Georgia, Harper Collins Publishers, London.

[1] Richard White (PO Box 705 , Stanley, FI) is a member of Falklands Conservation Sea Birds at Sea Team.

[2] Alan Henry (PO Box 494, Stanley, FI) is a recently appointed Trustee of Falklands Conservation.

British Birdwatching Fair 2000

This year's Fair is in support of BirdLife International's 'Save the Albatross Campaign', a theme of particular interest to Falklands Conservation. All our members and supporters are very welcome to come and see us at the Fair to be held 18–20 August at Rutland Water. Please contact Ann Brown (UK Office) if you are able to help on our stand. Even if you can only spare an hour or so, this would be much appreciated.

Falklands Conservation Membership

A new membership leaflet is now available to help recruit more FC members, both in the Islands, in the UK and worldwide. We are very grateful to the RSPB who produced this for us. We hope every existing member will use this to encourage anyone with an interest in Falklands wildlife to join us. If you have many contacts or an opportunity to circulate details more widely please contact one of our offices for a leaflet supply. We have recently extended circulation of our Newsletter, issued in the Islands. This is now mailed direct from Stanley to all members on a regular basis.

Annual General Meeting: Advance Notice

The AGM of Falklands Conservation will be held in London in the early evening of Thursday 23rd November 2000. It will include presentations and up to date reports on current activities and projects. This will, however, be the first AGM under our new company structure. All Trustee places will be open to a members election – a postal voting system will be in place for those not able to attend in person. Further details will be issued nearer the time, but make a note of the date in your diary now! Consideration is being given to holding the AGM in alternate years in London and Stanley.

The Falkland Islands Cruise Ship Industry

by Debbie Summers

Debbie Summers has just completed a study project for Falklands Conservation, funded by the Falkland Islands Government, to assess the impact of cruise ship visitors in the Islands. She reports here on the results, the need for sustainable development of this fast growing industry, for protection of the Falklands wildlife and environment, and its future prospects.

How the Study was Conducted

In order to evaluate current tourist activity, expedition cruise vessels and their operations were studied at the most visited destinations in the Falkland Islands (Carcass, Saunders, Bleaker, West Point, New and Sea Lion Islands, Volunteer Point, Gypsy Cove and Kidney Cove) during the 1999/2000 summer season (October – March). To obtain a comprehensive overview, visitor landings were observed, passenger management techniques recorded and interviews conducted with landowners, local guides, staff aboard cruise vessels and passengers themselves.

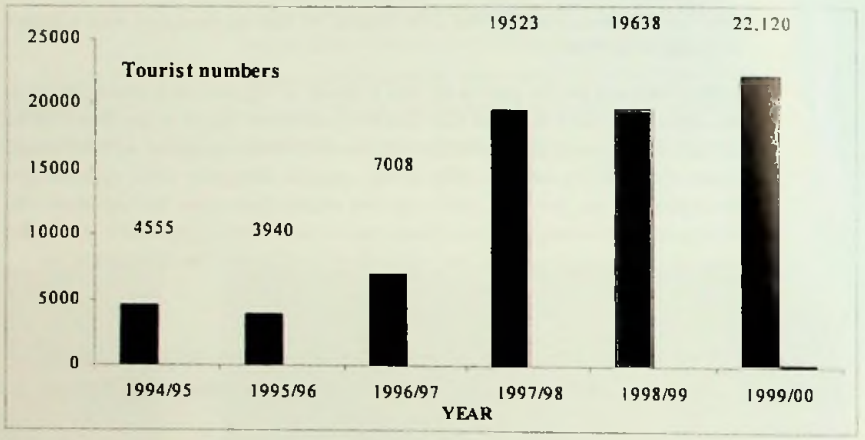
The Scale of Falklands Cruise Ship Tourism

1999-2000 there have been 72 visits by cruise vessels. 37,051 people travelled to the Falkland Islands (this figure includes passengers, staff and crew). 5 vessels cancelled (mainly due to bad weather), which would have increased the total to over 40,000.

This season (October – March) an estimated 23,225 cruise ship fare paying passengers visited the Islands representing a significant increase from the previous year of 19,638. Much of this increase is due to visits from larger 1000÷ passenger luxury vessels. The largest of these was the *Royal Princess* with 1,156 people on board.

24 different vessels have visited with 9 passenger exchanges for expedition cruise vessels. Stanley had 54 cruise ship visits this season with total of 22,174 passengers, 8 visits this season with over 1000÷ passengers on board and 19 visits with over 400÷ passengers on board.

Table 1: Increase in passenger arrivals 1994/95–1999/00.
Note:
In 1994/95 the average total of passengers per vessel was 130, in 1999/00 this was 307.



Cruise Ship Passenger Profile 1999-2000

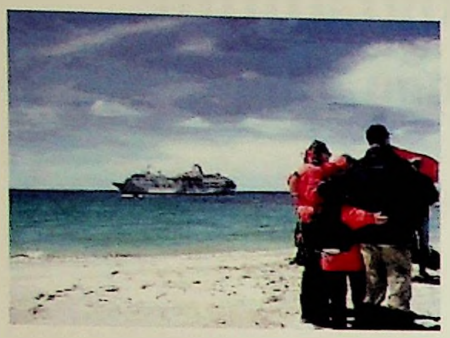
Nationality	Number of passengers
USA	14,938
UK	2,040
Germany	1,842
Europe	1,327 (excluding UK/Germany)
Canada	1,056
Argentina	745
Other S America	503 (excluding Argentina)
Mexico	418
Australia	370
Other Carribean & Central America	31 (excluding Mexico)
Others	227
TOTAL	23,497

Please note that statistics may include a small percentage of staff not specified on Manifests. Information compiled is within an error margin of less than 2%. Totals do not always correlate, this being due to data derived from outdated cruise manifests and a lack of uniformity

Age

The average age of passengers on board expedition vessels is <65 years, whilst the luxury vessel passengers have an average age between 60-79 years. The oldest average was found on board the *Royal Princess*.

Tourism Impact on Wildlife



Over 37,000 people travelled to the Falkland Islands by cruise ship in the 1999–2000 season. *Photo Debbie Summers*

Large numbers of visitors pose a threat to the breeding success of penguins and other seabirds. Long term studies on Antarctic penguin colonies show a decrease in numbers where they co-occur with humans (Woehler et al 1994; Regel and Pütz 1997). A single person approaching a penguin colony has been demonstrated to cause increased penguin heart rates, suggesting that they may be under stress even though no external signs are observable.

Erosion often occurs at well-visited sites. At Gypsy Cove, near Stanley, extensive areas along footpaths have been eroded and areas of coastal greens have subsided resulting in the abandonment of Magellanic Penguin burrows. Measures to prevent this occurring are relatively easy to put in place on a small Government owned site and are now receiving attention. However, the problems faced by those opening up areas of remote coastline to high numbers of visitors may not be so easy to overcome.

Pilot Study Recommendations

Cruise ship tourism is one of the major growth industries in the Falklands. Key factors generating this growth are an increasing demand for adventure holidays and continuing interest in the Antarctic region. Many of the cruise ships visiting the Falkland Islands are bound for Antarctica and are members of the International Association of Antarctic Tour Operators who have an excellent code of conduct which is generally adhered to. However, the Falkland Islands lie outside the area covered by IAATO. One of the main results of this Study proposes the formulation of similar environmentally conscious tourism strategies for the Falklands. Its key recommendations are:

- Development and adoption of appropriate and effective tourist guidelines to ensure protection of the Falklands environment and its wildlife (for all visitors including local Falkland Islanders, miltary personnel and cruise ship passengers).
- Representation of the Falkland Islands at the annual International Association of Antarctic Tour Operators meeting;
- Production of a Site Guide with Code of Practice for visitors, the design of a Government arrivals form and subsequent statistical yearly analysis.

Introduction of a 'Conservation Levy'

On 1st October 1999, a Conservation Levy was introduced by the Falkland Islands Government with the Cruise Ship Ordinance (1998). It is payable by all fare-paying passengers to the Islands on vessels with more than 100 people on board. The charge is £10 per head and a total of £207,060 has been collected this season. As of next season all vessels will be subject to the Conservation Levy which will increase the anticipated income to FIG by a further £10,000.

Falklands Conservation has expressed serious concerns to the Government about the naming of this 'visitor tax' because the funds raised are in fact not applied to conservation expenditure. We recognise that Falkland Islands Government provides substantial sums to effect conservation in the Islands, but much of this is obligatory and has been in place well before the income from this Levy was on the horizon. We feel that this additional Levy money should be applied to expanding the conservation effort in the Islands (and we are not asking for this for ourselves) in areas such as increasing resources within the one man Environment Planning Department, development of a National Biodiversity Action Plan and measures to protect the environment from visitor impact. Passengers and cruise ship companies are currently being misled into believing that such funds are being spent on conservation initiatives, and therefore feel no need to support these further (eg by donations/ support to Falklands Conservation) and conservation work in the Islands is being deprived of additional funding support. We continue to press for a reconsideration in the naming of this tax, and/or a review of how the funds can be earmarked for conservation expenditure.

The Future

Within the Islands there is a growing awareness that environmental issues arising from tourism are increasingly important.

There is likely to be a further expansion in cruise ship visitor numbers. There are plans for the *Black Watch* with over 2000 passengers to visit the Falklands next year. As one a cruise ship tour leader stated, 'I expect that large cruise vessels will embrace the Falklands, South Georgia and the Antarctic Peninsula over the next 5 years. They are looking for other places to go and it is very obvious that they will come in this direction.'

The Falkland Islands Government have now approved funding for compilation of a Site Guide by Falklands Conservation. This will be undertaken by Debbie Summers over the next eighteen months.

References

Regel, J and Pütz K (1997). Effect of Human Disturbance on Body Temperatures and Energy Expenditure in Penguins. Polar Biology. 18: 246-253.

Woehler EJ, Penney RL, Creet SM, and Burton HR. (1994). Impacts of Human Visitors on Breeding Success and Long-term Population Trends in Adelie Penguins at Casey, Antarctica. Polar Biology. 14: 269-274.

Gypsey Cove, near Stanley, experienced 17,000 visitors through the 1999–2000 penguin breeding season. *Photo: Debbie Summers*

Seabird Monitoring Programme

Results from 15th Year, 1999-2000

by Andrea Clausen, Field Science Officer

Sites surveyed

Following a review carried out by Dr Klemens Pütz, which analysed all data collected over the past 13 years of the Programme, in addition to historical sites, counts were made at Sea Lion Island (to the south east) and Saunders Island (in the north west) for the 1999-2000 season. Diet sampling was carried out at Volunteers Point and Seal Bay (to the north east) and at Sea Lion and Saunders Islands.

Gentoo Penguins

Productivity ranged from 0.59 to 1.45 chicks per breeding pair. These figures are generally higher than in the previous season (0.35 to 1.10 chicks per breeding pair). Despite our unusually warm dry summer there was no evidence between November – January of any negative effect on the breeding birds. However, anecdotal evidence suggests higher than normal mortality rates due to hot weather after this. Breeding pair numbers were up in 6 out of 7 of the historical sites, with one colony experiencing a 77% increase.

Diet samples are currently being worked up in the Department of Fisheries. However, to date there appears to be a considerable amount of squid. Four species have been identified: *Loligo gahi, Moroteuthis ingens, Gonatus antarcticus* and *Illex argentinus*, with the commercial species *Loligo gahi* found most frequently. Gentoo penguins also took considerable amounts of Krill (*Munida gregaria*) and fish (mainly a non-commercial species from the herring family and *Patagonotothenids*).

Rockhopper Penguins

Rockhoppers appear to have had an average year. Productivity ranged from 0.65 to 0.91 chicks per breeding pair. A pilot study to investigate whether or not breeding pairs could successfully rear 2 chicks to fledging was carried out at Seal Bay. A sub-colony of 103 breeding pairs was monitored over a 6 week period and several attempts made to mark chicks/ nests. Unfortunately our methods were not successful, and although we had some nests with 2 chicks right up to the time of creching, after this nests were lost and chicks could not be identified. We will continue to investigate this theory.

The main diet component was fish, predominantly unidentifiable 'whitebait' (juvenile fish), although smaller quantities of squid, krill and amphipods *Thermisto gaudichaudi* were found.

This season a number of 'unusual' penguin sightings, including Rockhopper /Macaroni hybrids, were identified.This aberrant Rockhopper Penguin was sighted at Seal Bay in January. It appeared to be two thirds the size of a Rockhopper, with a very dense, orange superciliary which started at the same point as a Rockhopper eyebrow . A black occipital crest was also present. The bird was moulting which could account for its shrunken appearance. *Photo: Simon Mahood*

Magellanic Penguins

At Gypsy Cove all occupied burrows and resulting chicks, were counted. Productivity was lower (0.82 chicks per breeding pair) than the previous season (1.49 chicks per breeding pair) although the number of occupied burrows was up (332 compared to 174 in 1998/99), indicating a rise in the number of non-breeders or failed breeders. At other sites densities of occupied burrows were assessed as well as the productivity in randomly selected areas. Productivity ranged from 0.63 to 0.75 chicks per breeding pair. These values are within those found for Magellanic penguins at the historically monitored sites. The diet of Magellanic penguins included all species found in Gentoo and Rockhopper penguins.

Penguins Fall Victim to Mud Wallow

Whilst carrying out our work at Sea Lion Island in January, guests from the Lodge asked us to come and rescue some penguins which appeared to be stuck in a mud wallow. The sight was horrific, with 3 very stressed birds trying to escape and over 60 bodies floating in the mud. The wallows are the result of collapsed burrows and the drought conditions experienced this summer. Efforts were made to rescue the birds by digging out pathways for the stranded birds to climb out.

Falklands Conservation are very grateful to the John Cheek Trust for the contribution of £5,000 to the Falkland Islands Seabird Monitoring Programme. We would also like to thank all the landowners who gave us access to the penguin colonies including George and Jenny Smith, Falkland Landholdings, Ian and Eileen Jaffray, Pete and Melanie Gilding, Sea Lion Lodge Ltd, David and Susan Pole-Evans, Tony and Jenny Anderson and Steve and Ella Poole.

May the Forces be With Us

It has always been recognised that the presence of a large military force in the Islands would bring with it potential risks to Falklands wildlife. The greatest risk comes from disturbance from a variety of causes such as low flying aircraft, loud noise levels, helicopter landings in sensitive wildlife areas and vehicles driven over and into seabird colonies. Further problems arise from the thoughtless behaviour of a few individual service personnel – incidents of chasing penguins and 'cuddling' birds have been reported.

An increasing number of such harmful activities has been drawn to the attention of Falklands Conservation by concerned members of the public through the course of the recent summer months. It may be that with considerably more tourists now visiting the Islands, additional incidents of this nature are being observed. We are grateful to all who have taken the trouble to inform us of these – every one has been passed on to the Civilian Military Liaison Officer. Some are being taken very seriously with investigations currently in progress which may lead to prosecutions or cautions by the Royal Falkland Islands Police.

Protection of Falklands wildlife has been a striking and common commitment of most of the individual Commanders of the British Forces Falkland Islands (Sir David Thorne – obituary this page – was not an exception). Six ex-Commanders are or have been members of Falklands Conservation, including the current incumbent Brigadier Sheldon.

In order to bring a greater understanding about Falklands wildlife to the 1500 ordinary soldiers serving in the Islands (and because most are there on a four month tour of duty this is a constant challenge) Falklands Conservation has agreed with Brigadier Sheldon to embark on a programme of raising military awareness of the unique wildlife of the Islands. This will not only provide environmental information but also set up a series of opportunities for military personnel to become more involved in wildlife activities.

The plan includes:

* A nature trail near MPA to be built by Service volunteers with trail guide written by Falklands Conservation

* A regular monthly feature on wildlife matters in Southern Star, the MPA newspaper

* A permanent wildlife display at MPA - strategically located by the NAFFI, cinema and bar! The newly erected display board about Falklands wildlife in the Departure Lounge at RAF Brize Norton will provide an early indication of things to come for those on their way South.

* A programme of monthly evening lectures by Falklands Conservation

* A computer presentation with lecture notes on wildlife with code of conduct guidelines and key points on the law protecting the Islands' plants and animals produced by Falklands Conservation and included in the briefing for all FI military personnel

* Special events, fundraising schemes and practical projects are all to be considered for future involvement.

Penguin Walk Pond Gets Facelift

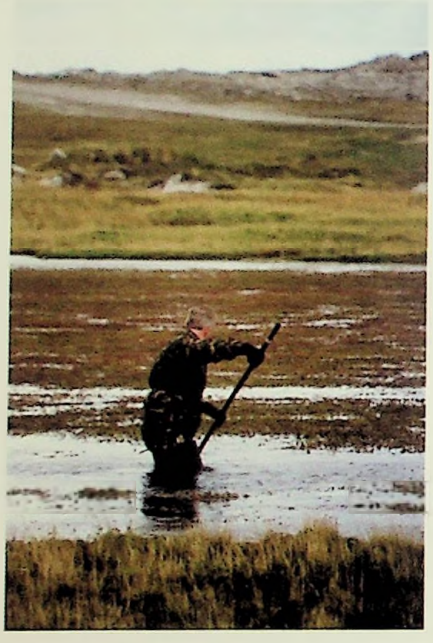


Photo : *Andrea Clausen*

On 18th March Falklands Conservation staff and volunteers, ably assisted here by Squadron Leader Ian Williams, waded in to clear out weed Native Water Milfoil *Myriophyllum elatinoides* which was choking up the open water at this important feeding site for winter wildfowl, including Silver Teal and Chiloe Widgeon. 'Yorke Bay' Pond, which is now full to overflowing, was severely depleted during the warm dry summer months. Further dredging will be carried out when required to maintain the pond in the best condition as a habitat for the birds.

Sir David Thorne

It is with sadness that we report the recent death of Sir David Thorne, a UK based Trustee of Falklands Conservation from 1995 to November 1999 when he resigned due to ill health. Major General Sir David Thorne was the first commander of the British Forces in the Falkland Islands after the end of the South Atlantic conflict. It is widely acknowledged that he was an outstanding leader, and at the end of his Falklands tour was appointed KBE. However, during his time in the Islands he was not just mindful of the welfare of his soldiers, 'I love those penguins', he is reported to have said 'and I'll be bloody cross if I hear they've been disturbed by pilots, soldiers or anybody'. He undoubtedly retained a great fondness for the Islands' wildlife (he was indeed a keen lepidopterist, living in a house surrounded by birds and animals) so it is not surprising that he became a supporter of and later a Trustee of Falkland's Conservation. It was through his appointment as Secretary-General of the Royal Commonwealth Society that he was able to help raise the profile of Falklands Conservation at the Commonwealth Exhibition in Edinburgh in 1997, his links with the military establishment proved helpful on a number of occasions, and his wise counsel at Trustee meetings was always valued. He will be missed as a committed supporter and an outstanding individual who cared deeply for Falklands wildlife - it captivated him and gave us his energetic commitment long past his distinguished military presence in the Islands.

Birds on Beauchêne Island

February to April 2000

by Richard W White and Nicolas Huin

Beauchêne Island is the most isolated of the Falkland Islands, situated about 60km to the south of the main archipelago on the edge of the Patagonian Shelf. It is rarely visited, due in part to its remote location and in part to its status as a closed Government Nature Reserve. Previous studies of its ecology have been conducted by Strange (1965) and Lewis-Smith and Prince (1985). Other than these studies, there has been little published about the birds of the Island.

Falklands Conservation was granted permission to go to Beauchêne as part of a study by Nic Huin of the Black-browed Albatross in the Falkland Islands (Huin 1999, Huin in prep.) Two visits were made between February and April 2000. On the first of these (11 - 26 February) Nic was accompanied by David Gray, and on the second (16 March - 1 April) by Richard White. The opportunity was taken to make casual bird observations, which are reported here. Where applicable, (1) indicates recorded on the first visit and (2) on the second.

King penguin
Aptenodytes patagonicus (1)
One moulting bird was seen.

Gentoo penguin
Pygoscelis papua (1)
740 chicks were counted near the runway. The average breeding success of Gentoo Penguins in the Falklands is 0.93 chicks per pair (Putz 1999) which suggests that there may be as many of 796 pairs here and that this population has increased since 1980 when Lewis-Smith and Prince (1985) reported a total of 525 pairs.

Macaroni penguin
Eudyptes chrysolophus (1 & 2)
One bird in moult was recorded in February and four birds were seen moulting during March. These numbers seem low in the light of 54 nests reported by Strange in 1983 (in litt to Lewis-Smith and Prince) while Lewis-Smith and Prince (1985) reported 16 nests in 1980. The suggestion by the latter that this species is prone to fluctuation between breeding seasons may explain low numbers seen this year.

Rockhopper penguin
Eudyptes chrysocome
No attempt was made to count this abundant species as the birds had finished breeding by the time of the first visit. A census of the colony is planned for summer 2000/01.

Magellanic penguin
Spheniscus magellanicus (1 & 2)
52 chicks were counted in February. The average breeding success of Magellanic penguins in the Falklands is 0.78 chicks per pair (Putz 1999) which suggests that there may be as many as 67 pairs. Observations of chicks and occupied burrows suggest that this species has increased since 1980 when it was recorded as possibly breeding by Lewis-Smith and Prince (1985). Woods and Woods (1997) record it as a confirmed breeder on Beauchêne Island but give no indication of numbers. In March birds were heard calling near The Hole and several burrows were occupied near The Pond.

Southern royal albatross
Diomedea epomophora (2)
Single birds were seen while seawatching in March.

Black-browed albatross
Thalassarche melanophris
The observations on this species will be written up separately. (Huin in prep.)

Grey-headed albatross
Thalassarche chrysostoma (2)
Several birds, both adults and immatures, were recorded while seawatching on two dates.

Light-mantled albatross
Phoebetria palpebrata (2)
Single birds seen on three dates.

Northern giant petrel
Macronectes halli (2)
Low numbers of Northern giant petrels were regularly observed in waters around the coast and flying past with up to eight recorded. One bird was observed trying to kill a rockhopper penguin in the water. There were no records of Northern giant petrels onshore.

Albatross and Rockhopper Penguin colonies on Beauchêne Island, with Striated Caracara in foreground. Photo: *R.White*

Southern giant petrel
Macronectes giganteus
One large chick was at the south end of the main Black-browed albatross colony. This species breeds in variable numbers on Beauchêne (Lewis-Smith and Prince 1980). Small groups of up to 30 were observed regularly around the coast and loafing on rocks.

Common diving-petrel Pelecanoides
(urinatrix) berardi
Plenty of common diving petrels were heard calling at night.

Grey-backed storm-petrel
Garrodia nereis (2)
Two birds were seen one night south of Blinn's Bay flying over tussac.

Fairy prion
Pachyptila turtur (1 & 2)
One dead chick was found in February and low numbers of birds were seen in flight at night. In March much vocal activity was heard from boulder areas on 'Prion Beach' and The Citadel with many hundreds of birds visiting Prion Beach at night. Fairy prions were also recorded in low numbers visiting other boulder areas around the south coast. Occasionally, low numbers of Fairy prions were observed during the day, flying about 100 metres off the south-east coast just beyond the kelp beds.

Great shearwater
Puffinus gravis (2)
Several birds were recorded while sea-watching.

Sooty Shearwater
Puffinus gravis (1 & 2)
In February low numbers were observed gathering offshore at dusk, suggesting that they were probably coming ashore after dark. Low numbers were recorded also while seawatching in March.

Soft-plumaged petrel
Pterodroma mollis (2)
Several birds recorded while sea-watching.

White-chinned petrel
Procellaria aequinoctialis (2)
Several birds recorded while sea-watching.

Peregrine
Falco peregrinus cassini (2)
At least three birds - one adult and two juvelines - were recorded, mostly around the Citadel. It is not known whether these young were raised on the Island.

Striated caracara
Phalocobaenus australis (1 & 2)
At least 58 pairs were recorded during the first visit, compared with 62 nests recorded by Strange (1996) and 67 nests recorded

Cattle egret
Bubulcus ibis (1 & 2)
One was recorded on 17 March. Numbers then increased to 4 on 22 March and to at least 104 on the morning of 23 March. During the afternoon of 23 March two flocks totalling about 350-400 birds were seen flying strongly south-east at low level until out of sight. Numbers then decreased to about 10-15 during the next few days.

Antarctic skua
Catharacta antarctica
A total of 5 breeding pairs with 7 chicks c.f. 2 pairs in 1980 (Lewis-Smith and Prince 1985). An additional 30-40 non-breeders were present.

Kelp gull
Larus dominicanus
About 50 birds were estimated present, including several obvious pairs, but breeding was not proven.

Dolphin gull
Larus scoresbii (1 & 2)
This species was not recorded until 24th February when a pair with two flying young were seen, although it is not known if this species bred on the Island. The largest count was a group of 54 birds gathered on the rocky west shore in March. Dolphin gulls regularly fed both on the rocky shore and on scraps and waste within the albatross colony.

Snowy Sheathbill
Chionis alba (1 & 2)
Between 10 and 20 non-breeders were recorded in February and a highest count of 25 in March.

Cobb's wren
Troglodytes cobbi
Widespread and common in the tussac margin, with occasional sightings made in deep tussac. No attempt was made to count them but the impression was more in agreement with the observations of Lewis-Smith and Prince than the 'very few birds' recorded by Strange (1965a).

Blackish cinclodes, Tussac-bird
Cinclodes antarcticus
Abundant around the tussac margin of the Island. No attempt was made to estimate numbers but at one stage 30-40 birds gathered around the authors.

Black-throated finch
Melanodera melanodera
Both adults and young were widespread in low numbers in the tussac margin. About 10 pairs were estimated present. This species was not recorded by Strange (1965) or Lewis-Smith and Prince (1985) but was listed as a probable breeder by Woods and Woods (1997).

Discussion

The timing of this visit coincided with the end of the breeding season. Previous studies eg Lewis-Smith and Prince (1985) have taken place earlier

Several species recorded by previous visitors were not recorded in 2000. The absence of Black-chinned siskins *Carduelis spinus* is noteworthy. Lewis-Smith and Prince (1985) recorded '16 individuals seen, mostly in pairs' although breeding was not confirmed. Woods and Woods (1997) record this species as a confirmed breeder but it is not clear whether this is based on more recent observations. Whether the Black-chinned siskin has become extinct on Beauchêne or whether it is a seasonal visitor, perhaps related to the timing of tussac flowering and seeding, and is absent in February to April, is not known.

Several species appear to have increased since 1980. The Magellanic penguin is now a confirmed breeder. Gentoo penguins may have increased but a count of adult pairs in the colony is required to confirm this. Black-throated finches have increased since 1980 when they were not recorded, and though no proof of breeding was obtained it seems probable.

A number of species were recorded that had not been recorded prior to 2000. Several of these were seen offshore (eg southern royal, light-mantled and grey-headed albatrosses). There is no indication that they were anything other than birds in transit. Cattle egrets were recorded for the first time, although given the status of the species as an annual autumn migrant to the Falkland Islands (Woods 1988), there is little doubt that the species is regular and only a lack of observer coverage in autumn has prevented earlier records.

References

Hunt, N. 1999. Aspects of Breeding Biology and Feeding Ecology of Black-browed Albatross in the Falkland Islands. Internal Report to British Antarctic Survey, Falkland Islands Government and Falklands Conservation.

Lewis-Smith, RIL. & Prince PA. 1985. The Natural History of Beauchêne Islands. Biological Journal of the Linnean Society. 24: 233–283.

Pütz, K. 1999. Population Trends, Breeding Success and Diet Compotion of Gentoo Penguins (*Pygoscelis papua*), Magellanic penguins (*Spheniscus magellanicus*) and Rockhopper Penguins (*Audyptes chrysocome*) breeding in the Falkland Islands. Falklands Conservation, Stanley.

Strange, IJ. 1965. Beauchêne Island. Polar Record 12, 81: 725-730.

Strange, IJ. 1996. The Striated Caracara *Phalcobaenus australis* in the Falkland Islands. Philip Myers Press, Warrington.

Woods, RW. 1988. Guide to Birds of the Falkland Islands. Anthony Nelson, Oswestry.

Woods RW & Woods A. 1997. Atlas of Breeding Birds of the Falkland Islands. Anthony Nelson, Oswestry.

Book Reviews

Environmental Management Plan for South Georgia

Compiled by Dr Elizabeth McIntosh and Dr David W H Walton

Published by British Antarctic Survey on behalf of the Government of South Georgia and the South Sandwich Islands. 2000. 106pp. Copies obtainable from the Government of South Georgia and South Sandwich Islands, Government House, Stanley, Falkland Islands.

I must declare an interest in this Plan – it was commissioned by the South Georgia Government and the work by carried out with our close involvement. That said, I am quite prepared to heap praise on Dr McIntosh, seconded from the Department of the Environment, Transport & the Regions (DETR), and Dr Walton, of the British Antarctic Survey, for a job very well done.

The purpose of producing the Management Plan was to provide a baseline statement of Government policy for the future good management of the Island over the next five years. This task might have been relatively easy had it not also involved developing, in consultation with Government and many expert individual and organisations, the policies themselves. Elizabeth McIntosh achieved the near impossible by boiling down great masses of information and opinion to identify the critical issues and present the final document in a fashion I believe to be both lucid and ultimately useful to all interested parties.

This would not have been possible with David Walton's great depth of knowledge of the Island and polar environmental issues in general.

If anyone has an interest in South Georgia or indeed environmental issues in the southern high latitutdes, I would sincerely recommend them to this publication. Robert Headland's *The Island of South Georgia** is of course the definitive history. This Plan, however, provides some history and much more than Government policies. It is also the most readable precis, of which I am aware, of what it known of the Island scientifically and is presented in a clear, well-illustrated form.

Review by Gordon Liddle

Gordon is Operations Manager for theGovernment of South Georgia and the South Sandwich Islands. He has recently been appointed a Trustee of Falklands Conservation.

* The Island of South Georgia

Robert Headland (1984)

286pp, is out of print but available secondhand from Miles Apart, 5 Harraton House, Exning, Newmarket, Suffolk, CB8 7HF. Price £35.

Identification of Seabirds of the Southern Ocean

A Guide for Scientific Observers Aboard Fishing Vessels

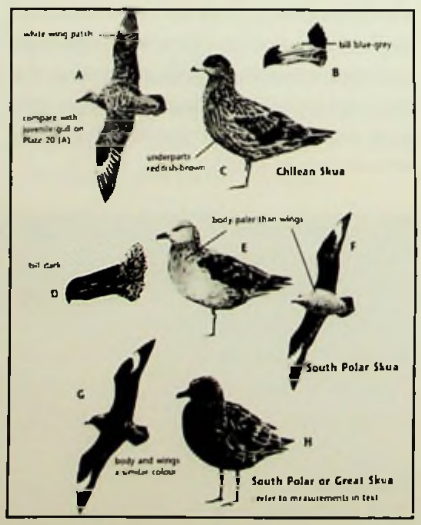
Onley, D. and Bartle, S. 82 pp. Te Papa Press, Wellington, New Zealand in association with the Commission for the Convention on the Conservation of Antarctic Marine Living Resources. 1999. ISBN 0 909010 47 1. Overseas orders: ccamlr@ccamlr.org AUS$20.

Prior to the publication of this book the identification of seabirds caught during longline fishing operations was largely down to the previous experience of individual observers, which varied considerably. *Identification of Seabirds of the Southern Ocean* is specifically designed to identify drowned birds in the hand and as such it is a vast improvement on guides previously issued to CCAMLR observers. It will undoubtedly be a very useful tool for the inexperienced observer and will greatly increase the value of data collected by observers at sea.

The book is well produced with a combination of clear diagrams, informative text and morphometric measurements to aid seabird identification. Species are arranged into groups of similar appearance rather than taxonomically, which should assist the inexperienced observer to make the correct identification.

For the non-specialist reader the species covered are well illustrated, although many species commonly encountered in the Southern Ocean (for example penguins, diving petrels and prions) are not covered as they are at low risk from longliners.

Review by Andy Black, Seabirds at Sea Team.



The illustrations in *Seabirds of the Southern Ocean* (Skuas shown here) all emphasise key identification points.

Update on Cobb's Wren

by Robin Woods

Cobb's Wren *Troglodytes cobbi* is endemic to the Falkland Islands. In 1994, BirdLife International classed Cobb's Wren as 'vulnerable' because of the small scattered population restricted to geographically isolated areas of the Falklands and the destruction of its favoured tussac grass habitat over many years.

Status 1983/4 - 1992/3

During the ten year survey of breeding birds which led to the publication of our Atlas of Breeding Birds of the Falkland Islands (1997), the population was calculated to be only about 2,000 pairs. Cobb's Wren was found in 25 of the10km grid squares and breeding was reported as probable or confirmed in 17 squares. All records came from offshore islands. A closer look at the data revealed that Cobb's Wren was only recorded on 12 islands in groups separated from each other by about 40km of ocean.

Further Survey Work 1997/8

During the Johnny Rook Survey a total of 57 islands were visited. Records were kept of the bird species present and whether there was evidence of rats or mice. On the 23 islands where the presence of rats was confirmed, we could not find Cobb's Wren. In contrast, the Grass Wren was found on 21 islands with rats. This smaller and apparently weaker wren can survive with rats, probably because it feeds mostly above ground level in thick vegetation and not on beaches among boulders.

Population Estimate Now Trebled

Taking into account all records from the Atlas and the later visits, Cobb's Wren has now been recorded in 37 grid squares, with breeding probable or confirmed in 33 squares. New population calculations suggest that there are about 6,000 pairs on 29 islands or islets, which is a better situation for the species than was previously thought. However, populations are still isolated in island groups and it is fairly clear that if rats spread to any of the predator-free islands, then the Cobb's Wren population would be destroyed.

Cobb's Wren *Troglydetes cobbi* Photo: Robin Woods

Rats keep Songbirds off New Nature Reserve

Two small islands in Queen Charlotte Bay off Spring Point, West Falkland were bought in 1998 by Falklands Conservation, through the generosity of members. It was obvious that rats were present when Mike Morrison and I visited in October 1998. There was no evidence of Cobb's Wren nor indeed Tussacbird, Black-throated Finch, Long-tailed Meadowlark, and we detected only two singing Grass Wrens on Double Island and one on Outer Island. We found only 24 bird species on these islands, which both have good cover of mature tussac grass. A solitary Falkland Thrush sang on Outer Island, and it seemed likely that there was a pair of Dark-faced Ground-tyrants on each island. This lack of songbirds is absolutely typical of small islands infested with rats. Getting rid of the rats here has been seen as an important objective since the Islands' acquisition.

Plans Afoot to Eradicate Rats

Recently, biologists from New Zealand visiting the Falklands heard about our rat problems. A scheme to eradicate them from Outer and Double Islands (along with two further islands off East Falkland) has been drawn up. It is an intriguing thought that ridding these small tussac islands of rats could allow recolonisation by songbirds, particularly Cobb's Wren and the Tussacbird. Let us hope that funding is found for this exercise (to take place in 2000/01) which would be the first of its kind on a Nature Reserve in the Falklands.

Falklands Conservation

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The Warrah is published twice a year. The Editor (Ann Brown) welcomes letters and articles for publication.

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Offices:
UK: 1 Princes Avenue, Finchley, London N3 2DA.
Tel/Fax: 020 8343 0831
email: ABrown@falklands-nature.demon.co.uk
FI: PO Box 26, Stanley, Falkland Islands.
Tel: 500 22247
Fax: 500 22288.
email:conservation@horizon.co.fk
Web Site:
http: www.falklands-nature.demon.co.uk

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Mystery relative of Felton's Flower discovered on New Island

Robin Woods

Last summer my brother Nick and I spent a week on New Island (North) where Tony Chater's new shanty in North Bay was wonderfully insulated with sheep's wool and provided a comfortable base for exploring the northern peninsulas.

On 27 November, it rained hard until early afternoon so we started plant-hunting late in the paddock of grasses and low plants northwest of North Harbour, a 2km-long, narrow inlet bordered by partly vegetated steep sand and rock slopes. We examined plants around the pond below the sand bar and began to climb the steep northeast-facing slope, when I noticed some large patches of a fleshy green plant.

These reminded me of the rare endemic Felton's Flower *Calandrinia feltonii*, but the leaf-shape was different, the flower stems looked long and the developing seed pods were much more angular. Though it was only about 15.30, we found no open flowers, but a few showed traces of pink at the tips of sepals, not the distinctive magenta colour of Felton's.

The attractive pink flowers of the new discovery.
Photo: *Nick Woods*

The following morning we showed the site to Tony and found just two flowers open at 08.40. They had five blunt-tipped oval petals, a deep red three-part stigma and six stamens with dark red stalks. A few seed pods looked nearly ripe; when opened they showed several seeds, almost round and shiny black like Felton's seeds but only half the size. After surveying a section of Sabina Point, we revisited the unknown plants at 11.45, when it was cloudy. The previously open flowers were tightly closed and no others were open. The plants were spread along about 125m of the lower coastal slope, up to 10m above beach level. They varied in size from the lush plants with many long stems to tiny, few-stemmed and stunted plants on flat sand just above highwater mark. The following day, several flowers were open at 12.35 but by 13.20, they were all closed. This suggests an even shorter flowering period than that of Felton's Flower.

A stem of the mystery Calandrinia showing leaves with ripening seed pods
Photo: *Nick Woods*

We are sure that this is a Calandrinia. Since returning to UK, specimens and photos sent to the Royal Botanic Gardens at Kew, have been passed on to Professor David Moore. He is in touch with John Watson, a botanist in Chile who specialises in this genus and we await his opinion. If it is a South American species of Calandrinia, then it is naturalised in the Falklands hundreds of km. from the known localities. Whatever it turns out to be, it is likely to be an addition to the list of Falkland flowering plants.

Surveying Falkland Islands Flora

David Broughton and Jim McAdam

An 18 month Darwin Initiative project on the Falkland Islands flora run by Queens University of Belfast began in October 1999. The Darwin Initiative is a UK Government fund set up after the 1992 Earth Summit to enable British biologists to assist partner countries to conserve their biological diversity and implement the Biodiversity Convention & Projects funded under the Initiative always involve a partnership with an organisation in the host country – in this case the partner is Falklands Conservation.

Considering that it is such a fundamental resource the flora of the Falkland Islands has been poorly studied. This Project will be the first thorough and systematic study of the distribution and status of the flora. The Project is also important as its is unbiased ie no species is deemed more important than another. In the past has there has often been a bias towards the more rare and unusual plants whilst the common and more ecological important species have been vastly under-recorded.

The end results will be not only a representative atlas of the Falklands flora but also a computer database held by Falklands Conservation, containing all the data from the plant surveys. This will be a significant, and hopefully growing, resource for the future. It is hoped that the data will remain freely available in the Falkland Islands for conservation planning (including monitoring the spread of non-native species) for tourism, agriculture, scientific research, education, and for helping to develop novel, sustainable uses for Falklands flora.

After three months fieldwork we already have a much better understanding of the status and distribution of the Falkland Islands flora. For example:

* We have the first modern record of Twisted Filmy-fern (*Hymenophyllum tortuosum*), Red-haired Filmy-fern (*Serpyllopsis caespitosa*), Pondweed (*Potamogeton linguatus*) and Springbeauty (*Claytonia perfoliata*).

* We have increased the known number of non-native species (the non-native flora now almost equals the native in number). Marsh Foxtail (*Alopecurus geniculatus*) and Green Field Speedwell (*Veronica agrestis*) are two such species and are locally common.

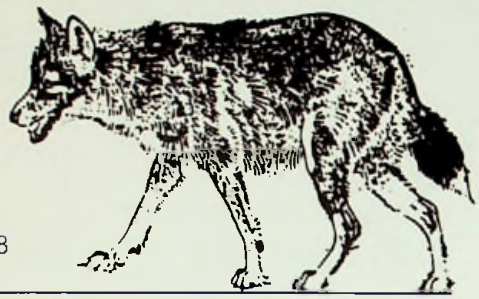
* Marsh Pennywort (*Hydrocotyle chamaemorus*) is now known not to be rare as it has been found in all the areas visited.

* New populations have been found for the following rare/scarce and nationally protected species - Moonwort (*Botrychium dusenii*), Silvery Buttercup (*Hamadryas argentea*), Yellow Pale Maiden (*Sisyrinchium chilense*).

The Darwin programme is incorporating all records submitted for Falklands Conservation's native plant survey, and species records are welcome from anyone throughout the course of the Project, so please get involved! In fact the more contributors we have the better as this will help to ensure that the data truly reflects the distribution of the flora. Even well surveyed areas continue to throw up new surprises. Plant records (including the date of sighting, a precise location, and if possible a grid reference) can be sent to David Broughton, c/o Falklands Conservation, PO Box 26, Stanley, Falkland Islands or to David/Jim McAdam at the Dept of Applied Plant Science, Queens University of Belfast, Newforge Lane, Belfast BT9 5PX, Northern Ireland

the **WARRAH**

from Falklands Conservation November 2000 – Number 18



Falkland Lichens
Richness on the Rocks

Dr Kery Dalby visited the Islands in January 2000 to study lichens. He collected 300 specimens representing some 100 species. He reports here on his findings from this intriguing group of plants

Lichen *Caloplaca sublobulata* found on the Falklands' rocky shores. *Photo:* Kery Dalby

FALKLANDS CONSERVATION

In this Issue: A Look At Falkland Lichens, Status Report on Zebra Trout, Tussac Restoration Project, Book Reviews, Penguin Tracking Report

A Look At Falkland Lichens

Dr Kery Dalby

The primary aims of my visit in January/ February 2000 were to extend the lichen collections from the Falklands and to provide an introduction to their study. The names used in this account are necessarily provisional as later critical studies may well lead to corrections or revised opinions.

The rocky shore at Saunders Island showing coastal lichen zonation with dark *Verrucaria* to left, orange *Caloplaca* (mostly *C. sublobulata)* zone in middle, and grey *Ochrolechia* on higher rocks to right.
Photo: K Dalby.

A Conspicuous Local Feature

Lichens are familiar plants in the Falkland Islands covering the rugged quartzite rocks west of Stanley, for example at Wall Mountain, coating the boulders on stone runs, and making grey, orange and black bands on rocky sea shores. Yet, in spite of being so conspicuous, they have been almost ignored by botanists and naturalists as their component parts (algae and fungi) are microscopic.

Specialised Terms

Some specialised terms are used to describe the structures of lichens (often visible only with a microscope) which are essential for the correct identification of lichens. The main plant body (its form determined by the fungus) is the ***thallus***. The spore-producing fruits are usually small disc-like ***apothecia*** (the spores are fungal not algal in origin). Dispersal organs involving packages of both algal and fungal cells together are ***isidia*** (with a smooth outside layer) or ***soredia*** (powdery, with a loose non-compacted exterior).

Existing Collections

Staff from the British Antarctic Survey have often collected specimens during visits to Stanley between journeys to or from South Georgia or the Antarctic, many of which are housed in the BAS herbarium in Cambridge. Dr Henry A Imshaug led a team who collected over 3,000 specimens in the 1960's, but these have remained relatively neglected in Michigan State University. Dr Alan Fryday has recently been appointed to reappraise these.

International Context and Identification

Many species are virtually universal in their distribution, but others are much more geographically restricted. The Falkland lichen flora is most similar to that of Tierra del Fuego but some species superficially resemble European species, but differ slightly in their chemical constitution. This situation, familiar enough to biogeographers, is particularly taxing in the Falklands because of the lack of published work to help in identification.

Kery Dalby on cliffs along the northern shores of Berkeley Sound. Here the genus *Pseudocyphellaria* is particularly attractive, with the broad yellow thalli of *P. endocrysa* growing along with Balsam Bog and Diddle-dee.
Photo: C. Dalby.

Notable and Typical Species

I found some interesting plants such as *Verrucaria dermoplaca* on shoreline rocks at its typical locality in Fox Bay, West Falkland. Finds of this kind allow us to participate a bit in the activities of botanists and explorers from the past - brought home to me when I came upon the Tide Guage set up by the crews of *Erebus* and *Terror* at Port Louis in 1842. On the rock face by this site, there are extensive fruiting thalli of *Haematomma erythromma*, a species that becomes mainly sterile further south (in fact the majority of the thalli that I saw in the Falklands were vegetative). On these rocky shores (and especially those where more resistant rocks are present) the characteristic colour zones so familiar to European botanists are well-developed.

Lichen Habitats

It appears that the richest sites include steep sea and river cliffs (inaccessible to grazing animals) and unimproved moorland areas, and the higher ground on the hills, especially where the terrain is rugged or the sites are far removed from roads or settlements. Sea cliffs dominated by tussac grass have little lichen cover, but lichens become conspicuous at some sites.

Land management history must be crucially important in some places (many tussac grass stands have been destroyed by fire). However, at Port Louis eroded over-grazed paddocks still support diminutive thalli of several foliose lichen species. These remain as potential sources for regeneration should grazing pressure be reduced.

Lichens on Shrubs

The lichens of Diddle-dee heathland are superficially very similar to many from comparable habitats in Europe. Thus the yellowish tufts of *Coelocaulon* will probably be *C. Aculeatum*, and red-fruited *Caldonia* are likely to be *C. Floerkeana*. Old stems of Native Box on the sea cliffs of Saunders Island are pink-orange with a crustose lichen probably allied to *Belonia*, with spirally arranged fungal hyphae clinging to algal filaments. Though this is very noticeable in the field, the red colour quickly fades with storage (in contrast to the more stable orange of *Xanthoria candelaria* which is so charactistic of trees and bushes in the settlements).

One very interesting lichen is *Thamnolia vermicularis* which grows in thick white cushions or tufts of white wormlike stems. This is a very widely distributed species which has never been known to produce apothecia, soredia or isidia, so all dispersal must be vegetative. None of my four gatherings flouresces with UV light, so they must all belong to the subsp. *vermicularis*, exactly as would be expected from the world distribution of the two sub species (see the map, fig 5, in Sheard, 1977).

Lichens on Rock and Stone

Hard sandstone outcrops support the very attractive black and yellow *Usnea (Neuropogon) aurantiaco-atra* used locally on a small scale for dyeing. This species is protean in growth form, resulting in numerous synonyms in the literature with at least 6 taxa having been described from the Falkland Islands (Walker 1985). It is best developed on nearly horizontal surfaces where it forms extensive dark turfs. In the great stone runs of East Falkland - Darwin's 'streams of stones' - and on the small equivalents in West Falkland, species of *Pertusaria* and *Ochrolechia* cover exposed rock surfaces with rough grey or brownish crustose thalli. These are mostly sterile, and some may be intractable taxonomically.

In Conclusion

Duplicates of my *Cladonia* samples are with Soil Steenroos, awaiting naming and DNA analysis as part of studies to reveal the scale of genetic divergence between plants of the same species but in different hemispheres.

It may be premature at this stage to suggest which Falkland habitats support the greatest number of lichen species, but this will be essential for maintenance of environmental bio-diversity and conservation purposes in the Falklands of these fascinating plants.

Acknowledgements

My visit was supported by funding from the Shackleton Scholarship Fund, augmented by help from the Percy Sladen Memorial Fund in London. Many people helped me during this visit to the Falklands. I wish particularly to thank Brian and Penny Hill for hospitality in Stanley, Peter and Melanie Gilding in Port Louis, the late Robin Lee in Port Howard, and Susan Pole-Evans at Saunders Island. Becky Ingham and her staff at Falklands Conservation and Jim McAdam in Belfast played an invaluable role in helping to plan the visit. Finally, various lichenologist friends have promised assistance with identifications which go beyond my limited knowledge of the southern hemisphere lichen flora.

References

Grass, M. M. 1952. Contribusion al catalogo de liquenes Argentinos, 1. Lilloa, 24, 5-294, .

Imshaug H. A. 1968. Expedition to the Falkland Islands. Antarctic JI US, 4. 247-248.

Ovstedal DO and Lewis-Smith FI (In press). Lichens of Antarctica and South Georgia.

Sheard J. W. 1977. Palaeogeography, Chemistry and Taxonomy of the Lichenlized Ascomycetes Dimelaena and Thamnolia. The Bryolist. 80, 100-118.

Walker F J. 1985. The lichen genus Usnea subgenus Neuropogon. Bull Br Mus Nat Hist (Bot.) 13 (1): 1 130.

Book Reviews

Falkland Adventure

Andrew Coe

Price £14.99, plus £2 p&p
ISBN 0-95382220-1-X
Bluebell Publishing, Windhill House, Sandford, Strathaven, Lanarks. ML10 6 PN.

This book will bring back memories for anyone who has ever spent any time in the Falklands. It is an intensely personal, at times amusing, sometimes poetic and always enjoyable series of snapshots of the author's experiences with his wife Sarah and their five children, during their three year stay in the Islands where he was the Government's senior veterinary officer.

The book is packed with photographs - dramatic, beautiful, poignant and humorous. The wildlife is well represented with penguins, geese, loggers, Johnny Rooks, sea lions and elephant seals. The views and scenic shots are always beautiful and sometimes dramatic. All are of a high quality.

If you are looking for a little reminder of the Islands to give to someone who has been there it would be hard to beat this delightful memento to the many and varied aspects of Falkland life.

Review by Julian Fitter

St Helena and Ascension Island: A natural history

Philip and Myrtle Ashmole

Anthony Nelson, £30. 496 pages.
October 2000
ISBN 0 904614 61 1

This book provides an excellent account of the wildlife of two of the most isolated islands in the world, both of which have links to the Falklands. It is recommended as an appropriate luggage item for any visitors to these South Atlantic Islands (voluntary or involuntary, short or long stay) and would keep travellers on a lengthy Tristar flight south fascinated and well occupied.

Albatrosses

W L N Tickell

Pica Press, £20, September 2000
ISBN 1-873403-94-1

This incredible book must represent the most comprehensive collection of knowledge on the albatrosses of the world. Clearly and concisely illustrated with maps, diagrams and charts, it provides an astonishing amount of information in one easy to use reference.

Covering the different groups of albatross species by geographical location (Southern, Northern and Tropical species), each section includes breeding sites, provides a record of infestation by pests, and relates the human history and current threats and issues facing each albatross species at each site. Individual species are examined in detail in subsequent chapters, looking at the complete ecology, through pre-egg periods to chick growth and departure, as well as parasites, diseases and predators.

Data for this section is clearly presented, well referenced and easy to find. An overview of the entire range of threats facing the bird is covered in the final chapter together with the folklore that has developed through man's history on the seas.

The dedication that Lance Tickell has to his subject is obvious from the vast number of personal communications from around the world and the way that scientific knowledge and facts are enlivened throughout with the history, folklore and quotes. Whilst not perhaps for the general interest table, this book should be a must for any researcher of seabirds and all those interested in the ecology of albatrosses.

Review by Rebecca Ingham

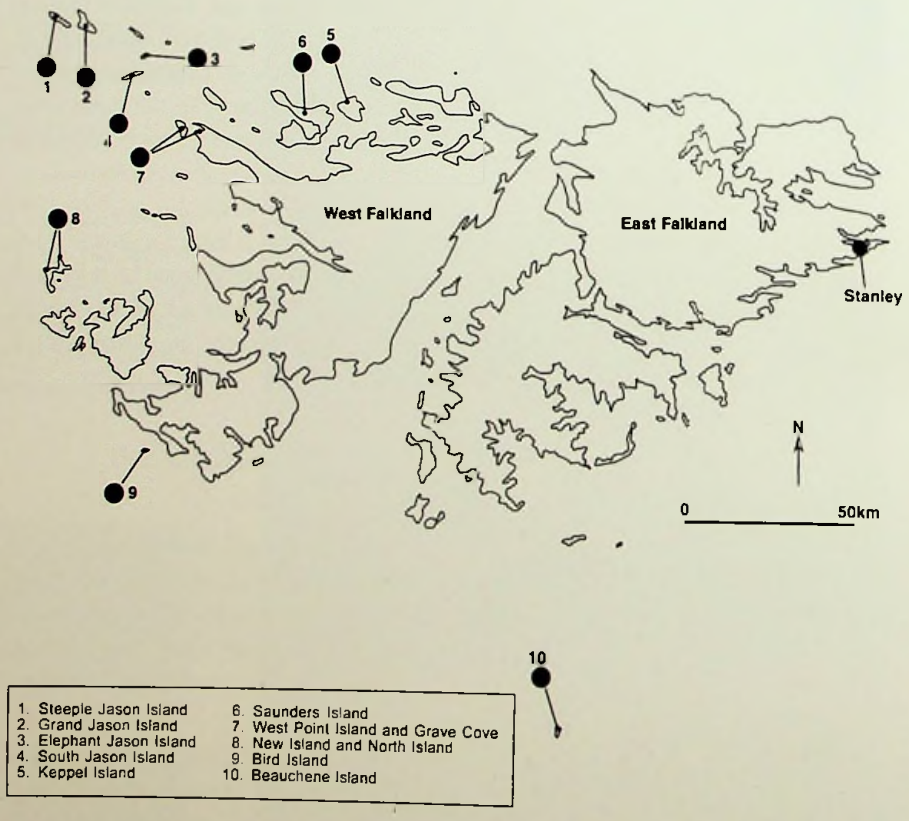


Illustration from *Albatross* showing breeding sites of the Black-browed Albatross in the Falkland Islands.

An Identification Guide to the Grasses, Sedges and Rushes of the Falkland Islands

Jim McAdam and Fiona Wilson report here on a project to produce the above Guide. It is hoped to have a spiral bound working copy of the key plus descriptions and sketches available for limited use this austral spring/ summer season. Funding is currently being sought to produce a glossy booklet version.

Enquiries to Dr Jim McAdam, Dept Applied Plant Science, Agriculture & Food Science Centre, Queens University of Belfast, New Forge Lane, Belfast BT9 5PX, N Ireland.

Grasses make up a large part of the vegetation of the Falkland Islands with about 45 species known to occur and a few others that have been recorded occasionally or historically (and may now be extinct in the Islands). The familiar dun colour which dominates the landscape is caused by Whitegrass *Cortaderia pilosa*, and much has been written and enthused about the agricultural merit and conservation value of Tussac grass *Poa flabellata*. Species from two other familiar of grass-like plants - sedges and rushes - are also found in the Falklands. Eighteen species of sedge and seven of rush have been found there.

Whilst several colour guides to the Falklands' wildflowers have been produced over the years (eg Davies and McAdam 1994; Woods, 2000), currently the only reference book to deal with grasses, sedges and rushes in detail is *The Vascular Flora of the Falkland Islands (1968)* by the botanist David Moore. This is a highly technical publication and not easily used by non-specialists. The new Guide is intended to address the gap in the guides currently available.

It draws together information available on the identification of grasses, sedges and rushes in an easy to use format. There is a short explanation about each group of plants, simple identification keys and a description and illustration of each species, as well as colour photographs (where available). Botanical terms are kept to a minimum and those used are explained in a glossary.

Above all we hope this Guide will shed a new light on what had previously been a group of plants which people have fought shy of identifying.

Report from Dr Jim McAdam

Penguin Planet

Kevin Schafer

NorthWord Press, £16.95, 2000

ISBN 1-559-717-459

This book is the result of a personal mission to photograph all 17 living species of penguin. In doing so Kevin Schafer has created a stunning book packed with spectacular pictures. It is he says 'a tribute to the sheer wonder of penguins, to their physical beauty and grace, to their inspiring struggle to survive and to their inescapable charm'.

The book's sub title 'Their World, Our World' sets the format for this dramatic account of penguins' lifestyle with an informative and accurate text (in more popular style than scientific). Useful appendices give details of the range and status for each species and where to see them. The Falkland Islands are of course listed and get star billing – 'This remote island group is not easy to get to, but it is one of the most wonderful places in the world to see penguins.' This beautiful book is a real inspiration to behold.

Review by Ann Brown

Status Report:

The Falkland Islands Zebra Trout

Aplochiton zebra

R.M. McDowall

National Institute of Water and Atmospheric Research, Christchurch, New Zealand

Darwin's Discovery

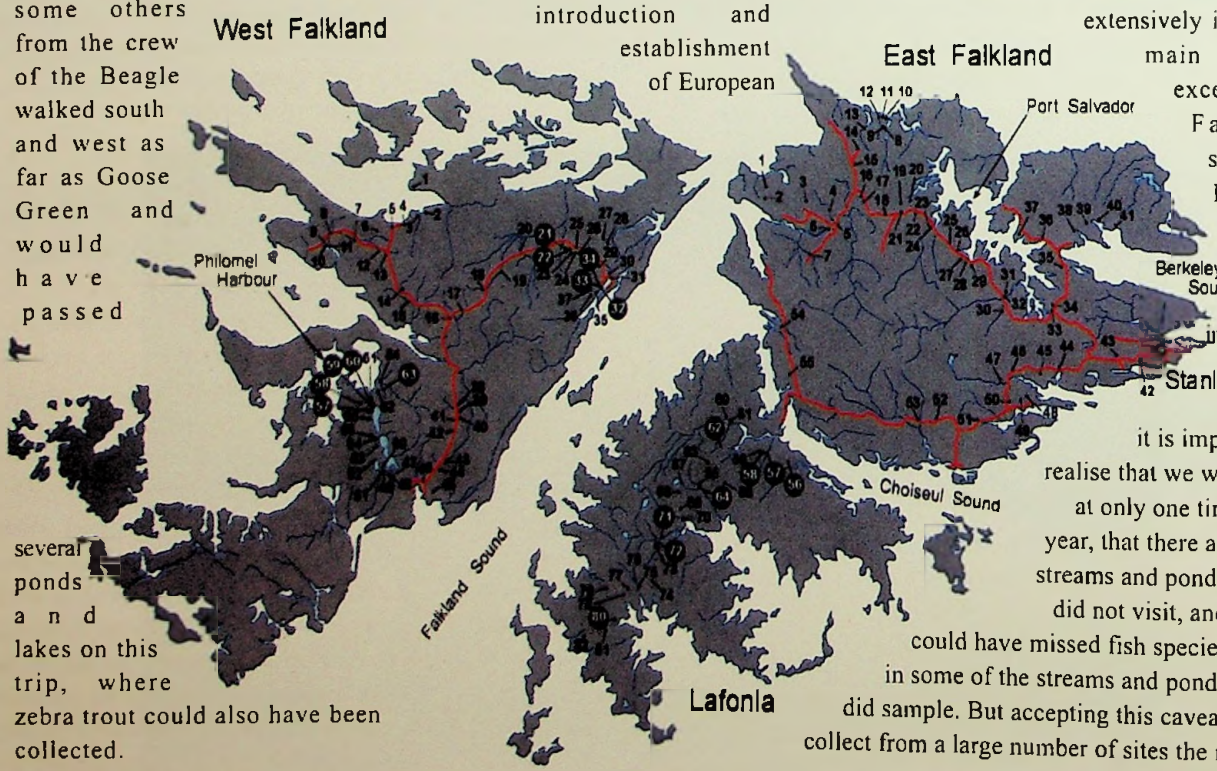
When the H.M.S. Beagle, with Charles Darwin aboard, was anchored in Berkeley Sound, in northeastern East Falkland, in the late 1830s, a fish specimen was collected, preserved, and taken back to Great Britain for description. British biologist Leonard Jenyns called it *Aplochiton zebra*, the use of 'zebra' being an allusion to bold, dark vertical stripes across the sides of the fish, and the common name 'zebra trout' has achieved wide and general usage around the Islands. Where Darwin's specimen was collected from is unrecorded, apart from the fact that it came from a lake, but quite possibly it was Magellan Pond, near Johnsons Harbour in Berkeley Sound, though this is speculative. Darwin and some others from the crew of the Beagle walked south and west as far as Goose Green and would have passed several ponds and lakes on this trip, where zebra trout could also have been collected.

A Once Common Fish in Decline?

Over the years since the fish was collected it has been repeatedly recorded from the Falklands, as well as from Patagonian South America. The fish has been an item of food for Falklanders, no doubt welcomed, and there are stories of fish being caught and cooked on a shovel held over a fire fuelled by diddle-dee – a tasty morsel for a cold, hungry shepherd. Zebra trout were widespread, common, and easy to catch, and even in recent decades there are reliable stories of dozens of fish being caught in a day. However, there have been persistent suggestions that numbers of zebra trout have recently been in serious decline, and that the fish is no longer to be found in some river systems where it was formerly known. Decline in abundance and range of zebra trout has been blamed on the introduction and establishment of European brown trout, *Salmo trutta*, in Falkland Islands streams, though this connection has never been confirmed (and it would be very difficult to do so in a rigorous way).

A Wide-ranging Survey Undertaken

With these points in mind, in the company of two further New Zealand fish biologists (Richard Allibone and Lindsay Chadderton), I undertook a wide-ranging survey of Falkland Islands streams during November 1999 (with funding support from the National Geographic Society, Washington, the Shackleton Scholarship Fund, and some New Zealand funding sources). During three weeks, using a variety of fishing techniques, including traps, nets and electric fishing equipment, we sampled 146 sites widely across the two main islands (see Fig. 1), working extensively in all the main areas except West Falkland south of Fox Bay.



In interpreting our findings it is important to realise that we were there at only one time of the year, that there are lots of streams and ponds that we did not visit, and that we could have missed fish species present in some of the streams and ponds that we did sample. But accepting this caveat, we did collect from a large number of sites the results of which detailed as follows.

Red Pond, where zebra trout are still abundant. *Photo: R McDowall.*

Survey Results

Amongst the 146 sites, there were no fish at 16 sites; of the remaining 130 sites, the native minnow, *Galaxias maculatus*, was the only species present at 57 sites, the introduced brown trout was the only species at 45 sites, only zebra trout occurred at 3 sites, minnows plus zebra trout were found at 13 sites, minnows and brown trout at 10 sites, and all three species at only 2 sites (and at both of the latter we collected only 1 zebra trout). The general lack of zebra trout at sites where brown trout were found is particularly telling, and consistent with suggestions that the introduction of brown trout has had a damaging effect on zebra trout distribution and abundance.

Zebra trout were found to be reasonably widespread and abundant in two areas:

On East Falkland we found them across Lafonia, and this interestingly is an area that the brown trout has scarcely invaded - though a few have been found recently in at least one of the rivers along the northeastern coast of Lafonia;

On West Falkland, zebra trout are widespread in streams and lakes draining into Philomel Harbour in the west, and interestingly, this is an area where brown trout are presently unknown, perhaps because the sea-migratory brown trout present on the Falklands have yet to find their way through the rather narrow entrance to the harbour.

In addition, zebra trout were found to be abundant in Red Pond, a small lake on Port Howard Farm. Red Pond has no outlet, so that the population of zebra trout must be landlocked in the pond (unlike other populations where there is almost certainly a sea-migratory stage in the species' life history). Thus, in Red Pond (as mostly elsewhere), zebra trout were found in a place where brown trout have not yet become established. Although we have not been able to demonstrate any causal connection between the distribution and abundance of zebra trout and the presence of the introduced brown trout, our data are certainly consistent with the quite widely expressed view that brown trout are causing the decline in zebra trout.

What of the future for zebra trout?

There seems no obvious reason why, eventually, brown trout will not spread more widely into unoccupied Lafonia stream systems, and also find their way into Philomel Harbour and the river systems that drain into it. If so, the future for zebra trout looks bleak. This really emphasises the importance of the population in Red Pond, as this is the only known population where trout cannot gain natural access. There may be other undiscovered landlocked populations of zebra trout in lakes, e.g. we were told that they occurred in both Magellan Pond and Lorenzo Pond, but did not find any there. And we netted several of the lakes in the series north of Fox Bay and found only minnows. While landlocked populations like that in Red Pond are certainly better than nothing, they do represent somewhat 'minimalised' stocks of a fish that would normally undertake migrations to and from the sea. Recent moves to introduce regulations that prohibit the capture of zebra trout are certainly commendable, but whether they are enough to ensure the species' survival only time will tell. Loss of this fish from the already very sparse Falkland Islands freshwater fish fauna would be a tragedy.

Tussac Restoration Project Progress at Port Harriet

Rebecca Ingham and Mike Evans

Project aims to Protect Remaining Tussac Areas

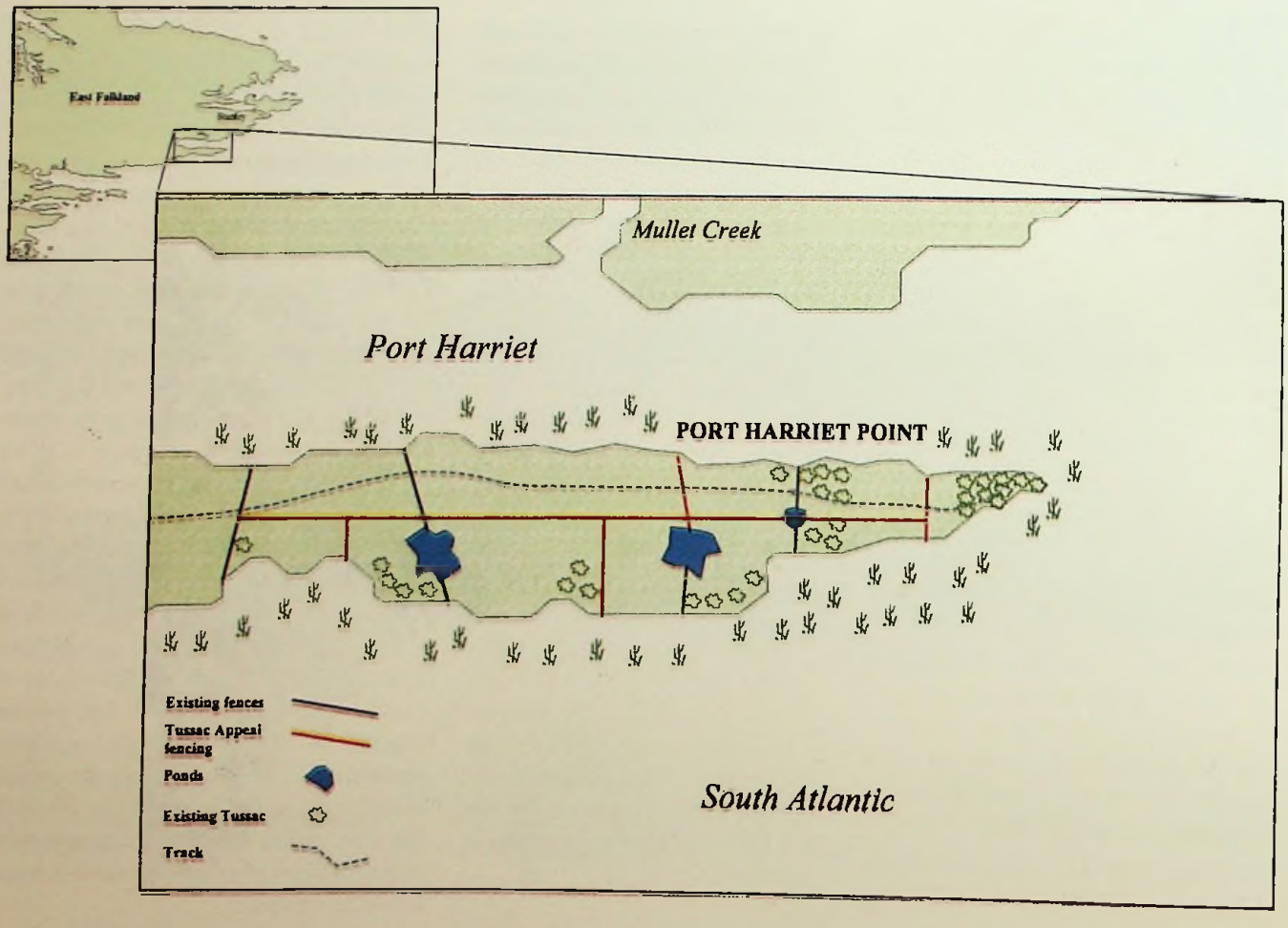
The depressing decline of tussac grass around the Islands has been regularly featured in the newsletters and journals of the Falklands Islands Foundation and Falklands Conservation over the last 15 years. These reports have noted that large areas of tussac have been lost to grazing and erosion and those areas remaining are fast becoming the Falklands most valuable and endangered natural habitats. In order to protect these remaining areas and to help the people trying to manage them, Falklands Conservation launched the *Tussac Appeal* in early 2000. Funds raised will pay for fencing and sectioning of remaining tussac grass areas to ensure their future careful management and sustainable use. With support, encouragement and advice from the Department of Agriculture plans are now well advanced to protect an important tussac grass area at Port Harriet. Discussions are well under way for possible sites at Cape Dolphin, to the north west of East Falkland.

Appeal Progress

A tremendous response to this Appeal has come from our members* who have already contributed over £7,000. The Falkland Islands Company has offered to help with the transport of fencing materials. A raffle was held in the Islands to raise funds, with a limited edition of Mandy Shepherd's beautifully illustrated book *The Falkland Islands* being kindly donated by the author. The Appeal is on-going and will continue to negotiate for practical protection measures to be implemented at additional tussac sites as funds permit.

Port Harriet: Importance and Management

The first site to be tackled is at Port Harriet Point. This is a tussac covered point to the south of Stanley. The land is owned by the Falkland Islands Government, but leased and managed on a long-term basis by tenants Jo Newell and Mike Evans. Jo and Mike have a high interest in sustaining the wildlife value along with the agricultural value of



the area which they use primarily for high quality shelter and grazing for horses.

Port Harriet is an important area for several reasons. It is home to a breeding colony of Southern Sea Lion, a colony of up to 70 was recorded during the 1999-2000 season. We will be monitoring their progress with interest over the next few years. In addition, it also has a breeding colony of Magellanic penguins, provides shelter for a wide range of small birds and is an important feeding ground for immature Red-backed Hawks and Turkey vultures.

Port Harriet: Tussac Restoration Plans

Port Harriet is a long thin spit of land, approximately 4km in length. Tussac grass grows along its entire length up to the heavily covered tussac point with particularly dense areas scattered around the edge of its long coastline. The last kilometre of the peninsula is currently managed as a private Nature Reserve. The main fencing provided by the Tussac Appeal will be used to split the peninsula along it's length, with four smaller fences dividing the area into a total of 11 small areas. In this way, stock can be excluded from certain areas while re-planting and re-growth of the Tussac grass takes place.

After the initial fence-building at the end of the austral summer 2000-2001, there will be a period of Tussac planting in some of the divided sub-sections. These re-planting days are to be open to everyone who is interested in lending a hand, so please call the Falklands Conservation office in Stanley for more details if you think you can help. The long-term aim is to increase both the area and the quality of tussac grass at Port Harriet, while still ensuring that the land can be used in a sustainable way. This now looks like becoming a reality, thanks to the co-operation and efforts of everyone who has contributed to the Project.

* We gratefully acknowledge below those who have generously supported the Tussac Restoration Project Appeal:

Peter Abbott
Sir David Attenborough
Rear Admiral A K Backus
A Bailey
W Banks
Capt Sir T E Barlow
A W Barnett
T Bradshaw-Isherwood
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A S Butler Charitable Trust
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C Wright

Winter Migration of Rockhopper Penguins

An Interim Report

By Dr Klemens Putz

About the Study

In 1998 a three year project was launched to study the winter migration of Rockhopper Penguins breeding in the Falkland Islands. In late March 2000 the third and final study period commenced. Seventeen Rockhopper Penguins from three different breeding colonies (Seal Bay, Sea Lion Island and Saunders Island) were successfully equipped at the end of their moult with satellite transmitters (PPTs) using the method described by Wilson et at (1997). The PTTs were programmed to transmit for 8 hours every day and included a saltwater switch (SWS) to suppress transmission while underwater. The SWS can also be used to calculate the time spent underwater, ie the activity of the individual birds.

During the migration of the birds, all PTTs stopped transmitting after different time periods, which is likely to be due to a detachment of the units by the penguins. Overall, locations were received for periods of between 23 and 90 days. As in previous years, the movements of the birds did not follow a clear pattern and were characterised by large individual, spatial and temporal variations.

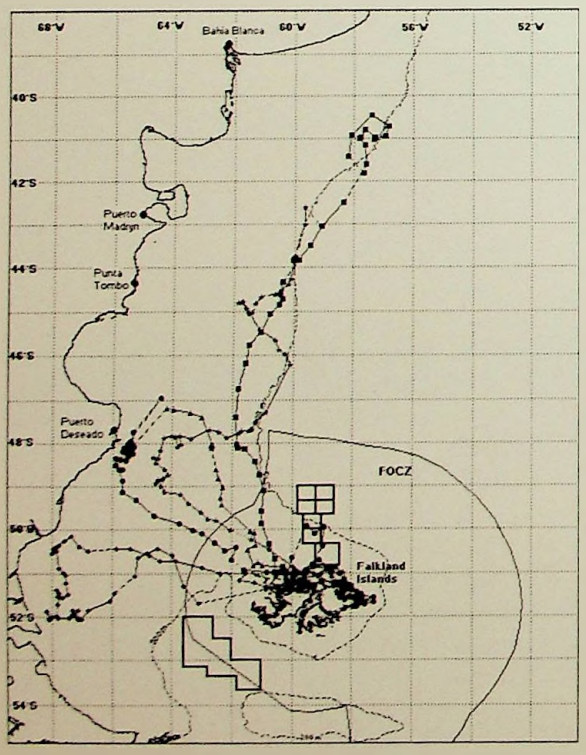

Fig. 1: Migration of Rockhopper Penguins from Seal Bay

Results from Sea Lion Island

At Sea Lion Island, 6 birds were equipped with PTTs and their movements subsequently tracked for an average of 62 days (range 23-90 days). With a few exceptions, all birds remained in Falkland Islands' waters during the whole transmission period. Two birds travelled initially to the south, whereas two others circumnagivated the Falkland Islands westwards and eastwards, respectively. One bird remained all the time in inshore waters to the southeast of East Falklands. The PTT of the remaining bird was not functioning properly and delivered positions only accidentally. Consequently, the migration route of this particular bird could not be followed in detail. Positions, however, were obtained more than two months after equipment to the northwest of the Falklands.

Results from Saunders Island

Five birds were equipped with PTTs at a colony on Saunders Island, and transmissions were received for an average of 80 days (range 69-87 days). All five birds left Falkland Islands' waters during the first part of their winter migration and travelled westwards. Three Rockhopper Penguins arrived off the coast at Puerto Deseado, Argentina, where they stayed for several weeks. The transmissions of one bird ceased in this area. Of the two other birds, one then headed eastwards between 46° and 48°S, whereas the other continued to travel northwards. A comparable northward migration was shown by the two other birds that initially did not travel westwards to such as extent. The furthest position north, achieved by one bird, was 39.5°S.

Results from Seal Bay

The migration pattern of the six birds equipped at Seal Bay with PTTs was, with minor modifications, comparable to that displayed by the birds from Saunders Island. The average transmission duration was 76 days (range56-89 days). Four of the six birds headed west until they reached the South American mainland. However, whereas 3 birds then stayed close to Puerto Deseado, Argentina, one other travelled further south and remained in an area between 50°S and 52°S. The latter bird then returned in June into Falkland Islands' waters. The two other birds again migrated northwards, one finally reaching 41°S where transmission ceased.

Study has Increased Knowledge About Rockhopper Migrations

In this study comprehensive insights into the winter migration sand foraging pattern of Rockhopper Penguins from the Falkland Islands were obtained. Obviously, there is a great variability in the winter migration, either inter-annually or seasonally. Furthermore, it became obvious that there is a large potential for Rockhopper Penguins to be impacted by oil exploration and exploitation activities in the northern as well as in the southwestern tranches. A more detailed analysis of all data collected during the past 3 years with special focus on individual, spatial and temporal variations of the migration patterns will be performed later this year.

Literature cited

Wilson RP, K Putz, G Perters, B Culik, JA Scolaro, J-B Charrassin & Y Ropert-Coudert (1997). Long-term attachment of transmitting and recording devices to penguins and other seabirds. Wildlife Society Bulletin 25: 101-106.

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Ernest Kleinwort Charitable Trust
Jurong Bird Park
New England Aquarium
Odense Zoo
Rockhopper Consulting Ltd
Strachan Visik Ltd

Noticeboard

Falkland Islands Site Guide: Update

Debbie Summers reports: 'I am now four months into researching the Falklands Site Guide. The idea originally came from Klemens Putz (who has extensive experience as an expedition leader on cruise ships). The research stage is being funded by the Falkland Islands Government. Falklands Conservation is currently trying to raise funds for the estimated £30,000 publication costs. The Guide is to be dedicated to Lars-Eric Lindblad, widely recognised as the pioneer of 'green tourism' in the Antarctic, and his son Sven has kindly agreed to write the Foreword. Peter Scott and friends were on a Linblad cruise when they called at the Falklands, resulting in the eventual creation of Falklands Conservation. The draft text for all 13 sites is taking shape. A number of eminent photographers have agreed to donate images including Ian Strange, Kevin Schafer, Tony Chater. Mike Morrison, Anna Ling and Peter Nightingale.'

Help Needed

- We are looking for a person to assist us as an adviser on our financial affairs – this could be combined with the role of Treasurer in the UK. If you have some experience in this field we would be delighted to hear from you. Please contact the UK Office in the first instance.
- A small UK fundraising group has just been set up. We would like to hear from anyone interested in helping with this important work either if you would like to become an active member of the group, if you have some inspirational fundraising ideas, are willing to help raise funds in your area, or have contacts who might be worth approaching for support.
- We are able to offer help to any members giving talks about the Falklands and Falklands Conservation. We can provide information, membership leaflets and slides to accompany your presentation.

Election of Trustees

Following the Annual General Meeting on 23rd November 2000 the following were elected to serve as Trustees of Falklands Conservation:

Sally Blake*	Jim McAdam
Nicole Buxton*	Frank Mitchell
Janet Cheek*	Michael Morrison*
Frederick Clark*	Roy Nolan
John Croxall	Daniel Owen
Dorothy Evans	Mandy Shepherd
Julian Fitter	Ronnie Spafford
Leslie Harris*	Kevin Standring
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Dennis Humphreys*	David Taylor
Malcolm Hunt	Louise Taylor*
Aidan Kerr*	Kate Thompson
Ron Lewis-Smith	Alan Tritton
Alan Tritton	Robin Woods

(* Resident Falkland Islands).

Our stand at the 2000 British Birdwatching Fair was very similar to that of 1999 (shown here with stand supremos Robin and Anne Woods and UK Chairman Ronnie Spafford chatting to a visitor in the background). We are very grateful to everyone who helped make our three days at this event so successful. We will be back there in August 2001 – come along if you can! *Photo*: Pauline Chapman

Falklands Conservation

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The Warrah is published twice a year. The Editor (Ann Brown) welcomes letters and articles for publication.

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Patron
HRH The Duke of York CVO

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Brian Summers

Offices:
UK: 1 Princes Avenue, Finchley, London N3 2DA.
Tel/Fax: 020 8343 0831
email: ABrown@falklands-nature.demon.co.uk
FI: PO Box 26, Stanley, Falkland Islands.
Tel: 500 22247
Fax: 500 22288.
email:conservation@horizon.co.fk
Web Site:
http://www.falklands-nature.demon.co.uk

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Low flying Aircraft – A Disturbing Influence?

For many years there has been concern in the Falklands about the effects of low flying aircraft on the Islands' extensive seabird colonies. Penguins, not unnaturally, will often flee from the disturbance. In the case of King Penguins this can lead to the abandonment of their egg. For other species the eggs could be left vulnerable to predators like the skua or nest sites may be deserted. Aircraft interference could therefore inflict serious damage on breeding patterns. However, numerous recent reports in the media (for which there is no scientific evidence) that penguins fall over backwards when overflown by aircraft are a myth!

Increasing aircraft activity in the sub-Antarctic and Antarctic is now causing international concern. The issue was raised at the Antarctic Treaty Consultative Meeting in Peru in 1999 where it was agreed that further studies were needed before recommending minimum aircraft flying heights. To help inform these international discussions, the British Antarctic Survey has developed a project to investigate the ecological effects of helicopter overflights on king penguins.

The research will take place during this austral summer at Antarctic Bay (where overflights will be made by the Royal Navy Lynx helicopters from HMS Endurance) and Possession Bay (the undisturbed control site) on South Georgia A series of overflights with specified altitude, direction and speed will be carried out starting at the highest altitude (2,000m) and coming down to the lowest (500m) The king penguins (1,000 at Antarctic Bay) will be videod before, during and after the overflights to allow their behavioural responses to be recorded and analysed. Audio recordings will also be made and penguin nests and chicks counted to determine breeding success.

The results of the study will be used to produce guidelines for Royal Navy helicopter operations from HMS Endurance, to guide the setting of recommended aircraft flying heights on South Georgia and assist in setting standards of control for aircraft flying near to wildlife colonies in Antarctica. The results will be no less relevant or important to the Falklands with its large military base and increasing tourism activity.

This map, for military guidance, indicates areas which are wildlife-sensitive to overflying in the Falkland Islands.