

**MIDDLE ISLAND & MOTLEY ISLAND NATURE RESERVES:  
Report on field survey work in January 1997  
by Robin Woods & Nick Woods**

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## Introduction

Middle Island and Motley Island, bought through donations in late 1994, together contain more than two-thirds of the land held by Falklands Conservation. When purchase was being considered, Sally Poncet visited **Middle Island** and reported that it would have particular significance as a reserve. It was about three miles south of Mare Harbour, bordering the principal navigation channel for shipping resupplying Mount Pleasant through East Cove. Possible future activities associated with oil exploration could increase shipping in the area. Sally was surprised to find good stands of a grass thought to be Mountain Blue Grass *Poa alopecurus*, over one metre tall and thriving on pure sand. She commented on the lack of information on this grass in the Falklands and stated that identification of the Middle Island plants was required. **If it was confirmed as *P. alopecurus*, its habitat on Middle Island suggested that it could have potential as a coloniser and stabiliser of eroded ground.** Middle Island had not been stocked since 1988, although a single surviving sheep was disposed of on 16/17 July 1994, when Sally visited. Tussac and other grasses showed signs of recovery, especially at the eastern end of the island and there were no indications of rats. Even with snow on the ground, many small birds were seen, including Tussacbirds, both species of wren and snipe. Annie and Pete Hill landed on **Motley Island** in December 1993 and reported to Sally that the Tussac, 'once used for fattening sheep for the Stanley butchery', was in good condition. 'The presence of Cobb's Wrens, Tussac-birds, Short-eared Owls, tussac areas "riddled with burrows of various sizes" and a variety of habitats ranging from pure tussac to grassland, heathland, wet bog and sand dunes, all indicate a valuable conservation site, particularly as the island is still an attractive proposition for stocking.' **Motley Island was last stocked in about 1992.**

A brief survey of Motley, the larger of the two islands, was reported in *Warrah* No.7 of May 1995 and a detailed report, written by RW, is held by Falklands Conservation. In 1995 we were taken to Motley from Mount Pleasant in a Chinook helicopter, by courtesy of the RAF. From my experience then, we decided to take three 15 litre containers of fresh water to each island as it seemed unlikely that there would be sufficient available for domestic purposes. This precaution was fully justified because no suitable water supply was found on either island. As far as is known, neither island has had permanent human settlement, though Motley had a shanty on the northwestern coast as temporary shelter for sheep gatherers. Both islands were heavily grazed by sheep in the past and have had several seasons in which vegetation could recover. The serious effects of over-grazing are still clearly visible in the extensive coastal slopes of eroded ground with dead Tussac bogs in various stages of decay.

We travelled by road from Stanley to East Cove and by boat across Choiseul Sound, passing close by the islet to the west en route, and arrived at Middle Island at midday on 5th January. A camp site was selected about 100m to the west of the landing place, where some large Tussac Grass provided shelter in the partly eroded coastal strip. In the clearings between bogs Diddle-dee and Small Fern were growing. Our tents were erected in a gale with heavy rain but this cleared and exploration of the western half of the island was possible that evening. The weather was unsettled during the five days, with fresh to strong winds and rain or showers every day. Blowing dust and sand were real hazards when walking or taking photographs. We left for Walker Creek by boat in the early morning on 11th January and spent most of the day there until the wind dropped. We travelled to the southern end of Seal Cove camp by Landrover in the early evening and crossed the narrow sound in four minutes by inflatable boat. We chose for our camp site a slight hollow on old sand dunes that were partly clothed with low Celery, Groundsel and Prickly Burr and with isolated large Tussac bogs, less than 100m from the beach. Two mornings and one evening were very sunny with high temperatures but, apart from one early morning,

winds were fresh to strong. In general, the weather was very unsettled with several fronts passing and temperatures changed considerably. We camped on Motley Island from the evening of 11th to about 1800 hours on 16th January when we returned by Zodiac and Landrover to Walker Creek.

## Field Work

### MIDDLE ISLAND

#### Topography & Ecology

Middle Island (150ha, 1.5sq.km. or 370 acres) is in the eastern approaches to Choiseul Sound, due north of Philimore and Lively Islands. The long axis is orientated roughly east-west (ENE-WSW) and the short axis north-south. The highest points at the northeastern corner and on the western ridge barely exceed 15m (50 feet). A landing place was found in the sheltered southwest-facing bay at the northwest corner of 1km square 9942. Middle Island has gentle peaty slopes along the western section of south-facing coast above shelf rock and small boulders. On the northern coast in 9843 are low rocky cliffs (up to c10m) bordering eroding black ground. There are large stabilised sand dunes behind wide sand beaches on the southeastern coasts with two areas of low rock cliffs, with blown sand between large Tussac plants, extending down to rocky beaches.

Several ponds had lost all or most standing water through the dry spring and early summer. A shallow muddy depression was found with a few square metres of water, on top of the dune area in 9942. There were several dried-out ponds near the landing beach and one almost dry large pond behind tall dunes in the northeastern corner of 9942. One muddy pool (about 2m x 1m) with overhanging sides, algal growth and a narrow hidden ditch feeding it, was seen in a shallow valley in 9842 to the west of our camp. Seepage and dripping was seen from low cliffs on the northern side of the point in 0043 and below cliffs at the eastern side of 9942.

Signs of the former use of the island for sheep were found to the west of the promontory in 9842. A small holding paddock and guiding fences with a few old sheepskins led from a slight valley into a bay facing southwest. There were no signs of human habitation.

#### Flowering Plants

Sixty-five species have been identified from Middle Island, including 13 grasses. Specimens of most species of grass have been identified by Dr Jim McAdam and these included examples of the Mountain Blue Grass first reported by Sally Poncet. Fifty (77%) of the plants are native to the Falklands and 15 (23%) are considered to have been introduced from Eurasia by the movement of ships with people, livestock and cargo (Moore 1968). Five of the 12 endemic Falkland plant species were found: Falkland Rock Cress (one of only two Falkland plants listed as **Endangered** by IUCN), Falkland Lilaeopsis, Falkland Cudweed, Woolly Falkland Ragwort and Smooth Falkland Ragwort.

Some particularly interesting plants were found in the almost dry bed of the pond (about 45m x 10m) in the northeast corner of 9942, behind a 10m high sand dune. It was completely surrounded by dense Prickly Burr, had an inner and slightly lower area nearly covered with small Native Water-milfoil and in the central parts there were small patches of the widespread but easily overlooked Falkland Lilaeopsis. Three more small plant species were found only here on

Middle Island during our two months field work in several Falkland localities. Mixed with the *Lilaeopsis* were scattered dense patches of the tiny, white and purple-flowered Southern Mudwort, described as 'rare' in the Falklands (Moore 1968), though it occurs in many other parts of the world. A few plants of False Ladle-leaved Buttercup ('uncommon' according to Moore) and of Lesser Sea Spurrey grew in the dampest parts. This Sea Spurrey is not listed in Moore (1968) nor in Jim McAdam's 1994 list but its occurrence in the Falklands is mentioned in Moore's Flora of Tierra del Fuego (1983).

The flatter ground inland of this dry pond also carried a luxuriant growth of plants, often up to 1.5m tall. These included the native Sword-grass, Antarctic Foxtail ('rare', Moore, 1968) and Mountain Blue Grass. Scattered large bogs of Tussac Grass up to at least 2m tall grew with a vigorous ground cover of Cinnamon Grass and amongst these grasses there were at least ten tall plants of the endemic Falkland Rock Cress.

On the southern slopes of 9842, both endemic species of Falkland Ragwort *Senecio* were found within a few metres of each other, scattered over the higher inshore land among mature Diddle-dee plants. *S. vaginatus* was noted as looking generally pale green, the yellow flower petals overlapping slightly to form a solid head and the calyx being fairly narrow. The flowers were almost scentless. In contrast, *S. littoralis* plants looked grey-green, had single flower spikes, the buds looking furry white from above and the disc had narrow yellow petals, spaced apart. The calyx was wide and the flowers had a strong pungent smell, reminiscent of old straw from a horse's stable. On Middle Island, *S. littoralis* plants had flowered earlier and were mostly in seed while *S. vaginatus* plants were in full bloom during the period 5-11 January.

Large areas of Mountain Blue Grass were found on level low-lying ground northeast of our landing place and on the upper slopes of dunes where it met coastal Tussac. The dry inland slopes of the western section of the island were clothed with old, dense Diddle-dee with abundant Almond Flower and a few plants of Native Strawberry as undergrowth, interspersed with patches of Tall Fern reaching only about three-quarters of a metre in height, merging into a narrow Tussac fringe towards the coast. Diddle-dee also grew on the dunes and in many places was being swamped by blown sand, black peat dust or clay. We did not find any of the common Whitegrass (*Cortaderia pilosa*) which is so typical of the adjacent Lafonia region. The lower peaty slopes below and west of the camp site were solidly carpeted in places by dense patches of Feathery Buttonweed, Procumbent Pearlwort, Pig Vine and Sheep's Sorrel. Feathery Buttonweed was mixed with Wiry Azorella on the far western point below old dead Tussac bogs.

## List of Plants - Middle Island

Note: All species were recorded in 10km square UC94 (which includes most of the island) except the Spiny Sow-thistle *Sonchus asper* which was in VC04.

Key	*	endemic species
	#	introduced species
	+	species found on both Middle & Motley Islands
	'....'	suggested English names (FI Tourism 1987)
	+	Small Fern <i>Blechnum penna-marina</i>
		Tall Fern <i>B. magellanicum</i>
#	+	Small Nettle <i>Urtica urens</i>
#	+	Curled Dock <i>Rumex crispus</i>
#	+	Sheep's Sorrel <i>R. acetosella</i>
#	+	Field Mouse-ear Chickweed <i>Cerastium arvense</i>
#	+	Procumbent Pearlwort <i>Sagina procumbens</i>
	+	'Andean Pearlwort' <i>Colobanthus quitensis</i>
		Goosefoot <i>Chenopodium macrospermum</i>
		Lesser Sea Spurrey <i>Spergularia marina</i>
		'False Ladle-leaved Buttercup' <i>Ranunculus pseudotrullifolius</i>
*		<b>Falkland Rock Cress <i>Phlebotobium maclovianum</i></b>
#	+	Lesser Swine-cress <i>Coronopus didymus</i>
	+	Native Stonecrop <i>Crassula moschata</i>
	+	Native Strawberry <i>Rubus geoides</i>
	+	Prickly Burr <i>Acaena magellanica</i>
	+	Native Yarrow <i>A. lucida</i>
	+	Scurvy Grass <i>Oxalis enneaphylla</i>
#		Common Storksbill <i>Erodium cicutarium</i>
	+	Tea Berry <i>Myrteola nummularia</i>
		Native Water-milfoil <i>Myriophyllum elatinoides</i>
	+	Pig Vine <i>Gunnera magellanica</i>
	+	'Wiry Azorella' <i>Azorella filamentosa</i>
	+	'Buttercup Parsley' <i>Schizeilema ranunculus</i>
	+	'Falkland Lilaeopsis' <i>Lilaeopsis macloviana</i>
	+	Wild Celery <i>Apium australe</i>
	+	Mountain Berry <i>Gaultheria pumila</i>
	+	Diddle-dee <i>Empetrum rubrum</i>
	+	Antarctic Bedstraw <i>Galium antarcticum</i>
	+	'Bead Plant' <i>Nertera granadensis</i>
	+	Antarctic Starwort <i>Callitriche antarctica</i>
	+	'Southern Mudwort' <i>Limosella australis</i>
	+	'Thrift Plantain' <i>Plantago barbata</i>
#	+	European Daisy <i>Bellis perennis</i>
	+	Christmas Bush <i>Baccharis magellanica</i>
*	+	'Falkland Cudweed' <i>Gamochaeta malvinensis</i>
	+	'Spiked' Cudweed' <i>G. spiciformis</i>
	+	'Feathery Buttonweed' <i>Leptinella scariosa</i>
	+	Sea Cabbage <i>Senecio candidans</i>
*		'Woolly Falkland Ragwort' <i>S. littoralis</i>

*	+	'Smooth Falkland Ragwort' <i>S. vaginatus</i>
#	+	Groundsel <i>S. vulgaris</i>
#	+	Spiny (Spring) Sow-thistle <i>Sonchus asper</i>
		Almond Flower <i>Luzuriaga marginata</i>
		Pale Maiden <i>Olsynium filifolium</i>
	+	Short Rush <i>Juncus scheuchzerioides</i>
	+	Brown Rush <i>Rostkovia magellanica</i>
	+	Native Woodrush <i>Luzula alopecurus</i>
	+	Tussac Grass <i>Poa flabellata</i>
	+	Mountain Blue Grass <i>P. alopecurus</i>
#	+	Annual Meadow Grass <i>P. annua</i>
#	+	Smooth-stalked Meadow Grass <i>P. pratensis</i>
#	+	Barren Fescue <i>Vulpia bromoides</i>
	+	Land Tussac <i>Festuca contracta</i>
	+	'Fuegian Couch-grass' <i>Elymus glaucescens</i>
#	+	Yorkshire Fog <i>Holcus lanatus</i>
	+	Fuegian Bent <i>Agrostis magellanica</i>
	+	Antarctic Hair-grass <i>Deschampsia antarctica</i>
	+	Wavy Hair-grass <i>D. flexuosa</i>
#	+	Early Hair-grass <i>Aira praecox</i>
	+	Cinnamon Grass <i>Hierochloe redolens</i>
	+	Antarctic Foxtail <i>Alopecurus antarcticus</i>
	+	Nodding Scirpus <i>Isolepis cernua</i>
	+	Sedge sp. <i>Carex fuscula</i> ?
	+	Sword-grass <i>C. trifida</i>

## Birds

A total of 35 species was recorded, including 21 that were confirmed as breeding, two probably breeding and six that may have been breeding, making a potential list of 29 breeding species. Six other species were seen offshore. As we passed the islet to the west within about 100m, two Tussacbirds flew out and close by the boat, which suggests that the islet was not rat-infested.

Magellanic Penguins were very noticeable in most parts of the island, particularly on the coastal slopes. There were however, a considerable number of burrows well inland in Diddle-dee ground and on inland-facing slopes of large sand dunes with Mountain Blue Grass. Groundsel was almost always present around the entrances to these burrows. Some evidence for the presence of nocturnal petrels was obtained, though no live birds were seen. A freshly eaten corpse of a species of Diving Petrel was found near a Falkland Skua's nest in 9842 and many small burrow entrances were found in the steep Tussac-peat slopes at the southeastern corner of 9942. These were too small for shearwaters or Magellanic Penguins and at least one had the musky smell typical of petrels. Inclement weather and fatigue prevented us investigating these burrows after dark, when the adult birds could have been arriving or leaving.

On the northern side of the island at the top of some low (<10m) cliffs bordering eroded black ground, was a colony of King Shags with about 300 nests. Several Rock Shags were nesting along the seaward side. There were at least three other small colonies of Rock Shags along the northern coast and at the northeastern point. A few pairs of Falkland Skuas occupied the ridge of dense Diddle-dee in 9842 behind the King Shags and another loose colony of skuas nested on a

lower sandbeach in 9943. All nine native passerines were present, suggesting that the island is free of mammalian predators. Tussacbirds, Cobb's Wrens and Falkland Thrushes were very tame and noticeable around the camp site while Black-throated Finches and Black-chinned Siskins were fairly numerous along the south-facing coast of 9842, in and around open Tussac. Several small family parties of Long-tailed Meadowlarks were seen in the same area. There were a few Dark-faced Ground-tyrants and some Grass Wrens, the latter being found on dense Diddle-dee, Mountain Blue Grass and Tussac, but only one Falkland Pipit was heard and seen in the low central part of 9942. A newly built Black-chinned Siskin nest on the edge of a large Tussac bog was the first recorded nesting in Tussac since the early 1960s on Kidney Island, East Falkland. This was further evidence that Tussac can provide suitable nesting sites for this species in the absence of the trees or shrubs it uses in southern South America.

### List of Birds - Middle Island

**KEY** to symbols used below:

Column '1' shows evidence that a species was **possibly** breeding: \* or **probably** breeding: S = singing male, D = display seen

Column '2' contains evidence of **confirmed** breeding: FL = recently fledged young, NE = nest with eggs, NY = nest with young or unfledged young,

Column 'N' gives only very rough estimates of abundance, based on five days field work. This is usually in pairs or numbers of individuals. Estimates are in ranges: A = 1-10 pairs, B = 11-100 pairs, C = 101-1000 pairs

Column 'Notes' summarizes records and main habitats

Species	1	2	N	Notes
Magellanic Penguin		NY	C	All coasts & in dunes
Black-browed Albatross				Few passing offshore
Southern Giant Petrel				Singles offshore
Diving Petrel sp.	*			Corpse by skuas' nest
Rock Shag		NY	C	3 colonies (9843,9943,0043)
King Shag		NY	c300	1 colony (9843)
Black-crowned Night Heron	*		A	Singles
Ruddy-headed Goose		NY	A	S coast
Upland Goose		FL	B	Widespread
Kelp Goose		NY	B	All coasts
Crested Duck		FL	B	All coasts
Flightless Steamer Duck		FL	B	All coasts
Turkey Vulture	*		3 birds	
Red-backed Hawk			2 birds	Seen separately
Crested Caracara		FL	1	Juv + pair (9843)
Peregrine Falcon	*		1 bird	Hunting along coast (9942)
Blackish Oystercatcher		NE	A+	All coasts
Magellanic Oystercatcher		FL	A+	All coasts
Two-banded Plover		FL	2	Pair; juv, (9942,9943)
Magellanic Snipe	S		A+	'Drumming' nightly

Falkland Skua		NY	c20	2 colonies (9842,9943)
Dolphin Gull			c20 birds	At King Shag colony (9843)
Kelp Gull			c15 birds	On beaches; passing
Brown-hooded Gull			c10 birds	Feeding
South American Tern		FL	2+	N coast (9843)
Short-eared Owl	*		1 bird	Calling in evening (9942)
Tussacbird		NY	C	All coasts
Dark-faced Ground-tyrant	*		A	Coasts
Falkland Pipit	S		1 bird	Low grassland (9942)
Falkland Grass Wren		FL	A	In various habitats
Cobb's Wren		FL	B	Coasts & inland
Falkland Thrush		NE	B	Coasts & inland
Black-chinned Siskin		FL	B	In Tussac mainly
Black-throated Finch		FL	B	Inland & coastal
Long-tailed Meadowlark		FL	B	Inland & coasts

### Summary of Middle Island Bird Records, 1997

<u>Category</u>		<u>Number of Species</u>
Present or passing		6
Possibly breeding	6	
Probably breeding	2	
Confirmed as breeding	21	
Total recorded on or near Middle Island		35

### Mammals

There were no signs that rats or mice were present. The only mammals seen on the island were Southern Sea Lions *Otaria flavescens*. Two bulls were found close to the beach on the south-facing coast of 9742 and 9842 on 5 and 8 January respectively. The smaller animal rushed down to the sea but the larger, which looked old and tired and had several nasty flesh wounds on face, neck and back, stayed and roared. On 6 January, a young bull was disturbed in Tussac and Blue Grass in 0043. Later that day a large bull and a female were seen on the sand beach in 9942. The female went into the sea but the male stayed at the water's edge and even moved a few metres towards us. There was no evidence of breeding on Middle Island. In contrast, the roaring of at least 14 large bulls could be heard from Green Island 1.5km (2½ miles) WSW of our camp site. Many females and some black pups were also visible through binoculars, along a bare (possibly sandy) beach below dense Tussac.

### Insects

A few small black beetles were seen inside the tents and blowflies *Calliphora* species were present on the island. Although we did not study insects, we found that several parts of the south-facing beaches had dead kelp accumulations in which there was abundant invertebrate fauna, including larvae of flies and many small Crustaceans.

### **Weather Conditions on Middle Island 5-11 January 1997**

- 5 Jan. pm: WSW'ly increased rapidly; frontal squalls early pm, clearing later, but still strong W'ly
- 6 Jan. Strong, gusty W'ly overnight with showers; fair early am but cumulus increased and wind strengthened; much sand/dust blowing.
- 7 Jan. Quieter overnight; fine with very light NW'ly early am; wind backed to W'ly strong and cumulus increased; shower c1000ZT; fine evening but cooling rapidly
- 8 Jan. Cloud increased overnight, raining early am but fair with increasing layered medium and high cloud; heavy shower and gale W'ly early pm; wind increased and backed to WSW late pm while temperature dropped to c5°C; sea and wind very noisy
- 9 Jan. Strong+ SW'ly with showers till c1000ZT; wind veered and decreased to moderate W'ly by evening with increasing medium layered cloud.
- 10 Jan. Fresh to strong E-NE'ly with multi-layered medium cloud till c0700, very slight rain to c1030 when wind backed to NNW'ly and cloud cleared somewhat; heavy squall line with WNW'ly 1215-1235, wind backed WSW'ly, strong+ with large cumulus and continued till dusk
- 11 Jan. At 0445, fine, with light N'ly; J-W arrived 0522, we left camp 0630 and were underway for Walker Creek by 0640ZT. The sea was flat, but a NW'ly wind steadily increased as we sailed westward.

## MOTLEY ISLAND

### Topography & Ecology

Motley Island (330ha, 3.3sq.km or 815 acres) is less than a kilometre off the southeast coast of Seal Cove camp and is orientated roughly north-south (NNW-SSE) in an open curve. It is 20km (12 miles) to the southwest of Middle Island. Motley has low cliffs and large shelf-rock beaches on the northeastern, southeastern and central western coasts, a large sand beach in the centre of the east-facing coast and smaller sand beaches at the northwestern end. There are boulder beaches at the extreme northeastern end and in a wide southwest-facing bay. It reaches an altitude of 15m (50 feet) in only four places. There is a substantial pond in the southeastern section (9022) and in January 1995 this was fed by a stream. In 1997 the steep-sided pond had only a muddy channel with no flowing water. There was a tiny seepage sump (2m x 1m) near our camp on the northwestern coast. Water in both of these pools was muddy, opaque, strongly acrid in smell and not attractive for drinking. A third pool of several square metres in central 8923 held two Speckled Teal but it was not examined closely. Some seepage of apparently clean water from a vertical sand/peat face was noted to the north of our camp and about 100m inland. The two damp depressions on the eastern side of 9022 were filled with dense growths of Sword-grass and probably contained seepage streams.

### Flowering Plants

Eighty-two species have been identified from Motley, 19 being recorded there for the first time in January 1997. A few plants seen in 1995 were not recorded this year and at least one species was misidentified in 1995. However, Motley Island certainly carries more than 80 species. Fifty-six (68%) are thought to be native to the Falklands and 26 (32%) are described as introduced through human intervention, probably from Eurasia (Moore 1968). Five of the 12 endemic Falkland plant species were found: Falkland Lilaeopsis, Falkland Cudweed, Hairy Daisy, Smooth Falkland Ragwort and Coastal Nassauvia. No Almond Flower or Tall Fern were seen on Motley.

Because our camp was near the western coast in square 8824, about 2km north of the site used in 1995, we were able to examine more of the northern 1km squares 8824, 8924 and 8925 than was previously possible. Conversely, we were not able to reach the southern extremities of 8921 or 9021 nor the points in 8920 and 9020. It was noticeable that some introduced plants, notably Groundsel, Pineapple Mayweed, Small Nettle and Shepherd's Purse had become locally dominant in small areas of a few square metres or less on the eroded sand dunes near our camp. Further inland, native plants tended to be dominant. Some general descriptions of the appearance of several stands of particular plants, eg Wild Celery, Mountain Blue Grass and the widespread introduced Sheep's Sorrel, were written on the spot as an aid to interpretation of the aerial photographs taken in January 1995. There was a very noticeable difference between the flora of disturbed sand dunes and that of the more inland slopes or the somewhat boggy area around the pond in 9022.

There was a wide plain of Mountain Blue Grass across the northern section, where it appeared to be even more vigorous than on Middle Island. It dominated large areas of level sand inland on this narrow part of the island up to 600m wide and the ground between and near the plants was heavily littered with floret parts. Many of the cottony-haired glumes had stuck to seed-heads of Prickly Burrs. North of the Blue Grass was a strip of dense Wild Celery, at least 30m wide and 100m long across the island, merging into a solid stand of mature Tussac at the northern tip. There were other patches of celery on coastal sand. Diddle-dee was present but only as small plants and on ridges well inland. The extensive coastal Tussac was in good condition at the

northern and southern points and along the southeastern coast. There were dead Tussac bogs along much of the western coast with eroded 'brown' ground. No Whitegrass camp was identified; specimens of grass from the ground previously described as such (Woods 1995a & b) were identified in April 1997 as Land Tussac *Festuca erecta*.

## Plant Communities

**Note that these general observations on their appearance were made on 15 January 1997, after a particularly mild and dry spring which apparently caused many plants to mature early.**

1. Around the camp site on old sand dunes (grey-brown background) are Sheep's Sorrel and short dry grasses (?*Aira praecox*) (patchy reddish and yellowish-brown) with European Daisy (tiny white dots) and small Celery plants (yellow-green), dead Tussac bogs (mid-dark brown clumps), a few large old Tussac bogs (dark green above brown), Small Nettle (dark green) and Sea Cabbage (silver-grey and yellow).
2. Prickly Burr patches appear generally grey-green, but seed-heads show irregularly placed small whitish flags; these are glumes of *P. alopecurus*, sometimes several to a head which are caught by their cottony hairs.
2. Areas of dominant *Poa alopecurus* (blue-grey green) with long flower/seed spikes (pale buff to brownish-buff) all on a whitish/grey background of sand, show a lot more buff than blue-grey green. Close-up, the sand surface between clumps is littered with seeds and parts of the spikelets. Black-throated Finches frequently feed on this ground, presumably taking the grass seeds.
3. Wild Celery stands, patches or 'fields' of plants up to a metre high, are dark green finely peppered with off-white/brownish flowers or seedheads.
4. 'Black ground', of decomposed peat, dusty and mobile in gales has a black or dark red-brown ground with a mosaic effect on sand because the grey-white sand shows through. It is dotted with irregular dark to mid-brown shapes of dead Tussac fibrous stools. 'Rivers' of buff or whitish sand on slopes break up the black/red-brown areas.
5. Patches of *Cotula scariosa* are yellow-green; Groundsel is grey-green and shows more solid patches of colour than *P. alopecurus*; Pineapple Mayweed on sand dunes is yellow-green.

## List of Plants - Motley Island

<b>Key</b>	*	endemic species
	#	introduced species
	+	species found on both Motley and Middle Islands
	'....'	suggested English names (FI Tourism 1987)
	+	Small Fern <i>Blechnum penna-marina</i>

# + Small Nettle *Urtica urens*  
 # + Curled Dock *Rumex crispus*  
 # + Sheep's Sorrel *R. acetosella*  
 Native Chickweed *Stellaria debilis*  
 # Chickweed *S. media*  
 # + Field Mouse-ear Chickweed *Cerastium arvense*  
 # Common Mouse-ear Chickweed *C. fontanum*  
 # + Procumbent Pearlwort *Sagina procumbens*  
 + 'Andean Pearlwort' *Colobanthus quitensis*  
 Arrow-leaved Fig Marigold *Caltha sagittata*  
 # Shepherd's Purse *Capsella bursa-pastoris*  
 # + Lesser Swine-cress *Coronopus didymus*  
 + Native Stonecrop *Crassula moschata*  
 + Native Strawberry *Rubus geoides*  
 + Prickly Burr *Acaena magellanica*  
 + Native Yarrow *A. lucida*  
 # Lesser Yellow Trefoil *Trifolium dubium*  
 + Scurvy Grass *Oxalis enneaphylla*  
 + Tea Berry *Myrteola nummularia*  
 + Pig Vine *Gunnera magellanica*  
 + 'Wiry Azorella' *Azorella filamentosa*  
 'Clubmoss Azorella' *A. lycopodioides*  
 Balsam-bog *Bolax gummifera*  
 + 'Buttercup Parsley' *Schizeilema ranunculus*  
 'Hooker's Sweet Cicely' *Oreomyrrhis hookeri*  
 + 'Falkland Lilaeopsis' *Lilaeopsis macloviana*  
 + Wild Celery *Apium australe*  
 + Mountain Berry *Gaultheria pumila*  
 + Diddle-dee *Empetrum rubrum*  
 Dusty Miller *Primula magellanica*  
 Native Pimpernel *Anagallis alternifolia*  
 + 'Antarctic Bedstraw' *Galium antarcticum*  
 + 'Antarctic Starwort' *Callitriche antarctica*  
 Lady's Slipper *Calceolaria fothergillii*  
 # Thyme-leaved Speedwell *Veronica serpyllifolia*  
 + 'Thrift Plantain' *Plantago barbata*  
 'Creeping Berry-lobelia' *Pratia repens*  
 # + European Daisy *Bellis perennis*  
 Marsh Daisy *Aster vahlii*  
 \* Hairy Daisy *Erigeron incertus*  
 + Christmas Bush *Baccharis magellanica*  
 # American Cudweed *Gamochaeta americana*  
 \* + Falkland Cudweed *G. malvinensis*  
 # Stinking Mayweed *Anthemis cotula*  
 # Pineapple Mayweed *Matricaria discoidea*  
 + 'Feathery Buttonweed' *Leptinella scariosa*  
 + Sea Cabbage *Senecio candidans*  
 \* + 'Smooth Falkland Ragwort' *S. vaginatus*  
 # + Groundsel *S. vulgaris*

- \* 'Coastal Nassauvia' *Nassauvia gaudichaudii*
- Falkland Lavender *Perezia recurvata*
- # + Spring (Spiny) Sow-thistle *Sonchus asper*
- \* Vanilla Daisy *Leucheria suaveolens*
- Gillies' Dandelion *Taraxacum gilliesii*
- 'Fuegian Hawksbeard' *Agoseris coronopifolium*
- + Short Rush *Juncus scheuchzerioides*
- + Brown Rush *Rostkovia magellanica*
- Tall Rush *Marsippospermum grandiflorum*
- + Native Woodrush *Luzula alopecurus*
- # Field Woodrush *L. campestris*
- + Tussac Grass *Poa flabellata*
- + Mountain Blue Grass *P. alopecurus*
- Shore Meadow Grass *P. robusta*
- # + Annual Meadow Grass *P. annua*
- # + Smooth-stalked Meadow Grass *P. pratensis*
- # + Barren Fescue *Vulpia bromoides*
- + Land Tussac *Festuca contracta*
- + 'Fuegian Couch-grass' *Elymus glaucescens*
- # Lyme Grass *Leymus arenarius*
- # + Yorkshire Fog *Holcus lanatus*
- + 'Fuegian Bent' *Agrostis magellanica*
- # Creeping Bent *A. stolonifera*
- + Antarctic Hair-grass *Deschampsia antarctica*
- + Wavy Hair-grass *D. flexuosa*
- # + Early Hair-grass *Aira praecox*
- # Marram Grass *Ammophila arenaria*
- [Whitegrass *Cortaderia pilosa?*] doubtful identification **NOT PRESENT**
- + Cinnamon Grass *Hierochloa redolens*
- + Nodding Scirpus *Isolepis cernua*
- + 'Dusky Sedge' *Carex fuscula*
- + Sword-grass *C. trifida*
- Yellow Orchid *Gavilea macroptera*

## Birds

During the two visits to Motley Island, a total of 41 species has been recorded. Twenty-eight species have been confirmed as breeding, four more probably bred and another three possibly bred making a possible total of 35 breeding species. Six species were noted as present but showing no signs of breeding.

Magellanic Penguins were numerous and apparently breeding all around the island. Their 'song' was almost continuous throughout the 24 hours, though more birds performed simultaneously or in response to each other at dusk and dawn. Solitary adult Gentoo and King Penguins were recorded. The Gentoo was seen on the large sand bay at the eastern side of 8923 and the King came ashore near our camp on 14 January and stayed over 24 hours, allowing very close approaches. The pond in square 9022 had a family of 9 Speckled Teal with three Yellow-billed Pintail, a pair of Chiloe Wigeon and three Crested Ducks on 14 January. Only Crested Ducks and Speckled Teal were seen there in 1995. A Peregrine Falcon eyrie with two fledged juveniles

was found on low cliffs at the northeastern end of 8923. 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 corpse await investigation by Mark Adams at the Tring Natural History Museum. A single pair of Crested Caracaras mobbed us along the western side (8822, 8823) but we could not find a juvenile.

Two individual Short-eared Owls were flushed within 100m of each other, from among clumps of Land Tussac on somewhat boggy ground near the large pond in 9022. The feathers of another full grown bird were found among mature Tussac nearby, where it had possibly been killed and plucked by a Peregrine. This is the same area in which these owls were noted and tape-recorded in 1995. 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 north of our camp and a few Ground-tyrants around. We did not see any Pipits. In January 1995, only one pair was found, north of the camp in 9022 but we were unable to spend long in that area this time. Another example of Black-chinned Siskins nesting in Tussac was found when a female was flushed accidentally from a nest with four eggs on the southeastern side of a mature plant on the northern point.

#### List of Birds recorded at Motley Island in January 1995 and/or January 1997.

**KEY** to symbols used below:

Column '1' shows evidence that a species was **possibly** breeding: \* or **probably** breeding: S = singing male, D = display seen

Column '2' contains evidence of **confirmed** breeding: FL = recently fledged young, NE = nest with eggs, NY = nest with young  
FY = adult with food for young

Column 'N' gives only approximate estimates of abundance, based on a total of nine days field work. This is in pairs except where indicated.

Estimates are in ranges: A = 1-10 pairs, B = 11-100 pairs,  
C = 101-1000 pairs, D = 1000+ pairs

Column 'Notes' summarizes records and main habitats from both visits.

Motley Island overlaps two 10km squares, UC82 and UC92

Species	1	2	N	Notes
King Penguin			1	Adult ashore 14 Jan.
Gentoo Penguin			1	On beach (B, 8923)
Magellanic Penguin		NY	D	All coasts & in Tussac
Black-browed Albatross				Few offshore (1995)
Southern Giant Petrel				Singles offshore
Fairy Prion				2 wings found (1995)
Sooty Shearwater	S			1 heard (D,1995)
Diving Petrel sp.	*			2 wings ('95),corpse ('97)
Rock Shag		NY	c70	6 colonies (A,B,C,D & E)
King Shag		NY	c75	2 colonies (D & E)
Black-crowned Night Heron		NE	B	Scattered all coasts
Ruddy-headed Goose		FL	A	Coastal

Upland Goose		FL	B	Widespread
Kelp Goose		FL	B	All coasts
Crested Duck		FL	B	All coasts; pond (D)
Flightless Steamer Duck		FL	B	All coasts
Speckled Teal		FL	A	5prs, ponds (B,D)
Chiloe Wigeon	*		1	Pond (D, 1997)
Yellow-billed Pintail	*		3 birds	Pond (D, 1997)
Turkey Vulture		FL	A	Juvs
Crested Caracara	D		1	Pair calling (C)
Peregrine Falcon		FL	1	E coast, 2juvs (B, 8923)
Blackish Oystercatcher		NE	B	All coasts
Magellanic Oystercatcher		NE	B	All coasts
Rufous-chested Dotterel	D		<10	Heathland (C)
Magellanic Snipe		NE	B	Heathland & Tussac
Snowy Sheathbill				2 birds (1995)
Falkland Skua		NY	B	On higher ground
Dolphin Gull		NY	2+	(C, 8922)
Kelp Gull		NY	c70	W coast (C, 8922)
Brown-hooded Gull			1 bird	Offshore (D, 1995)
South American Tern		NY	c10	W & N coasts
Short-eared Owl	D		c2	(D, 1995)
Tussacbird		FL	C	All coasts, Tussac
Dark-faced Ground-tyrant		FL	B	Coasts with rock shelves
Falkland Pipit		FY	1	Dryer ridge (D, 1995)
Falkland Grass Wren		FY	B	Blue grass & Tussac
Cobb's Wren		FL	C	All coasts with Tussac
Falkland Thrush		FL	C	Coasts & in Tussac
Black-chinned Siskin		FL	C	Tussac; Blue Grass; Sorrel
Black-throated Finch		FL	C	Inland, Tussac & coasts
Long-tailed Meadowlark		FL	B	Inland & coasts

### Summary of Motley Island Bird Records 1995 & 1997

Category		Number of Species
Present or passing only		6
Possibly breeding	3	
Probably breeding	4	
Confirmed as breeding	28	
Total recorded on or near Motley Island		41

### Mammals

There were no signs of the presence of rats or mice. The two sheep noted on 7 January 1995 were again found in the central part of the island, roughly where they were seen previously. They were very heavily fleeced, still able to walk and only allowed an approach to within about 50m. We were unable to visit the small colony of Southern Sea Lions found in 1995 at the extreme southeastern end of the island. On 13 January, we explored around the northern tip and found a bull and two females up in Tussac on the northwestern side. Later, along the north-facing coast

we saw a large bull, a young bull and at least 33 females, though we did not find any pups. A very old skeleton of a large beaked whale was found on the boulder beach at the extreme NW'ern corner. On 12 January we watched two cetaceans cruising around in the extensive kelp beds in 1km square 8921. From brief repeated views of the dorsal fin and occasional glimpses of the snout, they could have been Bottle-nosed Dolphins.

### **Insects**

The most noticeable insect on Motley was the 11-spot Ladybird (see *Warrah* No.10, 1996). Adults were frequently seen at the camp site, which was on sand mainly covered with low Sheep's Sorrel, Prickly Burr, Groundsel and Sea Cabbage. Several larval Ladybirds walked into the tents, indicating that this species was breeding but the host plants for their aphid prey were not discovered. However, some aphids were found on a specimen of Andean Pearlwort *Colobanthus quitensis*. One specimen of the Queen of the Falklands Fritillary butterfly was seen briefly on 12 January in bright sunshine.

### **Weather Conditions on Motley Island 11-16 January 1997**

- 11 Jan. evening: cloudy, but only cirrus, NW'ly light, mild. (c12°C)
- 12 Jan. 0500ZT; warm, light NNW'ly, 7/8 thin cirrus; became hot and brilliant sun till mid-afternoon; cloud increased, wind backed SW'ly fresh-strong and rain started c1745, ceased by c2000, temperature fell rapidly
- 13 Jan. 0530ZT; WSW'ly fresh+, fine, brilliant sun; multi-layered high cloud increasing by sunset
- 14 Jan. 0400ZT; 7/8 layered medium cloud, strong+ N'ly; rain from c0900-1130, remained cloudy with strong NW'ly to 1215, then cleared to brilliant sun with a fresh W'ly through afternoon, decreasing in evening
- 15 Jan. 0400ZT; NW'ly fresh, 7/8 layered medium cloud, clearing to fair and wind increasing to strong+ N'ly from about midday but cloud thickening during evening
- 16 Jan. 0300ZT; W-SW'ly strong-gale with rain showers; wind dropped to fresh-strong by 0915, cold WSW'ly with 3/8 small cumulus; wind decreased to moderate by 1800.

### Middle and Motley Islands Compared

Fourteen plant species seen on Middle Island, including the endemic Rock Cress and Woolly Ragwort were not found on Motley Island. Two endemic plant species, Hairy Daisy and Coastal Nassauvia and 29 other species seen on Motley were not found on Middle Island; 23 of these were native plants, including Falkland Lavender, the Yellow Orchid, Dusty Miller and the Marsh Daisy.

#### Plant Species Identified

	Species
Middle only	14
Motley only	31
Middle & Motley	51
Total	96

#### Bird Species Identified

	Species
Middle only	2
Motley only	9
Middle & Motley	33
Total	44

#### Native & Introduced Plant Species

	Native	Introduced	Total
Middle	50 (77%)	15 (23%)	65
Motley	56 (68%)	26 (32%)	82

Although there is a tendency towards a slightly higher proportion of introduced plants on Motley Island, the difference is not significant and has a probability of occurrence of 0.67, ie a 67% chance of such a distribution arising randomly.

#### Endemic Plants

Species	Middle	Motley	Both
Rock Cress <i>Phlebotobium maclovianum</i>	.		
Falkland Lilaeopsis <i>Lilaeopsis macloviana</i>	.	.	*
Hairy Daisy <i>Erigeron incertus</i>		.	
Falkland Cudweed <i>Gnaphalium affine</i>	.	.	*
Woolly Ragwort <i>Senecio littoralis</i>	.		
Smooth Ragwort <i>Senecio vaginatus</i>	.	.	*
Coastal Nassauvia <i>Nassauvia gaudichaudii</i>		.	
Vanilla Daisy <i>Leucheria suaveolens</i>	.		

#### Survey Records and Collections

Many photographs of plants were taken on both islands. Nick took mostly close-ups to show the details of flower formation while Robin photographed plant associations and habitats. Copies or originals will be lodged with Falklands Conservation as records of the flora of these two reserves. Sample plant specimens were picked on Middle and Motley Islands, sometimes because they were uncommon or newly discovered species but, more usually, because they could not be identified easily in the field. All have been pressed, labelled with the locality and dated. Examination of specimens by Jim McAdam of Belfast in April 1997 has added several species to the island lists. The records derived from this botanical and photographic field work would be valuable if the production of an illustrated guide to flowering plants of the Falklands was started. The skeletal remains of several dead birds were collected and sent to the Natural History Museum for identification and addition to their reference collection.

## Recommendations for Management of Middle Island and Motley Island Nature Reserves

1. Large areas of both islands are in a poor state after many years of over-grazing. Monitoring systems should be established to record the changes occurring since grazing ceased.
2. The two sheep on Motley Island should be removed as soon as possible. They are not likely to have a detrimental effect on large areas of vegetation, but could reduce the populations of some rare plants. Care should be taken to ensure that the islands remain free of introduced predators such as cats, rats or mice.
3. There is a need for some permanent accommodation in the form of a hut on Motley and possibly also on Middle, perhaps similar to that on Kidney Island Nature Reserve. Members of a tent-based expedition are restricted through lack of seating or a table, shortage of space and general discomfort. Severe weather conditions can lead to delays in ongoing biological field work and shelter would allow longer visits. Space would be available to make or store basic survey equipment and some laboratory space could be provided, with work benches for examination of botanical, geological or zoological specimens.
4. The aerial photos taken by Hunting Aerosurveys in 1956 and those taken in 1995 should be compared so that any noticeable differences can be interpreted. It is possible that RAF photographs from the early 1980s could also yield useful information. Monitoring plots at the inner edge of coastal Tussac, on 'black ground' and on dunes could provide data on the decrease or increase of vegetation in a non-grazing condition where erosion by wind continues.
5. The exposed western slopes of both islands, where Tussac has been destroyed by over-grazing, are continuing to suffer from serious soil erosion, apparently caused mainly by strong winds moving the friable dry peat on the surface. If low (0.5m or less) wind-breaks could be erected in a few places, germination of seed leading to eventual re-vegetation might be encouraged. Sally Poncet's suggestion that Mountain Blue Grass could be used as a native soil stabiliser for open ground should be tested. Existing plants produce large amounts of seed which litter the ground between clumps.
6. The distribution of plant associations and individual plant species should be examined in greater detail, using the observations and photographs of 1995 and 1997 and further ground survey. More data are needed for plants on both islands, with information on aspect, slope, exposure, soil acidity and soil types of their habitats, especially for the uncommon species. The measurement and marking of transects could be useful for more accurate surveys of plants.
7. Five endemic plant species have been identified on each island. The features of the habitats occupied by these plants should be investigated, particularly those of the rare and **Endangered** Falkland Rock Cress on Middle Island and the rare Hairy Daisy on Motley.
8. Ecological surveys should be made of the dense Tussac stands at the northern tip and

around the southern coast of Motley and on the eastern points of Middle Island. It is particularly important to establish whether petrels are nesting and, if so, which species; little is known of their breeding biology in the Falklands. The Mot and Sal Island, which have not been grazed, should also be examined if landings are possible.

9. Investigation of the bird species that feed on available seeds (Mountain Blue Grass, Sheep's Sorrel, Prickly Burr, Tussac etc) could help in understanding the interrelationships between some plants and some birds.
10. Many of the breeding birds could be censused to obtain population figures related to habitats on each island. This would be easier with coastal species such as shags, geese, ducks and oystercatchers but small landbirds would require more complex mapping techniques.
11. The population of Magellanic Snipe on Motley could be studied as a long-term project. Data on distribution, behaviour and habitat preferences could provide a baseline against which to judge speculation about the presence of two closely related species of snipe in the Falklands.
12. The lack of open water on Middle Island was noticeable, but there are at least three large pond basins in 9942. One in the northeast corner of the square contains Southern Mudwort, Lesser Sea Spurrey, Lilaeopsis and False Ladle-leaved Buttercup and **should not be disturbed**. Two are within 200m of the landing bay. These two ponds were completely dry in mid-January 1997. **The deepening of one or both of the pond beds near the bay could lead to the retention of water through the summer months**. Such a facility would be beneficial for birds, plants and invertebrates and could increase the number of breeding bird species. It would not be necessary to use heavy mechanical diggers carried to Middle Island at great expense. It is suggested that a party of able-bodied people equipped with spades and provided with transport from Stanley, Mount Pleasant or elsewhere via East Cove, could make a substantial impression in one working day. There would have to be a close examination of the pond basin substrate before such work started because it might be deep sand and difficult to make watertight without the addition of clay or an artificial membrane.

**N.B. Experimental work on reducing soil erosion (5) and the retention of freshwater (12) could lead to valuable long-term conservation projects involving members of Falklands Conservation, other residents and military personnel.**

## References

- Falkland Islands 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.
- Poncet, S, 1994 *Lively Island Group Report*. Unpublished report to Falklands Conservation
- Woods, RW, 1988 *Guide to Birds of the Falkland Islands*. Anthony Nelson, Oswestry
- .. 1995a *The Motley Island Expedition*. Unpublished report to Falklands Conservation
- .. 1995b Motley Island: on the Falklands Ecology Map. *The Warrah*, Newsletter of Falklands Conservation No.7:8-9
- .. 1996 The Eleven-spot Ladybird in the Falklands. *The Warrah* No.10:10

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Through an introduction by Roddy Napier of West Point Island, we arranged with John Willie Jaffray of Walker Creek that he would transport us to and from Middle and Motley Islands in January 1997. John Willie achieved these aims successfully with his boat mv *Chevron*, a Zodiac inflatable and a Landrover. Others who helped with transport were Trevor Lowe of Stanley and John Berntsen of Goose Green. Bob Reid in Stanley, Phyllis Jaffray at Walker Creek and Sonia Felton at Goose Green all provided very welcome meals and rest before and after the camping episodes and Kay McCallum's support in Stanley was excellent. In addition, Hay and Sam Miller provided an essential second tent and Conor Nolan of the Fisheries Department loaned us a 2m radio that was very useful on Middle Island. The help given by all these people was invaluable and without it we could not have carried out our field work on these two reserves.

RW & NC Woods 10 May 1997