

NOTES ON A VISIT TO JACQUEMART ISLAND IN THE CAMPBELL ISLAND GROUP

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"These two islands [Dent and Jacquemart] are the largest off Campbell Island. Possibly a landing could be made on Dent, but it would be quite impossible on Jacquemart." (Bailey and Sorensen, 1962, p. 28).

SUMMARY: This paper describes the first visit to Jacquemart Island in the south of the subantarctic Campbell Island group. The island contrasts with the main island by the absence of introduced grazing mammals, rats (*Rattus* spp.) and feral cats (*Felis catus*), and in the dominance of palatable plant species. A survey of the main vegetation communities was made and bird species seen were recorded. Specimens of an endemic weta (*Notoplectron campbellensis*) were collected.

INTRODUCTION

Jacquemart Island (52°37'S, 169°08'E) is the most southerly of the subantarctic Campbell Island group (Fig. 1). It is about 0.75 km long and 0.5 km wide and is surrounded by steep or overhanging cliffs rising to at least 30 m.

The biota of main Campbell Island has been heavily modified by man and introduced rats (*Rattus norvegicus*), feral cats (Dilks, 1979) and sheep (Wilson and Orwin, 1964). The offshore islands are therefore of particular interest because they are generally free of these influences. Dent Island would have been accessible to the earlier sealers and whalers but in 1976 an expedition confirmed that it was free of introduced mammals (Robertson, 1980). A smaller island, unofficially named Folly Island, was also scaled in 1976 and found to have rats (Robertson, 1980). But Jacquemart Island, because of its inaccessibility from the sea, cannot have been visited previously by man or his introduced mammals.

The opportunity for us to land on Jacquemart arose when we arrived in Perseverance Harbour on 29th December, 1980, aboard the USCGC "Glacier" for a period of field work on Campbell Island. We were to be transferred to the shore by helicopter and by kind permission of the captain we were first put down on the top of Jacquemart Island for 1.5 hours. We walked along the ridge to the northern end and back (Fig. 2). During the visit the sky was

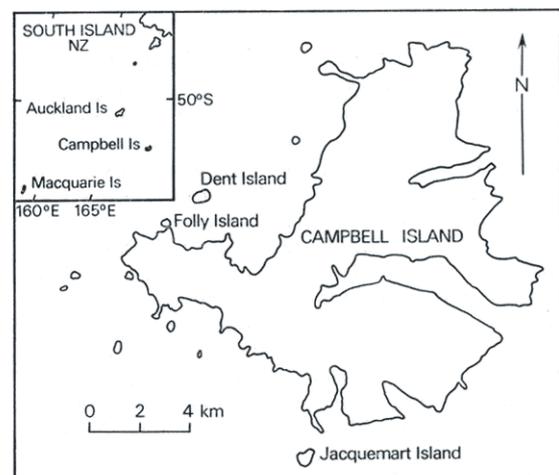


FIGURE 1. The positions of the island groups referred to in the text, and the location of the larger offshore islands in the Campbell Island group.

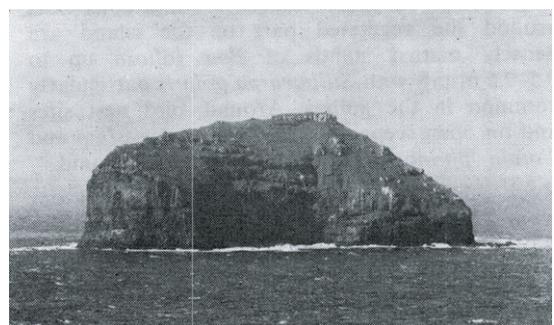


FIGURE 2. The north-west face of Jacquemart Island.

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heavily overcast and low cloud occasionally covered the top of the island. There was a south-west wind of less than 10 knots and intermittent drizzle.

TOPOGRAPHY

The island has a small summit plateau, at about 200 m a.s.l., from which a prominent ridge runs NE-SW. From the ridge the flanks fall away steeply on both sides, with a slope of about 35°, to the edge of the sheer cliffs. There is a prominent band of outcropping rock not far below the summit (Fig. 2).

The island has resulted from marine erosion of lavas which were laid down over an original sedimentary base (Oliver, Findlay and Fleming, 1950; Adams, Morris and Beggs, 1979).

VEGETATION

The following communities were identified:

1. *Poa litorosa* maritime tall tussock grassland. The small summit plateau, the main backbone and the upper ridge crests of the lateral spurs support an almost continuous cover of tussocks 0.8-1.4 m tall on deep peat (Campbell, 1981). The peat is undermined with petrel burrows. The only associated tall plants are occasional *Bulbinella rossii* and rare *Polystichum vestitum*. Other very minor contributors to the community, chiefly under small canopy openings or on old petrel nest sites, are *Acaena minor antarctica*, *Epifobium confertifolium*, *Stellaria decipiens*, *Gentiana antarctica*, *Cardamine subcarcosa*, *Uncinia hookeri*, *Marchantia berteriana*. *Lophocolea* cf. *novaezealandiae* (CHR 349077), *L.* cf. *amplectens*, *Metzgeria furcata*, *Campylopus pallidus*, *Cladonia campbelliana* (Vainio) Gyelnik and a green alga? *Bracteacoccus minor* (Chod) Petrova (UVC 2543).
2. *Poa foliosa* tussock/megaherbfield. On the steeper ridge flanks, in gullies and as a continuous skirt around the vegetated part of the island are densely matted stands of *Poa foliosa* up to 0.5-0.6 m tall with *Stilbocarpa polaris* particularly common in the gullies. Around bird nest sites and on open seepage banks *Poa ramosissima* and *Cottla plumosa* are characteristically found.
3. Rock and ledge communities. These stand out from the tussock grasslands as buttresses whitened by the lichens *Ochrolechia ?parella* (L.) Massal., *Pertusaria graphica* Knight and *Opegrapha diaphoriza* Nyl. with a pyrenocarpous sp., *?Buellia* lime-green sp., *?Verrucaria* black sp. and *Psoroma ?microphyllizans*. Other

common cryptogams are *Macromitrium longirostre*, *Muelleriella angustifolia*, *Dicranoweisia antarctica*, *Bryum biliarieri*, all with occasional *Metzgeria furcata* (CHR 349078), *Lophocolea* cf. *amplectens* (CHR 349079) and a member of the Lejeuneaceae intertwined, *Candelariella vitellina* (Ehrh.) Mtil. Arg. and *Pseudoparmelia caperata* (L.) Hale. Ledges and crevices also support the graminoids already mentioned with *Trisetum spicatum*, *Luzula crinita* and *Uncinia hookeri*, the forbs *Ranunculus pinguis* and *Cardamine depressa*, and rare appressed shrubs of *Coprosma cuneata*.

4. Supra littoral cushion plants. On exposed peaty ledges (and presumably generally around the cliff crests transitional to the grasslands) are *Tiliaea moschata*, *Colobanthus muscoides* and *Cardamine depressa*. Further explorations would probably have revealed *Scirpus cernuus* and the typical littoral cryptogams.

These communities and their environmental relationships are almost identical to some on Disappointment (Horning and Horning, 1975) and Dundas Islands (Falla, Taylor and Black, 1979) of the Auckland Island group, and also on Dent and Folly Islands and Macquarie Island (*Poa foliosa* alliance of Taylor, 1955) (Fig. 1). In addition, Folly Island supports possibly the only pristine stand of *Chionochloa antarctica* (of typically rolling to level terrain) in the Campbell Island group.

The tussock/megaherbfield community is a particularly notable member of these island systems and exists in various combinations. *Anisotome latifolia* is often associated in other parts of the Campbell and Auckland Island groups but is apparently absent from Jacquemart and Macquarie Islands. On Folly Island *Stilbocarpa* is a surprising absentee (C.D.M., pers. obs., 1976).

On the main island, the highly palatable species comprising this community (Meurk, 1977, Table 2), along with other palatable species such as *Pleurophyllum speciosum* and *Chionochloa antarctica*, have been restricted to cliffs inaccessible to sheep. The herbfields have been largely replaced by an induced turf / mat seasonally dominated by the unpalatable *Bulbinella rossii*. However, the exclusion of the sheep from the north of the main island by the fence-line built in 1970 (Bell and Taylor, 1970) is resulting in a dramatic recovery of the palatable species (Dilks and Wilson, 1979, Figs. 4, 5).

The subantarctic tussock/megaherbfield probably requires high fertility and is maintained against competition from taller species by its tolerance of marine exposure and ability to withstand considerable physical abuse and manuring from sea birds

and mammals. An hypothesis relating to vegetation distribution and nutrient status on Campbell Island is currently being investigated.

BIRD SPECIES

1. Burrowing petrels

The summit ridge was riddled with petrel burrows and we found numerous fresh diggings. We captured a sooty shearwater (*Puffinus griseus*) from a burrow and picked up several cleaned skeletons.

Burrowing petrels were reported as common on the main island in 1874 (Filhol, 1885, as quoted by Westerskov, 1960). Rats had already been observed there (Armstrong, 1868) and cats were introduced later (Dilks, 1979). Burrowing petrels are now very rare on the main island and the offshore islands are important breeding sites. Robertson (1980) recorded breeding populations of sooty shearwaters, subantarctic diving petrels (*Pelecanoides urinatrix exsul*) and white chinned petrels (*Procellaria aequinoctialis*) on Dent Island.

2. Northern giant petrels (*Macronectes halli*)

These birds nest on Jacquemart Island and eight nestlings were counted along the summit ridge.

3. Pipits (*Anthus novaeseelandiae*)

Pipits were immediately obvious and very tame. They were the fulvous-coloured southern islands form first described from the Auckland Islands by Gray (Oliver, 1955) and now given as *Anthus novaeseelandiae aucklandicus* (Kinsky, 1970). Their presence on Jacquemart contrasts with their absence from the main island. Bailey and Sorensen (1962) suggested that this species was probably never very common on Campbell Island (although they are on the rat-free Auckland Islands) and reported that they were rarely seen by the members of the 1940-45 Cape Expedition (of which Sorensen was a member). Westerskov (1960) did not see any in his visit in 1958, nor did P. R. Wilson in his visits in 1961, 1970, 1975 and 1979 (pers. comm.). It is likely that rats and cats have eliminated this species from the main island.

Pipits were recorded from Dent Island in 1975 (Robertson, 1980). They were the fulvous form (Robertson, pers. comm.).

4. Other species

Several light-mantled sooty albatrosses (*Phoebastria palpebrata*) were soaring around Jacquemart. Although this species was recorded as

breeding on Jacquemart by Robertson during his survey by boat in 1976 (Robertson, 1980) we did not see any nests. Robertson (pers. comm.) suggests that the birds he saw in 1976 might have been the grey chicks of the giant petrels. Southern skuas (*Stercorarius skua lonnbergi*) were sitting and flying along the ridge, some in pairs, and although they probably nest there, we did not find chicks. Cape pigeons (*Daption capense*) were seen flying from the cliffs and a flock of about 15 starlings (*Sturnus vulgaris*) passed closely along the face of the *Poa foliosa*-covered slope. Van Tets (1980) recorded a hundred nests of Campbell Island shags (*Leucocarbo c. campbelli*) on the cliffs of Jacquemart but these were not visible to us from the top of the island.

INSECTS

Two cave wetas (*Notoplectron campbellensis* Richards) were found by chance in a crevice between rock and the peaty base of a *Poa foliosa* tussock which we had dislodged. One was a mature female. Good specimens of this Campbell Island monotypic genus have not previously been found. The species was described by Richards (1964) from immature specimens collected by Sorensen during the Cape Expedition and by the Bishop Museum of Honolulu in 1962. The female from Jacquemart Island had a body length of 25 mm and is notably larger than the length of 18 mm given for the female by Richards.

The numbers of this species on the main island may be influenced by rats as large flightless insects are not common where rats are plentiful (Ramsay, 1978). Wetas were not found in the arthropod survey of Dent and Folly Islands in 1975-76 (Crosby, 1980).

The Jacquemart Island specimens have been deposited in the New Zealand Arthropod collection of the D.S.I.R. Entomology Division, Auckland.

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