gumboots passing his pond, and a couple of half-grown Beevers, seen swimming near the wharf.

On the traditional prunes and custard night the company was treated to the sight of their normally dignified secretary, growing flustered as she vainly attempted to quell her ebullient spouse, with his puerile prune puns.

Just to round off the botanical discoveries, Jessica and Anthony dead-heated by both finding Colensoa physaloides in separate areas, on the last day before home-coming. Not seen on Moturoa since 1987, it had been feared that this herb, with its intensely blue berries, had vanished from the island.

We are grateful to Paul and Edith Asquith for inviting us to visit Moturoa, and for their hospitality and assistance.

Austrofestuca - an extinct addition to the Waitakere flora

E.K. Cameron

I recently came across a specimen of Austrofestuca littoralis (also known as Festuca littoralis or Poa triodioides) in the AKU herbarium from damp, sandy flats, Waitakere River Mouth, Te Henga (AKU 6867). This Australasian grass forms dense tussocks and is widespread in New Zealand where it is frequently associated with spinifex and pingao on coastal dunes. The Waitakere specimen was collected by Prof. A. P. W. Thomas in about 1902. There are no other records in the AK and AKU herbaria of this native grass on Auckland's West Coast. Therefore it should join other suspected local extinctions of the Waitakere Ranges which would include: Dactylanthus taylorii, Peraxilla tetrapetala, Tupeia antarctica, Lepidium flexicaule, L. obtusatum, L. oleraceum and Ranunculus urvilleanus.

Flora and vegetation of Pudding Island - Mahurangi

E.K. Cameron & G.A. Taylor

Pudding Island (map ref. 260 R10 655194) is a small (< 0.1 ha), steep stack about 10 m in height and 8 m wide, joined to the southern end of Otarawao Bay, Mahurangi by an extensive rocky, tidal platform (Fig. 1). It can be reached from the mainland by wading across a shallow channel (< knee depth), up to two hours either side of low tide. The adjacent mainland (250m away) is part of Mahurangi Regional Reserve, but the stack is Crown Land administered by the Department of Survey and Land Information (DOSLI). Te Haupa (Saddle) and Motuora Islands due east of Pudding, are in the Hauraki Gulf Maritime Park.

The eroding stack is composed of Waitemata Sediments dipping to the north. It can be climbed only from the northern end, up a steep, grassy ridge. Fishing is popular from the outer margins of the tidal platform. Pudding Island contains examples of what can grow on a small, inshore, rather exposed stack on North Auckland's east coast. Brief visits to the stack on which this article is based were made by GAT and Alan

Tennyson on 1 March and 28 June 1989; and by EKC on 25 February and 18 November 1990.

Two pairs of variable oystercatchers appeared to be nesting on a small shell area by the south-west corner of the stack. Reef heron feathers were found on the stack in March 1989 -this species may nest by the shrubs. The rather worn ridge track and several large, unoccupied burrows (March 1989) appeared to have been made by little blue penguins. On the grassy ridge, tunnels through the grass, small burrows and excrement present appeared to be from Norway rats.

The islet can be divided into three broad vegetation zones:

1. Grassy ridge - this steep ridge runs from about 2 m a.s.l. at the north end up to the summit and is 2-5 m wide. It is a rank sward dominated by: grasses (cocksfoot, ripgut brome, ratstail and slender oat) and narrow-leaved plantain (see Appendix for scientific and common plant names). Frequently associated with these species are the hybrid bindweed, bur medic, fleabane, four-seeded vetch, geranium and King Island meliot.

2. Shrubs - the upper half of the western face is covered with the islet's only shrubs: about 12 tutu and a single mahoe, all 1-1.5 m tall. Rape greater than 1 m tall are common and so too are the grass species and the plantain of the adjacent ridge.

3. Ledges - the steep east, south and lower west faces are mainly bare except on the ledges which are formed by the dipping Waitemata beds of alternating sandstones and siltstones. Apart from mats of the native pimelea (several $>1x1$ m^2) these ledges mainly contain herbaceous weeds including; meliot, plantain, scarlet pimpernel, rape and grasses (cocksfoot, danthonia, hard grass, ratstail and brome).

The vascular flora comprises 35 taxa of which 43% are native. The only rather surprising species present on such a small stack exposed to easterly storms, are tutu and mahoe. There are several surprising absentees; namely N.Z. iceplant (Disphyma australe), glasswort (Sarcocornia quinqueflora), taupata (Coprosma repens), karo (Pittosporum crassifolium) and pohutukawa (Metrosideros excelsa). The absence of the succulent N.Z. iceplant and glasswort may be attributable to the presence of rodents which we suspect browse these species on islands lacking freshwater. For example, these two species were largely confined to inaccessible cliff ledges on nearby Te Haupa Island (Fig. 1) when Norway rats were present in 1988 (GAT pers. obs.). Taupata is now uncommon on Auckland's mainland coast and was scarce on Te Haupa Island but very common on neighbouring Motutara Island, which lacks rats. Perhaps it too is effected by rodent browse? Karo's absence from Pudding Island is related to it's apparent absence from the adjacent mainland cliffs (viewing from sea level), but karo is abundant on Te Haupa Island. This may also be due to rodents because ship rats (pers. ob.) and kiore (Atkinson 1972) eat karo seed, but Norway rats appear to have less of an impact on seed (pers ob.). Pohutukawa is the dominant tree on the adjacent mainland and its absence from Pudding Island is inexplicable particularly since the far less salt tolerant species of tutu and mahoe are able to grow there.

Apart from coastal forest the tall adjacent mainland cliffs also contain bare eroding faces and grassy areas. The pohutukawa forest frequently is associated with kowhai (Sophora microphylla) and Astelia banksii. The rape on Pudding Island appeared to be absent from the similar mainland cliffs.

Clearly Pudding Island and its tidal reefs should be part of the Mahurangi Regional Reserve. We thank Jessica Beever for identifying the mosses.

REFERENCE

Atkinson, I.A.E. 1972. Vegetaion and Flora of Sail Rock, Hen and Chicken Islands. N.Z. Journal of Botany 10: 545-558

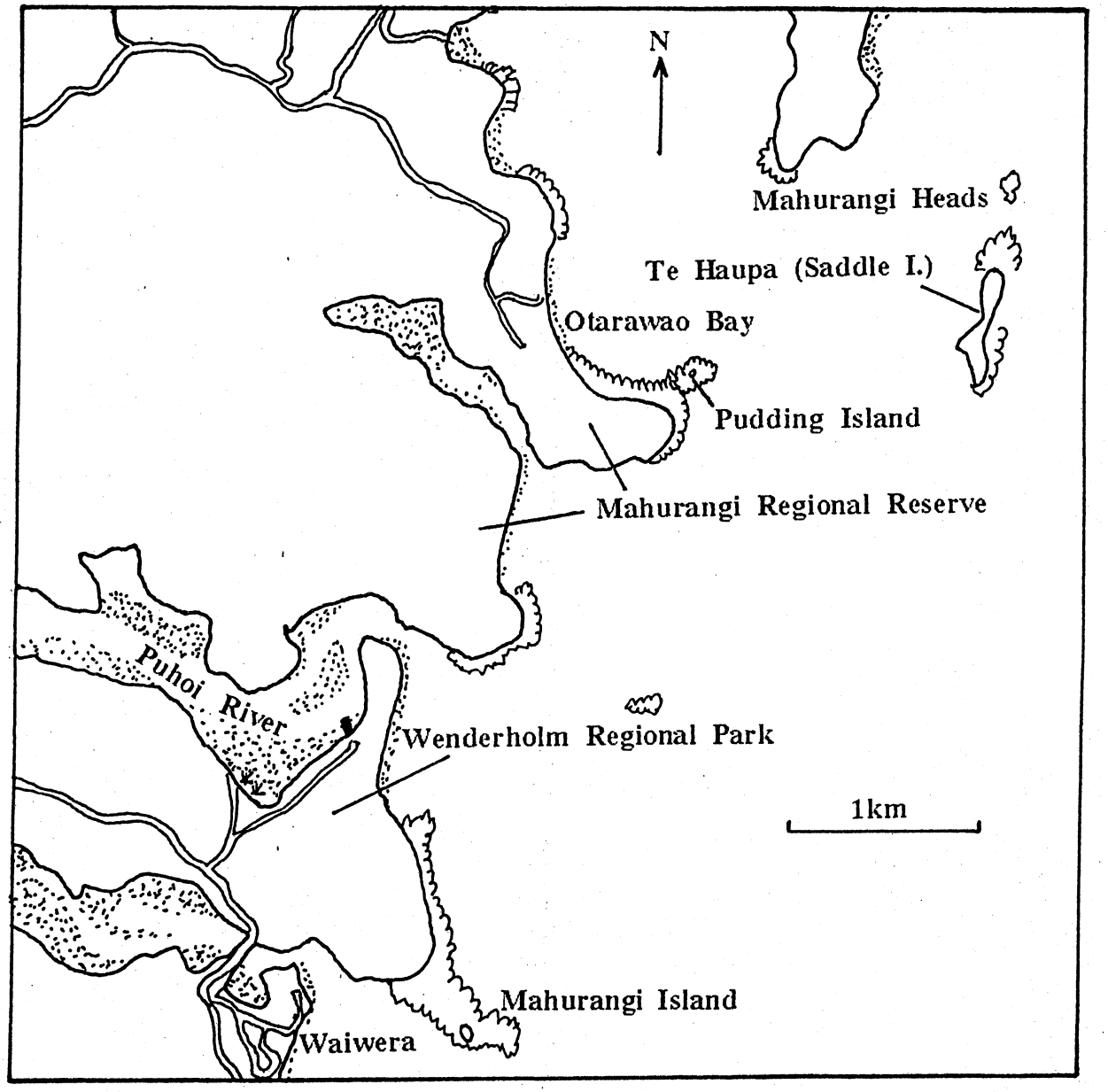

Fig. 1. Locality map for Pudding Island

Appendix: PUDDING ISLAND FLORA

a = abundant
c = common
o = occasional
l = local
r = rare (<5 plants seen)

* = adventive species
AKU = University of Auckland (Botany Dept.) herbarium voucher number

Dicotyledons (24)

*Anagallis arvensis s.s.** scarlet pimpernel c
Avicennia marina mangrove r
*Brassica napus** rape c AKU 22550 & 22553
Calystegia soldanella shore bindweed l
C. soldanella x *C. tuguriorum* ? bindweed c AKU 22552
*Centaurium erythraea** centaury r
Cirsium vulgare * Scotch thistle o
Conyza albida * fleabane o
Coriaria arborea tutu l
*Crepis capillaris** hawksbeard o
Dichondra repens dichondra o
Geranium solanderi "coarse hairs" c AKU 22551
Medicago nigra * bur medick c
Melicytus ramiflorus mahoe r
Melilotus indicus * King Island melilot a
Oxalis rubens r
Phytolacca octandra * inkweed o
Pimelea urvilleana lc AKU 22548
Plantago lanceolata * narrow-leaved plantain a
Senecio lautus shore groundsel o
Solanum americanum small-flowered nightshade o
Sonchus oleraceus * sow thistle c
Trifolium dubium * suckling clover o
Vicia tetrasperma * four-seeded vetch c AKU 22549

Monocotyledons (11)

*Avena barbata** slender oat c
*Bromus diandrus** ripgut brome a
*Dactylis glomerata** cocksfoot c
*Desmazeria rigida** hard grass l AKU 22505
Deyeuxia billarderei sand wind grass o
Isolepis nodosa o
*Parapholis incurva** sickle grass lc
*Paspalum dilatatum** paspalum o
Rytidosperma unarede danthonia o
*Sporobolus africanus** ratstail c
Trisetum antarcticum o AKU 22506

Mosses (3)

Desmatodon lingulatus AKU 72164
Tortula muralis AKU 72163
Trichostomum brachydontium AKU 72162