

HIGHER PLANTS (LYCOPODS, FERNS, GYMNOSPERMS, FLOWERING PLANTS) ON MACKAY DOWNS, N.W. NELSON, 700-870 M

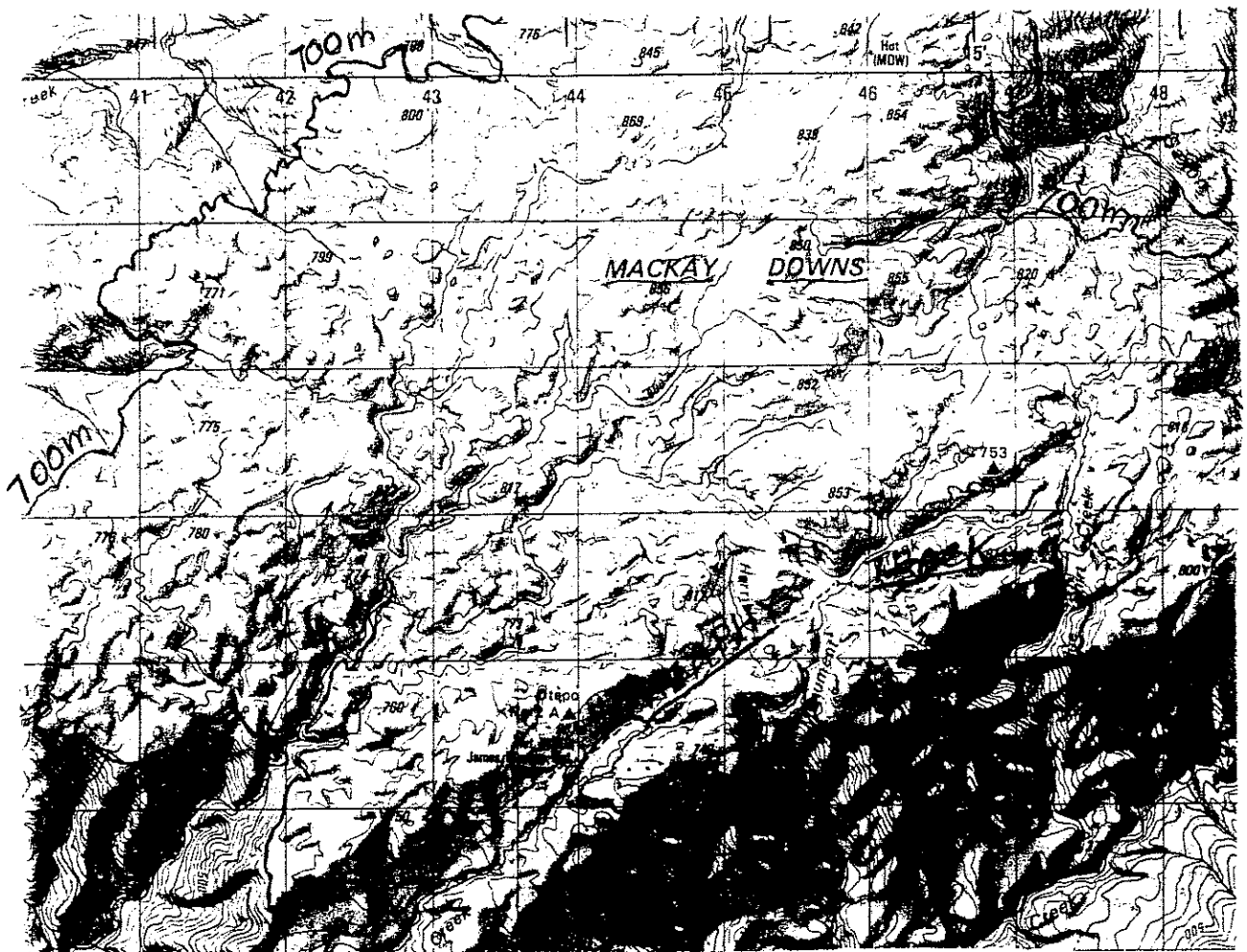
Highest point: NZMS 260 L26 443397

A.P. Druce, Wellington, and G.M. Rogers, Rotorua, March 1992
(revised May 1993)
Based on visit March 1992

Rocks: granite

(excluding Heaphy Track sides)

(Members of 1992 field party: Tony Druce, Geoff Rogers, Mary Bruce, Jan Heine, Arnold Heine)



Notes on topography, parent material, and vegetation of Mackay Downs

Topography: shallowly dissected, uplifted peneplain remnant, 700-870m a.s.l., with meandering streams in wide valleys roughly aligned in NE-SW direction; range of relief mostly less than 200m; terrace remnants few, poorly defined; slopes between broad ridge crests and valley bottoms gentle to moderately steep; slopes surrounding the peneplain remnant steep to very steep with stream gradients increasing dramatically over a short distance.

Parent materials: mostly coarse granite alluvium and colluvium, much of it overlain with peat, especially in the valleys and on broad flattish ridge crests; small areas of fine alluvium on terraces and footslopes; loess appears to be absent.

Special features: granite tors up to 5m tall are prominent in many places, on ridge crests, valley sides, and valley bottoms; tarns are present locally; boggy pools are a feature of flat valley bottoms.

Vegetation on the peneplain remnant

Forest: short unlayered forest widespread on moderately steep slopes, with bryophytes and lichens blanketing the ground and the trunks and branches of woody plants; canopy species - **Halocarpus biformis***, **Leptospermum scoparium**, **Nothofagus solandri** var. **cliffortioides** (in some areas), **Metrosideros umbellata**, **Pseudopanax lineatis**, **Quintinia serrata**; understory species - **Phyllocladus** sp. (unnamed), **Myrsine divaricata**, **Pseudowintera traversii**, **Archiera traversii**, **Dracophyllum traversii**, **D. townsonii**, **Cyathodes** sp. (*C. juniperina* agg.), **Leucopogon fasciculatus**, **Pittosporum rigidum**, **Gahnia procera**, **Astelia** sp. (unnamed).

taller forest locally present on steeper slopes; canopy species - **Nothofagus menziesii**, **N. solandri** var. **cliffortioides**, (**Libocedrus bidwillii** uncommon).

*dominants in bold print

Shrub-tussock land widespread on valley bottoms, ridge crests and gentle slopes; shrubs - *Dracophyllum paludosum*, *Halocarpus bidwillii*, *Leptospermum scoparium*, *Hebe* sp. (*Leonohebe mooriae*), *Pittosporum anomalum*; small shrubs - *Epactis alpina*, *Gaultheria* sp. (unnamed), *Lepidolthamnus laxifolius*, *Pentachandra pomila*; tussock - *Chionochloa rubra*; other plants - *Chionochloa australis*, *Empodisma minus*, *Gleichenia dicarpa*, *Carpha* sp. (unnamed), *Herpolition novae-zelandiae*, *Lycopodium laterale*.

Cushion herbfield widespread on valley bottoms and ridge crests; dwarf shrubs - *Leptospermum scoparium*, *Cyathodes dealbata*; other plants - *Chionochloa australis*, *Donatia*, *Empodisma minus*, *Oreobolus strictus*, *Centrolepis ciliata*, *Gaimardia setacea*, *Lycopodium laterale*, *Actinotis novae-zelandiae*, *Celmisia parva*, *Drosera arcturi*.

Boggy pools - *Lycopodium gunnii*.

(Notes: *Olearia colensoi* is virtually absent - only a few plants were seen; there are no adventive weeds in the vegetation)

Disturbance to the vegetation

Fire: one sizeable area has been burnt followed by much erosion of granite colluvium and incomplete re-establishment of plants.

Wind-blown salt: on ridge crests and exposed slopes crowns of most woody plants, especially emergent *Metrosideros umbellata*, show severe damage from wind-blown salt particles. It is apparent that the damage results from gale-force SW winds that have crossed the sea only 5 to 10 km away. The NE-SW alignment of the valleys coincides with the damaging SW winds; this means that little of the forest has escaped damage.

Browsing animals: evidence from overgrown tracks shows that deer have been present in numbers in the past; none appear to be present now. Juveniles of *Pseudopanax* sp. (unnamed) and *Griselinia littoralis* are re-appearing in the forests.

(unc) - uncommon or local

† - seen only in vicinity of M.O.W. hut (grid ref. L26 460301)

INDIGENOUS PLANTS

GYMNOSPERM TREES AND SHRUBS

Halocarpus bidwillii

H. biformis

H. bidwillii X *H. biformis*

Lagarostrobos colensoi (unc)

Lepidothamnus intermedius (unc)

L. laxifolius

L. intermedius X *L. laxifolius*

Libocedrus bidwillii (unc)

Phyllocladus sp. (unnamed; aff.

P. alpinus) ("lowland" ecotype of Wardle 1969)

others) (lf undersurface not minutely hairy as is usual in *C. parviflora*; drupes vs. unpigmented, occ. purplish red)

C. sp. (iii) (unnamed; aff. *C. intertexta*)

(prostrate or lianoid shrubs) (unc)

C. sp. (iv) (unnamed; aff. *C. colensoi*)

(low-growing shrubs with trailing branches) (unc)

Cyathodes dealbata (incl. *C. pumila*)

C. campetifolia

C. sp. (C. juniperina agg.) (lvs vs. 4 cm X 1mm, up to 1.5cm X 2.5mm)

Dracophyllum longifolium var.

(incl. *D. filifolium* and *D. oliveri*) (unc)

D. palustre

D. townsonii

D. traversii (incl. *D. pyramidale*)

D. longifolium X *D. palustre* (unc)

Elaeocarpus hodkermanus

Epactis alpina

Exocarpus bidwillii

Gaultheria antipoda (unc)

G. macrostigma

G. sp. (unnamed; included in G.

depressa, as var. *novae-zelandiae*, by Franklin 1962)

G. antipoda X *G. sp. (unnamed)* (unc)

G. macrostigma X *G. sp. (unnamed)* (unc)

Griselinia littoralis

Hebe sp. (*Leonohebe mooreae*)

DICOT TREES AND SHRUBS

Atcheria traversii (incl. *A. t.* var. *australis*)

Brachyglottis rotundifolia var.

(incl. *B. buechananii* and *B. cockaynei*) (unc)

Cassinia vauvilliersii (unc)

Coprosma cheesemani s.s.

C. colensoi s.s.

C. foetidissima

C. pseudocuneata ssp. (lvs narrower than in ssp. *pseudocuneata*)

C. sp. (i) (unnamed) (*C. parviflora* var. *dumosa* sensu Allan 1961, non *C. p.* var. *dumosa* Cheeseman)

C. sp. (ii) (unnamed; included in *C. parviflora* by Oliver, 1935, and

- Leptospermum scoparium*
Leucopogon fasciculatus var. (jov. lvs not much broader than adult lvs)
Metrosideros umbellata
Myrsine divaricata s.s.
M. nummularia (unc)
Neomyrtus pedunculata (unc)
Nothofagus menziesii (unc)
N. solandri var. *cliffortioides*
Olearia colensoi var. *colensoi* (unc)
O. virgata var. *implicata* (incl. *O. v.* var. *divaricata* and *O. v.* var. *laxiflora*) (unc)
Pentachondra pumila
Pimelea gnidia var. *gnidia* (unc)
P. oreophila (unc)
Pittosporum anomalum
P. rigidum var. (*P. crassicaule*)
Pseudopanax anomalus
P. linearis
P. simplex (incl. *P. s.* var. *sinclairii*)
P. sp. (unnamed; included in *P. colensoi*, as var. *ternatus* and as var. *fiordensis* by Wardle 1968) (all plants seen were saplings less than 2 m tall)
Pseudowintera traversii
Quintinia serrata (incl. *Q. acutifolia* and *Q. elliptica*)
Waimannia racemosa var. *racemosa* (unc)

LYCOPODS

- Lycopodium australianum* (unc)
L. fastigiatum
L. laterale (incl. *L. ramulosum*)

- L. scariosum*
L. varium (incl. *L. billardierei* and *L. novae-zelandicum*) (unc)

FERNS

- Asplenium flaccidum* (unc)
Blechnum discolor (unc)
B. fluviatile agg. (unc)
B. procerum
B. sp. (i) (unnamed) (common lowland sp.; lower pinnae reduced in length) (unc)
B. sp. (ii) (unnamed) (mountain sp.; lower pinnae not reduced) ("The Dunedin-Cass Variety" of Crookes 1963) (unc)
B. procerum x *B. sp. (i)* (unc)
Cyathea colensoi (unc)
Gleichenia dicarpa
Grammitis billardierei
G. magellanica ssp. *nothofageti* (unc)
G. poeppigiana (unc)
[†]*Histiopteris incisa* (unc)
Hymenophyllum armstrongii
H. flabellatum (unc)
H. lyallii (unc)
H. malingii (unc)
H. multifidum
H. peltatum (unc)
H. tatum
H. rufescens
H. villosum
Leptopteris superba (unc)
Polystichum vestitum (unc)
Schizaea australis (unc)
Sticherus cunninghamii

ORCHIDS

- Aporostylis bifolia*
- Lyperanthus antarcticus*
- Prasophyllum colensoi*
- Pterostylis venosa*
- Thelymitra cyanea*
- T. formosa* (unc)

- Gahnia procera*
- Isolepis aucklandica* (unc)
- I. subtilissima* (unc)
- Oreobolus pectinatus* (unc)
- O. strictus*
- Uncinia filiformis* (unc)
- U. involuta* (unc)
- U. rupestris* (incl. *U. angustifolia*)
- U. sp.* (unnamed; aff. *U. nervosa*)
(plants more slender than in *U. nervosa*; see Edgar 1970, p. 231)

GRASSES

- Agrostis personata*
- Chionochloa australis*
- C. rubra* ssp. *oculta*
- Deyeuxia aucklandica*
- D. avenoides* (incl. *D. a. var. brachyantha*) (unc)
- Hierochloa novae-zelandiae*
- Microlaena avenacea* (unc)
- M. thomsonii*
- Poa colensoi* (unc)
- P. maia*
- Rytidosperma gracile*
- R. nigricans*

RUSHES AND RELATED PLANTS

- Centrolepis ciliata*
- Empodisma minus*
- Gaimardia setacea*
- Juncus novae-zelandiae* (unc)
- † *J. planifolius* (unc)
- J. pusillus* (unc)
- Luzula sp.* (unnamed; included in *L. picta*, as var. *limosa*, by Edgar 1966)

SEDGES

- Carex dallii*
- C. echinata* var. (*C. stellulata* var. *australis*)
- C. gardichaudiana*
- C. sp.* (unnamed; aff. *C. dissita*)
(plants much smaller than in *C. dissita*) (unc)
- Carpha alpina* ss. (unc)
- C. sp.* (unnamed; aff. *C. alpina*)
(plants taller and more slender than in *C. alpina*; lvs narrower, with tips acute rather than obtuse)

MONOCOT HERBS OTHER THAN ORCHIDS, GRASSES, SEDGES, RUSHES AND RELATED PLANTS

- Astelia graminea*
- A. linearis*
- A. subulata* (unc)
- A. sp. (i)* (unnamed; included in *A. nivicola*, as var. *moriceae*, by Moore 1966)
- A. sp. (ii)* (unnamed; aff. *A. nervosa*)
(lvs not conspicuously white adaxially as in *A. nervosa*)
- Herpolition novae-zelandiae*

Libertia pulchella
Lozuriaga parviflora
Phormium cookianum

COMPOSITE HERBS

- Abrotanella caespitosa*
A. linearis s.s. (unc)
Anaphalis sp. (*Helichthysum bellidoides* s.s.)
Brachyglottis sp. (unnamed; included in *B. bellidoides*, as var. *crassa*, by Nordenstam 1978)
Celmisia armstrongii (unc)
C. dallii (unc)
C. parva
C. similis
C. sp. (unnamed; aff. *C. gracilentata*) (plants tufted; lvs linear to linear-lanceolate; upper surface and margins thinly covered in tomentum; lower surface glabrous except for midrib)
Craspedia sp. (unnamed) (small summit-green plants; lvs green; lamina almost as broad as long, narrowing abruptly to slender petiole about as long as lamina; both surfaces clad in long multicellular non-glandular hairs, without cottony tips, over short glandular hairs; margins faintly white with cottony hairs; fls white)
Leptinella sp. (unnamed; included in *L. squalida*, as ssp. *mediana*, by Lloyd and Webb, 1987)
Raoulia glabra (unc)
R. grandiflora var. *grandiflora* (unc)
- DICOT HERBS OTHER THAN COMPOSITES**
- Actinotis novae-zelandiae*
Anisotome aromatica
Colobanthus apetalus (incl. *C. a.* var. *alpinus*) (unc)
Coprosma talbrockiei (unc)
Donatia novae-zelandiae
Drosera arcturi
D. spathulata
D. stenopetala (unc)
Epilobium cockayneanum (unc)
E. pernitens (unc)
Euphrasia townsonii s.s.
Forstera mackayi (unc)
F. sedifolia s.s. (unc)
F. tenella (unc)
Gentiana montana (incl. *G. m.* var. *stolonifera*, *G. patula*, and *G. bellidifolia* var. *pulchella*)
G. spenceri
Gonocarpus aggregatus
G. micranthus ssp. *micranthus*
Kelleria dieffenbachii (unc)
K. laxa
K. multiflora
Lipatophyllum gunnii
Nertera balfouriana (unc)
N. ciliata (unc)
N. sp. (unnamed; aff. *N. dichondrifolia*) (hairs present on both surfaces of lf, straight, not hooked as in *N. dichondrifolia*) (unc)
Oreomyrrhis colensoi s.s. (unc)
Oreostylidium subulatum
Phyllachne clavigera (incl. *P. colensoi*)

- Plantago sp. (aff. *P. novae-zealandicae*) (plants small, up to 2.5cm diam; spike vs. 2-fl'd)
- Pratia angulata* agg. (unc)
- Psychrophila novae-zealandiae* (unc)
- Viola cunninghamii*
- V. filicaulis* (unc)
- V. lyallii* (unc)

No. of indigenous species: 181.

ADVENTIVE PLANTS

- † *Festuca nigrescens* (unc)
- † *Holcus lanatus* (unc)
- † *Juncus effusus* (unc)

REFERENCES

Allan, H.H. 1961: *Flora of New Zealand*. Government Printer, Wellington. Vol. 1.

Crookes, M. 1963: "New Zealand Ferns." Whitcombe & Tombs.

Edgar, F. 1966: *Luzula* in New Zealand. N.Z. J. Bot. 4: 159-84.

——— 1970: In "Flora of New Zealand." Government Printer, Wellington. Vol. 2.

Franklin, D.A. 1962: The Ericaceae in New Zealand (*Gaultheria* and *Petulletya*). Trans. R. Soc. N.Z. Bot. 1: 155-73.

Lloyd, D.G.; Webb, C.J. 1987: The reinstatement of *Leptinella* at generic rank, & the status of the 'Cotuleae' (Asteraceae, Anthemideae). N.Z. J. Bot. 25: 99-165.

Moore, L.B. 1966: Australasian asteliads (Liliaceae). N.Z. J. Bot. 4: 201-70.

Nordenstam, B. 1978: Opera Bot. 44: 1-84.

Oliver, W.R.B. 1935: The genus *Coprosma*. Bull. Bishop Mus. Honolulu 132.

Wardle, P. 1968: The taxonomy and distribution of the stipulate species of *Pseudepanax* in New Zealand. N.Z. J. Bot. 6: 226-36.

——— 1969: Biological flora of New Zealand. *Phyllocladus alpinus* Hook. f. (Podocarpaceae); mountain totara, celery pine. N.Z. J. Bot. 7: 76-95.