

## THE VEGETATION OF THE NORTH CAPE AREA

by J. M. Wheeler

The vegetation of the North Cape district appears to have received little attention firstly because of its inaccessibility and secondly because of the general impression given in the early writings of Kirk and Cheeseman that the area is uninteresting from the botanical point of view.

The area is of considerable ecological interest, however, and the present study was initiated with the following aims :

- (i) To describe the varied plant communities present within a relatively restricted area,
- (ii) To describe the remnants of the Kerr Point vegetation known to exhibit a number of unique features,
- (iii) To investigate the vegetation dynamics on the cliffs and other eroded areas, and
- (iv) To construct a vegetation map and species list for future reference.

### LITERATURE

The area was first explored by Colenso in 1839 who travelled north from Kaitaia to Cape Reinga, Spirits Bay and North Cape and collected several plants peculiar to the area. Later, between 1865 and 1867 the area was visited by Buchanan and Kirk. Kirk (1868) published the first notes and species lists by Buchanan and Kirk (1869, 1870) followed. A more extensive description of the district north of Whangaroa was given by Cheeseman in 1896. Mason (1952) extends the notes on the area north of Awanui to Spirits' Bay and the present notes apply to the area lying further to the east of this.

### LOCATION

The area under consideration may be defined as that lying to the east of Tom Bowling Bay, including the high promontory of Kerr Point, North Cape island and the immediately southern and extensive Waikuku flat and bordering sandhills as shown in Fig. 1.

## PHYSIOGRAPHY AND SOILS

Kerr Point, a promontory about 4 miles in length by 3 in breadth, rises from near sea level on Waikuku flat at the south to 769 feet at the north. Here it forms a plateau terminating in precipitous cliffs. Weathering on the hinterland has resulted in a consequent drainage pattern with small streams in steep-sided valleys and broad intervening ridges of moderate to steep slope. The soils are mainly laterite being derived from serpentine. They are skeletal in nature on the ridges (if present at all) but have developed further in the valleys under the influence of humus to form a stony loam. Sheet erosion is extensive on the ridges, resulting from repeated burning of the low vegetational cover and accelerated by uncontrolled runoff on the steep slopes.

North Cape Island, lying off the eastern extremity of Kerr Point rises to 326 feet above sea level in a short distance. It is of small area and no streams are present.

Waikuku flat extends for a considerable distance to the south and is rarely more than 25 feet above sea level. It is occupied mainly by swamp and in the lower areas by small fresh water lakes. The soil is derived from a former Kauri podsol overlain by recent sediments.

Consolidated and recent sandhills are also present forming both the north-western and eastern boundaries of Waikuku flat.

## VEGETATION PATTERN

The vegetation of the area is made up of a complicated mosaic of sand, swamp, scrub and coastal forest. For convenience it can be divided into a number of communities distinguished on the basis of their dominant species and position in the area.

1. Cliff communities
2. Plateau scrub
3. Hinterland scrub
4. Coastal forest
5. Gumland scrub
6. Gumland bog and fresh water swamp
7. Salt swamp and damp sand flats
8. Sand dunes

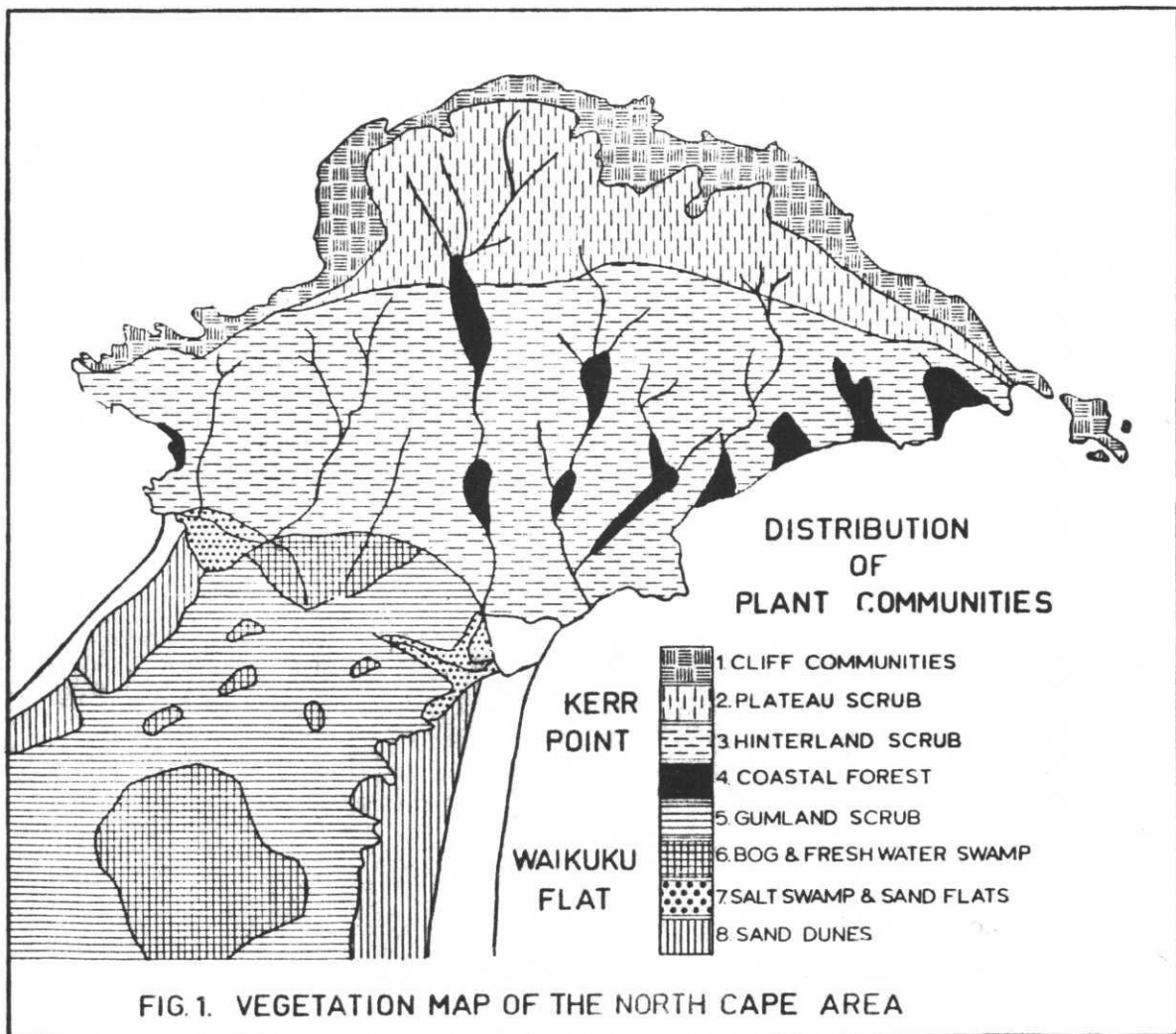
1. Cliff Communities - these were studied on Kerr Point where three main areas can be distinguished;

- (a) on the open steep faces the plant cover is of matt form. The species which are abundant and share dominance are : Melicope simplex, Corokia cotoneaster, Leucopogon richei, Cassinia amoena, Coprosma acerosa and two species of Hebe.
- (b) In parts the cliff faces are steeply eroded and in the more sheltered aspects of the gorges formed an unusual combination of forest and scrub species is found. It includes 3 feet high Metrosideros, Corynocarpus, Knightia and Phyllocladus together with Astelia, Cassinia and Leptospermum.
- (c) Nearer the base the more typical cliff plants are found, namely Phormium species, Arthropodium and Muhlenbeckia. Successional stages are not readily distinguishable in this area although a type of "pattern and process" is probably present and could be revealed with the use of quadrats.
2. Plateau scrub - found on the northern part of Kerr Point at an altitude of between 700 and 769 feet. Here Cassinia amoena and Cyathodes acerosa may be the sole dominants over large areas. In other places Leptospermum scoparium also shares the dominance. Important sub-dominants are Hebe adamsii, H. speciosa brevifolia, Pittosporum pimeleoides and Corokia cotoneaster.
3. Hinterland scrub - this is the most extensive community type found on Kerr Point promontory occupying the lower slopes (except for small areas of pasture), the ridges and parts of the plateau. It intergrades in various areas into gumland scrub, coastal forest and plateau scrub. Leptospermum scoparium is always the dominant species. Stages in the succession from bare burnt ground are readily observed. The first colonists are Leptospermum scoparium, Pomaderris elliptica and various Cladium species. These form a scrub about 2-3 feet in height. The rush species are particularly suited to colonisation of fired ground, their underground rhizomes being capable of producing new growth very rapidly. Leptospermum and Pomaderris are also well suited as their seeds germinate quickly in full light. Later species such as Dianella, Lepidosperma, Shoenus tendo and Shoenus brevifolia characterize large areas together with the Leptospermum forming a scrub up to 5 feet in height.
4. Coastal forest - forest remnants are few in number and of small extent as shown in Fig. 1. Metrosideros excelsa is the dominant canopy species - 50 to 60 feet high - with Sideroxylon novae-zelandiae also frequently emergent. Entelia, Hoheria, Cordyline and Corynocarpus form subcanopy layers. In many places this community is replaced by coastal scrub in which Metrosideros, Leptospermum, and Phormium are the physiognomically dominant species.

5. Gumland scrub - characteristic over large areas of Waikuku flat. Leptospermum scoparium and Pteridium esculentum share dominance and are host plants for the locally abundant parasite Cassytha paniculata. Many other scrubs and sedges are common also, such as Leucopogon fasciculatus, Olearia furfuracea and Lepidosperma laterale.
6. Fresh water lakes, swamp and gumland bog - these communities are developed in lowlying areas of Waikuku flat. In the fresh water lakes and swamps such species as Potamogeton, Myriophyllum, Typha, Phormium and Cladium articulatum are abundant while in the drier bog community Gleichenia dicarpa dominates with Cladium articulatum and C. glomeratum also very common.
7. Salt swamp and damp sand flats - these are usually found bordering the streams near the sea and further inland. The salt swamp is typical with Leptocarpus, Juncus, Mariscus and Plagianthus dominant. The damp sand supports many caryophyllaceous plants including Sagina apetala, Scleranthus biformis and Stellaria media in great abundance as well as the typical Ranunculus acaulis and Gunnera arenaria.
8. Sand dunes - these are fairly extensive and show typical arenarian plant formations. On the unstable foredunes the powerful sandbinders Desmoschoenus and Spinifex dominate. These are replaced on the more stable sand by a scrub dune consisting mainly of Pimelia arenaria, Coprosma acerosa and Cassinia retorta. The fixed dune stage, found further inland is characterised by many grasses and small herbs such as Danthonia species, Anthroxanthum and Coprosma repens.

The distribution of the above communities is shown in the accompanying map (Fig. 1). All species found are included in the species list, the name being followed by the number of the various communities in which present.

The species list has been made up from notes taken by E. Pook, A. Haughey, P. Hines and J. Wheeler during the 1959 Scientific camp and by J. Wheeler in December 1960. Those species listed by Buchanan and Kirk (1869) by Kirk (1870) and by Cheeseman (1896) not found during the present trips have been included and are marked by an asterisk. Arrangement of families follows Holtum (Allan 1961) for the Ferns and Hutchinson for Monocotyledons and Dicotyledons. Names follow Cheeseman (1925) with Allan (1961) in brackets where applicable.



SPECIES LIST FOR THE NORTH CAPE AREA

Community Number

PSILOPSIDA

PSILOTACEAE

*Tmesipteris tannensis*\*

LYCOPSIDA

LYCOPODIACEAE

*Phylloglossum drummondii* 6.

*Lycopodium billardieri* 4.

*L. laterale* 4, 5.

*L. cernuum* 5.

*L. densum* (*deuterodensum*) 5.

*L. volubile*\*

FILICOPSIDA

OPHIOGLOSSALES

OPHIOGLOSSACEAE

*Botrychium australe* 3, 4, 6.

FILICALES

OSMUNDACEAE

*Todea barbara* 5.

*Leptopteris hymenophylloides*

(*Todea hymenophylloides*) 4.

SCHIZAEACEAE

*Lygodium articulatum*\*

*Schizaea fistulosa*\*

*S. bifida*\*

GLEICHENIACEAE

*Gleichenia dicarpa* (*circinata*) 5, 6.

*G. cunninghamii* 2, 4.

*G. flabellata* 3, 4.

HYMENOPHYLLACEAE

*Hymenophyllum dilatatum* 4.

*H. demissum* 4.

Community Number

CYATHEACEAE

- Cyathea dealbata* 4.  
*C. medullaris* 4.

POLYPODIACEAE

- Anarthropteris dictyopteris* 4.  
*Polypodium pustulatum* (*Phymatodes scandens*) 4.  
*P. diversifolium* (*P. diversifolium*) 4.

GRAMMITIDACEAE

- Polypodium billardieri*\*  
(*Grammitis billardieri*)

TELYPTERIDACEAE

- Polypodium pennigerum*  
(*Thelypteris pennigera*) 4.

DENNSTAEDTIACEAE

- Hypolepis tenuifolia*\*

LINDSAEACEAE

- Lindsays linearis* 3, 4, 5, 6.

PTERIDACEAE

- Pteris scaberula*\* (*Paesia scaberula*)  
*Pteris incisa*\* (*Histiopteris incisa*)  
*Pteridium esculentum*  
(*aquilinum* var *esculentum*) 4, 5, 6.  
*Pteris tremula* 4.  
*P. comans* 4.  
*P. macilenta* 4.

ASPLENIACEAE

- Asplenium lucidum* 4.  
*A. obtusatum* 1, 4.  
*A. fulcatum*\*  
*A. bulbiferum* 4.  
*A. flaccidum* 4.

Community Number

BLECHNACEAE

Doodia media	4.
Blechnum fraseri*	
B. filiforme*	
B. penna-marina	4.
B. nigrum	4.
B. discolor*	
B. banksii*	
B. lanceolata*	
B. fluviatile	4.
B. procerum (capense)	3, 5.

DRYOPTERIDACEAE

Polystichum richardii	4.
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ADIANTACEAE

Adiantum hispidulum	4.
A. affine (cunninghamii)	4.
A. aethiopicum	4.
A. fulvum*	
Cheilanthes tenuifolia*	
Pellaea rotundifolia	5.

SPERMATOPSIDA

GYMNOSPERMAE

PODOCARPACEAE

Podocarpus ferrugineus*	
P. spicatus*	
P. dactyloides*	
P. totara*	
Dacrydium cupressinum*	
Phyllocladus trichomanoides	1, 3.

ARAUCARIACEAE

Agathis australis	4.
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ANGIOSPERMAE

DICOTYLEDONES

LAURACEAE

Cassytha paniculata	1, 2, 3, 5, 6.
Beilschmiedia taraire	4.
B. tawa	4.
Litsea calicaris	4.



Community Number

MONIMIACEAE

Hedycarya dentata (arborea) 4.

RANUNCULACEAE

Ranunculus hirtus 4.

R. acaulis 7.

Clematis indivisa (paniculata) 4.

C. colensoi (hookeriana)\*

PIPERACEAE

Macropiper excelsa 4.

Peperomia urvilleana 1, 4.

CRUCIFERAE

Cardamine heterophylla (debilis) 4.

C. hirsuta 4.

Nasturtium palustre\*

(Rorippa islandica)

Lepidrum oleraceum\*

VIOLACEAE

Melicytus ramiflorus 4.

M. macrophyllus\*

Hymenanchera latifolia\* (novae-zelandiae)

DROSERACEAE

Drosera auriculata 6.

D. binata 1, 2, 6.

D. pygmaea 1, 2.

D. spathulata 1, 2, 6.

AIZOACEAE

Mesembryanthemum australe

(Disphyma australe)

1.

Tetragonia expansa (tetragonioides) 1.

CARYOPHYLLACEAE

Spergularia media (marginata) 7.

Sagina apetala 7.

Stellaria media 7.

Scleranthus biflorus 7.

Cerastium sps. 4.

Community Number

POLYGONACEAE

Muehlenbeckia complexa	8.
M. australis	4.
Polygonum decipiens*	
P. hydropiper	3, 4, 5.
P. aviculare*	
Rumex flexuosus*	
R. acetosella	8.

CHENOPODIACEAE

Chenopodium glaucum* (ambiguum)	
Salicornia australis	1.
Suaeda novae-zelandiae	7.
Atriplex billardieri*	
(Theleophyton billardieri)	

GERANIACEAE

Geranium microphyllum	8.
G. molle	4.
G. dissectum	8.
Pelargonium inodorum	3, 5.

OXALIDACEAE

Oxalis corniculata	8.
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LINACEAE

Linum monogynum	4, 7.
L. gallicum	3, 5.

HALORAGACEAE

Haloragis erecta	3, 4, 5.
H. cartilaginea	1, 2.
H. depressa*	
H. micrantha*	
H. tetragyna* (incana)	
Gunnera arenaria	7.
G. monoica*	
Myriophyllum propinquum	6.

	<u>Community Number</u>
ONAGRACEAE	
<i>Fuschia excorticata</i>	4.
<i>F. procumbens*</i>	
<i>Epilobium pallidiflorum</i>	6.
<i>E. nummularifolium*</i>	
<i>E. glabellum*</i>	
<i>E. bullardierianum*</i>	
CALLITRICHACEAE	
<i>Callitriche muelleri*</i>	
THYMELAEACEAE	
<i>Pimelia prostrata</i>	1, 2, 3, 5, 8.
<i>P. arenaria</i>	5.
<i>P. virgata* (tomentosa)</i>	
PROTEACEAE	
<i>Knightia excelsa</i>	4.
CORIARIACEAE	
<i>Coriaria arborea</i>	4, 5.
PITTOSPORACEAE	
<i>Pittosporum tenuifolium</i>	4.
<i>P. umbellatum*</i>	
<i>P. pimeleoides (P. michiei &amp; P. pimeleoides)</i>	1, 2.
<i>P. reflexum (P. pimeleoides var reflexum)</i>	1, 2.
MYRTACEAE	
<i>Leptospermum scoparium</i>	1, 2, 3, 4, 5, 6, 8.
<i>L. ericoides</i>	1, 2, 3, 4, 5, 8.
<i>Metrosideros excelsa</i>	4.
<i>M. robusta*</i>	
<i>Eugenia maire*</i>	
<i>Myrtus bullata*</i>	
( <i>Lophomyrtus bullata</i> )	
ELAEOCARPACEAE	
<i>Elaeocarpus dentatus*</i>	
<i>Aristotelia serrata*</i>	
TILIACEAE	
<i>Entelea arborescens</i>	4.

Community Number

MALVACEAE

Plagianthus divaricatus	7.
Hoheria populnea	4.
Hibiscus trionum*	
H. diversifolius*	

EUPHORBIACEAE

Euphorbia glauca	8.
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CUNONIACEAE

Weinmannia sylvicola*	
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ESCALLONIACEAE

Carpodetus serratus	4.
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ROSACEAE

Rubus cissoides	4.
Acaena sanguisorbae (anserinifolia)	3, 4, 6, 8.

PAPILIONACEAE

Sophora microphylla	4.
Garmichaelia australis	8.

CORYNOCARPACEAE

Corynocarpus laevigata	4.
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RHAMNACEAE

Pomaderris elliptica (kumeraho)	1, 2, 3, 5.
P. phyllicifolia (var ericifolia & var polifolia)	1, 2, 3, 5.
P. edgerleyi (P. oraria var novae zelandiae and P. prunifolia var edgerleyi)	1, 2, 3, 5.

RUTACEAE

Melicope ternata	4, 8.
M. simplex	1, 2.

MELIACEAE

Dysoxylum spectabile*	
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Community Number

SAPINDACEAE

- Dodonaea viscosa* 4.  
*Alectryon excelsus*\*

ARALIACEAE

- Schefflera digitata* 4.  
*Nothopanax simplex* (Neopanax) 4.  
*N. arboreum* 4.  
*Pseudopanax edgerleyi*\*  
*P. crassifolium* 4.  
*P. lessonii* 1, 2, 4.

CORNACEAE

- Corokia cotoneaster* 1, 2.

UMBELLIFERAE

- Hydrocotyle dissecta* 4.  
*H. novae-zelandiae* 4, 5.  
*Apium prostratum* (australe) 3.  
*Lilaeopsis arbicularis* 7.  
*Centella asiatica* 3, 4, 5.  
*Daucus brachiatus*\* (glochidiatus)

EPACRIDACEAE

- Leucopogon fasciculatus* (*Cyathodes fasciculata*) 3, 4.  
*Leucopogon richii* (*C. parviflora*) 1, 2, 3, 5.  
*Cyathodes acerosa* (*juniperina*) 1, 2, 3, 5.  
*Leucopogon fraseri* (*Cyathodes fraseri*) 2, 3, 5, 6.  
*Dracophyllum urvilleanum* 1, 2, 3, 5.  
*D. latifolium* 4.

SAPOTACEAE

- Sideroxylon cortatum*\*  
(*Planchonella novo-zelandica*)

MYRSINACEAE

- Myrsine australis* 4.  
*M. salicina*\*

Community Number

LOGANIACEAE

- Geniostoma ligustrifolia 4.  
G. ligustrifolia (var crassifolium) 1, 2.

APOCYNACEAE

- Parsonsia heterophylla 1, 4.

RUBIACEAE

- Coprosma rhamnoides 4.  
C. acerosa 8.  
C. lucida 4.  
C. australis 4.  
C. robusta 4.  
C. baueri (repens) 1.  
C. spathulata\*  
C. arborea\*  
C. parviflora\*  
Galium umbrosum\* (propinquum)

COMPOSITAE

- Bidens pilosa\*  
Lagenophora forsteri\* (pumila)  
L. gunnii 2.  
Olearia furfuracea 1, 2, 4, 5.  
O. cunninghamii\* (rani)  
O. virgata\*  
O. solandi\*  
O. angulata\* (albida var angulata)  
Cotula coronopifolia 7.  
C. australis\*  
Gnathalium kerriense 4.  
G. luteo-album 4.  
G. involucratum\*  
G. collinum\*  
Helichrysum glomeratum\*  
Cassinia leptophylla\*  
C. retorta 3, 8.  
C. amoena 1, 2.  
Senecio lautus 1.  
S. kirkii\*  
Hypocharis radicata 2 - 8.  
Cirsum lanceolatum 4.

	<u>Community Number</u>
<i>Taraxacum officinale</i>	3, 4, 5.
<i>Erechtites atkinsoni</i>	4, 5.
<i>E. scaberula*</i>	
<i>E. quadridentata*</i>	
<i>Silybum mariana</i>	3, 4.
<i>Sonchus oleraceus</i>	4.
<i>Picris hieracioides*</i>	
GENTIANACEAE	
<i>Centaurium umbellatum</i>	2, 3, 5.
PRIMULACEAE	
<i>Samolus repens</i>	7.
PLANTAGINACEAE	
<i>Plantago raoulii</i>	1
<i>P. media</i>	4, 5.
<i>P. coronopsea</i>	4, 7, 8.
CAMPANULACEAE	
<i>Wahlenbergia gracilis*</i>	
GOODENIACEAE	
<i>Selliera radicans</i>	7.
LOBELIACEAE	
<i>Colensoa physaloides (Pratia physaloides)</i>	4.
<i>Pratia angulata</i>	6, 7.
<i>Lobelia anceps</i>	3, 4, 5, 6.
SOLANACEAE	
<i>Solanum aviculare</i>	3, 4.
<i>S. nigrum</i>	4.
<i>Physalis peruviana</i>	3, 4.
CONVULVULACEAE	
<i>Calystegia soldanella</i>	3.
<i>C. sepium</i>	4.
<i>Ipomoea palmata</i>	4, 8.
<i>Dichondra repens</i>	3, 5, 8.

Community Number

SCROPHULARIACEAE	
Glossostigma elatinoides*	
Mimulus repens*	
Limosella tenuifolia (lineata)	7.
Verbascum thrapus	4.
Hebe diosmifolia*	
H. speciosa var brevifolia (macrocarpa var.)	1, 2.
H. ligustrifolia	4.
H. macroura* (stricta var.)	
H. adamsii	1, 2.
GESNERIACEAE	
Rhabdothamnus solandri	4.
MYOPORACEAE	
Myoporum laetum*	
VERBENACEAE	
Vitex lucens	4.
LABIATAE	
Menthe pulegium	
MONOCOTYLEDONES	
POTAMOGETONACEAE	
Potamogeton polygonifolius	6.
JUNCAGINACEAE	
Troglochis triandrum*	
ZOSTERACEAE	
Zostera marina*	
LEMNACEAE	
Lemme minor	6.
LILIACEAE	
Collospermum hastatum	4.
Dianella intermedia	2, 3.
Astelia solandri	4.
A. banksii	1, 2.
A. trinervia	4.
Arthropodium cirrhatum	1, 2.



Community Number

TYPHACEAE	
<i>Typha angustifolia</i>	6.
IRIDACEAE	
<i>Libertia ixioides</i>	2, 3.
AGAVACEAE	
<i>Cordyline australis</i>	4, 8.
<i>C. banksii</i>	2, 4, 8.
<i>C. pumilio*</i>	
<i>Phormium tenax</i>	4, 6, 8.
<i>P. colensoi</i>	1, 2.
SMILACEAE	
<i>Rhipogonum scandens</i>	4.
PALMAE	
<i>Rhopalostylis sapida</i>	4.
PANDANACEAE	
<i>Freycinetia banksii</i>	4.
ORCHIDACEAE	
<i>Prasophyllum pumilum*</i>	
<i>Pterostylis graminea</i>	4.
<i>Microtis unifolius</i>	1, 2, 3.
<i>Acianthus sinclairii</i>	5.
<i>Thelymitre intermedia</i>	1, 2, 3, 5.
<i>T. longifolium</i>	1, 2, 5.
<i>Corybas species (2)</i>	1, 2, 5.
JUNCACEAE	
<i>Juncus maritimus</i>	7.
<i>J. nodosus</i>	6, 7.
<i>J. polyanthemus</i>	1, 2, 3, 6.
<i>J. plebius</i>	2, 3, 6.
<i>J. biformis*</i>	
<i>J. vaginatus*</i>	
<i>J. planifolius*</i>	
RESTIONACEAE	
<i>Leptocarpus simplex</i>	7.

Community Number

CYPERACEAE

<i>Gahnia lacera</i>	4.
<i>G. gahniformis</i>	2, 3, 4, 5, 6.
<i>Uncinnia australis</i>	3, 4, 5.
<i>Desmoschoenus spiralis</i>	8.
<i>Scirpus nodosus</i>	3, 6.
<i>S. lenticularis</i>	5, 6.
<i>S. cenuus</i>	6, 7, 8.
<i>S. maritimus*</i>	
<i>S. lacustris*</i>	
<i>S. inundatus*</i>	
<i>S. prolifer*</i>	
<i>Eleocharis spacelata</i>	6.
<i>E. acuta</i>	6.
<i>E. cunninghamii*</i>	
<i>Cladium junceum</i>	3, 5, 6.
<i>C. articulatum</i>	2, 6, 7.
<i>C. gunnii</i>	6.
<i>Cladium glomeratum</i>	3, 6.
<i>C. teretifolium*</i>	
<i>C. sinclairii*</i>	
<i>Shoenus tendo</i>	6.
<i>S. axillaris*</i>	
<i>Carex pumila</i>	7, 8.
<i>C. virgata</i>	7.
<i>C. lucida*</i>	
<i>C. vacilans*</i>	
<i>C. breviculmis*</i>	
<i>Lepidosperma laterale</i>	2, 3, 5.
<i>Mariscus ustulatus</i>	6, 7.
<i>Kyllinga brevifolia*</i>	

GRAMINEAE

<i>Zoysia pungens*</i>	
<i>Paspalum scrobiculatum</i>	2, 3, 4, 5, 8.
<i>P. distichum*</i>	
<i>Oplismenus undulatifolius</i>	3, 4.
<i>Spinifex hirsutus</i>	8.
<i>Microlaena avenacea</i>	3, 5, 8.
<i>Stipa teretifolia</i>	7.
<i>Echinopogon oratus*</i>	
<i>Sporobolus capensis</i>	3, 8.

Community Number

<i>Deyeuxia forsteri</i> *	
<i>D. billardieri</i> *	
<i>Anthroxanthum oderatum</i>	8.
<i>Poa annua</i>	2, 4.
<i>P. anceps</i>	4, 8.
<i>Arundo conspicua</i>	6, 8.
<i>Isachne australis</i>	3, 6.
<i>Stenotaphrum secundatum</i>	4, 8.
<i>Danthonia pilosa</i>	4, 8.
<i>D. semiannularis</i>	4, 8.
<i>Festuca littoralis</i>	8.

## INTERESTING FEATURES OF THE VEGETATION

The preceding species list and notes on the community types of the North Cape area do not reveal all the interesting features of the plants found there. Among many of the less abundant and physiognomically unimportant species are some showing peculiarities of distribution and others which show great variation in form due either partly or wholly to hybridisation or environmental effects.

### Species showing unusual distribution

A number of the species present on Kerr Point and Waikuku flat are restricted in New Zealand to this area but are also present in Australia, for example, Phylloglossum drummondii, Leucopogon richei, Cassytha paniculata, Todea barbara, and Pomaderris phyllicifolia.

Others are restricted in distribution to the New Zealand Botanical Region, that is, are New Zealand endemics. Among these, the species Colensoa physaloides, Euphorbia glauca, Kyllinga brevifolia and Geniostoma ligustrifolia are found both on the New Zealand mainland and on one or more of the outlying islands of New Zealand, (Three Kings, Kermadecs, Chathams etc.), while Haloragis cartilaginea, Olearia angulata, Hebe diosmifolia, H. ligustrifolia, H. adamsii, H. speciosa brevifolia, Pomaderris edgerleyi, Pittosporum pimeleoides and Cassinia amoena are present only in the Far North of New Zealand. The last four species of this group are very common and may share dominance in their particular community.

### Possibilities of hybridization among local groups

Preliminary observations suggest that hybridization is occurring locally within a number of species groups. Definite intermediate forms have been reported between Cassinia retorta and C. amoena (Carse, 1930) and many intergrading types have been observed between the species of Pomaderris in the area. This latter complex consists of P. elliptica (kumeraho), P. edgerleyi - divided by Allan (1961) into P. oraria var novae zelandiae and P. prunifolia var edgerleyi - and P. phyllicifolia separated now into two varieties - var ericifolia and var polifolia. While the two varieties of P. phyllicifolia have been proved to be distinct on the basis of the chromosome numbers, chromosome behaviour and transplant experiments (Allan, 1961), the possibilities of interspecific hybridization have not been investigated.

Also growing in the same general area are a number of species of the genus

Hebe. It has been suggested (Allan, 1961) that one of these - H. adamsii - is of hybrid origin, the parents being H. ligustrifolia and H. speciosa var brevifolia. However, it has been noted during the present investigation that H. speciosa brevifolia and H. ligustrifolia have different ecological preferences (the former on exposed cliff faces, the latter in sheltered coastal forest) and different flowering times (the former observed during August-September, the latter December-January) so that hybridization could not be of frequent occurrence. H. adamsii is abundant however and grows under the same conditions as H. speciosa brevifolia; it may therefore be merely a form of this species. Further observation and possibly experimental work is necessary to reveal the proper status of this form.

#### Epharmonic forms

As mentioned above in some areas on the Kerr Point cliffs an unusual community consisting of both forest and scrub species is found. The forest species present in these situations are usually Melicope simplex, Pseudopanax lessonii, Pittosporum umbellatum, Corynocarpus laevigatus, Phyllocladus trichomanoides, Metrosideros excelsa, Knightsia excelsa. Under normal conditions these species are either small or large forest trees ranging in height from 20 - 100 feet. In the present cliff habitat, however, they are reduced to low scrubby or creeping forms no more than 3 feet in height and many approach the divaricate habit due to the origin of irregular branch systems.

A detailed comparison of these types with those more typical of the species could be of considerable interest and use from both the morphological and taxonomic point of view, especially in placing varieties of doubtful status.

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