RECORD

F. R. Fosberg
Collection
Book 24

30147-30946

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Collection and Field Note Book

No. 24

(May 3, 1946 - June 9, 1949)

(30147 ---- 30146)

USCC Expedition

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May

1946 USCC Expedition

1

33

Left Pearl Harbor a bit after noon, aboard USS LCI 983. Went south for several hours, then started a great circle course for Eniwetok Atoll, Marshall Is. Much to my surprise I did not get seasick.

4-12

4-12

Cruised along more or less uneventfully, except that on the 9th the boat twisted off a propeller-shaft. Limped along on one screw after that.

The boat is one of the most uncomfortable and unsatisfactory craft I have ever seen for our purpose.

Our bunks are in a square hold under the pilot house. Our officers ~~are~~ in another just forward. In about 20 feet square we have 11 desks. Although theoretically we have ventilation, actually it is so hot in this hold that I find it practically impossible to work. Further, there is no space for a botanist to work.

Our storage space is in another hold, forward of the office. This is cramped and everything so piled up that nothing is accessible.

The crew are a bunch of kids. The officers are all ensigns, all except the engineer about 21 years old. The engineer may be 26. The skipper ^{flash} is a nice young boy, very pleasant and good looking, but who does not carry much weight with the crew. The crew are the usual motley bunch of kids to be found on a navy boat now. Most of them are just in for a short time and not much interested in anything except getting out.

All in all, the selection and outfitting of the boat shows complete incompetance ~~to~~ for anything concerning scientists. Absolutely no attention has been paid to the convenience and comfort that is necessary to get the best work out of such men.

To go further back - the selection of directing personnel shows

exactly the same sort of unawareness of reality. All, of course, goes right back to the character of the organization - E.D.B., B.E.W., O.E.W., F.E.A., U.S.C.C. - the name changes have brought no change in the fundamental incompetency of the outfit.

The scientific personnel are mostly O.K. for their jobs. Townes is an intensely enthusiastic youngster - entomologist - a bit too aggressive but the kind that gets big collections. Oakley - entomologist - is a quiet, courteous very hard-working fellow - some years tropical experience - Puerto Rico, Guam, Honolulu. He will accomplish a great deal, too, though with more emphasis on the economic side. Rogers is a soil man, ~~and~~ quiet, competent, but without tropical experience. He will do a satisfactory job. Piper, ground water geologist. ~~is~~ has a keen mind, but no experience with islands. He has a tendency to step on other people's toes a bit, but will do a good job on this survey.

Hosaka - good boy, with considerable initiative, should contribute both to botanical and agronomic phases.

Smith - fisheries man, is a tall, extremely likeable fellow, who knows his business very well. He seems a bit prone to overlook the taxonomists' interests, but uses their work competently.

Ahi - Hawaiian fisherman, assistant to Smith. Certainly the personality of the party.

Mac Millan - horticulturist and expedition director - of Roerich Expedition note - is as quiet and grumpy that it is hard to size him up.

Trueblood - economist and chief of scientific party seems to have very little notion of how scientists function. He will gradually get it beaten into his head, but it may be a painful process for the rest of us.

Provencher is a likeable guy who takes care of equipment, arrangements of all sorts. He seems perfectly willing and may prove an asset to the party.

Weather has been about perfect, slight following sea, usually a cross breeze. The ocean has been so blue that no one could describe it. Just to sit and watch it makes up for much of the dirt, smells, and discomfort of the boat.

Read Hall's *Lost Island* and Nordhoff & Hall's *The High Barbaree*. Both are beautiful books. Reread Ford's *Death Rails with Magellan* and read most of *The Leaning Wind*: plus a flock of mystery stories.

Worked at intervals on a card catalog of Micronesian plants.

14

lighted Eniwetok at 8 a.m. Got in before noon. The skipper, Trueblood + Mac Millan went ashore. The rest of us got ashore in the middle of the afternoon. The lagoon is full of ships. Floating dry docks, tankers, tugs, all manner of things. Eniwetok Island is completely denuded - covered by guano set huts. #

Had a good dinner, met a young Lieutenant Angle from ~~Philippines~~ ^{Philippines} who was quite excited to meet

Went to officers club and had some beer. It tasted very good.

Bishop, Hall, Alpert ~~and others~~ came from Kwajalein.

14

Waited around all morning and finally got off in a small landing barge for Iquid. which is still completely wooded. Collected here, but suffered some from the heat. This is on the lee side of the atoll and simply littered with wreckage and junk that has floated here, also everything is covered with oil.

Got soaked by spray

coming back.

Had a good dinner ashore. Moved our junk ashore to the B.O. hut. Met a young Lieut. Angle, who was quite excited to meet someone mentioned in the Learning Wind. Talked to him till midnight.

Bishop + Trueblood left at 9 a.m. for Guam.

15

Went to Japtan I. in a Picket boat. This islet has been considerably messed up, but is very interesting. Some boys stationed here picked me up in a truck, hauled me around where I wanted to go, fed me beer, got me Pandanus fruits, etc.

Had a nice swim.

16

Went to Aoman I. in Picket Boat. This is where most of the natives have been placed. Lt. Halspeth, the military govt. official, went with us. He helped us get information from the natives. They are a pleasant but very quiet lot. They seem to have become

rather dependent on the M.G.
They still build and sail
canoes, but cultivate
nothing, make no copra.
M.G. has them hunting
conies and making shell
leis, weaving a few coconut
leaf baskets and belts, etc. to
sell at exorbitant prices to
the gobs on the island and
boats. The prices are fantastic.

Ordinary large spotted conies
\$1.45. small ones 50¢. leis
\$1 to \$5.

Met Chief Brown Smith,
interpreter, who has been in
U.S., who helped plan and led
the assault on Eniwetok.
He is a pleasant old fellow.

The ~~teeth~~ teeth of the older people
are very bad. These people
are all to be moved to Kwajalein
before the atomic bomb is exploded.

The sailing canoes here are
marvelous - deep, narrow
hulls 25-30 inches deep, 10-12
wide, outrigger and compensating
platform, lateen sail.
They can really move. We
went ashore and out in
one.

- 17 Stayed on Eniwetok I.
Drove around with Dr. Miller,
the surgeon, who turns out
to be a nephew of Dr. Lambert
of Walnut Creek, Cal., the
one who was in Fiji, etc.
He says he will write to him
and introduce me.

Saw wreckage of a mess of
U.S. Pursuit planes that
were blown to bits when
a B-29 was taking off and
accidentally dropped her
bombs. Certainly made
a mess of them.

The gang of officers here
certainly have treated us
well.

- 18 Went to Engebi I., a rather
long trip. This islet also
has been almost completely
denuded. There are millions
of dollars worth of equipment
abandoned here. Had good
collecting, in spite of the
condition of the vegetation.

The picket boat went
back and picked up Trueblood
and Kalspeth, took them to

Aoman. Then came for us. When we got almost back to Aoman both motors went dead - clogged fuel line. The crew fiddled with it for 3 hours. Trueblood & Halspeth came out in a canoe. The crew gave up 2 or 3 times and signalled for help. Just as another picket boat came, they got ours going, so both came back together, at 10 p.m.

May 19 - Worked on plants all day.

May 20 - Started at about 8:30 for Truk. Busy all day going over the presses. Good weather. My drying facilities are sorely taxed. What a birthday! I even forgot it was my birthday.

May 21 - Worked over press. Terrifically hot down in No. 2 hold. I intended to write a report on Eniwetok but didn't get to it.

DUN MOUNTAIN LINE.

NAMES OF TREES AND LARGER SHRUBS.

(By F. G. Gibbs.)

Dracophyllum spp., Celastria spp. and near endemic Rannunculus ensif. On the shingle slips we may find Crasp sclerophylla, Rannunculus hastii, Anisotome stellaria roughii, Notothlaspi rosulatum, H. sinclairii, Lobelia roughii and Epilobium epacridae, H. lycopodioides and H. tetraestri. The Roulia eximia association grows on Greywacke rock. Plants often found epid Celastria spectabilis, C. viscosa, Aciphylla flavescens. At the Castle Hill reserve where an area fenced to preserve the locally endemic Rannunculus also occur Notothlaspi rosulatum, M. Colensoi, actulariifolia, Lepidium sisymbrioides, Ore (var. rigida), Anisotome ensif, Carmichael Novae-zealandiae, and Senecio hastii.

From Christchurch to Springfield (42 miles) we rise approximately 36 ft to the mile. This area, now almost entirely devoted to mixed arable farming, was originally low tussock grassland, the species including those we will see at our first stop in the Kowai River bed.

This low tussock grassland has been greatly altered in composition by the action of fire, the grazing animal and the introduction of exotic plants. Species which we should find are:- *Poa caespitosa*, *P. colensoi*, *Festuca NovaeZelandiae*, *Agropyrum scabrum*, *Dichelachne crinita*, *Danthonia semi annularis* and *D. pilosa* among the grasses.

Geranium spp. *Oxalis corniculata*, *Epilobium* spp., *Dichondra repens*, *Wahlengergia* spp., *Lagenophora pumila*, *Brachycome sinclairii*, *Helichrysum bellidioides* and *H. filicanle*, *Chrysobactron hookeri*, *Celmisia gracilentia*, *Raoulia* spp. and *Senecio bellidioides* among the herbaceous plants.

Discaria toumatou, *Cassinia fulvida*, *Leucopogon fraseri*, *Carmichaelia subulata*, *C. monroi* and *C. nana*, *Coriaria sarmentosa* among the shrubs;

And of special interest: *Aciphylla colensoi* and *A. squarrosa*, and *Hoheria Lyallii* at its eastern limit.

On dry rock faces we find such xerophytes as *Corokia cotoneaster*, *Helichrysum selago*, *Coprosma propinqua* and *Hymenanthera alpina*.

Between the top of the pass and the shingle slips we find a very varied bag of *Viola cunninghamii*, *Senecio lyallii*, *Danthonia flavescens*, *Coprosma* spp., *Hierochloa redolens*, *Hebe* spp., *Dracophyllum* spp., *Celmisia* spp. and near the creek the local endemic *Ranunculus enysii*.

On the shingle slips we may find *Craspedia alpina*, *Poa sclerophylla*, *Ranunculus haastii*, *Anisotome carnosula*, *Cotula atrata*, *Stellaria roughii*, *Notothlaspi rosulatum*, *Haastia recurva* or *H. sinclairii*, *Lobelia roughii* and *Epilobium pycnostachyum*, *Hebe epacridea*, *H. lycopodioides* and *H. tetrasticha* may also be found.

The *Raoulia eximia* association grows at about 3500 - 5000 ft on greywacke rock. Plants often found epiphytic in the cushions are *Celmisia spectabilis*, *C. viscosa*, *Aciphylla colensoi* and *Danthonia flavescens*.

At the Castle Hill reserve where an area has been specially fenced to preserve the locally endemic *Ranunculus paucifolius*, there also occur *Notothlaspi rosulatum*, *M. Colensoi* (syn. *decora*), *Poa acicularifolia*, *Lepidium sisymbrioides*, *Oreomyrrhis andicola* (var. *rigida*), *Anisotome enysii*, *Carmichaelia monroi*, *Crepis Novae-zealandiae*, and *Senecio haastii*.

Aoman. Then came for
us. When we got almost
back to Aoman both

From Chr
approximately
devoted to mi
grassland, th
in the Kowai

This low
composition b
introduction
Poa caespitos
scabrum, Dic
D. pilosa amo

Geranium
repens, Wahl
sinclairii,
Chrysobactron
Senecio belli

Discaria
Carmichaelia
among the shr

And of s
and Hoheria L

On dry r
Helichrysum s

Between
varied bag of
flavescens. C

Terrifically hot down in
No. 2 hold. I intended to
write a report on Eniwetok
but didn't get to it.

DUN MOUNTAIN LINE.

NAMES OF TREES AND LARGER SHRUBS.

(By F. G. Gibbs.)

THE BEECH FAMILY

The beech forest through which the line passes is composed for the most part of two species, *Nothofagus fusca* (the large toothed beech) and *Nothofagus truncata* (the clinker beech) together with hybrids between them. Both species have leaves about an inch long, but the clinker's leaves have much shorter, blunter teeth and the tip of the leaf is rounded with a few short teeth. *N. fusca* has much more deeply cut teeth and the tip of the leaf is pointed. *Nothofagus Menziesii* (the silver beech) is first met with near the Third House Clearing and is thereafter fairly plentiful. The leaves are oblong, half an inch or less long, thick and polished, with numerous short teeth. The whitish bark of the trunk is marked with horizontal bands. *Nothofagus Solanderi* (the entire leaved beech) grows chiefly in the valley bottoms, but several specimens occur near Second House Gully. It has thin oblong leaves about half an inch long or less and no teeth. *Nothofagus cliffortioides* (the mountain beech) has leaves somewhat like those of the previous species, but thicker and more triangular and pointed. This is the only beech to be found close to the line just before it emerges from the bush on to the Mineral Belt. *Nothofagus apiculata*, of which there is a good specimen just above the line at the beginning of the Third House clearing is almost certainly not a true species, but merely a hybrid between *Nothofagus Solanderi* (which it closely resembles) and one of the toothed species, for it has the *Solanderi* leaf with a few minute teeth. It should be specially noted that the 'kamahi,' which is perhaps the commonest tree of all in the immediate neighbourhood of the line, is not a beech although it is generally called 'red birch' by bushmen. It has toothed leaves usually much larger than those of any beech, and racemes of flowers resembling those of the koromiko. It will be referred to later as *Weinmannia racemosa*. The heath, *Gaultheria antipoda*, has leaves like *N. Menziesii* and is often mistaken for a beech, but the branchlets are covered with soft brown scales.

THE CONIFER FAMILY

No examples of miro, matai, kahikatea or true totara are to be found, although specimens of the two latter occur near the road in the Brook Street Valley. In several of the gullies along the line, the well known drooping foliage of the rimu, *Dacrydium cupressinum*, can be observed. Near Coad's Creek at the end of the bush the handsome dark foliage of the mountain pine *Dacrydium Bidwillii*, will be seen.

The branches generally bearing two entirely distinct kinds of leaves, one set scale like, closely appressed to the branchlets and the others yew like. In places on the Mineral Belt, especially on the Dun Mountain, occurs the smallest pine in the world, *Dacrydium laxifolium*, which with its minute leaves sometimes straggles along the ground for a foot or more, but may come to maturity and bear fruit when only an inch or two high. The true totara with its good timber and coarse stringy bark does not seem to grow anywhere along the line, but its worthless relative, *Podocarpus Hallii*, with thin papery bark often resembling that of the fuchsia and thick, sharp pointed leaves often over an inch long, is fairly plentiful. The alpine totara, *Podocarpus nivalis*, with much shorter blunter leaves and generally a mere bush straggling along the ground is found in a few places on the Mineral Belt. Near Coad's Creek and on the higher slopes of the Wooded Peak, is found the South Island cedar, *Libocedrus Bidwillii*, generally, like the mountain pine, bearing two kinds of foliage, but easily recognised by a straight tapering stem bearing brown bark which comes off in long strips. *Phyllocladus alpinus* (the mountain toatoa) grows plentifully near and also on the Mineral Belt. What appear to be its thick woody leaves are really flattened branchlets.

THE DAISY FAMILY

Three of the daisy trees are at the present time covered with magnificent heads of daisy like flowers. *Brachyglottis repanda* (rangiora) has large roundish leaves, sometimes five inches across, and having the leaf stalks and the whole of the undersurface of the leaf completely white. *Olearia Cunninghamii* has toothed leaves four or five inches long and about two inches wide, with an undersurface of greyish white or buff colour. *Olearia arborescens* (formerly *nitida*) is easily recognised by leaves having a characteristic satiny under surface. *Olearia virgata* on the Mineral Belt has narrow leaves less than inch long and whitish underneath. The small daisy flowers grow close to the branches. *Cassinia fulvida*, a form of tawhini, grows just beyond the Third House and on the Mineral Belt.

THE IVY FAMILY

None of these climb like the English ivy but are trees or bushes. *Nothopanax arboreum*, the five finger, grows all along the line and in many gardens in town. Its leaflets have stalks about an inch long. *Nothopanax Colensoi* is found from the Third House to the Mineral Belt. It resembles the former, but its rather thicker leaflets have no stalks, though a strong stalk supports the spreading fan of leaflets. *Nothopanax simplex* in its adult form resembles a *N. arboreum* with only one finger to each leaf instead of five or seven. Its juvenile leaves are utterly different and are often mistaken for ferns. It is found beyond the Third House. *Nothopanax anomalum* is quite unlike all the former species, looking like a wire netting bush with small single leaves about a quarter of an inch long. It is not plentiful but one specimen grows on the track at the Third House clearing and many more on the dry spurs of the Fringe Hill. *Schefflera digitata* resembles *N. arboreum* but its long narrow leaflets are much thinner and more papery and its long drooping racemes of fruit are quite unlike the rigid erect bunches of berries characteristic of the "five finger." It grows chiefly in damp gullies.

THE KARAMU FAMILY

At least a dozen species of *Coprosma* are common along the line, and the low undergrowth growing on the line itself is chiefly composed of some of the species. All are distinguished by a small triangular growth (interpeticular stipule) on the branchlet between the bases of the stalks of the opposite leaves. *Coprosma grandifolia* (Kanono) is the plant from which the Maories obtained their best dyes and is very plentiful. Its large elliptical leaves, sometimes eight inches long, have a dark green raised midrib on the upper side. *Coprosma lucida* has large shiny leaves with a raised yellow midrib. *Coprosma robusta* has duller, smaller leaves with a sunken yellow midrib. *Coprosma linariifolia* with very narrow leaves about two inches long and *Coprosma Cunninghamii*, probably a hybrid with leaves varying much in size and shape, are found chiefly in Fourth House gully. *Coprosma foetidissima* (stinkwood) has long stalked leaves which give out a most offensive odour when bruised. The species *rhamnoides*, *parviflora*, *propinqua*, *Colensoi*, *microcarpa* and *cuneata* all have small leaves and generally grow to only moderate sized bushes, so will not be described here.

THE HEATH FAMILY

Gaultheria antipoda has leaves resembling those of *Nothofagus Menziesii* and is often called a "birch," but it has hairy branchlets and never grows to more than a tall shrub. *Cyathodes acerosa* with short prickly leaves standing out straight all round the branchlets and brown button-like fruit is most plentiful outside the bush. *Cyathodes empetrifolia* with still shorter leaves is found sparingly on the mineral belt. *Leucopogon fasciculatum* is often mistaken for a manuka, but its leaves are longer and stand out straight from the branchlets. *Dracophyllum longifolium*, the grass tree, with foliage like tufts of grass at the ends of the branches, is found chiefly near the end of the bush. Some smaller but similar species, *Urvilleanum*, *rosmarinifolium* and probably *uniflorum*, are plentiful on the Mineral Belt.

THE MYRTLE FAMILY

Leptospermum scoparium, the red manuka, has prickly leaves, large flowers and large capsules which can be found on the branches all the year round. It is seldom more than a tall shrub. *Leptospermum ericoides*, the white manuka, which more often grows into a tree, has softer, narrower, less prickly leaves, while the flowers and capsules are much smaller and the latter soon fall from the branches. *Metrosideros lucida*, the mountain rata, is well known to everybody. The climber, *Metrosideros hypericifolia*, with its double rows of small leaves and pinkish white flowers, occurs sparingly.

THE MATIPOU FAMILY

Suttonia australis (formerly *Myrsine Urvillei*), the mapou or matipou, with its reddish yellow branches and crinkly leaves, is often used in town as a hedge plant, though the Maori name is often misapplied to another favourite hedge plant with black branches, namely *Pittosporum tenuifolium*. *Suttonia divaricata* occurs near the mineral belt and is easily recognised by its small heart shaped leaves and the peculiar drooping habit of its stiff wiry branches.

THE PITTOSPORUM FAMILY

Pittosporum tenuifolium, or kohuhu, with its black branches and small light green crinkly leaves, is plentiful in our town gardens, especially as a hedge plant. *Pittosporum eugenioides*, the tarata or lemon tree, is also common about town. The long narrow pointed leaves are of a bright yellowish green colour and give out a pleasant lemon scent when bruised. *Pittosporum divaricatum* is a densely twiggy shrub growing in the bush near the mineral belt. Its minute leaves are most varied in shape, but identification can usually be obtained from the small purple flowers and the characteristic pittosporum capsules enclosing black sticky seeds.

THE SAXIFRAGE FAMILY

Weinmannia racemosa, the kamahi, often erroneously called a red birch or bastard birch, is probably the commonest tree in the secondary growth along the line and Dr. Cockayne says it is the commonest tree in New Zealand. The reddish much toothed leaves vary considerably in size but are generally about an inch and a-half long. The racemes of beautiful pinkish flowers are just coming out. In the young stage the leaves are often divided in to three leaflets. *Carpodetus serratus*, the puta puta wheta, sometimes called by Nelson bushmen the Christmas tree, has beautiful leaves of deeply mottled green and bears at the end of the year a profusion of white starlike flowers.

THE KOROMIKO FAMILY

The well known koromiko, *Veronica* (or *Hebe*) *salicifolia*, with its beautiful racemes of bluish white flowers, and its leaves resembling in shape those of a willow, is plentiful in places. A form with much narrower leaves growing by the zig zag track is called *Veronica angustifolia*. In Fourth House gully two species with smaller leaves are met with, *V. Menziesii* with erect branches, and *V. vernicosa* with drooping branches, but there is also an interesting series of intermediate hybrids. On the mineral belt *V. buxifolia*, the "native box," is plentiful.

but didn't get to it.

MISCELLANEOUS

Aristolochia racemosa, the mako mako, wineberry or fire tree, springs up in profusion where fire has destroyed the bush and is much in evidence among the dead trees at the beginning of the Third House clearing. It has large thin heart-shaped leaves with numerous teeth round the edge, and bunches of drooping pink flowers. *Aristolochia fruticosa* with its reddish bark is one of the densely twiggy plants to be found on the mineral belt. *Elacocarpus Hookerianus*, the pokaka, with its juvenile twisty wisty habit and foliage so utterly unlike that of the adult, is not plentiful but when in flower is one of our most beautiful native trees. *Griselinia littoralis*, the kapuka or broadleaf, has thick leathery leaves which are greedily eaten by the deer. This tree is often mistaken for the karaka (*Corynocarpus laevigata*), but the latter shows the veins plainly on the underside of its leaves, while the broadleaf does not. *Melicope rami- flora*, the mahoe or whitey wood, with toothed oblong leaves several inches long, light coloured bark and small flowers growing out of the main branches, is plentiful at the beginning of the line. The place of the ordinary palm lily or cabbage tree is taken by its close relative *Cordyline Banksii*, a smaller more slender plant whose leaves narrow into a long thin stalk. *Drimys colorata* has green leaves often strongly blotched with red which are very not to taste. On the zig zag track are found a few specimens of *Dodonaea viscosa* with its long blunt

elliptical light green leaves, and hop like fruit. Several specimens grow in upper Collingwood Street and other parts of the town. The beautiful but poisonous tutu, *Coriaria ruscifolia*, is well known to all, as is also *Fuchsia excorticata* with its edible berries. *Discaria Toumatou*, the wild Irishman or matagourie, occurs on the zig zag track. *Phormium tenax*, the so-called flax, with reddish flowers, erect pods and red margined leaves, occurs before the bush is entered. The less valuable *Phormium Colensoi* with yellowish green flowers, drooping pods and shorter less rigid leaves, grows on the mineral belt. The beautiful mistletoe, which said by the officers of the Forestry Department to do much damage to the beech timber, is the species *Elytranthe tetrapetala*.

CLIMBERS OR LIANES

The supplejack *Rhipogonum scandens* is plentiful on the hill side below the line in many places. The lawyer, *Rubus australis*, with its prickly covered leaves, is only too much in evidence. *Muehlenbeckia australis* of the dock family, with many of its leaves shaped somewhat like a fiddle is common. *Clematis hexasepala* with its beautiful sprays of white flowers is well known. *Clematis Colensoi*, climbs over the manuka bushes before the bush is entered. The rata, *Metrosideros hypericifolia*, has been described as a member of the myrtle family.

Evening Mail Print.

but didn't get to it.

DUN MOUNTAIN PLANT ASSOCIATION - NELSON, N.Z.

A short distance from the city of Nelson there is an area known as the "Mineral Belt". This is a zone of boulder-strewn land-surface, often dun coloured in appearance, underlain by peridotite and serpentine rocks, which extends from D'Urville Island, in Cook Strait, south west for a distance of sixty miles. It is an almost continuous band, but it disappears for about a mile between the valleys of the Lee and Serpentine Rivers. At its narrowest part the Mineral Belt is 100 yards wide, and it reaches its maximum width of 3 miles 50 chains in the vicinity of the Dun Mountain. The area occupied by the Mineral Belt is about 49½ square miles.

The vegetation of the Mineral Belt presents a striking contrast with that of the neighbouring land-surface, which is clothed with luxuriant forests of southern-beech (*Nothofagus* spp.). On the Mineral Belt there are three principal plant-associations.

1. SHRUBLAND. Found near the margin of the Belt and comprising stunted species common to the adjacent forest, such as *Griselinia littoralis* and *Nothofagus fusca*. Then there are other shrubs, not so reduced; these are :- *Cassinia Vauvillierii* var., *Coercus propinqua*, *Dracophyllum longifolium* var. and *Leptospermum scoparium* var. In this association there are a number of small herbs, e.g. *Claytonia australasica*, *Colobanthus quitensis* and *Epilobium pedunculare* var.
2. OPEN SCRUBLAND. Here occur the most characteristic plants. *Cassinia Vauvillierii* var., *Dracophyllum rosmarinifolium*, *Exocarpus Bidwillii*, *Symonanthus dentata* var. *alpina*, *Veronica buxifolia* var., *V. Menziesii* var., *V. pinguifolia* ? *Pimelea suteri* and *Muehlenbeckia axillaris*. The herbs are :- *Myosotis Munroii*, *Notothlaspi australe*, *Gentiana corymbifera*, *Anisotome aromatica* and *A. filifolium*.
3. TUSsock GRASSLAND. The dominant plant is *Danthonia Racoulii* var.; sub-dominant are *Phormium Cookianum* and *Astelias montana* var.

The above information is adapted from a paper by H.W. Betts, in the Transactions of the N.Z. Institute, pp. 230-243, 1918. The title of this paper is: "Notes on the Autecology of certain plants of the Peridotite Belt, Nelson: Part I - Structure of some of the plants (No.1)."

May 22

21

20

19

18

HEMLOCK RIDGE ON CANDLEWOOD LAKE

Alnus incana
Alnus glutinosa

May 22

27
100
100
100

5

Adman. Then came for us. When we got almost back to Adman both motors went dead - clogged fuel line. The crew fished with it for 3 hours. Trueblood & Halapeth came out in a canoe. The crew gave up 2 or 3 times and signalled for help. Just as another picket boat came, they got ours going, so both came back together, at 10 p.m.

May 17 - Worked on plants all day.

May 20 - Started at about 3:30 for Truk. Busy all day going over the presses. Good weather. My drying facilities are sorely taxed. What a birthday! I even forgot it was my birthday.

May 21 - Worked over presses. Terrifically hot down in No. 2 hold. I intended to write a report on Eniwetok but didn't get to it.

May 22

Sept. 30 - 2 mi s. of ^{Frostville} ~~Frostville~~
Fairfax Co.

pine woods with the
usual association of
Chimaphila, *Goodyera*,
Mitchella, etc.

- 30147 *Mitchella repens* L.
abundant on ground
under pines.

- Oct. 3 - across from River Haven
South River, Anne Arundel Co. Md.
wooded bluff of Collington loam
soil, mixed pine and hardwood
- 47 *Pinus echinata*
small colony, unusual here

- Oct. 9 - 1/2 mi. s. of Menifield,
Fairfax Co.
in dense young pine stand.
- 49 *Corallorhiza*
occasional in ~~clay~~ clay
covered with pine needles

prostrate, dark dull
green, fruit scarlet.
one fruit with one calyx-
lobe ~~in~~ on each disk enlarged
and showy. This fruit
also has a ring around
it, like a secondary calyx
ring about half way down.
not quite regular.

- 2 m. Tree 10 m. tall, needles
mostly in pairs, very
occasionally in 3's.

some petals white,
spotted with purple;
anthers white.

Oct. 17, Dyke, Potomac River below Alexandria
estuarine swamp - mud-flat
covered with small
Fraxinus trees with
a second story of various
shrubs, ^{herbaceous} story
of Saururus, etc.

30/50

Alnus

occasional

51

Cornus

occasional

Oct. 17 - West Grove, Potomac River
below Alexandria

Swampy flood plain
extends for perhaps 150 m.
from shore, then an
enormous expanse of
tidal flat dominated by
Zizania, Typha, etc.

At outer edge of this, just
visible from edge of swamp,
perhaps 1 km. out is a
fringe of trees, suggesting
a possible origin for the
firm outer edge at Dyke.

Outer edge, next to deep
water in the river, higher
and firmer than rest of
flat. Rings counted on an ash
tree about 75. This outer
edge being cut away by wave
shrub 2 m. tall

shrub 2 m. tall, stems
brownish.

In the water of the
marsh were seen
a number of large
snapping turtles,
apparently feeding
on the vegetation.

✓✓ Oct. 24 -

Broad Creek, South River
brushy wooded bluff
above tide water 15 m.

- 30192 *Quercus montana*
common
- 2 53 *Quercus stellata* Wang.
occasional on slopes
- 3 54 *Quercus alba* L.
common
- 2 55 *Myrica ~~casta~~ pennsylvanica* L.
common
- 2 56 *Fagus grandifolia* f. *pulchra* ^{Fern. & Bl. det.}
occasional
- 3 57 *Quercus marilandica* Muenich.
common
- 3 58 *Viburnum acerifolium* L.
occasional
- 3 59 *Carya stellata*
occasional
- 2 60 *Quercus velutina* Lam.
occasional

✓✓ Oct. 30 - Barcroft Reservoir
Fairfax Co. Va.

- 2 61 *Prunus*
in edge of forest

✓✓ Oct. 31 - South Arlington
Arlington Co.

- 3 62 *Quercus*
steep slope of brushy bank

30147

30180
51

30889

30909-25 Conn. trip all.

31022-31099 N. Carolina

all.

its.

small tree

sapling 2.5 m. tall.

shrub 1.5 m. tall

✓✓ Oct. 24 -

Broad Creek, South River
brushy wooded bluff
above tide water 15 m.

30152

Quercus
cocc

2 53

Quercus
occ

3 54

Quercus
cocc

2 55

Myrica
cocc

2 56

Fagus
occ

3 57

Quercus
cocc

3 58

Viburnum
occ

3 59

Carya
occ

2 60

Quercus ~~occasional~~ dam.
occasional

PLANTS OF VIRGINIA

FAIRFAX CO.

Viburnum

Loc. Sleepy Hollow, 1-1.5 mi. S. of FALLS CHURCH

East of Sleepy Hollow Run

Habitat local in second growth

(Lat. 36.5° N., Long. 77.5° W.)

D. L. L.

Date Nov. 19/1948

Coll. F. R. Fosberg

Remarks free

Alt. 80 m.

No. 30179

Det. F. R.

Lvs.
Rhd.
ick.✓✓ Oct. 30 - Barcroft Reservoir
Fairfax Co. Va.

✓ 61

Prunus
in edge of forest

✓✓

Oct. 31 - South Arlington
Arlington Co.

Abandoned clay pits

3 62

Quercus
steep slope of brushy bank

small tree

tree 8 m. tall

tree 10 m. tall.

shrub 1 m. tall.

small tree

small tree.

shrub 1 m. tall.

stump sprouts.

small tree

sapling 2.5 m. tall.

shrub 1.5 m. tall

✓✓ Oct. 24 -

Broad Creek, South River
bushy wooded bluff
above tide water 15 m.

- 30152 *Quercus montana*
common
- 2 53 *Quercus stellata* Wang.
occasional on slopes
- 3 54 *Quercus alba* L.
common
- 2 55 *Myrica ~~casta~~ pennsylvanica* L.
common
- 2 56 *Fagus grandifolia* f. *pubescens* ^{ferruginea}
occasional
- 3 57 *Quercus marilandica* Muenich.
common
- 3 58 *Viburnum acerifolium* L.
occasional
- 3 59 *Carya stellata*
occasional
- 2 60 *Quercus velutina* Lam.
occasional

✓✓ Oct. 30 - Bancroft Reservoir
Fairfax Co. Va.

- 2 61 *Prunus*
in edge of forest

✓✓ Oct. 31 - South Arlington
Arlington Co.

- 3 62 *Quercus*
steep slope of bushy bank

small tree

tree 8 m. tall

tree 10 m. tall.

shrub 1 m. tall.

small tree

small tree.

shrub 1 m. tall.

stump sprouts.

small tree

sapling 2.5 m. tall.

shrub 1.5 m. tall

30163 *Acer*
 3 common, invading in
 some areas of pit

64 *Ulmus*
 one seen

65 *Cupatorium*
 in dense grass, rare,
 in low moist place.

Nov. 6 - near confluence of
 Lubber Run with Four Mile Run.
 Ravines with oak forest,
 with some *Liriodendron*,
Platanus, a few young *Fagus*,
 along stream *Carpinus* & *stalis*.
 On Lubber Run *Kalmia* is
 abundant on west-facing
 slope, almost absent on opposite,
 but on Fourmile Run it is
 abundant on north east ^{facing} slope,
 along with *Vaccinium* & *Rhododendron*.

66 *Vaccinium*
 occasional on steep side of ravine

tree 12 m. tall

sapling 1.5 m. tall.

shrub 1.5 m. tall, younger
 stems green, remaining
 leaves rose-orange.

VV

Nov. 7 - Barcroft Reservoir,
Holmes Run - Tripp's Run Confluence
wooded valley with dam
and reservoir, woods of
Pinus virginiana or of oaks
and other hardwoods, cut by
ravines, slopes with *Kalmia*
latifolia and other *Ericaceae*,
some with *Polystichum acrostichoides*

30167

Gaylussacia baccata

3

common on slopes with
other *Ericaceae* in deciduous woods

3

68

Hypericum gentianoides (L.) BSP.

common in recent clearing
on disturbed ground

3

69

Berberis thunbergii

rare in edge of woods

1

70

Zannichellia

common around margins
of reservoir

VV

Nov. 19 - east of Tripp's Run,
1 mi. S. of Falls Church
second growth thickets

3

71

~~*Paulownia tomentosa*~~ *Catalpa*
occasional

3

72

Lonicera morrowii Gray

occasional

3

73

Cornus amomum Mill.

occasional in low places

3

74

Alnus serrulata Willd.

common in low places

3

75

Acer rubrum L.

common

shrub 0.4 m. tall.

disk ^{partly} red

shrub 0.3 m. tall,
fruit scarlet

shrub 1.5 m. tall.

shrub 1.5 m. tall.

shrub 2 m. tall, stems dark
reddish.

shrub 2.5 m. tall.

small tree 4 m. tall,
stems red.

- 30176 *Fraxinus americana*
common locally in low places
- 3 77 *Diospyros virginiana* L.
common
- 3 78 *Catalpa*
rare
- 3 79 *Viburnum prunifolium* L.
common
- 3 80 *Viburnum*
local

vv Nov. 20 Barcroft Reservoir,
Holmes Run, Fairfax Co.
rolling wooded area

- 1 81 *Prunus*
rare
- 1 82 *Rhododendron nudiflorum* (L.) Torr.
local, on rocky knoll
- 3 83 *Amelanchier*
local in deciduous woods
- 4 84 *Rhododendron*
just above high water
level, margin of reservoir
- 3 85 *Corylus*
occasional in thin woods
- 4 86
rare in woods
- 1 87 *Epipagus*
about base of large tree
of *Fagus*, in patch of *Fagus*
on rocky knoll
- 1 88 *Lambucus canadensis*
wet low place

small tree 4 m. tall,
young twigs olive-gray.
young tree 2 m. tall.

young tree 4 m. tall.

tree 5 m. tall

shrub 2.5 m. tall

shrub 1.5 m. tall.

shrub 3 m. tall, buds
dark red.

shrub 1.5 m. tall

shrubs 1 m. tall.

shrub 1.5 m. tall.

enlarged bases fleshy

shrub 1 m. tall

24

1948 Virginia, Maryland

30189 *Lindera benzoin*
common in low places

3 90 *Carex*
common in mud of
swamp

✓ ✓ Dec. 1 - Potomac River at
Glen Echo, Montgomery Co. Md.
along canal tow-path.

3 91 *Acer negundo* L.
common

3 92 *Morus alba* L.
common

✓ ✓ Dec. 4 - Columbia Pike 1 1/2 mi.
w. of Barcroft Dam, s. w. of
Barcroft Reservoir, Fairfax Co.
solid stand of *Pinus*
virginiana with thick
layer of fresh and
disintegrated leaves.

3 93 *Monotropa hypopitys* L.
local, forming small
colonies.

3 94 *Chimaphila maculata*
very common (L. Thunb.)

Fairfax Co. - Montgomery 25

shrub 2 m. tall,
aromatic when broken
forming solid
patches.

shrub 2 m. tall (others
are trees), twigs green.
spreading bushy
tree 5 m. tall, larger
branches yellowish-olive;
leaves on ground, but
not dried up yet.

dried.

leaves dark dull green,
with pale markings

VV

Dec. 5 - Bancroft Reservoir area
Holmes Run, Fairfax Co.

30195

Populus

3

common close to reservoir

3

96 Populus

common close to reservoir

1

97 Buddleia

rare, one plant seen
in clearing in woods
near reservoir.

VV

Jan. 8 Sleepy Hollow, Tripper
Run. 1 mi. S. of Falls Church
abandoned field on gentle
slope - abandoned 5 years,
Andropogon dominant

1

98 Andropogon

rare, with # 30199

2

99 Andropogon

common, dominant

VV

Jan. 16 - Between Leesburg
Pike and Bancroft Reservoir
Saccharum sinense

30200

3?

abundant, completely
dominant in old fields
in this vicinity, spreading
sparingly into woods.~~thin~~ slender tree 9 cm.
thick, 7 m. tall, bark
olive gray; 23 annual
rings.

young sapling 1.5 m. tall.

slender shrub,
sparsely branched,
0.7 m. tall.caespitose, somewhat
spreading
caespitose, erect.large clumps, erect,
2 m. tall.

Jan. 30 - Special A.R.C. flight to New Zealand left Honolulu at 2:30 p.m. and flew to Hawaii, passing Lanai & Kahoolawe. On Lanai erosion is still serious on the western end of the plateau and on the south-east end of the island. Most of the rest was covered by clouds. On Kahoolawe almost the whole plateau was eroded clean of vegetation, bright red in color. On Lanai the ravine mouths on the west end were marked by great flags of red silt in the water, though running streams were not noticed. (photos - Kodachrome Roll #1)

On Maunakea a great deal of snow was seen near the top. On Mauna Loa the snow was thin but extended far down the slopes.

Several flights were made over and by the eruption now in progress in Makawewe Caldera. A large spatter cone was evident which may have been the one built in 1933. A fountain of lava, perhaps 100-200 ft. high was playing, supplying enormous quantities of highly liquid lava. This had filled Makawewe

to the lowest point in the rim, possibly covering the whole floor (all snow melted off the crater floor). A lava cascade was spilling over into South Crater, which it had filled, and a rapid flow had extended, with three prongs, a considerable distance down the s.w. (R) slope. This flow showed a red streak in the center, which seemed to be still incandescent lava.

Just west of the fountain on the outer slope, was a large bed of gray-brown ash, with no snow. Its origin and the reason for lack of snow were not evident. A large column of bluish "smoke" rose to a great height over the eruption.

Around the caldera at a short distance were secondary concentric faults, connected with the caldera formation. The edges of the caldera were abrupt cliffs, obviously the result of down-faulting. (photos - Kodachrome Roll #1)

7 A.F.
E.H. Walker

Jan. 30-31 stopped at Canton for an hour and a half in the middle of the night

Around the air base is extremely disturbed coral rubble with patches of *Cenchrus echinatus* and *Cleusine indica*. With this are some *Portulaca* (*lutea* (+ *oleracea*?)), *Boerhavia diffusa*, *Sida fallax*, and one patch of extremely dwarfed tufts of *Eragrostis whitneyi* (rel. aff.).

The beach in lagoon beach is in places extremely steep, other places very gently sloping. In the latter places the sand is of a

30201

Sida fallax Walp.

abundant, forming low scrub

02. *Cenchrus*

abundant, forming dense patches

03. *Sesuvium portulacastrum* L. var

~~prostrata, leaves more succulent~~

04. *Sesuvium portulacastrum*

abundant on saline flats

near inner beach

05. *Sesuvium portulacastrum* var. *griseum*

06. *Eragrostis whitneyi* Forst.

abundant locally near inner beach

Sesuvium portulacastrum L.

13224 N. side of lagoon

Christmas Island

Aug. 19, 1936

30203, 30204, 30205 Canton Island

"Jan. 30-31. stopped at Canton for an hour and a half in the middle of the night. . . . To the east of the field near the lagoon beach, one patch of *Sesuvium portulacastrum*, quite variable in leaf size and shape, but with the leaves generally more or less erect (and grayish green?)."

prostrate, leaves more or less erect, very thick, glaucous green. flowers white.

7 A. 7
2
E. 16 W

302

4

2

- near inner beach
 05) *Sesuvium portulacastrum* L.
 06) *Eragrostis whitneyi* Forst.
 abundant locally near inner beach

Sesuvium portulacastrum L.

13224 N. side of lagoon

Christmas Island

Aug. 19, 1936

30203, 30204, 30205 Canton Island

"Jan. 30-31 stopped at Canton for an hour and a half in the middle of the night. To the east of the field near the lagoon beach, one plant of *Sesuvium portulacastrum* grows in small sandy patches. In the middle of the beach, generally more or less erect (and grayish green?), prostrate, leaves are in dense mat, very thick, glaucous green; flowers white.

41
11

50
2

51

4

60

7

8

9

near inner beach "
P. *terrestris* portulacastrum - common
and 6 *Cragrostis whitleyana* Torr.
abundant locally near inner beach

St.
aria
antetic

ch.
site
of the
now
ignores?
is
as(?)

its
leaves,
x

ing.

ver

or
in

Mining

30301 *Sida fallax*

06 *Eragrostis robusta*

07 *Bracharia diffusa*

08 *Portulaca lutea*

09 *Portulaca*

11 *Euphorbia*

15 *Trinervia pro.*

16 *Euphorbia hypericifolia*

18 *Crucifera conchifolia*

40 *Brickellium pulcherrimum*

30311 *Morita* (leafy plant)
30340-40000

42 *Euphorbia curvata*
(fronds?)

30 *Veronica tetragyna*

37 *Dracaena*

38 *Dracaena*

90 *Heliconia pinnatifida*

30445

30547 *Convolvulus*

77 *Crucifera glaberrima*

92 *Wahlenbergia*

30621 *Portulaca*

24 *Portulaca robusta*

29 *Galium*

46 *Portulaca lutea*

64 *Veronica*

65 *Veronica*

83 *Portulaca lutea*

30702

Santhan night and. stock

30725 *Dimorpha*

50 *Brickellium curvatum*

57 *Brickellium planum*

65 *Brickellium*

67 *Brickellium*

70 *Brickellium*

30723 *Brickellium*

72 *Brickellium*

43 *Brickellium*

51 *Brickellium*

58 *Brickellium*

61 *Brickellium*

76 *Brickellium*

15 *Veronica*

29 *Veronica*

33 *Veronica*

39 *Veronica*

30520 *Veronica*

56 *Veronica*

62 *Veronica*

64 *Veronica*

69 *Veronica*

30767 *Veronica*

73 *Veronica*

tufts stiff

30706 *Crucifera whitneyi* Fort.
abundant locally near inner beach

Missing

less than right no. sheets

- 30201 *Sida fallax*
06 *Eragrostis robusta*
07 *Boerhaavia diffusa*
08 *Portulaca lutea*
09 *Portulaca*
14 *Euphorbia*
15 *Triumfetta proc.*
16 *Euphorbia hypericifolia*
18 *Emilia sonchifolia*
40 *Blechnum filiforme*
30311 *Nostoc* (but look at 30340 - leaves of same!)
42 *Euphorbia curvata*
80 *Veronica tetragona*
87 *Drosera*
88 *Drosera*
90 *Schuzaea fistulosa*
96 *Ourisia colensoi*
30445
30547 *Carrichaelia*
77 *Erechtites glabrescens*
92 *Wahlenbergia*
30621 *Podocarpus*
24 *Nothofagus solandri*
29 *Galium*
46 *Nothofagus*
64 *Veronica*
65 *Hymenanthus*
83 *Pittosporum dallii*
30702

- 30225 *Dianella*
50 *Pseudopanax crassifolium*
57 *Phyllocladus glauca*
65 *Muehlenbergia*
47 *Spinifex humilis*
90 *Solanum aviculare*
30323 *Leptoplexis hymenoph.*
76 *Hydrocotyle*
43 *Elaeocarpus hookeri*
51 *Grisebina littoralis*
58 *Pittosporum colensoi*
41 *Elytranthe tetraloba*
76
30411 *Veronica*
15 *Anisotamus aromaticus*
29
83 *Gunnera*
89 *Trichomanes*
30520 *Acaena*
56 *Lechenus paniculata*
62 *Acaena ilicifolia*
44 *Ourisia macrocarpa*
69 *Phyllocladus alba*
30767 *Prasophyllum*
73 *Elaeocarpus*

30722 *Drimys colata*

26 *Drosera*

52 *Veronica*

93 *Veronica*

30807 *Ranunculus*

10 *Muehlenbeckia*

11 *Carysanthes*

37 *Uncaria*

41 *Pennantia myrboris*

35 *Drimys colata*

36 *Muehlenbeckia*

37 *Nothofagus fusca*

38 *Lagenophora*

39 *Neiter dichondraefolia*

40

41

42 *Nothofagus menziesii*

43 *Aristotelia*

44 *Nothofagus cliffortioides*

45 *Nothofagus cliffortioides?*

46 *Pratia*

47 *Helichrysum*

30743 *Carmichaelia*

30805 *Pratia*

30 *Asplenium*

bulbosum

2070
Pittieria pallida

quicksand character.
On the beach *Turbinaria*
sp. is cast up in quantities.
To the east of the field,
near the lagoon beach,
are flats of *Scaevola*
portulacastrum, quite
variable in leaf size
and shape, but with
the leaves generally more
a less erect (and grayish green?).
Away from the beach is
an area of low
scrub of *Sida fallax* (?)
about 0.7-1 m. tall.

Around some of the
buildings *Pluchea odorata*
is very well established,
with one bush about
7 m. tall and many
smaller ones, flowering.

shrub 0.7 m. tall; flowers
orange.

griseum

var. griseum

prostrate, leaves more or
less erect, very thick, glaucous
green. flowers white.

tufts stiff

Jan. 30-31 stopped at Canton for an hour and a half in the middle of the night

7 A.M.
E. H. Walker

Around the air base is extremely disturbed coral rubble with patches of *Cenchrus echinatus* and *Cleusine indica*. With this are some *Portulaca* (*lutea* (+ *oleracea*?)), *Boerhavia diffusa*, *Sida fallax*, and one patch of extremely dwarfed tufts of *Eragrostis whitneyi* (relaff.).

The beach in lagoon beach is in places extremely steep, other places very gently sloping. In the latter places the sand is of a

vv

30201 *Sida fallax* Walp.

abundant, forming low scrub

02 *Cenchrus*

abundant, forming dense patches

03 *Lesuvium portulacastrum* L. var. *griseum*

prostrate, leaves more or less erect

04 *Lesuvium portulacastrum* var. *griseum*

abundant on saline flats

near inner beach

05 *Lesuvium portulacastrum* var. *griseum*

06 *Eragrostis whitneyi* Forst.

abundant locally near inner beach

quicksand character.

On the beach *Turbinaria* sp. is cast up in quantities to the east of the field, near the lagoon beach, are flats of *Lesuvium portulacastrum*, quite variable in leaf size and shape, but with the leaves generally more or less erect (and grayish green?). Away from the beach is an area of low scrub of *Sida fallax* (?) about 0.7-1 m. tall.

Around some of the buildings *Pluchea odorata* is very well established, with one bush about 7 m. tall and many smaller ones, flowering.

shrub 0.7 m. tall; flowers orange.

prostrate, leaves more or less erect, very thick, glaucous green, flowers white.

Tufts stiff

30207. *Boerhavia diffusa* L.
common near inner beach
08. *Portulaca lutea* Sol.
common locally in lido scrub
09. *Portulaca oleracea* L.
occasional near inner beach
10. *Pluchea ~~capitata~~ ^{capitata} (L.) Cass.*
flourishing colony around
buildings near air strip
11. *Cleome indica* (L.) Gaertn.
very common in disturbed
places.
17. *Cenchrus echinatus* L.
very common in disturbed
places.
12. *Lepturus repens* (Forst) R.Br.
common var. *subulata*
13. *Turbinaria ornata*
washed up in abundance on
inner beach
19. *Euphorbia*
rare around buildings
15. *Triumfetta procumbens* Forst.
occasional
16. *Euphorbia hypericifolia* L.
rare *gemmifera* (Milleb.) (Wheeler)

prostrate

erect, stems 2-2.5 cm.
thick.prostrate or somewhat
ascending.shrubs 1-3 m. tall,
highly aromatic.PLANTS OF CANTON ISLAND
(PHOENIX GROUP)*Eragrostis whitneyi* Forst.

Det. F. R. F.

Locality around Air Base

Habitat abundant locally near inner beach
disturbed coral sand and rubble
around buildings and air field

Date Jan. 30-31, 1949 Alt. 1 m.

Coll. F. R. Fosberg No. 30206

Remarks *E. H. Walker*

tufts stiff

erect.

- 302070 *Boerhaavia diffusa* L.
common near inner beach
08 *Portulaca lutea* Sol.
common locally in lida sands
09 *Portulaca olerace* L.
occasional near inner beach
10 *Pluchea ~~carolinensis~~ (L.) Cass.*

11

12

13

14

- 15 *Triumfetta procumbens* Forst.
occasional
16 *Euphorbia hypericifolia* L.
rare *glomerata* (Mill.) Walp.

prostrate

erect, stems 2-2.5 cm.
thick.prostrate somewhat
ascending.

shrubs 1-3 m. tall,

PLANTS OF CANTON ISLAND
(PHOENIX GROUP)*Euphorbia*

Det.

Locality around Air Base

Habitat

disturbed coral sand and rubble
rare around buildings and air field

Date Jan. 30-31, 1949 Alt. 1 m.

Coll. F. R. Fosberg No. 30214

+ F. H. Walker

Remarks

prostrate,

erect.

30207. *Borhavia diffusa* L.
common near inner beach
09. *Portulaca lutea* Sol.
common locally in lida scrub
09. *Portulaca oleracea* L.
occasional near inner beach
10. *Pluchea ~~odorata~~ ^{capitata}* (L.) Cass.
flowering colony around

10. *Pluchea ~~odorata~~ ^{capitata}* (L.) Cass.
occasional
16. *Euphorbia hypericifolia* L.
rare *glomerata* (Mill.) Walp.

prostrate

erect, stems 2-2.5 cm.
thick.

prostrate, somewhat
ascending.

shrubs 1-2 m. tall,
highly aromatic.

bunches (some much
taller than specimens)

prostrate.

erect.

- 30 20 7. *Boerhaavia diffusa* L.
common near inner beach
28. *Portulaca lutea* Sol.
common locally in lida scrub
29. *Portulaca oleracea* L.
occasional near inner beach
10. *Pluchea ~~coriandrinifolia~~ ^{adonata}* (L.) Cass.
flourishing colony around
buildings near air strip
11. *Cleusine indica* (L.) Gaertn.
very common in disturbed
places
17. *Cenchrus echinatus* L.
very common in disturbed
places
12. *Lepturus repens* (Forst.) R.Br.
common ^{var. subulata}
13. *Trinaria ovata*
washed up in abundance on
inner beach
14. *Euphorbia*
rare around buildings
15. *Triumfetta procumbens* Forst.
occasional
16. *Euphorbia ~~hypericifolia~~*
rare ^{germanifera (Mulleb.) Walpole}

prostrate

erect, stems 2-2.5 cm.
thick.prostrate or somewhat
ascending.shrubs 1-3 m. tall,
highly aromatic.bunches (some much
taller than specimens)

prostrate.

erect.

Feb. 1 - flew from north to south over Vanua Levu and Viti Levu to Suva, circled around Suva then flew west to Nandi, then south toward N. Z. had a short stop at Nandi.

Vanua Levu and Ovalau seem well wooded, Viti Levu especially so in eastern 1/3. Low flat land is all cultivated, mostly sugar cane. Some native villages even up in interior, esp. on Vanua Levu, very few in deep interior on Viti Levu.

The inner plateau on Viti Levu is scarcely a plateau but mostly a confused mass of mountains, very rugged and covered with dense forest, except certain cliffs and sharp peaks. The latter have a low vegetation. Rivers are abundant, their lower courses mostly drowned.

The coastline is incredibly indented, and a well developed barrier reef is present around most of it. On southern Viti Levu Nandi, Viti Levu

30218 *Emilia sonchifolia*
common around buildings at airport

this became a broad fringing reef.

The western third of Viti Levu is open, very hilly or mountainous, probably covered by *Miscanthus*, cattle paths abundant on slopes. This end was doubtless much drier, and has been burned

Found	Notes
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10099	10782
10100	10782

No lithothamnion reef evident at outer edge of barriers.

[ripe fruit mailed to Baldwin]
flowers lilac, not much exceeding involucre.

Feb. 1 - flew from north to south over Vamua Levu and Viti Levu to Suva, circled around Suva then flew west to Nandi, then south toward N. 3. Had a short stop at Nandi.

see [redacted] on
Levu [redacted] all
1/3 [redacted]
cul [redacted]
can [redacted] ges
even [redacted]
Van [redacted]
deep [redacted]
Viti [redacted] can
but [redacted] d
ma [redacted] my
- [redacted] th
des [redacted] in
cliff [redacted] e
lat [redacted] t
River [redacted]

lower courses mostly drowned.

The coastline is incredibly indented, and a well developed barrier reef is present around most of it. On southern Viti Levu Nandi, Viti Levu.

30218

Emilia sonchifolia

common around buildings at airport

this becomes a broad fringing reef.

The western third of Viti Levu is open, very hilly or mountainous, probably covered by *Miccanthae* cattle paths abundant on slopes. This end was doubtless much drier, and has been burned a lot. In the forests adjacent to this region *Alcurites moluccana* or something that looks very like it is common.

The rivers in the west part are very silty, and some serious erosion at heads of ravines is evident.

On the southwestern part of this, open part are scattered casuarina trees.

The *Emilia* here is not identical with the small *E. sonchifolia*, or with the *Kauai* ³⁴, but intermediate.

No lithothamnion reef evident at outer edge of barriers.

[ripe fruit mailed to Baldwin]
flowers lilac, not much exceeding involucres.

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common around buildings at airport

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The western third of Viti Levu is open, very hilly or mountainous, probably covered by *Miccantia*, cattle paths abundant on slopes. This end was doubtless much drier, and has been burned a lot. In the forests adjacent to this region *Albizia moluccana* or something that looks very like it is common.

The rivers in the west part are very silty, and some serious erosion at heads of ravines is evident.

On the southwestern part of this open part are scattered casuarina trees.

The *Emilia* here is not identical with the small *E. sonchifolia*, or with the *Kauai* #4, but intermediate.

No lithothamnion reef evident at outer edge of barriers.

[ripe fruit mailed to Baldwin]
flowers lilac, not much exceeding involucre.

written
v vFeb. 4 - hills south
of Piha

low scrub of *Leptospermum*
scoparium, *Olearia*, *Veronica*,
Gahnia, etc. on rather
dry hills near ocean.

30219 *Veronica macrocarpa* Vahl
common in
Hills south of Piha (Forst. f.) Camell

3 20 *Cladium complanatum* Berggr.
occasional in

3 21 *Gahnia gahniiformis* Hell.
occasional in

4 22 *Schoenus brevifolius* R.Br.
common in

4 23 *Olearia procurrens* (A. Rich.) Hook. f.
common in

2 24 *Coprosma robusta*
common in

~~*Dianella intermedia*~~

Feb. 4 - ~~Piha~~ Piha Waitakere
Range, scenic Drive, north part.

low scrub on dunes and low
bluffs back of them

1 25 *Dianella intermedia*
rare in bush

3 26 *Pterostylis banksii*
local, in ~~low~~ terrestrial in
manuka woods

4 27 *Geniostoma ligustrifolium*
one plant seen

Lepidosperma laterale R.Br.
det. Rawson

shrub 1 m. tall
det. Rawson
Vaucleria articulata det. Zotov

stems strongly
flattened, leaf-like.
caespitose

caespitose

shrub 1.2 m. tall,
leaves stiff, rays white.
shrub 1 m. tall; leaves
stiff, pale beneath;
fruit orange.

manuka woods and
brush on slope.
caespitose

det. Rawson erect

det. Healy shrub 1 m. tall

30228
5*Leptospermum ericoides*
~~common~~, dominant11 same - second growth
mixed woods.~~29 *Lygodium*~~29 ~~*Paspalum* *scaberrima*~~
~~*barbata*~~

common in waste open spots

4 30 *Centella uniflora*
common hanging over
edges of road cut5 (31 *Lygodium* *articulatum*
climbing on tree-fern trunk
in open edge of woods.1 32 *Tobelia anceps*
rare on roadside1 34 *Wahlenbergia* *gracilis*
occasional along road at
edge of woods4 35 *Coprosma robusta*
common in woods1 33 *Clatostema rugosa*
rare in deep shade1 36 ~~*Asplenium*~~ *flabellatum*
laxum
on trunk of tree fern1 37 *Schefflera* *digitata*
~~to~~ in woods2 38 *Coprosma australis*
common in woods

At Rawson

tree 8 m. tall,
flower with petals
white, fragrant:

At Rawson

prostrate, sub-fleshy,
fruits dull reddish.

At Rawson

flowers pinkish

flowers bluish-violet.

shrub 2 m. tall
leaves pale beneath;
fruits immature.
leaves purplish.

At Rawson

pendent

At Rawson

small tree, 6 m. tall,
buds green.
small tree, fruits
juicy, orange

3 30237 *Melicope macrophylla* A. C. Smith.
in woods, in undergrowth

40⁴ *Blechnum filiforme* Oakes
climbing on tree trunk

7 41 *Ancinina uncinata* (L. f.) Kuhn.
common in small opening

3 2 42 *Nertera "depressa"*
in shade under trees

1 43 *Nertera dichondraefolia*
in shade under trees

3 44 *Polypodium lanceolatum*
epiphytic on tree trunk

1 45 *Ranunculus hirtus*
grassy roadside

✓✓ south end of scenic Drive
second growth forest

3 46 *Coriaria arborea*
common in bushy woods

3 47 *Aristolochia serrata*
occasional in bushy woods

7 48 *Podocarpus dactyloides*
~~very~~ common

1 49 *Podocarpus dactyloides*
~~common~~ - in deep shade

4 50 *Pseudopanax crassifolium*
common

5 51 *Pseudopanax crassifolium*
common

small tree or large
shrub, fruits white,
purplish on one side.
sterile and fertile
bracts alternately
dominant on stem

prostrate, leaves thin,
deeper green than usual,
young fruit.
prostrate, dull green,
stems slightly brownish.

Gracillaria liliacina Willd.
det. Rawson

arching shrub 2 m.
tall, flowers bronze-green.
small tree 5 m. tall,
ripe fruit black,
fleshy.

small tree 6 m. tall.
fruit immature; foliage
somewhat juvenile.
juvenile form, leaves
distichous
juvenile form, plant
2 m. tall

det. Peck

small tree, 3 m. tall, flowers
green.

- 30252 *Agathis australis*
common (formerly
dominant in forest)
- 2 53 *Asplenium laxum*
in deep shade, epiphytic
- 1 54 *Lycopodium billardieri*
epiphytic
- 4 55 *Melicope ramiflora*
occasional in woods
- 3 56 *Geniostoma ligustrifolia*
occasional in undergrowth
- 5 57 *Phyllocladus glauca*
rare (P. trichomanes)
- 3 58 *Melicope micrantha*
rare
- 5 59 ~~*Melaleuca*~~ *Metrosideros perfoliata*
climbing on tree-trunk
- 2 60 ^{Hille}*Veronica salicifolia* Forst. f.
rare on slope

Feb. 4 Piha

sandy shore (much magnetite)
~~bluffs~~ with low dunes,
flats, and low bluffs
with brush.

- 2 61 ^{undulata}*Cyperus* (Marsdenia undulata (A. Rich.))
common on bluffs
- 5 62 ^{nodosus}*Scirpus*
common in depressions
in dunes
- 2 63 ^{calophylla}*Convolvulus soldanella*
common on dunes and
foot of bluffs

tree 10 m. tall,
cones immature.

pendant

pendent

small tree 5 m. tall;
ripe fruit purple.

A. Cunn. slender shrub, fruit
immature

small tree, sterile.

shrub 1.5 m. tall; flowers
greenish-white

(scandent
climber)
thick climbing shrub,
stamens white.

shrub 2 m. tall;
flowers white slightly
purplish, fragrant.

caespitose.

densely caespitose

prostrate

- 30 2 64 *Leucopogon fasciatus*
 34 on exposed bluff
 5 4 65 *Muehlenbeckia complexa*
 common
 5 66 *Spinifex hirsutus* Labill.
 5 67 dominant on outer dunes
 just above wet part
 of beach.
 67 ~~Cassia~~
 common on dunes
 4 68 *Cassia leptophylla*
 common on dunes
 69 *Coprosma repens*
 occasional on dunes
 12 70 ~~70~~ *Carex pumila*
 occasional on outermost
 edge of dunes, above beach

The Waitakere Range, lying west of Auckland, was once wooded with Kauri (*Agathis australis*) of enormous size. This woods has been largely cleared off, and a broken down second-growth forest, manuka brush, and scrub has replaced it. This is moist in the ravines but tends to be rather dry on slopes and ridges. Never, however, too dry

forming a dense low growth.

66 ♀
 67 ♂

heavy running rhizomes
 buried in sand.

shrub 1 m. tall

shrub 1 m. tall, heads
 dull white.

shrub 2 m. tall,
 leaves glossy; fruit
 orange.

to support epiphytes in abundance. *Agathis* and *Ditro*, particularly, are covered with epiphytic ferns, *Astelia* and *Collospermum* as well as with *Freyinetia* and *Rhipogonum* as lianas. Tree ferns *Cyathea medullaris*, *C. dealbata* + *Dicksonia* are common and become abundant on clearing. *Blechnum filiforme* is common on ground and climbing in trees.

Conspicuous species in this broken-down forest are *Rhopalostylis*, three species of *Melicope*, *Dacrydium cupressoides*, *Vitex coriaria*, *ursifolia*, *Fuchsia exoniensis*, several *Pittosporum* species, *Coprosma* ~~sp.~~ *robusta*, *C.*

Pseudopanax crassifolium, *Nothopanax*, *Olearia*, *Piper*, *Freylinia*, *Leptospermum ericoides*, etc.

The scrub is in places a tall scrub or low forest of *Leptospermum*, elsewhere a lower scrub of a mixture of *Ulex europaeus*, *Hakea acicularis* and *Pteridium aquilinum* var. *esculentum*, with various other subsidiary species.

The bluffs south of Piha have a low scrub of *Leptospermum scoparium*, *Gahnia xanthocarpa*, *Olearia*, *Veronica macrocarpa*, *Phormium colensoi*, *Gahnia gaduata*, *Cladium compressum*, *Schoenus brevifolius*, etc.

Large trees are mostly *Metrosideros*

The beach north of Piha is not at all steep, is of a peculiar blue sand, largely magnetite. has 3-4 lines of huge breakers. Just back of the beach is a sand terrace up to 40 yards wide, of low dunes, covered by zoned vegetation. The outer zone, a few yards wide, is of *Spinifex*, with a little *Carex pumila*. Then is a wide belt, now of *Lupinus arboreus*, formerly of *Scirpus frondosus*, *Scirpus nodosus*, *Tetragonia expansa*, etc. *Cassinia* scattered here and there.

Back of this is disturbed ground with weeds.

Then a row of low bluffs with depressions behind them. On the bluffs are *Leucopogon*, *Pteridium*, etc. In these depressions are *Typha-Phormium* marshes.

H. H. Allan

The Director of the Botany Division
D.S.I.R., of the Terrace.
Wellington, N. 3.

1949 N.Y.

C.V.

Feb. 5 The Cascades
Waitakere RangePartially logged kauri (agathis)
forest on slope, relatively
dry except in ravines,
but with many epiphytes.

30271

*Piper excelsum*common in second-growth
brush

1 72

Tmesipteris tannensis
epiphytic at base of trees
in lichen cushion.

2 73

Metrosideros florida ^{19. pinnate}
edge of woods

1 74

Peperomia walliana A. Reiche
epiphytic in forest

1 75

Alseodermis ^{opacifolia?}
woods on slope

2 76

Blechnum fraseri
in deep woods on slope

3 77

Myrsine ^{and (A. Reiche) Sullivantia australis}
on open lower slope
near stream

2 78

Doodia media
on cut bank above road

N.Y.

aromatic shrub 3 m. tall,
ripe fruit yellow.

semi-pellucid.

shrub 1 m. tall, erect,
~~flowers~~ ^{stamens} white.
fleshy, leaves pale
beneath.

shrub; fruit green

det. Rautava

terrestrial.

det. Healy

shrub 3 m. tall, leaves
slightly bronzed, strongly
twisted undulate.

1949 N. 3

9 Shington Bay,
Feb. 6. Rangitoto Island,
Auckland Harbor

This is a recently extinct volcano (est. 400 years since last eruption) composed of scoria and aa lava that is practically unweathered. It is said locally that arborescent vegetation began as little as 100 years ago, though lichens, mosses & herbs may well have preceded. The present vegetation is of a dwarfed character and is obviously slowly attaining greater stature.

It is reasonably uniform though in the interior the trees are large. Around the base of the cone proper are extensive flats. The commonest tree is *Metrosideros exaltata* which is everywhere, hybridizing occasionally with *M. robusta*. *Myrsine* is also common, *Griselinia*, *Nothofagus*, *Pseudocarya*, *Dodonaea*, etc. Lichens are everywhere. A few ferns and herbs are on the rocks, mostly in the spaces between the trees, which are not closely spaced.

N. 2.

Along the shore are *Avicennia* growing on solid rock. Stipes of which looks much like an Andean "ichu". *Mesembryum australe*, *Salicornia australis* (dominant), etc.

The other small island Motu Tapu, across Shington Bay, is of different structure, consisting of horizontal sandstone bed. It has been completely denuded except for the ~~forest~~ *Metrosideros*, *Corynocarpus*, etc. on cliffs. These cliffs are curious, being wave-cut cliffs. These cliffs face the sea and must have been cut before Rangitoto was formed, as no waves are breaking there now. This island is grass now and is used for cultivating

Feb. 6 Rangitoto Island,
Auckland Harbor

low, sparse forest of
Metrosideros excelsa on
scoria substratum

30 779 *Wahlenbergia*
on bare lava rock, in crevices

80 *Peperomia wailleana*
rock crevices

81 *Psilotum nudum* *P. tripartitum*
rock crevices, uncommon

82 *Asplenium flabellifolium*
rock crevices, rare.

83 *Dianella intermedia*
rare

84 *Cladonia stewartiana*
abundant on bare rock

85 *Styphelia acerosa*
common

86 *Usnea rubescens*
common on trees

87 *Cladonia pyrenoclada*
common on rocks

88 *Dodonaea viscosa*
rare

89
common on rock

90 *Solanum aviculare*
occasional

91 *Lophosiphon tetrapteris*
occasional

92 *Halimolobos australis*
dominant on ~~rock~~ scoria
at water's edge

root fleshy; flower white.

fleshy

small tufts or single
stems.

"walking" habit.

fruit deep purple

shrub 1.5 m. tall,

fruit white, depressed-globose.

small tree 3 m. tall
(others seen to 7 m.)

shrub 1.5 m. tall;
ripe fruit scarlet.

tree 5 m. tall

terete, green; ^{flowering} spikes slightly
larger than stems

- 30293 *Myrsine* ^{*Suttonia australis*}
subdominant in forest
- 94 *Myrsine* ^{*Suttonia australis*}
subdominant in forest
- 95 *Metrosideros excelsa*
dominant tree
- 96 *Pellaea rotundifolia*
occasional on rocks
- 98 *Wahlenbergia albomarginata*
rare
- ~~99 *Stipa*~~
- 97 *Avicennia resinifera*
common in edges of salt water
- 99 *Stipa heliophila*
common above water's edge
- 30300 (Liliaceae)
epiphytic on tree-trunk
- 01 *Mesembryanthemum australe*
along shore ^{Sd. to A. 1}
- 02
on disturbed scoria in bed of
old quarry
- 03 *Metrosideros excelsa* ^{*M. excelsa*} x *robusta*
both parents are present on
the island.
- 04 *Epilobium junceum*
on disturbed scoria
- 05 *Nothopanax* ^{*arborescens*}
occasional
- 06 *Nothopanax* ^{*arborescens*}
occasional in

small tree 3 m. tall; ♂
small tree 3 m. tall ♀
tree 5 m. tall.

flowers white.

shrub 2 m. tall; flower
dull yellowish-reddish-
white, fruit yellow,
cotyledons deep green.

Disphyma ^{*australe*}

leaves terete-triangular

shrub 1.5 m. tall; flowers
greenish

~~small~~ shrub 2 m. tall.

flowers pink.

small tree 3 m. tall;
strongly aromatic-oily when broken;
buds purple-maroon,
producing abundant mucilage

small tree 3 m. tall, strongly
oily-aromatic when broken, fruit maroon

- 30907 *Griselinia lucida*
occasional in
3 08 *Olearia arborescens* ^{a. frutescens}
occasional in
3 09 *Pseudopanax colensoi*
rare, near shore ^{P. laurum}

Feb. 6 - Motutapu Island,
Auckland Harbor

decomposing sandstone

bluffs and talus with *Melrosideros excelsa*

- 10 *Doodia media*
11 *Nothofagus* ^{D. caudata}
wet ground on cameway

- 12 *Carex* ^{densa (Willd.)}
rare on talus

- 13 *Carmichaelia audetii*
occasional on cliffs

- 14 *Cassinia leptophylla*
common on cliffs

- 15 *Haloragis erecta*
rare on talus

- 16 *Richardsonia repens*
in shade on talus

- 17 *Polystichum richardii*
in shade on talus

- 18 *Pteris macilenta*
in shade on talus

Feb. 3 Auckland
cultivated

- 19 *Pisonia bunoniensis*

shrubby tree 4 m. tall,
sterile.

shrub 2 m. tall; rays
white

small tree 3 m. tall,
flowers green.

det. L. B. Moore

det. R. Brown harsh texture

seeds red.

small weak shrub,
heads white.

much branched erect herb
prostrate

1949 N. 3.

Feb. 8 - Waikato River

This valley is entirely cleared and in pasture or cultivation. The river is remarkably large - perhaps 150 yards wide in places, and completely lined with gallery forests of *Salix*, mostly *S. fragilis* & some *S. babylonica*.

Feb. 8 - Waitomo Cave.

Ronissia japonica on the grounds.

In the cave *Fursidens* is abundant around the lights, with algae and a mold.

A curious fan-shaped mycelium is found in places on the moist clay floor.

Along the river which flows in the bottom level of the cave, are myriads of glow-worms on the ceiling.

They are larvae of a Tipulid.

They spin a hammock of silk, then let down 10-20 long threads strung with globules of sticky liquid, like tiny strings of glass beads. These catch the prey - midges, mosquitoes, etc. that follow the river in, or hatch out from its water.

N. 1.

Feb. 8 - Det. Taupiri & Ngamawakiri

An open field, not recently grazed, is filled with a great assemblage of weeds.

Interesting is a swarm of *Hilens gallica*, varying from white to maroon with narrow white or pink margin and every possible intermediate.

It hauls these in and devours them at leisure. They are apparently attracted by the luminescence, which is blue-green and remarkably intense. The adult is apparently able to fly among the millions of sticky threads without getting caught.

The fly is endemic to these caves. It occurs from the river entrance far inside.

The limestone here is massive, conspicuously stratified.

1949 N. 3.

Feb. 9 - Aramatai, 10 mi.
south of Te Kuiti
patch of badly grazed
forest, largely *Beilschmiedia*
and tree ferns, on steep slope,
many ferns.

30320 *Blechnum lanceolatum*
terrestrial

21 *Botrychium australe* var. *villosulum*
occasional in woods

22 *Hymenophyllum flabellatum*
epiphytic on tree trunks

23 *Leptopteris hymenophylloides*
terrestrial

24 *Wermannia racemosa*
common in woods

25 *Polypodium granatitell*
common, epiphytic

26 *Hydrocotyle* *modata*
local in shade

27 *Athyrium* *trigynum* *variegatum*
common, terrestrial

28 *Beilschmiedia tawa*
dominant tree in forest

29 *Dacrydium* *sp.*
occasional in shade

N. 2.

390 m.

Kodachroma of this forest
& of Maori meeting house at

dark translucent green
small tree, 7 m. tall.

at Kaitake

prostrate

at Kaitake

variable

tree 12 m. tall, fruit
immature, pendent.

- ✓ Feb. 9 - just above
Raurimu, toward National
Park junction
thick forest with dense
undergrowth.
- 30 330 *Pteris* (Pallas?) *Pteris acrostichoides*
common at edge of forest
- 31 *Blechnum fluviatile*
in shade
- 32 *Coprosma tenuifolia*
common
- 33 *Blechnum vulcanicum*
occasional in woods
- 34 *Juncus lempocarpus* (shade of)
in wet trail
- 35 *Galium aparine* L.
in weedy thickets at edge of woods
- 36 *Cyperus* *Isodepis brevifolius*
in wet trail
- 37 *Uncinia incinata*
in shade
- 38 *Schefflera digitata*
in undergrowth
- 39 *Polypodium diversifolium*
climbing on tree trunk
- 40a *Blechnum filiforme*
in shade, rare
- 40b *Microsorum aeneum*
- 41a *Urchesia exorticata*
second story of forest

770 m.
Kopahine (just above Raurimu)
(also of *Maori* meeting house
but for fruit)
(just before this Kodahine
on rolls 1-2 of deforestation)

PLANTS OF NEW ZEALAND
NORTH ISLAND

Blechnum filiforme
det.

Locality just above Raurimu, toward National

PLANTS OF NEW ZEALAND
NORTH ISLAND

Potamogeton
det.

Locality valley of Waipuna Stream, above the Chateau,
north slopes of Mt. Ruapehu, Tongariro National Park

Occurrence mixed ericoid scrub abundant - pools in
on steep slopes and in ravine stream

Date Feb. 10, 1949

Alt. 1230 m.

Coll. F. R. Fosberg

No. 30367

Remarks rooted, leaves floating, spikes
emersed in flowers, in water in fruit

tree 5 m. tall, spreading,
with exfoliating bark;
leaves white beneath;
flowers green, purple toward
top of hypanthium, turning
bright red; fruit black.

1949 N.Z.

✓✓

Feb. 9 - just above
Raurimu, toward National
Park Junction
thick forest with dense
undergrowth.

30330 *Pteris* (Paxia?) *Paxia suberula*
common at edge of forest
31 *Blechnum fluviatile*

4 32

3 33

1 34

2 35

1 36

2 37

1 38 E+

5 39 *Polypodium* "descriptum"
climbing on tree trunk

14 40a *Blechnum filiforme*
in shade, rare

1 40b *Microcladus aeneus*

2 41a *Ulexia excorticata*
second story of forest

N.Z.

770 m.

N. Z.

Kodjaphines of this paper (91),
also of *Maori* (meeting house
but for family)
(just before this Kodjaphines
on rolls 1-2 of deforestation)

PLANTS OF NEW ZEALAND
NORTH ISLAND

Blechnum filiforme
det.

Locality just above Raurimu, toward National
Park Jct., 10 mi. west of Mt. Tongariro
Occurrence rare in shade
in thick forest with dense undergrowth.

Date Feb. 9, 1949
Coll. F. R. Fosberg

Alt. 770 m.
No. 30340

Remarks

tree 5 m. tall, spreading,
with exfoliating bark;
leaves white beneath;
flowers green, purple toward
top of hypanthium, turning
bright red; fruit black.

1949 N.Z.

✓✓

Feb. 9 - just above
Raurimu, toward National
Park Junction
thick forest with dense
undergrowth.

30330 *Pteris* (Pallas?) *Pteris caudata*
common at edge of forest
31 *Blechnum fluviatile*

32

40a *Blechnum filiforme*
in shade, rare

40b *Microcladus aeneus*

41a *Ulexis exorticata*
second story of forest

N.Z.

Kodjakh forest of this forest (91)
also of *Maori forest* (hope
but for fruit)

770 m.

(just before this Kodjakh forest
on rolls 1-2 of deforestation)

N.Z. Raurimu

PLANTS OF NEW ZEALAND
NORTH ISLAND

Blechnum filiforme

det.

Locality just above Raurimu, toward National
Park Jet., 10 mi. west of Mt. Tongariro

Occurrence *rare in shade*
in thick forest with dense undergrowth

Date Feb. 9, 1949

Alt. 770 m.

Coll. F. R. Fosberg

No. 30340

Remarks

tree 5 m. tall, spreading,
with exfoliating bark;
leaves white beneath;
flowers green, purple toward
top of hypanthium, turning
bright red; fruit black.

1949 N.Z.

✓✓

Feb. 9 - just above
Raurimu, toward National
Park junction
thick forest with dense
undergrowth.

30330 *Pteris* (Pascia?) *Pteris* *strobilata*
common at edge of forest

31 *Polystichum blunvianum*

32

3

1

2

1

2

1

5

40c

41a

Urtica excorticata
second story of forest

N.I.

Kodak (from off the top of H. 11)
(also of *Macra* (mostly *strobilata*)
but *strobilata*)

(just before this *Leptosiphon*
(on rolls 1-2 of deforestation))

770 m.

N. Raurimu

shrub 2 m. tall;
fruit immature

N. Raurimu

erect; flowers
white.

small tufts

shrub 1 m. tall.
~~very~~

N. Raurimu

tree 5 m. tall, spreading,
with exfoliating bark;
leaves white beneath;
flowers green, purple toward
top of hypanthium, turning
bright red; fruit black.

✓✓

Feb. 9 - just above
Raurimu, toward National
Park junction
thick forest with dense
undergrowth.

- 30330 *Pteris* (Paisia?) *Paisia scaberrima*
common at edge of forest
31 *Blechnum fluviatile*
in shade
32 *Coprosma tenuifolia*
common
33 *Blechnum vulcanicum*
occasional in woods
34 *Juncus lampyrops* (check sp?)
in wet trail
35 *Galium aparine* L.
in weedy thickets at edge of woods
36 *Cyperus* *Isachne uncinata*
in wet trail
37 *Uncinia uncinata*
in shade
38 *Schefflera digitata*
in undergrowth
39 *Polypodium scolopendrium*
climbing on tree trunks
40a *Blechnum filiforme*
in shade, rare
40b *Microsorum aeneum*
41a *Uncinia excorticata*
second story of forest

Kopaka (mud of this forest?)
also of *Macra* (mud of this forest?)
but the fruit is
(just before this *Kopaka* mud)
(on rolls 1-4 of deforestation)

770 m.

H. 3.

shrub 2 m. tall;
fruit immature

H. 3.

reclining; flowers
white.

small tufts

shrub 1 m. tall.
~~shrub~~

H. 3.

tree 5 m. tall, spreading,
with exfoliating bark;
leaves white beneath;
flowers green, purple toward
top of hypanthium, turning
bright red; fruit black.

1949 M. 3.

✓ Feb. 9 vicinity of ^{the} Chateau
Tongariro National Park
open tussock & grassland

30 34 18 *Wahlenbergia albomarginata*
common

42 *Euphrasia cuneata*
common

✓ Feb. 9 The Chateau,
Tongariro National Park.

43 *Nothofagus forest* and
tussock grassland

43 *Elaeocarpus hookeri* *Aristotelia*
in shade of forest.

44 *Phyllocladus alpinus*
common along edges of forest

45 *Dracophyllum undulatum* var. *filifolium*
common in zone between
grassland and forest.

46 *Lagenophora petiolata*
common in deep shade *P. simplex*

47 *Nothopanax sinclairii* *H. simplex*
common at edge of forest

48 *Nothopanax sinclairii* *P. simplex*
common at edge of forest

49 *Myrsine divaricata* A. Comm.
common in undergrowth

50 *Gleichenia cunninghamii*
common locally at edge of forest

51 *Giselinia littoralis*
common in woods

52 *Nothofagus cliffortioides*
dominant tree

M. 9.

1000 m. (Kodachrome of Ngauruhoe Vol.)
(roll #2)

flowers white; stamens
recurved.

flowers white with
pinkish throat marked
with purple-brown.

1100 m. ~~the~~ black & white photo of
Ngauruhoe & Ruapehu

fruticosa

2 forms of juvenile leaves
shrub 2.5 m. tall

det. Totter

shrub, up to 1 m. tall,
flowers white.

rays white.

H. simplex

det. Park

small tree, with oily-
aromatic odor when
broken.

tangled shrub 1 m. tall

G. circinata

det. Rawson

shrub 2 m. tall;
fruit green.

tree 5 m. tall, branchlets
& leaves apparently distichous.

- 20 3.53 *Achillea millefolium* L.
rare in eroded places
- 4 -54 *Gleichenia circinnata*
abundant locally in grassland
- 3 -55 *Coprosma foetidissima*
occasional in forest.
- 1 -56 *Polypodium billardieri*
epiphytic, common.
- 4 -57 *Faultheria antipoda* ^{"G. dipetala"}
at edge of forest
- 3 -58 *Pittosporum colensoi*
rare in forest
- 34 -59 *Coprosma tenuifolia*
common in forest
- 7 -60 *Halorhagis uniflora*
common locally near
edge of forest in grassland
- 33 -61 *Elytranthe tetrapetala*
parasite on *Nothofagus*
- 34 -62 *Dracophyllum filiforme*
common in grassland near
edge of forest
- 3 -63 *Dracophyllum* ^{*Nothofagus*}
epiphytic on ~~tree~~ trunks in
forest

Here are thick *Nothofagus*
forest and tussock grass-land
side by side, with no apparent
difference in topography, soil, etc.
The *Nothofagus* looks like
a conifer from a short distance

one plant with pink, one
with white rays.

G. alpina R. Br. Feb. Dawson

dwarf shrub; fruit white.

spreading tree 5 m. tall;
fruit immature.

shrub 2 m. tall;

fruit immature.

stigmas green, ovaries
blackish purple.

flowers scarlet, petals
very easily caducous.

D. unwillkianum

shrub 0.6 m. tall.

M. 3. 1949

Feb. 10 - ~~Top~~ Slopes of
Mt. Ruapehu back of
the Chateau, Tongariro
National Park. 3700 - 6500 ft.

Vegetation changes
as one goes up the mountain
from Nothofagus forest
with Nothofagus, Cordyline
~~tenuis~~ indivisa, etc. sharply
to an ~~ericoid~~ ericoid scrub
of various genera, such as
Podocarpus, Dacrydium, Veronica,
Olearia, Dracophyllum,
Coprosma, etc. Then suddenly
again at about 4500' to a
sparse, low, dwarfed alpine

extreme dryness in dry spells,
and possibly an explosive
eruption that took place
13 months ago.

— forest at about 3900'

- 30364 *Nothofagus* ^{Panax} ^{colensoi} ^{Hobbs} ^{at Ruapehu}
4 abundant, variable
3 65 *Aristotelia serrata*
rare
3 66 *Nothofagus* ^{Panax} ^{simplex}
common

Kodachrome roll #3

vegetation of rather few
species, some the same as
below but much dwarfed.
These dropout rapidly
above 5600'. At 6000' and
above only *Helichrysum*,
Veronica (2 sp.), *Danthonia*
loa, *Gaultheria rupestris*,
Grimmia ~~sp.~~ *pulvinata*,
Coprosma pumila, *Celmisia*
spectabilis, *Anisotoma aromatica*,
Dracophyllum *renewum*, *Dracopis*,
Senecio bidwillii remain.
The vegetation is very sparse
with extensive areas of
loose pumice + rocks with
nothing.

This may possibly be
the result of the deep snow,
the light, easily movable
nature of the cinders and
pumice and its abrasive
qualities, as well as the
drainage and possible

shrub 2.5 m. tall, ^{oil} ^{resinous}
fruits green, purple at summit.
tree 3 m. tall, fruit green.

small tree or shrub 2 m.
tall

at about
4000'

Tussock
grass
(*Danthonia*)
also

1200 m

at Ruapehu

1943.3.

✓ scrub on ~~steep~~ steep slope
and in ravine

30367 *Potamogeton subdlongus* Hagström
abundant in pools in stream

3 68 *Veronica laevis*
common in lower scrub

7 69 *Coprosma parviflora*
occasional

5 70 *Dacrydium bicknellii*
common

4 71 *Phyllocladus alpinus*
common, locally dominant

3 72 *Epacris alpina*
common locally

1 73 *Dacrydium laxifolium*
common

4 74 *Pentachondra pumila*
common

2 75 *Anisotoma aromatica*
common in moist tussocky
vegetation in ravine

4 76 *Schizanthus parviflorus*
common in moist tussocky
vegetation in ravine

4 77 *Veronica Penckia gracilis*
common

4 78 *Hypochaeris (Calorophus) latifolia*
abundant in moist broad
bottom of ravine

4 79 *Veronica Penckia brevifolia*
common

R.I.

1230 m.

4000'

1265 m.

4100'

1700 m.

4300'

1930 m.

4900'

1930 m.

4900'

1930 m.

4900'

1930 m.

4900'

1930 m.

4900'

1930 m.

4900'

rooted, leaves floating,
spikes emerged in flower,
in water in fruit.

shrub 0.5 m. tall, flowers
lavender.

shrub, more or less
procumbent; no fruit
orange - mostly green.

shrub 0.3 m. tall, erect,
fruit green.

shrub 1.5 m. tall, fruit
purple.

weak shrub

prostrate, fruit green

low, flowers white,
fruit rose-crimson, thinly
fleshy, inflated.

stems wiry, purple-maroon

shrub 0.4 m. tall, flowers white.

shrub 0.3 m. tall;
flowers already dry.

30380 *Veronica tetragona*
common

— Alpine dwarf vegetation below

1 81 *Coprosma pumila* var.
common but rarely fertile

1 82 *Coprosma pumila*
common but rarely fertile

1 83 *Euphrasia* *absoluta*?
seepy, peaty ~~bluffy~~ ledges

1 84 *Forstera bidwillii* var. *densifolia*?
seepy peaty ~~bluffy~~ ledges

1 85 *Oniscus colensoi*
seepy peaty ledges

1 86 *Schoenus pauciflorus*
seepy peaty ledges

2 87 *Drosera*
common on seepy ~~peaty~~ ledges and boulders

1 88 *Drosera*
rare on seepy places

2 89 *Oreobolus pectinatus*
common on seepy peaty ledges

1 90 *Schizaea fistulosa*
exceedingly rare in *Oreobolus*
mats on seepy ledges.

1 91 *Pimelea prostrata*
rare on ash slopes

1 92 *Carpha alpina*
common on seepy wet ash

3 93 *Podocarpus nivalis*
common on rocky places

1400 m
4500 ft.

shrub 0.7 m. tall;
flowers white.

450 m. - 1550 m.

prostrate, flower
cream-yellow, erect.
prostrate; fruit range,
soft.

flowers white with
orange throat with
purple lines, yellow
patch inside lower lip.
flowers white, petals
with red blotch on outside
flower white with
yellow inside of throat
stems wing, purple-maroon.

forming dense mats

flowers white.

depressed shrub; fruit
green on red ~~very~~ fleshy
receptacle.

- 30394 *Drapetes dieffenbachii*
common in protected
places between or under rocks
- 95 *Dacrydium laxifolium*
common
- 96 *Arizina colensoi*
common in rocky places
- 97
exceedingly rare in rocky
places in tufts of cushion plants
- 98 *Coprosma prunifolia*
common in rocky places
- 99 *Podocarpus alpinus*
common in rocky places
- 30400 *Senecio bidwillii*
common
- 01 *Colmisia spectabilis*
common
- 02 *Gentiana bellidifolia*
occasional
- 03 *Colmisia psilota*
occasional
- 04 *Danthonia colensoi* *D. setifolia*
common
- 05 *Helichrysum bellidifolia*
very common
- extreme alpine dwarf
vegetation around the Club Hut
- 06 *Danthonia colensoi* *D. setifolia*
very common
- 07 *Poa colensoi*
very common

- flowers orange
- prostrate &
- prostrate shrub or
- low shrub
- rays white
- leaves purplish green,
flowers white,
rays white
- anthers orange
- loose mats
- and above 5860' - 6300' 1800m. - 2100m.
- tufted
- tufted

1949 M. 3.

30408

Veronica hedraea Walp. = *Veronica* (Walp.) Olin.

21

common

1

09

Dracophyllum recurvatum
abundant

1

10

Luzula campestris
rare in rocky places

22

11

Veronica spicata Roth. = *Veronica* (Walp.) Olin.
common

3

12

Dactylis glauca
rare, in wet ash in
depression

12

13

Coprosma pumila
common in rocky places

4

14

Gaultheria rupestris var.
very common *parvifolia*

9

15

Anisotoma aromatica
commonFeb. 11 - The Chateau, Tongariro
National Park

tussock grassland

2

16

Aciphylla intermedia
*A. squarrosa*Eruption of Ngauruhoe
Volcano - started Feb. 8.When observed on afternoon
of Feb. 9 a column of "smoke"
rose many (25-30 thousand feet)
thousands of feet from crater.
Explosions were almost
continuous, resulting in a
steady rumbling and
thundering, with great

M. 3.

loose mats, flowers
purple.

prostrate, flowers white

[Dec. 12] Olin
det. Ransomprostrate, loose mats,
flowers white.

tufts

prostrate ?

det. Macdon.

flowers white

flowers yellowish-white.

other plants seen somewhat
taller.discharges of ash and
showers of boulders.
At night the rumbling
had subsided somewhat,
but periodically there were
large explosions that shook
the Chateau, 12-15 m. away. Next
day was cloudy but the
rumbling continued, becoming
more pronounced and steady

1949 N. 3.

toward evening. After dark the clouds cleared away, giving a magnificent display of explosions, showers of red hot rocks, these rolling down to the base of the mountain.

Late in the evening the explosions became more and more intense and frequent, and a continuous stream of red hot boulders ran down the outside, looking from a distance like a lava flow.

At 2:00 a.m. there was a terrific explosion and the top blew off the cone (see W.R.B. Oliver) and after that no more activity was seen or heard.

First half of rock known as #3 is of the Holocene period in vicinity of Chacab and Acft y la - intermedia and Cigrova Grande.

N. 2.

The whole area traversed in the vicinity of the Tongariro Mt. Mass has a substratum of fragmental pumice overlaid by a thin layer of finer material which is beginning to be altered to soil. The soil layers are only a few inches thick in most places.

The pumice is gray or white, probably andesitic or rhyolitic in nature.

1949 M. 3.

C.V.

Down J

Feb. 11 - 2 1/2 mi. n. of Katatahi
Spring, east of Mangatutipua
Stream, west of Lake Roto Aho.

Sparse scrub of *Leptospermum*
crucoides with open ground
between ~~flats~~ bushes,
on ash & pumice soil.

30417 *Gaultheria depressa*
occasional under bushes

18 *Gaultheria depressa*
occasional under bushes

19 *Pimelea prostrata*
common in opening

20 *Leptospermum crucoides*
dominant shrub

21 *Lagenophora pumila*
occasional in openings

22 *Linum catharticum* R.
common

C.V. Feb. 11 - Mouth of Waitahamui
Stream, east side of Lake
Taupo

23 *Azolla rubra* R. Br.
covering surface of pond
just back of lake-shore

No. 7

Kodachrome roll 4

fruits crimson, calyx fleshy.

fruits white, calyx fleshy.

prostrate, flowers white,
fruit white, fleshy.

slender, very erect
shrub 2-3 m. tall, flowers
pinkish white.

heads white

flowers white, erect.

Kodachrome - roll 4 (cont.)

Lupinus arboreus

dull crimson red, sterile

Feb. 11 - Waipahiki Stream,
Ahekeheke, near Taupo
series of hot springs
and travertine terraces

30424 *Triglochin striata* var. *filifolia* Reck.
abundant on wet travertine
terraces, warm water

25 *Lemna minor* L.
common on warm wet
surfaces of travertine terraces

26 *Scirpus torreyi* L.
common in warm marsh

~~Feb 11~~
27 *Harmidium*
just above water ^{on sides} of hot water
channel

28 *Harmidium*
on travertine terraces
around hot water vent.

Feb. 11 - Huka Falls,
Waikato River, 4 mi. n. of
Taupo
on rock terraces around
falls

29 *Oxalis corniculata* = *Bartsia viscosa*
common around wet places.

30 *Wahlenbergia exilis*
local on dry ledges

31 *Linum marginale* A. Cunn.
rare on dry ledges

32 *Mimulus moschatatus*
common in wet places

springs up to 150°F

Robinia pseudo-acacia well-
established on walls of ravine.

leaves subterete, fleshy;
flowers green, stamens
yellow.

stems terete.

dark green, thin.

forming a rubbery
thick coating on rock.

The river here ~~goes~~ rushes
through a narrow inclined
natural flume above the
falls.

erect, flowers yellow.

flowers pale lavender

flowers pale blue

tangled succulent stemmed
herb up to 1 m. tall, supported
in other plants; *Trifolium*

Feb. 11 - Geysers Valley,
Wairakei Stream, 5 miles
north of Taupo

Deep ravine with
clay walls from which
steam issues through
abundant fissures,
with geysers, vents
and boiling mud pots.

30433 *Dianella intermedia* Endl.
common generally

34 *Histiopteris incisa* J. Smith
forming tangles around
geysers and steam vents

35 *Nephrolepis cordifolia* Presl
common around warm
water and steam vents
on mossy banks

36 *Myrsine australis* (A. Rich.) H. H. Allan
common in thickets

37 *Gleichenia linearis*
common

38 *Lycopodium cernuum*
common on mossy banks
around steam vents

Feb. 12 ~~Rotomahana~~ Whakarewareware
near Roturua

39 *Metrosideros tomentosa*
occasional in
Weinmannia-Leptospermum
forest.

flowers pale gray-blue,
bracts gray-blue,
almost globose.

apex of leaves pointed,
only younger ones show
circinnate rolling.
fronds erect, no
tubers seen.

small tree 3-4 m. tall,
leaves strongly undulate
not seen very much
larger than these specimens

tree 5 m. tall.

N.3. 1947

Feb. 12 - Mt. Ngangataha,
RotoruaMoist forest, largely
Beilschmiedia, with some
Kniglitia, Laurelia, Hedycarya
etc. with abundant
ferns, both epiphytic
and terrestrial, but with
few leaf-epiphytes.

30440

Diomys axillaris

rare in forest

41

Collospermum

occasional epiphytic

Antelia minor?

2

42 *Earingia autumnalis*

epiphytic

2

43 *Pyrrosia* ^{*serpens* (Burm.) Merr.} ~~*serpens*~~ ^{at Honekaka 1926}

epiphytic

3

44 *Acaena sanguisorba*common, weedy about
lower edges of forest along road

2

45 *Chimaphila australis* (R.Br.) Lindl.45b *Thelymitra longifolia* Forst.occasional on bare earth
of cut bank above road

2

46 *Gaultheria antipoda*common on bushy banks
above road (with 30447)

4

47 *Gaultheria antipoda*common on bushy banks
above road (with 30446)

1

48 *Geniostoma ligustrifolium*common in lower part
of forest

N.3

Trees 25-30 m. tall,
with little undergrowth
but somewhat tangled
with *Rhipogonum*.*Pseudowintera axillaris* (Forst.) Druce
det. R. W. Brownseedling 1 m. tall,
leaves white beneath.
leaves distichous (but
rarely duplicated on
one side; fruit green
in bud only.

fronds fleshy

prostrate, fruiting
peduncles erect.flowers of two colors,
green or deep purple within.fruit white to red (30447) to
almost black.fruit deep red (with
30446 which is white)

shrub, fruits green.

30449

Miconia unguifera

rare on cut bank above road

7 50

Nothopanax arboreum
common in forest,
especially around edges.

2 51

on dead sticks

1 52

Polypodium pustulatum
common, epiphytic

4 53

Coprosma australis (Lindl.)
occasional in deep woods

3 54

Trichomanes (aff. *venosum*)
abundant on vertical rocks
in deep ravine in forest

2 55

Rhipogonum scandens
abundant in forest

4 56

Hymenophyllum demissum
abundant on forest floor

3 57

Lindsaya hymenophylloides
common locally, terrestrial

1 58

Nertera (a. *Helleria*)

very rare, on bottom of ravine

5 59

Polypodium pustulatum
common, epiphytic

3 60

Trichomanes venosum
epiphytic on tree trunk

flowers green.

tree 7 m. tall,
fruits reddish black.

purplish gray

slender tree 5 m. tall;
fruit green.tangled liana, up to
2 cm. or more thick, tough
and elastic; fruit orange

prostrate, flower greenish.

rhizome flattened.

1949 N.Z.

Feb. 13 - plateau at east
base of Te Hachaeanga Mt.
east of Lake Taupo
small flat, covered
by ^{open} scrub of pure
Dracophyllum subulatum

30461. *Haloragis* ^{sp.}
in open places
62. *Acaena*
in open places
34 63. *Epilobium* ^{hedra}
common in open places
34 64. *Geranium* ^{sp.}
common in open places
65. *Dryas* ^{sp.}
occasional
66. *Dryas* ^{sp.}
occasional
45 67. *Dracophyllum subulatum*
dominant shrub
3 68. *Lelanthus biflorus*
occasional in open places
2 69. *Raoulia australis*
common in open places
3 70. *Vittadenia* ^{off. australis}

✓✓ Feb. 13 - Jellicoe Point, southeast
shore of Lake Taupo

- 4 71. *Lophod tetrapteris*
common on terrace slightly
above lake
4 72. *Muehlenbeckia australis*
on bushes along roadside

N.Z.

climber around tree
covered by *Leptospermum*

Kodachrome Roll 5

prostrate

(possibly 2 sp.)

flowers white or pink

flowers pinkish - white

caespitose

erect shrub ^{to} 1 m. tall,
flowers white (several collected)
forming cushions

forming flat cushions.

tree 6 m. tall, spreading
(*Kodachrome* Roll 5)
extensive vine,
flowers greenish.

1949 N. 3.

Feb. 13 - 4 1/2 mi. e. of Waikanae
Hut, Tongariro National Park,
e. n. e. of Ruapehu
open tussock grassland

30473 ~~Cassia~~ *obovata* *vaucillensis*
occasional

4 74 *Agropyron* *scabrum*
occasional.

Feb. 13 - Wangarua, 8 mi.
e. s. e. of Ruapehu

75 *Muehlenbeckia* *ovellana* *sp.*
common along road cut

Wellington Water Reserve,
Feb. 14 - Orongorongo Valley,
across the bay from Wellington.
A longitudinal valley in
the Rimutaka Range, reached
via a 2 mile tunnel through
which the water main flows.
The two sides of this valley
are curiously different.
The valley is the result of
a fault line in the underlying
"gray wacke", a hard
fine-grained compact
gray sandstone or shale.
The west side is much
shattered by the faults
and is characterized by
continual slipping and
landslides. The east side

Kodachromes Roll #5
Ruapehu + grassland

7000 m

rounded shrub
0.6 m. tall; heads white.
caespitose

prostrate, flowers
pale greenish; fruit
black, fruiting calyx
white, very fleshy.

Roll #
first 15,000
and here.

shows little evidence
of this, and is not as
steep. The west side
is largely *Nothofagus*
menziesii forest, while
the east side is rimu
(*Dacrydium cupressinum*) -
rata (*Metrosideros robusta*)
forest. Both have an
understory of *Weinmannia*
racemosa about 30 feet high, another
about 10-12 feet of *Drimys*
axillaris, etc. There is a
ground cover of *Blechnum*
discolor (said by local
foresters to impede seedling
growth), and, at least
on the east side, a lower

ground-cover story of Hymenophyllum, etc. This scheme, of course, varies locally. Tree ferns of ~~along the river~~ a number of kinds are common, especially low in the ravine - Cyathea smithii, C. cunninghamii, C. dealbata, and Dicksonia. Epiphytes, especially Hymenophyllaceae are abundant.

30476. Coprosma rhomboides
occasional near stream bed

77 Raoulia glabra
rare in stream bed

78 Blechnum ~~granulosum~~
on rocks in river bed

79 Veronica cataractae
on steep landslide among ferns

80 Blechnum diacole
almost a pure stand in the forest on slopes

81 Blechnum nigrum
on wet steep slope in beech forest

82 Hypericum ~~andersonii~~
along trail in ravine bottom

83 Gunnera ~~argentea~~
on wet rocks, ravine bottom

Pseudopanax
trans.
Nollypax
and
Pittosporum
Coprosmas

Along the stream Fuchsia eximica is the most abundant tree, though Myrsine salicina, Copodatus, Melicytus ramiflorus, Pennantia, Hedycarya are occasional. Podocarpus spicatus, P. dacrydioides, P. hallii and P. totara, as well as Elaeocarpus are occasional on the slopes. Raoulia of two species and Pratia are common in the stony stream bed.

small intricately branched shrub 1 m. tall; fruits immature. prostrate, heads white.

~~flowers~~ fruit immature

fronds ascending, or an erect trunk 3-4 dm. tall.

plants very dark green, sterile fronds prostrate, fertile erect. suffrutescent herb, 1 m. tall, flowers yellow.

- 20484 *Nertera depressa*
common on wet vertical rocks
- 1-85 *Stellaria parviflora*
common on wet vertical rocks.
- 5-86 *Drimys axillaris*
dominant understory in forest
- 4-87 *Farinsectum nalis*
rare on mossy rock
- 4-88 *Trichomanes multifidum*
on tree trunk
- 88a *Trichomanes* (*cardianum*) *reniforme*
on wet shaded ledges
- 3-89 *Stictis filix*
common on great rocks above stream
- 1-91 *Oxalis lactea*
on great rocks above stream
- 1-92 *Trichopteris tannensis*
on tree-fern trunks
- 1-93 *Asplenium lobatum*
on rocks above stream
- 3-94 *Alea waimangaroa*
rare, just above stream
- 3-95 *Dendrobium waimangaroa*
rare, epiphytic on tree trunk
- 4-96 *Weinmannia racemosa*
dominant second story tree
- 1-97 *Wallenbergia gracilis*
rare in grassy patch on floor of ravine
- 3-98 *Coprosma*
occasional at bottom of ravine

prostrate, fruit orange-red.

prostrate

shrub 3-4 m. tall; leaves somewhat glaucous beneath, fruit green, bark not acid. flowers creamy white, very fragrant.

flowers white.

pendent.

tree 6 m. tall, one spike of dried flowers seen. pendent. flowers white with lateral teeth of mesochile red.

tree 6 m. tall, fruit gray. flowers white.

shrub 2 m. tall; fruit orange-red.

1949 N. 3.

R. 2024 (20. australis (Lamour.)

30499

Rubus scandens

41'

in thickets in ravine bottom

30500

Pseudopanax crassifolia

51'

occasional in thickets in
ravine bottom

↓

Q

Feb. 15 - Kowai River bed
above Springfield

Canterbury

open grassland, heavily
grazed, on flood plain of
river, with scattered
shrubs of *Discaria*.

30501

Discaria toumatou

4

common shrub

7

02

Coprosma propinqua~~rare~~ occasional

1

03

Muehlenbeckia complexa

common, climbing or shrubby

3

04

Hymenanthera cuneifolia

rare, on rock pile in shade

1

05

Celmisia prostrata

occasionally in thick

grass in wet place

2

06

Juncus articulatus

common in low wet place

7

07

Eleocharis acutis

common in low wet place

31

08

Carex tenuis

occasional colonies in wet place

4. 7. 5. 9.

extensive liana;
ripe fruit orange-brown,
tasteless.small tree 4 m. tall,
fruit immature~~stems~~ rigid shrub 2 m.
tall.much branched, rigid
shrub 2 m. tall; fruit
turning blue

vine, flowers dull, greenish.

prostrate; fruits green

rays white

forming dense colonies
of several square meters

- 30509 *Acaena microphylla*
common
10 *Usnea*
common on *Discaria* twigs

Feb. 15 Porters Pass, Mt. Trolasse range
steep slopes with *Dracophyllum*
scrub, tussock grassland
and scree slopes

- 2 11 *Dracophyllum* ^{only on summit}
3 12 *Scleranthus biflorus*
lower slopes in scrub
3 13 *Corallorhizidium* ^{in scrub}
lower slopes in scrub, occasional
2 14 *Raoulia subsericea* ^{High}
occasional in lower slope in scrub
3 15 *Dracophyllum uniflorum*
common, dominant in scrub
on lower slope
3 17 *Veronica* ^{smaller}
in scrub on lower slopes
3 16 *Dracophyllum rosmarinifolium*
common in scrub on lower slopes
1 18 *Gentiana conopsea*
rare in scrub on lower slopes
12 19 *Luzula campestris*
occasional on lower slopes
3 20 *Acaena glabra*
occasional on lower slopes
21 *Cotula atrata*
occasional on high scree slopes
22 *Epilobium pycnostachyum*
common on high scree slopes

prostrate reddish green

3100 -
5200 -
5400 -
3100 -
Near the summit the
scree slopes (of greywacke
rock) are natural,
lower down man-induced)
prostrate, flowers
white.
dense cushions

shrub 0.8 m. tall, flowers
brownish.
forming a mat, flowers
white
shrub up to 1 m. tall

low shrub, flowers
already dry.
low shrub.

flowers white

loosely prostrate

heads black, plant glaucous

alt. Raoulia

fleshy, flowers pale pink

30523 *Hellaria* *roughii*

2

24 *Raoulia* *ecirnia*
on high scree slopes25 *Colmisia* *spectabilis*
common on slopes in
grassland and scrub26 *Veronica* *pinguifolia* Hook. f.
occasional on upper slopes
in patches of scrub and grass28 *Luzula* *complanata* *australis*
common on summit and high
scree slopes27 *Colmisia* *lyallii*
common in grassy patches
on high scree slopes29 *Robelia* *minor*
occasional in protected
grassy spots on high scree slopes30 *Anisotome* *aromatica*
occasional on the summit
broken rock.31 *Poa* *colensoi*
common on rocky summit32 *Phyllocline* *colensoi*
common on upper slopes and
summit33 *Ranunculus* *haastii*
upper scree slopes34 *Anisotome* *filifolia*
rare on upper ~~scree~~ slopesfleshy, glaucous,
flowers white, petals bifid.
forming great hard
mounds 1-2 m. long,
1 m. wide, 0.5 m. high.
white. "vegetable sheep".
rays white.leaves glaucous,
flowers already dry.
tufted

rays white

prostrate, flowers
white, very fragrant

det. R. Brown

det. R. Brown

det. R. Brown

det. R. Brown

densely caespitose

dense, hard flat green
cushions, flowers white.fleshy, glaucous
dark reddish green

- 70535 *Epilobium*
on overhanging wet banks
of small stream
- 36 *Styphelia* [Agartha] *coloni*
common on lower slopes in scrub
- 37 *Gaultheria rupestris*, var. *parviflora*
common in scrub on lower slopes
- 38 *Viola cunninghamii*
rare in scree
- 39 *Geranium parviflorum*
scree slopes
- 40 *Forstera tenella*
grassy places
- 41 *Anisotome armata*
scree and broken rock
- 42 *Coprosma parviflora*
scrub
- 43 *Coriaria plumosa*?
in scrub
- 44 *Chrysobactra* *holboellii*
on lower slopes in ravine
- 45 *Schizanthus luteus* *luteus*
in scrub
- 46 *Notothlaspi rotundifolium*
on scree
- 47 *Carmichaelia rotundifolia* *Simpsonii*
in ravine near stream
on lower slopes
- 48 *Aciphylla colensoi*
in ravine on lower slopes,
on bank of stream

flowers pinkish

depressed shrub; fruit
pinkish
shrub 3-4 dm. tall,
flowers white,
leaves purplish green

flower white

prostrate; leaves glossy,
firm
prostrate

flowers yellow

glaucous, fleshy.

plant with large stiff
basal rosette, and a spike
1.5 m. tall.

Feb. 19 - just east of
south end of Lake Coleridge.
Canterbury

base of talus slope
with sparse ^{thorny} scrub of
dense bushes of Rubus,
Dioscorea, Coprosma, Hymenanthus
etc.

30349

Coprosma rigida
occasional.

Feb. 19 - half-way between
Lake Coleridge and Lake
Lyndon, Canterbury
Dracophyllum scrub
on slopes

2 50

Senecio lagopus

common in open spaces
between shrubs

1 51

Lycopodium fastigiatum
common in open spaces
between shrubs.

3 52

Styphelia pumila
common, covering ground
between shrubs

Feb. 19 Lake Lyndon, ~~Canterbury~~
below Mt Torlesse Range.
Canterbury

thin turf, submerged at high
water

1 53

Myriophyllum ^{elatinoides} ~~submergum~~
submerged

shrub 2 m. tall, branching
quite geometrically, 3-dimensional,
fruits green.

rays and disk yellow.

spike erect (only one seen)

flowers white; fruit
crimson.

19. propinquum det. M. J. M.

1949 N. 3.

- 30554 *Lilaeopsis* (*Limnophila linearis* Hoffm.)
edge of water
55 *Limnophila*
edge of water

~~Feb. 19~~ Feb. 19 - Cars,
8 mi. e. of Bealey, Canterbury
extensive *Typha* marsh
and *Heliconia* meadows
along stream.

- 42 56 *Heliconia paniculata*
common
57 *Typha angustifolia*
abundant

~~printed - not yet written~~

Feb. 20 - Arthur's Pass

From the village to the
~~summit~~ summit is a
gentle inclined ravine
with a rushing stream.
Forest of *Nothofagus cliffortioides*
is the dominant vegetation,
here with some undergrowth.

- 4 58 *Lycopodium billardieri*?
on large rock in forest,
shorter stems erect,
59 *Haloragis*
edge of small bog along road

flowers white
flowers lavender

clumps, culms red.

including microphyllous
Coprosma, *Pittosporum*,
Gaillardia, *Chamaenerion*, etc.
with *Nothofagus* along the edge.
Open tussock areas are
occasional, especially
at the summit where
the ground is open, with
scrub mixed with
bogs. The scrub is of
Alnus, *Cassia*, *Phyllanthus*,
etc. The bogs seem to
be dominated by *Poa*,
but with many other things,
shorter stems erect,
others pendent.

*Proserpinaca
acutifolia*

- 30560 *Euphrasia* [cockayneana]
rare in boggy place near summit
- 61 *Coprosma serrata*
occasional in scrub
- 62 *Aletris ilicifolia*
occasional near summit
- 63 *Luzula* *laevigata*
along road at summit
- 64 *Ourisia macrocarpa*
edge of wood
- 65 *Phyllachne*
wet rocky place
- 66 *Donatia* *novae zelandiae*
dominant in summit bog
- 67 *Aletris nummularifolia*
common in summit scrub
- 68 *Senecio clavigerifolius*
common in scrub and
ground edges of forest
- 69 *Phyllocladus alpinus*
common in scrub and
at edge of forest
- 70 *Gentiana* *montana*
occasional in rocky places
at summit
- 71 *Dacrydium laevifolium*
in scrub
- 72 *Celmisia glandulosa*
in bog
- 73 *Hoheria lyallii* *gracilis*
common at edges of forest
- 74 *Angelica montana*
occasional in summit scrub

- flowers yellow
- low shrub, 3rd m. tall
fruit immature
large shrub, rays
white.
caespitose
- edge of woods
- dense flat cushions
cushions
- erect shrub,
1 m. tall, rounded, rays
white, flowers fragrant.
rounded shrub
1 m. tall, heads yellow
- low shrub, 1 m. tall
glaucous; fruit purplish.
flowers white.
- prostrate, fruit red.
rays white
- shrub 3 m. tall, juvenile
leaves very different.
flowers white, fragrant.
leaves glaucous beneath.

- 30975 *Aristotelia hirsuta*
rare in summit scrub
- 376 *Veronica*
common in summit scrub
- 77 *Erechtites glabrescens*
rare in disturbed places
- 78 *Dioscorea*
rare in summit scrub
- 79 *Lycopodium scariosum*
occasional in rocky place
- 80 *Epilobium glabellum*
common on disturbed talus
- 81 *Epilobium pubens*
in disturbed places
- 82 *Raoulia glabra*
on bare shingle
- 83 *Pittosporum*
edge of forest
- 84 *Pittosporum*
edge of forest (with 30583)
- 85 *Veronica* (Parakebe)
common on rocks
- 86 *Aristotelia hirsuta*
rare at edge of forest
- 87 *Blechnum procerum*
common at edge of forest
- 88 *Nothofagus cliffortioides*
dominant in forest
- 89 *Blechnum pinna-majus*
common on rocks
- 90 *Celmisia divaricata*
rare in scrub
- 91 *Congelica montana*
common along road at edge of forest

sounded scrub, flowers
white

flowers greenish

prostrate

leaves reddish, fls pinkish,
white.

flowers white.

loose mat; heads white

rigid shrub 2 m. tall

rigid shrub 1.5 m. tall

flower pinkish, plant
prostrate.

rigid shrub 2 m. tall,

fruit pinkish when ripe.

fertile fronds erect

tree 6 m. tall.

Aristotelia hirsuta

30592. *Wahlenbergia*
occasional along rocky roadside
93. *Juncus* ^{novae-zelandiae}
wet roadside
94. *Luzula* ^{campanulata}
common on road cut
95. *Dracophyllum uniflorum*
common in scrub
96. *Gaultheria antipodica*
occasional in scrub
97. *Archeia traversii*
in scrub
98. *Forsteria tenella*
wet rocks
99. *Senecio lyallii*
edge of forest
30600. *Oreocarya macrophylla*
wet rocks of road cut
01. *Polypodium* ^{billardieri}
rocky road cut
02. *Lycopodium australicum*
rocky road cut
03. *Umicia* ^{compacta}
bare space on broken rock
04. *Coriaria sarmentosa*
cut banks and talus
05. *Coriaria* (hybrid) ^{C. p. & C. s.}
cut banks & talus (with 30604 & 30600)
06. *Coriaria angustifolia*
cut banks and talus
- ~~06. *Blechnum* sp.~~
07. *Dracophyllum uniflorum*
common in scrub

flower, white tinged
with purplish

shrub 0.7 m. tall,
flowers greenish white,
shrub 1 m. tall, calyx
not fleshy.
shrub, sterile.

flowers white

rays yellow.

Paeonia

100 L.B. 1900

depressed, loose

semi-prostrate, colonies

semi-prostrate, colonies

semi-prostrate, colonies

erect shrub 1 m. tall,
densely branched

30603. *Pratia angustata*
 wet open space on
 pine broken rock
 09. *Wolffipanas simplex*
 occasional in edge of forest

Feb. 23 - Conway river,
 above Conway, where
 road reaches river.
~~road~~ road cut in shattered
 rocks.

- 10 *Pachystegia* ~~divergens~~ ^{rock}
 common on vertical cuts
 11
 common on vertical rock cuts
 12 *Linum* ~~maritimum~~
 on grassy talus slope
 13 *Vittadenia* ~~occidentalis~~
 on steep talus
 14 *Cassinia* ~~lytophylla~~
 common on rocks and talus

- perfoliate, matted,*
flowers white.
 shrubby tree 4 m tall,
 flowers green, juvenile
 leaves strikingly distinct.

- much branched shrub.
 leaves leathery.
 small shrub, leaves
 sub-fleshy, pallid
 beneath.
 flowers white, 2 cm.
 across.
 rays white
 small shrub

1949 M. 3.

Feb. 24 - Nelson

Cultivated in botanical garden

30615

Myoporum laetum

16 Myoporum laetum
(said to be introduced
from Australia)

17 Orobanchaceae *mina* (2nd ed.)18 *Croton cotoneaster*19 *Shawia* *Helidryx* *glutinosus*

Feb. 24 - Lee River

broken down forest remnants

20. *Suttonia Australis* *Suttonia australis*

alluvial terrace

21. *Podocarpus*

alluvial terrace

22. *Olearia aemulaefolia* *ovicenniaefolia*

vertical cliff of shale

23. *Dodonaea viscosa*

vertical cliff of shale

24. *Leptopogon solanderi* *Solanderi* *Leist*

alluvial terrace

25. *Myrtus obcordata* *obcordata*

alluvial terrace

26. *Habenaria angustifolia*

alluvial terrace

27. *Podocarpus saepefolius* *dorydionoides*

alluvial terrace

28. *Euprocena aemula*

alluvial terrace

29. *Gallium Salium*

subtle bark

tree 5 m. tall, leaves with
conspicuous translucent
glands, fruit immature.
shrub 3 m. tall,
fruit fleshy, bright
violet purple.
dry, except at base.
shrub 1.5 m. tall, sterile.
shrub 1 m. tall; flowers
whitish.

small tree 4 m. tall, branches reddish.

somewhat spreading tree 8 m. tall.

straggly shrub, with white ray flowers

shrubs.

spreading tree 10 m. tall spreading
leaves pale greenish beneath
slender shrubby tree 3 m.

tree 7 m. tall

tree 8 m. tall

rigidly branching shrub with bright red
translucent berries
greenish / leaved.

- ① 306 30. *Muehlenbeckia complexa*.
 Long Gallery. alluvial terrace.
 4 31 *Parranra heterophylla* P. capricornis
 rocky wall of ravine
 3 32 *Gaultheria* ~~sp.~~ *rupestris* 6 antipoda
 rocky wall of ravine
 3⁴ 33 *Styphelia* ~~arvensis~~ *paniculata*
 rocky wall of ravine
 3 34 *Podocarpus speciosus* *spicatus*
 alluvial terrace
 3⁴ 35 *Carpodatus serratus*
 rocky wall of ravine
 1² 36 *Pinus Pinetum* cf. *virgata*
 edge of superline
 3 37 *Lathyrus arborescens* *arborescens*
 steep wall of ravine
 4 38 *Pterispermum tenuifolium*
 steep wall of ravine
 3 39 *Podocarpus* ~~Totara~~ *Totara*
 alluvial terrace
 40. ~~4~~

shrubby vine tangled in ferns flowers
 pale greenish
 more turning through bushes

shrub under 1 m tall, fruits red,

small shrub with dark red berries

small rounded tree 12 m

dit. *Rosa* small shrubby tree 4 m tall leaves
 slightly mottled in appearance fruits
 badly galled.
 flowers white with pink ovary

dense rounded tree: fruits reddish-black

small tree

tree about 10 m tall pedicels red, fleshy.

Feb 25 "Mineral Belt s. of Wooded Peaks,
near Mountain Tram Line

Sparsely *Leptospermum* scrub on steep
slope of serpentine rock, much
of it loose talus.

- 1 30640 *Eugenia campylocha*
in rock crevices
- 1 41 *Lacina compacta*
on fine broken rock
- 2 42 *Calandrinia* (?) *Colobanthus* *radialis* *obtus*
fine wet broken rock on trail
- 3 43 *Isotria medeoloides*
fine wet broken rock on trail
- 1 44 *Laurencia* *hidrochloa* *Portia* *det* *Portia*
occasional on alga
- 2 45 *Festuca novae-zealandiae* (?) *novae-zealandiae*
along trail *Tristia* *gonagii*
- 4 46 *Wahlenburgia* *Wahlenburgia* *albomarginata*
on broken rock in shade of *Leptospermum*
- 3 47 *Lacina fulvida* *L. vanvilliana*
common component of scrub.
- 1 48 *Plumula colensoi* *Colensoi* *var* *reticulata*
- 1 49 *Helymitria longifolia*
broken rock in shade of *Leptospermum*
- 4 50 *Metrosideros lucida*
occasional component of scrub
- 3 51 *Olearia* (?) *serpentina*
common in scrub, .
- 2 52 *Myrsine*
loose talus
- 1 53 *Calandrinia* (?) *Monarda* *australis*
loose talus
- 2 54 *Anisotome filifolia* *Anisotome*
loose talus

Leptospermum arboreum, *Le. avicula*, *Corokia*
Cotoneaster, *Leptospermum fasciculatum*, *Proso-*
phyllum longifolium, *Patersonia chathamica*
Hebe angustifolia, *H. salicifolia* *var* *Atkinsonii*
Hebe hybrid, *Coprosma parviflora*, *Rhynchospora*
paniculata

Vegetation of Magnesian Belt. pfs 193 + 194

Olearia serpentina, *Leptospermum scoparium*
Poa sp related to *P. acicularifolia*, *Festuca* like
F. novae-zelandiae, *Pinus* *Suteri*, *Myosotis* *novae*,
unnamed *Hebe*, *Cassinia alba* var *serpentina*,
Blennium procerum, *Pteridium esculentum*,
Lycopodium varium, *Poa Colensoi*, *Cordyline Banksii*,
Libertia ixioides, *Thelyantra* of *longifolia* group.
Clematis marata *Veronica racemosa*,
Melicope simplex, *Aristotelia fruticosa*, *Pinus*
indica, *Leptospermum ericoides*, *Kalorhaphis*
erecta, *Pseudopanax crassifolium* var *unifoliolatum*
Notopanax arboreum, *N. anomalum*, *Corokia*
Cotoneaster, *Santalum fasciculatum*, *Draeco-*
phyllum longifolium, *Suttonia chathamica*
Hebe angustifolia, *H. salicifolia* var *Atkinsonii*
Hebe hybrids, *Coprosma parviflora*, *Shawia*
paniculata

Feb 25 "Mineral Belt" s. of Wooded Peaks,
Blue Mountain Tarn Lake

Spure *Leptospermum* scrub on steep
slope of serpentine rock, much
of it loose talus.

- 1 30640 *Luzula caespitosa*
in rock crevices
- 1 41 *Luzula compacta*
on fine broken rock
- 2 42 *Calandrinia* (?) *Calandrinia mollis* Blake
fine wet broken rock on trail
- 3 43 *Podopis australasica*
fine wet broken rock on trail
- 1 44 *Dampiera* ^{*biopetala*} *hidvillii* Hook. f. det. Pople
occasional on slopes
- 2 45 *Festuca novae-zealandiae* (?) *novae-zealandiae*
along trail *Festuca youngii*
- 4 46 *Wahlenburgia* *Wahlenburgia albomarginata*
on broken rock in shade of *Leptospermum*
- 3 47 *Cassinia fulvida* *C. vanvilliei*
common component of scrub.
- 1 48 *Platanus colensoi* *colensoi* var. *reticulata*
- 1 49 *Heliconia longifolia*
broken rock in shade of *Leptospermum*
- 4 50 *Metrosideros lucida*
occasional component of scrub
- 3 51 *Olearia* (P.) *serpentina*
common in scrub, .
- 2 52 *Myrsine*
loose talus
- 1 53 *Calandrinia* (P.) *Montia australasica*
loose talus
- 2 54 *Anisotome filifolia* *Anisotome*
loose talus

3600'

small tufts

loosely caespitose

3600'

small caespitose tree 4m - 5m tall

tufts

flower pale blue-lavender with darker lines on mid-ribs
of the lobes.densely branched shrubs 4dm. tall
flowers white

roots extensive, translucent, white

shrubs 2m tall leaves yellow green, petals
& stamens crimson

shrubs 1m tall rays white.

plants dark purplish green.

leaves reddish spiculate and very fleshy

- 30655 *Luzula compacta*
loose talus
86. *Lolothalassia* ~~and~~ *and*
loose talus
- 87 *Agropyrum scaberrimum*
loose talus
- 88 *Lerema bellidifolius*
rock crevices
- 89 *Unistoma Onisotome* ~~prominens~~
loose talus
- 90 *Veronica*
rock crevices
- 91 *Poa acutirifolia*
talus
- 92 *Alvophyllum* ~~prostratum~~
common on rocky slopes
- 93 *Brachyphyllum leucanthum*
rocky slopes
- 94 *Veronica*
rocky slopes
- 95 *Hymenocallis*
rocky slopes
- 96 *Phararon* ~~colensoi~~ *Colensoi*
common on rocky slopes
- 97 *Brachyphyllum*
rocky slopes
- 98 *Brachyphyllum leucanthum*
rocky slopes
- 99 *Brachyphyllum longifolium*
rocky slopes
- 100 *Exocarpos bidwillii* *Hook.*
broken rock at edge of trail
- 101 *Brachyphyllum* ~~prostratum~~
rock crevices on rocky slope

- erect
- rosettes + pods purplish green
- caespitose
- flowers yellow.
- leaves reddish green, fleshy, with impressed veins
- densely caespitose
- 3 dm.
- densely caespitose, leaves erect, stiff, fruits
pendant somewhat tomentose
3 dm tall.
- shrubs 1 m tall - leaves more or less flexible
- shrubs 1 m tall - leaves more or less stiff.
- low densely branched clumps 1 dm high
- slender shrubby erect shrubs 1 m tall leaves
somewhat stiff.

C

Feb. 25 - w. slopes of Wooded Peak,
 Old Run Mountain (cam. dist., Nelson
 dense forest, mixed Weinmannia
 and Nothofagus, little
 undergrowth, no ground cover

30672

4

Coprosma foetidissima
 abundant, especially
 along trail

4

73 *Gaultheria antipoda*
 in undergrowth

3

74 *Nertera depressa*
 on trail in woods, shaded

3

75 *Nertera*
 on and beside trail in woods, shaded

2

76 *Drimys colnata*
 very local, in undergrowth

1

77 *Lycopodium volubile*
 common along trail in woods

C

Feb. 25 - Nelson Reservoir,
 Nelson

21

78 *Elaeocarpus*
 in second growth woods

C

same as 30672

1

79 *Nothofagus cliffortioides*
 common tree

1

80 *Nothofagus truncata*
 common tree

2600 ft.

slender shrub 2 m. tall,
 ripe fruit orange; plant
 with a nauseous odor when
 broken.

shrubs 2 m. tall,
 fruit green, calyx not
 at all fleshy.

prostrate, dark green,
 flowers yellowish green.
 prostrate, pale green.

Jan. 28. 1949

sterile shrub 1 m. tall,
 leaves glaucous beneath,
 spotted with purple above.
 prostrate, extensive.

large spreading tree,
 fruit green.

leaves white beneath.

11. 1949 Jan. 28

1949 N. 3.

c Feb. 25 - Nelson
cultivated in botanical garden

- 30681 *Aletris purpuracea*
1 82 *Muehlenbeckia aotearoa*
2 83 *Pittosporum dallii*
~~84 *Aletris*~~
1 84 *Aletris solandrii*

Kodachrome roll 8
several of sea with Dunvilles
near Kaitiaki

Field at Havelock on Pelorus R.
Tee Aue. - only gulls. Nelson
serpentine barrens with
beech - Weinmannia forest
boundary at Wooded Pls.

Beech forest, partially
destroyed, at Hope Saddle.

roll 9. beech forest in Hope R.
Fault plane on Butler R.

Podocarpus dactyloides on Butler R.
also mixed forest on small
tributary

Rim + *Podocarpus* forest in valley
Bog 2. of Westport

Beech - Weinmannia forest
along Dun Mt. Tramline - little
or no undergrowth in well
developed areas. In places
Weinmannia racemosa forms
almost pure stands, esp.
along lower parts of trail. In
no place seen was it absent.

Among the *Dracontophyllum* apparently at least
three species are involved in a hybrid swarm.

S. I.

shrub; rays white.
erect shrub 2 m. tall.
sterile (has not flowered
in garden.)
shrub,

In relatively few
places were there significant
admixtures of other trees,
such as *Fuchsia excorticata*,
Aristolochia serrata, etc. Here
and there *Uncinaria* was
common on the ground. Along
the trail only was there much variety
in the flora.

On the serpentine slopes the change
from forest to scrub was rather
abrupt as serpentine was reached.
The scrub near the edge was tall,
with *Leptospermum*, *Nothofagus*,
Chorizanthe, *Podocarpus*, *Dracontophyllum*,
Cassinia, several *Veronicas*, etc.
The species, such as *Nothofagus*
& *Weinmannia* that penetrate from
the forest become much dwarfed.

toward the middle of the
serpentine the vegetation
becomes much lower, sparser, and
poorer in species. This may be due
to more extreme exposure, as well
as looser talus, and serpentine influence.
Possibly all three + other factors
are involved.

11.2.1949

26th February

New Lawton Clat. 10 m W of Murchison, Buller Gorge.

30685

Roadside thickets near bottom of gorge.

85. *Serenoa hectorii* *hectorii*
86. *Coprosma australis* (= *grandifolia* in the area)
common in thickets
87. *Schefflera digitata*
88. *Mohrera strictiflora*
89. *Plumieria colorata*
rare
90. *Melastoma* *sp.*
common in shade

✓ *Dracopis* - Buller Gorge.
26th February

2. 30691. *Serenoa hectorii* *hectorii*
roadside thickets at base of cliff

26th February

Hawthorn Cray - 10 m W of Dracopis, Buller Gorge.
roadside thickets near bottom of gorge

4. 30692. *Coprosma* *robusta*

3. 93. *harteria* *digitata*
on wet rocks & banks

142 m

shrub 2 m tall

shrub 1 1/2 m tall, leaves glossy

erect shrub 2 m tall not aromatic
when broken; fruits immature
small tree, leaves pale & conspicuously
reticulate beneath; flowers white, somewhat
fragrant.

sterile shrub 2 m tall, young leaves glaucous
beneath marked with purple, young leaves
bronzepurple.

55 m.

shrub 3 m tall rays white, disc yellow

30 m. slender erect shrub 3 m tall, fruits
immature

prostrate forming loose mats, fruits bright
orange red, translucent juicy

Weinmannia

3120694

~~Heinmannia~~ *revores*2 95. *Cypripedium* *puberulum* - 6 specimens, white
roadside3 96. *Carpodacus* *sonatus*

small tree leaves pale beneath

stiff leaved erect shrub 1 m tall fruit
immatureshrub 1 1/2 m tall, ripe fruit black, black,
fruits mostly immature

NZ 1949

27th February

Just north of Big Totara River
5 miles South of Westport.

Extensive open flat peat bog, peat
about 3 to 4 dm thick underlain by
decomposed coarse granite, on what
appears to be a river terrace.

1 30697 *Blechnum procerum* B. capense
wet banks.

3 30698 *Cladonia tomentosa*
common in parts of bog

1 99 *Antennaria*
on surface of peat in bog

1 30700 *Celmisia prostrata*
occasional in peat

2 01 *Lycopodium complanatum*
common on peat

1 02
occasional on wet peat

3 03 *Taraxacum officinale*
occasional in very wet places

2 04 *Antennaria hypoleuca*
wet vertical road-cut

1 05 *Schizaea fistulosa* Schizaea
on peaty vertical banks

3 06 *Gleichenia linearis* Sm. (not of other authors)
dominant in most parts of bog

3 07 *Styphelia* *Epacris alpinum*
occasional

1 08 *Juncus planifolius*
rare, at edge of bog

It seems possible that the
bog conditions may result
from decomposition of felspar in
the granite and its deposition as
a clay layer. The coarse quartz
seemed unaltered.

Gleichenia locally dominant.
dwarf form; young growth coppery red

prostrate, pale green

rosette white

prostrate, spikes erect

prostrate, leaves fleshy

forming small hummocks

prostrate, leaves rather firm, berries
translucent orange-red

erect, flowers white, leaves reddish-green

plant reddish

NZ 1949

27th February

1 30709

Haloragis depressa
common on peat

3

10 *Microtis intermedia* var. *reflexa*
at edge of bog

V V

27th February

Parahihi Reserve (Parahihi Rocks) just
north of mouth Parahihi river, south
of Westport

30711

steeped cliffs of hard stratified
limestone wet by salt spray; *Phormium*
tenax dominant in most places, back
of it a low mixed forest, with

5

11 *Crassula uniflora*
occasional at top of cliffs

4

12 *Asplenium australe*

Top of cliffs

A *filiforme*

det. P. M. S.

34

13 *Senecio repens*

Locally very abundant on tops of cliffs

3

14 *Selliera radicans* Cav.

Locally abundant on tops of cliff

4

15 *Labellia anura*

round tops of cliffs in shaded places

2

16 *Saxifraga*

common on top of cliff

1

17 *Euphorbia glauca*

common round top of cliff

det. M. S.

prostrate, plant reddish, flowers
dark red.
erect, fruit pale grey-bluecharacteristically wind-blown
habit, quite moist
and mossy.It and succulents dominant
on open cliff faces, both seaward
and around huge blow-holes
in rock.strongly aromatic herb, knarled at base,
leaves somewhat fleshy, flower heads
white.prostrate, stems & petioles succulent
only slightly aromatic when crushed;
flowers white. fruit immature
prostrate forming mats, flowers
purple pinkish white.

prostrate forming mat, flowers white

prostrate to ascending, flowers
purplish-pink.prostrate, berries orange-red translucent
leaves firm-sub-fleshyplant very glaucous, stems red, flowers
purplish-black.

H. L. 1949

27th February

3. 30718 *Mesembryanthemum australe* Sol.
common round tops of cliff

- 1 19 *Tillandsia usneoides*
at top of cliff

- 2 20 *Centropogon*
climbing over old stump in edge of low woods

- 3 21 *Carex tenuis*
in low woods, common

C. Greyreuther, 27th Feb. 1949

3. 30722 *Drymonia colorata*

23 Jan. south of Stafford, south of Kuonara
north east of Kokitika 27th.

large open bog, fairly recently
burned over.

2. 30723 *Dracophyllum articulatum*
rare.

- 1 24 *Clusia grandifolia*
common, mostly past flowering

- 1 25 *Cyrtopodium ramosum*
common

- 2 26 *Grosseria opulenta*
very common on peat

prostrate, leaves fleshy, triangular
in cross-section

plant red, leaves fleshy with green tip,
buds pinkish

prostrate, flowers yellowish, leaves
fleshy, fruit orange-red.

caespitose, spikes drooping

leaves very glaucous beneath, bronze-
purple above, fruits green. - used for
room decoration.

erect from recumbent base, flowers white

rays white

prostrate, fruiting spikes erect
plant red

N.Z. 1949

21st February.

4. 30727 *Prosera biata* Lab.
occasional2 28 *Carpha alpina*
occasional1 29 *Hetera dicentraefolia* *dichondraefolia*
rare3 30 *Juncus acuminatus*
dominant in many parts of bog1 31 *Gnossia pumila*
edge of bog2³ 32 *Plectrum penna-marina*
edge of bog1 33 *Thelymitra* sp. (not *T. longifolia*?)
occasional in bogKaitake 27th February.4. 30734 *Desmodium sp.*
Small sand dunes back of beach

What appears to be *Desmodium*
is dominant here on these
dunes (also on the dunes at
North Beach and New Brighton
near Christchurch) -
probably planted.

plant erect, flowers white

small very dense tufts

prostrate pale green, fruits orange fleshy,
leaves thin.

caespitose, flowers brownish

leaves bronze green, fruits bright red.

fertile fronds erect

at the edge of bog, (Dune)

bracts yellowish golden yellow

Nov 1949

C

28th February

River, just south of Ulaikha

Partly alluvial land, very weedy.

1. 30735

Sentia discandropolia dichondraefolia

2

36

Carex

common

2.

37

Juncus planifolius

occasional

C

28th February Lake Daulta

Moist road cut in *Dacrydium* forest.

3. 30738

Sentia discandropolia

C

28th February South end base of Mt. Hercules

Moist road-cut in forest

3. 30739

39 *Sentia*

Mt. Hercules scenic reserve
is a fine example of river-rata
(*Dacrydium-Metrosideros*)
forest. Partly tall forest of
this type, partly scrubby
second growth.

this land is being turned
over by a gold dredger. (*Mytilus*)

prostrate, leaves pale green with silvery hairs;
stems

erect, culms ascending

leaves flat

Prostrate, leaves rather firm, bright green;
fruits orange-red translucent.

Prostrate, leaves orange-red; leaves p. bright green
above, pale beneath.

N2 1949

21st February

Frang Josef Glacier

Sparsely shrubby vegetation on frost lateral
moraine within a few feet of the edge of the glacier 750 ft

6. 20740 *Canariana sarmentosa* *C. rubra*

dominant plant of scrub

3 41 *Veronica salicifolia*

occasional

2 42 *Oleum aviculariifolia*

occasional

1 43 *Coprosma rugosa*

occasional

1 44 *Polystichum arctatum*

rare

1 45 *Canariana prostrata*

rare; under *C. sarmentosa*

2 46 *Epilobium glabellum*

occasional in scrub

4 47 *Yuzula compacta*

common

4 48 *Fuchsia multiflora*

common

1 49 *Gnaphalium lutescens*

rare

2 50 *Lychnis viscaria*

common

1 51 *Epilobium prostratum*

occasional

2 52 *Veronica perfoliata*

common

1 53 *Hebe flaccida*

one plant has crashed by its movement

1 54 *Campanula*

occasional

shrubs 2 m tall; stems & main branches
lenticular & opposite branches on same plant
shrubs 1 m tall; in bud only

shrubs 1 m tall; in bud only

shrubs 1.5 m tall; shrubs

At. 2000

prostrate

leaves reddish green, flowers pinkish white.

caespitose

caespitose, pale green

heads brownish

prostrate, flowers white

prostrate

prostrate, flowers white
with ascending branches

all are here sterile

28th February

Valley below Franz Josef Glacier 2500-3000 ft
 wooded valley walls; terminal moraine
 filling bottom of valley covered with scrub
 of *Leptospermum*, *Olearia*, *Coprosma* etc.

- 3⁴ 30455 *Coprosma rugosa*
 co-dominant on moraine
- 2 36 *Lonicera compacta*
 bank of loose moraine material
- 1 57 *Linnaea borealis*
 common on banks of loose moraine material
- 4 58 *Gaultheria repens*
 as scrub on moraine
- 2 59 *Antennaria dioica* *dichondraefolia*
 clumping on stumps in scrub on terminal moraine
- 1 60 *Vicia filicaulis*
 on dead stump in scrub on terminal moraine
- 2³ 61 *Pratia angustata*
 clumping on stumps & fallen logs
- 1 62 *Carex* *colusa* *plumosa*
 occasional in scrub on moraine
- 4² 63 *Cornicostella obtusa*
 co-dominant in scrub on moraine
- 4 64 *Gnaphalium* *hirsutum*
 common on banks in forest & scrub
- 3⁴ 65 *Pratia angustata*
 abundant along roadsides in forest
- 1 66 *Mazus holatum*
 on roadsides in forest
- 1 67 *Quercus* *rostrata*
 occasional on roadside in forest
- 2 68 *Leptospermum* *paniculatum*
 common on roadsides in forest

The rock in this area, both
 on the sides and in the glacial
 alluvium, is of a finely
 banded gneiss.

erect shrub 2 m tall; fruits pale blue

loosely caespitose

flowers green.

shrub 2 m tall; fruits immature

stems bronze, lower
 prostrate, parts green; flowers greenish

prostrate, roots whitish.

~~erect~~ prostrate; flowers white, purple
 fruits

prostrate, fruits black, shiny

shrub 3 m tall, flowers fragrant, purplish white
 with deep purple spot on banner
 decumbent at base; flowering stems ascending

forming a loose mat; flowers white.

deep rooted flowering branches ascending, upper
 lip of corolla deep purple lower lip white
 with paler yellow dotted with red.

erect shrub 2 m tall; flowers white

N 2 1949

1st March 1949.

1. 30782 *Pragnus radicans*
on open mossy bank in scrub on moraine
2. 83. ~~Larrea~~ *Larrea bidwillii* F. D. W. C.
on open mossy bank in scrub on moraine
- 2 84 *Olearia asif ilicifolia*
dominant in scrub on moraine
- 2 85 *Monarda cunninghamii*
in deep grass on trail-side, common
- 3 86 *Malvastrum uniflorum*?
on open mossy bank in scrub on moraine, abundant
- 1 87 *Larrea divaricata*
epiphytic on tree trunk in forest

March 1st.

On wet cliffs north side of Waila River
just below Franz Josef Glacier
Thick-banded gneissic rocks.

2. 30788. *Polypodium biddulphii*
on vertical rocks
2. 3 89 *Adiantum* (m. numbers 30801, 30802)
on bare open rocks
- 1 90. *Corysanthes*
on mossy bank
- 1 91. *Larrea bidwillii* F. D. W. C.
on wet cliff
- 1 92. *Thelypodium longifolia*
on moss patches on bare open rock slope.
- 4 3 93. *Veronica*
on eel of cliff
- 1 2 94. *Belamcanda* (?) C. bellidifolia
on wet cliffs
- 3 95. *Lycopodium obscurum*
steep rock slope

S 20.

- leaves marked with purple
corolla with upper lip deep purple, lower white,
with pale yellow with red spots.
- leaves glaucous sub-fleshy; flowers white.
stems deep maroon-purple.
- shrubs 2m tall, leaves stiff, very
much crisped; ray flowers white.
- deep-rooted aromatic herb, flowers white
- erect, tallest ones supported on surrounding
plants.
- to branching; flowers yellowish-green, corolla
funnel-form

The vegetation here is a very
sparse scrub growing in
moss patches on the bare rock.
Its sparse character is evidently
due to lack of soil rather than refrigeration.

- erect clump, up to 3dm tall; flowers greenish-
white
- leaves pale green; stems succulent
- leaves glaucous, sub-fleshy; stem maroon-purple

det. D. W. C.

prostrate with ascending branches

prostrate, stoloniferous

main stems prostrate, leaves distichous, fruiting
branches erect.

H. L. 1949

1st March 1949

4. 30796. *Lycopodium volubile* Kuhn & B. Pitt
steep rock slopes
3. 97. *Lycopodium ~~bellandieri~~ bellandieri*
on edge of large rock in deep shade
2. 98. *Lycopodium ~~distichum~~*
common on steep open slopes
1. 99. *Epidendrum ~~puberulum~~* Kuhn
epiphytic on tree fern trunk
2. 30800. *Hymenophyllum ~~angustatum~~*
epiphytic on tree fern trunk
3. 4. 01. *Asplenium ~~longifolium~~*
on bare rock slopes, occasional (with numbers 30801, 30802)
3. 02. *Asplenium ~~longifolium~~*
on bare rock slopes, occasional (with numbers 30801, 30802)
2. 03. *Selagin ~~rupestris~~*
abundant on wet cliffs

1st March

Kalong below Franz Josef Glacier. Rocks & debris on river bank

2. 30804. *Pratia ~~arguta~~* ^{growing with 30805}
growing with 30805 among rocks
3. 805. *Pratia ~~arguta~~*
growing with 30806 among rocks
3. 06. *Pratia ~~arguta~~*
common between rocks

1st March - same

So. Ellsworth terrace of moraine material with tangled, wet, mossy forest of *Fuchsia*, *Androsace*, *Scheuchzeria* etc.

1. 30807. *Ranunculus*
on mossy rocks

extensively creeping & climbing on bushes

large clumps; younger branches erect, older ones pendent.

erect from prostrate rhizomes buried in moss

flowers greenish yellow, base of lip dull orange

H. L. 1949

erect shrub 2 m tall

erect shrub 2 m tall

compitose

prostrate; flowers white, fruits purple.

prostrate, flowers white, fruits ~~purple~~ immature

glaucous green herb with strong axis odor

V.L. 1949

1st March

- 1 30808 *Polypodium dichroanthum*
epiphytic
- 3 09 *Polypodium gracilentum*
epiphytic on tree trunks
- after the 1000 ft. 10 *Tricholena*
on gravel by river
- 3 11 *Carpodites*
common on mossy banks
- 8 12 *Methosideros* *undulata*
common tree in forest
- after the 2000 ft. 13
5 in deep moss on large rock
- 6 14 *Hymenophyllum* *costatum*
epiphytic on tree trunks
- 2 15 *Centia discolorifolia* *dichondrofolia*
epiphytic on tree trunk
- 3 16 *Cakeia glabra*
occasional
- 1 17 *Polypodium* *in shade of forest*
- 4 18 *Leptopteris superba*
shaded bank
- 3 19 *Ceprosia foliifera*
in undergrowth in forest
- 1 20 *Carpodites serratus*
common in forest
- #5 21 *Passerulus hirtus*
in shaded banks
- 4 22 *Hypericum* *sp.*
in shade along trail
- 2 23 *Blechnum flaviatula* *flaviatula*
common in shaded banks
- 1 24 *Schefflera digitata*
a dominant tree in forest

ALL Ranges *Rhynchos glaucus*, main vein black,

prostrate, matted, flowers greenish.

stems succulent

ALL Ranges large tree recently fallen. Stamens & petals white.

ALL Ranges

leaves bright green above, paler beneath, thin

shrubby tree 4 m tall; dissected leaves
or sucker sprout; flowers white, fragrant,
slender shrub 1 1/2 m tall
rhizome erect, fronds dark green.

slender shrubby tree 4 m tall; fronds imbricate

large tree; flowers white.

ALL Ranges petals yellow, shiny.

plant spreading, flowers white

dark green, white fronds erect

small tree, purple pendant, flowers greenish
(large perianth characteristic of this region)

- 1 30835 *Blechnum lanceolatum*
common on shaded banks
- 3 36 *Blechnum Pattersonii* *is. utriculatum*
common on shaded banks
- 4 37 *Veronica* *swollenia repens*
moist shaded banks
- 4 38 *Gymnophyllum dilatatum*
common, epiphytic on tree trunks
- 1 39 *Ophiodon wrightii*
rare on moist shaded banks
- 5 30 *Asplenium bulbiferum* Forst. f.
common in shaded places
- 1 31 *Herteria discolorifolia* *dichondraefolia*
shaded banks along trail
- 1 32 *Herteria*
shaded banks along trail

Mar. 2 - Waiho, valley below
Franz Josef Glacier
thick woods on alluvial plain

- 4 33 *Uncinia*
common along trails
- 3 34 *Pennantia cornubosa*
occasional
- 1 35 *Drimys colnata*
cultivated as hedge around hotel

For good description of the
vegetation and list of species see
L. Cockayne & E. Teichelmann
The Glacial Reserves of Westland
Appendix C of Ann. Rept. on
Scenery Preservation for year ending
Mar. 31 1930-31-32, 1930

- fronds dark green
- fronds dark green
- prostrate with ascending branches; flowers
white with purple dots on lower lip.
- fronds pendent
- fronds
erect, mottled purple & green
- rhizome erect, fronds dark green becoming abundant
young plants.
- prostrate, leaves bright green above, pale beneath,
thin
- prostrate, leaves bright green, firm

large clumps

juvenile form, shrub
2 m. tall.
trimmed to hedge 1 m. tall,
leaves variously purple;
ripe fruit black, fleshy.

H 2 1949

3rd March

Along Daengahua River 8 mi. S.E. of
Repton 900 ft altitude

- 4 30826 *Brachylaena*
 climbing over bushes in clearing in hathofagus forest
- 37 *hathofagus* forest
 isolated tree along river in clearing

3rd March

Maruia Springs, Maruia River, S.W. of Lewis
Pass, 1880 ft. altitude.
 dense hathofagus forest

- 2 30828 *Rogersophora*
 common along trail under trees
- 3 39 *hathofagus*
 bank below road, edge of forest
- 1 40
 along trail under trees, occasional
- 4 41
 common along trail in forest
- 2 42 *hathofagus*
 one of dominant trees in forest

black & white photos - beech forest
 + people

swoody vine, fruits black, fleshy eaten
 while very fleshy.
 densely branched tree about 10m tall

black & white photos of beech forest

rays white

prostrate; leaves thin, bright green above
 pale below; sterile
 rays white, disc yellow.

stem decumbent to ascending; plant without
 strong odour.

tree 15m tall + 10cm thick. Sterile.

N.E. 1929

3rd hands

Lewis Pass 3962 ft.

Lathropus (cont.)

- 30848 *Arctostaphylos* (probable hybrid between *A. parviflora* +
A. purpurea)
edge of ~~road~~ clearing
- 44 *Lathropus cliftonii*
edge of road clearing
- 45 *Lathropus cliftonii* (?)
edge of road clearing
5. 46 *Rubus*
roadside
5. 3. 47 *Helictes Helictes*
shaded roadside

S. Co.

Black + white photos of
society (Terry Greene - Spencer Hwy)Shrub 12 in tall. Ripe fruits flesh pink
(*O. rosea*, noticed nearby.)

small tree, brown white beneath

Shrub 3 in tall, brown green beneath.

prostrate, forming loose mat, flowers white,

prostrate, flowers white.

1944 N. 3.

Ecological characteristics of N. 3. plants.

Fuchsia excorticata - early successional member, coming in fern-land, or leptospermum, or scrub. Common along stream bottom-lands where it is often dominant, especially so in Westland, S. I. Fruit is food of large fruit-pigeon.

Schefflera digitata - comes in where light gets into forest, especially along roads & trails, where it is often dominant, at least in Westland. Flowers abundantly as a shrub but as forest grows up, becomes a fair tree. Varies from place to place, esp. in leaf size and complexity of panicle.

Dracophyllum - this genus has a remarkable development in N. 3. Many species. Usually characteristic of scrub, though occasionally in open forest. Usually seem to be two or more species together or only partially isolated, forming swarms of hybrids. Dominant in many places above timber-line, or in sterile areas such as serpentine.

Nertera - two common ones - one is *N. dichondraefolia*, the other *N. cunninghamii*, *granatensis*, *depressa*, or whatever. In the North Island it looks rather distinctive, with dark green color and pointed leaves. In Westland of S. I. it is very hard to be sure that it is not just a variant of *N. granatensis*. The two grow together, but do not seem to cross, though *N. dichondraefolia* varies in hairiness. They both probably are normally rare inhabitants on forest floor or on old logs and stumps, commoner on walls of stream ravines, bogs, landslides, etc. Opening up of trails, and partial destruction of forest, etc. have increased both of them, and they then become somewhat weedy, though not as much so as in the Andes. I am not at all sure that the other N. 3. species, except *N. setulosa*, are good. The latter ~~has~~ has long flowers and is said to have a dry (or usually dry) fruit. The fruit should be examined carefully, and the whole plant compared with *Corymba*.

Books on N.Z.

Old New Zealand by
F. E. Manning Christchurch, etc.
Whitcomb & Tombs Ltd. (repr.) '46

Nothopanax - looks close
to *Cheirodendron*. Details
of fruit and flowers should
be checked. Also Chinese species
must be examined.

N. arborea, especially, but
also *N. simplex* & *N. colensoi*.
are rather early successional
species, coming in in scrub
and *Leptospermum*, even in
Pteridium, and especially
common where light is
let in to forests, as along roads.

Nothofagus - normally
forms rather pure forests,
sometimes of one, sometimes
of several *Nothofagus* species.
Occasionally mixed with
Weinmannia forest. The
undergrowth is normally
sparse, varying to none in
drier areas and to rather
luxuriant herb. of ferns in

wetter areas of Westland.

The flowering plant undergrowth
is mainly microphyllous,
even in wet regions.

Intricately branched micro-
phyllous shrubs are extraordi-
narily common, sometimes only
the juvenile stages are
of this character.

The matter of juvenile
forms needs much investigation
and thought. The diversity
seems much more developed
in N.Z. than elsewhere, but
no pattern is yet evident.
There is also a sexual dimorph-
ism in some of the plants
that is intriguing, but not
at all well known yet.

Podocarpus dacrydioides -
common, dominant tree in
swamp forest on river flats,
occasional on slopes and
as a minor component of
other forests.

Agathis australis - best
remaining stands as in the
Waipoua Reserve, North Auckland.
Considered by some to be a successio-
nal stage, by others as subclimax.

Feb. 6 - Pic du Cassé Com.
Montagne des Sources
16 km. north Nouméa

Islands
Tide
at 10

- 30848 *Callitropsis*
common on top of ridge
- 3149
occasional on top of ridge
- 250
common
~~*Strobilanthus*~~
common
- 51
rare
- 252 *Dacrydium araucarioides*
common on ridge top
- 253 *Araucaria*
common on ridge top
- 254
on ridge top in low scrub
- 255
on ridge top in low scrub
- 456
codominant in vegetation
on ridge tops
- 357 *Lepidospermum Boeckl.*
common
- 258
rare on ridge top

low spreading bushy tree
low shrub, flowers white.
small tree, fls. green.

bracts brown, fruit red

erect, slender, dark green,
2 m. tall (other's larger)
tree 4 m. tall, sterile

low shrub, flowers
greenish yellow, leaves
greenish yellow beneath.
low shrub.
shrub 1 m. tall.

low shrubs, leaves fleshy,
flowers pink
erect

h.e. slope of Pic de Cassé
Cote, 1 1/2 km. n.e. of
Noumea

5/11/60

- 30859 *Calceolarius*
locally common on road cut
60
common in scrub
61
common in scrub
62
common in scrub
63
common in scrub
64
rare in scrub
65 *Agathis ovata*
common in forest

~~very~~ fertile ponds and

1 m. tall.

overhanging

ll.

very yellow

white shrubs

are defoliated.

will green.

there

young

is.

s.e. slope of Pic de Case
com, 15 km. n.e. of
rouma

500m

30829 *Eleocharis*
smaller common on road cut

3 60

4 61

2 62

2 63

2 64

2 65

~~small~~ fertile ponds erect

shrub 2 m. tall.

shrub 1.5 m. flowers all
orange-yellow.

shrub 1.5 m. tall.

flowers dull orange-yellow
unbranched erect shrub
2 m. tall, racemes deflexed.
shrub 1 m. tall, fruit green.

tree 10 m. tall both here
(much larger) young
leaves glaucous.

s.e. slope of Pic de Cassé
 com, 15 km. n.e. of
 Nouméa

500 m

- 30859 *Blackman*
 locally common on road cut
 60 common in scrub
 61 common in scrub
 62 common in scrub
 63 *Black*
 common in scrub
 64 rare in scrub
 65 *Agathis ovata*
 common in forest

~~small~~ fertile fronds erect

shrub 2 m. tall.

shrub 1.5 m., flowers dull
 orange-yellow.

shrub 1.2 m. tall.

flowers dull orange-yellow
 unbranched erect shrub
 2 m. tall, racemes deflexed.
 shrub 1 m. tall, fruit green.

trees 10 m. tall (others
 much larger) young
 leaves glaucous.

Feb. 4 Boulari River, 12 km
e. of Noumea 5000

30866 *Acacia*

common in scrub

3 67.

common in scrub

1 68. *Dacrydium verticillatum*

common in scrub

1 69.

rare in scrub

1 70.

common in scrub

1 71. *Dacrydium grandis*

common in scrub

CONIFERALES of NEW-CALEDONIA

-:-:-

Agathis Ovata
 - Lanceolata
 - Hypoleuca
 - Grandifolia (Moorei)

Dacrydium Araucarioïdes
 - Balansae
 - Guillaumini
 - Taxoïde
 - (Lycopodioïdes)

+++

Podocarpus Longifolius
 - Comptoni
 - Sylvestris
 - Ferruginoides
 - Novae Caledoniae
 - Minor
 - Gnidioides
 - Vieillardii
 - Ustus

+++

Araucaria Balansae
 - Bernieri
 - Cookii
 - Rulei (Pendula)
 - Rulei
 - Montana
 - Muelleri
 - (Humboldtensis)
 - Bidwilli (introduced)
 - Excelsa -id-

+++

Callitropsis Araucarioïdes

+++

Libocedrus Austrocaledonicus
 - Chevalieri

+++

Callitris Neocaledonicus
 - Sulcata

+++

Acropyle Pancheri
 - Alba

+++

Austrotaxus Spicata

1. The first thing I noticed
 when I stepped out of the car
 was the smell of the sea.
 It was a fresh, salty
 breeze that seemed to
 wash over me. I had
 never before. It was
 like a new world.
 I had heard that the
 weather was good, but
 I didn't know it would
 be so perfect. The sun
 was shining, and the
 water was blue. It was
 exactly what I needed.
 I had been so stressed
 at work, but here, in
 this beautiful place, I
 felt like I was finally
 at home. I had found
 what I was looking for.
 I had found peace.

I had found peace. I
 had found what I was
 looking for. I had found
 the answer to my
 problems. I had found
 the life I wanted. I
 had found the love of
 my life. I had found
 the happiness I needed.
 I had found everything
 I had ever dreamed of.
 I had found the perfect
 place to live. I had
 found the perfect people
 to be with. I had found
 the perfect life. I had
 found everything I needed.
 I had found the love of
 my life. I had found
 the happiness I needed.
 I had found everything
 I had ever dreamed of.

FRENCH OCEANIA INSTITUTE

The FRENCH OCEANIA INSTITUTE is entrusted with Scientific Research in the South Pacific, research made in a general frame of scientific research organized by the OFFICE OF COLONIAL SCIENTIFIC RESEARCH.

The OFFICE OF COLONIAL SCIENTIFIC RESEARCH is the Scientific Department of the Ministry of Colonies; its aim is to establish in the whole of overseas Territories a net of accommodations forming a sound material basis for Colonial Scientific Research.

Thus, there is actually:

- In Western French Africa, an Institute of Black Africa in Dakar, with annexes in Senegal, Guinea, Ivory Coast, Mauritania and Gambia.
- In French Equatorial Africa, an Institute of Central African Studies in Brazzaville with annexes in Libreville, in the district of Bangui and the Tchad area.
- In Madagascar, an Institute in Tananarive, with annexes in Tuléar, Antsirabe and St. Paul's Island.
- Institutes in Cameroun and Togoland.

Last, for the Pacific, the FRENCH OCEANIA INSTITUTE, polyvalent scientific establishment, which is to organize and coordinate scientific research in the Pacific area, and more generally:

- to incite, promote and carry out all scientific work interesting the Territories of French Oceania.
- to Assume the relations and collaboration between the French

Oceania Institute and the Scientific Institutions of the Motherland and nearby countries.

Created by a Decree dated August 2nd 1946, the FRENCH OCEANIA INSTITUTE really started work at the beginning of 1948. It has settled in buildings transferred by the U.S.A. in virtue of the BLUM BYRNES Agreement.

The numerous scientific activities which ought to be his, can only be undertaken by degrees, according to a priority list, closely connected with recommendations of the South Pacific Commission.

For the present, the following branches are represented:

- Ecology,
- Biological Oceanography,
- Phytopathology,
- Chemistry,
- Entomology,
- Geophysics.

Other branches are still to make their appearance, in particular:

- Botany,
- Biochemistry,
- Medical Entomology.

Studies are for the present directed towards Applied Research, so as to help development and growth of production, primary conditions for social evolution. In this view, a Consultative Research Council will be soon constituted, one of whose tasks will be to appoint aims of work for the Institute.

The actually working laboratories do not show any definitive appearance; they have just been freshly created. The actual buildings are only temporary, and plans are drawn for the construction of lasting buildings.

Foreign Specialists planning research in the South Pacific will find at the FRENCH OCEANIA INSTITUTE, laboratories and accommodations allowing an immediate start for their work.

low shrub 2-4 dm. fls.
white.
low shrub.

shrub erect

erect, unbranched, flowers
white.

shrub 1 m tall, flowers
whitish.

shrub 1 m tall, fls. to
branches with red

Feb. 4 Boulari River, 12 km.
e. of Noumea 200 m

30866. *Scaevola*

common in scrub

67.

common in scrub

68. *Dracophyllum verticillatum*

common in scrub

69.

rare in scrub

70.

common in scrub

71.

Dracophyllum gracile

common in scrub

low shrub 2-4 dm; fls.
white.

low shrub.

shrub erect

erect, unbranched, flowers
white.

shrub 1 m tall, flowers
whitish.

shrub 1 m tall, fertile
branches with reduced
leaves.

The serpentine area of N.C. includes much of the southern part. It is of green serpentine rock with a surprising thickness of dark red soil formed on it. This has been deeply eroded as a result of fire destroying the vegetation.

The vegetation is of much interest. The serpentine may be immediately spotted by the dropping out of the ubiquitous ngauli which is everywhere on sedimentary soils. At low altitudes, possibly because of burning, the vegetation is a scrub, with greatly mixed composition. Higher up, forest of *Spermolepis gummifera* is dominant. In the upper parts of this forest *Araucaria* of several kinds, *Agathis*, *Dacrydium*, *Callitropsis*, etc. come in. Where not burned this forest, though rather sparse, has considerable stature. On the tops of peaks and ridges it is dwarfed by wind exposure.

Edges should be investigated for dwarfing of invaders from sedimentary areas.

On the sedimentary areas seen, in the vicinity of Noumea and over to Tontouta, the ngauli, *Melaleuca leucodendron*, is the most obvious tree. It is favored by the universal habit of burning. It does not ordinarily form dense stands, but rather open savanna-like woodland. Where not burned, a thick growth of guava, etc. comes in under it. It was not apparent what would happen if this were allowed to proceed, as no area seen had been free from fire that long. The papery bark of the ngauli is evidently very resistant.

At low elevations and along rivers *Casuarina equisetifolia* is mixed with this. Almost all plants seen in the lowland are introduced. The common pantropic things are much favored.

The mangrove swamps are rather young in appearance. Much of the old delta land is fresh and has not been colonized. It would be of interest to know if its serpentine origin is the reason.

✓✓ March 6 - Canton I. a round
headquarters settlement
quite a number of
species have been planted
here, and in the shelter
of the buildings have
done quite well
all on coral rubble.

all on
coral rubble
marked last
(and kept for)

30277. *Scaevola* ^{*taccada* (Gaertn.) Roxb.} ~~*frutescens* (Pill.) Krause~~
planted around building

30278. *Euphorbia hirta* L.
common in dooryards

79. *Cordia allodora* L.
planted about buildings

15. *Terminalia catappa*
planted

76. *Casuarina glauca*
planted

77. *Tamarix aphylla*
planted

78. *Coccoloba uvifera*
planted, abundantly

79. *Terminalia* ^{*catappa* (L.) Presl} ~~*catappa* (L.) Presl~~
planted

80. *Euphorbia mustrata* L.
common about buildings

a dry atoll, completely
closed except for a single
gap with a small inlet
in it, with rather shallow
lagoon divided by irregular-
ly transverse reefs into
a roughly polygonal pattern.
Possibly wind turbulence may
determine this. Apparently
no original arborescent
vegetation except possibly
Messerschmidia. Planted
trees of *Coros*, *Terminalia*
catappa, *T. litorea*, *Coccoloba*
uvifera, *Tamarix*, *Casuarina*,
Scaevola, etc. have reached
tree size.

Tree-like, 5 m tall.

Fls. & fruits white.

small tree, flowers
yellowish.

small tree, stems.

small tree (yellowish)

small tree (yellowish)

small tree, quite green.

small tree fruit immature.

prostrate

- 70341 *Portulaca oleraceae* L.
common about settlement
82. *Leucaena glauca* (L.) Benth.
occasional about houses
83. *Bravaisia diffusa* L.
common
84. *Passiflora chrysantha* (L.) Benth.
occasional, possibly planted
85. *Euphorbia hirta* L.
rare about buildings
86. *Digitaria pruriens* Stapf
rare, about buildings
87. *Cordia subcordata* Lam.
planted, not thriving
88. *Ficus tiliacea* L.
planted

- fluffy, fls. yellow 8 mm.
across, petals not lobed.
stamens 10.
- low shrub, not thriving
prostrate, flowers white
- small tree, fls. 5 mm.
flowers white.
acts as a ladder to the
nest
- shrub.
- tree 5 m. tall, flowers
yellow, stigmas black-
maroon

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March 26 - Barcroft Reservoir
Several spring flowers
are coming out - *Hedysotis*
caerulea, *Viola kitaiibelliana*,
Epigaea repens, *Lithospermum*
virginianum, *Acer rubrum*,
Potentilla simplex? *P. canadensis*.
Water is higher than it
has been this winter.

In a small ravine running
into the reservoir is a silty
pool about 2 m. by 5 m. which
has some water plants
and a large accumulation
of dead leaves. *Spirogyra*
is abundant.

Dead leaves and plant
parts were collected from
the pool in a manner that
would correspond to collecting
of Pleistocene plant remains
in a small lens of somewhat
consolidated mudstone.

These leaves, etc. are roughly
grouped under #30889 with
letter designations which
may be subdivided later,
and roughly determined.

- 30889 a *Acer rubrum*
occasional
b *Fagus grandifolia*
common
c *Kalmia latifolia*
occasional
d *Pinus virginiana*
rare
e *Carya*
occasional
f *Liriodendron tulipifera*
rare
g *Sassafras albidum*

ECOLOGICAL HERBARIUM
WASHINGTON-BALTIMORE AREA

Locality Barcroft (Alexandria) Reservoir,
2-3 mi. s. of Falls Church on Holmes Run,
Fairfax Co. VIRGINIA
Occurrence Silty pool about 2 m. by 5 m.
in small ravine running into Reservoir
Date March 26, 1949 Alt.
Coll. F. R. Fosberg No. 30889
Remarks Dead leaves and plant parts collected
from pool in a manner that would correspond
to collecting of Pleistocene plant remains in
a small lens of somewhat consolidated mudstone.

- h *Quercus alba*
rare
i *Quercus alba*

March 26 - Parcroft Reservoir
 Several spring flowers
 are coming out - *Hedysotis*
caerulea, *Viola blanda*,
Epigaea repens, *Lithospermum*
virginianum, *Acer rubrum*,
Potentilla simplex? *P. canadensis*.
 Water is higher than it
 has been this winter.

In a small ravine running
 into the reservoir is a silty
 pool about 2 m. by 4 m. which
 has
 an
 of a
 is
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 and

- 30889 a *Acer rubrum*
 occasional
 b *Fagus grandifolia*
 common
 c *Kalmia latifolia*
 occasional
 d *Pinus virginiana*
 rare
 e *Carya*
 occasional
 f *Liriodendron tulipifera*
 rare
 g *Sassafras albidum*
 rare
 h *Lindera benzoin*?
 very rare
 i *Vaccinium corymbosum*?
 very rare
 j *Amelanchier arborea*
 very rare
 k *Quercus*
 common
 l *Quercus*
 common
 m *Quercus alba*
 common
 n *Quercus alba*
 common
 o *Quercus alba*
 occasional
 p *Quercus alba*
 rare
 q *Quercus alba*

March 26 - Barcroft Reservoir
 Several spring flowers
 are coming out - *Hedysotis*
caerulea, *Viola blanda*,
Epigaea repens, *Lithospermum*
virginianum, *Acer rubrum*,
Potentilla simplex? *P. canadensis*?
 Water is higher than it
 has been this winter.

In a small ravine running
 into the reservoir is a silty
 pool about 2 m. by 4 m. which
 has some water plants
 and a large accumulation
 of dead leaves. *Spirogyra*
 is abundant.

Dead leaves and plant
 parts were collected from
 the pool in a manner that
 would correspond to collecting
 of Pleistocene plant remains
 in a small lens of somewhat
 consolidated mudstone.

These leaves, etc. are roughly
 grouped under #30889 with
 letter designations which
 may be subdivided later,
 and roughly determined.

- 30889 a *Acer rubrum*
 occasional
 b *Fagus grandifolia*
 common
 c *Kalmia latifolia*
 occasional
 d *Pinus virginiana*
 rare
 e *Carya*
 occasional
 f *Liriodendron tulipifera*
 rare
 g *Sassafras albidum*
 rare
 h *Lindera benzoin*?
 very rare
 i *Vaccinium corymbosum*?
 very rare
 j *Amelanchier arborea*
 very rare
 k *Quercus*
 common
 l *Quercus*
 common
 m *Quercus alba*
 common
 n *Quercus alba*
 common
 o *Quercus alba*
 occasional
 p *Quercus alba*
 rare
 q *Quercus alba*

- 30389a *Quercus mailandica*
occasional
- s *Quercus mailandica*
~~very~~ very rare
- t *Quercus falcata*
common
- u *Quercus rubra*
occasional
- v *Quercus rubra?*
rare
- w *Quercus velutina?*
common
- x *Quercus rubra*
rare
- y *Quercus velutina?*
occasional
- z *Quercus coccinea?*
rare
- ab *Quercus coccinea?*
rare
- ac *Quercus coccinea?*
rare
- ad *Quercus coccinea?*
rare
- ae *Quercus palustris?*
common
- af *Quercus?* twig
- ag *Quercus?* twig
- ah *Quercus?* twig
- ai *Quercus? or Carya?* twig
- aj *Quercus?* twig
- ak *Quercus?* branch
- al *Liriodendron tulipifera* cone
- am *Liriodendron tulipifera* cone scales
rare

- 30389an *Quercus* acorn
rare
- ao *Panicum* leaf
rare
- ap *Sparganium* plant
common
- aq *Sparganium* leaves
common
- ar *Sparganium* plant with
fruit & loose fruit
- as *Panicum* leaf
rare
- at *Typha* plant
occasional with leaves
- au *Panicum* plant with
leaves
rare
- av *Panicum* infl.
- aw *Juncus effusus* plant
occasional
- ax *Juncus effusus* rhizome
common
- ay *Scirpus?* stem with
infl. plants
rare
- az *Scirpus* plants
common
- ba *Scirpus?* plant
- bc *Scirpus?* plant
- bd *Scirpus?* plant

(last 3 are possibly grasses)

- ✓ April 9 - Sleepy Hollow, s. of Buffalo Run, 1 mi. s. Falls Church, old field, with *Andropogon* & young *Pinus virginiana*. *Potentilla* very abundant

30890 *Potentilla canadensis* L.
very common

91 *Potentilla canadensis* L.
occasional

92 *Puccinia*
parasitic on *Potentilla canadensis*

93 *Erythraea canescens*

Most of *Potentilla* has notched petals (30890) but with them are a few with perfectly entire petals (30891). Their habit and leaf shape seems identical. Both are attacked by a rust (30892). Put markers by

3 plants of each.

rooting at nodes of last year's runners. Fls. yellow, petals slightly emarginate fls. yellow, petals entire, rounded at apex.

(also seen on *P. simplex* 3/30/89)

tufted, stigmas green

✓✓ April 15 - Soldiers Delight Ridge,
n. of Ellicott City, Baltimore Co.
outcropping of ~~thin soil~~ ^{serpentine} ~~soil~~
with thin soil, alternating
with strips of deep black
friable soil, ~~in~~ the strips
running more or less n.e.-s.w.
The deep soil strips have
oak woods and bramble tangle.

30894 *Arabis lyrata*
common.

95 *Cerastium arvense* var. *villosum*
common

96 *Hedysotis caerulea*
common

Apr. 16-17 trip to Pine Barrens, N.J.
just north of Marlton is
glauconite along highway.
Reach Pine Barrens shortly
east of this on road to
Barnegat.

Side trip to Chatsworth -
Chamaecyparis bog, 1 mi. s.
on n. Many of trees
show spiraling of wood
of trunk, rt. to left. This
occurs on trees of all sizes
even small ones 1 m. tall.
found down in shelter

The serpentine has *Andropogon*
clumps, dry, as dominant,
with occasional clumps
of *Cerastium*, plants of *Hedysotis*,
Arabis, *Potentilla canadensis*,

~~the~~ *Phlox* and *Taleum* were
not seen anywhere.

Only weed noticed was
a *Trifolium*, prob. *T. repens*.
flowers white

caespitose, flowers
white, petals deeply
bifid.
flowers varying from
pale to blue-lavender,
throat yellow.

of other trees.

Drosera rotundifolia
abundant locally on
sphagnum & *Chamaecyparis*
bases, but tiny plants only.

Arctostaphylos n.-w.
common in rather open
dry places.

On plains pines show
depressed habit, as though
due to wind. But *Quercus maril.*
as merely diminutive well-formed trees.

Quercus ilicifolia in many
places forms understory underlines.

✓✓ May 13, 1949 - Sleepy Hollow
30397 *Myosotis*
weedy roadside, edge of woods.

✓✓ May 15, - head of Broad Creek
Estuary, branch of South River
Wooded bluffs of loose
sandy material above
slightly brackish estuary

2 98. *Lycopodium marianum* (L.) O. Don
opening at top of cliff

2 99. *Vaccinium vacillans* Torr.
opening at top of cliff

30900. *Luzula campestris* var.
just above extreme high
tide level on grassy shore,
foot of cliff. bluff

5 01. *Gaylussacia baccata* (Wang.) Koeberl.
at bottom of bluff

2 02. *Viburnum acerifolium* L.
rare on bottom of bluff

3 03. *Amelanchier arborea*
common on bottom of cliff

2 04. *Myrica sylvatica*
common on cliff

5 05. *Vaccinium stamineum* L.
occasional on cliff

5 06. *Smilax*
in undergrowth on bottom
of cliff

4 07. *Zosterella palustris* var. *major*
in water, 1 m. deep (Boerh.) Focke

erect, flowers white,
with small fold in the throat.

woods largely chestnut
oak (*Q. montana*), *Myrica*,

15 m.

low shrub 3-4 dm. tall,
corolla white.

low, 3-4 dm. tall, somewhat
glaucous, fruit immature.

tuft.

shrub 3-5 dm. tall,
leaves with slightly
oily appearance, fruit immature
shrub 1 m. tall, flowers
white.

large shrub 2 m. tall,
fruit immature
tree 6 m. tall, fls. greenish.

shrub 0.6 m. tall,
leaves somewhat chlorotic
and abnormal in color,
flowers white.

tangled vine, flowers
greenish yellow, stem green,
flowers submerged

May 15 - 1 1/2 m.n. of Plover bridge

- 30908 *Lupinus perennis* L.
3 gravelly soil in burned
over pine forest.

just south of
May 28 - Winsted, Litchfield Co.
2 09 *Pinus resinosa* Ait.
along road, probably planted

- May 28 - Torrington, Litchfield Co.
10 *Hedysotis caerulea* (L.)
edge of sparse wood with
little undergrowth, near
dwelling

- May 28 N.E. corner Norfolk ^{Twp.} just e. of d. end of Benedict Pond, Litchfield Co.
~~11~~ abandoned one year.
old field, open somewhat
grassy, but with *Hedysotis*, *Rumex*
acetosella, etc. dominant
11 *Potentilla simplex*
common

~~leaf~~ clumps spreading
from crown by decumbent
stems, ~~spike~~ racemes
erect, flowers lavender-
purple with deep maroon
purple standard.

dull green, small tree,
5 m. tall, needles
with stiff appearance

mass collection of portion
of each of various clumps,
taken at random, but
with attempt to get all
variations seen - color
varied from definite
blue-lavender to white.
size of plant, shape of leaves,
degree of condensation of
base, size of flowers
vary substantially. - sex
disregarded, color not recorded.

just e. of d. end of Benedict Pond, Litchfield Co.

Flowering or procumbent,
petals yellow, emarginate.

30912

Hedysotis caerulea (L.)
dominant ~~over~~ over large part of
field.

May 29 - Aton Forest, Norfolk,
Litchfield Co.

- 13 *Hedysotis caerulea* (L.)
common in mowed grass
under separated trees near
dwelling.

May 29 Shinn garden, just west of
North Woodbury ^{on road to Northbury}
Litchfield Co.

14

in seepy place in wild
garden, among plants
brought from North Carolina
mountains, established
but not abundant.

May 30 - Hemlock Ridge, $1\frac{1}{2}$ mi.
S. of New Milford, E. side of
Candlewood Lake, Litchfield Co.
mixed *Tsuga*, *Petula*, *Quercus*
woods on ^{rock} ridges, grassy meadows
with many dwarf herbs in
valleys.

- 15 *Potentilla canadensis* L.
~~with~~ old road in woods
growing with #30916, no
intermediates seen.

- 16 *Potentilla simplex* Michx.
old road in woods growing with
#30915, no intermediates seen.

mass collection of
variable population
varying as in #30910,
sampled same way.

Mass collection - taken
at random. population
showed little variation
in color, all being lavender.

flowers white.

prostrate; petals yellow
varying from entire to
slightly emarginate.

erect to arching; petals
yellow slightly to markedly
emarginate.

30917

Hedysotis caerulea (L.)

common in meadow on gentle slopes, but much crowded by dense grass.

18 *Comandra umbellata*

occasional or common locally in meadow.

19 *Potentilla simplex* Michx.

abundant in meadow

20

common in meadow

(21 *Stellaria*

22

23

24

25

patches (obviously clones) in meadow)

June 6 - head of Broad Creek, affluent of South River slightly brackish estuary with wooded bluffs of unconsolidated sediments

26 *Elodea canadensis*

abundant in water 2-5 ft. deep mud bottom.

27 *Iris*

common along muddy shore

mass collection, population variable in color from pale lavender to almost white
erect, flowers white.

erect to procumbent; petals yellow, entire to prominently emarginate. erect, flowers bright yellow.

stems erect to reclining, varying from patch to patch; flowers white, varying as much as 200% in size, segments of petals varying in width, anthers orange-red.

rooted in bottom, flowers floating on surface, perianth above surface. large clump, 1 m. across, flowers purple - sepals recurved purple distally, white ~~lined~~ ^{veined} with purple toward base, greenish at base, petals lavender ~~lined~~ ^{veined} with purple; filaments purple with white margins; appendages purple, incurved.

19

200

1947 Maryland, Virginia

309

30928

4

Potamogeton perfoliatus
common, gregarious, in
water 2-5 ft. deep, sandy muddy

2

29 *Brachyleytrum erectum*
rare or
sparsely wooded bluff

1

30 *Danthonia spicata*
occasional on sparsely
wooded bluff

3

31 *Deschampsia flexuosa*
fairly common on wooded
bluff in shade

1

31a *Panicum*
occasional generally

2

32 *Festuca myuros?*
common on sterile open
flat above bluff

3

33 *Festuca octoflora?*
common on sterile open
flat above bluff

3

30932 & 30933 grow
together, do not intergrade
and are distinguished
without difficulty.

2

✓✓

June 7 - just west of Lee Boulevard Heights,
n.e. of Falls Church, Fairfax Co. Va.

2

✓

34 *Coreopsis*
roadside, edge of thicket

✓✓

June 7 - Fort Buffalo, Sleepy Hollow
area, 1 mi. s. of Falls Church
weedy roadside

3

35 *Apocynum cannabinum* L.

Anne Arundel Co.
Fairfax Co.

(201)

rooted on bottom, spikes
held above the surface

bottom.

1 m

large tuft, panicles
with spikelets somewhat drooping
old leaves curly

6 m

6 m

tufts

5 m

culms & leaves straight

15 m

erect, panicle strict,
spike-like, reddish.

15 m

erect to ascending, lower
panicle branches tending
to be deflexed, pale green,
no tendency to be reddish.

erect, branched from root crown,
rays bright golden yellow.

deep rooted, erect, leaves
ascending, flowers cream-white.

1949 Virginia

30936 *Smilax glauca*
common

37 *Panicum*

38 *Panicum*

39 *Panicum*

June 11 - mainland across
from north end of Columbia Island
Potomac River, Arlington Co.

Riverbank thicket of small trees
and weedy undergrowth; sterile
denuded flat and road fill.

40 *Morus alba* L.
common in thicket

41 *Fraxinus americana*
rare in thicket

42 in undergrowth in thicket

43 ~~occasional~~
occasional in thicket

44 *Spergularia*
occasional on sterile flat,
especially on pile of fine crushed
stone.

45 *Geranium*
rare on sterile fill

46 *Rorippa*
occasional on flat and at edge of thicket

Fairfax Co. - Arlington Co.

vine, leaves glaucous beneath
variegated with dull gray-green
above; flowers dull yellow.

small tree 20 cm. thick, 5 m. tall,
abundantly fruiting, fruit black
when ripe; bark with yellowish
cast. (one tree fruiting, most sterile)

small tree 10 cm. thick, 5 m. tall.

branched from base; fruit immature

erect, flowers yellow.