RECORD

Collection and Field Note Book

No. 24

(May 3, 1946 - June 9, 1949)

(30147 ---- 30~~1~~9146)

(see next page)

3 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 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 office ~~are~~ is in another just forward. In about 10 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 stroage 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, Mack, 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 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 incompetence of the outfit.

The scientific personnel are mostly OK 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, competant, 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.

Hozalra - 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.
Aki - Hawaiian fisherman, assistant to Smith - certainly the personality of the party.
MacMillan - horticulturist and expedition director - of Roerich Expedition note - is so 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 Sails 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.

13 Sighted Eniwetok at 8 a.m. Got in before noon. The skipper, Trueblood + MacMillan went ashore. The rest of us got ashore in the middle of the afternoon. The lagoon is full of ships. Floating drydocks, tankers, tugs. all manner of things. Eniwetok Island is completely denuded - covered by quonset huts.

Had a good dinner, met a young ~~Lieutenant Angle~~ ~~but Bishop, who~~ was quite excited to meet

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

Bishop, Hall, Alpert ~~[illegible]~~ came from Kwajalein.

14 Waited around all morning and finally got off in a small landing barge for Guam. 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 BOQ hut. Met a young lieut. Angle, who was quite excited to meet someone mentioned in the Leaning Wind. Talked to him till midnight.

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

15 Went to Japtan I. on 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 Asman 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 cowries 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 cowries $1.25. 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 ~~to~~ 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 amputating 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 Kalapeth, took them to

Dracophyllum spp., Celmisia spp. and near
endemic Ranunculus enysii.

On the shingle slips we may find Orasp
sclerophylla, Ranunculus haastii, Anisotome
Stellaria roughii, Notothlaspi rosulatum,
H. sinclairii, Lobelia roughii and Epilobi
epacridea, H. lycopodioides and H. tetrasti

The Raoulia eximia association grows a
on greywacke rock. Plants often found epip
Celmisia spectabilis, C. viscosa, Aciphylla
flavescens.

At the Castle Hill reserve where an ar
fenced to preserve the locally endemic Ranu
also occur Notothlaspi rosulatum, M. Colens
acicularifolia, Lepidium sisymbrioides, Ore
(var. rigida), Anisotome enysii, Carmichael
Novae-zealandiae, and Senecio haastii.

DUN MOUNTAIN LINE.

NAMES OF TREES AND LARGER SHRUBS.

(By F. G. Gibbs.)

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 gracilenta, 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., Hierochloe 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.

Roman. Then came for us. When we got almost back to Roman bush

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

Geranium
repens, Wahl
sinclairii,
Chrysobactron
Senecio belli

Discaria
Carmichaelia
among the shr

And of s
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Helichrysum s

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the creek the local
edia alpina, Poa
carnosula, Cotula atrata,
Hanstia recurva or
um pycnostachyum, Hebe
cha may also be found.
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hytic in the cushions are
colensoi and Danthonia
ea has been specially
nculus puncifolius, there
oi (syn. decore), Poa
omyrrhis andicola
ia monroi, Crepis

Tentifically 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. **Schefilera 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 (interpetiolar 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 fasciculantum** 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, rosmarininifolum 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

Pittisporum 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

Aristotelia 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. **Aristotelia fruticosa** with its reddish bark is one of the densely twiggy plants to be found on the mineral belt. **Elaeocarpus 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. **Melicytus ramiflorus**, the maitoe 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 Banskii**, 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 Cotensoi** [illegible] green flowers, drooping [illegible] less rigid leaves, grows on the [illegible] belt. The beautiful mistletoe, which [illegible] 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 prickle 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 Cotensoi**, 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.

you cannot 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-surfaces, 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 8 miles 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 194 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.

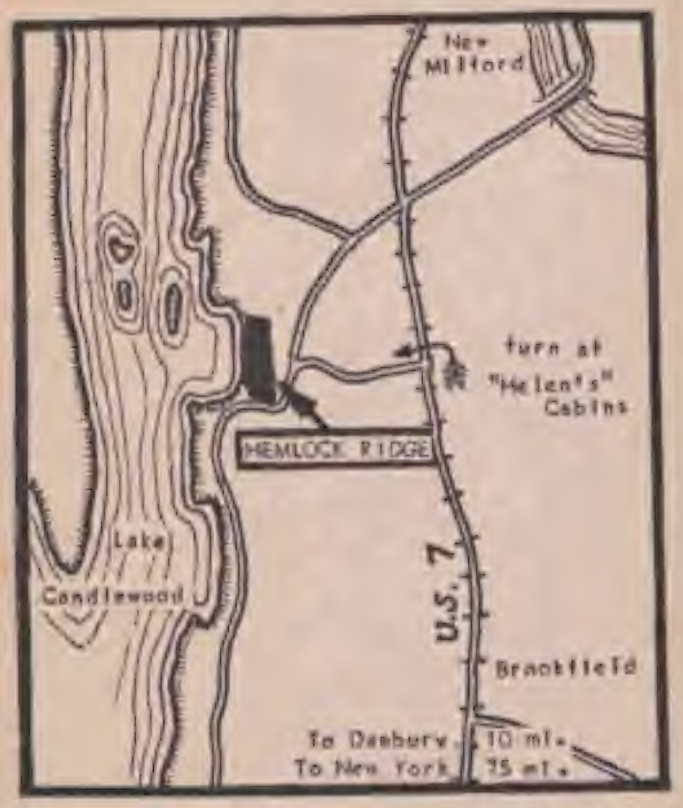
1. MANUKALAND. Found near the margin of the Belt and comprising stunted species common to the adjacent forest, such as Griselinia littoralis and Nothofagus fusca. Then there are other shrubs, not so reduced; these are :- Cassinia Vauvilliersii var., Coprosma propinqua, Pseudopanax longifolius var. and Leptospermum scoparium var. In this association there are a number of small herbs, e.g. Claytonia australasica, Celmisia multicaulis and Hebe salicifolia var.

2. OPEN SCRUBLAND. Here occur the most characteristic plants, Cassinia Vauvilliersii var., Dracophyllum rosmarinifolium, Leucopogon Fidellii, Hymenanthera dentata var. alpina, Veronica buxifolia var., V. Benthamii var., V. pinguifolia var., Pimelea suteri and Muehlenbeckia axillaris. The herbs are :- Myosotis Dunrei, Notothlaspi australe, Gentiana corymbifera, Anisotome aromatica and A. filifolius.

3. TUSSOCK GRASSLAND. The dominant plant is Danthonia Raoulii var.; sub-dominant are Phormium Cookianum and Astelia montana var.

The above information is adapted from a paper by H.H. Rutts, in the Transactions of the N.Z. Institute, pp. 230-245, 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



HEMLOCK RIDGE ON CANDLEWOOD LAKE

May 22

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

May 17 - 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 presses. Terrifically hot down in No. 2 hold. Intended to write a report on Eniwetok but didn't get to it.

May 22

" Sept. 30 – 2 mi s. of ~~Dranesville~~ Fairfax, Fairfax Co.
pine woods with the usual association of Chimaphila, Goodyera, Mitchella, etc.

30147 Mitchella repens L.
abundant on ground under pines.

prostrate, dark dull green, fruit scarlet. One fruit with one calyx-lobe or 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.

" 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

r n. Tree 10 m. tall, needles mostly in pairs, very occasionally in 3's.

" Oct. 9 – ½ mi. s. of Merrifield, Fairfax Co.
in dense young pine stand.

47 Corallorhiza
occasional in ~~thick~~ clay covered with pine needles

lower petal white, spotted with purple; upper 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 Lauraceae, etc

30 150 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 wa.

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.

1948 Maryland – Va.

Oct. 24 –
Broad Creek, South River
brushy wooded bluff
above tide water 15 m.

30192 Quercus montana
common — 30147

53 Quercus stellata Wang.
occasional on slopes — 30180, 51

54 Quercus alba L.
common — 30889

55 Myrica ~~cerifera~~ pensylvanica Lin.
common — 30909–25 Conn. trip

56 Fagus grandifolia f. pubescens Fernald
occasional — 31022–31099 N. Carolina

57 Quercus marilandica Muench.
common

58 Viburnum acerifolium L.
occasional — all.

59 Carya stellata
occasional — " " " its.

60 Quercus velutina Lam.
occasional — small tree

Oct. 30 – Bancroft Reservoir
Fairfax Co. Va.

56 Pinus
in edge of forest — sapling 2.5 m. tall.

Oct. 31 – South Arlington
Arlington Co.
Abandoned clay pits

62 Quercus
steep slope of brushy bank — shrub 1.5 m. tall

1948 Maryland – Va.

Oct. 24 –
Broad Creek, South River
brushy wooded bluff
above tide water 15 m.

30/192	Quercus coccinea		small tree
53	Quercus occ.		tree 8 m. tall
54	Quercus coccinea		tree 11 m. tall.
55	Myrica cerifera	Lon.	shrub 1 m. tall.
56	Fagus ore.	Rich.	small tree
57	Quercus coccinea	sch.	small tree.
58	Viburnum occ.		shrub 1½ m tall.
59	Carya ovata		stump sprouts.
60	Quercus velutina occasional	dam.	small tree

PLANTS OF VIRGINIA
FAIRFAX CO.

Viburnum

Loc. Sleppy Hollow, 1-1½ mi. S. of FALLS CHURCH east of along Tripps Run. (Lat. 38.8° N., Long. 77.1, 10m. 18s. W.)

Habitat brushy wooded bluff above tidal ground water

Date Nov. 1, 1948 Alt. 30/192
Coll. F. R. Fosberg Det. F.R.F.

Remarks 80 m.

Oct. 30 – Bancroft Reservoir
Fairfax Co. Va.

86 Pinus
in edge of forest — sapling 2.5 m. tall.

Oct. 31 – South Arlington
Arlington Co.
Abandoned clay pits
62 Quercus
steep slope of brushy bank — shrub 1.5 m tall

1948 Maryland – Va.

Oct. 24 –
Broad Creek, South River
bushy wooded bluff
above tide water 15 m.

3	152	Quercus montana common	small tree
2	53	Quercus stellata Wang. occasional on slopes	tree 8 m. tall
3	54	Quercus alba L. common	tree 10 m. tall.
2	55	Myrica ~~cerifera~~ pensylvanica Loc. common	shrub 1 m. tall.
	56	Fagus grandifolia & pubescens Ferns & Rehder occasional	small tree
3	57	Quercus marilandica Muench. common	small tree.
3	58	Viburnum acerifolium L. occasional	shrub ½ m tall.
3	59	Carya stellata occasional	stump sprouts.
2	60	Quercus velutina Lam. occasional	small tree

Oct. 30 – Bancroft Reservoir
Fairfax Co. Va.

	61	Prunus in edge of forest	sapling 2.5 m. tall.

Oct. 31 – South Arlington
Arlington Co.
Abandoned clay pits

3?	62	Quercus steep slope of bushy bank	shrub 1.5 m. tall

1947 - ~~[illegible]~~ Va.

30163 Acer
3 common, invading in some areas of pit

3 64 Ulmus
one seen

3 66 Eupatorium
in dense grass, rare, in low moist place.

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

66 Vaccinium
occasional on steep side of ravine

Arlington Co.

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 - Tripps Run Confluence, wooded valley with dam and reservoir, woods of Pinus virginiana or of oak and other hardwoods, cut by ravines, slopes with Kalmia latifolia and other Ericaceae, some with Polystichum acrostichoides

30 67 Gaylussacia baccata — shrub 0.4 m. tall.
common on slopes with other Ericaceae in deciduous woods

3 68 Hypericum gentianoides (L.) BSP. — dark red
common in recent clearing on disturbed ground

3 69 Berberis thunbergii — shrub 0.8 m. tall, fruit scarlet
rare in edge of woods

1 70 Zanthoxylum
common around margins of reservoir

vv Nov. 19 - east of Tripps Run, 1 mi. s. of Falls Church, second growth thickets

3 71 ~~Paulownia tomentosa~~ catalpa — shrub 1.5 m. tall.
occasional

3 72 Lonicera morrowii Gray — shrub 1.5 m. tall.
occasional

3 73 Cornus amomum Mill. — shrub 2 m. tall, stems dark reddish.
occasional in low places

3 74 Alnus serrulata Willd. — shrub 2.5 m. tall.
common in low places

3 75 Acer rubrum L. — small tree 4 m. tall, stems red.
common

3	76	Fraxinus americana common locally in low place	small tree 4 m. tall, young twigs olive-gray.
3	77	Diospyros virginiana L. common	young tree 2 m. tall.
3	78	Catalpa rare	young tree 4 m. tall.
3	79	Viburnum prunifolium L. common	tree 5 m. tall
3	80	Viburnum local	shrub 2.5 m. tall
		Nov. 20 Bancroft Reservoir, Holmes Run, Fairfax Co. rolling wooded area	
1	81	Prunus rare	shrub 1.5 m. tall.
1	82	Rhododendron nudiflorum (L.) Torr. local, on rocky knob	
3	83	Amelanchier local in deciduous woods	shrub 3 m. tall, buds dark red.
4	84	Rhododendron just above high water level, margin of reservoir	shrub 1.5 m. tall
3	85	Corylus occasional in thin woods	shrubs 1 m. tall.
4	86	rare in woods	shrub 1.5 m. tall.
1	87	Epifagus about base of large tree of Fagus, in patch of Fagus on rocky knoll	enlarged base fleshy
1	88	Lambucus canadensis wet low place	shrub 1 m. tall

3	0189	Lindera benzoin common in low places	shrub 2 m. tall, aromatic when broken forming solid patches.
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 saccharinum L. common	shrub 2 m. tall (others are trees), twigs green.
3	92	Morus alba L. common	spreading bushy tree 5 m. tall, larger branches yellowish-olive; leaves on ground, but not dried up yet.
✓✓		Dec. 4 - Columbia Pike 1½ mi. w. of Bancroft Dam, s. w. of Bancroft 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.	dried.
	94	Chimaphila maculata (L.) Pursh. very common	leaves dark dull green with pale markings

1947 Virginia
1949

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

30195 Populus — slender tree 9 cm. thick, 7 m. tall, bark olive gray; 23 annual rings.
3 common close to reservoir

3 96 Populus — young sapling 1.5 m. tall.
common close to reservoir

1 97 Buddleia — slender shrub, sparsely branched, 0.7 m. tall.
rare, one plant seen in clearing in woods near reservoir.

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

1 98 Andropogon — caespitose, somewhat spreading
rare, with # 30199

2 99 Andropogon — caespitose, erect
common, dominant

vv Jan. 16 - Between Leesburg Pike and Bancroft Reservoir

30200 Saccharum sinense — large clumps, erect, 2 m. tall.
C.2.
abundant, completely dominant in old fields in this vicinity, spreading sparingly into woods.

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 Makaweowes 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 Makaweowes

to the lowest point in the im, 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. (?) 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)

1949 - Canton I. (Phoenix group)

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

F.A.F. & E.H. Walker

Around the air base is extremely disturbed coral rubble with patches of Cenchrus echinatus and Cleome indica. With this are some Portulaca (cluteo (+ oleracea?)), Boerhavia diffusa, Lida fallax, and one patch of extremely dwarfed tufts of Tragoselin whitneyi (vel aff.).

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

30201 Lida fallax Walp.
abundant, forming low scrub

02 Cenchrus
abundant, forming dense patches

03 Sesuvium portulacastrum L. or prostrate, ~~leaves more broad~~

04 ~~Sesuvium~~ Sesuvium portulacastrum
abundant on saline flats near inner beach

05 Sesuvium portulacastrum or prostrate

06 Tragoselin whitneyi Fox.
abundant locally near inner beach

Sesuvium portulacastrum of.

13227 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 was the lagoon beach, one flat of Sesuvium portulacastrum, Tufts of Sesuvium, Cenchrus, Tragoselin and Lida were abundant and locally were a close growth (and grayish green?). "Sesuvium erect (and grayish green) or less erect, very stiff, prostrate, leaves more or less white, flowers green. Flowers

1919 – Carnton I. (Phoenix Is.)

Sacrificium portulacastrum L.

13224 N. side of lagoon.
Christmas Island Dec. 19, 1936

30203, 30204, 30205 Canton Island

"Jan. 30-31 dropped at Canton for an hour and a half in the middle of the night. To the north of the field was the largest area of plants of Sacrificium portulacastrum I've seen, covering half a square mile. Leaves fleshy like the leaves generally more or less erect (and grayish green?)."

prostrate, stems more or less erect, very thick, generous quantities of milky white latex.

mean circumference 4 feet

P.S. Sacrificium portulacastrum is not the Cactaceous Portulacastrum, it is a euphorbia, unfortunately unknown to Fosb. abundant towards the mean high water mark

near inner beach "

Potamogeton pectinatus in pond

with Cragostis ochroleuca Fab.

abundant locally near inner beach

Missing

30301 Sida fallax
06 Eragrostis cilianensis
07 Boerhavia diffusa
08 Portulaca lutea
09 Portulaca
11 Euphorbia
15 Triumfetta procr.
16 Euphorbia hypericifolia
18 Cuscuta cuscifolia
40 Blechnum filiform (but look at 30340 - lacks of name!)
30311 Nostoc
40 Euphrasia curvata
80 Veronica tetragona
87 Drosera
87 Drosera
90 Schizaea fistulosa
96 Osmunia colensoi
30445
30547 Carmichaelia
77 Erechtites glabrescens
92 Wahlenbergia
30621 Podocarpus
34 Nothofagus solandri
39 Galium
56 ~~Lab~~ Nothoscordasci
64 Veronica
65 Hymenanthera
83 Pittosporum dallii
30702

less than right no. sheet
30725 Dianella
50 Pseudopanax crassifolium
57 Phyllocladus glaucus
65 Muehlenbeckia
67 Epipsilis bimalus
70 Solanum aviculare
30323 ~~Hel~~ Leptoplax hymenophy.
36 Hydrocotyle
43 Claoxylon hookeri
51 Griselinia littoralis
58 Pittosporum colensoi
61 Elytranthe tetrapetala
76
30411 Veronica
15 Ancistrum aromaticum
29
33 Gunnera
89 Trichomanes
30520 Acaena
56 Schoenus pauciflorus
60 Olearia rhinophylla
64 Aciphylla macrocarpa
69 Phyllocladus alpinus
30767 Dracophyllum
73 Elaeocarpus

Tufts stiff

30816 Eragrostis pectinacea
abundant locally

Missing

30201 Sida fallax
06 Cragoretia schlechtery
07 Boerhavia diffusa
08 Portulaca lutea
09 Portulaca
14 Euphorbia
15 Triumfetta procr
16 Euphorbia hypericifolia
18 Emilia sonchifolia
110 Blechnum fluviatile (but look at 30340 - seems of same!)
30311 Nostoc
42 Euphrasia curvata
80 Veronica tetragona
87 Drosera
88 Drosera
90 Schizaea fistulosa
96 Ourisia colensoi
30445
30547 Carmichaelia
77 Erechtites glabrescens
92 Wahlenbergia
30621 Podocarpus
24 Nothofagus solandri
29 galium
46 ~~Lab~~ Nothochlaspi
64 Veronica
65 Hymenanthera
73 Pittosporum dallii
30702

less than eight on sheet
30725 Dianella
50 Pseudopanax crassifolium
57 Phyllocladus glaucus
65 Muehlenbeckia
67 Epimiflos lanceolatus
70 Solanum aviculare
30723 Callitriche hymenophyll.
72 Hydrocotyle
73 Elaeocarpus hookeri
51 Griselinia littoralis
58 Pittosporum colensoi
61 Elytranthe tetrapetala
76
30811 Veronica
15 Ranunculus amphitricha
29
83 Gunnera
89 Trichomanes
30920 Acaena
56 Schoenus pauciflorus
62 Olearia ilicifolia
64 Ourisia macrocarpa
69 Phyllocladus alpinus
30767 Dracophyllum
73 Elaeocarpus

30722 Drimys winteri
76 Drosera
92 Veronica
93 Veronica
30807 Ranunculus
10 muehlenbeckia
11 Campanulas
37 Uncinia
41 Pennantia corymbosa
35 Drimys colorata
36 muehlenbeckia
37 Nothofagus fusca
38 Hagenopsis
39 Metrosideros diebondnaefolia
40
41
42 Nothofagus menziesii
43 aristotelia
44 nothofagus cliffortioides
45 nothofagus cliffortioides?
46 Pratia
47 Helichrysum

30743 Carmichaelia
30805 Pratia
30 Asplenium bulbiferum

quickly and characteristic.
On the beach Tumbiania
is cast up in quantity.
To the east of the field,
near the lagoon beach,
are flats of Sesuvium
portulacastrum, quite
variable in leaf size
and shape, but with
the leaves generally more
or less erect (and gapingly so?)
Away from the beach is
an area of low
scrub of Lida fallax(?)
about 0.7-1 m. tall.
Around some of the
buildings Pluchea odorata
is very well established,
with one bush about
1 m. tall and many
smaller ones, flowering.

shrub 0.7 m. tall: flowers
orange.

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

tufts stiff

1949 - Canton I. (Phoenix group)

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

+ R.F. & 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 (cluteo (+ oleracea?)), Boerhavia diffusa, Lida fallax, and one patch of extremely dwarfed tufts of Eragrostis whitneyi (vel aff.).

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

quicksand character. On the beach Tribulus is cast up in quantity. To the east of the field, near the lagoon beach, are flats of Sesuvium 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 Lida fallax (?) about 0.7-1 m. tall. Around some of the buildings Pluchea odorata is very well established, with one bush about 1 m. tall and many smaller ones, flowering.

3020 1	Lida fallax Walp. abundant, forming low scrub		shrub 0.7 m. tall; flowers orange.
03	Cenchrus abundant, forming dense patches		
03	Sesuvium portulacastrum L. var. ~~prostrate, leaves more or less erect~~	genuinum	prostrate, leaves more or less erect, very thick, glaucous green. flowers white.
04	~~Sesuvium~~ Sesuvium portulacastrum abundant on saline flats near inner beach	var. genuinum	
05	Sesuvium portulacastrum var. genuinum		
3026	Eragrostis whitneyi Fosb. abundant locally near inner beach		tufts stiff

1949 Canton I. (Phoenix group)

30207. Boerhavia diffusa L.
common near inner beach

08. Portulaca lutea Sol.
common locally in fields and

09. Portulaca oleracea L.
occasional near inner beach

10. Pluchea ~~odorata~~ (L.) Less.
flourishing along roads
buildings near air strip

11. Cenchrus echinatus (L.) Gaertn.
very common in disturbed
places.

17. Cenchrus echinatus L.
very common in disturbed
places.

12. Leptochloa uniflora (Forst.) R.Br.
common

13. Tribulus cristatus
washed up in abundance on
inner beach

14. Euphorbia
rare around buildings

15. Triumfetta procumbens Ford.
occasional

16. Euphorbia ~~hypericifolia~~
rare gemmifera (Mell.) Oliver

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 Fosb.

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
& E. H. Walker
Remarks tufts stiff

erect.

1949 Canton I. (Phoenix group)

30 20 7. Boerhavia diffusa L.
common near inner beach — prostrate

08. Portulaca lutea Sol.
common locally in tide rock — erect, stems 2-2.5 cm. thick.

09. Portulaca oleracea L.
occasional near inner beach — prostrate or somewhat ascending.

10 Plumbea ~~zeylanica~~ (L.) Lag. — shrubs 1-2 m. tall,

11

17

12

13

14

15. Triumfetta procumbens Ford.
occasional — prostrate.

16. Euphorbia ~~hypericifolia~~ zhmuigere (Willd.) Klotz
rare — erect.

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

Remarks E. H. Walker

 1949 Canton I. (Phoenix group)

30 no 7. Boerhavia diffusa L. — prostrate
common near inner beach

2 08. Portulaca lutea Sol. — erect, stems 2-2.5 cm. thick
common locally in tide sands

" 09. Portulaca oleracea L. — prostrate or somewhat ascending.
occasional near inner beach

" 10. Pluchea ~~[illegible]~~ (L.) Less. — shrubs 1-3 m. tall, highly aromatic
flourishing colony around [illegible]

" 1 [illegible] of

" 1 [illegible] bef

" 1 [illegible]

2 1 [illegible] m

no 1 [illegible]

1 1 [illegible] ret. — bundles (some much taller than specimens)

occasional

3 16. Euphorbia ~~hypericifolia~~ prostrata (Willd.) Wheeler — prostrate.
rare

~~15~~

 1949 Canton I. (Phoenix group)

30 20 7. Boerhavia diffusa L. common near inner beach	prostrate	
3 08. Portulaca lutea Sol. common locally in bids sub	erect, stems 2-2.5 cm. thick.	
09. Portulaca oleracea L. occasional near inner beach	prostrate or somewhat ascending.	
10. Pluchea ~~odorata~~ (L.) Less. flourishing colony among buildings near airstrip	shrubs 1-3 m. tall, highly aromatic.	
11. Clausia indica (L.) Gaertn. very common in disturbed places.		
17. Cenchrus echinatus L. very common in disturbed places.		
12. Leptochloa uspens (Ford) R.Br. var. subulata common	branches (some much taller than specimens)	
13. Tribulus cristatus washed up in abundance on inner beach		
14. Euphorbia rare around buildings		
3 15. Trianthemetta procumbens Ford. occasional	prostrate.	
3 16. Euphorbia ~~hypericifolia~~ johnsoniana (Millsp.) Wheeler rare	erect.	

1949 Fiji

Feb. 1 – flew from nadi 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

30-18 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 used by Miscanthus, cattle paths abundant on slopes. This end was doubtless much drier, and has been burning [illegible] nests [illegible] begin [illegible] land [illegible] at lodge [illegible] common [illegible] west [illegible] lly, and [illegible] sion at [illegible] is evident [illegible] stern part [illegible] are [illegible] ing two.

[illegible] not [illegible] the small [illegible] ith the [illegible] ntermediate.

No lithothamnion reef evident at outer edge of barriers.

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

1947 Fiji

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.

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lower courses mostly drowned.

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

Nandi, Viti Levu
30x18" Erythrina sandwicensis
common around buildings at airport

this becomes a broad fringing reef.

The western third of Viti Levu is open, very hilly or mountainous, probably overgrazed by Mikanthus, cattle paths abundant on slopes. This end was doubtless much drier, and has been burned a lot. In the forests adjacent to this region Albizzia 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.

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

The Erythrina here is not identical with the small E. sandwicensis, or with the Kauai E., but intermediate.

No lithothamnion reef evident at outer edge of barriers.

[Grape fruit mailed to Baldwin]
flowers lilac, not much exceeding inflorescence.

1949 Fiji

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 invariably 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 Miscanthus, cattle paths abundant on slopes. This end was doubtless much drier, and has been burning a lot. In the forests adjacent to this region Albizzia 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.

In the southwestern part of this open part are scattered casuarinas.

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

No lithothamnion reef evident at outer edge of barriers.

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

1949 New Zealand

~~Feb~~ Feb. 4 - hills south of Piha

low scrub of leptospermum scoparium, Olearia, Veronica, gahnia, etc. on rather dry hills near ocean.

30 219 Veronica macrocarpa Vahl
common in

3 20 Cladium complanatum Berggr.
occasional in

3 21 gahnia gahniaeformis Hell.
occasional in

4 22 Schoenus brevifolius R.Br.
common in

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

3 24 Coprosma robusta
common in

~~Dianella intermedia~~
~~occasional in~~

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

~~lower and gullies and low bluffs backs of them~~

manuka woods and brush on slope.

3' 25 Dianella intermedia
rare in brush

3 26 Pterostylis banksii
local, ~~in~~ terrestrial in

~~27~~ Manuka woods

4 27 Genistoma legustifolium
one plant seen

North Island

Leptospermum scoparium R. Br.
var. Dawsoni

shrub 1 m. tall

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.

erect

shrub 1 m. tall

1949 New Zealand

30 28 5	Leptospermum ericoides ~~common~~, dominant	by Lake	tree 8 m. tall, flowers with petals white, fragrant:
"	same - second growth mixed woods.		
	~~29 Lycopodium~~		
2 29 ~~30~~ 7	Pteris scabrinodis ~~[illegible]~~ common in waste open spots	At Flaxton	
4 30	Centella uniflora common hanging over edge of road cut		prostrate, sub-fleshy, fruits dull red-red.
5 (31	Lycopodium cernuum climbing on tree-fern trunk in open edge of woods.	At Flaxton	
1 32	Lobelia anceps rare on roadside		flowers pinkish
1 34	Wahlenbergia gracilis occasional along road at edge of woods		flowers bluish-violet.
4 35	Coprosma robusta common in woods		shrub 2 m. tall, leaves pale beneath; fruits immature
1 33	Olatostema rugosa rare in deep shade		leaves purplish.
	~~36 Meliceptus~~		
1 36	Asplenium lasum flabellatum on trunk of tree fern	At Kenilworth	pendent
1 37	Schefflera digitata ~~to~~ in woods	At Maleny	small tree, 6 m. tall. buds green.
38	Coprosma australis common in woods		small tree, fruits juicy, orange

1947 No. 7.

3 30237	Melicytus macrophyllus Alum. in woods, in undergrowth		small tree or large shrub, fruits white purplish on one side.
4	40 Blechnum filiforme Ett. climbing on tree trunk		sterile and fertile fronds alternately dominant on stem
7	41 Uncinia uncinata (L.f.) Kik. common in small opening		
2	42 Nertera "depressa" in shade under trees		prostrate, leaves thin, deeper green than usual, young fruit.
1	43 Nertera dichondraefolia in shade under trees		prostrate, dull green, stems slightly brownish.
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		arching shrub 2 m. tall, flowers bronze-green.
3	47 Aristotelia serrata occasional in bushy woods		small tree 5 m. tall, ripe fruit black, fleshy.
2	48 Podocarpus dacrydioides common		small tree 6 m. tall, fruit immature; foliage somewhat juvenile.
1	49 Podocarpus dacrydioides - in deep shade		juvenile form, leaves distichous
4	50 Pseudopanax crassifolium common		juvenile form, plant 2 m. tall
5	51 Pseudopanax crassifolium common		small tree, 3 m. tall, flowers green.

No. 8

1949 M. J.

30252	Agathis australis common (formerly dominant in forest)		tree 10 m. tall, cones immature.
2	53 Asplenium lamum in deep shade, epiphytic		pendant
1.	54 Lycopodium billardieri epiphytic		pendent
4	55 Melicytus ramiflorus occasional in woods		small tree 5 m. tall; ripe fruit purple.
2	56 Geniostoma ligustrifolia occasional in undergrowth	a. cum.	slender shrub, fruit immature
2	57 Phyllocladus glaucus rare (P. trichomanoides)		small tree, sterile.
3.	58 Melicytus micrantha rare		shrub 1.5 m. tall: flowers greenish-white
5	59 ~~Metalasia~~ Metrosideros perforata climing on tree-trunk,	(scandens)	thick climbing shrub, stamens white.
2	60 Veronica salicifolia (Hebe) Forst. f. rare on slope		shrub 2 m. tall; flowers white slightly purplish, fragrant.

(W) Feb. 4 Piha

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

2	61 Cyperus ustulatus common on bluffs (Isolepis ustulata (A. Rich.))	(Bulb.)	caespitose.
5	62 Juncus maritimus common in depressions in dunes		densely caespitose
2	63 Convolvulus soldanella common on dunes and ~~[illegible]~~ foot of bluffs (Calystegia)		prostrate

30 + 64 Leucopogon fasciculatus
34 on exposed bluff
5+ 65 Muehlenbeckia complexa
common
5 {66 Spinifex hirsutus labill.
5 {67 dominant on outer dunes
just above wet part
of beach.
~~67 Cassinia~~
~~common on dune~~
4 68 Cassinia leptophylla
common on dunes
69 Coprosma repens
occasional on dunes

1 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 wood has been largely cleared off, and a broken down second-growth forest, manuka bush, 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.

56 7 heavy running stems
17 8 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 Vites, particularly, are covered with epiphytic ferns, Astelia, and Collospermum as well as with Freycinetia 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.

N.Z.

Conspicuous species in this broken-down forest are Rhopalostylis, three species of Melicytus, Dacrydium cupressinoides, Vitex lucida, Coriaria ruscifolia, Fuchsia excorticata, several Pittosporum species, Coprosma robusta, C. Pseudopanax crassifolium, Nothopanax, Olearia, Piper, Freycinetia, 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 gahniaeformis, Cladium compressum, Schoenus brevifolius, etc.

Large trees 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 41 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
c/o The Director of the Botany Division
D.S.I.R., 8 The Terrace,
Wellington, N.Z.

1949 N.Z.

c vv Feb. 5 The Cascades
Whitakere Range

Partially logged kauri (agathis) forest on slope, relatively dry except in ravines, but with many epiphytes.

30271		Piper excelsum common in second-growth bush	aromatic shrub 3 m. tall, ripe fruit yellow
1	72	Tmesipteris tannensis epiphytic at base of tree in lichen cushion	semi-pellucid.
2	73	Metrosideros florida (M. perforata) edge of woods	shrub 1 m. tall, erect, ~~flowers~~ stamens white.
1	74	Pepehdnia (williamsii H. Wolf) epiphytic in forest	fleshy, leaves pale beneath.
1	75	Alsendosmia (spinulosum?) woods on slope	shrub; fruit green
2	76	Blechnum fraseri in deep woods on slope	terrestrial.
3	77	Myrsine (divaricata) in open lower slope near stream	shrub 3 m. tall, leaves slightly bronzed, strongly twisted undulate.
2	78	Drodya media on cut bank above road	

1949 N. Z.
Islington Bay,

Feb. 6. Rangitoto Island, Auckland Harbor.

This is a recently extinct volcano (est. 400 years since last eruption) composed of scoria and a lava that is practically unweathered. It is said locally that arborescent vegetation began a little 200 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. Myoporum is also common, Griselinia, Nothopanax, Pseudopanax, Podocarpus, 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.

Along the shore are Avicennia growing on solid rock, strips of which look much like an Andean relic; Phyllanthus australis, Coriaria australis (dominant), etc.

The other small island Motutapu, across Islington Bay, is of different structure, consisting of horizontal sandstone beds. It has been completely denuded except for the 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 cattle-grazing

1949 N. Z.
Islington Bay,
Feb. 6 Rangitoto Island,
Auckland Harbor
low sparse forest of
Metrosideros excelsa on
scoria substratum

30	279	Wahlenbergia on bare lava rock, in crevices	root fleshy; flower white.
1	80	Peperomia wallerana rock crevices	fleshy
1	81	Psilotum nudum (P. triquetrum) rock crevices, uncommon	small tufts or single stems.
1	82	Asplenium flabellifolium rock crevices, rare.	"walking" habit.
1	83	Dianella intermedia rare	fruit deep purple
3	84	Cladonia sp. abundant on bare rock	
3	85	Styphelia (Cyathodes) acerosa common	shrub 1.3 m. tall, fruit white, depressed-globose.
3	86	Usnea rubescens common on trees	
3	87	Cladonia pyxidata common on rocks	
3	88	Dodonaea viscosa rare	small tree 3 m. tall (others seen to 7 m.)
3	89	 common on rock	
3'	90	Solanum aviculare occasional	shrub 1.5 m. tall; ripe fruit scarlet.
3	91	Sophora tetraptera occasional	tree 5 m. tall
1'	92	Salicornia australis dominant on ~~rock~~ scoria at water's edge	terete, green; flowering spikes slightly larger than stems

30293	Myrsine Suttonia australis subdominant in forest		small tree 3 m. tall; ♂
4	94 Myrsine Suttonia australis subdominant in forest		small tree 3 m. tall ♀
5	95 Metrosideros excelsa dominant tree		tree 5 m. tall.
1	96 Pellaea rotundifolia occasional on rocks		
	98 Wahlenbergia albomarginata rare		flowers white.
	~~97 Stipa~~		
	97 Avicennia resinifera common in edges of salt water		shrub 2 m. tall; flower dull yellowish-reddish-white, fruit yellow, cotyledons deep green.
3	~~99~~ Stipa stubifolia common above water's edge		
30300	(E. Dun) epiphytic on tree-trunk		
1	01 Mesembryanthemum australe along shore	Sal. to A.L.	
3	02 on disturbed scoria in bed of old quarry		
2	03 Metrosideros excelsa x robusta both parents are present on the island.	M. robusta	
2	04 Epilobium junceum on disturbed scoria		flowers pink.
3	05 Nothopanax arborum occasional	Pa. arborum	small tree 3 m. tall, strongly aromatic when bruised, buds purple-maroon, producing abundant mucilage
3	06 Nothopanax arborum occasional in	Pa. arborum	small tree 3 m. tall, strongly aromatic when bruised, fruit maroon

Dicephyma australe leaves terete-triangular

shrub 1.5 m. tall; flowers greenish

30907	Griselinia littoralis		shrubby tree 4 m. tall,
1	occasional in		steril.
3	08 Olearia arborescens	O. furfuracea	shrub 2 m. tall; rays
	occasional in		white
3	09 Pseudopanax colensoi		small tree 3 m. tall,
	rare, near shore	P. lessonii	flowers green.
✓✓	Feb. 6 – Motutapu Island,		
	Auckland Harbor		
	decomposing sandstone		
	bluffs and talus with melanoidero excelsa		
1	10 Drosera media		harsh texture
1	11 Nertera	D. candida	
	wet ground on causeway		
1	12 Carex		
	talus		
2	13 Carmichaelia		seeds red.
	occasional on cliffs		
4	14 Cassinia		small weak shrub,
	common on cliffs		heads white.
3	15 ~~Hall~~ Halorhagis erecta		much branched and herb
	rare on talus		prostrate
3	16 Richondra repens		
	in shade on talus		
1	17 Polystichum vestitum		
	in shade on talus		
2	18 Pteris macilenta		
	in shade on talus		
✓✓	Feb 3 Auckland		
	cultivated		
3	19 Pisonia brunoniana		

1949 M. J.

Feb. 8 – Waikato River

This valley is entirely cleared and in pasture & 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.

Lonicera japonica on the grounds.

In the cave Tusidens 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 fall in the river, in, or hold out from its waters.

Feb. 8 – Rel. Taupiri & Ngaruawahia

An open field, not recently grazed, is filled with a great assemblage of weeds. Interesting is a swarm of bitter gallicas, varying from white to maroon with narrow white or pink margin and every possible intermediate.

—

It hauls thereon and deserves 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 seems from the river entrance far inside.

The limestone here is massive, conformably stratified.

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

3	20	Blechnum lanceolatum terrestrial		
1	21	Botrychium occasional in woods		
2	22	Hymenophyllum flabellatum epiphytic on tree trunks		
3'	23	Leptopteris hymenophylloides terrestial		dark translucent green
4	24	Weinmannia racemosa common in woods		small tree, 7 m. tall.
1'	25	Polypodium common, epiphytic		
3"	26	Hydrocotyle local in shade		prostrate
3	27	Athyrium common, terrestial		variable
3"	28	Beilschmiedia tawa dominant tree in forest		tree is 20 m. tall, fruit immature, pendent.
1	29	occasional in shade		

Kodachrome of this forest
390 m. + of Maori meeting house

1949 N.Z.

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

30 330 Pteris (Pteris) [illegible]
common at edge of forest

1 31 Blechnum fluviatile
in shade

3 32 Coprosma tenuifolia
common

3 33 Blechnum vulcanicum
occasional in woods

1 34 Juncus tenuicaulis (shade ref.)
in wet trail

2 35 Galium aparine L.
in weedy thickets at edge of woods

1 36 Cyperus Isolepis inundatus
in wet trail

2 37 Uncinia uncinata
in shade

1 38 Schefflera digitata
in undergrowth

5 39 Polypodium diversifolium
climbing on tree trunks

1 40a Blechnum filiforme
in shade, rare

1 40b Microlaena avenacea

2 41a † Nelsia exsticata
second story of forest

N.Z.

770 m. Kopiaki (name of place) (Maori name for the kit fe fruits)
(just before this bedstraws (on rolls 1-2) of deforestation)

PLANTS OF NEW ZEALAND
NORTH ISLAND

Blechnum filiforme
Sm.

Locality just above Raurimu, toward National

PLANTS OF NEW ZEALAND
NORTH ISLAND

Potamogeton
sp.

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

Occurrence mixed scrub with abundant – pools in stream
on steep slopes and in valleys

Date Feb. 10, 1949 Alt. 1230 m.
Coll. J. R. Fosberg No. 30367

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

tree 6 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 (Rarsia?) common at edge of forest

31 Blechnum fluviatile

32

33

34

35

36

37

38

39 Polypodium' climbing on tree trunk

40a Blechnum filiforme in shade, rare

41a Metrosideros excorticata second story of forest

N.Z.

770 m.

(just below the beech forest (no rolls #1–2) of deforestation)

PLANTS OF NEW ZEALAND
NORTH ISLAND

Blechnum filiforme
Hat.

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 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 (Paesia?) Paesia scaberula
common at edge of forest

31 Blechnum fluviatile

32

40a Blechnum filiforme
in shade, rare
~~40b~~ Microlaena avenacea

41a † Metrosideros excorticata
second story of forest

N.Z.

770 m.

(just beyond this bedaubment (in walls 1–2) of deforestation)

PLANTS OF NEW ZEALAND
NORTH ISLAND

Blechnum filiforme

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 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 M.F.

✓✓ Feb. 9 – just above Rainier, toward National Park Junction
thick forest with dense undergrowth.

30330 Pteris (Pteris?) Pteris aquilina
common at edge of forest

1 31 Blechnum fluviatile

1 32

2 3

1 3

2 4

do

1

2 1

5

1 40c

1 ~~40~~

2 41a † vehsia excorticata
second story of forest

M.S.

770 m. Kalopanax pictum (Aralia pictum)
(just before this bestadnomes (in rolls 1–4) of deforestation)

shrub 2 m. tall;
fruit immature

reclining; flowers white.

small tufts

shrub 1 m. tall.
~~pity~~

tree 9 m. tall, spreading, with exfoliating bark; leaves white beneath; flowers green, purple toward tip of hypanthium, turning bright red; fruit black.

1949 N.Y.

✓✓ Feb. 9 – just above Rauimu, toward National Park Junction
thick forest with dense undergrowth.

3	0 330	Pteris (Pteris?) Pteris cretica		
2		common at edge of forest		
1	31	Blechnum fluviatile		
		in shade		
5	32	Coprosma tenuifolia		
		common		shrub 2 m. tall; fruit immature
3	33	Blechnum vulcanicum		
		occasional in woods		
1	34	Juncus bufonius (black ?)		
		in wet trail		
2	35	Galium aparine L.		
		in weedy thickets at edge of woods		reclining; flowers white.
1	36	Cyperus Eragrostis unioloides		
		in wet trail		
2	37	Uncinia uncinata		
		in shade		small tufts
1	38	Schefflera digitata		
		in undergrowth		shrub 1 m. tall.
5	39	Polypodium serrieffleur		
		climbing on tree trunks		
1	40a	Blechnum biliforme		
		in shade, rare		
1	40c	Nephrolepis cinnamomea		
2	41a	† Weinmannia excoriata		
		second story of forest		tree 5 m. tall, spreading, with exfoliating bark; leaves white beneath; flowers green, purple toward top of hypanthium, turning bright red; fruit black.

				Kohekohe (Meq. of Pl. Forest (?)) (Leaves of Magnoliaceae shape but fe fruits)
			770 m.	(just before this headaches (in rolls 1-2) of depressation)
			Mt. Pauka	
				shrub 2 m. tall; fruit immature
			Mt. Pauka	
				reclining; flowers white.
				small tufts
				shrub 1 m. tall.
			Mt. Pauka	
				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 vicinity of the Chateau
Tongariro National Park
— open tussock + grassland

3/3 4/1 .41 Wahlenbergia albomarginata
common.

1 .42 Euphrasia cuneata
common

Feb. 9 The Chateau,
Tongariro National Park,
Nothofagus forest and
tussock grassland

1 .43 ~~Elaeocarpus hookeri~~ Aristotelia
— shade of forest

2 .44 Phyllocladus alpina
common along edges of forest

1 .45 Dracophyllum
common in zone between
grassland and forest.

.46 Fagenophora petiolata
common in deep shade

3 .47 Nothopanax sinclairii
common at edge of forest

3 .48 Nothopanax sinclairii
common at edge of forest

4 .49 Myrsine divaricata A. Cunn.
common in undergrowth

3 .50 Gleichenia cunninghamii
common locally at edge of forest

4 .51 Griselinia littoralis
common in woods

4 .52 Nothofagus cliffortioides
dominant tree

1600 m. (Rhododendron of Ngauruhoe Vol)
(coll #2)

flowers white; staminodia
— reduced
flowers white with
pinkish throat marked
with purple-brown.

1100 m. ~~the~~ flaky white photos of
Ngauruhoe & Ruapehu

fruticosa — 2 forms of juvenile leaves

shrub 2.5 m. tall

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

~~the~~ rays white.

small tree, with oily-
aromatic odor when
broken.

H. sinclairii
Ch. Park.

tangled shrub 1 m. tall

L. divaricata det. Raven

shrub 2 m tall;
— fruit green.
tree 5 m. tall, branchlets
& leaves apparently distichous.

70 3,53	Achillea millefolium L. rare in eroded places		one plant with pink, one with white rays.
4 .54	Gleichenia circinnata ~~common~~ abundant locally in grassland	G. alpina	R. Br. fide Rawson
1 .55	Coprosma foetidissima occasional in forest.		
1 .56	Polypodium billardieri epiphytic, common.		
4 .57	Gaultheria antipoda ~~on~~ at edge of forest	G. dumosa	dwarf shrub; fruit white.
3' .58	Pittosporum tenuifolium rare in forest		spreading tree 5 m. tall; fruit immature.
3' .59	Coprosma tenuifolia common in forest		shrub 2 m. tall; fruit immature.
7 .60	Haloragis micrantha common locally near edge of forest in grassland		stigmas green, ovaries blackish purple.
3 .61	Elytranthe tetrapetala parasite on Nothofagus		flowers scarlet, petals very easily caducous.
3" .62	Dracophyllum filiforme common in grassland near edge of forest	D. uniflorum	shrub 0.6 m. tall.
3 .63	epiphytic on ~~the~~ Nothofagus 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

N. 3 - 1949

Feb. 10 - ~~Too~~ 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 Nothopanax, Cordyline ~~[illegible]~~ indivisa, etc. sharply to an ~~a~~ ericoid scrub of various genera, such as Podocarpus, Phyllocladus, 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.

C — forest at about 3900'

30364 Nothopanax (Panax) ~~[illegible]~~ — [illegible]

4 abundant, variable

3 65 Aristotelia serrata

rare

3 66 Nothopanax (Panax) simplex

common

vegetation of rather few species, some the same as below but much dwarfed. Trees drop out rapidly above 5600'. At 6000' and above only Helichrysum, Veronica (2 sp.), Dantonia ~~[illegible]~~ [illegible], Gaultheria rupestris, Grimmia ~~[illegible]~~ pulvinata, Coprosma pumila, Celmisia spectabilis, Ionotoma aromatica, Dracophyllum recurvum, Dracophyllum, 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 deposition, the light, easily movable nature of the cinders and pumice and its abrasive qualities, as well as the drainage and possible

at about 4000' — [illegible] (Dantonia) [illegible]

1200 m — shrub 2.5 m. tall, oily resinous fruits green, purple at summit.

[illegible] — tree 3 m. tall, fruit green.

small tree or shrub 2 m. tall

1947 N.Z.

			scrub on ~~[illegible]~~ steep slopes and in ravines
30367			Potamogeton nitrobiogenus Hagström abundant in pools in stream
3	68		Veronica laevis common in lower scrub
3	69		Coprosma perkiloa occasional
5	70		Dacrydium Kirkii common
4	71		Phyllocladus alpina common, locally dominant
3	72		Epacris alpina common locally
1	73		Dacrydium laxifolium common
4	74		Pentachondra pumila common
3	75		Aniseroma aromatica common in moist tussocky vegetation in ravine
4	76		Schizeuma pacifloroa common in moist tussocky vegetation in ravine
1	77		~~Vaccinium~~ Pernettya pumila common
4	78		Hymenanthera (Coprosma) tenuifolia abundant in moist broad bottom of ravine
4	79		~~Vaccinium~~ Pernettya tasmanica common

N.Z.

1130 m. 4000'	rooted, leaves floating, spikes emerged in flower, in water in fruit.
1265 m. 4150'	shrub 0.5 m. tall, flowers lavender.
	shrub, more or less procumbent; ripe fruit orange - mostly green.
1200 m. 4000'	shrub 0.8 m. tall, erect, fruit green.
	shrub 1.5 m. tall, fruit purple
1330 m. 4300'	weak shrub
"	prostrate, fruit green
	low, flowers white, fruit rose-crimson, thinly fleshy, inflated.
"	
"	stems wiry, purple-brown
	shrub 1.4 m. tall, flowers white.
"	
"	shrub 1.3 m. tall; flowers already dry.

1949 N. J.

70380	Veronica officinalis common		
	— alpine dwarf vegetation below fell field		
1	81 Coprosma pumila common but rarely fruit		
1	82 Coprosma pumila common but rarely fruit		
1	83 Euphrasia revoluta? seepy, peaty ~~bluff~~ ledges		
1	84 Forstera bidwillii var. densiflora? seepy peaty ~~bluff~~ ledges		
1	85 Ourisia colensoi seepy peaty ledges		
1	86 Schizeus pauciflorus seepy peaty ledges		
2	87 Drosera common on seepy ~~place~~ ledges and banks		
1	88 Drosera rare on seepy places		
2	89 Oreobolus pedicellatus common on seepy peaty ledges		forming dense mats
1	90 Schizaea fistulosa exceedingly rare in Oreobolus mats on seepy ledges.		
1	91 Pimelea prostrata rare on ash slopes		flowers white.
1	92 Carpha alpina common on seepy wet ash		
3	93 Podocarpus nivalis common on rocky places		depressed shrub; fruit green or red ~~[illegible]~~ fleshy receptacle.

N. J.

		1400 m 4511 ft.	shrub 0.7 m. tall; flowers white.
			1450 ~~1500~~ m. - 1591 m.
			prostrate, flower cream-yellow, ent.
			prostrate; fruit orange 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 wiry, purple-brown

1949 M. J.

2P 3	94	Draperia diffordii common in protected place between & under rocks	
4	95	Dacrydium laxifolium common	
2	96	Carex colensoi common in rocky place	
1	97	exceedingly rare in rocky places in tufts of cushin plants	flowers brange
1	98	Coprosma pumila common in rocky place	prostrate ♀
4	99	Podocarpus alpina common in rocky place	prostrate shrub ♂
3 2	00	Senecio bidwillii common	low shrub
3	01	Celmisia spectabilis common	rays white
3	02	Gentiana bellidifolia occasional	leaves purplish green, flowers white
1	03	Celmisia gracilenta occasional	rays white
1	04	Danthonia colensoi D. bellidifolia common	anthers orange
3	05	Helichrysum bellidioides very common	loose mats
0		— extreme alpine dwarf vegetation around Alp Club Hut	and above 5360' - 6300' 1800m. - 2100m.
4	06	Danthonia colensoi D. bellidifolia very common	tufted
3	07	Poa colensoi very common	tufted

1949 N.Z.

30 4 08 Veronica lanceolata Walp. = Parahebe lanceolata (Walp.) Thiv.
21 common

1 09 Dracophyllum recurvum
abundant

1 10 Luzula campestris
rare in rocky place

3 11 Veronica spicata Sieb. = Pseudolysimachion spicatum
common

1 12 Deutzia Planchonii
rare, in wet ash in dispersion

1 13 Coprosma pumila
common in rocky place

4 14 Gaultheria antipoda var. pumila
very common

9 15 Anisotome aromatica
common

Feb. 11 - The Chateau, Tongariro National Park
tussock grassland

16 Acrophylla intermedia
A. squarrosa

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

loose mats, flowers purple.

prostrate, flowers white

(Hook.f.) Hook.f. var. pumila

prostrate, loose mats, flowers white.
tufts

prostrate ?

var. Mayen 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 mi. away. Next day was cloudy but the rumbling continued, becoming more pronounced and steady

1949 N.Z.

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, forming from a distance like a lava flow.
At 1:10 a.m. there was a terrific explosion and the top blew off the cone (see W.R.B. Chart) and after that no more activity was seen or heard.

Find half of volcano is of Northwestern part in [illegible] of Andesite and Dacite [illegible] and [illegible] pumice.

The whole area traversed in the vicinity of the Tongariro Mt. Ngauruhoe 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 place.
The pumice is gray or white, probably andesitic or dacitic in nature.

1949 - M. J.

Feb. 11 - 3½ miles N. of Petetaka Springs, east of Mangatete Stream, west of Lake Rotoaira

Prairie scrub of Leptospermum ericoides with open ground between 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 ericoides
dominant shrub

" 21 Lagenophora pumila
occasional in openings

" 22 Linum catharticum
common

Feb. 11 - Mouth of Waitahanui Stream, east side of Lake Taupo
~~pond~~ Lake shore dominated by

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

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 (and)

Lycopodium cernuum
dull crimson red, sterile

1949 N. Z.

		Feb. 11 - Waipahihi Stream, Opakaneke, near Taupo Series of hot springs and travertine terraces	springs up to 150°F Robinia pseudo-acacia well-established on wall of ravine.
3	24	Triglochin striata var. filifolia Buch. abundant on wet travertine terrace, warm water	leaves subterete, fleshy; flowers green, stamens yellow.
1	25	Lemna minor L. common on warm wet surfaces of travertine terraces	
"	26	Limpus lonchus L. common in warm marsh	stems terete.
		~~Feb. 11~~	
1	27	Hormidium just above water on sides of hot water channel	dark green, thin.
3	28	Hormidium on travertine terraces around hot water vent.	forming a rubbery thick coating on rock.
		Feb. 11 - Huka Falls, Waikato River, 4 mi. n. of Taupo on rock terraces around falls	The river here ~~go~~ rushes through a narrow inclined natural flume above the falls.
3'	29	Odontites verna var. Bertini (Jord.) Syme common around wet places.	erect, flowers yellow.
3"	30	Wahlenbergia gracilis local on dry ledges	flowers pale lavender
1	31	Linum marginale A. Cunn. rare on dry ledges	flowers pale blue
3"	32	Mimulus rhoschatus common in wet places	tangled succulent stemmed herb up to 1 m. tall supported in other plants.

1949 N. Z.

Feb. 11 – Geyser Valley, Waiwhakaiti stream, 3½ 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. Sm.
forming tangles around geysers and steam vents

35 Nephrolepis cordifolia Pres.
common around warm water and steam vents on mossy banks

36 Mycsine [illegible] (A. Rich.) H. M. R. Wall.
common in thickets

37 Gleichenia linearis
common

38 Lycopodium cernuum
common on mossy banks around steam vents

Feb. 12 ~~[illegible]~~ Whakarewarewa near Rotorua

39 Metrosideros tomentosa
occasional in Weinmannia-Leptospermum forest.

flowers pale gray-blue, fruits gray-blue, almost globose.
apex of leaves pointed, only younger ones show cincinnate rolling.
fronds erect, no tubers seen.

Mt. Hauhungaroa

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

Mt. Tarawera Alt. L. B. Moore

tree 5 m. tall.

N.Z. - 1949

Feb. 12 - Mt. Ngongotaha, Rotorua

Moist forest, largely Beilschmiedia, with some Knightia, Laurelia, Hedycarya etc. with abundant ferns, both epiphytic and terrestrial, but with few leaf-epiphytes.

30440 Dimorphanthera axillaris
rare in forest

41 Collospermum
occasional epiphytic

42 Earina autumnalis
epiphytic

43 Pyrrhosia ~~serpens~~ ~~Drymoglossum~~ (Dry) Hom. at Homebush 1956
epiphytic

44 Hedera sanguinea
common, widely about lower edges of forest along road

45 Elaeocarpus dentatus (Hook.) Vell.
46 Thelymitra longifolia Forst.
occasional on bare earth of cut bank above road

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

47 Gaultheria antipoda
common on brushy banks above road (with 30440)

48 Geniostoma ligustrifolium
common in lower part of forest

Trees 25-30 m. tall, with little undergrowth but somewhat tangled with Rhipogonum.

Pseudowintera colorata (Forst.) Dandy
on leaves

seedling 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 & deep purple within.

fruit white to red (30447) to almost black.

fruit deep red (with # 30446 which is white)

shrub, fruits green.

1949 N.J.

30449 Microlepia strigosa

1 rare on cut bank along road

2 50 Nothofagus arborescens — flowers green.
common in forest, especially around edges. — tree 1 m. tall, fruits reddish black

1 51 [illegible] — purplish gray
on dead sticks

1 52 Polypodium pustulatum
common, epiphytic

1 53 Coprosma australis (Cuda)
occasional in deep woods — slender tree 8 m. tall; fruit green.

2" 54 Trichomanes (aff. venosum)
abundant on vertical rocks in deep ravine in forest

2 55 Rhipogonum scandens — tangled liana, up to 2 cm. or more thick, tough and elastic; fruit orange.
abundant in forest

3" 56 Hymenophyllum demissum
abundant on forest floor

3 57 Lindsaya hymenophylloides
common locally, terrestrial — prostrate, flower greenish.

1 58 Nertera (or Helline)
very rare, on bottom of ravine — rhizome flattened.

3 59 Polypodium pustulatum
common, epiphytic

3" 60 Trichomanes venosum
epiphytic on tree trunk

1949 N.Z.

Feb. 13 - plateau at east base of Te Maehaeanga Mt. east of Lake Taupo
small flat, covered by open scrub of pine
Dracophyllum subulatum

30461. Halorhagis
in open places

62. Acaena
in open places

63. Epilobium
common in open places

64. Geranium
common in open places

65.
occasional

66. Degeneria
occasional

67. Dracophyllum subulatum
dominant shrub

68. Raleanthus biflorus
occasional in open places

69. Raoulia
common in open places

70. Vittadenia off. australis

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

71 Sophora tetraptera
common on terrace slightly above lake

72 Muehlenbeckia australis
on bushes along roadside

slopes around the
covered by Leptospermum

Kodachrome Roll 6

prostrate

(possibly sp.)

flowers white or pink

flowers pinkish-white.

caespitose

erect shrub to 1 m. tall,
flowers white (reveal in collection)
forming cushions

forming flat cushions.

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

1949 N.Z.

Feb. 13 – 4½ mi. e. of Waihonu Hut, Tongariro National Park, e.n.e. of Ruapehu
open tussock grassland

3.0 473 ~~Cassinia~~ Olearia rauhlidiae
occasional

4 74 Agropyron scabrum
occasional.

Feb. 13 – Wangaehu, 8 mi. e.s.e. of Ruapehu

7 75 Muehlenbeckia ephedroides
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

Kodachrome Roll #5
Ruapehu + grassland

7000 m

rounded shrub
c. 6 m. tall; heads white.
caespitose

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

Roll 6 drying 15 min. [illegible]

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. 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 stratum of Hymenophyllum, etc. This scheme, of course, varies locally. Tree ferns of ~~Alsophila~~ 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 chamaede
3v occasional near stream bed

1v 77 Raoulia glabra
rare in stream bed

1v 78 Blechnum membranaceum
on rocks in river bed

1v 79 Veronica cataractae
on steep landslide among ferns

4 1v 80 Blechnum discolor
almost a pure stand in the forest on slopes

4 1v 31 Blechnum nigrum
on wet steep slope in beech forest

3 1v 82 Hypericum elatum
along trail in ravine bottom

3 1v 83 Gunnera prorepens
on wet rocks, ravine bottom

Pseudopanax crassifolium
Nothopanax simplex
Pittosporum colensoi

along the stream Fuchsia excorticata is the most abundant tree, though Myrsine salicina, Coprosma, Melicytus ramiflorus, Pennantia, & Hedycarya are occasional. Podocarpus spicatus, P. dacrydioides, P. hallii and P. totara, as well as Elaeocarpus are occasional on the slope. Raoulia ~~of two species~~ and Pratia are common in the stony stream bed.

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

~~flower~~ fruit immature

fronds ascending on an erect trunk 3-4 dm. tall.

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

1949 New Zealand

32484	Nertera depressa	
1	common on wet vertical rocks	
1 1-85	Stellaria prosoflora	prostrate
	common on wet vertical rocks	
51-86	Drimys axillaris	shrub 3-4 m. tall: leaves somewhat glaucous beneath, fruit green, bark not acid. flowers ~~w~~ creamy white, very fragrant.
	dominant understory in forest	
41-87	Earina autumnalis	
	rare on mossy rock	
1 1-87	Trichomanes reptans	
1 88a	on tree trunks	Hymenophyllum flexuosum
~~88~~	~~on wet shaded ledges~~	
51-89	Trichomanes [Cardiomanes] reniforme	
	on wet shaded ledges	
31-90	Asplenium flabellifolium	
	common on great rocks above stream	
11-91	Oxalis lactea Exilis	flowers white.
	on great rocks above stream	
1 1-92	Tmesipteris tannensis	pendent.
	on tree-fern trunks	
1 1-93	Asplenium lamprophyllum	
	on rocks above stream	
31-94	Olea cunninghamii	tree 6 m. tall, one spike of dried flowers seen.
	rare, just above stream	
31 1-95	Dendrobium cunninghamii	pendent, flowers white with lateral teeth of mesochile red.
	rare, epiphytic on tree trunk	
4 1-96	Weinmannia racemosa	~~too~~ tree 6 m. tall, fruit grey, flowers white.
	dominant second story tree	
1 1-97	Wahlenbergia gracilis	
	rare in grassy patch on flat of ravine	
31-98	Coprosma rotundifolia	shrub 2 m. tall, fruit orange-red.
	occasional ~~[illegible]~~ bottom of ravine	

1549 N. Z.

30499 41"	Rubus scandens in thickets in ravine bottom	extensive liana; ripe fruit orange-brown, tasteless.
30500 51"	Pseudopanax crassifolius occasional in thickets in ravine bottom	small tree 4 m. tall. fruit immature

Feb. 15 - Kowai River bed above Springfield Canterbury
open grassland, heavily grazed, on flood plain of river, with scattered shrubs of Discaria.

30501 4	Discaria toumatou common shrub	~~scale~~ rigid shrub 2 m. tall.
2	02 Coprosma propinqua occasional	much branched rigid shrub 2 m. tall; fruit turning blue
2	03 Muehlenbeckia complexa common, climbing or shrub	vine, flowers dull, green
3	04 Hymenanthera dentata rare, on rock pile in shade	prostrate; fruits green
1	05 Celmisia spectabilis occasionally in thick grass in wet place	rays white
2	06 Juncus pallescens common in low wet place	
3	07 Eleocharis acuta common in low wet place	
3?	08 Carex secta occasional colonies in wet place	forming dense colonies of several square meters

1949 New Zealand

30507		Acaena microphylla common	
	10	Usnea common on Discaria twigs	
2	Feb 15	Porters Pass, Mt. Torlesse range steep slopes with Dracophyllum scrub, tussock grassland and scree slopes	
2	11	Dracophyllum only on summit	
3	12	Celmisia bifloras lower slopes in scrub	
3	13	Coallospartium lower slopes in scrub, occasional	
2	14	Raoulia occasional in lower slope in scrub	
3	15	Dracophyllum common, dominant in scrub on lower slope	
3	17	Veronica in scrub on lower slope	
3	16	Dracophyllum common in scrub on lower slope	
1	18	Gentiana common in scrub on lower slope	
1	19	Luzula occasional on lower slopes	
3	20	Acaena occasional on lower slope	
	21	Cotula occasional on high scree slope	
	22	Epilobium common on high scree slopes	

prostrate reddish green

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

low prostrate

heads black, plant green

flesh, flowers pale pink

 1999 N. Z.

30 523 Stellaria roseo

2 21 Raoulia eximia
on high scree slopes

1 25 Celmisia spectabilis
common on slopes in
grassland and scrub

1 26 Veronica pinguifolia Hook. f.
occasional on upper slope
in patches of scrub and grass

1 28 Luzula rufescens var. australiensis
common on summit and high
scree slopes

1 27 Celmisia lyallii
common in grassy patches
on high scree slopes

2 29 Lobelia Hectoriana
occasional in protected
grassy spots on high scree slopes

1 30 Aciphylla aromatica
occasional on ~~the~~ summit
broken rock

2 31 Poa colensoi
common on rocky summit

1 32 Phyllachne colensoi
common on upper slopes and
summit

1 33 Ranunculus haastii
upper scree slopes

1 34 Anisotome filifolia
rare on upper ~~scree~~ scree slopes

fleshy, glaucous,
flowers white, petals, tufted.
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

dense, tufter

densely caespitose

dense, hard flat green
cushions, flowers white.

fleshy, glaucous

dark reddish green

1949 N.Z.

70535		Epilobium on overhanging wet bank of small stream	
4	36	Hypolepis [Dryopteris] colenso common on lower slopes in scrub	depressed shrub; fruit purplish
4	37	Gaultheria rupestris var. pumila common in scrub on lower slopes	shrub 3-4 dm. tall — flowers white, leaves purplish green
1	38	Viola cunninghamii rare in scree	
1	39	Geum parviflorum scree slopes	flower white
1	40	Forstera bellidifolia grassy places	
1	41	Anisotome aromatica scree and broken rock	prostrate, leaves glossy, firm — prostrate
1	42	Coprosma pumila scrub	flowers yellow
1	43	Coriaria plumosa in scrub	
1	44	Chrysobactron hookeri on lower slopes in ravine	
1	45	Schizaea bifida in scrub	glaucous, fleshy
1	46	Notothlaspi rotundifolium on scree	
3	47	Carmichaelia monroi in ravine near stream on lower slopes	plant with large stiff basal rosette, and a spike 1.5 m. tall.
1	48	Aciphylla colensoi in ravine on lower slopes on bank of stream	

S.V.

1949 N.Z.

c Feb. 19 – just east of south end of Lake Coleridge. Canterbury
base of talus slope with sparse thorny scrub of dense bushes of Rubus, Discaria, Coprosma, Hymenanthera etc.

30549 Coprosma rigida
occasional.

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

c 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

rays and disk yellow.

1 51 Lycopodium fastigiatum
common in open spaces between shrubs.

spike erect (only one seen)

3 52 Styphelia fraseri var. prostrata
common, covering ground between shrubs

flowers white; fruit crimson.

c Feb. 19 Lake Lyndon, below Mt Torlesse range. Canterbury
thin turf, submerged at high water

1 53 Myriophyllum elatinoides
submerged

M. propinquum det. Moore

1949 N.Z.

90554 Lilaeopsis (Hydrocotyle lineata var.) — flowers white
edge of water

" 55 Limosella — flowers lavender
edge of water

C Feb. 19 – Cass, 3 mi. e. of Dealey Canterbury extensive Typha marsh and Schoenus meadow along stream.

4 56 Schoenus pauciflorus — clumps, culms red.
common

" 57 Typha angustifolia
abundant

C Feb. 20 – Arthur's Pass

From the village to the ~~[illegible]~~ summit is a gentle inclined ravine with a rushing stream. Forest of Nothofagus difficortis is the dominant vegetation, here with some undergrowth including microphyllum, coprosma, Pittosporum, Gaultheria, ~~[illegible]~~, etc. with Hoheria 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 Alsaria, Carmichaelia, Phyllocladus, etc. The bogs seem to be dominated by Donatia, but with many other things, shorter stems erect, others pendent.

4 58 Lycopodium fillardieri ?
on large rock in forest, ~~[illegible]~~

4 59 Halorhagis
edge of small bog along road

1949 M. Z.

30560 Euphrasia [coelangnea]
rare in boggy place near summit

3" 61 Coprosma ~~cornata~~
occasional in scrub

5" 62 Olearia ilicifolia
occasional near summit

1 63 Luzula
along road at summit

1 64 Ourisia macrocarpa
edge of wood

1 65 Phyllachne
wet rocky place

3" 66 Donatia
dominant in summit bog

3" 67 Olearia nummulariifolia
common in summit scrub

3" 68 Senecio
common in scrub and
around edges of forest

2" 69 Phyllocladus alpina
common in scrub and
at edge of forest

1" 70 Gentiana
occasional in rocky place
at summit

1 71 Dacrydium
in scrub

2 72 Celmisia glandulosa
in bog

4 73 Hoheria ~~lyallii~~
common at edge of forest

2 74 Angelica montana
occasional in summit scrub

flowers yellow

low shrub, 3" to 1 m. tall
fruit immature

large shrub, rays
white.

caespitose

~~edge of forest~~

dense flat cushions

cushions

~~[illegible]~~ 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

B. 1919 NB.

30 9 75	Aristotelia chacatii rare in summit scrub		rounded scrub, flowers white
3	76 Veronica common in summit scrub	—	flowers greenish
2	77 Erechtites glabrescens rare in disturbed places		prostrate
2	78 ~~Diacophyllum~~ rare in summit scrub		
4	79 Lycopodium scariosum occasional in rocky place		
5	80 Epilobium glabellum common on disturbed talus		leaves red, flo. tinted white.
1	81 Epilobium pubens in disturbed places	—	flowers white.
1	82 Raoulia glabra on bare shingle		leaves sprat. heads white
3	83 ~~Pittosporum~~ Aristotelia fruticosa edge of forest		rigid shrub 2 m. tall
2	84 Pittosporum tenuifolium edge of forest (with #s 83)		rigid shrub 1.5 m. tall
4	85 Veronica (Parahebe) catarractae common on rocks		flower pinkish, plant prostrate.
2	86 Aristotelia fruticosa rare at edge of forest	—	rigid shrub 2 m. tall. fruit pinkish when ripe.
2	87 Blechnum procera common at edge of forest	—	fertile fronds erect
3	88 Nothofagus cliffortioides dominant in forest		tree 6 m. tall.
2	89 Blechnum penna-marina common on rocks		
1	90 Celmisia densiflora rare in scrub		
1	91 Gaultheria antipoda common along road at edge of wood		

 1549 R. Z.

30599½	Wahlenbergia occasional along rocky roadside		
1	93. Juncus wet roadside		flowers white, tinged with purple
3	94. Lycopodium common on road cut		
4	95. Dracophyllum coming in scrub		about 0.1 m. tall, flowers greenish white
4	96. Gaultheria antipoda occasional in scrub		about 1 m. tall, calyx not fleshy
1	97. Archeria traversii in scrub		shrub, sterile
2	98. Forsteria tenella wet rocks		flowers white
1	99. Senecio bryalius edge of forest		rays yellow
30600.	Oreinia macrophylla wet rocks of road cut		
3"	01. Polypodium billardieri rocky road cut		
2	02. Lycopodium australe rocky road cut		
3"	03. Uncinia compacta bare spaces on broken rock		depressed, loose
7	04. Coriaria sarmentosa cut banks and talus		semi-prostrate, colonies
3"	05. Coriaria (hybrid) C. ruscifolia cut banks & talus (with 30604 & 30606)		semi-prostrate, colonies
3"	06. Coriaria ruscifolia cut banks and talus		semi-prostrate, colonies
~~3~~	~~06. Blechnum penna~~		
5	07. Dracophyllum coming in scrub		erect shrub, 1 m. tall, densely branched

1949. 27-7.

30609. Pratia
wet open space on
firm broken rock

09. Nothopanax simplex
occasional in edge of forest

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

10 Pachystegia
common on vertical cuts

11
common on vertical rock cuts

12 Linum
on ~~to~~ grassy talus slope

13 Vittadenia
on steep talus

14 Cassinia
common on rocks and talus

L. I.

prostrate matted,
flowers white.

shrubby tree 4 metres,
flowers green, juvenile
leaves strikingly distinct.

much branched shrub,
leaves leathery.

small shrub, leaves
sub-fleshy, pallid
beneath.

flowers white, zygomorphic.

rays white

small shrub

1949 N.Z.

Feb. 24 - Nelson
Cultivated in botanical garden

306 1 5 Myoporum laetum

16 Myoporum laetum
(said to be introduced from Australia)

1 17 Orobanche minor (introduced)

1 18 Cotoneaster

1 19 Lhawia

Feb. 24 - Lee River

broken down forest remnant

3 20. Sullagia australis Suttonia australis
alluvial terrace

3 21. Podocarpus
alluvial terrace

3 22. Olearia ~~avicenniifolia~~ avicenniaefolia
vertical cliff of shale

4 23. ~~Dodonaea~~ Dodonaea viscosa
vertical cliff of shale.

4 24. Nothofagus ~~solandri~~ Solanderi Lindt
alluvial terrace

3 25. Myrtus ~~obcordatus~~ obcordata
alluvial terrace

1 26. Hebe ~~angustifolia~~
alluvial terrace

4 27. ~~Nothofagus~~ Podocarpus ~~cunninghamii~~ dacrydioides
alluvial terrace

3 28. Coprosma ~~[illegible]~~
alluvial terrace

1 29. Galium Solanum
rubble bank

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, stems short 1 m. tall; flowers white.

small tree 4 m. tall branchlets reddish.

somewhat spreading tree 8 m. tall.

straggly shrub, with white ray flowers

shrub.

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 hardened berries
greenish flowered.

306 CO. Aneilerbachia compta.
Long Gully. alluvial terrace.
4 31 Panax heterophylla P. colensoi
rocky wall of ravine
3 32 Gaultheria ~~p~~ rupestris G. antipoda
rocky wall of ravine
5th 33 Styphelia ~~arenaria~~ fasciculatus
rocky wall of ravine
2 34 Podocarpus ~~spicatus~~ spicatus
alluvial terrace
2 35 Coprosma serrata
rocky wall of ravine
1 36 ~~Pimelea~~ Pimelea ciliata
edge of superior
3 37 Lophomyrtus ~~obcordata~~ obcordata
steep wall of ravine
4 38 Pittosporum tenuifolium
steep wall of ravine
3 39 Podocarpus ~~Totara~~ Totara
alluvial terrace
40 ✓

shrubby rose dangled in fence flowers
pale greenish
Rocky rose vine twining through bushes
shrub under 1 m tall, fruits red.
small shrub with dark red berries
small rounded tree 12 m
Rocky small shrubby tree 6 m tall leaves
slightly mottled in appearance fruits
barely pulled.
flowers white with pink ovary
dense rounded tree: fruits reddish black
small tree
tree about 10 m tall pericarp red, fleshy

1909 no 2

726 25 "Mineral Belt" s. of Wooded Peak, Rees mountain Tram line
Spur Eptorpanum scrub on steep slope of separated rock, much of it loose talus.

1 30640 Lycopodium cunninghamii
in rock crevices

1 41 Grimia cunninghamii
on fine broken rock

7 42 Calandrinia ? Calandrinia eremicola
fine wet broken rock on trail

3 43. Montia australasica
fine wet broken rock on trail

1 44 Raoulia bidwillii
occasional on algae

2 45 Festuca novae-zelandiae
& alongside Festuca novae-zealandiae

4 46 Wahlenbergia Wahlenbergia albomarginata
on broken rock in shade of Epilobium

3 47 Carmichaelia fulvida Carmichaelia
common component of scrub

1 48 Olearia colensoi var. rotundifolia

1 49 Helichrysum lanifolium
broken rock in shade of Epilobium

4 50 Melicytus lanceolatus
occasional component of scrub

8 51 Olearia ? ? serpentina
common in scrub.

2 52 Hydrocotyle
loose talus

1 53 Calandrinia ? ? Montia australasica
loose talus

2 54 Anisotome filifolia Anisotome
loose talus

5. 6

(1-2)

Chrothopsis uniflorum, Cor. dracomontana, Coronopus
Cotoneaster, Senecio perfoliatus, Dracophyllum longifolium, Senecio eleagnifolius, Senecio chathamicus
Pelaea anguistifolia, H. dendroides var. rotundifolia
Pelaea hypericifolia, H. serpyllifolia, Schizeuma
Parnicellata

Vegetation of Magnesian Belt. pp. 193-194

Olearia serpentina. Leptospermum scoparium
Poa sp related to P. aciculariformis, Festuca like
F. novae-zelandiae, Pimelea Buteri, Myosotis monroi,
unnamed Hebe, Cassinia albida var serpentina,
Blechnum procerum, Pteridium esculentum
Lycopodium varium, Poa Colensoi, Cordyline Banksii,
Libertia ixioides, Phylloglossum of lolifolia pseudo
Clematis marata Weinmannia racemosa,
Melicope simplex, Aristotelia fruticosa, Pimelea
linifolia, Leptospermum ericoides, Halorrhagis
erecta, Pseudopanax crassifolium var unifoliolatum
Nothopanax arboreum, N. anomalum, Corokia
cotoneaster, Leucopogon fasciculatus, Dracophyllum longifolium, Suttonia chathamica
Hebe angustifolia, H. salicifolia var Atkinsonii
Hebe hybrids, Coprosma parviflora, Olearia
paniculata

1949 v 2

S. F.

Feb 23 "Mineral Belt" s. of Wooded Peaks, above Snowtrack Tram line
Spare Leptospermum scrub on steep slope of superficial rock, much of it loose talus. 3600'

1	30640	Lagenifera cuspidata in rock crevices		small tufts
1	41	Luzula campestris or fine broken rock		lovely cespitose
2	42	~~Calandrinia~~ (?) Calandrinia mollis Steud. fine wet broken rock on track	3600'	
3	43.	Montia australasica fine wet broken rock on track		
1	44	Ranunculus Lyallii occasional on slopes		small cereal tree 4 in < 5 in tall
2	45	Festuca novae-zelandiae (?) novae-zealandiae & along track		tufts
4	46	Wahlenbergia Wahlenbergia on broken rock in shade of Leptospermum		flower pale blue - lavender with darker lines on mid-ribs of the lobes. densely branched shrub 4 dm. tall flowers white
3	47	Carmichaelia fulvida common component of scrub		
1	48	Pimelea ~~colensoi~~ Colensoi		roots tuberous, translucent, white
1	49	Helichrysum Helichrysum lanifolium broken rock in shade of Leptospermum		shrub 2 in tall leaves yellow green, petals & stamens crimson
4	50	Metrosideros lucida occasional component of scrub		shrub 1 m tall rays white.
3	51	Olearia (?) serpentina common in scrub,		plant dark purplish green.
2	52	Hypolepis loose talus		leaves reddish spatulate not very fleshy
1	53	Calandrinia (?) Montia australasica loose talus		
2	54	~~Anisotome~~ filifolia Anisotome loose talus		

1919 11 2

1	30655	Luzula campestris base talus	tufted
6	66	Lotodolopi [illegible] base talus	rosettes × pods purplish green
3	67	Agrypyrum caninum base talus	caespitose
1	68	Senecio bellidifolius rock crevices	flowers yellow.
2	69	~~Anisotome~~ Anisotome [illegible] base talus	
2	60	Veronica rock crevices	leaves reddish green, fleshy, with impressed veins
1	61	Poa [illegible] talus	densely caespitose
3	62	Dryopteris [illegible] common on rocky slopes	
3	63	Dryopteris [illegible] rocky slopes	3 dm
2	64	Veronica rocky slopes	
1	65	Thymus serpyllum rocky slopes.	
1	66	Phleum ~~[illegible]~~ Colensoi common on rocky slopes	densely caespitose, leaves erect, stiff, fruits persistent scarcely twisted 3 dm tall.
3	67	Dryopteris rocky slopes	stems 1 m tall - leaves morphes flexible
3	68	Dryopteris [illegible] rocky slopes	stems 1 m tall - leaves morphes stiff.
3	69	Dryopteris [illegible] rocky slopes	low densely branched clumps 1 dm high
(4)	70	Bryocarpus hudsellii Hook. broken rock at edge of bank	slender shrubby green stems 1 m tall leaves scarcely stiff
3	71	Dryopteris at scrub on rocky slope	

1943 N.Z.

C Feb. 25 — w. slopes of Wooded Peak, Dun Mountain, ram fir, Nelson
dense forest, mixed Weinmannia and Nothofagus, little
undergrowth, no ground cover.

30672 Coprosma foetidissima — slender shrub 2 m. tall, ripe fruit orange; plant with a nauseous odor when broken.
4 abundant, especially along trail

4 73 Gaultheria antipoda — shrub 2 m. tall, fruit green, calyx not at all fleshy.
in undergrowth

1 74 Nertera depressa — prostrate, dark green,
on trail in woods, shaded

1 75 Nertera — flowers yellowish green.
on and beside trail in woods, shaded

2 76 Drimys colorata — prostrate, pale green.
very local, in undergrowth

1 77 Lycopodium volubile — sterile shrub 1 m. tall, leaves glaucous beneath, spotted with purple above.
common along trail in woods

— prostrate, extensive.

C Feb. 25 — Nelson Reservoir, Nelson

2 78 Elaeocarpus — large spreading tree, fruit green.
in second growth woods

C — same as 30672

1 79 Nothofagus cliffortioides — leaves white beneath.
common tree

1 80 Nothofagus truncata — W. Europe
common tree

1949 N.Z.

c Feb. 25 - Nelson
cultivated in botanical garden
30681 Olearia furfuracea
1 82 Muehlenbeckia astonii
2 83 Pittosporum dallii
~~84 Olearia~~
1 84 Olearia solandri

Kodachrome roll 8
several of sea with Dunedin
near Kaitorete
Tekoteri, Hanging Valley, Nelson
Serpentine barren with
beech - Weinmannia forest
boundary at Wooded Pk.
Beech forest, partially
destroyed, at Hope Saddle.

roll 9. beech forest in Hope R.
Fault plane on Buller R.
Podocarpus dacrydioides in Buller R.
also mixed forest on small
tributary
Pine & Podocarpus forest in valley
Nov 9. 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.

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,
Aristotelia serrata, etc. Here
and there Uncinia 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,
Phormium, Podocarpus, Dacrydium,
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
become 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.

among the Dacrydium
three species are

N.Z. 1947

25th February
near Hamilton Hut, 10 m N of Murchison, Buller Gorge.
30685 Roadside thickets near bottom of gorge.

3 85. Senecio hectorii herb

3 86. Coprosma australis (= grandifolia) (shrub)
common in thickets

3 87. Schefflera digitata

2 88. Melicia ovata shrub

Coprosma foetidissima shrub

1 89. ~~Olearia~~ colensoi
rare

3 90. Pittosporum tenuifolium shrub
common in shade

✓ Drangalua - Buller Gorge.
26th February

2. 30691. Senecio hectorii herb
roadside thickets at base of cliff

✓ 26th February
Hawk's crag - 10 m N of Drangalua, Buller Gorge.
roadside thickets near bottom of gorge

4 30692. Coprosma foetidissima shrub

3 1 93. Hoheria lyallii shrub
on wet rocks & banks

142 m

shrub 2 m tall

shrub 1½ m tall, leaves glossy

rat-m shrub 2 m tall not aromatic when broken; fruits immature
small tree, leaves pale & conspicuously reticulate beneath; flowers white scented fragrant.
sterile shrub 2 m tall, young leaves glaucous beneath marked with purple, young leaves bronze purple

55 m.

shrub 3 m tall rays white, disc yellow

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

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

 114 of 112

Weinmannia
3, 2449 9. ~~Nuc~~ racemosa

2 95. Syncarpia laurifolia

3 96. Eucalyptus amygdalina

---

small tree leaves pale beneath

shf leaved and shrub 1 m tall fruit immature

shrub 1½ m tall, ripe fruit blue black, fruits mostly immature

NZ 1907

27th February.
Just south of Big Solara River
5 miles South of Westport.
Extensive open flat peat bog, peat about 3 to 4 ft thick underlain by decomposed coarse granite, on what appears to be a river terrace.

1	30697	Gleichenia procera B. Tepfone
		wet banks
2	98	Gleichenia dicarpa
		common in parts of bog
1	99	Sphagnum
		on surface of peat in bog
1	30700	Celmisia
		occasional in peat
2	01	Lycopodium
		common on peat
1	02	
		occasional in wet peat
3	03	Drosera
		occasional in very wet places
4	04	Sphagnum
		wet vertical road-cut
1	05	~~Schizo~~ Schizaea fistulosa
		on peaty vertical bank
3	06	Gleichenia microphylla
		dominant in most parts of bog
3	07	Stylidium
		occasional
1	08	Juncus
		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 gravel seemed unaltered.
Gleichenia locally dominant.

	dwarf form; young growth copper-red
	prostrate, pale green
	rose white
	prostrate, often 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

21st February.

1	30739	Helonagio depressa common on peat	prostrate, plant reddish, flowers dark red.
3	10	Rinella intermedia common at edge of bog	compactae, fruits pale grey-blue

22nd February

Parakaiki Heads (Parakaki Rocks) just north of mouth Parakaiki river, south of Westport

Extended cliffs of hard shattered limestone wet by salt spray; Phormium tenax dominant in most places, back of a low mixed forest, with

	30711		characteristically wind-shaven habit, quite stiff and mossy. Herb and succulents dominant on open cliff face, both seaward and around large blow-holes on rocks.
3.	11	Crassula moschata occasional at top of cliffs	slightly aromatic herb, branched at base, leaves somewhat fleshy, flowering heads white.
4	12	Apium australe top of cliffs	prostrate, stems & petioles succulent only slightly aromatic when crushed; flowers white. fruits immature
4	13.	Senecio repens locally very abundant on tops of cliffs	prostrate forming mats, flowers purple pinkish white.
3	14	Selliera radicans Cav. locally abundant on tops of cliff	prostrate forming mat, flowers white
4	15	Lobelia angus round tops of cliffs in shaded places	prostrate to ascending, flowers purplish-pink.
2	16	Sonchus common on top of cliff	prostrate, leaves orange-red translucent leaves prin sub-fleshy
1	17	Euphorbia glauca common round top of cliff	plant very glaucous, stems red, flowers purplish-black.

N.Z. 1949

22d February

3. 30728 Anacamptodontium australe Sol.
common round top of cliff

1 19 Tortula mucronifolia
at top of cliff

2 20 Lecanora
climbing over old stump in edge of low woods

3 21 Cladonia
in low woods, common

Greymouth. 23d Feb. 1949

3. 30722 Dicranoloma colorata

23 In bush of Stafford, south of Kumara
south east of Kokiriha 23d.

large open bog, fairly recently
burned over.

2. 30723. Drepanocladus exinnis
rare

1 24 Ptychomnion aciculare
common, mostly past flowering

1 25 Cyrtopodium cunninghamii
common

2 26 Drosera spatulata
very common in peat

prostrate, leaves fleshy, triangular
in cross section

plant red, leaves fleshy with green tip,
bands pinkish

prostrate, flowers yellowish, ft leaves
from rest, fleshy, fruit orange-red.

capsules, 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	Rhacora bicata Lab. occasional	plant red, flowers white
3	28	Carpha alpina occasional	small very dense tufts
1	29	Kerlia ~~dicondrifolia~~ dichondraefolia rare	prostrate pale green, fruits orange fleshy, flower white.
3	30	Juncus dommant in many parts of bog	caespitose, flowers brownish
1	31	Gaimardia edge of bog	leaves bronze green, fruits bright red.
2	32.	Blechnum penna-marina edge of bog	fertile fronds erect
1	33	Thelymitra sp. occasional in bog	

Makitoka 22nd February.

4.	30734	Dracophyllum apodum small and dense back of beach	brack ~~yellow~~ golden yellow

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

NZ 1949

C 28th February

Rimu, just south of Whitiha
Partly alluvial land, very swampy.

1. 30733 Lecidia ~~dicrondraefolia~~ dichondraefolia

2 36 Porina
corner

2 37 Jungermannia [illegible]
accessorial

C 28th February Lake Diethe
Shrub road cut in Dacrydium forest.

3. 30738 Lecidia [illegible]

C 28th February South end bank of Mt Hercules
Shrub road-cut in forest

3. 30739 sq Lecidia

Mt. Hercules scenic reserve
fine example of rimu-rata (Dacrydium-Metrosideros) forest. Partly tall forest of this type, partly scrub (?) second-growth.

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

prostrate, leaves pale green with aspect lacy; stipitate
corticolous, entire ascending

leaves flat

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

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

N.Z. 1909

20th February

Franz Josef Glacier

Spruce shrubby vegetation on fresh lateral moraine within a few feet of the edge of the glacier. 130 ft

6.	20740	Cassinia vauntonii	
		dominant plant of scrub	
2	41	Veronica salicifolia	
		occasional	
3	43	Olearia avicenniaefolia	
		occasional	
1	43	Coprosma ciliata	
		occasional	
1	44	Polystichum vestitum	
		rare	
1	45	Cassinia procliniata	
		rare; under C. vauntonii	
2	46	Epilobium glabellum	
		occasional in scrub	
6	47	Luzula scabrida	
		common	
4	48	Festuca novae-zelandiae	
		common	
1	49	Gymnoxalis lutea	
		rare	
2	50	Gymnoxalis traversii	
		common	
1	51	Epilobium pedunculare	
		occasional	
2	52	Veronica [illegible]	
		common	
1	53	Blechnum filiforme	
		one plant been crushed by its movement	
1	54	Dacrydium	
		occasional	

S. Sp.

shrub 2 m tall; plume & umbelliform; branch & opposite branches on same plant

shrub 1 m tall; in fruit only

shrub 1 m tall; in fruit only

shrub 1½ m tall; shrub

Mr. Brown

prostrate

[illegible] with edged green & flaxen pinkish white.

[illegible]

[illegible]; pale green

leaves brownish

prostrate, fruits white

prostrate

prostrate, flaxen white with ascending branches

all over here [illegible]

V 2 19-7

8th February

Valley below Trang Goof (Chinese 800–900' wooded valley walls); terminal moraine filling bottom of valley covered with sand of Lepidoporum, Chamis, Lepiocoma etc.

2	30 Y 05	Lepiocoma	
		to dominant on moraine	
2	56	Lecanora	
		bark of large morainal material	
	57		
		common on banks of large morainal material	
4	58	Gyalecta	
		per weed on moraine	
2	59	Lecanora ~~[illegible]~~ dichondraefolia	
		clinging on stumps in scrub on terminal moraine	
1	60	Viola	
		on dead stump in scrub on terminal moraine	
2	61	Pratia	
		clinging on stumps & fallen logs	
1	62	Coriaria	
		occasional in scrub on moraine	
4	63	Carmichaelia	
		co dominant in scrub on moraine	
4	64	Gymnadenium	
		common on rocks in forest & scrub	
3	65	Pratia	
		abundant along roadsides in forest	
1	66	Hydrocotyle	
		on roadsides in forest	
1	67	Juncus	
		occasional on roadside in forest	
2	68	Lagenophora	
		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.

	bush 1 m tall; fruits pale blue
	lovely conspicuous
	flowers green.
	shrub 1 m tall; fruits conspicuous
	shrub, branches, twigs, fruits green; flowers greenish
	prostrate; erect stalks.
	~~[illegible]~~ prostrate; terminal white flowers, purple fruits
	procumbent. fruits black, shiny
	shrub 3 m tall, flowers fragrant, purplish white with deep purple spot in corner decumbent at base; flowering stems ascending
	forming a large mat; flowers white.
	deep rooted flowering branches ascending, upper lips of corolla deep purple lower lip white with pallid yellow tinted orch at
	stems deeply furrowed; flowering branches erect white

S. N. L. 4147

20th February

30.1.64		~~The~~ Dendrobium tenuicaule	
		Epiphytic on mossy tree trunks	
2.	70	Eranthemum pseudofloranum (Wildey) (Chatsberg)	
		abundant, epiphytic on tree trunks	
1.	71	Pentas [illegible]	
		fallen tree trunk in forest	
4	72	Pennantia ~~co~~ corymbosa	
		in forest	
1	73	Turpinia [illegible]	
		forming on ~~[illegible]~~ Drimys colorata	
4	74	Drimys colorata	
		occasional in forest	
		(also now planted in hedge at Waite)	
6	75	Coprosma [illegible]	
		common in forest	
3.	76	Olearia ~~[illegible]~~ avicenniaefolia	
		common in scrub	
3.	77	Gaultheria [illegible]	
		moist vertical rock cut in forest	
5.	78	Pentas depressa	
		common on banks & hillsides in forest	
3.	79	Pittosporum ~~[illegible]~~ dichondraefolium	
		common along tracks in forest	
		1st track — same.	
4	30.1.80	Aristotelia fruticosa	
		in scrub on margins	
4	81	~~Pernettya~~ Pernettya Pernettya nana Cd.	
		~~[illegible]~~ on gully mossy bank in scrub	
		on margins	

climbing & pendent; leaves stiff.

shrub branched on more or less trunk; stems pendent; leaves pale beneath with green veins; fruit white, fleshy

prostrate, ~~flowers green~~ leaves bright green, flowers greenish yellow, leaves orange red.

small tree 5 m tall, fruits green.

stems corrugated compressed; fruits immature

small tree 4½ m tall; leaves very glaucous beneath, younger ones conspicuously blotched with purple; fruits green, bark strongly peppery & very lenticelled, branching shrub, 3 m tall; leaves orange red depressed glabrous irregular in shape.

shrub 1 m tall (others over up to 4 m.) flowers corrugated fragrant, orange white

prostrate; fruits white

prostrate leaves bright green form; fruits orange red translucent.

prostrate, stem hairy green, leaves thin, dull green above, pale beneath; fruits orange.

shrub 2 m tall; fruits pink

depressed shrub 2-4 dm tall; fruit immature

N 2 1949

1st March 1949.

1. 30782 Bragus
on open mossy bank in scrub or moraine

2. 83. ~~Lonicera~~ Lonicera Bidwillii
on open mossy bank in scrub or moraine

2 84 Olearia ~~nig~~ ilicifolia
dominant in scrub on moraine

2 85. Hebe
in deep grass on trail-side, common

3 86 Halocarpus
on open mossy bank in scrub or moraine, abundant

1 87 Lecidea
epiphytic on tree trunk in forest

March 1st.
On wet bluffs north side of Waite River just below Frozen Goat Glacier
Thick-bedded grainian rocks.

2. 30788. Polypodium
on vertical rocks

2.3 89. Adiantum (as numbers 30787, 30792)
on bare open rocks

1 90. Cryptantha
on mossy bank

1 91. ~~Lonicera~~ Lonicera Bidwillii
on wet cliff

1 92. Thelypteris
in moss patches on bare open rock slope.

4 5 93. Veronica
on wet cliff

5 2 94. Celmisia
on wet cliffs

3 95. Lycopodium
steep rock slope

S do.

leaves marked with purple
corolla with upper lip deep purple, lower white, with palate yellow with red spots.
leaves glaucous not fleshy; flower white
Stems deep maroon-purple.
shrub 2 m tall, leaves stiff, ~~very~~ very much cuspid; ray flowers white.
deep-rooted aromatic herb, flowers white

erect, tallest seen supported on surrounding plants.
Not drooping; 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, upto 3dm tall; flowers greenish-white
leaves pale green; stems succulent

leaves glaucous, not fleshy; stem maroon-purple

prostrate with ascending branches

prostrate, stolonifrous

main stem prostrate, lower distichous, fruiting branches erect.

N.L. 1949

1st branch 1949

4. 30 ng. Lycopodium volubile
steep rock slopes

3. 97. Lycopodium ~~volubilum~~ billardieri
on edge of large rock in deep shade

2. 98. Lycopodium [illegible]
common on steep open slopes

1. 11 Davallia mariesii Moore.
epiphytic on tree fern trunk

2. 2000. Hymenophyllum [illegible]
epiphytic on tree fern trunk

3. 4 01. Hymenophyllum [illegible]
on base rock slopes, occasional (coll. numbers 1000 [illegible])

3. 02. Hymenophyllum [illegible]
on base rock slopes, occasional (coll. numbers 2000, [illegible])

2. 03. Schizaea [illegible]
abundant on wet cliffs

1st branch

Valley below Tasman Glacier. Rocks adjacent on river bank

2. 20604 Pratia [illegible]
growing well among rocks

3. 305 Pratia [illegible]
growing well among rocks

2. 06 Pratia [illegible]
common between rocks

27

1st branch - [illegible]

So abundant because of marginal nature with [illegible], and growing proof of [illegible], Dracophyllum, Schefflera etc.

24987. Ranunculus [illegible]
on mossy rocks

S. Ds.

extremely creeping & clinging on branches

large clumps, younger branches erect, older ones pendent.
erect from prostrate digitate branch in some

flowers greenish yellow, base of tep dark orange

Dr. [illegible]

erect shrub 2 m tall

erect shrub 3 m tall

conspicuous

prostrate; flowers white, fruit purple

prostrate, flowers white, fruit ~~purple~~ immature

flowers pink with strong anis odour

1st track

1 30 Polypodium [illegible]
epiphyte

1. 9 Polypodium [illegible]
epiphyte on tree trunks

after 1st week 10 Cheilanthes
on gravel by river

3. 11 Gymnothes
common on mossy banks

4. 12. Pteridium [illegible]
common tree in forest

after 2nd week 13
5.
in deep moss on large rock

7. 14. Hymenophyllum [illegible]
epiphyte on tree trunk

2 15. Pteris ~~[illegible]~~ dichotomophylla
epiphyte on tree trunk

2. 16 Davallia [illegible]
occasional

1 17 Lathopteris [illegible] in shade of forest

4. 18 Leptopteris superba
shaded bank

3. 19 Osmunda [illegible]
in undergrowth in forest

1 20 Cyathea [illegible]
common in forest

1 21 Pteridium [illegible]
in shaded banks

4 22 Asplenum [illegible]
in shade along bank

3 23. Blechnum ~~[illegible]~~ [illegible]
common in shaded banks

1 24 Schizaea digitata
on dominant tree in forest

[illegible] Ficus [illegible] glaucous [illegible] [illegible] black,

[illegible] prostrate, matted, flowers purple,

stem [illegible]

[illegible] large tree recently fallen, stamens & petals white

[illegible] Pteris

leaves bright green above, pale beneath, thin

shrubby tree 4 to 5 ft tall: decorated leaves
on under surface; flowers white, fragrant,

slender shrub 1½ to 2 ft tall

elegant weed, fronds dark green

slender shrubby tree 10 to 12 ft tall; fruits [illegible]

large tree, flowers white

[illegible] Ficus petals yellow, [illegible]

plant spreading; flowers white

stem yellow; purple fronds [illegible]

small tree, panicle pendent, flowers green
(large panicle characteristic of this region)

N Z 1907

1	30 & 25	Blechnum lanceolatum common on shaded banks	fronds dark green
1	26	Blechnum Patersonii common on shaded banks	fronds dark green
4	27	Uvinia many shaded banks	prostrate with ascending branches, flowers white with purple dots on lower lip.
4	28	Hymenophyllum common, epiphytic on tree trunks	fronds pendent
1	29	Grammitis rare on many shaded banks	first, mottled purple & green
4	30	Asplenium bulbiferum Forst. f common in shaded places	rhizome erect, fronds dark green having slender grassy plants.
1	31	Lastrea ~~[illegible]~~ dilatata shaded banks along trail	prostrate, leaves bright green above, pale beneath, thin
1	32	Lastrea shaded banks along trail	prostrate, leaves bright green, firm

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

4	33	Uvinia common along trails	large clumps
3	34	Pennantia corymbosa ~~[illegible]~~ occasional	juvenile form, shrub ½ m. tall.
1	35	Drimys colorata cultivated as hedge around hotel	trimmed to hedge 1 m. tall. leaves variously purple; ripe fruit black, fleshy.

For good description of the vegetation and list of species see L. Cockayne & E. Zichelmann The Glacier Reserves of Westland appendix C of Ann. Rept. on Scenery Preservation for year ending Mar. 31 1908: 1-11, 1908

N 2 1909

3rd branch
along Jacaguchua River 8 m. SE of Rayón 900 ft altitude

4	30	Lonchocarpus
		climbing over bushes on clearing in hetero[illegible] forest
4	31	Nothofagus fusca
		isolated tree along river in clearing

3rd branch
Anarena Springs, Anarena River, S.W. of Lonquimay Pass. 1800 ft. altitude.
Some Nothofagus forest

2	38	Lagenophora
		common along trail under trees
3	39	Luma chrysandrifolia
		bush below road, edge of forest
1	40	
		along trail under trees, occasional
4	41	
		common along trail in forest
2.	42	Nothofagus Menziesii
		one of dominant trees in forest

& Do

black & white photos - back forest & people

exactly same, fruits black, fruiting white
white very fleshy
densely branched tree about 10 m tall

black & white photos of back forest

rays white

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

stem decumbent to ascending; plant without
strong odour

tree 8 m tall 4 m. thick. Sterile

N. L. 1947

30 March
Lemon Pass 3962 ft.
Lathyrus/root;

30 E 4 A Anaxeton (probable hybrid between A. senecio + A. fastigiata)
edge of ~~[illegible]~~ road clearing

1 " Lathyrus eleganteridgeum
edge of road clearing

1 " Lathyrus differentiaden (?)
edge of road clearing

2 S. " Poa
roadside

3 S. " Delphi Helichrysum
shaded roadside

Black + white photos of scenery (Young Queen - Ffrench Pass)

shrub 1½ m tall, hairy fruits flesh pink (A. senecio related nearby.)

small herb, brown white breath

herb 3 m tall, brown green breath.

prostrate, forming large mat, flowers white,

prostrate, flowers white

1947 N.Z.
Ecological characteristics of N.Z. plants.

Fuchsia excorticata – early successional member, coming in fernland, 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.Z. 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 species, one is N. dichondraefolia, the other N. cunninghamii, grandis, depressa, or a hybrid. 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. grandis. 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 tussock. I am not at all sure that the other N.Z. 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 Coprosma.

Books on N.Z.
Old New Zealand by
T. F. Manning Christchurch, etc
Whitcombe & Tombs Ltd. (Reprint) 1/6

Pothopanax - 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 dense areas and to rather luxuriant beds of ferns in

wetter areas of Westland. The flowering plant undergrowth is mainly microphyllous even in wet regions. Intricately branched microphyllous shrubs are extremely 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 dimorphism in some of the plants that is intriguing, but not at all well known yet.

Podocarpus dacrydioides - common, dominant tree in swamp forest on rim, 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 successional stage, by others as subclimax.

1949 New Caledonia

Feb. 6 - Pic de Casse Cou.
Montagne des Sources,
16 km. nw of Noumea

308 48	Callitropsis common on top of ridge	low spreading bushy tree
1 49	occasional on top of ridge	low shrub, flowers white
2 50	common	small tree, fls green
	~~Podocarpus~~ common	bracts brown, fruit red
1 51	rare	erect, slender, dark green, 2 m. tall (other large)
2 52	Dacrydium araucarioide common on ridge top	tree 4 m. tall, sterile
2 53	Araucaria common on ridge top	low shrub, flowers greenish yellow, leaves greenish yellow beneath
2 54	on ridge top in low scrub	low shrub
1 55	on ridge top in low scrub	shrub 1 m. tall
4 56	codominant in vegetation on ridge tops	low shrub, leaves fleshy, flowers pink
3 57	~~Cyphophaenum~~ Meekia common	erect
2 58	common on ridge top	

b.e. slope of Pico de Loro
Cove, 1½ km. n.e. of
Nasugbu

308.59 Selaginella
locally common on road cut
60 common in scrub
61 common in scrub
62 common in scrub
63 Bis
rare in scrub
64
rare in scrub
65 Agathis orata
common in forest

~~est~~ perils ponds and
[illegible] m. tall.
[illegible] with [illegible]
[illegible] 69.
[illegible] yellow
[illegible] shrub
[illegible] nes deflexed.
[illegible] nail green.
[illegible] Thou
[illegible] young
[illegible]

s.e. slope of Pic de Cane
Cora, 1½ h.n.h.e. of
Nouméa

Stem

1903 × 7 Blackburn
Branch [illegible] cut out

2 60 do

2 61 do

2 62 do

2 63 do

2 64

2 65

~~[illegible]~~ perils fronds erect
shrub 2 m. tall.

shrub 1.5 m. flowers
orange yellow.
shrub 1½ m. tall,
flowers yellow-green,
inflorescence erect shrub
2 m. tall, racemes diffused.
shrub 1 m. tall, fruit green.

tree 10 m. tall, other
fruit larger, young
leaves glaucous.

b.e. slope of Pic de Canc
Cow, 15 km. n.e. of
Noumea 500 m

30859 Blechnum
locally common, rod out
" 60 common in scrub
" 61 common in scrub
" 62 common in scrub
" 63 Bo
common in scrub
" 64 rare in scrub
" 65 Agathis ovata
common in forest

~~and~~ fertile fronds and
shrub 2 m. tall.

shrub 1.5 m. flowers
orange yellow.
shrub 1.0 m. tall,
flowers dull orange-yellow
in branched terminal shrub
2 m. tall, racemes deflexed.
shrub 1 m. tall, fruit green

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

Feb. 4 Boulari River, 12 km
e. of Noumea 150

30866 Acacia
common in scrub

67.
common in scrub

65. Dracophyllum verticillatum
common in scrub

69.
rare in scrub

70
common scrub

71. Dracophyllum gracile
common in scrub

CONIFERALES of NEW-CALEDONIA

-:-:-:-

Agathis Ovata
- Lanceolata
- Hypolenca
- Grandifolia (Moorei)

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

+++

Podocarpus Longifoliatus
- Comptoni
- Sylvestris
- Ferruginoïdes
- Novae Caledoniae
- Minor
- Gnidioïdes
- Vieillardii
- Ustus

+++

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

+++

Callitropsis Araucarioïdes

+++

Libocedrus Austrocaledonicus
- Chevalieri

+++

Callitris Neocaledonicus
- Sulcata

+++

Acmopyle Pancheri
- Alba

+++

Austrotaxus Spicata

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 associations 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 Soudan, Guinea, Ivory Coast, Mauritania and Dahomeyland.
- 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 Tulear, 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 organise 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 Mutherland 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 transfered by the U.S.A. in virtue of the SIAM STREET 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:

Zoology,

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 accomodations allowing an immediate start for their work.

---

low shrub in wet pla
white
low shrub

shrub erect

erect unbranched, flowers
white
shrub in tall grass
white berry
shrub in tall grass
berries white

Feb. 4 Boulari River, 12 km. e. of Noumea ≈100 m

30866.	Acacia common in scrub	low shrub 2-4 dm; fl. white.
67.	common in scrub	low shrub.
68.	Dracophyllum verticillatum common in scrub	shrub erect
69.	rare in shrub	erect, unbranched, flowers white.
70.	common in scrub	shrub 1 m tall, flowers white;
71.	Dracophyllum gracile common in scrub	shrub 1 m. tall, petals lanceolate with reduced leaves

1929 New Caledonia

The serpentine area of N.C. includes much of the southern part. It is of green serpentine soil 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 nyauli which is everywhere on sedimentary soils. At low altitudes, possibly because of burning, the vegetation is a scrub, with greatly mixed unspecialized (higher up) forest of Dipmolepis 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 Nouméa and over to Tontouta, the nyauli, Melaleuca leucadendron, 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 nyauli is evidently very resistant.

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

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

1949 Canton I.

C ✓✓ March 1 - Canton I. "around 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 in small rocks and [illegible]

[illegible] Cocos nucifera (quay) Dock (Hull) Frame
[illegible] Terminalia
[illegible] Lecanosa
planted around buildings

[illegible] Euphorbia hirta L.
common in dooryards

74. Cordia subcordata
planted about buildings

75. Terminalia catappa
planted

76. Tamarix aphylla
planted

77. Tamarix aphylla
planted

78. Cocoloba uvifera
planted, abundantly

79. Terminalia
planted

80. Euphorbia mustelaeit
common about buildings

a dry atoll, completely closed except for a single gap with a small islet in it, with rather shallow lagoon divided by irregularly transverse reefs into a roughly polygonal pattern, possibly wind turbulence may determine this. Apparently no original arborescent vegetation except possibly Messerschmidia. Planted trees of Cocos, Terminalia catappa, T. litoralis, Cocoloba uvifera, Tamarix, Casuarina, Lecanosa, etc. have reached tree size.

tree-like, 3 m tall, flowers & fruits white

small tree, flowers vermillion

small tree, stems

small tree (yellow)

small tree (yellow)

small tree, fruits green

small tree fruit immature

[illegible]

1889 Cactus Patch

1 Abutilon theophrasti L.
common about settlement
1 32. Lonicera japonica Thunb.
occasional about house
1 33. Berberis ~~vulgaris~~ L.
common
1 34. ~~Ulmus pumila~~ Ulmus parvifolia Jacq.
occasional, possibly planted
1 35. Euphorbia ~~[illegible]~~
rare about buildings
7 36. Vigna sinensis (L.) Endl. Stapf
rare, about buildings
p 37 Cordia subcordata Lam.
planted, not thriving
1 38. Hibiscus tiliaceus L.
planted

[illegible] flowers yellow, [illegible]
[illegible] fruit [illegible]
[illegible] shrub, not [illegible]
prostrate, flowers white
[illegible] small [illegible] flowers
flowers [illegible]
[illegible] small at [illegible]
[illegible]
shrub.
[illegible] tall flowers
yellow, stigmas black-
brown

1949 – Virginia

March 26 – Bareroft Reservoir
Several spring flowers are coming out – Hedyotis caerulea, Viola kitaibeliana, 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 ½ 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

Det.
Locality Bareroft (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 similar to collecting of Pleistocene plant remains in a small lens of somewhat consolidated mudstone.

h. Quercus alba
rare
g Quercus alba

1949 - Virginia

March 26 - Bancroft Reservoir
Several spring flowers
are coming out - Hedyotis
caerulea, Viola kitaibeliana,
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 ½ m. which
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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

1949 – Virginia

March 26 – Bareroft Reservoir
Several spring flowers are coming out – Hedyotis caerulea, Viola kitaibeliana, 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 ¾ 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

30389n	Quercus marilandica occasional	
s	Quercus marilandica ~~sa~~ 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		twig
ak		branch
al	Liriodendron tulipifera	cone
am	Liriodendron tulipifera rare	cone scales

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

(last 3 are possibly grasses)

1949 Virginia

" April 9 – Sleepy Hollow, s. of Fairfax, 1 mi. s. Falls Church, old field, with Andropogon & young Pines encroaching. Potentilla very abundant

30890 Potentilla canadensis L. very common

" 91 Potentilla canadensis L. occasional

" 92 Puccinia parasitic on Potentilla canadensis

" 93 Lycopus europaeus

Most of Potentilla have 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.

– 3 plants of each rooting at nodes of last years runners. Fls. yellow, petals slightly emarginate

– Fls. yellow, petals entire, rounded at apex.

– ~~(also seen on P. simplex (30892))~~

tufted, stigmas green

1947 Maryland

✓✓ April 15 - Soldiers Delight Ridge
n. of Elliot City, Baltimore Co.
Outcropping of ~~[illegible]~~ serpentine
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 tangle

30844 Arabis lyrata
common.
, 95 Cerastium arvense var. villosum
common

, 96 Hedyotis caerulea
common

Apr. 16-17 trip to Pine Barrens, N.J.
Just north of Marlton is
flavorite along highway.
Reach Pine Barrens shortly
east of this on road to
Barnegat.
Side trip to Chatsworth -
Chamaecyparis bog, vni. s.
on n. Many of trees
show spiralling of wood
of trunk, rt. to left. This
occurs on trees of all sizes
even small ones 1 in. tall.
found down in shelter

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

~~the~~ Phlox and Talinum were
not seen anywhere.
Only weed noticed was
a Trifolium, prob. T. repens.
flowers white

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

of other trees.
Drosera rotundifolia
abundant locally on
sphagnum + Chamaecyparis
bases, but tiny plants only.
Arctostaphylos u. u.
common in rather open
dry places.
On plains pines show
depressed habit, as though
due to wind. But Quercus nail.
are merely dominating all-round trees.
Quercus ilicifolia is many
places forms understory underbrush.

" 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
" 98. Lycoris squamigera (L.) Ker. Don
opening at top of cliff
" 99. Vaccinium vacillans Torr.
opening at top of cliff
30900. Lycopodium complanatum var.
just above extreme high tide level on grassy shore, foot of ~~cliff~~ bluff
5 01. Gaylussacia baccata (Wangh.) K. Koch.
at bottom of bluff

" 02. Viburnum acerifolium L.
rare on bottom of bluff
" 03. Amelanchier arborea
common on bottom of cliff
" 04. Nyssa sylvatica
common on cliff
5 05. Vaccinium stamineum L.
occasional on cliff

5 06. Smilax
in undergrowth on bottom of cliff
4 07. Parthenocissus quinquefolia var. major
in water, mud, deep (Green) (red)

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

woods largely chestnut oak (Q. montana), Nyssa.

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 4 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

1949 Maryland – Connecticut

" May 15 – 1½ m.n. of Pleasant Ridge

30903 Lupinus perennis L.
3 gravelly soil in burned over pine forest.

May 26 just south of Winsted, Litchfield Co.
2 07 Pinus resinosa Ait.
along road, probably planted

May 27 – Torrington, Litchfield Co.
1 10 Hedyotis caerulea (L.)
edge of sparse wood with little undergrowth, near dwelling

May 28 N.E. corner Norfolk Twp. just Top. e. of A. end of Benedict Pond. Litchfield Co.
~~11 Hed~~ abandoned one year old field, open somewhat grassy but with Hedyotis, Rumex acetosella, etc. dominant
3 11 Potentilla simplex
common

Anne Arundel Co.
Litchfield Co.

~~tap~~ clumps spreading from crown by decumbent stems, ~~upright~~ 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.

Flowering or prostrate, petals yellow, emarginate.

1949 Connecticut - ~~[illegible]~~

30912 Hedyotis caerulea (L.)
dominant ~~[illegible]~~ over large part of field.

May 29 - Aton Forest, Norfolk, Litchfield Co.

13 Hedyotis caerulea (L.)
common in mowed grass under separated trees near dwelling.

May 29 Shim garden, ~~just out of [illegible]~~ Woodbury, ~~[illegible]~~ Litchfield Co.

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

May 30 - Hemlock Ridge, 1½ mi. S. of New Milford, E. side of Candlewood Lake, Litchfield Co. mixed Tsuga, Betula lenta, Quercus woods on rocky ridges, grassy meadows with many direct herbs in valleys.

15 Potentilla canadensis L.
~~[illegible]~~ old road in woods growing with #30916, no intermediates seen.

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

Litchfield Co. -
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 & slightly emarginate.

erect to ascending; petals yellow slightly to markedly emarginate.

1949 Connecticut - Maryland

30917 Hedyotis caerulea (L.)
common in meadow on gentle slopes, but much crowded by dense grass.

18 Cornandra umbellata
occasional & common locally in meadow.

19 Potentilla simplex Mich.
abundant in meadow

20
common in meadow

21
22
23
24
25
patches (obviously clones) in meadow)

Juncus - 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

Litchfield Co.
Anne Arundel Co.

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 clumps, 1 m. across, flowers purple - sepals recurved purple distally, white ~~veined~~ with purple toward base, greenish at base, petals lavender ~~base~~ veined with purple, filaments purple with white margins, appendages purple, incurved.

1947 Maryland, Virginia

309.	30928		Potamogeton perfoliatus common, gregarious, in water 2-5 ft. deep, sandy-muddy bottom.	Anne Arundel Co. Fairfax Co. rooted on bottom, spikes held above the surface
	29		Brachyelytrum erectum sparsely wooded bluff	1m large tuft, panicles with spikelets somewhat drooping; 6m old leaves curly
	30		Danthonia spicata occasional on sparsely wooded bluff	6m tufts
	31		Deschampsia flexuosa fairly common on wooded bluff in shade	5m culms + leaves straight
	31a		Panicum occasional generally	15m erect, panicle strict, spike-like, reddish.
	32		Festuca myuros: common on sterile open flat above bluffs	15m. erect to ascending, lower panicle branches tending to be deflexed, pale green, no tendency to be reddish.
	33		Festuca octoflora: common on sterile open flat above bluffs	
✓✓			30932 + 30933 grow together, do not intergrade and are distinguished without difficulty.	
		✓✓	June 9 - just west of Le Boulevard Heights, n.e. of Falls Church, Fairfax Co. Va.	
	34		Crepsis roadside, edge of thicket	erect, branched from root crown, rays bright golden yellow.
		✓✓	June 9 - Fort Buffalo, Sleepy Hollow area, 1 mi. s. of Falls Church weedy roadside	
	35		Apocynum cannabinum L.	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; steile 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 in thicket

44 Hesperularia
occasional on steile flat, especially on fill of fine crushed stone.

45 Geranium
rare on steile fill

46 Roripa
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 steile)

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

branched from base; fruit immature

erect, flowers yellow.