### Collection and Field Note Book

**No. 69**

(July 12, 1963 - Nov. 10, 1963)

(43891 -- 44447) Pages

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<td>Specimens collected</td>
<td>78-113</td>
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#### Specimens collected:
- Rio Piedras: 80-81, 44440-44450
- n. of Sabana Grande: 88-89, 44451-44458
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148-151 44303-44322

Connecticut
Specimens collected 136-139
138-139 44297-44301

Massachusetts
Specimens collected 44302 138-139
138-139

[Additional content not transcribed]
F. R. Fosberg
Field Book No. 69

Start # 43891
End # 44447

Standard
Miniature Blank Book.

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If found please return to F. R. Fosberg,
Pacific Vegetation Project
G6 National Research Council
Washington 25, D.C. USA.

for reward
July 12 - B. lepis

Plant:
Cassavena aquinadipora
Ravenala madagascariensis
Asplenium nidus
Delonix regia
Acacia acuminatissima
Cocos nucifera
Allamanda cathartica
Allamanda victoriae
Codium variegatum
Aldophora axillarce x wilkesiana
Hibiscus tiliaceus
Spondia pachynora
Pandemia aquilinum re
Pithecellobium dulce
Amorica minor
Plumeria rubra
Plumeria obtusafolia
Musa sapientum

Arrangement of vegetation:
Cassavena aquinadipora in beach ridge belt of clearing cult. & thicket belt of dryland for & forest transition to peat swamps several phases of peat swamp seen by Andriamoro
July 13 - Tenia - Brunei
by rainous gange, rainind
July 14 - Baa - Brunei
Peat in a bizzare lens
with clayey centor, sandy
ground means periphery.
Periphery crust near beach,
seems to be result of
natural dome formation.
Originally was a pay with
mangrove. Sea level fell.
Peat developed rapidly at
first, slowed down as dome
formed. (P.A.O.E.)
Along m. is Ischium
solid stand, on side a solid
mass of Aleurites (Rendleiana),
with reddish young growth.

Dastylolosus is in
all communities, has
characteristic vertical
conical pneumatophores.

Second stop in rather
disturbed peat swamp
of enormous size all bids
itself on rather shallow
peat. Climbers abundant
mostly closely clinging
to trunks. Ground lag
almost entirely of
seedlings and creepers.

Brunei
Third stop - thinner forest with
mostly more slender
trees, ed Farr still
open - somewhat distin
shrubster, less abundant.
Permit next on knee
just above high water.

Fourly stop - thickier
forest of smaller trees.
Kenny dry still rather open.
Parch defoliated, and
bushed by caterpillars.
Secondary mead of oil
of speed from surrounding
primary under story.

Fifth stop - small
tree, fail canopy, not
more than 30-35 ft. high.
Few than Albidus, many
Kites Galatia. Blanket of
small tree layer rather
thick, but possible to walk.

Badas. Agathis forest on
sand ridge. Sand white
with agathis B. burgers
This very irregular,
with cylindrical and
shrubbe shaped irregularity
Thick understorey 10 m. with good large trees 20-40 ft. towering above in an open stand.

Near river a shrub swamp. Most climbing in shrubs and trees; shrubs and clumps of shrubs widely spaced, with mud between.

July 13 - north of Sarawak
Dry landscape; forest on inner edge of old beach sand - pure stand of Dryobalanops kampam Tree, to 35 m. tall, to 4-5 dm. dbh, having 3-5 m. canopy rather open.

Some Dryena, with large shrub-like pneumatophores seen that day, when swam.

Transitional forest to fresh water swamp.
Trees to 30 m. tall, to 5 dm. dbh; some with pneumatophore. Canopy irregular, often closed; trees of all diameters. Second story not well defined but cover considerable shrub layer absent! Well-defined shrub from 0.5 m. to 1.5 grading into trees, prominent but not dense enough to impede movement, except for o.c. rattans and Palmae.

Herb layer of scattered sedge, many seedling, 75% of ground bare covered by dead leaves.

Occasional lumps emergents, to 5 m. + 1.5-2 dm. dbh.

(Photos of Heritiera area for Kosterman)

This is mostly a complex of low natural avenues, small meandering streams deep yellow fine sandy soil. The swamp itself is much in area open below, with large trees to
40 m. and 1 m. clbh.
Second story promen.
at 10-15 m.
Open beneath, except
in scattered bushes.
Many leaf-like
pneumatophores.
Roots hummocks
on ground.
Said to be flooded
frequently, with
bilby water.
Heat rather thin, on
white sand.

Mixed dipterocarp forest
on slope, trees up to
50 m. (emergent),
photos of termites
nest for Mantell.

Whitepodica
butterfly, 2 dm. about 6
vom.

On ridge a thick forest
of small trees about
50 m. tall, with scattered
emergent to 30 m. a.m.
Few shrubs, almost
no herbs. Thicker
layer of leaves on ground.
Many of big tree butterfly.

Bumi

to 10-12 dm. clbh.
2 bw. photos.
On slope, more
undergrowth and
more medium sized
trees.
On ridge. Ipomoea
vines 6 x 6.
Colony of Geophila pilosa
on black ridge top
in mixed dipterocarp
forest. Colony is rather
extensive, mostly stilted.

soil on these ridges
is bright yellow deep
silty sand, no profile
development.
July 13 - Andukai Forest Reserve

Benia
in tall "heath forest", the canopy layer an almost pure stand of Dryobalanops nappa
on peat-covered sand.

43091
Dryobalanops nappa Becc.
dominant tree

fruits and dry leaves
from ground, twigs
from saplings, 3 m. tall.
ripe fruit, greenish white.

1912
Timumia petunculata
in shrub layer

93
Hyptisum
very common

94
Psychotria sp. 3.0
and in shrub layer

fruits, dull whitish, not quite ripe;
shrub 1 m. tall, touched.

July 13 - Andulan Forest Reserve

95
Melastoma beccarii * [cogn.]
in bushy second-growth
thicket on sandy soil

same, in transitional
forest on flat thin stream
bottom land

96
Trichosanthes
rare on forest floor

97
Heliconia spinosa (L.) Sm.
occasional

98
Morinda odum (a Jackie?)
tall tree

very dark green.

trigones deeply buried
under dense root mat
of trees.
tall tree, fruit picked up
from ground.
same - in fresh water
swamp forest

occasional

landruncum zainajayi Him. rare

same - as in mixed
dipterocarp forest on
low ridges

01 Whiteodendrum
rare

07 Dipterocarpus sarawakensi, V.S.E.
rare

03 Meneiylen
rare

04 (scl.)
rare

05 Sireum
rare

06 Solidae (Actinostachys)
common

07 Verbalibizzia splendens, (Mig.) Kost
rare

08 Heritiera impressinervis Kosterman
rare

09 Antidesma
rare

10 Pentace
rare

slender, sparsely branched
shrub about 1 m. tall.
slender shrub a small
tree, fruit immature, pet.

buttercups tree 7 m. tall.
3-4 dm. diam. above buttress
fruit and leaves from
ground beneath large tree.
small shrub, 1 m. tall.
buds, lavender, carol lobe,
reflected at anthesis, white
within, stamens purple.
flowers white, early
segment marked with a
central stripe and distal
spot of purple
thick leaves with
conspicuous nodes, sterile
erect.

enormous tree with clear
glove, no buttress; fruit
picked up from ground.
sterile tree

shrub, fruit immature.
stere site
1963 Brunei - Brunei

July 14 - Brunei

14. Hemibrachium amicum

15. Cadia


17. Hedystis cymosa

18. Phyllumanthus

5. 13

July 14 - Jesselton, Math. Barnes

1 m.

50 m.

3 m.

shrub 1 m tall; flowers white

red; flowers white

diffuse plant; flowers white

small slender tree; cauliflorescence; most leaves petiole rather thick, stems and petiole dull maroon; leaf blades paler beneath, veins maroon; flowers and fruits very rare; corolla white, lobes patent; fruit black, calyx lobes oblong obtuse; corolla sparsely pilose without, lobes 5 - 6, distally purplish, without shrub, in bud only.

steep; young buds reddish green.
July 14 - trip by car from D. Brunei.

Considerable grassy areas, both on flat ground around town and on hills beyond dominated by *Poa caespitosa* var. *magnum*. Almost no Imperata; a little only on roadside in field.

**Notes**


**July 15 - Brunei - Jesselton**

*July 14 - Brunei - Jesselton*

*Jungle friendship* at iced tea. 1:30

A road along the wooded rubber plantations can be distinguished by unignams except for extremely deciduous Island and peninsular with curious arranged structure, probably sand ridges.

2:40 crossed road to foot of mountain at tidal stream. Gigantic tidal stream with fine gravelly beach. Stream ten times that of local river, then green grass with gallow along stream. A black stream meandering along course. Mostly forest on other side of it. In distance a light, very muddy, meandering stream in same direction.

3:45 A black lake on course.

Sedimented by swamp on course.

2:15 Coast, with long curved sandy beach. Backstream parallel with beach of it, emptying near course. Large areas of forest.
probably neat swamp
bush of it, large clumps
in distance. In John Bay
looked all in distance.
but here, they closer
or land again. More and
more cleared land as
irregular coast, also
isolated hill, wooded
on coast near an angle
and nine months.
Tiny rocky inlet with
clumps of woods.
Small hatches
of mangrove near mouth
of stream. Then hills
run down to sea.
Small islands - hilly
parts wooded, flatter
part of larger one, coast.
Hillside slope - steep older
terrace and cultivated

Complicated sand spit
with Casuarina.
After, outlook - some
mangrove. Wooded hill.
Small patch of coconut
Mangrove island with casuarina
Arcadia swamps on
mainland.

Arrived Jesselton.

July 14 - Jesselton
Flats seen:
Elaeis indica
Lepidopteron indica
Euphorbia prostrata
Paspalum conjugatum
Arctocarpus altifolius
Malvastrum olivaceum
Chloris inflata
Euphorbia flava
Cudiaea hirsuta
Ischaemum variegatum
Juncus cyphioides
Caranka aratia
Pithecellobium dulce
Bougainvillea spectabilis
B. glabra
Trapa stanis
Catharanthus roseus
Pedilanthus tithymalides
Cucumis sativus
Cigutya spinosa
Pityrodia calomelanos
Lygodium pennatum
Cyperus hyginia
Chrysophyllum acuminatum
Casuarina equisetifolia
C. spectabilis
Cedrus portorica
Mangifera indica
Lamania saman
Delonix regia
Passiflora foetida var. hirsuta
Hypatia curvata
Albizia falcata
1963  Borneo

Lagerstroemia speciosa
Sophora dulcis
Pachyadenium abietodes
Desmodium triflorum
Vernonia cinerea
Cyperus rotundus
Thamnochortus ciliatus
Anacardium occidentale
Nesoa brasiliensis
Caesalpinia pulcherrima
Thunbergia grandiflora
Cryptostigma gangetica
Cyperus trivialis
Pettenkofferia leucophaea
Clitorea ternatea

Labah

km 17

km 15 B.W. photos begin
roll in shifting ages.
Solanum mammosum

Kundasang
Tibouchina semidecandra
Passiflora foetida
Dahlia variabilis
Leptacris dulcia
Pachypogon conjugatum
Azorespus compressus
Faulia splendens
Imperata cylinrica
B. vealoa

several photos of Kinabalu
from Kundasang

near jet with Kinabalu &
Isetania palmifolia
Centella asiatica

Hon. Donald Stephens
Deputy Head for Natural Resources
Acting Chairman, Secretariat
N. Borneo (Sabah)
1963 Borneo - North Borneo

July 15 - sit, Jesselton, Tambuali.

July 15 - Tampanuli
Adenanthera of microsperma,
spreading along street

July 15 - m.w. of Kobositan Peak
milestone 17 from Tambuali
on Renau Road, ridge of Kad
in secondary thicket
as steep slope

100'
36 m.

2550'
800 m.

21

22 (lab, var?) Bruchia
occasional

23 (lab?)
occasional

24 (quin)
very common

Bay
in secondary thicket

3

700'
230 m.

3500'
1550 m.

 spreawling herb, stem, floral
purple, flowers bright purple;
fruit, green.
July 15 - above Kundarang

July 16 - ridge from Tasekpo Lake to Kambunggah

28 Grammitis (Rhizopteris) occasional on base of tree, recently cut trees

Liriopodium - very common on the trunk

2. 30 (melast) Liriopodium baccatum

9 32 Elatostemma - common on ground and fallen log

5 33 Arsotenium - common on mossy ground

2 34 Asplenium - rare on mossy ground

2 35 Cyathea - rare

3 36 Elatostemma - colony on log, with # 43937

5 37 Elatostemma - colony on log, with # 43936

5 38 Arsotenium - common on mossy ground

2 39 Doreilla triqa - occasional on mossy ground

2 39 Doreilla triqa - Kotah.

.tree, sterile.

on ridge crest in montane rainforest

shrub

Tree

leaves white beneath,

small tree fern, trunk slender (about 5-6 cm diam.)

(slight intergradation with # 43937)

(slight intergradation with # 43936)

buds on leaf recurve

pedicels becoming red after flowering

capsule white, reflexed

leaves with white areas along veins, flowers pink.
July 16 - trip up Kinabalu
- started walking at 4:30 a.m., through tall
- montane rain forest
- white rhytite, in places
- with great amounts of
- lichens, elsewhere not
- In places with trees of
- all sizes, no differentiation
- into layers, in other place, only canopy and a
- thin low shrub layer.
- This becomes lower
- and more hygrophytes
- toward lambangat.
- In golden it is very
- wet, filmy fern
- and hagrophytes, very
- luxuriant. Creates
- in places somewhat
- open. Ferns generally
- very abundant.
- Passed, at one place,
- a vertical rock face
- with almost no
- vegetation dripping.
- At lambangat
- is a large clearing.
- Where it is not much
- trampled it is a large
- area of Blechnum, Gleichneria,
- etc. Where trampled
- Halorhagis has taken

Camp 3380 m
- very abundant. This
- is a native species, rather rare in lower
- that has taken advantage
- of the open wet ground
- and become abundant
- here. Gentiana brevicaulnis
- is also here. Veronica
- patula is abundant.

Above this the forest
- has a lower stature
- and more gnarled
- appearance - is a true
- cloud forest a mossy
- forest. Better a semi-
- forest, perhaps 5-7 m
- high, on ridge. Probably
- taller in ravines. Blanket
- with mosses and
- hepatics, lichens, varied
- abundant on upper
- branches.

This changes abruptly
- with substratum -
- a large area of "substratum"
- rocks eroded in a rough
- jagged pattern.
- Here is a sharp change
- in flora - Baeckea, gibbosa, Leptospermum
- nemorum become very
- abundant. Dipsacus

p. 30
1963 Barnes - North Barnes

43 940 Hymenophyllum obtusum
3 41 lonicera
common along trail
2 42 Lycopodium serotinum
rare on mossy ground
1 43 lonicera
rare on mossy ground
1 44 lonicera?
3 45 helaginella
common on mossy ground
3 46 Histophtera incisa (Thbg) J.Sm.
local

47 Angostemma?
2 48 rubrussa

49 Psychotria
common on ground and climbing on stumps and tree trunks
5 50 Viola lactinacfolia Sm.
common on wet rocks along trail
3 51 Calotropes
very local, on wet vertical cliff

1 52 Grammitis (Histophtera)
rare, on wet vertical cliff
2 53 Adenostemma larenia (L.) O.Ktze
rare on wet rocks along trail
3 54 Tschonoski?
rare on tree trunks
1 55 Mentha granadensis (L.f.) Duce
very local, on rocks along trail

Kinabalu

fronds pointed downward.
flower pink.

leaves green (no white mark)
flower pink.

flowers red or almost so.

forming tangles.

semi-prostrate shrub.

creeping, flowering rarely, but abundantly when it does.

stems up to 1 cm in more long.
manes, clinging to cliff.

dark green.

flower white.

fruits: fruit scarlet.
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<th>Taxon</th>
<th>Notes</th>
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<td>Grammitis (Xiphopteris)</td>
<td>common on tree trunks</td>
</tr>
<tr>
<td></td>
<td>57 Hedysperis</td>
<td>occasional along trail</td>
</tr>
<tr>
<td>29</td>
<td>Grammitis (Xiphopteris)</td>
<td>rare on tree trunks</td>
</tr>
<tr>
<td>59</td>
<td>Grammitis (Xiphopteris)</td>
<td>very local</td>
</tr>
<tr>
<td>60</td>
<td>Cambo</td>
<td>common but not abundant</td>
</tr>
<tr>
<td>61</td>
<td>Rhododendron</td>
<td>common</td>
</tr>
<tr>
<td>62</td>
<td>Psychotria</td>
<td>rare</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>63</td>
<td>Gentiana barnei i. Hook.</td>
<td>local</td>
</tr>
<tr>
<td>64</td>
<td>Coclopogon e. Wolfenreich Reich. i.</td>
<td>in fallen logs</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>65</td>
<td>Hydrocodea e. javanica Thumb.</td>
<td>local</td>
</tr>
<tr>
<td>66</td>
<td>Halorhagio</td>
<td>abundant</td>
</tr>
<tr>
<td>67</td>
<td>Dianella</td>
<td>in tangled herbaceous growth</td>
</tr>
<tr>
<td>68</td>
<td>Sympoticum</td>
<td>common in tangled herbaceous growth</td>
</tr>
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</tbody>
</table>
Webena locally common just below the cave, along the trail and in base of treen mossy scree. 

Esperoa begins at the cave, and is common there and on us to just about the level of our high camp, at 3840 m. From there it becomes less common up the steep part of the mountain. In upper area it becomes common again especially toward and on at summit. Webena is only common in the vicinity of the cave. It has flat leaves, not at all crinkled as copley states.

About 10,000' scree, mostly Leptospermum extends in steps or ridge and in ravines. Most of area has lean slopes of granite 30°-80°. Granite surface is rough, so area can well support a 30° slope. Plants are in crevices, small bogs, and small boggy crevices. In bog Cephalus, Monotropus, Cincliditis, and Eriocaulon acaule form striking ring, dead in center (photo). Tiny Leptospermum shrubs in crevice on the most striking vegetation. A few species extend to summit.
1963 Barnes - North Barnes

July 17 - ridge above Kambumphia in ridge-crest phase of cloud-forest, loose, draped with shrublets, Hedyotis pulchella Stapf.

70 Blackman
very common in weedy clearings

71 Galenia tristis Nees
abundant in weedy clearings

72 Hedychiun
common

73 Lygodium camaninse
common in semi-open forest

74 Hymenophyllum
common on tree-trunks

75 Polypothis
occasional on tree-trunks

76 Puya
rare

77 (mark)

78 Diplorcos ciliata Hook.f.
occasional

79 Rhododendron
common

80 Trachymene local in small grassy opening

81 Rhododendron acuminitum
rare in undergrowth

Kinsablu

vines 1-1.5 m, long, climbing over shrubs, young growth
- conspicuously reddish
carpelites, branches of inflorescence drooping

7000-7500

7600-7300

short shrub

climbing in low trees

flowers curving downward

shrub 1.5 m tall

slender, undershrub

shrub 3-4 m tall, wide

fruit orange

shrub 1.5 m tall, flowers white

shrub 1 m tall, flowers orange-red

flowers white

shrub 1 m tall, flowers vermilion
1963 Barnes - North Barnes

43982
1. Hedypus
5. common upward
3. Eugenia
2. Psychotria
1. 85. Dichteum
comm
3. 86. Embelia
4. 87. (sub.) Urophylum
5. 88. Euyna obtusifolia, reticulata (Korth) De Wit
4. 89. Polypodium tannstroemii
3. 90. Polypodium
2. 91. Trachyrum
1. 92. Drimys piperita
33. 93. Pagnerum
2. 94. Hedypus
5. 95. Leptopus flavescens Sm.
1. 96. Blechnum
2. 97. Blechnum
1. 98. Dipteris marrhineum, Posth.

KINABALU

shrub 0.5 - 0.7 m. tall;
flower white, being within
slender tree 5 m. tall
fruit, pulped red
climber, rarely flowering;
flower only and immure fruit
flower white

scramble

7500 - 8000',
2300 - 2400 m
shrub 2.5 m. tall

shrub 1 m. tall
fruit immature
shrub 2 m. tall; flower
dull mauve-pink; fruit
black when ripe
plant reddish
shrub 2 m. tall; dark
very acid; fruit immature
shrub 1.5 m. tall
shrub 0.4 m. tall
shrub 2 m. tall; flower white

young fronds red

petile fronds erect

plant glaucous, young fronds
reddish
<table>
<thead>
<tr>
<th>No.</th>
<th>Plant Name</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Blechnum</td>
<td>occasional</td>
</tr>
<tr>
<td></td>
<td>Hymenophyllum</td>
<td>chamaephyllum, on tree trunks</td>
</tr>
<tr>
<td>2</td>
<td>02 Podocarpus</td>
<td>common in small openings</td>
</tr>
<tr>
<td></td>
<td>Dracena ananensis (L.) DC.</td>
<td>common in degraded forest</td>
</tr>
<tr>
<td></td>
<td>Vitoaria</td>
<td>rare, on tree trunks</td>
</tr>
<tr>
<td>3</td>
<td>01 Hedyotis macrostachya</td>
<td>common</td>
</tr>
<tr>
<td>4</td>
<td>03 Podocarpus imbricatus ssp. kinabaluensis</td>
<td>occasional</td>
</tr>
<tr>
<td>5</td>
<td>06 Phyllocladius</td>
<td>common</td>
</tr>
<tr>
<td>6</td>
<td>07 Vitoaria</td>
<td>rare, on tree trunks</td>
</tr>
<tr>
<td>7</td>
<td>08 Hedyotis macrostachya</td>
<td>common</td>
</tr>
<tr>
<td>8</td>
<td>09 Elatostema bullatensis</td>
<td>common in m. rocks</td>
</tr>
<tr>
<td>9</td>
<td>10 Euphrasia</td>
<td>common in m. rocks</td>
</tr>
<tr>
<td>10</td>
<td>11 Caryandra clarkei ssp. stafft</td>
<td>rare</td>
</tr>
<tr>
<td>11</td>
<td>12 Podocarpus bentolina</td>
<td>occasional</td>
</tr>
<tr>
<td>12</td>
<td>13 Daphniphyllum bumeaeis ssp. stafft</td>
<td>rare</td>
</tr>
<tr>
<td>13</td>
<td>14 Myrcine</td>
<td>common</td>
</tr>
</tbody>
</table>

**Kinabalu**

- very glaucous
- erect shrub to 0.7 m. tall, flowers white, hairy within
- shrub 3 m. tall, fruit immature
- shrub 3 m. tall & 8
- shrub 0.5 m. tall, flowers white
- leaves very rugose
- flower white, purple outside
- flower crimson within
- dull fruits without
- shrub 2 m. tall
- shrub 1.5 m. tall, flowers purple
- shrub 1.5 m. tall
38
1967 Barnes - North Barnes

144015 Lysimachia g. bicornis Stapf occasional
16 Dacrydium gibbosum Stapf very common, co-dominant
17 Metrosideros excelsa very common
18 Veronicella
19 Leptospermum recurrens var. Hookei abundant, co-dominant
20 Calypodis occasional on tree trunks
21 Quenua fistulosa偶尔
22 Alectis common
27 flex
24 Hedychium macrostachys common
25 (exip) Macaronesia occasional in area of dwarf open vegetation
26 Drimys piperita Hook.f. occasional
27 Lithospermum havilandii
28 Carex occasional
29 Cyathus sp. havilandii abundant around an area of sparse dwarf vegetation

July 17 near Padma Cave
1 st slope of Mt. Kinabalu
in mossy scrub forest

30 Euphrasia

Kinabalu

Shrub 1.5 m. tall, flower white.

Shrub 1.5 m. tall, flower white.

Shrub, fruit red.

Shrub 5 m. tall, flower white.

Shrub, flower white.

Shrub 5 m. tall.

Shrub 5 m. tall; fruit immature.

Shrub 5 m. tall.

Acrocliscent (one seen with trunk 0.5 m.), hands erect.

9.700' 7000 m

Sprawling shrub.
Dichrocephala
very rare along trail

1. Cotoneaster
common

2. Blechnum
common locally

3. 34 Nolina grandiflora (L.f.) Bruce
common locally a rock
and bases of trees

2. 35 Calymperes
in tree trunks

3. 36 Carex capillaceae Boot
common along trail

37. Polytrichum
of rocks

July 17 Above Laba Cave
2 slope NM, Kinabalu
in open boggy places

4. 38 Crepisaurus
common

2. 39 & Moustachya centaureoides
common

1. 40 Harlandia
very local

1. 41 Gaultheria runcinata Spart
rare

1. 42 Ranunculus
very rare

1. 43 Pilax johnstoni Oliver
rare

1. 44 Gentiana pseudodipoda Spart
rare

Kinabalu

sprawling shrub

fertile fronds erect

prostrate, stems reddish
leaves not at all crisped;
fruit red

caespitose

formin dense cushions

formin dense cushions

prostrate, flowers white

prostrate, flowers white

flowers yellow

forming dense cushions

flower white
July 19 - ridge above lab. Camp s. slope Mt. Kinabalu in dense mossy scrub, large Lepotherum recurvum. Rhododendrum excipulaceum low very common generally. Polyosma com. 46 com. 47 Com. 48 Com. 49 Com. 50 Com. 51 Com. 52 Eugenia ampullaria 53 C. verticillata on rocks 54 55 56 57

KINABALU

10 200 - 11000' 3100 - 3350 w

Small shrub, 1 ft to 1 m. tall, flowers vermilion, shrub 1 m. tall, leaf black, leafless shrub, shrub, flowers dull purple, shrub 4 m. tall, shrub 2 m. tall, flowers crimson, shrub 1.5 m. tall.

44053 a Carex parvulina, m. Sonora (B. & O.) Nov. 44053 b Carex plicata, Nees

shrub, strictly erect, shrub, flowers white
July 18 - ravine above Palca Cave, 1.5 km. N of Kinabalu in steep, rocky site, with local low scrub.

Cephalozia
common

Kinaabalu

sprawling shrub
shrub 0.5 m. tall; flowers white, being white, sprawling shrub
shrub 1.5 m. tall

Cephalozia
common

Hedycarya
occasional

Myrica trinervis
very local

Phyllocladius
common

Monostachya
in open boggy shot

Eriocaulus acaule
common in boggy shot

Lagenophora
dre in open boggy shot

Calyptrid
on tree trunk

Centrolepis
in open boggy shot

Echinospermum
common in open boggy place, and roch crevices

common in open boggy place

Hyphelia serrateens
in open boggy place

Daphniphyllum trinervis

July 18 - ravine above Palca Cave, 1.5 km. N of Kinabalu in steep, rocky site, with local low scrub.

Cephalozia
common
46 1963 Barnes – North Barnes

1. Carex capillacea
   in rock crevice

2. **Lycopodium clavatum** L.
   local in scrub

3. Lycopodium
   local in scrub

76. Leptospermum recutitum
   dominant in scrub

77. Coprosma
   occasional in scrub

78. Coprosma
   occasional in scrub

79. Lycopodium
   rare in scrub

July 18 - above ravine on 
west slope of
Mt. Kinabalu

80. Schizocodon
   very common in crevice

81. Anthothamnus?
   occasional in boggy spot

82. Dactylorhiza
   rare in boggy spot

83. Bilea
   rare in wet crevice

84. Carex
   very common in crevice

95. Leptospermum recutitum
   abundant in crevice

86. Leptospermum recutitum
   abundant in crevice

Kinabalu

Tufted

creeping and scrambling

creeping

shrub in老虎, flowers white

depressed shrub

depressed shrub

11,500 -
12,500'

1500 - 3800 m
48

44087
4
1 28 Euphrasia
common in very common in crevices
same - in ravine
5 39 Hedystachys gibbosa
common on rock slopes
1 90 Cephaloma
occasional in rock crevice

July 13 - summit area of Mt. Kinabalu
on bare granite slope
2 91 Anthoxanthum
in boggy crevice
1 92 Potentilla
raw in boggy crevice
2 94a Strophelis aequale
common in crevice
2 93 Cephaloma
common in crevice
1 94 Gentiana, lycopsidae
raw in boggy crevice
3 95 Cephaloma
common in crevice
6 96 Drapetes
locally common in boggy

485
1 97 Deschampsia flexuosa? Trin.
in rock crevice
1 99 Cephaloma
common in crevice
1 99 Schoenus
common in boggy crevice

Kinabalu
caesitites
flower white within

11000'
3850 m

shrub 0.3 - 0.4 m tall
flower white, hair within

13000'
3960 - 4090 m

depressed shrub
flower white

13450'
depressed shrub

prostrate

depressed shrub, fruit
orange red, fleshy
flower white
50

44100 Cephaloa
1 common in crevice
3 01 Lycopodium
very local in sheltered boulders
1 02 Cephalo
common in crevice
2 03 Pol

51

Kinabalu

depressed shrub

7 - healthy

7 - healthy

7 - healthy

tufted

forming dense cushions

forming small cushions

forming small cushions

July 19 - south ridge
of Mt. Kinabalu below
Kamburanjo
in montane rain forest

12 Rennobambus
common

13 Polypodium

44114
4th Aug. 15

Hymenophyllum
common on tree trunks

Hay
bare on tree trunks

same - in deep wet rain near waterfall

5 16 Riccardia
in decaying twigs

3 17 Asplenium
common

3 18 Trichomanes
common, terrestrial

5 19 Hymenophyllum
common on wet soil slope

1 20 Calymperes
of small tree trunk

4 21 Trichomanes
common, terrestrial

1 22 Grammitis
rare, on rock

same - on steep wet slope at base of cliff, in fern montane rain forest

2 23 Hepatanthus
rare

1 24 Galium
on bare wet cliff

4 25 Hydrocotyle of javanicum Trunc
common

7 26 Pratia

Kinasalu

6,800'
2070 m

5,800'
1720 m

floride leaves; pale purple flowers.

fronds erect.
54  1967  Borneo  North  Borneo

41427  Noya

- in tall montane rain forest

7  28  Drimys carri / D. fumariaefolia  (Blume) de la Bill, var. in the Philippines, note in note, cited by de Lauter, cited by de Lauter, 1982.

8  30  Calyptranthes on tree trunk

3  31  Hymenocallis on tree trunk

1  31  Grammitis on rock face

July 19  near junction of Kinabalu Road, below Jenangoh Falls

1  32  Hypericum on road side

2  33  Trinia on road side

July 19  Kundasang

1  34  Joannisella rare in valley in wet forests

1  34  a  Agapantha sp.

rare  creeping on ground

and climbing on tree trunks.

3  35  Ephedra in montane rain forest

4  36  Sphenomis chinensis (L.) Copel on sunny earth banks

5000'  1525 m

Tree 15 m tall

Tree 15 m tall, fruit orange

5000'  1525 m

Asteraceae; flower pubescent

Plant yamlike

4300'  1300 m

cane 1 m tall

creeping

corolla scarlet, stamens style purple

Tree 30-40 m tall, fruit spiny, dehiscent, seeds with small ail at one end.
July 18 - *Cephalis* in tall secondary forest

14137 (balangh)

5000'
1525 m

bright crimson

fruit blue

parasite on root of *Macaranga* sp.

3:48
Managrove just north of Jessett on coast river. Tall open coconut trees with dense understory of Rhizophora.

3:51
Small rocky island, partly wooded, partly in coconut plantation. Many fires inland.

3:52
Passed a small point which is a range of hills protruding into sea. Is a flat area with many Myop and mangrove back several parallel beach ridges, but mostly cult, hardly met river. A series of southward pointing sand spits at intervals along beach.

Country very sandy, fine soil, inland. sandy beach scarcely interrupted for many miles. Course cut across a large semicircular bay.

3:58
Some cultivation, small forest.

3:59
Rivers along this coast tend to parallel coast just back of beach for several miles to south before emptying into sea.

4:00
Great windstorm, showy very distinctly the geometry described by Anderson.

4:01
Grassy plains, mostly marshy, partly cultivated and along streams, then a large meandering river with gallery forest also along tributary, traversing this plain more or less day course. Reddish large tree along some small tributary.

4:04
A patch of forest then and the meandering river and between and sea an extensive swamp, mostly fine textured, with extensive forming a network, fine and fine subdivisions an area just back of land has been burned probably logged first.

4:06
Left coast to cross extensive bay. Bay has a current, dark green, huge river in distance, carrying much silt into sea.

4:08
Approaching island with a rather irregular boundary between dark green and light milky green, then brownish or briny water.

4:11
Along south pointing spit has darkening and ragged
grass in parallel bands of low, scrubby trees. An island inside, with tall trees and grass, surrounded by parallel bands of scrubby grass, with shrubs of low, woody plants.

Mosaic of wooded hills, flat sand with few footprints, cleared patches of grass in flat ground. The Jennery, near woods, in middle distance wooded low, hilly lands. Patches of grass, trees, and remnants of secondary scrub, more cultivated areas, patches of tall grass as we approached Brunei airport.

Rubber plantation, around airport.

4:45
Took off.

4:47
Most intricate little hilly, with shifting agriculture and bits of primary forest.

Across main road is flat country, much of it cleared, appreciably sandy, stream with mid-gallery forest, a large meandering river in distance.

4:49
Several parallel ridges with woods, some with grass forest in places. Secondary thicket and clearings between them. Course roughly follows road for a distance, then road goes to left gradually, some areas of grass, then good forest, probably not very dense, but phase with a mixture of trees.

A couple of small hills have secondary thickets.

A small closely meandering stream, muddy, some very black small streams.

Mosaic of grass and patches of forest.

A muddy lake in distance, drained by meandering stream with sand bars on meanders.

Complicated small hilly country, with pine mixed forest. Considerable extent of shifting agriculture in distance.

4:55
Apparently small swamp area, between hills.

Large and larger swamp area, with muddy, meandering through them. An enormous peat swamp area, almost all these alluvial.

A green strip of low, growth along meandering rivulet, with flood stands of Pinus albida with complete canopy above.
for numerous holes that may have been from lightning strikes, scattered through them.

Spectacular patch, possibly killed by caterpillars, on this.

On lots of black water.

Cross large muddy rice.

Then more striking peak swamps with patches of caterpillars, also an enormous blowdown area, with a radiating pattern of streams running out to sea.

Good vegetation in swamp.

A very long sinuous area paralleled with course with low vegetation.

In distance an area of hills with teniferous swamp.

Thickly distributed many small hills with numerous cattle holes. This continuing course worked except for land slide.

Shifting agriculture beyond beyond this several large swamp areas.

Hills end in rather irregular front then much shifting agriculture, dominating landscape except for certain apparently swampy spots which still have good forest.

Communication here seems to be principally by a meandering.

A rather-looking area of small hills, mostly in shifting agriculture, then a part in good mixed forest.

Counting an enormous number of patches of shifting agriculture and of forest.

A small much meandering river of black water, reaches the coast through a sandy flat with a parallel structure as though it were a series of beach ridges along coast this parallel structure is evident in fact back for a little distance from beach, great under-turban forested area for some distance back from beach. shifting agriculture in distance.

This forest stretches a long way along coast must be very swampy, because of uniformity of crown and flatness of streams.

Meandering small black river, mostly for some distance back of mouth.

Very extensive forest, but with a small cleared patch far inside it.
A series of southward pointing cusps in coast. Does continue, except for
a patch of shifting agriculture extending inland along a
very small river.
Curious black margined
reefs here and there interesting
beaches.
Forest extends with scarcely
an interruption for
many miles. Rocks slightly
stilly backed from beach, but
now course is so far out &
sea that it is hard to see
clearly above some bay.
Now hooked cusp. But slightly
irregular. Hills cleaner here.
This entire coast is lined
with a sandy beach, and
almost no reefs except
the curious ting one metioned
above. No apparent explanation.
Big shallow estuary, some shifting
agriculture.
Visibility very poor, as we
are far out to sea.
Approached coast again.
Vast forest, with light day
emergent.
Large estuary.
Small cove pouring
black water into sea. as
there must be great rains.

Enormous areas with no
sign of disturbance.
Considerable area of clearing
with a few dots of wood
left. More and more forest
as we go n. Locally mostly
clear. Becoming mostly
forest with only a few
irregular strips of clearing.
Then here at all for a little way.
Then an intricately meandering
river with a belt of clearing,
especially on west side. Or long
black ponds. Probably this
forest may be swamps and
the strip of clearing may
be natural levee land.
Much shifting agriculture
in distance. Forest along some
another very meandering
river and band of clearing.
Extents of meanders tend
uncontrolled forest. River
spreads up stream. Clearing spreads out
fanning into distance.
Along course is undoubtedly
great swamp of threes alike.
Many lightning holes
and this fan like blow down
pattern. Very black stream.
A very large river, with a
strip of clearing along each
side and on fairly long clumps.
66

1903 Barnes - Tarawah

5:51 Great meandering rivers in distance. Shifting agriculture along them.

5:52 Visibility very poor crossing a very large bay. Too far from land to make out detail except for smoke from fires.

5:53 Crossed coast again. A wide belt of mangrove with open water and closed low strag. Then extensive coconut plantation.

5:54 Relics of main river. More large distributaries and wide small tributaries (on right), actually forming a network. Along each is a band of cleared land with gallery present along small streams, entering these at right angles.

5:56 Clouds - great cumulus towering several miles above plains.

5:57 More from stream network. Large river, but visibility poor.

6:00 Stream network, with occasional large estuaries again.

6:01 Crossed coast. Some mangroves at mouth of estuaries - some of them only. Mangroves sparse.

6:02 Rather straight coast with sandy beach mostly flat, some clearing back from coast. Coast getting far from coast.

6:19 Large areas of Nilga (trees) along hungry Tarawah. Tiny streams meander through it. Nilga is several times as wide as river on each side. Natives globos stands out with golden cameo men.

6:21 Landed at Korangi.
July 21, air trip from Kuala Lumpur to Singapore (same plane and seat)

7:47 Took off from Kuala Lumpur. Shifting agriculture very general - many fires burning, making a bad day.

7:51 Heavily grovex common in mangrove close to river and small streams. Kuala Lumpur quite spread out and open. New construction mostly bare areas of white soil.

7:54 Solid rubber plantation, blocks of different ages stand out. Some peat swamps - black water streams.

Third clouds. A few holes show forest and black streams. Then some forest or white sand, but visibility almost nil.

7:56 Hole in cloud - swamps with complicated tidal channels. Visibility to port to be sure if peat swamp or mangrove forest.

8:53 Vast marsh when forest, apparently peat swamp. Then some slight relief, probably mixed with peat.

7:02-03 Alternating narrow bands of shifting agriculture and broad areas of forest.

7:06 Cloud.

7:12 Great network of estuaries, but visibility too poor to see vegetation.

7:15 Crossed grassline. Obvious parallel beach ridge pattern, but detail obscure. Sea looks muddy.
July 22 - Lingaro
West end almost uninhabited
acc. Burnhill.

Cordia cylindrostachya

Flight Lingaro to Hongkong
in Comet - 4 left sides
are missing.

5:27am Takes off
patches of rubber and coconut
plantation near airport.
Also green pond along
Strait of Johor. Home
mangrove swamps on right
side of Strait.
Visibility immediately
impossible because of sun
shining on wing.
July 24 - Hong Kong Island

Mountains generally deforested, but green, with thin low scrub and grass, on lower slopes, thickets. Eucalyptus, etc. Many trees around houses, mostly introduced. Pines planted, but not doing well. Cultivated patches wherever sufficient soil.

Aberdeen side - dense pine plantations on slope, but only a few feet high. Photos (b) of fishing boats.

Upper slopes are of bare rock.

Photos of sharks and floating water plants.

On upper road, many slopes covered by Eucalyptus, probably for cattle fodder.

On the Peak, exposed slopes are rather grassy, north cliffs bare, more sheltered slopes have tall scrub and scrub fact. Various masses of forest, common, said to be meadow.

Upper slopes of Mt. Parker are grassy.

Plants seen:

Albizia mollucana
Balanites arachnoidea
Baccharis salicornia
Baccharis pilosa
Cistus albidus
Cistus salviifolius
Cistus ladanifer
Cistus incanus
Cistus creticus

Lamium rigidum
Lamium galeobdolon
Lamium purpureum
Lamium amplexicaule

Rhus typhina
Zygophyllum

Heliotropum

Pteridium aquilinum

Ficus elastica

Ipomoea batatas

Asparagus species
Hymenocallis littoralis
Jasminum globosum
Arctotheca erecta
Stenanthus lanceolatus
Eucalyptus cinerea
Carnivorous species
terrestrial
Lunaria chinensis
Cynodon dactylon
Bignonia quadrata
Coleus scutellarioides
Alleminda cathartica
Gelsemium variagatum
Phoenix robbeli
Antigone lepida

July 24 - Nikhan, from an
south end field green,
browning forest. West part
of south half of
south half has some
completely bare areas.
North end also browning
forest. Clouds piled on
upper cliffs, on east side
of north half and trailing
down to mist slope.

Oahu - These still seem
to be some areas of this brown
forest in the sun-lit plain
interior - can be reached via
plantation roads of Hamakua.

The coast of China north
of Hong Kong is very intricate
with hills and narrow promontories
or capes into the Channel, with
some of them breaking into
islands. Reddish-tan sandy
beach very wide, extend in shallows

Hymenocallis littoralis
Jasminum globosum
Arctotheca erecta
Stenanthus lanceolatus
Eucalyptus cinerea
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to be some areas of this brown
forest in the sun-lit plain
interior - can be reached via
plantation roads of Hamakua.
July 26 - Cull Canyon, back of Castro Valley
Dry hills, stream dammed up to form a small lake for swimming and boating. An East Bay Regional Park.
On the hill west of the lake is an old orchard. Toward the head of it and up a small side canyon are large eucalyptus, globuloides, and along the west side of the canyon of the lake itself are Quercus agrifolia. The hill is covered with thin dry grass and a few weeds. In one area, west of the lake, is a poor-looking plantation of small pines. Along the lake Matricaria, matricarnoides, M. marcelus, Baccharis, etc.
Along small trickle of water in side canyon are quite a number of plants, all with possible exception of Cyperus esp. and Cleocharias, cf. are Mediterranean weeds. As are all the other plants seen, except...
July 30 | Rio Piedras
Cultivated plants seen:
- *Alternanthera superior*
- *Zamia sp.*
- *Pedilanthera tillepeltata*
- *Polycarpa sp.* (end of leaflet truncate, terminal leaflet may be divided almost to base)

- *Dracaena fragrans*
- *Polycarpa finifolia*
- *P. triochleota*
- *Alpinia purpurata*
- *Jacquemontia flava* f. var. very ornate
- *Catharanthus roseus*
- *Dansa* (blos. sessil. st. long., ovate, acute, base subcordate, cardate acutis)
- *Jasminum multiflorum*
- *Peperomia obtusifolia*
- *Hyalochloa picta*
- *Colubrium variegatum*
- *Caladium bicolor*
- *Ruta grandis*
- *Phyllanthus bifidus*
  (f. f. d. acutis)
- *Calotropis procumbens*
  (f. is. 1.5 cm. across, yellow, leaflet oblong, upturned)
- *Impatiens noli-tangere* (f. is. of chimney, large pink f. large purple)

Weeds:
- *Vernonia camara*
- *Fleeg microphylla*
- *Euphorbia frontalis*
- *Euphorbia cf. glomerata*
- *Eucrosia indica*
- *Euphorbia heterophylla*

- *Phoenix cf. daeystifera*
- *Phoenix rodolilii*
- *Acalypha wilkesiana*
- *Coccos najos*
- *Hymenaea courbari*
- *Cassia fistula*
- *Saintpaulia (adans)*
- *Anthurium (adans)*

-net.
- *Sanguinaria natans*
- *Plumbago auriculatifera*
- *Ficus bengalensis*
- *Pitium gramine*
- *Pisonia americana*
- *Chrysalidocarpus lutescens*
- *Manihot esculenta*
- *Muscaripia repens*
- *Bidchamm 77*
- *Pia caillou*
- *Chrysocephalum cainita*
- *Gymnophyllum peters*
- *Ficus elastica (variegata)*
- *Polycarpa pulchra*
- *Helianthus annus*
- *Euphorbia appendicula*
- *Wedelia triloba*
1963  Puerto Rico

July 30 - Rio Piedras
Phylanthus
weed in garden

July 31 - Maricota Fish Hatchery,
Montezuma, speciosissima
in secondary scrub, fruit
Blechnum occidentale
common on cut barrens along trail
Adiantum
common on cut barrens along trail.

July 31 - Bosque Estatal de Maricota,
about 6 mi. n.e. of San German
in scrub forest on xerophytes
Linarhita
occasional
Guetarda
occasional
Guetarda
rare
Pilocarpus
common

Bosque Estatal de Maricota
July 31
about 8 mi. n.e.
of San German
on road cuts in deciduous
to 48
Spermacoce
common
to 49
Spermacoe
common
to 50
Drymaria
common

Les Tetas de Cerro Gordo,
875 m.

Small tree 3-4 m. tall.
Large shrub, flowers white
Small tree, 4 m. tall,
loosely twined,
Fruit smooth, fleshy, dark red; fruit darker red.
Leaf veins prominent beneath
Leaf veins not especially
Prominent non-uniform, flower white
Diffuse plant; nice flowers
Fleshy, glutinous, caduceus
July 31 - Lago Germon area.
Cult. spes
- Averrhoa carambola
- Duranta repens
- Psidium guajava
- Mangifera indica
- Cassia grandis
- Persea indica
- Clevelandia thomsonii
- Eupatorium pulcherrimum
- Pseudennemia pittata
- Nerium indicum
- Nerium oleander
- Lagerstroemia indica
- Anthophora leptopus
- Digitaria insularis
- Parathalammus paniculatum
- Pennisetum purpureum
- Eugenia jambos
- Eupatorium diffusum
- Morinda charantia
- Neptunia marina
- Chenopodium colinum

Serpentine area
- Gliciridia sepium
- Emilia sonchifolia
- Prunus lasiandra
- Psidium guajava
- Bignonia chilenicola
- Petiveria domingensis
- Cardia sp.
- forms a scrub, partly opened up by grazing, where most grazed, continuous, in savannah - approaches scrub forest
- The letitia heavily infects with a braunt, parasit. Tillandia renata is abundant on all trees.
- Anisotricha euglyptofolia
- Hibiscus tilicocro
- Lippia lanceolata
- Andropogon glomeratus
- Medicago minutiflora
Laterite or laterite on hill on serpentine. Belted with two species of "Elechmania" one of "linea" with scattered "calophyllum" antillamum shrubs and "eucalyptus" trees.

Picnic ground - scrub forest - very mixed "calophyllum" "pokocarpe" "cadia" "enchia" "tabbivia" "plumeria" alba "emiralum" "glechum" "trema" "camarhedia" "guarea" "fipitaria" "eucalyptus" "fruticosum" "capilla" "bidos" "denrothe" "litresma" "achmena"

From town west the hills are mostly serpentine and scrub- covered. Farther a very considerable area of mountains, mostly wooded with low montane rain forest, some clearings, woods in distance. In this forest a few trees are bare.

Other side of ridge - red soil

Elephant poe muliplum
Pouhalon conjugates
Sida multiplica
Sida acuta
Maraca Fish Hatchery
Many things planted as ornamentals
- Monstera deliciosa
- Alloclanda call me buchess...
- Chrysobalanus icaco
- Montevina speciosa
- Cleodendrum speciosum
- Duranta repens
- Lithocarpus diversifolius
- Terminalia catappa
Rubia roseopilosa
Datura campana
Zachira pendula
Erythrina pulcherr
Colocasia esculenta
Coffea arabica
Bambusa cannabina
Cleodendrum forsteri

Cleodendrum forsteri
Bahia furfuracea - e. of Paraguan. The bay, itself is surrounded by a narrow mangrove fringe. Also some mangrove cays in front. The cahuita trees has a rather steep rocky shore. A string of shrimp villages being gradually extended from Paraguan. But has not reached the bay. The Cotton

Aug. 1 - north of San Juan
Maray to Guanica

- Phlebodium coriifolium
- Parthenium hysterophorum
- Prosopis sp. pallida
- Albizia lebbeck
- Carica papaya

Hills with open
- monospecific forest of
- sahuara \( \text{or} \) sahuara, locally closed on hills.
- Parakac, Lantana, etc. Euphorbias antiqueras, hedges. Crescentia cujete
- limestones. On these limestones hills closed
- shrub with mani vine.
- locally open fruit forest.
- Head of valley - open
- fruit to savannas of Lantana.
- Euphorbias Villandelary
- of mani vine common in all
- of these forests.

- Anacardium occidentale
- The persimmon
- is will grass, fish population
- days. The yellow crape, especially
- seen in bright moonlit nights.
- totally dependent on mollusk shell balance.
1963 Puerto Rico

July 31 - 3 km. N. of Sabana Grande, m.e. of San Germán

on open terrestrial soil

44151  Sphacelotheca

common on steep slopes

3 52  Sphacelotheca

common on flat & sloping

1 53  Diosia

occasional on flat & sloping

same - on deep red soil

on serpentine

3 54  Lycopodium

common in tangle

of Gleichenia

2 55  Elemiu sandifolia

common on roadside

Aug. 1 - San Germán

Interamerican University, subtanta

3 56  Olyca (mitrastrophilum)

local

Aug. 1 - hill just east of

Guánica, on south coast

3 57  Pleonia albida

rare tree in xerophytic scrub

Aug. 1 - beyond Playa de Caña Gorda,

House of Guánica

3 58  Grossyprium persicinum

det. Fryall

in open maritime scrub

750 m


flowers white.

flowers white.

ground

ground

flowers very pale lavender

a whiteish.

flowers purple, only

slightly exerted.

canes 1 - 2 m. long, mottled

with purple when young,

from a root crown.

small tree, 15 cm. dbh, 5 m.

tall, abundant fruit, on

ground beneath, large

leaves from shoot.

shrub 1 m tall, branches

rather erect.
Granica Point - just east of Granica.
Large areas on coastal hills covered by a scrub forest - closed, microphyllous, semi-deciduous, & deciduous forest, somewhat thorny, some Cereus species, several thorny legumes. Conocochloa, dogmatia, Brunera simonii, common, Pisonia altida rare. Tillandsia recurvata very common on rocks, flowering 1-2cm, 1ft-6in.
At Granica, a broad salt flat back of a narrow mangrove belt.

East along coast - a semi - open, partly scrub to scrub forest - an arborescent Opuntia, locally common. Mangroves around a small bay. Rocky bluffs with a park scent.

The Volcano belt. San German + Mayaguez is flat, mostly in sugar cane, with a few ditches and streams. Bamboos (from Vulcano?) are very prominent in the landscape, forming peaceful clumps, rows, lining streams, etc.

March back of Mayaguez, with Tryphea, Cyperus, etc.

Mayaguez: ornamentals:
Rubellia leucophylla
Santa Maria
Rhaphidostema recurvum
Phormium
4ft, slender, many leaves, broad, brown 5 stem.

Vaccinium
Ficus primula
Ficus microcarpa
Erythrina quinonea

Nurcanda australis
Nurcanda australis
Rivera spathacea

V. prostrata
M. comandos
Iridas spicata
Euphorbia histo
Vernonia cinnerea
Cyperus rotundus
1943 Puerto Rico

Aug. 1 - Mayaguez, University campus, cultivated as an ornamental

44159 Muscaenda

1 60 Hibiscus rosa

1 61 Prosopis latifolia

Aug. 1 - San Juan, Cañon de las Cañas

67 Seaweed common on weedy area.

1 km. N of Las Cañas

Aug. 4 - 3:30 a.m. 2 mi. of Cañon de las Cañas

75 Apricocoe common on weedy roadside on clay soil.

Aug. 3 - m.w. of Puerto Galindo, east of Vega Beta

63 Pomipora common on grassy roadside on limestone soil

2 64 Randia semin

common in lower slopes of limestone "mojón" on hill.

2 65 Chiococca lanceolata

common in scrub on lower slopes of limestone "mojón" on hill.

70 m.

shrub; flower white; fruit immature.

75 m.

shrub; flower white; fruit white, fleshy.

450 m.

tree with erect trunk, flowers brick red (dying on ground).

tree 6-7 m. tall, abundantly flowering, buds zygomatic
flowers in rather fan-shaped deposits directed spray:

collar white, not zygomatic when open.

erect; flowers white.
Aug. 2 - trip to Ponce.
Mayaguez to Rio Piedras - plain south of Mayaguez in sugar cane - large fields, submerged by rain. Rio Las Cero
red and thick with mud. Cane la cascada - largely demended, muddy with scattered trees, patches of wood and small
patches in ravines + valley. These hills are bedded, shale.
The forest is a mixture of Cecropia, Antoquin, Mangifera, Rapanea, Acharne, Bambusa -
one coffee plantation. More.
Limestone hills around, very
Victoria are generally scrub
covered - well developed land
Lemonrea is an important crop
lone seems to have less
disturbed vegetation, scrub.
The limestone seems to
be a rather argillaceous
type, yellowish, earthy.
Then a rolling semi-open
area. Commonest trees are
Antoquin altibe + Mangifera.
Cassia spectabilis, Delonix,
(Cat. Condesa + Mac)
Roads generally lined by trees:
pineapple, cacao, maize, some banana,
papaya. 
Guineo = indica

Before Guajataca reach,
a gorge through limestone.
Then a good view
westward from point
where there is a shelter.
Vegetation being cleared
by park dept.
East of this, a largely
cleared rolling back
down low limestone hill.
To right a large area
of bare hill, a moatly
closed and close to road.
but also lower and more
rounded. Road follows
rolling terrace, cleared, mostly
with very thin soil, infertile
pasture.
Alcantarilla
Guajataca, local along stream.
Delonix very common along
road. Also Albizia tiliace.
Hamorae, more rare. Thrypisia,
Terminalia calapuy, coco.

Beyond Arecibo, to right in
distance a very impressive
head. Large flat area of
cane plantation. This side to
the hills. Pine scrub, mostly
Thrypisia with trees along it.
Terminalia catacha very
common along road.
Very spectacular mogotes on left.

Aug. 3 - east from San Juan Bay Road. - all the lower hillside cleaned and grassy - sugar cane on some of lowest, as well as on flat coastal terrace and valley bottoms. Hedgerows & roadside of trees, clumps of bamboo in field.

Cabo San Juan Peninsula. Grassy hill largely built up. Climbing vines on flat places. Small mangrove swamp with Rhizophora, Laguncularia & spp. of Avicennia on inlet, and shore. Salt marsh and scrub of Gossypium herbaceum, Leucaena, Indigofera, etc. Dune florist of Borreria capitata with Thamnochortus, Heliotropium, Euphorbia, Chamaesyce, Gymnospermae, Stachytarpheta, Jatropha, Cestrum, Bursera, etc.

The coastal area around the east end of the island is in pasture and cane.
depending on the terrain. Cane is planted on some rather steep slopes and generally hilly ground, but not to very great altitude. The valley complex around Yabucoa is flat entirely planted to cane. South of Yabucoa the road crosses the Cinculla de Panduro, a rugged granite range with the deliberate jumble of enormous granite boulders with trees and then, further inlets of water running down between them. Would be worth a serious collecting trip.

Just east of Guayanilla the landscape begins to slow somewhat off anonymity - Ponce + other marinabluff trees - shrubs. Rapidly becomes more rural.

From somewhat east of Ponce west to beyond Guayanilla, even though the general landscape is and, there are large areas of marsh, mainly very tall Tepillo perhaps 3-5m a meter and locally, the marsh species. Back of this marsh is cane. Some spots in the marsh are very saline. Along the

place considerable areas are fringed by small mangrove groans. The beach at Ponce is lined by warehouses and other unsightly structures. At Guayanilla is a barge refinery and a super highway along this coast (under construction) is running most of the feature of the place. Weekend charlies take care of the rest.

Aug 4: exit at Ponce - Coamo - Aibonito - Cayey-Caguas - Bayamón.
This entire route is essentially cleared. Cane occupies flat land and slow hill at least almost to Coamo.
Above the cane the land is mostly in pasture with scattered trees, patches of wood in ravine and rows of trees along roads. There vary from place to place, but Delonix is a constant component. At higher altitude bushes is common. Toward Cayey and on toward Bayamón by thins is found.
Aug. 4. Beach 1.5 mi. E. of Punta Bosa Juana on fine slope of low dune ridge above beach.
441.66 Calylophus lanceolatus common locally
47 67 camp. Melanthera nivea (L.) Small - det. H. Robinson, 1934 common
48 68 Sporobolus abundant

Aug. 5. El Yunque in upper montane, mossy forest.
69 Bauveroges erecta common along trails
1 70 Cyphellus gigahylon (Bun.) C. E. Blytt det. Delling 1928 common on tree trunks
71 Lobelia common along trails, in openings
72 Trichomanes rigidus common on cut banks, and wet cliffs.
1 73 Rhizophorai pseudosa common on tree trunks
2 74 Pistacia occasional on tree trunks
75 Polyfibium locally common on tree trunks
2 76 Vittaria locally common on tree trunks (to p. 100)
Aug 4. - Mogotes east of Vega Alta - the vegetation varies from a dense scrub with little herbaceous growth. One mogote that was cut by the road is white and chalky inside, of varying hardness from completely soft to rock that cannot be scratched with fingernail. Honeycombed with holes in which some sort of small animal lives, not seen but holes both used. Somewhat farther east, near Punta Cubano, another hill is cut by road - here also the material is soft but earthy and reddish with globs of reddish clay (sample). Many seem to be like this, and are readily demolished by steam shovels, etc. Some palms in the vegetation on these.

Aug 4. Beach east of Dorado and Punta Brio - brownish sand with considerable fisher shell fragments. A continuous low dune ridge about 3-4 M. high, is back of the beach and separates it from the mangrove swamps and marshes. On the side of it, Coccoloba. On its front slope are Ephedra glauca, Calycanthus, etc. Interm Coccoloba which is abundant Cacalpinia erista (w) (large stipe).

Aug 5. - El yunque

Windswept mixture of Coccoea spathulata, Eugenia trinoensis, Nohcianthus obtusif, Calopogonum squamulorum Tabebuia rigida on exposed places. In protected areas, the same but larger tree with Syzygium racemosum, Magnolia zapotera, Mauritia flexuosa, But 90% of area is
completely dominated by Enterolobium (plante) which seems to be a successional stage resulting from hurricane damage. Wadsworth says after a hurricane fully 90% of woody plants broken or whirled in gust winds broken. This damage is in localized areas - some areas as low as 30%. Immediate result is Rhynchospora & telefia canescens dominance or if seed available, Eriocarpus frumentaceus. Palms replace these. Then may be destroyed by landslides, also by hurricanes to some extent. Patches of Eriocarpus scattered here and there in palm forest.

Along the ridge toward South Beach are patches of open mossy scrub in a drier type of mossy and forest, and small patches of open sedge land with Vitis vinifera, Vitis vulpina.

of Hyparrhenia (K. carinna, K. carinna, K. carinna, K. carinna), in Trinidad, somewhat in the my Xyris, R. phymodotheca, Elecochris sp., telefia villares, Cooksia sp., Paniceum paezii-vicencii. Said to be hardy as if a move down in each of these open types - impeded to some extent by clay and fine sand.

Downward the palm forest gives way gradually to sedge-phil and Orthothamnus trees till at 1900 a more than a typical lower montane forest, with many epiphytes, but more moss-covered as in that on ridges further up. This even on ridge - 15', rather tall (6' to 35") and with rather large trunks. 5 to 5 dm dbh. Tree damaged on ridge than in valley bottom, judging by number of palms and general good condition of forest on ridges. Very good along Big Tree Trail.
1943 Pueato Rico

44177 Paperrina quadrifidifolia
1. occasional on tree trunks

2. 78 Thelypteris
local on cut banks or trails

2. 79 Blechnum pinnatifidum (Kurz) Merr. det. DEL 1971
local on cut banks above trail

2. 80 Blechnum pinnatifidum (Kurz) Merr. DET. DEL 1971

1. 81 Gymnema
rare on tree trunks

3. 82 Psychotriis
common in understory

1. 83 Blechnum pinnatifidum (Kurz) Merr. det. DEL 1971

2. 84 Adenostemma verbascina (Kurz) C. Robineau, 1974
common along trail

3. 85 Blechnum pinnatifidum (Kurz) Merr. det. DEL 1971
occasional climbing on tree trunks.

1. 86 Hillis parasitica
common on tree trunks

4. 87 Psychotriis
occasional in understory

2. 89 Cordia glabra (Kurz) Merr. det. DEL 1971
occasional in scrubby forest or ridge

2. 89 between stone or road

1. 90 Deloria canescens
very abundant in undergrowth in open parts

4. 89 Peperomia quadrifoliiata
creeching, fruiting spike

2. 79 Blechnum pinnatifidum (Kurz) Merr. det. DEL 1971
young fronds distinctly reddish.

2. 80 Blechnum pinnatifidum (Kurz) Merr. DET. DEL 1971
young fronds not reddish.

1. 81 Gymnema
point 4 m tall (other taller), nice fruit black.

2. 84 Adenostemma verbascina (Kurz) C. Robineau, 1974
head whitish, exact.

3. 85 Blechnum pinnatifidum (Kurz) Merr. det. DEL 1971
chlorophyll climbing; young fronds with only the faintest suggestion of bristle.

1. 90 Deloria canescens
forming dense mat; floweery tiny, white.

2. 90 Deloria canescens
forming low tangle, very scalars, cut skin.
1963 Puerto Rico

same - in open
sclerophyll ridge - top
forest
4 (191) Callipteranthe comptum
1 93 Hyopodium tacipolianum
rare in edge of open
forest, on fallen tree
1 94 Grammitis
common on tree trunks
in edge of
1 95 Blechnum
occasional
3 96 Niphrolepis Bivalvis (Vahl) Mett. ex.
occasional on tree trunks

1978

same - in small
wet open patch, dominated by edges
1 97 Selinis villors
occasional
2 98 Rhynchobius cyphoides
common
3 99 Rhynchobius
common
44200 Xyris
3 locally common
1 01 Xyris
occasional
1 02 Xyris
rare

1000 m.

shrub 2.5 m. tall

shrub 1 m. tall
colours white, fruit green.

young fronds reddish green.
fronds pendent;
tubes rom.

1000 m.

colla yellow
1963 Puerto Rico

Aug. 5 - beginning of Big Tree Trail, El Yunque
Psychotria abalatea
locally common

Aug. 5 - Rio Mameyes, 1:30 a.m.
2 of Mameyes

Aug. 4 - Dorado forest,
the back of beach m.g. of Dorado
Aerides fimbriata (Catt. Billinger 1978)
in fresh water marshy place

Aug. 4 - Dorado forest,
the back of beach m.g. of Dorado
Aerides fimbriata (Catt. Billinger 1978)
in fresh water marshy place

3 04 Hernandia sonny
very local along stream

1 05 Malphigia acuminata
common in undergrowth

shrub 3 m. Tall
flowers greenish, white,
Companulate, lobes appendiculate:
fruits immature (said to be bright blue when ripe).

Tree 8 m. Tall, flowers
grayish green, flowering
envelope with orifice
not toothed.

geanacense, young
folds not at all reddish;
fertile folds. Fertile only distally
shrub 3 m. Tall, petal, pink.
Aug. 6 - Darado

Coastal forest (1750 ft)
- Calathea marantifolia
- Acronychia
- Raphides chalcites
- Celastraceae
- Biscutella
- Buxus
- Diospyros ebenaster
- Manihot americana

In 1955
- Mimosa acuminata
- B. ramosa (understory)
- B. ramosa (seed)
- Ocotea nova
- Kentucky coalescens (understory)
- Manihot mitis (understory)

This forest has had
the Auberio layer removed.

Aerostichum densifolium
said to be freshwater
form, fertile form only fertile
above, aeciosporangia different.

Podocarpus swamp
Podocarpus officinalis
Podocarpus buxus are
the dominants.

(Pterocarpus officinalis
extensive buttresses
with roots exposed, seedling on knees.)
Aug. 10 - Hawksbill Mt.
A road has been built to the summit, taking off from the line Print at just beyond n.p. 47. At the top a shelter, "Byrd's Nest no. 2" has been built, surrounded by a picnic ground and with vegetation cleared between it and the cliff, along the edge of which an unsightly table is stretched. The ground has been levelled, grand paths and picnic table installed, and on the extreme summit a stone enclosure has been constructed for viewing the landscape, East of this an acre or two of forest has been cleared, to assure a view in that direction. Just below the enclosure a tiny rather bedraggled patch of thyme (Thymus capitatus) was septentriionis, still hampson. The Potentilla biflora and doldage are still common locally in the rocks. Many firs, especially on exposed open rocky areas, are dead. Young pines are common in the forest and many of the taller ones in the forest exceeded.

Aug. 11 - Big Meadows, swamp openings in the thickets of Betula, Cataracta, Pyrus, Cotyledon, etc., are clothed with a scrub 1-1.5 m. high of spines, Lonicera, Pyrus, Ligustrum, Rosa palustris locally, plus stand of Carex, Juncea. Where the scrub is thin, there are

- Epilobium angustifolium
- Hamamelis virginiana
- Hagarzia canadensis
- Veronica virginiana (white)
- Achilles millefolium
- Onoclea sensibilis
- Vernonia girlardiana

In other places is a luxuriant growth of Hagarzia, Carex, Epilobium, Hylodesmum, Lonicera, Pyrus, Cephalanthus, a melancora, and a grass. In the lower part alfalfa, cardinalis, Galium, Juncus sylv., and Hylodesmum, with a colony of Hewettia trifoliate. This lowest spot was muddy but had no standing water at all.

The ditches on the edge of the swamp have no soil but no water.
Aug. 10 - Skyline Drive
just south of Dickey Ridge
Visitor Center

114767 Vitis
1 very common on trees in
edge of ford
108 Vitis
occasional on trees in edge
of ford

Aug. 10 - Old Rag View, Skyline
Drive east of Hawksbill

5 09 Lycoptera tristachya
thriving colony in open scrub

110 Lagopus quillab
roadside in parking oval

Aug. 10 - Skyline Drive at
Entrance to Hawksbill Fire Rd.
1.5 miles east
116 Habenaria
in moist boggy patch, beside road
123 Solidago
common along road embankment

Aug. 10 - Southwestern slope of
Hawksbill Mtn.
13 Solidago, Solidago cit.
devil in voiture of rich color
14 Rhododendron
rare in forest

woody vine, leaves dark
green above, glaucous beneath.
Woody vine, leaves green
beneath.

rhizome deeply buried,
thieves ead.
corolla white, stamens
purple, coarsened.

flower white.

flower yellow, leaves
aromatic when broken.

leave aromatic when broken.
shrub 1.9 m tall, glaucous.
Aug 10 Uplift Hawesbill Trail
on slope of Hawesbill Mt.
in hardwood forest on
rocky ground

4 4 2 15 (umbell)
1 occasional
16 (umbell)
1 rare
17 (umbella)
locally common
3 18 Pseudotheonidia montana
very local
4 19 Zygia Haeckelii trifoliatum (L.) Gray
common in openings
1 19a Aquilegia canadensis
Aug 10 summit of Hawesbill Mt.
at tops of greenstone cliffs

13 20 Hallocksianthus tenensis s. monticola
common in rock crevices
11 21 Mainanthemum canadense
locally common
Aug 10 - south ridge of
Hawesbill Mt.
in woods

11 22 Clinopodium

11 23 Thalictrum dryopteris
local colony in woods,
 rhizomes deep between rocks
Aug 10 summit of Hawesbill Mt.

11 24 Heuchera
in rock crevices in woods

herb 1 m. tall, odor of celery

leaves thick, some plants pubescent
sepals and spur red, petals and
stamens yellow

flowers yellow

stems
1903 Virginia

Aug. 11 - South slope of
Chapman Mt., north of Rapids River.
on dry slope in Quercus primus

\[ 17 \]
Aureolaria laevigata Raf.
common

Aug. 11 - Horizon Camp,
Mill Prong of Rapids River.

\[ 16 \]
Aureolaria laevigata Raf.
common

Aug. 11 - Horizon Camp,
Mill Prong of Rapids River.

\[ 26 \]
Aureolaria laevigata Raf.
common

Holidays

\[ 28 \]
Holidays

common locally

\[ 29 \]
Calendraceae

on tree roadside

\[ 30 \]
Mitchella repens (L.) Wedd.

common under hemlock

\[ 5 \]
Flex mariana T. & G.
in undergrowth

\[ 5 \]
Spartea canadensis (L.) Wedd.
common

\[ 32 \]
Impatiens capensis
common in opening

Then. Nat. Park

stem single or several per base; corolla yellow.
stem green; corolla yellow.

flowers yellow

stems shredding, arching.

prostrate, forming loose mat, this year fruit

- green, immature; some of

last year's persistent, dark red,

shrub 2.5 m., tall, arching;

fruit green,

bent stinging herb;

inflated calyx, somewhat

- swollen, fleshy; fruit fleshy,
much branched herb, to 1.5 m.
tall flowers orange marked

with red; fruit green,

dehiscing elastically.
122

Galinsoga ciliate
occasional

V. 35
Veronica officinalis
in roadside

V. 36
Amphicarpaea bracteata var. weedy roadside

Aug. 10 - Below B compressus
headwaters of Rabidun River

V. 37
Vitis aestivalis 'margaretella'

in bushes by roadside (Rhino) Fen

Aug. 11 - Big Meadows -
edge of swamp

V. 38
Salix humilis Marsh.

occasional in meadow

V. 39
Eupatorium
common in ditch in

V. 40
Eupatorium
common in ditch in

V. 41
Galium
occasional in open ditch

V. 42
Gentiana
common in open ditch

V. 43
Corylus americana

V. 44

V. 45

V. 46

V. 47

common in semi-open scrub

V. 48
Corylus cornuta

in semi-open scrub

V. 49

Gamoa
common in open ditch

in

the

m.

white

prostrate, spike ascending

twining; corolla lavender,
calyx almost white.

woody vine; leaves very

glaucous beneath.

shrub 1.3 m. tall.

reedy, flowers pinkish

reedy, bushy, corolla 4-fd, white

stems fleshy, procumbent,

flowers with tube yellowish,

corolla white.

shrub

shrub 1.25 m. tall
1903 Virginia

121

Juncus
common in open ditches

52

Calamus americana

53

in small openings in swamps

54

55

56

57

Lycopodium americana

58

Veronica virgiana / Virginia

59

Calamus americana

60

61

62

63

64

65

66

67

in swamps

68

Lambertia canadensis

69

Cirsium muticum Michx.

70

Parnella vulgaris / Lancelet

71

Centaurea semidecamum

shrub 1.5 m. tall, flowers

cream white

plant 2 m. tall, much branched

about, with many heads, tips of

inner phyllaries deep purple,

flowers rose pink

calyx purplish, especially

in margins, corolla deep purple.

flowers white, small.
44772 Sarcupus of atranorin a polyphyllyens occasional along bank of open ditch
123 Juncus effusus abundant in open ditch
5 74 Hypericum punctatum Lam. local on bank of ditch
4 75 Galium local on weedy bank of open ditch
2 76 Elephorus abundant in open ditch
3 77 Callitriche abundant in open ditch on moist soil

Phenandrah National Park
caespitose, erect, branches of panicle drooping.
caespitose
erect, se flower pale yellow stems elongate scrambling over weeds.
caespitose
str果实, forming small matted
1963 Pennsylvania

Aug. 16 - 3.5 miles s.s.e. of Mercersburg

in thicket of alanthum
with scattered large
trees of native hardwood
thick, weedy undergrowth
in flat, sandy loam

44 78
4 79
2 80
2 81
3 82

Lepidium
occasional

Verbena
rare

Geum canadense
abundant

Chenopodium
common

Clematina
rare

Aug. 17 Powdermill Nature Reserve Rept.

83 Phlox paniculata
common, very locally in wet
old field with herbaceous
perennials

84 Lobelia pubesca
rare in second growth
woods on rocky slope

85 Athyrium thalictroides
occasional in woods on slope

86 (fern)

rare, in woods on gentle slope

Franklin C. - Westmoreland C.

erect 1.5' tall

flowers, small white

 several to many stems

from base, petal white

flowers pale blue, 2 petals

larger; anthers yellow, no
dark connections

1200' 365 m.

erect, flowers magenta

(influence unusually
narrow - whole population
is this form)

erect, small blue-violet,
with pink line on lower side

sterile
Pondsmire

*Ct. topleis fragilis*, growing on old ash leaf in bottom of an abandoned stone foundation where mulch was burned last year. Thriving outly. Not found elsewhere in vicinity.

Artificial pond, fed by springs and surface flow - established Dept. 1901, filled by 27-28 Dec. 1901.

Has golden shiners and large mouth perch bass.


Old field, abandoned 10 years, dominated by *Solidago sp.*, with various other herbs and perennial grasses.

A scattering of *Cal luxe*, *Pyrus of coryan*is, *Primus sect.*

but not enough to yet change the character of vegetation.

The reserve is available for manipulation a management in northern 300 acres. southern 1,200 acres is kept undisturbed except for slight disturbance along roads and around cottages and for controlled deer hunting, some musk or duck hunting, ginsey hunting.

On sandy bottomlands along stream in second growth mixed hardwood *Hydrocotyl acutum* is common (see fig.).

The forest on bottom land is second growth - evidence by old oak piles with trees on them.

Old sawdust piles, from portable saw mills, have herbaceous growth - Impatiens, *Hydrocotyl acutum*, etc.

Fruit on clover, with about 95% complete, but not very dense canopy, have almost no undergrowth and mostly terns in ground layer.
Thelypteris noveboracensis generally abundant in and at edges of woods.

Aug. 20 - 000, near Fairview, 6 mi. n. of Monroe, Monroe Co., N.Y.

Epipogium, common in patch of deciduous woods in gentle slope.

Aug. 21 - Mendon Pond Rd., 10 miles south of Rochester, Monroe Co., N.Y.

Equisetum arvense, very common on slope in deciduous forest.

Coptis groenlandica, abundant in Acer saccharum swamps.

Eupatorium maculatum, very common in marshy edge of pond.

Decodon verticillatus, (well) abundant, tending to be in purplish in water.

Cranesbill, wall, very common in edges of swamps.

Cranesbill heterophylla, very common in edges of swamps.

Rhizomes prostrate, shallowly buried.

Rhizome thick, erect.

Stems prostrate, bright yellow.

Erect, flowers dull rose pink, stems solid, redish; panicle tending to be flat topped; older flowers in center subshrub. Stems very spongy at base, branches conspicuously arching.

Flowers magenta.

Shrub 1-2 m. tall, ex. flowers, fruits dull blue.

Shrub 1-2 m. tall, ex. flowers, leaves glaucous beneath, almost nyle fruit pale green.
Seeds growth across from museum - flat ground - trees 2.5-10 cm dbh, Miscanthus 2-7 m, h. 3-7 m.

Trees Carya, Pinus, Acer rubrum, Cornus, Fraxinus, Magnolia acuminata, Cornus, Fraxinus.

Saugus, 16

Cattails: Typha, Juncus, Phragmites, Scirpus.

Hemlock is common in woods near Pittsburgh. In the vicinity of Lake Erie the woodlot is characteristically beech-maple but with no conifers. The general landscape is cultivated, with scattered dense woods. Occasional neglected pastures with scattered cattails.

Aug. 20 - north from Pittsburgh to Erie - the common old-field shrub, especially on the north side of Lake Erie. The woodlot is characteristically beech-maple but with no conifers. The general landscape is cultivated, with scattered dense woods. Occasional neglected pastures with scattered cattails.

Aug. 21 - Wendi Pond. Red maple, swamp tree, about 25 m tall, maple, completely dominant, and Antennaria. Vaccinium, Cercocarpus, and a few large shrubs in 91 m. Locally, a little sphagnum, much Vaccinium, mostly toward edges. Symplocarpus in ground layer, also Daucus, "shimla" shrubs, big, brambles. Several from a definite shrub layer 1-3 m tall near edge.
New York

The ponds have water-lilies, Ceratophyllum, etc., in great quantity in the smaller pond. A large patch of Helicums with Edges of great value and of height, those of Deciduous Verticallis, with scrub of Cranberries around edges of this marsh shows a sequence of Spatiatia alternata, Juncus gramineus, Spatiatia patens.

The marsh is covered with many young Assa-Ulba.

Cranberries and Cranberries of marsh and color of it. Assa-Ulba.

John Collett

N.B. Research reports.

Higher up, Assa-Ulba shrubs Lentis are more abundant.

Mamacohe Island

Photos of salt marsh with brush on higher ground in background.

Small Cones, A. P. (rep. msg.)

Spaee shrub large

Rubus sty
tiburon ameriopicum

Locally a Vaccinium Angustifolium

Large, fairly dense, thin ground large

Panthemniun

Beautiful with ledge.
**New York - Conn.**

- 44295  *Cranus sericeus L.*
  - Common in edge of water

- 96  *Cranus sericeus L.*
  - Common in edge of many

  Aug. 25 - Barn Island Marsh, Conn.

  in salt marsh

- 97  *Juncus gerardii* dominat in water, part of salt marsh

- 98  *Limonium carolinianum* common locally, in patches, with *Halocnemum* and *Triglochin*

- 99  *Triglochin maritima* common locally, in patches with *Limonium* and *Halocnemum*

- 44200  *Agalinis*
  - Very locally common

  Aug. 30 - Amherst, Mass.

- 01  *Agalinis* occasional, with *Iris* form

- 02  *Maritae quadrifolia* forming a dense sod around margins of pond

**Mass.**

- Morenp Co 9/7

  sparsely branched shrub 1 m tall
  - flowers white, stems green turning reddish
  - shrub 1.5 m tall, stems red, flowers white

  leaves of flowering plant mostly dried up

  flowers deep lavender

  flowers white

  Mass. friends note
Aug. 25 - Request, deposit for sanctuary. Marsh and ditches.

1. Spartina patens

2. Spartina alterniflora

3. Juncus gerardi

Most of the zones were quite patchy.

Beach ridges have "veg" locally hummophiles

Patches of dead and dying grass evidently due to salinity from trapped evaporating sea water. Advanced stages are bare.

Marshes were ditched to eliminate mosquito breeding pools. This killed the fish that controlled the mosquitoes, and created more pools to breed new mosquitoes. Ditching has been abandoned and ditches are gradually filling. Many have very small natural levees impounding more water.

The ditching has broken up the vegetation.

Occasional big boulders scattered here and there, also a strip of stones running out to the edge. Light accumulation of high material around these, with Juncus gerardi, Spatina, Gymnolittia, and other shallow rocks to catch them.

One small piece of undoubted coal found there, broken as though had been attached to a shell on the smooth object. Bottom of bay is sand.
A levee was built across the marsh a couple of hundred yards from the sea to impound water. This changed the marsh from salt to fresh. In this area, vegetation and shrubbery came in and now dominate.

Aug. 20 - Rockley Bog (Photo in my notebook) at edge of pond.
4 trees 1.5-2 dm.dbh., cut down by bearers (brownish black). 9 species of fern, 2 species of moss, 5 species of crustose lichens. These from 0.5-1 m. from edge of pond.
A section of some width and about 15 m. across lake level all along the east side, lined by a sort of ridge 4-6 dm. higher than the terrain of it. There is a trail along the ridge. Could be a very old road or rail into plain, leaving this rim. A very good place to study it.

Of road left if n. Tree, shrub, grass, hemlock, etc. in this area.
The plain, to 1.5 m. wide, instantly shifting from foot of steep cliff to pond. Some large boulders in it. Very large tree, yellow with the name, and become boggy.

In the bog, part of the pond there are often bog areas and scumbly areas, irregularly distributed. Apparently with me.

Aug. 30 - Ambrose, Mass.
Under canopy, covered by Azolla. Abundant Muscules forming a band in mud around edge of pond, wide. To 10 cm. wide, blades emerged to 5-10 cm.

Aug. 30 N.W. Massachusetts - beautiful wooded mountainous country. Greylock Reservation should be a good place to study it.
New York

Aug. 30. - Near Albany. At Ft. Interlaken go where it separates from Ft.outh and from there west for several miles is a vegetation of a shrub layer of Grewia ilicifolia with scattered trees of Linone of vigina. The fine stand varies in density but the trees are not large. Where it becomes at all dense, even when the trees are separated by about four width, the shrub layer becomes rather dense. This looks essentially from the road, like the P. hispida, &c. resident vegetation on first seen in the Cher, N.Y. land. No inf. on associated species. The soil appears to be sandy.

North of Amsterdam, along the Chiemsee, bit the sanditters on river terraces, F. saliciana is abundantly flowering.

The Montezuma Nation Wildlife Refuge, about 35 miles east of Rochester, is a large area of low flat marshy ground, some of it under cultivation, some in Typha, some mixed herbs etc. F. saliciana, a large area of trees, naked on south side of river (partly from flooding) in from shape on north side. I would judge that this area is very severely managed. It has some open water.

Aug. 31. Chimney Bluffs, Lake Ontario east of Rochester. Bluffs are eroded into cliffs of till up to 30 ft. high, many mixed pinnacle, pioneer plants none.

Cloth of raw till:

a. Salvia triloba
b. Poa annua
c. Achillea millefolium
d. Fragaria virginiana (with wild strawberry)
e. Democritus
f. Pulsatilla patens

a. Populus deltoides
b. Poa

Acro"
Chrysanthemum, Cencanthemum, K. aster cadifolius
Jerusalem oak
Aster vulgaris
Canula vulgaris
Sorbus aucuparia
Persicaria pratensis
Potentilla erecta
Plantago lanceolata
Helianthos
Lithospermum perpusillum
Cuscuta vulgaris
Phleum pratense
Melilotus albus
Cuscuta avenae
Lychnis canadensis
Nymphaea perpallens
Lactuca sempervirens
Plantago major
P. anglica

Both in the gullies, where moisture and presumably nutrients are more abundant, they are other species. Also near the edges of this series of cliffs where they are low, other species come in.


Forest above is a mixture of white pine, ash, tulip, hemlock, catata, and maple. Tulip, yellow birch, chestnut oak, red pine, black birch, sugar and, red oak (N), and chestnut saplings. Proportion vary greatly. Hemlock tend to occur in groups. Queen anne...
Aug. 31 - Orchard Beach Campground north of Rodnes, on Lake Ontario

Oxalis stricta L.
common under trees in grassy areas on glacial till soil.

Aug. 31 - Head of Rodnes Bay, Lake Ontario in edge of water with abundant aquatic
abundant floating
abundant, submerged

Aug. 31 - Chimney Bluffs south, shore of Lake Ontario east of Rodnes Bay on base eroded till slope just above lake shore

06 Thamnos comn=(L.) Desr.

07 Saxifraga sempervirens
rare

08 Hypericum perforatum
rare

09 Sabal bali L. var. bali
abundant

10 Plantago rugelii
rare

11 Plantago major

12 Cirsium arvense (L.) Pers.

Wayne Co.

stems decumbent at base,
flowers yellow, buds nodding, fruit erect, pedicels not deflexed.

Plants

Top thallus of long, to flat, flattened hemicylindrical, bottom pale, swollen.

already old and dead.

mossy, leafy vertical, more or less in no plane.

flowers deep yellow.

leaves fleshy.

leaves purple at base

flower slight purple.
150

15. Lonicera amurensis L. rare.
16. Populus deltoides common, colorizing.
17. Equisetum amnense of J. pseudocalaminum large colonies.
19. Agrostis rare.

Left: 1 - north of Steden.

10. Digitaria abundant in cultivated field.


11. Rohdea in moist roadside ditch, common.

Left: Watkins Glen, Schuyler Co.

22. Lobelia palmaris L. common in wet crevices in cuts in flat shale beds.

151

flowers white; plant singe-stemmed (then seen many stemmed from base) ray flowers lavender, disk pale yellow.
bush, flowers bright yellow.

shrub 1.5 m tall; verticle, somewhat flattened, red.
branches strongly ascending to erect.

tuft, culms decumbent at base, ascending.

culms decumbent at base, ascending; racemes bledish-purle.

culms ascending to erect, leaf sheaths forming a flat mass at base.

flowers blue and white.
1903 Virginia
Sept. 15 - Balls Bluff
m. of Leesburg

Bottomland forest
Platanus, Quercus, Ulmus, Rhus, Juglans
Celtis, Celtis, Vaccinium (0.5 ft. actionable)
Lindera (1 ft.), Acc. regnum
Pampas grass full-sizes but not ripe yet.

la Rapica
bc Vertica
bc Biles
bc Brochmeria
a Gledoma

On slopes in forest
Collinsonia
Lobum
1963 Virginia

154

Bello Bluff Potomac River N.E. of Reading in Pottomac Forest

15

Aquilegia canadensis

24

Navicularia militaris

ocasional

25

Laportea canadensis

abundant locally

on bank of vines

26

Echista postata (L.) L.

occasional

27

Artemisia annulata

comm

0.5 cm sized Triassic shale in terrace in sparse second growth hardwood forest

28

(about) Prunus fruticosa ssp. Brit. locally abundant

29

Prunella vulgaris var. lanceolate

ocasional

30

Lepeolysa monagensis

common

31

Spiranthes tuberosa (Raf.)
The survey of coastal wetlands made by the Department and the U. S. Fish and Wildlife Service in 1954 shows a continuous marsh area around Barn Island of about 370 acres. Of this acreage about 75 acres is described as shallow fresh marsh, 250 acres as salt meadow and 45 acres as regularly flooded salt meadow. A considerable part of this marsh acreage is included in the 557 acres of State-owned marsh and upland known as the Barn Island Shooting Area.

Departmental purchases in this area began in 1944; none have been made in the past ten years.

From 1945 to 1947, four dikes, totaling somewhat more than 2,000 feet, which impounded a maximum of about 135 acres, were built. In 1955, a ditch about 12 feet wide, 4 feet deep, and 600 feet long was dug across the neck of marsh connecting Barn Island with the mainland. At the same time, two semi-circular pools about 400 feet by 120 feet were dug in the marsh area in front of the Brucker property, with the spoil deposited in piles adjacent to the pools. Some other rather minor development work of an experimental nature has been done on both the marshes and the upland. An access, parking, and boat launching area, that has since been enlarged, was established at the present site in 1957.

From 1947 through 1950, the Department sponsored a variety of investigations on the area by graduate students and others. One publication, Vegetation of the Wequetogock-Pawcatuck Tidal Marshes, Connecticut - Miller and Ezler - Ecological Monographs, 20: 143 - 172, April 1950, resulted from these investigations.

The Barn Island area, historically, was an exceptionally good waterfowl and shore bird hunting area. For a number of years it was leased to a group of sportsmen for this purpose. These marshes were mosquito ditched in 1929 - 1932. Following the ditching, the sportsmen's group are reported to have reduced their lease offer and then cancelled the lease due to the absence of birds.

The impoundments have provided excellent waterfowl production, and feeding and resting area for birds in spring migration. They also make the area attractive to fall migrants, but their use during the open season is sharply reduced by hunting. Management work here is presently at a minimum.

Some added acquisition is necessary to round out the area, insure the rather limited supply of fresh water, and furnish buffer for existing and planned impoundments. Such purchase might give impetus to further development and more intensive management.

JSB/B
8/20/63
1943 Virginia

15 m

16. Nalle Bluff, Potomac River, N.E. of Reedytown, Bottomland forest

44221 Guercous Virginianus occasional

24 Hibiscus moscheutos Cav. occasional along river

25 Lycopus canadensis abundant locally

on bank of river

26 Eclipta prostrata (L.) L. occasional

27 Artemisia annua L. common

28 (Calat) Prunus fruticosa (W.) Britt. locally abundant

29 Prunella vulgaris L. cancellata occasional

10 Senehoga macrocarpa common

31 Epianthes tuberosa Raf.

155 Loudoun Co.

70 m

twigs cut (by squirrel ?) from a tree 30 m tall, leaving

glauous beneath

stem 1-1.5 m tall,

stinging herb up to 0.8 dm tall, fruit, serrate, fleshy, translucent, red green

prostrate, nap white

herbage fragrant

90 m

crepe stems dark red, leaves redded beneath

flowers pink

laps of calyx violet

stems scurred, flowers pink, standard red in center, erect, flower white,

conspicuously finally arranged.
Sept. 21 - just north of Marshall

Dianthus? 5

Common in grassy meadows on rocky hill

Sept. 21 - 1/2 mi. south of Marshall in 1st second growth deciduous woods on rocky hill

33 Hedysacea Compositae purpurea var. occasional on slope

34 Galium latifolium Marsh. common in shade

35 Woodwardia obtusa (Spreng.) Torr. common in rocky bottom of broad ravine

36 Asplenium platyneuron very common in bottom of broad ravine

37 Hedonia pulcherrima local in rocky bottom of broad ravine

38a Ulmus nigra common

Flowers deep lavender

Lonely cacti, prostrate, roots deep yellow, turning red, pods turning yellow

Vey aromatic

Slender tree 1 m. tall.
Virginia
1903

Sept. 23 - Stony Point,
Alleghany Co.

Pasture being invaded
by Juniperus virginiana (3ft.)
This is rolling land,
with fairly high hills,
and the east a mild one.
Mostly pasture with
patches of woods,
some of old orchard,
and others and patches
Patches of Pinus virginiana
here and there.

Fall evening just beginning
to appear.

Fernbrook Woods
Along road - Culif.
Red maple, Sterculia calif.

Cone on cliff,
mixed low juniper,
Pinus vin. taperwil,
etc. Trunks of large
black oak, do. of big
undergrowth of Cypripis
2-3m, all near Cliffs.

Much big rough stuff,
in common, but not heavy
down. Lower, a belt of Rowan
Alnus on cliff.

Asimina virginiana
Small patch of Fagus
at top of cliff.

Flood plain with trees,
principally. Celtis occidentalis
Chionaphila mac.

Much Pinus echinata,
some lying on ridge.

Across ravine scattered
white pine, largest
10'1" girth. 8'6".

Much i. Strobus reproducible
in 5' - saplings
5 m tall.

Quercus patens
twisted with P. echinata
10'6" twisted,
understory of Cypripis flinders.

Tage old beech and tree
at bottom left corner.

Chionaphila was
generally abundant.

In main broad ridge
mostly oak above
middle.

Flatly in lower ground
notable late.
1943 Virginia

Sept 29 - Milan's Gap
Meadow with scattered pine trees, Virginia abondant aster and
Aster ericoides
Scattered Pyrus malus
Crispaqus
Both Crispaqus Pyrus attached by international
Hydads abundant
about 25 ft.
Evidence of slight
foot
Rubus et Flagellum
form large patches.

Rubus der rubrum
Transit, well turned to
autumn color. Rubus et
Vaccinium also.
Vaccinium also

Tanners Ridge Overlook
34E.5
Meadow almost even
with Gaultheria, Vaccinium,
Robinia scattered, pine.
(Photos)
1963 Virginia

Sept. 29 - Skyline Drive, Tanners Ridge Overlook

Sidalcea asterias L. comm in meadow

Sept. 29 - Tanners Ridge in second growth woods

Epomis tribulus L. det. v.d. Wurff common

1 40 Corylus cornuta Marsh.
abundant as understory

1 41 Oxalis cornuta var.
common along trail

47 Botrychium dissectum f. oreidens (Gill.) Ach.
rare

1 43 Aster agrestis Lindl.
locally common

Sept. 29 Appalachian Trail

44 47 Physalis pubescens
rare in semi-open place

same in semi-open
second-growth thicket

46 Polygonum cristatum Engelm. gray
very local in

47 Alnus serrulata
local

same - in dense woods

several stems plus base
about 50 ft tall

several stems in clump, erect, flowers yellow.

rays lavender, disk
turning dark red

shrub 2 m tall

erect

pale green

rays pale lavender, disk yellow turning red.

west slopes

rays flowers lavender, disk
pale yellow turning red

several stems spreading from base.

turning over weeds
Pilea pumila
- common very locally

Asplenium platyneuron (c) very common
- more so in openings and meadows, this at edge of thicket
- same - in openings between thicket on gentle slope

Holidago canadensis
- locally common

Aster pilosus var. dematius Blake
- locally common

Lept. 19 Melamia gayi in weedy meadow with scattered trees and scattered shrubs

Pachystachyum multifidum
- occasional

Crateagus succulentus var. californica
- locally common

Holidago arguta C.A. (v) very common

Lycojodium complanatum
- locally abundant

Holidago hirsutissimus (c) very common

Aster cordifolius var. cordifolius
- very common a abundant

Stems fleshy, translucent

 Erect, flower yellow.

 Rays white, disk dull yellow turning dull reddish.

Leathery, beginning to turn purplish.

Bushy dense tree-like shrub, 3 m tall, fruit bright red, soft motor, attached, fleshy

Stems red, heads part flowering.

Pachystachyum, or in surface of ground, leaves tending to be glaucous (resembles L. lycojodium, but

- for superficial ligules)

- Lanceolate, bicarriolate

- Lavendar, light reddish.
160 Curium discolor (Mulh.): thng:
occasional

Sept. 29 - Harlesby Ridge

59 Aster doucicanus: late
common

60 Aster cordifolius: racemiflorus
occasional

61 Croadonia

63 Croadonia

64 Vasa

65 Umbilicaria

66 Parmelia

67 Parmelia

on large sloping rock at edge

68 Holidaeus petiole: act., var?
occasional

69 Holidaeus petiole: act.
abundant

same - wet, weedy area

70 (spar)

rare in parking verlock

71 Aster filosus: var. filosus
rare in parking verlock

72 Aster filosus var. denseus: site
on embankment below road

73 Aster simplex var. compact (v. 7.4.2.4)
common at edge of parking verlock

74 Aster cordifolius: common
on embankment

flowers bright purple

rays lavender, disk pale yellow, turning red.

rays lavender, disk pale yellow, turning reddish.

flowers yellow
(thyme very short and compact)

flowers yellow
(thyme elongate, low)

branched at base, low

clumy stems weak

rays white, disk yellow,
turning reddish

rays white, disk yellow,
turning reddish

verd, rays very pale

lavender, disk yellow, turning reddish
rays pinkish, lavender, white
disk reddish
168
44 375

168
1963 Virginia

Aster cordifolius L.
common in embankment

12 76
Aster cordifolius L.
common in embankment

1 77
Rudbeckia laciniata var. humilis fagi
rare in weedy embankment

1 78
Solidago flexiculmis L.
common in weedy embankment

1 3 79
Aster simplex var. cuneifolius
common in weedy embankment

Thevandral, National Lab

rare very narrow
lavender, dull reddish
very medium width
lavender, dull reddish
calyx pale yellow, tint
dull dark greenish blue
flowers yellow

calyx very pale lavender,
dull yellow, turning reddish.
Sept. 28 - Story Pk.
in second-growth woods
Viburnum acerifolium?

Gleditschia triacanthos

Oct. 5 - Belvedere Farm,
Rappahannock R. below
Fredericksburg

Oct. 20 - same
on flood-plain

Actinaria alternifolia
abundant, especially
in grazed open forest

Cyperus
in open desiccating
margin of slough.

Hypericum
on stumps in edge of slough

Curcuma
parasitic on Bechmania ciliata

Viola
rare in pasture

Lemna minor.
common in scum of
Lemna and Wolffia in
desiccating slough.

Wolffia columbiana found.
very abundant, forming scum
on water, in desiccating slough.
Large tract of second growth - mostly mixed oak forest - in low flat gum, pine and oak.

On higher level growing largely white pine, oak, scarlet willow and oak.

Cottonwood and elm along rolling hills and mixed oak, with scattered small pines and oak and small white pine on old hill.

Grove was cut and early pine is dominant.

Four 100-year-old oaks were 60 to 70 feet tall, close together, some dying.

Scattered small pines.

On slope is a pond with dead trees.

A meadow at least 30 feet wide.

A variety of wild grasses and wildflowers.

Considerable camphor mix with a little flat

Warbler, warbler, jay, phoebe, etc. Largest 1 to 1.5 feet.
Oct. 17 - Falls Church
Aster macrophyllus has spread and is flowering very abundantly in sweet gum forest from stock planted a few years ago.

Oct. 20 - Prince Williams Forest Park - Fall coloring almost at its best - Acer rubrum and Nyssa sylvatica very bright red, Quercus and Carpinus rich yellow. Color not at their brightest yet but some rather good. Canopy blends rich red coloring less bright in canopies.

Oct. 20 - Belvedere Farm
Birds: Turkey Vultures, Chickadees, Vireos, Bluebirds, Mourning Doves, Woodpecker (hickories,?) (don't know)

Trees in floodplain
- English maple
- Sassafras
- American elm
- Acer negundo
- Red maple

Celtis occidentalis
- Quercus deltoidea
- Quercus americana
- Fraxinus virginiana
- Fraxinus americana
- Parthenocissus quinquangula
- Mendon pines
- Liquidambar styraciflua
- Katonah
- Scirpus semilatus
- Ilex verticillata
- Quercus virginiana
- Pinus resinosa
- Raccoon tracks

Found nestlings 30 less than 1 in dob.

On top slope in front of Fig. 1 few Quercus nigra, Liquidambar, Quercus nigra

Flowing spring emerges at bottom of steeper slope about 50 m from lower dam.
176

**Virginia**

44 390  **Cyperus**  
3  **Echinata**  
on desiccating margin of slough.

3  **Ludwigia decursiva**  
on bed with mud, beside it.

1  **Cyperus distichus**  
inside very rare or desiccating  
margin of slough.

1  **Paniceum**  
occasional on desiccating  
margin of slough.

2  **Polygonum punctatum**  
de on desiccating  
margin of slough.

96  **Gratiosa**  
occasional on desiccating margin of slough.

2  **Bidentis**  
on desiccating margin of slough.

1  **Lesneria**  
occasional on desiccating  
margin of slough.

1  **Polygonum**  
occasional on desiccating  
margin of slough.

44 400  **Colhucho**  
very rare on desiccating margin of slough.

2  **Lepanthis**  
occasional on desiccating  
margin of slough.

2  **Doronicus cernous**  
abundant on desiccating margin of slough.

177

herb 5'1 m. tall,  
petals yellow, teeth rhomboid, falling easily.  
heads pale green.

culm spreading, prostrate.

stem ascending,  
flowers white.

prostrate; corolla pale  
lavender.

flower yellow.

culms spreading.

stems reddish, ascending;  
flowers pinkish.

culms spreading.

tufted.

stems 5'1 m. tall,  
swollen at base.
14403 1963 Virginia

13 04 Callitrichis
     on desiccating margins of slough
     Ludoviciana
     abundant on desiccating
     margin of slough

11 05 Polygonum
     vice on desiccating
     margin of slough

11 06 Bidens
     rare, on log in margin of slough

12 07 Polygonum
     occasional on desiccating
     margin of slough

11 08 Eclipta
     on desiccating margins of slough and on log

12 09 Polygonum
     in desiccating margins of slough

11 10 Patria
     rare on desiccating margin of slough

11 11 Polygonum pennsylvanicum
     rare on desiccating margin of slough

12 12 Bidens
     common on desiccating
     margin of slough

13 13 Cypres
     common on desiccating

12 14 Polygonum
     occasional on desiccating
     margin of slough

prostrate, forming a low mat.
prostrate leaves
pale
flowers white.

stem ascending, flowers pink.

flowers white.

flowers pink.

pale lavender, calyxes
falling very easily.

flowers male pink.
1963 Virginia

Act no. head. of Pedata st.
Swamp of Plan marces.
Quercus primus
Liquidambar

with
Caltha palustris
Aster latifolius
Cornus regalis
Symphoricarpos
Impatiens
Quercus falcata
Bidens
Gymnocarpus cernua
Lobelia
Osmorhiza

Chimonanthus
Cicuta
Decumaria
Rhus vernix
Ulmus alata
Asimina
Smilax rotundifolia
Trillium perulatum virginianum
Vaccinium angustifolium
Smilax cernua
Magnolia virginiana
Flex space

Potlyphium densus
Rudbeckia laciniata
Woodwardia virginica
Medusa
Lilium
Cimzia amplus unacce
saw - slope above it

swamp

Quercus alba
Fagus
Pinus taeda
Quercus prinus

Mitchella
Phellodendron
Vaccinium vacillans
P. virginiana
Asplenium platyneuron

Swamp on east side that has been logged recently

Sabalia cardinalis
Calotham pumilus
Hypericum mucillum
Aster lateriflorus
Russula
Penthorum
Des laevigata
Cinnamomum
Laurus
Campsis radicans
P. floridana
Cinnamomum

This has been logged so no significant sized trees are left.
Oct. 26 - Pocahontas Creek lower down

Logged out cypress standing.
Old cypress stump with anahum cut out it.

Callthx palustris,  
Laurinus cornus.  
Rileyum, 
Ligustrum,  
Peltandra, virginica  
Dendranthia  
some.  
Impatiens  
Erectile hexagoni  
Orthrox fusea, farnica

One cypress seedling and a few shrubs seen.

Oct. 27 - Woods back of Providence Hall, Williamsburg

Mixed deciduous woods, Tulip (notice almost 4 ft.) green an all, 
Platanus,

Various trees bet. 3'-4'.

A deep ravine with tulip and white oak, of little, about 5-3 m deep, 
extends along bet. golf course and Rockefeller property.

Undertoy of young beech, asimina, annulus, floridas.

A few vines - a very large E. virginiana,  
Stem 6 ft.  
Theleptos hexagonia  
Polystichum acrostichide

Ground mostly overgrown with bines.

Several F. equiluteu but with curiously whitened  
Platy bark. Inner bark yellow.  
One a most large 6ft. cocoon.

A few small Pinus virginiana seedlings in woods below.  
A very small opening in canopy in lower part of east bank.

No flowering in this area, which is mostly Rockefeller

Kingsmill Tract; Rockefeller

Stewartiana; J.  
Jamestown lily.
1963 Virginia
Oct. 16 Pocahontas Swamps

recently logged swamp
with Taxodium and Acer platanocarpum

Flex verticillata (L.) Gray
occasional

Itea virginica

Athyrium felix-femina (L.) Roth
common on slightly higher ground

Currenta compacta Juss.
parasite on Similax
and Lindera

Callicarpa americana L.

Paronia virginica

rare, on moss cushions

Oc. 26, North Branch,
headwaters of Pocahontas Creek

in deciduous swamp

Similax tripartita B.D. Hesler
occasional

Botrychium oblongum var. oblongum
occasional

Cicuta bulbifera L.
common

24 (comp.)

rare

25 Loddigesia

rare

26 (comp.)

rare

shrub, fruit scarlet,
flaccid

shrub

prem., erect.

inflorescence swollen,
flowers white.

shrub, fruits bright
purple.

flowers whitish.

stems.

leaf somewhat purplish.

flowers white; fruit immature.

flowers yellow.

involucres almost black,
discs almost black, rays yellow.
188 1963 Virginia

1 27 Chrysophis graminifolius
rare on slightly higher ground

28 Flex vertic. Hake var. cyclopyle
locally common

29 Elymus tristis dissectum, dissectum
rare

30 Ranunculus puscilus Poiret.
very rare in mud

31 (scraped)
common very locally in mud

189 James City Co.

Flowers yellow.

Robins shrub 12-15 ft tall, fruit scarlet, fleshy,
leaves slightly purplish.

Petals yellow, minute.

Plant depressed; flower white, throat yellow.

Striking feature of yellow tulip trees mixed with green, pine and red leaf maple and oaks. Marshy area with meandering channel went of airport toward Camp Jane. About 90% of area is still wooded. Marshy creek.

Angular patches of pine
Small clearing, stream courses, outlines by bare trees. These have brackish streams.

Large areas of marsh on Chichahaminy R.

Cypress swamp, small swamp - photo area that this is James R. Mostly oak, maple birch, few tulip.

Lower reaches most of all streams binds Ty Marsh, upper by back trees. Photo.

Rochelle Woods, partly trees, partly

Reservoir has bare shoreline.

College Woods - principal deciduous - some Pinus taeda

Fagus
P. virginiana
Pinus taeda
Carya
Pinus strobus
P. echinata
P. d抢先
P. virginiana
Carya
P. echinata
Understory
Carya glabra
Myrica
Ilex opaca
Carpinus caroliniana
Carya glabra
Rhus chinensis
Erigeron pulchellus
Osmanthus cinnamomeus
Euphagus
Quercus
Aquilegia virginiana
Asarum canadense
Cyclamen cornu-cervi
Calceolus
Eriogonum

Liriodendron
Viburnum acerifolium
Gaylussacia baccata
(continued page)
Chissaanthus
Vaccinium corymbosum
Viburnum rufidulum
Rhododendron

Mitchella
Medeola
Vaccinium virginicum
Thimaphila crass.
Solidago bicolor
P. odnata
Sphagnum
Nov. 10. Wildcat Mtn. west side.
Slope viewed from road (White) most trees are still colored—probably mostly oaks. (First photos from old house, next from next high hill.)
Mainly range from green to yellow through many 1st photos from tops of hills—Platanus in sp.
Red tail oak. Wertech, 1st hill.
Meadow at base of slope.
Rubus angustifolius
Agrostis gigantea
Panicum clausitatum
Sorbus american
Rosa carolina
Cassia sp. discolor
Euphorbiaceae spectabilis
Teucrium

Edge of woods:
Valeriana officinalis
Chthrum laxifolius
Quercus alba (common)
Fraxinus virginiana
Platanus occidentals
abundant in Leonovine.
Phytotheca americana
Atalanta alternans
Lonicera japonica
Quercus palustris
Ligustrum vulgare
S. lancea, S.

Lower slope forest:
Lonicera japonica
Quercus alba
Ostrya virginiana
Kalmia latifolia

Outcrops of large rocks:
Hemlock (flowering)
Quercus
Q. coccina
Q. prinus
Pinus rigida?
Q. virginiana
juniperus virginiana
Quercus
Polygordum vulgare
Vaccinium occidentals
Virginia

Nov. 10 - Wildcat Mountain Reserve, west base of mountain in edge of woods

41432 Ailanthus altissima
1 occasional
2 33 Liriodendron tulipifera
common
1 34 Elephantoferus carolinianus
occasional
2 35 Muhlenbergia schreberi
common
2 36 Epilobium glandulosum Lef. common in bottom of
small ravine.
2 37 Holidays
occasional
1 38 Rubus occidentalis
common
same - in meadow
1 39 Hypericum muticum L.
occasional
same - on lower rocky
slopes in woods.
2 40 Hamamelis virginiana
common
2 41 Ostrya virginiana (Mill.) K. Koch
color
1 42 Hepatica americana
occasional
1 43 Gaulium cinnatum
occasional
2 44 Hepatica patens
locally common

Small tree, leaflets
at this season,
stem green; leaves
falling; fruit blue-black,
plant decumbent.
Dry except sprouts at
base.
Leaves turning reddish.
Cane arching, very
glamorous.

Yew shrub 3 m. tall,
flowers bright yellow.
Small tree about
7-8 m. tall, leafless.
Leaves purplish.
1963 Virginia

Aconitum virginicum

common in this area

foliage caespitose

common

 Aster

occasional

leaves purple.