RECORD

4/4/52 - 23/4/54

2

1

2/2/57

StandardTM Miniature Blank Book

No. 662	7 $\frac{1}{2}$ x 5 $\frac{1}{2}$	200 Pages no Units
No. 663	7 $\frac{1}{2}$ x 5 $\frac{1}{2}$	300 Pages no Units
No. 664	9 x 5 $\frac{1}{2}$	300 Pages Units
No. 665	9 $\frac{1}{2}$ x 6 $\frac{1}{2}$	120 Pages Units
No. 667	9 $\frac{1}{2}$ x 6 $\frac{1}{2}$	200 Pages Units
No. 668	9 $\frac{1}{2}$ x 6 $\frac{1}{2}$	300 Pages Units

Made in the Following Rulings

Journals, Day or Cash Books, Double S and Cts.

T. L. Ledgers, Double S and Cts.

Double Entry Ledgers

Records with Margin Line

Made in U. S. A.

TO ORDER THIS BOOK, SPECIFY
NUMBER, RULING AND THICKNESS
AS INDICATED ON BACKBONE OF BOOK

A BOOTH & PEASE PRODUCT

F. R. Fosberg
Collection No. Book #12

Nos. 22137 - 23144

Sept. 24, 1944 - Feb. 19, 1945
Colombia, Ecuador & E.U.S.

If found please return to
F. R. Fosberg

~~303 El Tambores Brush
Ave. Jimenez de Guzman 15-78
Bogota, Colombia~~

or

R. F. P. #1, Holmes Run Rd.
Falls Church, Va.

and receive reward

1

3

COLOMBIA

	Pages
Valle del Cauca, s. of Buga, range of hills n.e. of Bugalagrande, Seville	22381-22386 62-65
Caldas, Quindio Pass, w. slope below Depression	22386 64-65
Tolima, Depression, summit of Quindio Pass, Caldas-Tolima boundary, above Chicoral	22387-22389c 64-65
Cundinamarca, Barrio San Cristobal, Bogota	22390-22414 66-71

ECUADOR

Pichincha, Valley of Rio Guallemba, w. of e. of Quito, slope of Volcan Pichincha, above Quito 22415-22423 ...	70-71
Cultivated plants in Quito (not Collected)	72-73

COLOMBIA

Cundinamarca, plants observed cultivated in Bogota	74
El Valle, plants observed cultivated in Cali	75

PERU

Plants observed cultivated in Lima (not collected)	76
--	----

ECUADOR

Plants observed cultivated in Guayaquil	80
---	----

PERU

Plants observed cultivated in Talaca and Chiclayo	81
---	----

Collection and Field Note Book

No. 12

Sept. 24, 1944 - Feb. 19, 1945

Nos. 22137-23144

	Pages
VIRGINIA - Fairfax Co.	
Sleepy Hollow, along Tripps Run, Tripps Run, 22137-22159	2-7
COLUMBIA	
Cundinamarca, Mouth of San Francisco Canyon, Bogota 22160-22181	6-9
Boyaca, Rio Soapaga, s. of Belén, Socha, valley of Rio Chicamocha, Buenavista, quebradas, Rio Gomez (Rio Arobispo), "Las Mesas", head- waters of Rio Pauto, Extreme headwaters of Rio Pauto, (Rio Arobispo) Rio Gomez, slope south of Rio Gomez (Rio Arobispo), s. side of Valley of Rio Gomez, s. of Socha, road beyond Socha 22182-22311	10-36
Cundinamarca, lower hills above Sabana de Bogotá just north of Usaquén 22313-22330 ..	36-41
Caldas, Quindio Pass, Pescador s. of Morales, Cauca 22331-22334	40-41
Cauca, Finca of Enrique Mosquera, n. of Popayán 22335-22336	42-45
- Water holes: Beds nos. 1-27	44-51
Headwaters of Rio San Francisco, divide bet. Cauca and La Plata drainages 22337-22353	52-55
Cauca or Huila, headwaters of Rio Bedón (San Rafael) drainage of Rio La Plata, Hot Springs, sulfur mine of San Juan, near Tejera, Moscopan, Santa Leticia, Roblal, drainage of Rio La Plata 22354-22380	54-63

COLOMBIA

Valle del Cauca, s. of Buga, range of hills n.e. of Bugalagrande, Sevilla 22381-22386	62-65
Caldas, Quindio Pass, w. slope below Depression 22386	64-65
Tolima, Depression, summit of Quindio Pass, Caldas-Tolima boundary, above Chicoral 22387-22389c	64-65
Cundinamarca, Barrio San Cristobal, Bogota 22390-22414	66-71

ECUADOR

Pichincha, Valley of Rio Guallabamba, w. of e. of Quito, slope of Volcan Pichincha, above Quito 22415-22423 ...	70-71
Cultivated plants in Quito (not Collected)	72-73

COLOMBIA

Cundinamarca, plants observed cultivated in Bogota	74
El Valle, plants observed cultivated in Cali	76

PERU

Plants observed cultivated in Lima (not collected	78
--	----

ECUADOR

Plants observed cultivated in Guayaquil	80
---	----

PERU

Plants observed cultivated in Talaca and Chiclayo	81
--	----

... 2

Collection and Field Note Book

No. 12 (Cont'd)

	Pages
ECUADOR	
Road w. from Quayaquil toward Salinas	82
PERU	
West Coast	83
Rio Rimac above Lima 22434-22441 ...	84-87
Chiclayo 22442-22443 ...	86-87
Valley of Rio Rimac from Lima up to bet. Viso and San Mateo	88
ECUADOR - Pr. Pichincha	
Aloag, s. of Quito, Los Alpes, drainage of Rio Quitasol 22444-22470a...	90-97
Tungurahua, Quebrada Estancia, below Baños, Rio Pastaza above Baños .. 22470-22481 ...	96-99
Chimborazo, hills w. of Riobamba toward Lican 22482	100-101
Bolivar, headwaters of Rio Gradass, s. of Chimborazo Volcano, canyon of Rio Gradass, headwaters of Rio Playas above Balzapamba, Valley of Rio Playas, canyon of Rio Playas, s. w. of Quaranda 22483-22514 ...	100-109
Pichincha, Valley of Rio Saloya, s.w. of Quito valley below Chiriboga, Monument to La Condamine, Quito, bet. Tambillo and Aloag.. 22515-22549 ...	108-117
Tungurahua, hill above Laguna de Yambo, Pampa de Luisa, near Estacion Luisa (Mocha) 22550-22558	116-119
Chimborazo, Rio Chubuga (Chubún) 22559-22627	118-129
Cañar, Cerro Buerán (Páramo de Curiquinga), along Rio Azogues bet. Azogues and Chu- quipata, Rio Matadero 22628-22669 ...	128-135
Azuay, Rio Matadero below confluence of Rio Machingara, below Cuenca.. 22670-.....	134-135

ECUADOR - Cañar

W. side of Cerro Yanguana, ridge east of Rio Dudas, e. side of Cerro Yanguana, ridge e. of Rio Dudas, Valley of Rio Masa, near Shoray, Valley of Rio Monay, n. w. side of canyon of Rio Paute, Rio Dandayacu, bet. Rio Monay and Rio Jubal, Huertaspambas, n. slope of canyon of Rio Paute 22671-22751	134-155
- Cañar, Santo Tomas, Valley of Ventanillas, Top of pass over Cerro Yanguana, across the valley of Rio Mangan, headwaters of Rio Shirincay, west slope of Cerro Huairacaja, ridge bet. upper Rio Shirincay and upper Rio Sarcay, n.e. of San Marcos, headwaters of Rio Shirincay, w. slope of Cerro Huairacaja, Rio Shirincay, n.e. of Azogues 22752-22831..	154-169
- Azuay, Tablon de Oña, slope to s., s. of Oña 22832-22855	170-173
- Loja, Paso de Cajanuma, s. of Loja, headwaters of Rio Zamora, s. of Loja, s. slopes of Nudo de Cajanuma, above Pueblo Nuevo, Valley of Malacatos e. of Malacatos, Landangui, n.e. of Ma Malacatos, Terrace w. of Loja, Nudo de Villonaco, e. side of Catamayo Valley, Rio Guayabara, near San Pedro, n.e. slope of Cerro Matapeno, near El Cedro, n.w. of Las Chinchas, Rio Cluguango, above Chiguango, Headwaters of Rio Salado 22856-22967	172-183
- El Oro, Rio Luis near Puente F. Paez, Monos, La Garganta de Pinas, below Curtincapa, ridge between El Nudillo and Hacienda Chapel, Quebrada Chapel, Bebidero de Oso, affluent of Rio Luis, El Nudillo, bet. Custincapa and Mediamontaña, El Tablon 22968-23013	182-189
- Loja, Grada east of Catamayo (LaToma), Catamayo Valley, Cruz Loma, Nudo de Villanaco, Hacienda Guaycopamba, Quebrada Amarilla, upper Quebrada AguaCorra, Quebrada Pico Azul, ridge bet. Quebrada Agua Corra and Q. Amarilla 23014-23113	188-199

Collection and Field Note Book

No. 12 (Cont'd)

PagesCONDOR

Lola, Upper left fork Rio Zamora, trail to
 Zamora, Cordillera Zamora, Divide bet. headwaters
 left fork of Rio Zamora and Quebrada Jipiru, Cord.
 Zamora, main divide of Cordillera Zamora (El Condor)
 bet. headwaters of Rio San Francisco and Q. Jipiru
 (Santiago Zamora) 23114-23137 196-201

Santiago Zamora, headwaters of n. fork of Rio San
 Francisco, Cord. Zamora (El Condor), ridge bet.
 2 forks of Rio San Francisco, Cord. Zamora (El Condor)
 s. fork Rio San Francisco, Cord. Zamora (El Condor),
 Rio San Francisco, Valley of Rio Zamora 23138-23144 202-203

Collection Guadalupe Rodriguez

near Monos, Prov. El Oro 202

* * *

ting,

en
:
4:28
of
iceatic
saw
a
long

F. R. Fosberg
Collection No. Book #12

Nos. 22137-23144

Sept. 24, 1944 - Feb. 19, 1945
Colombia, Ecuador & E.U.S.

If found please return to
F. R. Fosberg

~~308 E. Hampden Branch
Ave. Financ. de Guayaquil 10-14
Bogota, Colombia~~

or

R. F. P. #1, Holmes Run Rd.

Falls Church, Va.

and receive reward

1

3

Si encontrada remitarse a
Dr. F. R. Fosberg
Embajada de Estados Unidos

y recibir propina

Sept. 24, - Sleepy Hollow,
along Tripps Run, 1 mile
S. of Falls Church, Fairfax Co.
Old fields, ~~and~~ thickets
and bottom lands.

22137 *Liquidambar styraciflua*
roadside

38 *Liquidambar styraciflua*
edge of old field

39 *Liquidambar styraciflua*

40 *Echinochloa crus-galli*
roadside

41 *Cyperus*
roadside

42 *Carya*
roadside

tree 10 m. tall ^{3 dm. thick} ~~in roadside~~,
corkiness extreme but
corkless twigs found
on same tree.

tree 20 m. tall, spreading,
trunk ~~20 m.~~ 1 m. thick,
no corky ridges seen
on ~~the~~ twigs.

mass collection taken to
show variation between
extremes of corkiness
represented by #22137 & #22138
twigs of 2 season old wood
taken on lower branches
of south side of tree
where at least some
sun reaches it. Leaves
of small type characteristic
of dwarf branchlets in 2 season
wood. In each case the
twig is the one most corky
on casual observation.
Trees all 5 m. tall or more.

tree 8 m. tall, fruit green,
globose, buds not golden.

- 27143 *Cirsium discolor* (Muhl.) Spreng.
~~scattered~~ old field with
 scattered brush
- 44 *Aster*
 very abundant in old
 field
- 45 *Lespedeza*
 common in old field
- 46 *Botrychium dissectum* var. *obliquum* (Muhl.) Clute
 rare in old field (one seen)
- 47 *Crotalaria sagittalis* L.
 common locally in old field
- 48 *Lechea*
 rare in old field
- 49 *Nyssa sylvatica*
 fence-row
- 50 *Euphorbia*
 abundant on road embankment
- 51 *Erigeron*
 road embankment
- 52 *Commelina*
 along stream in pasture
- 53 *Ulmus americana* L.
~~roadside~~ roadside thicket
- ✓ Oct. 1 - Tripper Run, 1 mi. s. of
 Falls Church, Fairfax Co. Va.
 pasture near stream
- 54 *Crataegus*
- 55 *Paronychia*
 base of great granite rocks
 on rocky knoll in pasture
- 56 *Polygonum*
 same.

herb 1 m. tall, fls. purple.

rays white, disk yellow
 turning maroon.

prostrate, fl. pale pink
 with deeper center to banner

fl. yellow.

young tree 6 m. tall, fruits
 black, fleshy.
 lactiferous

rays white, disk greenish-yellow

upper petals large, ^{bright} blue,
 lower one small, white.

small tree 5 m. tall
 fruits dull red.

fls. white

22157 *Paronychia*
same

3 58 *Euphorbia*

✓ Oct. 29 - Santanderito (Santander),
Rio Bogotá below Tequendama
Falls, Cund. 1500 m.

59 *Corn.*

cultivated on rock wall

✓ Nov. 1 - Mouth of San Francisco
Canyon, ^{lower slopes} of Guadalupe
Peak, Bogotá, Cund.

2700-2800 m.

^{open} sparse, planted forest
of *Eucalyptus globulus*
on steep rocky slopes.

L 60 *Alchemilla*

scattered, common locally

L 61 *Blechnum* ^{off. occidentale}
scarce, local

L 62 *Cyan.*
common

L 63 *Galium*
scarce

L 64 *Lathyrus*
common,

L 65 *Urtica*
occasional, shaded by brush

L 66 *Melast.*
common on more open ledges

3 67 *Bulbostylis*
occasional on ledges

prostrate

vine, inflorescences
erect, buds deep red,
flowers cream-white.

most of understorey dominated
by *Eccremis coarctata*, with
Centropogon (?) sp.

spawling

leaves stiff-chartaceous

very small tufts.

prostrate from threadlike
rootstocks.

loosely carpeting soil

fls. bright yellow.

tufts with most of
leaves + culms dead.

- L. 2 168 grass
common
- L. 3 69 grass
occasional
- L. 1 70 grass
scarce
- L. 71
scarce
- L. 72 Paspalum
very scarce, around edges
of rocks
- L. 1 73
scarce, in clump of bushes
- L. 8 74 ~~grass~~
occasional
- L. 3 75 grass
common in open places
- L. 2 76 Pteridium aquilinum (L.) Kuhn. var.
very common
- L. 5 77 moss
rare, in sheltered places
- L. 4 78 moss
common on ledges
- L. 4 79 hepatic
common on vertical banks
- L. 3 80 moss
common on edges of ledges
- L. 3 81 Polypodium
ledges

Cundinamarca

small tufts

small tufts

small dense tufts

spikes red

~~in clump~~

vine, tangled in
bushes, fls. white,
~~plant~~ latex exudes
from broken places.
large dense spreading
clumps, infl. faintly
lavender when
young.
fronds stiff, coriaceous,
often 1.5 m. tall and
correspondingly complex.
thick mats ~~in clump~~

cushions

mat-forming

thick cushions, plants
bright pale green, starlike.

- ✓ Nov. 7 - Rio Loapaga, 12 km.
e. of Belén
on and at foot of 3000 ft.
fore slope of tilted sandstone.
- L. 77 182 *Dalea*
common on slopes of rocky
soil
- L. 83 *Tillandsia*
on trunks and branches of
small trees.
- L. 84 *Setaria*
in soil at base of slope
- L. 85 *Dodonaea viscosa*
commonest shrub on dry slopes
- L. 86 *Gnaphalium*
common on rocky soil foot of slope
- L. 87 *Cyperus*
scattered at foot of slope
- L. 88 *Notholaena*
common in lower crevices
- L. 89 *Drymaria*
local on rocky disturbed
soil at foot of slope
- L. 90 *grass*
rare in soil at foot of slope
- L. 91 *grass*
common in soil at foot of slope
- L. 93 *Verb. Bory?*
only one seen, at foot of slope
- L. 94 *Bouillon*
rock crevices & soil pockets
- L. 95 *Sida*
base of slope

scrubby bushes up to 1 m.
tall, fls. blue-violet

tufts

awns purple

shrub 1 m. tall.

small tufts.

tufts

spreading, petals
white, much shorter
than calyx, bifid, lobes
entire.

small tree 5 m. tall,
10 cm. thick, fls. white.
tufts.

fls. orange-yellow.

- L 22196 *Galium*
common in clumps of bushes
at base of slope
- L 3 97 *Polytrichum*
common in patches on rocks.
- L 2 98 *Grass*
common in crevices
- L 3 99 *Polypodium*
common in crevices
- 22200 *Andropogon*
common in crevices
- 1 01 *Cheilanthes*
common in crevices
- 3 02 *Polypodium*
common in crevices
- 2 03 *Wissadula*
rare at foot of slope
- 3 04 *Vernonia*
common on and at foot of slope
- 2 05 *Delaginella*
common on slope
- 2 06 *Nastur*
on soil at foot of slope
- 2 07 *Urena*
on bare rocks, upper slope
- 2 08 *Eragrostis*
bar roadside

- ✓ Nov. 8 - Socha, valley of
Rio Chicamocha 1500-1900 ft.
~~low~~ hill of decomposing
sandstone, moderate slope
- 4 09 *Hypericum*
abundant

- erect to prostrate, tangled
in bushes, roots orange,
fls. greenish white.
cushions
- loose tufts
- fronds erect, gray.
- small tufts
- tufts.
- fronds very erect
- erect suffrutescent herb,
up to 1 m. tall, fls. yellow.
- shrub up to 0.7 m. tall,
fls. lavender-purple.
- loose mats
- gelatinous
- spreading tufts
- cut over land, now mostly
sparse bush resembling
subparamo, little soil remaining.
- shrubs up to 1 m. tall,
sparsely branched, fls. orange-yellow,
leaves conspicuously 4-ranked, "chita".

- 22210 *Pellaea ternifolia*
rock crevices
- 2 11 *Borreria*
abundant
- 1 12 *Bulbostylis*
rare
- 1 13 *Vaccinium*
occasional
- 3 14 *Euphorbia*
common
- 2 15 *Polygala*
occasional
- 16 *Polygala*
occasional
- 17 *Dichromena*
common
- 18 *Evolvulus*
occasional
- 3 19 *Borreria*
~~occasional~~ common

small tufts

usually erect, fls.
white, not pilose within.
small tuft

depressed, spreading
stiff bushes, 1-3 dm.
high, fls. pink, fruit blue.
prostrate, stems red,
glands white to pink.
this and #22216 look the
same except in stature
and the fact that in
this the flowers are
purplish white to
purplish pink. Roots
have faint wintergreen
odor.

this and #22215 look the
same except in stature
and the fact that the
flowers are white,
only the youngest buds
having a trace of ~~purple~~ pink.
Roots have faint wintergreen
odor.

small tufts, bracts
white at base, spikelets
white.

prostrate, fls. about 1 cm.
across, bright blue

prostrate or ascending,
fls. white, purplish without,
pilose within.

22220

Ceanothus

occasional on disturbed top
of hill.

same but various habitats

21 *Prunus serotina*
growing in yard22 *Berberis*
talus below road on sparsely
bushy slope23 *Duranta*
talus below road on sparsely
bushy slope.24 *Salix humboldtii*
edge of field25 *Bonania*
edge of marsh26 *Bonania*
talus below road27 *Juncus bogotensis*
scaps and marshfls. yellow, involueral
bracts maroon distally
and marginally.tree 5 m. tall, fls. white,
fruit immature
rounded bush 2 m. tall,
leaves white beneath,
ripe fruit ~~blue~~ blue.~~to~~ rigidly branched
bush 2 m. tall, leaves
dark green, fls. white,
fragrant, tube curved,
fruit immature

"esquina negra"

this form grows very
tall and erect with a
habit like lombardy
poplar, but with the
soft tips of the branches
drooping. 7 m. tallwhite until 40 cm. in
diam. with large
triangular branch scars.
prostrate, forming an
extensive mat. fls.white, not pilose
within, anthers blackish,
prostrate, forming a
mat from central root,
fls. white, pilose within
purplish without.clumps - mass collection
taken from different clumps, 1 seed each.

✓ Nov. 10 - Buenavista, headwaters
of Rio Panto bet. quebrada Laja (9. Colorado)
and Rio Panto, 30 km. s. of e. of Laja. 8800-9100 ft.
cloud-forest, steep slopes
2228 *Cinchona officinalis* L.

29 *Cybianthus lamifolius* (Mez) Agostini ^{det. Agostini}

30 *Cinchona officinalis* L. ¹⁷⁸¹

L 6 31 *Lobelia*
along trail

4 32 *Nertera granadensis*
along trail

2 33 *Nertera granadensis*
along trail, exposed place

8 34 *Sphagnum*
on earth banks, along
trail on ridge.

4 35 *Polytrichum*
vertical earth banks

~~sapling~~ *C. bat* small batch

5 36 *Cinchona officinalis* L.

from tree harvested several
weeks ago.

shrub 2 m. tall.

sapling 4 m. tall,
2 cm. thick, stipules
turning reddish, (bark sample)
scrambling shrub,
lvs. rugose, fls. red in
upper half, lower half
deep pink, anthers
bluish, column whitish,
(from several plants)

prostrate, fls. yellowish
green, fruit scarlet.

prostrate, forming a
mat fls. yellow green,
fruit scarlet.

~~leaves~~ soft cushions,
bright rose color
(note fruit)

forming sparse
cushions.

3900'

sapling 4 m. tall, 3 cm. thick
near base, midribs becoming
reddish when old, network
of veins conspicuous, (bark sample)
canaliculate, compressed above.

✓ same date & loc. small rocky peak with bushy subparamo-like vegetation
 22237 *Vaccinium*
 common around upper edges of forest

38 *Vaccinium*
 common

39 *Orchid*

only one seen, in deep ~~the~~ root-filled humus

40

on ericaceous shrub # 22237

41 *Meriania granadensis*
 on earth banks

42 *Paepalanthus*
 common on rocky banks and ledges.

43 *Sphagnum*
 common on banks

44 *Weinmannia*
 common

45

Epilobium
 common

46

Passiflora ligularis
 common

bush up to 0.5 m. tall, fls. pink, especially at mouth, fruit translucent white.

tiny erect shrub, fls. red, fruit translucent white.

erect, fls. bronze-red.

bronze green, fruit translucent white.

prostrate, fls. yellowish green, fruit scarlet.

single or slightly caespitose fls. white with blackish involucre, cushions, rose colored.

shrub, somewhat spreading, 2 m. tall, fls. ~~white~~ with red calyx, white filaments, pinkish anthers, immature fruit red, leaves strongly revolute.

forming tangles on ground and on small shrubs, dark maroon bronze.

tangles shrub up to 0.5 m. tall, petals white, stamens rose pink.

22247

Miconia
common

1 48 *Ficus*L 49 *Leucaena*3 50 *Miconia*

2 51

3 52 *Miconia*

common around bases of
shrubs

3 53 *Hedyotis nitida*
common

same. cloud forest

1 54 *Bryum*

earth bank, in mat of hepatics

3 55 *Bryum*

earth bank, in mat of hepatics

3 56

earth bank

4 57

earth bank

shrub 1-2 m. tall, fls.
pale greenish, fruit black
when ripe, leaf bases
with reddish margins,
old leaves red. (flowers
& fruits from different plants)
tiny shrub, up to 0.5 m. tall,
fruit red.

shrub up to 1 m., fls.
scarlet.

thick cushion, golden-green,
shrub 2 m. tall, fruits
yellow-green, when
open, exposing scarlet
seeds attached apically
to axile placenta.
deep soft cushions,
gold-green.

small shrubs, up to
0.4 m. tall, leaves 4-ranked,
fls. white, purplish
without (terminal
or racemously arranged
branchlets) leaves whitish
beneath, thick.

cushion

leaf soft cushion.

22258

base of tree

59 Hymenophyllum
on trunk of tree

2 60 Cyperus?

mud near spring

2 61 Asplenium

moisty tree trunk

4 62 Liatrum

new clearing

✓ Nov. 9 Quebradas, Rio Gomez (Rio
Arabispo), 10 km. e of Docha, 10000'
roadside bank

2 63 Catharinaea

64 Bryum argenteum

✓ Nov. 11 - "Las Mesas", headwaters
of Rio Pauto, bet. Quebrada Laja
(of Colorado) and Rio Pauto, 25 km.
s. of e. of Docha.

open paramo grassland,
very wet and marshy
in spots, with scattered
bushes and patches of brush
or bushy forest.

65 Aragoa
common4 66 Senecio
common67 Senecio
bushy slope

mat-forming

pendent

sap milky, fls. yellow

shrub 1-2 m. tall,
fls. white, fragrant.
shrub 1-2 m. tall,
fls. yellow, leaves
green

shrub 1 m. tall, leaves
terete, glaucous, fls. yellow.

- 222,63 *Geranium*
occasional, brushy slope
- 2 69 *Hypericum*
common, brushy slope
- 9 70 *Hedyotis mutica*
common, brushy slope
and open places
- 7 71 *Hedyotis nitida*
common, brushy slope

✓ Nov. 11 - Extreme headwaters
of Rio Panto, near divide,
Páramo de Laja (El Perro)
18 km. s.e. of Socha

11,600'

- L. 1 72 open rocky páramo.
Lobelia tenera
earth banks, common
- 73 *Valeriana*
common
- 74 *Plantago*
spreading on flat rocks
- 75 *Hedyotis nitida*
occasional
- 76 *Carex*
rare here
- 77 *Carex*
one colony seen here
in damp flat place
- 78 *Chusquea weberbaueri*
common

10,500'

fls. pink, leaves
turning red when old.
fls. yellow "chite"

~~leaves~~ prostrate, leaves
4 ranked, bud purple,
fls. white inside.
shrub up to 0.4 m. tall,
lvs. white beneath, fl. white.
~~the plant is with~~ "piacho" & "piajo"

fls. blue-violet

forming dense cushions,
lvs. gray-green, fls. white.
carpets, thinner toward
edges, closely adhering,
grayish green.
shrub 0.4 m. tall,
lvs. white beneath,
fls. white, purplish without
tufts, infl. purple.

isolated culms or
slightly caespitose,
heads drooping.

ragged bunches, varying
greatly in size, occasional
bunches flowering.

22279

Corymb.

common

80 *Bartsia*

common

81 *Luzula*

common in rock crevices

✓ Nov. 11 - (Rio Arobispo) Rio Gomez,
above Quebradas,
10 km. e. of Locha

sub-paramo brush in
canyon

82 *Vaccinium*

common

83 *Pernettya*84 *Baccharis*85 *Senecio*86 *Leucotheca argentea* (Mutis) Raf.
common87 *Senecio* (pycnos)
common88 *Weinmannia*
occasional89 *Vicia*

rare

90 *Calceolaria hirtiflora* Pennell det. Wundtke
common locally

isolated plants, rosettes,
gray, fls. white.
heads bright deep purple

heads pendent
tufts small

bushes 1-2 m. tall, leaves
stiff, flowers crimson,
berries blue, but no
mature ones seen.

bush 1 m. tall, leaves
reticulate beneath,
fls. white.

shrub 1.5 m. tall, heads
whitish.

shrub 2 m. tall, lvs.
green, fls. yellow.

silvery bushes, 2 m. tall.

bushes 2-3 m. tall,
fls. yellow, rays present
but not large.
small tree 4 m. tall

climbing in bushes
to 2 m., fls. blue

weeds shrub up to 2.9 m. tall,
in bush, fls. bright yellow

22291 *Vallea stipularis*92 *Lab.*93 *Baccharis*
common✓ Nov. 11 - slope south of
Rio Gomeza, ~~but~~ (Rio Arriba)
and Rio Gomeza, 7-10 km. e.
of Lachacleared rocky slope
with bushy ravines
and scattered bushes.94 *Mutisia charitella*
occasional95 *Galium hypocarpium*
occasional, rocky place,
foot of great boulders.96 *Borreria*
occasional, foot of great
boulders97 *Phytolacca*
at roadside

98

rav. foot of great boulders

tree 5 m. tall, fruit green,
fleshy, pieces as thick,
blunt shorter than wide.
herb 1.5 m. tall, fls. white,
herbage aromatic.
shrubs 2 m. tall,
fls. whitishvine climbing over
large shrub, heads
pendent, rays scarlet,
head somewhat zygomorphic.prostrate, fruits
fleshy, orange.prostrate, fls. white,
pilose within.depressed, much-
branched succulent
herb, fls. pink, fruit
not quite mature
erect suffrutescent
herb, 1-1.5 m. tall, rays
white.

- 22299 *Elaphoglossum*
crevices of great boulders
- 22300 *Asplenium*
rock ledge, rare
- 01 ~~rock~~
vertical rock face
- 02 *Polypodium*
vertical face of boulder,
also ledges.
- 03 ~~rock~~
crevices in great boulders
with clumps of orchids.
- 04 *Polypodium*
rock ledge, with #22305
- 05 *Polypodium*
rock ledge, with #22304
- 5 06 *Comp.*
roadside
- ✓ Nov. 11 - ~~side of~~ ^{side of} Valley of Rio
Gomez, 6 km. e. of Locha
- 07 *Tagetes*
common roadside weed
- 2 08 *Polymnia* ~~sp. nov.~~
near habitations
- 10 09 *Bocconia*
rocky bench above stream

erect, fronds coriaceous

gray.

fronds not erect, not
as stiff or thick as #22306.
fronds erect, stiffer
and thicker than #22304.
rounded shrub 2 m. tall.

herb 1 m. tall, very
strong odor but not
quite so unpleasant
as in most *Tagetes* species.
fls. bright yellow.
- this is giant herb, 5 m.
tall, 10 cm. thick near base.
shrub 2.5 m. tall,
leaves gray-green,
whiter beneath,
inflorescences pendent,
fruit not quite mature,
orange latex oozing slowly.

22310 *Alnus*

bush above stream, common

4 11

~~scabrous~~ bush above stream

Nov. 11 - Road beyond Socha,
valley of Rio Gomeza, Boyacá

An interesting series of
sandstone cliffs
bet. 9000' & 10000' alt.

along this road are the
habitat of literally tons of
thousands of specimens
of 2 species of bromeliads -
an *Aechmea* and a
Puya. The *Aechmea*

✓ Nov. 13 - lower hills
above Sabana de Bogotá just
north of Usaquén, where
the La Calera Cableway crosses
highway, Cundinamarca
subparamo bush 8700-9100'

12 *Palicourea*

flat ridge-top

with
W.B. Drew

tree 6 m. tall, leaves
mostly damaged.

bush 2 m., fls. pink,
fruit black, stamens
with filaments
apparently fused in
a ring toward base.

is solitary, the vase-like
rosettes erect, plastered
against the bare sandstone
wall, without the support
even of a crevice. The
Puya is caespitose as
usual. On broken
boulders from the cliffs
are great clumps of orchids,
of several genera but
principally one with very
thick leaves. Several ferns
also occur here.

A secondary sub-paramo
vegetation almost regaining
forest conditions, but with
soil mostly eroded
off.

shrub 2 m. tall, buds
yellow-green, turning white
as flowers open, flowers
then turning dull purple,
infl. pendent, yellow.
fruit green.

72313

Eugenia

eroded open trail, in sterile soil

2 14

Myrsine

slope

1 15

slope

4 16

Myrsine

slope

1 17

Myrsine

in trail, rare

4 18

Clusia

flat ridge top

6 19

Clusia

flat ridge top

3 20

Andropogon

flat ridge top

1 21

Sterea

flat ridge top

4 22

Smilax

flat ridge top

3 23

Palicourea

flat ridge top

6 24

Smilax

flat ridge top

6 25

Diplazium

abundant on slopes

6 26

Morina

occasional on slope

prostrate

small tree, 4 m. tall,
fruit black.very slender, scarcely
branched shrub, 2 m. tall,
fruit black.straggling shrub 1 m.
tall, fls. white, stamens
rose purple, fruit white,
fleshy.

fls. white, very zygomorphic.

shrub 2 m. tall,
emitting aromatic yellow
latex when broken,
fls. greenish. ♂small tree 6 m. tall,
emitting aromatic yellow
latex when broken.
~~erect~~ erect branchshrub 1.5 m. tall,
infl. dull pink, pendent.
tough vine climbing
over bushes, fls. greenish white.
bush 2 m. tall, infls.
and fls. deep bright
red-purple.stiff bush 2 m. tall,
fls. pinkish white, fruit green.shrub 2 m. tall,
rays white.
shrub 1.5 m. tall,
fls. indigo purple.

27327 *Gaultheria*
slopes

1 28 *Hedyotis nitida*
slopes

5 29 *Viburnum*
slopes

3 30 *Palicourea*
flat top of ridge, common

✓ Nov. 22 - Quindío Pass,
west slope, highway
above Calarcá, Caldas
cleared slope with 2700 m.
scattered trees, mostly
Quercus humboldtii

31 *Quercus humboldtii*

32 *Cinchona pubescens*
1 tree seen, sprouts of others

33 *Favosites*
one tree seen

✓ Nov. 23 - Pescadero, 10 km. from Maricao, Cauca
sterile, eroded plateau of red subsoil

34 *Ladenbergia magnifolia*
abundant in ravines

Cundinamarca - Caldas 41
Cauca

shrub 0.7 m. tall, fruits
white tinged with purple,
fleshy.

shrub, 0.3-1 m. tall,
leaves white beneath,
fls. white, purplish
outside.

shrub 3 m. tall with
long branches, abundant
clusters of blue fruits,
fls. white.

shrub 0.6 m. tall,
fls. white, fruit
orange-yellow.

tree 10 m. tall.

tree 4 m. tall, 10 cm. thick,
sterile, leaf veins becoming
reddish, old leaves bright
red, stipules somewhat
recurved, terminal bud
glutinous. (bark sample)

tree 5 m. tall, fls. green,
ripl fruit purple (as
in *Solanum melongena*),
enlarged calyx yellow.

tree 5 m. tall, others much
larger (seed sample)

Nov. 24 - Finca of Enaiguo
Mosquera, km. n. of
Popayan

Mosquera has a fair sized
finca of rolling plateau land,
with several streams. The
soil seems to be rather
acid, judging from the
vegetation. It has a black
surface layer that must
be fairly good. The forest
patches that remain
are largely Weinmannia
of 2 species, Vismia sp.,
Miconia of at least 2 sp.,
some Cinchona pubescens,
Palicourea, etc.

The ~~the~~ F.L.G. Cinchona
nursery is here, as well
as a small plantation
of Ledgeriana hybrid
Cinchona sent by B.Y.
Morrison to Mosquera.

The latter, 1800 seedlings
were mistreated sadly
at first, when I saw them
in Oct. 1943, they were
scarcely surviving.

Bill Davis suggested
removing the ball of
Sphagnum from the roots,
which was done.

The plants are now

from 3 to 8 dm. tall,
with hard woody
stems and healthy
firm leaves. They
do not seem to be too
fast-growing. They
have all been pruned
to a single stem.
They look quite variable,
and obviously have
a certain amount of
C. pubescens in their
predominantly C. officinalis
ancestry.

Mosquera has
transplanted them all
into a ravine with
sides with about 25-30°
slopes. They are planted
in holes 1 m. square and
1 m. deep, filled 70 cm.
with green vegetable matter
and 30 cm. with top
soil, then allowed to
stand 3 months before
planting.

At present the plants
are in open sun, but
M. has planted bananas
between them for shade,
but they are only starting
to grow. He will later
plant Bixa orellana.
The plants are spaced
at least 4 m. apart.

✓ Nov. 24 - Finca of E. Mosquera,
1 km. -

n. of Popayan. Cauca 5700 ft
thin second growth woods
on acid soil, rolling
plateau.

22335 Weinmannia
common

2 36

one tree seen

The holes don't seem
to be collecting standing
water, probably because
the subsoil is porous.

He has taken all the
branches pruned off the
plants and stuck them
in the soil to root. A
fair percentage have
taken hold.

The F.E.A. ~~nursery~~
established by P. J. Coffin,
occupies a piece of ground
about 100 m. by 35 m. (about
1/3 hectare). For this is paid
a rental of 100 pesos a month.
Land in the vicinity is
worth about 100 to 150 pesos
a hectare.

There are 27 beds, ~~12 of~~
1 m. wide, 12 of them 25 m.
long, the others 27 m. long.

tree 5 m. tall, 7 cm. thick,
leaves dark green above,
pale below.

spreading tree, 6 m. tall,
fls. ^{green} in pendant panicles
from larger branches.
(fruit said to be red, fleshy,
several cm. in diam.)

They are surrounded
by an 8 inch board,
partially filled with
leaf top soil, the rest filled
up in various ways.
They have been ~~sowed~~ ^{treated & planted}
in various ways and
at varying times. They
are numbered consecutively
and may be briefly described
in order:

Bed #1) tucumbra, 29. seed per sq. m.
planted July 15 - manure,
humus & sphagnum -
dense stand plants up
to 3 cm. tall, healthy.

1.5 g. seed per sq. m.
2) pubescens (local), planted Feb. 10
- local black top soil only -
not one plant per square foot. 3-6 cm. tall

sphagnum
where used,
about 1 cm.
settled
except
beds 14-16.

1944 - Colombia
nursery (ctd.)

Bed #3) *Luccimbra* -

Planted June 24 - humus, manure
sphagnum - good stand,
plants up to 30 cm. tall.

#4) same but no manure -
plants twice as vigorous

#5) *pitayensis* - 3 g. seed per sq. m.
planted Feb. 24 - humus
+ sphagnum - poor stand,
plants up to 15 cm. tall,
with 6 pairs leaves, some
so young as to have only
2 pairs of leaves. Plants
vigorous, large root
systems.

#6) *Luccimbra*, 2 g. seed per sq. m.,
planted June 12 - humus
+ sphagnum - very dense
stand, plants up to 10 cm.
tall with 5 pairs leaves,
very irregular in size.

#7) *pitayensis*
planted March 14 - humus
+ sphagnum - dense, fairly
even stand up to 15 cm.
tall, healthy but rather
spindly plants.

#8) *pitayensis* 3 g. seeds per sq. m.
planted Mar. 11 -
same as #7 but smaller
plants and much poorer stand

#9) *pitayensis* 3 g. seed per sq. m.
planted Mar. 13 -
same as #8 but better
stand, smaller plants.

#10) *pitayensis* 3 g. seed per
sq. m. planted Mar. 16 -
humus only - good
stand, plants healthy
but spindly up to 15 cm. tall

#11) *pitayensis* - 4 g. seed per sq. m.
planted Mar. 29 - humus only
about like #10 but stand
more uneven.

#12) *pitayensis* ^{planted Mar. 31} - same as
#11, plants very uneven,
1-20 cm. tall.

#13) *pitayensis* - planted Apr. 3
- poorer, more uneven
stand, plants smaller.

#14) *pitayensis* - 4 g. seed per sq. m.
planted Apr. 8 - humus and
deep layer of sphagnum -
after settling - very poor
stand, small plants 2-4
cm. tall. Obviously too much
sphagnum.

#15) *pitayensis* - same as
#14. plants healthy,
mostly small, but some
large.

Bed #16) *pitayensis* - 6 g. seed per sq. m. planted May 6. - about like #14, poorer stand, smaller plants in most of bed.

#17 *succinbra* - 2 g. seed per sq. m. planted May 23 - humus + sphagnum - very dense stand of plants up to 15 cm. tall, but apparently still germinating. Only one strip of cloth on north side.

#18) *succinbra* - 2 g. seed per sq. m. planted May 24 - humus + sphagnum - very dense stand but plants about 1/3 size as in #17. 2 strips of cloth as in all following beds.

#19) *succinbra* planted May 30. same as #18.

#20) *succinbra* - same as #18, planted June 14. plants sl. smaller than #18, 2-5 cm. tall.

#21) *succinbra* - same as #20. denser but more uneven stand, smaller plants.

#22) *succinbra* - same as #21 but planted June 16.

#23-24) ²⁵⁾ *succinbra* - same as #22 but less even and less dense stand. humus unscreened ^{no sphagnum}. #24 has seedlings smaller average size.

#26) *succinbra* - planted June 28 - humus screened, no sphagnum. better stand & taller plants than #23-25.

#27) *succinbra* - planted June 30, same as #26 but stand very uneven.

Most of the *C. pitayensis* seed comes from between Lilia and Tacuayo.

Coffin tried drying seeds in drier at 55°. No germination. Kichi dried them at room temp. till they started to open, then in sun. Gave good but uneven germination even though they were green and soft to start with. No selection was made.

Orientation of seed beds nearly east and west. Thin roof about 2 m. high on N. side, 0.4-0.8 m. on S. side. N. side and ends closed with one or 2 strips of cloth 1 yard wide.

Along one end is a bed with about 250 young *C. pitayensis* trees 3-6 dm. tall, mostly healthy, transplanted from Quintana. Shaded with a roof of poles & fern leaves, not thick, ~~open~~ 1.5-2 m. high, sides open.

I don't understand the fact that in all but one bed the stand is poor in the 1 m. at the west end, and in all of them there are few plants ~~at~~ in the 1-2 dm. next to the north (front) edge of the bed.

Dr. John Geib has made an estimate of the no. of plants as follows:

Succirubra - 517,500

[this is probably somewhat low]

Pitayensis - 114,500

[about right]

Local pubescens - 1,500

[much too high]

Pitayensis cuttings 250

Mosquera's ledger plant, 500-700

[much too high, Kichi says 250 at most]

- 14 ✓ Nov. 26 - Headwaters of Rio San Francisco, above Purace, north of Volcan Puracé, Cauca ~~subparamo~~ 11000' open paramo plateau
- 22337 *Acaena*
common, even more abundant at lower altitudes
- 2 38 *Diplazium*?
occasional in bushy patches
- 2 39 *Lisyrhinium*
occasional on open slopes
- 3 40 *Cladonia*
covering sloping rock
- 4 41 *Polytrichum*
common on open earth bank
- 34 ✓ Nov. 26 - Divide bet Cauca and La Plata drainages, north of Volcan Puracé, near Laguna San Rafael, Cauca
Marshy paramo, rather bushy in spots, flat 11200 ft.
- 2 42 *Vaccinium*
occasional
- 3 43 *moss*
common
- 2 44 *Rumex acetosella* L. det. RCF.
abundant in patches
- 3 45 *Senecio*
occasional

low ragged shrub,
spines or fruits reddish.

slender erect shrub
2 m. tall, rays violet

tufts, fls. yellow

A small paramo, as far as I could see, rather broken and interspersed with wooded ridges - ~~mostly~~ the flat places open. *Hedyotis* not seen, though looked for.

low bush from a prostrate woody stem 3 cm. thick. fruits blue, sour.

fls. reddish

heads nodding, involucre maroon, rays blight purple "arnica".

22346

2

only one seen, edge of ravine

4 47 *Apium*
common3 48 *Luzula*
occasional, especially
in ravines5 49 *Bartsia*
common3 50 *Nertera granadensis*
common, forming a mat
down between other plants7 51 *Galium hypocarpium*
common2 52 *Rubus*
occasional2 53 *Polypodium*
occasional, in dense low
vegetation on edges of ravine

Nov. 24 - ~~Paríbrada~~ headwaters
of Rio San Rafael, drainage of Rio La Plata,
Volcan Purace, Cauca at Huila (border
in dispute) 10600 m
Rocky ^{sub} páramo slope

1 54 *Centropogon ferruginea*
occasional

shrub 1.5 m. tall, fls.
white, 4 parted, sub-rotate,
stamens 4, incurved so
that the anthers are almost
connivent, alternate
with corolla lobes.

herb varying in height
with vegetation,
up to a meter, ~~fls.~~ herbage
with oily odor when
broken, fls. white
infl. drooping

herb up to 1 m. tall,
branched, bracts and
fls. dull lavender-purple.
prostrate, slender,
fruits red.

prostrate or climbing
on other plants, fruit
orange, fleshy.
fls. bright ^{deep} pink
- lvs. rugose
rhizomes loosely crawling
through grass, not on ground.

small shrub, corolla deep orange-red,
column whitish, anthers gray.

22365 ~~Diatagma~~ *Pernettya*
common on peat

9 66 *Vaccinium*
common locally on peat

5 67 *Orch.*
common locally on peat

4 68 *Senecio*
common on peat

Nov. 26 - near Tejira, Moscapan,
about km. 50 on Moscapan
highway, drainage of Rio
La Plata, Cauca or Huila, 7800'
clearing filled with
deep weedy brush &
tree trunks. Surrounding
forest of mossy, cloud
forest type.

1 69 *Nertera granadensis*
abundant on ground

3 70 *Centropogon hartwegii*
common

8 71 *Cinchona pubescens*
occasional

The enormous inflorescences
may be because they are
on sucker shoots.

fls. pinkish, fruits dull
white, some bushes up to
1 m. tall.

- very prostrate, fls.
pink, petals 4, fruit red.

- fls. pink, dotted on to
limb with red-purple.

bushes 0.6 m. tall, fls.
yellow.

an erect hollow bamboo is common
here, culms 2-3 m. thick,

4 m. tall, erect, lvs. wide,

branches in tufts as

in *Chusquea* but tufts

in apparent whorls,

sheaths several at

node, imbricate, but

apparently distichous,

conspicuous fringe of

fibers forming ligule of

sheath. Sterile so I didn't collect it.

- prostrate, forming a

mat, fls. yellowish green,

fruit translucent red.

- weak scrambling

shrub,

tree that had broken &

rotted off about 4 m. up,

then sent out ~~some~~ shoots,

these now flowering.

Veins red, leaves somewhat

glossy above, flowers fragrant,

red without, pink within, hairs

white. stipules recurved or revolute.

- 12 ✓ Nov. 20 - Santa Leticia, about
km. 54 on Moscovan highway,
drainage of Rio La Plata,
Cauca & Huila (boundary in dispute)
partially cleared 7200'
mossy forest.

22372 *Vaccinium*
2 epiphytic on *Cinchona pubescens*

4 73 *Palicourea*
common in undergrowth
throughout region

6 74 *Cinchona pubescens* Vahl.
occasional

- 21 ✓ Nov. 26 - Roblal, near km.
58 on Moscovan highway,
drainage of Rio La Plata,
Cauca & Huila (boundary in dispute)
open, Chusquea filled 8000'
forests on steep slopes.

7 75 *Heliconia*
common in woods at base of trees

5 76 *Adiantum*
occasional

6 77 *Cinchona officinalis* n. sp.
occasional

The *C. pubescens* here
is easily distinguished from
that at higher altitudes by its
dull, hairy, elliptic leaves and
erect stipules.

clump with vertical
pendent branches, leaves
fleshy, stiff, funnel-
shaped with flowers
down inside, corolla pale
green, ellipsoid-cylindrical
shrub 3 m. tall, infl.
maroon, calyx dull
dark purple, corolla
dull gray-lavender,
fruit blue.

tree 6 m. tall, 10 cm. thick,
leaf veins red, stipules
erect, ciliate.

small tree, fls. whitish

sapling 4 m. tall, 3 cm. thick,
sterile (bark sample) bark
with rusty fissure lines
stipules pale, small.

22378

Ladenbergia macrocarpa
common in woods, almost
up to páramo.

4 79

Chusquea
abundant throughout
region

80

Vaccinium
occasional, bush above road

4

Nov. 28 - 5 km. s. of Buga, Valle
del Cauca. 1000 m.
thickets along road, flat valley floor

81

Euphorbia cotinifolia
abundant weed tree

82

Euphorbia cotinifolia
abundant weed tree

9

Nov. 28 - Range of hills 8 km. n.e.
of Bugalagrande, Valle del Cauca
steep, eroded, cleared hillside 1250 m.

83

Chusquea
large colony on slope and in
patch of woods below

84

Chusquea
large colony

Nov. 28 - Sevilla, Valle del Cauca

85

Euphorbia cotinifolia
fence - no tree, probably planted.

tree 8 m. tall, 10 cm. thick,
fls. white, fleshy, very
heavy fragrance.

— dense tangles of arching
canes 2-3 m. ~~deep~~ deep,
flowering throughout
region at least 10 km.
across, spikes blackish.
— shrub 1 m. tall, leaves
thick, flat, calyx with
lobes green basal wings
red.

small tree 3 m. tall, latex
abundant, said to be
poisonous to skin but with no
effect on back of
my hand.

long slender pendent
canes hanging down
slope, all plants observed
~~fls.~~ fruiting except one (#22384)
all plants except this one
were fruiting.

leaves dull deep purple, spotted
with green, color variable on different
plants. Tree 5 m. tall, latex said to be
poisonous to skin.

This
group includes
but always
near
town.

✓ Nov. 29 - Guindío Pass, west slope below Depression, Caldas thickets along road, 10500' sparse woods.

✓ 22386 *Chusquea*

✓ Nov. 29 - Depression, summit of Guindío Pass, Caldas - Tolima boundary 11400'

✓ 87 *Nertera* ~~*tiliaefolia*~~
exposed crest, turfey banks with low wind-beaten bushy vegetation, common.

✓ 10 88 *Polytrichum*
vertical bank on exposed bushy windswept crest.

✓ 89 *Hepatic*
Nov. 29 - 5 km. ^{above} Chicorot, up the Rio Cillo, just west of 2nd range of hills, Tolima flat, dry, bushy thicket forest 1700'

✓ 89c *Landia*
common

✓ 89a *Moss*
Exposed crest

✓ 89b *Uncinaria*
Exposed crest

tangled in brush, all fruiting for a km or more along road.

prostrate, forming mats
fls yellowish, fruit red, fleshy.

~~stiff~~ stiff shrub 7 m tall, branches long, appearance conifer-like from a distance, fruit green.

✓ Dec. 10, - Barris San Cristobal,
Bogota, Cund. 3700'

22390 *Solanum*
~~clay~~ clay pit with pools
of water, grazed by donkeys

91 *Baccharis*

forming small thickets

92 *Eupatorium*

common

93 *Paronychia*

common on bare clay slopes
and vertical faces

94 *Juncus*

rare, ~~in~~ rock crevice

95 *Chenopodium murale*

96 *Malva parviflora*

~~occasional~~ occasional

97 *Malva*

occasional

98 *Hypergularia*

occasional

99 *Eleocharis*

around muddy pools

22400 mixed collection. *Conyza sumatrensis* (Ritz.)
~~Eugenia~~ E. Walker + *Conyza bonariensis*
occasional (L.) Cong.

7 01 *Plantago*

common

1 02 *Lepidium*

occasional

herb 1 m. tall, fls. white
~~with~~ tinged with purple
outside, fruits green +
gray variegated when
immature, yellow when
ripe.

shrub up to 1.5 m. tall,
fls. whitish.
small bushes, fls. purple

on ~~gray clay slopes~~ and
vertical faces. prostrate

grayish green

fls. pinkish-white.

leaves terete, fleshy,

large clump

erect involueral
bracts purple-tipped.
varying greatly according
to habitat.

- 22403 *Croton*
 shade of bank, rare
 5 04 *Lolium ~~rigidum~~*
 common
 3 05 *Croton*
 common
 3 06 *Crotalaria coronatipolia*
 abundant, especially
 around muddy pools
 7 07 *Rumex obtusifolius* ssp. *agrestis* ^{det. NCF}
 abundant (Fr.) *lanceus*
 7 08 *Polygonum punctatum* Ell. ^{det. NCF}
 common, especially in muddy
 depressions
 2 09 *Chenopodium ambrosioides*
 common
 1 10 *Lolium*
 occasional in ^{trampled} grassy spots
 6 11 *Gnaphalium*
 common
 2 12 *Aster*
 rare
 5 13 *Gnaphalium*
 common

- flowers yellow, inner
 bracts maroon.
 rank spreading herb,
 fls. purplish.
 fls. yellow, rays short.
 heads yellow, lvs.
 succulent
 stems reddish, fls.
 white. Spreading
 herb, rooting at nodes.
 odor rank
 prostrate, fl. with tall
 & throat yellow, limb
 white with purple stripes.
 leaves glabrous and
 green above, as distinct
 from # 22413, with which
 it grows and does not
 apparently intergrade
 with, at least in leaf
 shape and the green upper
 leaf surface.
 rays white, disk turning
 reddish, bracts maroon.
 leaves arachnoid-sericeous
 above, as distinct from # 22411,
 with which it grows and does
 not intergrade at least
 in leaf shape and hairy
 upper surface.

22414 *Polygonum segetum* HBKdet.
H.C.F.

rare

✓ Dec. 23 - Valley of Rio Guallabamba, w. of
Tumbaco, Pichincha
e. of Quito, 8000'

L 3 15 *Hedyotis*

roadside banks in ravine, common

22

✓ Dec. 24 - lower slopes of Volcan
Pichincha, just above Quito, Pichin
ledges and vertical banks
in bottom of canyon 9500'

L 1 16 *Hedyotis*

crevice on rock wall

L 7 17 *Lepidium*

ledge

L 2 18 *Alchemilla*

ledges

L 6 19 *Drymaria*rock crevices and bushy
spots on vertical wallsL 2 20 *Helaginella*

vertical shaded rock faces

L 2 21 *Hymenophyllum*

shaded rock face

L 3 22 *Cotula*

earth ledges

L 4 23 *Apium leptophyllum*

earth ledges

flowers bright magenta
pink. "barbasco"caespitose clumps, fls.
white.fls. white, buds tinged
with reddish distally.
tangled herbprostrate, pendent over
edge of ledge.
tangled with other
vegetation, fls. white.very prostrate, adhering
to rock, spreading from
center, with older parts
dying. ~~off~~
rhizome conspicuously
glaucous, frond very soft.
center of disk yellowish

Cultivated plants observed in
Quito (not collected)

Hedera helix

Passiflora mista

Thuja orientalis

Quercus robusta

Tropaeolum majus

Centaurea cyanea

Oxalis martiana (?)

Rosa

Chamaecyparis humilis (?)

Antirrhinum majus

Filene armeria (?)

Pelargonium

Pinus (at least 2 sp.)

Cupressus

Cynoglossum amabile

Platanus occidentalis (diseased)

Eucalyptus globulus

Cedrela

Agapanthus

Oreopanax (?)

Musa ensata

Phoenix canariensis

Tecoma ~~stans~~

Canna

Caesalpinia

Matthiola incana

Eschscholtzia californica

Delphinium adjacis

Lobularia maritima

Tagetes

Zantedeschia

Cosmos tinctoria

Petunia

Cobaea scandens

Solanum (variegated)

Lianthus caryophyllus

Plants observed cultivated
in Bogota

Acacia melanoxylon

Acacia baileyana

Acacia flabrida s. *dealbata*

Eucalyptus globulus

Eucalyptus citriodora

Dianthus canyophyllus

Plants observed cultivated
in Cali

Cananga odorata
Erythroxylon coca
Ceiba pentandra
Triplaris
Spathodea campanulata

Dec. 31 - Plants observed
cultivated in Lima (not all)

Ficus

Jacaranda

Kigelia

Gossypium

Merium oleander

Roystonea regia

Morus

Quisqualis indica

Zora coccinea?

Pelargonium zonale hybrids.

Zea mays

Acalypha wilkesiana

Crotopsis lanceolata

Bougainvillea spectabilis

Hydrangea japonica

Begonia

Vitis vinifera

Canna vars.

Antigonon leptopus

Salix chilensis

Populus

Eucalyptus citriodora

Catharanthus rosea

Fraxinus

Quercus

Philor drummondii

1944 - Ecuador

Dec. 27 - Plants observed
cultivated in Guayaquil

Delonix regia
Schinus molle
Lobelia
Spondias

1944 - Peru

Dec. 29 - Plants observed
cultivated in Talara & Chiclayo

Codiaeum variegatum
Punica granatum
Prosopis
Inga
Casuarina
Hibiscus

1944 - Ecuador

Dec. 28 - Road west from Guayaquil toward Salinas. A dry bushy type of vegetation, practically leafless at present (end of dry season) with all sorts of legumes, *Cassia* sp. (leafless with red infls. & fls.) tangled with vines. In low wet places are *Cecropia*. The whole dotted with great Ceiba trees in young bright green leaf. Also a lot of *Prosopis* sp. (called algarroba).

1944 - Peru

Dec. 29 - West Coast.

From Ecuador border to Lima is a strip of dry lowlands such as I have never seen before. Great flats with either absolutely nothing or only a few scattered bushes. Great sand flats, some with crescent shaped dunes moving n.e.; to the south the mts. come closer to the ocean. On these are no plants at all, often. On the small islands off shore are no plants.

Along stream courses are large irrigated regions, some at least raising rice, others probably maize & cotton.

It is hard to imagine anything as completely bare as this region in general.

Would be a good place to study plant geography reduced to its simplest terms.

Road runs length of it.

- Jan. 1 - Rio Rimac above Lima
Km. 24 22 km. e. of Lima
- Flat bottom of valley,
hills around dry, but
water flowing in ditches
in bottom, much
arundo and a grass that
looks like a small
Gynerium (lvs. distichous
and erect infl.)
- L 22434 Waltheria
along roadside and ditch banks
- L 25 ~~Waltheria~~
common along road
- L 26 Chloris
common on ditch banks

- Jan. 1 Rio Rimac above Lima
Km. 58 50 km. e. of Lima
- bottom and lowest slopes -
dry rocky soil, more bare
ground than vegetation.
- L 27 Alternanthera
flat
- L 28 ~~Amaranthus~~
common
- L 29 Jatropha
common on rock slopes
- L 30 Lochnera
valley bottom
- L 31 Tournefortia
valley bottom
- L 32 Schinus molle
most abundant shrub in valley bottom

- bush forming low
mound
- prostrate, lvs. gray,
fleshy, fls. white.
loosely covering ground,
rhizomes very deep.
- prostrate, prickly
- low branched bare
bush, very lactiferous,
fls. white.
- shrub 1.5 m. tall, fls.
whitish.
- upright shrub 1 m. tall, fls. white.
- small tree or large shrub.
4 m. tall, fls. greenish white, panicles
pendent.

L 22433 *Cestrum*
valley, bottom

✓ Jan. 1 - Valley of Rio Rimac
above Lima, km. 68 ^{60 km. e. of Lima}
rock ledges near bottom
of canyon, sparse cactus vegetation

L 3 34 *Senecio*

L 3 35 *Caesalpinia spinosa* (Mol.)
common

L 2 36 *Baccharis*

L 2 37 *Jatropha*

L 1 38 *Oxalis*

L 1 38a *Peperomia*

✓ Jan. 1. Valley of Rio Rimac, above
Lima, km. 74, bet Vicos and
San Mateo ^{85 km. e. of Lima}
talus slope, dry and rather
low, below road.

L 2 39 *Phytolacca*

L 2 40 *Solanum*

L 2 41

✓ Jan. 3 - Chiclayo ^{250 m}
sand flats around airport

L 2 42

L 2 43

forming mounds in sand

shrub 1 m. tall, branches
long and weak

shrub 1 m. tall, fls. yellow

shrub 2 m. tall, pods
are said to be source of
tanning material "taro"

shrub 1.5 m. tall

low branched shrub
with bare fleshy
stems, fls. scarlet,
sap watery.
stem fleshy,
fleshy

fls. pinkish white,
stipes erect.

prostrate, fls. purple.
suffrutescent herb, fls.
deep salmon.

prostrate, lvs. fleshy, fls. white.
prostrate or depressed,
fls. white.

Peru 1945

Jan 1 - Valley of Rio Rimac
from Lima up to bet. Viso
and San Mateo

The Rio Rimac has
its sources in the
snow fields at 16000' and
above, and brings, especial
at times, a considerable
volume of water, down
to Lima. Much of
this runs underground.
At Agua Dulce, near
Miraflores, a series
of flowing springs
gush out of the cliffs
above the ocean. The
wet cliffs here bear
a very interesting
herbaceous vegetation -
Calceolaria, Adiantum, etc.

The hills about Lima
are completely bare,
at least the slopes.
H

4

Jan. 5 - Alaoag, 30 km. s. of
Quito, Pr. Pichincha 9400' 2494
raised bog in pasture,
growing in spots, peaty but
without sphagnum.

L 2 444

Juncus

L 2 45

Rynchospora

L 2 46

Cyperus

L 3 47

Cyperus

dominant in quaking places

45

Jan. 5 - Los Alpes, drainage
of Rio Quitasol, 5 km. above
Gonzacoto, n. slopes of Cerro
Cayán, 35 km. s. of Quito
Pr. Pichincha semi-cleared slopes, cut
by ravines, originally
dense cloud-forest. 9300-9400

L 1 48

Phytolacca

cultivated plot

L 3 49

Galium hypocarpium

edge of thicket

L 2 50

Cinchona pitagorae & pubescens?

edge of thicket

L 5 51

Palicourea

small clearing

L 1 52

Lobelia

thicket, rare

L 1 53

Lobelia

patches of woods

rays white to pinkish, disk yellow,
forming a mat on surface
of water, or thin mud.

other plants much larger.
fls. magenta.

wine-like, fruits orange,
fleshy.

sprout 1.5 m. tall. C. pitagorae
found commonly nearby,
but pubescens only seen
1500' lower.

small tree 5 m. tall, fls.
whitish to purple.

ripe fruits purple.

single stem, 1 m. tall.
lactiferous, fruit reddish-
brown on one side.

sparsely branched low
suffrutescent herb, lactiferous,
fls. magenta, lobes pale pink, anthers blackish.

L. 22454

May

wet place in clearing

L. 3 55

Manettia

thicket, shaded

L. 4 56

Nertera granadensis

banks, shaded and in sun

L. 16 57

*Cinchona pitayensis*small patch of woods on
edge of cliff

L. 4 58

Cinchona pitayensis

steep bushy slope

L. 1 59

*Lepanthes*on *Cinchona* tree, epiphytic

prostrate, fl. white

vine, fls. white. veins
not visible on the somewhat
pallid under surface of
the leaves.prostrate, fls. greenish.
fruit bright red, soft.tree 18 m. tall, 30 cm. thick
at base, abundantly
fruiting, barely in bud,
some buds showing purple.
Leaves coriaceous, glossy,
veins prominent
beneath, impressed
above. Old leaves turning
red. Bark bitter, very
tightly adhering to trunk
& branches. (2 bark samples
1 from trunk, 1 from branch
less than 7 cm. thick). (This
tree same as yielded
~~Martin's~~ Martin's bark sample
#5).

9400'

stump with clump of
sterile sprouts 3 m. tall,
leaves glossy,
dark brown

✓ Jan. 5 - near Ganyacoto,
drainage of Rio Quitasol,
north of Cerro Corazon, 35 km. s.s.w.
of Quito 7200'

steep walled valley,
mostly dense second growth
up to 4-5 m tall, cut for
charcoal.

L 22460 *Cinchona pubescens* Vahl
edge of cliff above river,
common in area, up to 7500'

L 1 61 *Cynoglossum amabile*
edge of trail

L 6 62 *Thibaudia*
steep rocky banks

L 2 63 *Cinchona pubescens* Vahl
along trail, common

L 3 64 *Gonzalagunia*
along trail, common

L 1 65 *Tropaeolum*
along trail in thicket

small sterile tree 5-6 m.
tall, 8 cm. diam. leaves
dull above, veins slightly
impressed above, prominent
beneath, reddish, stipules
erect at first, becoming
reflexed. (bark sample)
fls. bright blue

shrub 2 m. tall, fruits
red-purple but immature,
bracts reddish, corolla
vermillion with pale
green tips, leaves pale
green beneath, bright
green above with pale green
veins.

sterile sprouts 3 m. tall,
leaves dull above pale
beneath, veins reddish.
bush 1.5 m. tall, fls. white,
fruit fleshy, white flushed with purple
vine, tangled in bushes,
both petioles and pedicels
coiling like tendrils,
spur vermillion, lobes green
enlarged filaments black

L 22466 *Cinchona pubescens* Vahl
small stream terrace, in tall brush,
shaded.

~~67~~ ~~Dirsepyros~~

L 3 67 *Cinchona pubescens*
tall brush, shaded, on slope

L 2 68 *Dirsepyros*
wooded steep slope

L 2 69 *fol*
steep wooded slope

50 Jan. 9 - Quebrada Estancia, a small
tributary of Rio Pastaza, below
Baños, 8 km. above confluence
of Rio Toba, Tungurahua
stream terrace with second
growth woods. 4000'

L 8 70 *Cinchona pubescens* Vahl
shaded

L 1 71 *Cinchona pubescens* Vahl
opening

L 6 72 *Cinchona pubescens* Vahl
along trail

L 2 73 *Ladenbergia*
edge of opening

L 3 74 *Ladenbergia*
shade

~~wooded slope with~~
ravines 4000-5000'

L 2 75 *Galium hypocarpium*

sterile sprout 3 m. tall, leaves
dull, thin.

sterile sprout 1.5 m. tall,
stipules erect, becoming
recurved.

small tree, leaves in
one plane on branches,
fls. white, fruit very immature
straggling shrub,
fls. very deep purple.

Jan. 7 - Quito, Pichincha 9300'
22470 *Anemone*

cult. in park
herb 1 m. tall, fls. purplish
pink.

small tree 5 m. tall, leaves
green, dark & dull above,
paler ~~at~~ beneath.

stump sprout, 1.5 m. tall,
midrib & veins reddish.

sterile stump sprouts.

4 m. tall (bark sample)

sterile sprout 5 m. tall
(bark sample) (not for analysis)
tree 8 m. tall, 15 cm. thick,
fls. white, fragrant, not
really in season. (Bark sample)

wine, tangled in bushes,
several m. long, fruit orange, fleshy.

- L 22476 *Carex*
wet banks
- L 4 77 *Phytolacca*
cleared weedy places
- L 7 78 *Cinchona officinalis*
open low ridge between
ravines in clearing
(found from 4500' at least up
to 6000' according to local
information)
- L 5 79 *Burmeistera*
along trail
- L 80 *Drymaria cordata*
cleared ground
- Jan. 9 Rio Pastaza above Baños,
Prov. Tungurahua 6200'
- L 81 *Hedyotis*
cliffs of volcanic rocks
common from 6000' - 8000'

herbs up to 1.5 m. tall, infl.
crimson, fls pink, ripe
fruit black. infl. pendent
in fruit. Mass collection,
each ~~piece~~ piece taken from
a different plant, scattered
along trail.

4500'

small sterile tree,
which had been broken
off 1.5 m. from ground
and had sent up several
sprouts to 4 m. more.
~~old~~ leaves with veins
prominent beneath,
impressed above,
much like *Cornus*
florida leaves, red
when old

4500'

herb up to 1 m. long,
ascending, calyx purple,
rest of flower green,
faint skunky odor,
stem somewhat lactiferous
fruit inflated, green with
purple calyx lobes.
prostrate.

fls. white.

- ✓ Jan. 10 - hills west of Riobamba
 toward Lican, Prov. Chimborazo
 eroded, badly over-grazed, rocky
 slopes 8500'
 22432 *Hedyotis*
 abundant

- ✓ Jan. 10 - headwaters of Rio Gradas
 15 km south of Chimborazo Volcano,
 Prov. Bolivar
 high grassland, bunch-
 grass and *Azorella*? hummocks
 83 *Gentiana*?
 in dense hummocks

- 84 *Comp.*
 clumps scattered here
 and there in grass-land

- 85 *Lisymbium*
 deep gully above road

- 86 *Lepidium*
 deep gully above road

- 87 *Calceolaria ericoides* Vahl det. Wurdack
 slope below road

- 88 *Hedyotis*
 rocky places along road
 (common down to 7000' or below)

- 89 *Hedyotis*
 (same)

- 90 *Hedyotis*
 (same)

- 91 *Acaena*
 open slopes

dwarf shrubs, fls. white

13000' fls. bright rose-pink

13000' erect, branched shrub
 up to 1 m. tall, involucres
 golden, fls. orange.

12000' fls. red-brown and yellow.

12000'

12000' large clumps of erect
 stems up to 1 m., flowers
 bright sulfur-yellow.
 fls. white, longistylous,
 buds reddish without.

11000'

same, brevistylous

same, longistylous

11000'

depressed shrub, peduncles
 erect.

- ✓ Jan. 10 - canyon of Rio Gradas,
20 km. south-south of Chimborazo Volcano,
Prov. Bolivar 9500'
deep canyon, with scattered
woods up to 10500'; denser
below, Podocarpus spp.
a conspicuous component.
- L 22492 Podocarpus
common from 9000' to 10000',
more rare up to 10500'

L 8 93 Podocarpus
same.

L 3 94 Hedysotis
common on ^{rocky} sidges above
road

✓ Jan. 10 - headwaters of Rio
Peyas above Balzapamba,
6 km. s.w. San Miguel, Prov. Bolivar
cut-over cloud forest,
only scattered patches
left.

L 10 95 Cinchona pitayensis var.
occasional to common

L 7 96 Cinchona pitayensis var.
occasional to common

small gnarled trees,
up to 6 m. tall, seeds
immature, fleshy receptacle
glaucous.
same but staminate.

dwarf shrub, buds pinkish
without, fls. white

9200' small tree 5 m. tall,
leaves sub-glossy above,
petiole & midrib red,
leaf turning red when
old, smooth above,
veins not impressed
above nor especially
prominent beneath (bark
scaly)

9200' small sterile tree
(data on leaves as above)

- L 22497 *Cinchona pitayensis* var.
small patch of woods on
steep slope

Jan. 11 - Headwaters of Rio
Playas, above Balyapamba,
5 km. W. of San Miguel,
Prov. Bolivar 9200'
bushy cut-over forestland

- L 3 98 *Cinchona pitayensis* var.
only tree seen here,
more at lower elevations,
down to 8500'.

- L 99 *Podocarpus*
rare

Jan. 11 - Valley of Rio Playas,
3-5 km. above Balyapamba,
Prov. Bolivar 3400' - 3800'
Plantations of coffee, bananas,
etc. wet enough to support
considerable growth of epiphytes

8600'

tree 8 m. tall, 15 cm. thick,
heavily puncturing, leaves
~~glossy~~ glossy above, veins
not impressed above
or prominent beneath,
petioles & ^{mid}veins reddish,
leaves turning red
when old, fruits reddish
green. (bark sample)

small tree, 5 m. tall, leaves
glossy above, petioles and
midribs reddish, veins
somewhat impressed
above, fls. dull purple
with white hair on
margin, tub. glabrous
within; fruit green, very
scarce, most inflorescences
completely sterile.
tree 15 m. tall, sterile.
"olivo".

Cinchona pubescens
cultivated here, scattered
in with coffee, also
in low-lands. Planted from
cuttings, bark harvested when
trees are 5-15 cm. thick, ^{over} cut 20 cm.
from ground so as to sprout.

- L 22500 *Cinchona pubescens* var. *succinubra* 3700'
cultivated near house,
said to be from wild stock
from this area.
- L 17 01 *Cinchona pubescens* var. *succinubra* 3300'
cult. in coffee plantation
- L 9 02 *Cinchona pubescens* var. *succinubra* 3400'
same
- L 2 03 *Cinchona pubescens* var. *succinubra* 3400'
same
- L 2 04 *Cinchona pubescens* var. *succinubra* 3400'
same
- L 2 05 *Boerhaavia laevis* 3400'
weed in coffee plantation
- L 2 06 *Melastoma* 3400'
weed in coffee plantation
- L 6 07 *Hamelia patens* 2500'
near bottom land

clump of sterile sprouts
4 m. tall, leaves scarcely
showing red color till old!

small tree 5 m. tall, leaves
sub-glossy above, veins
scarcely reddish, leaves
turning bright red when
old, flowers with
tube and throat bright
pink, lobes pale, hairs
white. (bark sample,
but bark was cut around
below where sample was
taken)

same data but no flowers,
fruiting branches completely
without leafy side twigs.
(no bark)

small tree 5 m. tall, 3 cm.
thick, leaves green, dull
above. (bark sample)

same (no bark)

fls. white

fls. pink

shrub 2 m. tall, fls. red-
orange, fruit purple-black
when ripe, 5-celled.

✓ Jan. 11 - Canyon of Rio Playas,
10 km. s.w. of San Miguel,
Prov. Bolivar

along road on steep side
of canyon.

L 22508 *Gonzalagunia*
brush on edge of cliff below road

L 09 *Disterigma*
cliff above road

L 4 10 *Drymaria*
road cut, wet forest

L 1 11 *Calceolaria dilatata* Benth.
road cut, wet forest, only
one seen.

L 1 12 *Galium hypocarpium*
road cut

L 6 13 *Cinchona pubescens*
wet woods

✓ Jan. 12 - 6 km. s.w. of Guaranda
Prov. Bolivar
rocky roadside banks
cleared land. 9600'

L 7 14 *Hedyotis*
common

✓ Jan. 15 - Valley of Rio Saloya,
s.w. of Quito, road to
Santa Domingo -
various altitudes from
headwaters at 11000 ft. to 5800'.

5800' slender shrub, 1 m. tall,
fls. white, fruit white,
tinged with purple, fleshy,
pendent, vine-like,
fruit cylindrical, deep
lavender, calyx lobes dark.
leaves fleshy.

8000' vine-like, up to 2 m. long,
lvs. gray-green, fls. white.
pendent, fls. bright
sulfur-yellow.

Mr. Molan

fruits orange, fleshy.

7600' clump of sterile stump,
shoots 3 m. tall.

Cinchona pubescens
(bofedal) common from
9400' down to 5500' in
places common like
a weed in road cuts,
clearings, etc.

— headwaters of river, 15 km.
s.w. of Quito
road cut in brushy
vegetation

L 22515

Hyperchaeris?

11010'

L 16 *Oryzaria*
partly shaded bank

L 17 *Lambucus* ~~sp.~~
cultivated at entrance
to farm.

same

10600'

L 18 *Nertera*

✓ canyon of river, above
Chiriboga, 20-25 km.
w. of Quito.

L 19 *Galium hypocarpium*
talus slope

L 20 *Nertera* ~~sp.~~
road cut, rocky

L 21 *Cinchona pubescens*
steep brushy canyon
wall

2 types of heads, one
with ligules blue,
other with a tubular
organ, whitish, long
exserted.
fls. white.

bush 2-3 m. tall,
leaves mostly yellow,
fls. white, fruit apparently
by abortion.

prostrate, apparently
sterile, leaves ~~stiff~~ ^{stiff} ~~coriaceous~~.

9000' prostrate, fruits fleshy,
orange.

prostrate, leaves
stiff, fls. greenish,
fruit translucent
red.

9400' small tree 6 m. tall,
10 cm. thick, sterile,
leaves dull, veins red.
(bark sample)

L₂ 22 *Cinchona pubescens* Vahl
steep ravine side below
cultivated plot, in thicket

L₅ 23 *Hoffmannia*
roadside thicket, canyon wall

L₃ 24 *Lycopodium*
road cut, abundant

L₇ 25 *Cinchona pubescens* Vahl
~~dense~~ forest with
dense Chusquea and other
undergrowth on steep slope

L₇ 26 *Nertera granadensis*
road cut

L₁ 27 *Galium hypocarpium*
road cut

✓ Valley below Chiriboga,
near Baloya Experimental Station
river benches

L₆ 28 *Drymaria ovata*
roadside bank

L₇ 29 *Cinchona pubescens* Vahl
open roadside, rare

L₂ 30 *Cinchona pubescens* Vahl
open roadside, common

L₅ 31 *Cinchona pubescens* Vahl
open cultivated clearing
common

7850' small tree 7 m. tall,
12 cm. diam. leaves
dull, "cascarilla" bark
sold to drug stores

7600' shrub 1.5 m. tall,
fls. red, fruits dark
red, cylindrical, androecy
very thin & soft, seeds many

7600' ~~shrub~~

7200' Tree 15 m. tall with
several trunks, the
largest 60 cm. thick,
leaves dull, bark
tightly adherent to
wood. (bark sample)

7200' prostrate, fruit translucent
red
fruit fleshy, orange,
plant prostrate

prostrate trailing,
fls. white.
sterile sprout 1 m. tall
(cf. # 72530 as *C. pubescens*)
sterile sprout 1 m. tall
(cf. # 72529 as *C. pubescens*)
sterile tree 5 m. tall,
leaves dull, veins becoming
reddish.

- L₁ 22532 *Borreria laevis*
weed in cultivated ground
- L₂ 33 *Juncus*
weed in cultivated ground
- L₁ 34 *Drymaria*
weed in cultivated ground
rare
- L₃ 35 *Astrophia chachrophylloides* (J.E. Smith)
BC. det. S. Smith
weed in cultivated ground
- L₄ 36 *Drymaria cordata* L.
common weed in cultivated ground

Jan. 17 - Monument to La
Condamin, on the Equator
5 km. n. of Pomasqui, 25 km
n.w. of Quito, Pichincha
open sand flat, with 8000'
scattered *Croton*, ~~ferns~~ and
herbs.

- L₂ 37 *Verbena*
- L₂ 38 *Euphorbia*
- L₂ 39 *Amaranthus*?
- L₂ 40 *Cardionema ramosissima*
- L₂ 41 *Croton*
common

Jan. 24 - Quito, Pichincha
crevices in mud wall 9300'

- L₂ 42 *Calceolaria*
- L₂ 43 *Verbena*

spreading, fls. white
tufts

fls. white

erect, fls. white.

prostrate to ascending,
fls. white, pedicels
sticky.

fls. white, plant
prostrate in large
clumps

prostrate, purplish.

prostrate, root enlarged,
flowers white

prostrate
gray, flowers whitish

pendent, much branched herb, fls. ^{greenish} cream color.
much branched, many stems from
thick root, fls. purple.

- 17 Jan. 26, 1945 - bet. Tumbillo
+ Alaoag, 25 km. s. of Quito,
Prov. Pichincha
brush in fence - rows along
roadside. 9300'

L 22544 Datura
rare

L 2 45 Francisca
very common

L 2 46 Datura
common

L 3 47 Monnina
common

L 4 48 Asclep. *Motacitrona*

L 4 49 Fuchsia
occasional

- with
m.a. giles Jan. 26 - 1945 - hill above Laguna
de Yumbo, 9 km. n. of Ambato,
Prov. Tungurahua 9300'
In Opuntia and Agave rows separate
cultivated patches, volcanic ash soil.

L 50 Erigeron

"bracheno"

shrub 2 m. tall, fls.
pendent, throat deep
chrome yellow, tube
greenish. Used as a bracheno.

shrub 2 m. tall.

"artemisa" Used as a bracheno
shrub 2.5 m. tall, fls.
pendent, distal part
of throat scarlet with
green veins without,
proximal part yellow
with green veins, tube
green. Used as a bracheno.

"guandú"

shrub 2 m. tall, fls.
indigo-purple, with
yellow apex, fruit black
when ripe. "iguilan"

vine climbing over bushes,
fls. deep purple.
shrub 1-1.5 m. tall,
fls. ~~purple~~, vermillion.

fls. white, tips of involucral
bracts purple.

L 22551 Verbena
L 52 Erigeron

L 53 Melastoma

L 54 Campanula

L 55 Artemisia
common

L 56 Solanum aff. tuberosum
roots deep in cacti

✓ Jan. 26, + Pampa de Luisa,
near Estacion Luisa (Mocha),
Prov. Tungurahua 11600'
bunch grass land, with Azorella turf

L 57 Vaccinium
abundant along top edge of
road-cut.

L 58 Gentiana
common on open slope

10 Jan. 27 - Rio Chubuga (Chubún),
3 km. below Cajabamba, Prov.
Chimborazo 10000'
with m.a. gill
railroad cut in dry volcanic ash

L 59 Chrysanthemum

L 60 Hedysotis

L 61 Senecio

L 62 Salvia

fls. whitish
fls. white, turning
brick red.
climbing, tangled over
other plants, fls. ^{greenish} cream
white.

fls. lavender.
strong sage odor

spreading herb, fls.
purple, fruit mottled green.

prostrate, fl. rose pink

small bunches, fl. lavender

rays white, disk yellow.

"Santa Maria".
flowers white, buds purplish
without. "Chisa".

plant depressed, leaves
terete, fleshy, heads yellow.
fls. orange red, leaves with
a strong liniment odor when
broken

Jan. 27 - RioBamba, Chimboazo
Cultivated in park 2500'

L. 22563 *Stemodia*

L. 64 *Pygmaea*

Jan. 27 - Pampa de Colta,
bed of Laguna de Colta, 3 km.
s. of Cajabamba, Chimboazo
lake mostly drained,
bed covered with a very
short, dense turf of *Alchemilla*
and a sterile grass.

L. 65 *Alchemilla*

Sibambe,

Jan. 28 - Canyon of Rio Sibambe,
Chanchán, Chimboazo
8000 - 9300'

offl. of Rio
with m.a. giles

brushy over-grazed slopes

L. 66 *Acalypha*

L. 67 *Cassia*

very common

L. 68 *Cuphea*

L. 69 *Borreria*

L. 70 *Alternanthera repens*

in grazed and trampled places.

L. 71 *Polygonum*

L. 72 *Alternanthera*

L. 73 *Chenopodium murale*

L. 74 *Chenopodium*

L. 75 *Chenopodium ambrosioides* var.

spreading tree 5 m. tall,
dense crown.

small tree, fls. magenta
purple, fruit green.

prostrate, fls. yellow within.

small bush, style branches
red, "cola de gallo".

bush 1.5 - 2 m. tall, flowers
bright chrome yellow.

calyx reddish, petals lavender
fls. white

prostrate

fls. white, pinkish without
prostrate, "empedradillo"

spreading bushy herb.
"palitana"

spreading bushy herb.

spreading, prostrate, bushy
strongly aromatic herb. "baico".

- L 275 76 *Chenopodium*
 L 1 77 *Anagallis arvensis* blue form
 L 5 78 *Croton*
 common
 190 ✓ same ^{dry} - cliffs and talus at
 their base - cliffs covered
 in many places with *Aeschmea*!
 L 3 79 *Notholaena*
 crevices and ledges
 L 1 80 *Polypodium*
 Talus
 L 3 81
 foot of talus among boulders
 near stream
 L 1 82 *Adiantum*
 talus, uncommon here but
 very abundant along railroad
 cuts at somewhat higher altitude
 L 1 83 *Pellaea*
 Talus, rare
 L 3 84 *Oxalis*
 talus, very common
 L 4 85 *Aeschmea* or *Tillandsia*
 abundant on cliffs
 L 5 86 *Lepidium*
 L 1 87 *Tillandsia usneoides*
 hanging on cliff
 L 3 88 *Gnaphalium*
 Talus
 L 1 89 *Falvia*
 L 1 90 *Lupinus*
 Talus

- low bush leaves ^{glaucous} ~~grayish~~
 fls. deep blue with purple
 center.
 - bush 1 m. tall, fls. whitish
 fronds erect, light green
 herb up to 1 m. tall, young
 infl. blackish-purple.
 young fronds reddish.
 fls. white, leaves
 slightly grayish green.
 - stems branching, pendent,
 bracts reddish.
 - shrub 1 m. tall, fls. blue-
 purple
 - used in some parts of
 Ecuador to stuff mattresses.
 prostrate, densely branched
 - aromatic herb fls. purplish
 fls. violet with whitish
 triangle in banner.

- L 22591 *Guarania*
 common on talus
 L 92 *Helaginella*
 shaded place on cliff
 L 93 *Asplenium*
 crevices on cliff
 L 94 *Cheilanthes*
 crevices in cliff
 L 95 *Plantago*
 talus
 L 96 *Melilotus*
 talus
 L 97 *Polypodium*
 rock crevices
 L 98 *Lichen*
 talus, on earth
 L 99 *Pilea*
 talus
 L 22600 *Hedyotis*
 talus, common
 L 01 *Pilea*
 talus, rare
 L 02 *Lichen*
 talus, on earth
 L 03 *Lycopodium*
 talus
 L 04 *Hedyotis*
 talus, common
 L 05 *Argemone*
 foot of talus, common
 L 06 *Lycopodium*
 talus

vine several m. long,
 fls. orange, fruit immature
 (monoecious)
 adhering flat to rock.

fls. yellow

fl. bright purple

fls. white, longistylous

small clumps, fls. scarlet.

mat forming

fls. white, brevistylous

glaucous herb, fls.
 straw-yellow, sap orange.
 "arnapola"
 prostrate, fls. brick red.

- L 22607 *Salvia*
 L 22608 *Salvia*
 common on talus
- L 22609 *Salvia*
 common on talus
- L 22610 *Schinus molle*
 common on talus
- L 22611 *Hedyotis*
 common on talus
- L 22612 *Lantana*
 common on talus
- L 22613 *Hedyotis*
 common on talus
- L 22614 *Mirabilis*
 common on talus
- L 22615 *Mirabilis*
 occasional on talus
- L 22616 *Mirabilis*
 common locally on talus
- L 22617 *Begonia*
 occasional on talus and ledges

- fls. blue
 fls. violet to blue, anthers
 orange, all on one side.
 bush 1.5 m. tall.
 heads bright purple.
- small tree 3 m. tall,
 with scaly bark, fls.
 whitish, fruits turning
 pink.
 fls. white, brevistylous
- prostrate, fls. deep
 chrome yellow.
 fls. white longistylous
- spreading ascending
 branched herb, a number
 of stems from one root.
 fls. deep rose purple,
 filaments and style
 curved upward.
 shrub 1.5 m. tall, flowers
 deep purple. "pepino" fruit
 eaten.
- spreading ascending
 herb, several stems
 from one root, flowers
 brilliant deep rose purple,
 filaments and style
 curving upward.
 tuber range within,
 leaves viscid, white
 beneath, fls. scarlet.

- L 22618 very common on talus
 L 19 common on talus
 L 20 common at foot of talus
 L 21 *Phenax*
 occasional on talus
 L 22 very common on talus
 L 23 *Monarda*
 occasional on talus
 L 24 occasional on talus
 L 25 *Solanum (Lycopersicon)*
 common at foot of talus
 L 26 *Baccharis*
 common on talus
 L 27 *Tragus?*
 rare on talus

Jan. 29 - Cerro Buerán
 (Páramo de Curiquinga), 5 km.
 s. of Cañar, Prov. Cañar
 open turfey grassland 11600-11800
 with ^{low} brush in sheltered
 or steep places.

28 *Azorella*

29 *Senecio*

30

31 *Calandrinia*

common

- shrub 1 m. tall, inflorescence
 mostly diseased and dead.
 prostrate, fls. scarlet
 from central root
 bushy herb 1 m. tall, fls.
 yellow.
 depressed shrub.
 large clumps.
 fls. deep indigo
 prostrate, fls. orange
 sprawling aromatic.
 viscous herb, fls. bright
 yellow, fruits green.
 shrub 1.5 m. tall,
 heads whitish.
 without stinging hairs.

small round hummock
 fl. white, bracts with
 purple tips
 spike purple.
 fls. white

- 22632 *Senecio*
abundant in patches
- 33 *Poa*
- 34 ~~Carex~~
mixed in turf
- 35 *Panicum*
rare, mixed in turf
- 36
in wet turf
- 37 *Plantago*
- 38 *Ranunculus*
wet place
- 39 *Epilobium*
- 40 *Castilleja*
in brushy places
- 41 *Eleocharis*
wet turf
- 42 *Castilleja*
in wet turf
- 43 *Lisyranchium*
- 44 *Gentiana*
steep slopes
- 45 *Mimulus*
wet places
- 46 *Veronica*
- 47 *Carex*
bare spot in turf
- 48
steep brushy slope
- 49 *Lupinus*
along small streamlet

- leaves distichous, glaucous,
rays purple without, white
within.
- mixed in turf
flowers white.
- flowers white, anthers
purple (petals broader
than in #22634)
- fls. yellow, petals small.
- plant reddish, fls. pink.
bracts tipped with
scarlet, corolla green
with orange line beneath.
- bracts and calyx dull
purplish distally
flower yellow.
- flower purple
- flower yellow with
red dots on palate.
fl. blue-violet.
dense tuft
- bush 1 m. tall, calyx red,
corolla deep purple.
- bush up to 1 m. tall,
fls. bright purple with whitish
wedge to banner.

- 22650 *Senecio (gynoxys)*
crest of steep, brushy slope
- 51 *Miconia*
steep, brushy slope
- 52
very abundant in open
grassy places
- 53 *Acaena*
common on slopes
- 54 *Calceolaria ericoides* Vahl det. W. Woodson
common on steep, brushy slope
- 55 *Valeriana*
steep, brushy slope
- 56 *Ranunculus*
very common in wet turf
- 57
common locally

Jan. 29, 1945 - Along Rio Azogues
bet. Azogues and Chuguijata.
flats along river and low
bluffs nearby 8000'

- 58
flats
- 59
bluffs
- 60 *Cheilanthes*
crevices in masonry wall
- 61 *Dodonaea viscosa*
common on dry bluffs
- 62
dry flats

- bush, 1 m. tall, fls. yellow
- shrub
~~plant~~ strictly erect, 1 m. tall
fruits, ^{dull} purple
small tufts
- low, suffrutescent herb.
- flowers sulfur-yellow,
plant caespitose, strictly
erect.
- pendent shrub,
fls. white, odor unpleasant
flower bright yellow,
petals appearing varnished
within.
flowers white

ovary green, perianth
coral red with green tips
bush 1.5 m. tall, fls. coral
red, fruits green.
tufts.

bush 1 m. tall.

bush 1 m. tall, fls. white,
fragrant, (fruit said to be
black, but not seen).

22663

Vicia

flats near river

64

flats near river

Jan. 29 - Rio Azogues just
below Chugquipata, Cañar
bluffs and roadside 8000'

65

Hedyotis

bluff above road

66

Galium

bluff above road, rare

67

Hedyotis

bluff above road

68

Linaria

roadside

69

Oenothera

roadside

machángara

Jan. 29 - Rio Machángara below
confluence of Rio Machángara,
7-8 km. below Cuenca,
Prov. Azuay 8000'

70

Zinnia

roadside in river flat

Feb. 2 - w. side of Cerro Yanguang,
Ridge east of Rio Duda,
across from Pindilic

10000-10500'

rather low wet forest with much
Chusquea and, above, much "cervitani"

with
F. Pringle

fls. violet. said to be
recently introduced
and becoming a bad weed.
prostrate, fls. brick
red.

pendent shrub up to
1 m. long, flowers white
bristly long.
prostrate

pendent shrub, flowers
white, longistylous
flowers ~~corolla~~ rose
~~corolla~~ purple.
withered flowers
purplish.

erect suffrutescent
herb, 1.5 m. tall, flowers
scarlet (note variation
in length of style of fruit)

Cinchona microphylla fairly
common in this woods, has
on different ~~fruit~~ trees, different
shaped fruits, also varying amounts
of pubescence, suggesting crossing with C. pit.

- 22671 *Cinchona microphylla*
wooded slope

"fls. of this said to be pink &
fragrant, similar to those of rosado"

- 72 *Hedyosmum*
wooded slope
- 73 *Cinchona microphylla*
wooded slope

- 75 *Merterea granadensis*
cut banks of trail
- 74 *Cinchona microphylla*?
wooded slope

- 76 *Vaccinium*
bush along trail

- 77 *Cinchona microphylla*
wooded slope

- 78 *Vaccinium*
no plant seen

- 10000' shrub 3 m. tall fruits
dull red, hair somewhat
tawny, leaves with veins
impressed above, very
prominent beneath, upper
surface shiny. "crespilla", "crespo", "negra"
shrub 2 m. tall.
- 10000' small tree 6 cm. diam.
6 m. tall, with suckers
shoots, fruits green to
purple. leaves glossy above,
with veins impressed
above, prominent beneath
(bark sample). same name as 27167,
prostrate, sterile
- 10500' small tree 4 m. tall,
leaves glossy, veins impressed
above, prominent below, with
much less hair than usual,
fruit reddish green. same
names
- 10500' bushes 8-10 dm. tall,
leaves stiff, dark green
above, pale below, corollas
waxy, lobes revolute.
(not all from same plant)
- 10500' shrub 3 m. tall, leaves
glossy above, veins impressed
above, prominent beneath,
hair tawny, fruits ^{dull} red-purple
"crespilla", "crespo", "negra"
semi-prostrate, fruit
half grown, leaves green above,
pale beneath.

- 22679 *Chusquea*
beside trail, grazed
- 80 *Cinchona microphylla*
wooded slope
- 81 *Gaultheria*
brushy slope
- 82 *Gaultheria*
brushy slope
- Feb. 2 - East side of ^{Cerro Yanguang,} ridge east
of Rio Dudas, slopes of valley
called Ventanillas, above Shoray.
steep wooded slope
- 83 *Partia*
brush along trail
- 84 *Pinguicula*
masses on vertical banks at
sides of trail
- 85 *Manettia*
brush beside trail
- 86 *Drymaria cordata*
vertical banks along trail
- 87 *Netera granadensis*
vertical banks along trail

- 10500' a single tuft, the only plant
in fruit. Other large
thickets, perhaps the
same species, sterile.
- 10500' shrub 2 m. tall, leaves
shiny above, veins impressed,
prominent beneath, hair
tanous, fruits greenish red
"crespillo" "crespa" "negra".
- 10500' bush 6 dm. tall, fruit ^{concolorous}
red, greenish on one side. ^{resembling}
^{small}
- 10500' bush 6 dm. tall, fruit
green, bright reddish on
one side. leaves conspicuously
reticulate. veins beneath.
- 10600' weak erect herb in brush.
fls. purplish above, white
beneath.
- 10400'-300' leaves ^{with} involute margins,
pale green, thin, fls. with
pale lavender limb, purple
throat, greenish spur.
- 10300' vine, fls. white.
- 9900' prostrate, ~~corolla~~ ^{petals} white,
biped, twice as long as calyx.
- 9800' prostrate, ~~fls.~~ fruit
scarlet, translucent-juicy.

with
F. Prieto

Feb. 2 - Valley of ~~V. Mazar~~ Rio
~~Mazar~~ near Shoray,
7500'
cleared rocky slopes above
river.

22688 *Vaccinium*
common

89 *Drapmanis*
common in cultivated land

90 *Vaccinium*
common

with
F. Prieto

Feb. 3 - Valley of Rio Monay,
e. slope.

Cañar, 7700-8600'

Thick wet forest on steep slope

91 *Cinchona pubescens* var.
common

92 *Podocarpus*
rare

93 *Vaccinium*
epiphytic

94 *Cinchona officinalis*
common

bush ~~to 1 m.~~ 1 m. tall,
fls. deep coral red with
yellow-green tips, fruits
immature.
flowers white.

shrubs 5 m. tall, flowers
deep coral red with
yellow-green tips.

Cinchona pubescens + *C. officinalis*
growing together bet 8700 + 8600',
possibly hybridizing, almost
all here has been cut.

small tree 7 cm. thick, 6 m.
tall, sterile, leaves
green, when old turning
dull reddish, dull above.
(bark sample) "rosado amarillo"
tree 50 cm. diam., 35 m. tall
part within reach sterile.
wood used for construction.

flowers and pedicels
vermillion, corolla
tipped with white ^{very distinct}
small bent over tree ^{or slung}
with erect sprouts
along stem, 7 cm. thick
near base, 6 m. long, ^{almost} sterile
bark very tightly adhering (bark sample)

Cinchona
fina

22695 *Melast*
rare

96 *Cinchona pubescens*
common

97 *Vaccinium*

98 *Pilea*

99 *Cinchona pubescens* var.
common

22700 *Orch*
epiphytic

01 *Orch*
terrestrial

02 *Cinchona*
A-R scattered in woods
where bark gatherers have
cut down almost all *Cinchona* trees

03 *Orch*
rare.

04 *Orch*
terrestrial

05 *Orch*
terrestrial

shrub, peduncle erect.
corolla coral red, stamens
all on one side; leaves
leathery, shiny, rugose
above.

sapling 4 m. tall, leaves
dull above, turning red
when old. "rosada"

epiphytic, flowers ^{dull} rose pink,
pale toward tip, dull without.
fleshy, purplish green

sterile sapling
4 m. tall, leaves green,
dull above. "rosada"

sepals bronze-green, petals
pinkish white, lip with
purple spots in center.
spike erect, waxy green,
fl. bronze.

mass collection of sprouts
only the tips and large
leaves of each, to demonstrate
"hybridization" between
the two species.

caespitose shrub with long bare
branches, leaves and
flowers only at tips;
flowers red (mature
flower picked up on ground).
fls. purplish bronze

tip of limb of perianth
parts dark purple, rest
of flower greenish white.

rr 706 Orch.

on fallen log.

1 07 Orch.

epiphytic

9 08 *Cinchona officinalis*

L 3 09 Orch.

on fallen logs + earth

L 2 10 *Sanicula*

wet shaded slope

L 11 *Hoffmannia*

occasional in undergrowth

L 2 12 *Lobelia*

L 1 13 *Psychotria*

rare

L 4 14 *Hoffmannia*

common in undergrowth

L 3 15 *Acanthaceae*

common in undergrowth

L 2 16 *Cephaelis*

common in undergrowth

L 2 17 *Palicourea*

on plant seen

L 1 18 *Orch.*

occasional on ground

perianth dull orange,
spike nodding.

perianth bronzed-white,
lip deep purple.

tree 6 cm. diam., 6 m. tall.
leaves glossy above, fls.
deep purple, with white
hairs. fruit immature.
(bark sample)

shrubby, up to 1 m. tall,
fls. yellow.

somewhat caespitose

weak shrub 1 m. long,
fls. red, fruit immature.

erect, suffrutescent, up to 1 m.
tall, stem brittle, fls. scarlet
leaves deep purple beneath.
fls. white, stem rather
fleshy, stipules fleshy,
projecting.

shrub up to 1.5 m., fls.
yellowish, fruit red
and fleshy when ripe,
mostly immature

herb, up to 1.5 m. tall, fls.
yellow.

weak herb, fls. blue.

fls. bright purple, shrub
fruit immature
flowers bronze-green, fleshy.

- L 22719 *Pilea*
 rare, terrestrial
 L 20 *Pilea*
 rare in undergrowth
 L 21 *Oreocarya*
 epiphytic
 40 ✓ same - west side of valley,
 cleared slope
 L 22
 L 23 *Drymaria*
 in cultivated ground, weedy
 L 24 *Cephaelis*
 probably left from under-
 growth of forest.
 L 25 *Drymaria*
 cult. ground
 L 26 *Vaccinium*
 patch of woods
 L 27 *Cinchona officinalis*
 L 28 *Blechnum*
 L 29 *Cinchona pitayensis*

- fls. whitish
 stem fleshy, inate
 stipules.
 fls. pale bronze green, lip
 reddish-bronze
 8000' small shrub, leaves
 glossy, ~~fruit~~ fruit immature
 fls. white.
 " small subshrub, yellow-
 green, fls. blue.
 8500' fls. white.
 8000' low shrub, fls. pinkish,
 leaves fleshy, fruit immature
 9200' sapling 2.5 m. tall, "costaricensis"
 " rhizome climbing, fertile
 fronds ascending, sterile
 horizontal.
 " small tree 6 cm. thick, 7
 m. tall, sterile, leaves
 leathery, glossy above,
 veins somewhat prominent,
 sucker shoots with
 thinner much more
 hairy leaves. bark
 adhering to trunk (bark sample).

22730 *Ladenbergia*

31 *Cinchona officinalis*
on ridge

Hacienda Funtillas, quebrada Funtillas
Feb. 4 - n. w. side of canyon of
Rio Pante just west of confluence
with Rio Jubal, 40 km. e. n. e.
of Ayoguez, Prov. Cañar 1900-3200'
wet disturbed forest on
steep slope, openings
filled with a giant *Chusquea*

32 *Cinchona pubescens*

33 *Licyzia*
in opening

34 *Cinchona pubescens*
edge of opening

35 *Uncaria*
opening

36 *Cinchona pubescens*

37 *Lobelia*
openings

(remarkable resemblance to *Stemodia*)

9200' tree 17 m. tall, 3 cm. thick,
fls. white, fleshy, very
fragrant. (bark sample)
clump of sprouts
"cortina fina"

12 cm thick near base,
small tree, damaged above, sterile,
leaves dull above, turning
red when old. (bark sample).

herbaceous vine climbing
over brush, flowers green
leaves venose beneath
sprout 3 m. tall,
leaves unusually large,
dull above
large tangled herb
with a bitter oily odor like
Conium maculatum,
flowers green, fruits
immature.

sapling 5 m. tall, 5 cm.
thick, leaves dull
above.

tangled recumbent herb,
flowers magenta, nutlets not
quite mature red-marcescent. ^{strongly} aromatic.

L 22738 *Cinchona pubescens*
edge of opening

L 3 39 *Label*

in thicket overhanging trail
L 1 40 *Saurauia longitarsis* Slumer var. *folioligulata*
~~Saurauia~~ *Saurauia* Soejarto Paratype
along trail, only one seen.

L 3 41 *Begonia*
common in shade

L 2 42 *Burmeistera*
rare in thickets overhanging trail, rare

L 1 43 *Good*
rare in undergrowth

L 1 44 *Good*
rare in undergrowth

tree partly dead, 15 cm.
thick, top damaged, sprout
5 cm. thick, 6 m. tall from
near base. (specimen and
bark from sprout) Leaves
dull above, turning
red when old. Plant
sterile. (bark sample)
elongate shrub.

flowers orange-vermillion.
small shrub, 1 m. tall,
fls. white.

fleshy stems, leaves
green above, red-purple-
bronze beneath, peduncles
& pedicels red, flowers
vermillion, fruit
green with edgings
of red.

elongate purplish,
green shrub, flowers
orange green, lower
lip lighter, muscat odor.
fruit inflated (fruiting
and flowering ~~specimens~~
from different plants)

elongate shrub,
fls. scarlet-vermillion.
~~leafy~~ shrub, single
stem 8 dm. tall, leaves
velvety dark green
above, maroon beneath,
venose beneath, calyx
yellow, corolla pale yellow
red tipped.

22745

Lobelia

in shade, occasional

46 Chusquea

abundant over most of area, especially in openings

47 Chusquea

Feb. 4 Rio Dandayacu, bet.
Rio Masay and Rio Jubal,
north side of Rio Paute, 37 km.
e. n.e. of Azogues, Prov. Cañar
deep wet wooded ravine 8000'

48

thicket above trail

49 Cinchona

Feb. 5 - Huertasparmbas, n.
slope of canyon of Rio Paute
bet. Rio Masay and Rio Masay, 35 km.
e. n.e. of Azogues, Prov. Cañar

50

Vaccinium

~~Vaccinium~~

erect, usually single
stemmed suffrutescent
herbs, leaves sometimes
purplish beneath,
flowers scarlet.

Forming tangled brakes
up to 6 m. or more deep,
high arching canes as
much as 5 cm. thick, solid.
Only one plant seen fertile.
#22747 represents a nearly
sterile one.

sterile plant corresponding
to #22746, same data.

elongate shrub, flowers
vermillion.

sapling, sterile. ~~Coffea~~
leaf texture of *C. pubescens*
of region, but shape and
of pubescence wrong. *C.*
officinalis "Costona fina"
growing on slope above.

leaves stiff,
shrub 1.5 m. tall, ~~small~~ flowers
in cluster of three, corolla ^{deep} rose,
not paler at tip, dull without.

22751 *Vaccinium*
Terrestrial, steep open slope

23 Feb. 5 - Santo Tomas, steep
wall of valley of Rio Masar
opposite library, 3.6 km. n.e.
of Azogues, Prov. Cañar 7500-8000'
cleared land with brushy
patches, fence-rows and trail
sides

with
F. Prieto
L 1 52 *Hedyotis*
one plant seen, rocky cut above
trail

L 3 53 *Acalypha*
occasional in brush

L 2 54 *Conoclinium*
very common in brush

L 3 55 *Vaccinium*
rocky steep slope, terrestrial

L 2 56 *Lantana*
common in brush

L 3 57 *Conoclinium*
common in brush

L 1 58 *Tournefortia*
common in brush

L 2 59 *Rubus*
common in brush

L 1 60 *Leguminosae*
occasional in brush

shrub 1.5 m. tall, leaves
leathery, flowers deep
coral red turning distally
to deep dull purple.
lustrous without, less so
toward tips.

(collected from house while
riding along trail ^{collections} so, not
always from same plant)

9100'
buds with pink tints,
fls. white.

weak shrub up to 1 m.
tall.

shrub up to 2 m. tall,
flowers opening deep
yellow, turning deep orange.

~~7500'~~
shrub about 1 m. tall,
fls. deep coral, lustrous
without, less so toward tips.
shrub up to 1.5 m. tall,
flowers magenta-purple.
shrub up to 2 m. tall,
fls. deep purple.
shrub up to 2 m. tall,
fls. whitish.

7500'
arching and scrambling
canes, fls. pink, fruit
turning black.
shrub, fls. bluish

22761 *Tibouchina*
common in brush

Feb. 5 - Valley of Ventanillas,
small affluent of Rio Masar
southwest of Shoray, 33 km.
n.e. of Azogues, Prov. Cañar
wet wooded slopes, somewhat
disturbed 9500-9600'

62 *Galium*
in brush along trail

63 *Solanum*
thicket along trail

64 *Stellaria*
tangled in thicket along trail

65 *Delonix*
thicket along trail

66 *Palicourea*
undergrowth

67 *Galium hypocarpium*
thicket along trail

68 *Galium*
thicket along trail

69 *Solanum*
weeping, rare

70 *Viola*
common throughout region
from 8000' - 10400'

7500' shrub 1 m. tall, flowers
deep royal purple.

herb, roots yellow, fruit
green.

small shrub, tangled in
brush, fls. yellowish, dark
inside, fruits green.
fls. white

elongate, sparsely branched,
stems glossy, deep purple-
brown, flowers orange with
yellow lobes.

shrub 1 m. tall, fls.
greenish white, fruit
black when ripe, mostly
immature. Corolla tube
not enlarged at base.

climbing in bushes,
fruits orange, fleshy.
tangled in bushes
fruit not fleshy.
weeds herb, fls. lavender.

vine-like, climbing in
trees to 3 m. Plants observed
flowering when 15 cm. tall,
flowers scarlet.

- 22771 *Oenothera*
weed along trail in opening
- 272 *Rub.*
along trail on earth bank
- 273 *Manettia*
in thickets along trail
- 274 *Galium*
earth banks along trail
- 275 *Fuchsia*
thickets along trail, not common
- 276 *Valer.*?
thickets along trail

Feb. 5 - Top of ^{pass over Cerro Ganguang,} ridge east of
Rio Dudas, directly opposite
Pindilic, 3.5 km. n.e. of Azogues,
brushy, windswept crest,
and slopes. 10600'

- with
F. Prieto
- 277 *Lycopodium clavatum* L.
vertical earth banks above trail
- 278 *Polypodium?*
vertical earth banks
- 279 *Blechnum*
very common on vertical banks
and trail sides
- 280 *Lycopodium*
vertical earth banks above trail
- 281 *Blechnum Eriocaulon superciliosum* (L.) Kuhn
along trail det. Fagon 1970
- 282 *Polypodium?*
vertical earth banks

- flower red at base of
petals, tips yellow.
prostrate, fls. yellow like,
greenish.
vine, fruit immature,
no veins visible on under side of
leaves.
prostrate, fruits greenish.
shrub up to 2 m. tall,
fls. pendent, bright red
weak shrub up to 2 m.
bracts white, fls. white.

Prov. Cajamar

extensively creeping,
rooting, spikes erect.
fronds erect

young leaves reddish.

extensively creeping,
spikes erect.

trunk erect 3 dm. high
young fronds erect, others
ascending, stiff, dead fronds
lying on ground, detached.
flat against soil

- L 22793 *Brunellia*
occasional in scrub
- L 4 84 *Vaccinium*
occasional in scrub

70 Feb. 5 - across the valley of
Rio Mangan from Taday,
29 km. e. n.e. of Azogues, Pr. Cañar
roadside in cleared culti-
vated country 3900'

- L 3 85 *Calceolaria obtusa* Molau det. Molau
dry banks and wet muddy areas
- L 2 86 *Hedyotis*
dry banks
- L 3 87 *Calceolaria*
roadside
- L 2 88 *Loasa*
dry bank

- L 1 89 *Drymaria*
marshy place

- L 1 90 *Carex*
marshy place

- L 3 91 *Carex*
marshy place, in one
spot excluding other
plants.

- L 1 92 *Loasa*
common in brush patches
and along trails

small tree 5 m. tall, dense.

flowers coral red, somewhat
paler at tips, surface dull.

1982 fl. butter yellow.

fls. deep yellow.

diffuse scrambling
plant with painfully
stinging hairs, petals
white, nectaries or stamens
deep yellow with 2 transverse
red bands.

diffuse, petals white,
half again as long as calyx,
deeply bifid.
dense tufts

erect

shrub 1.5 - 2.5 m. tall,
fls. bright rose, pendent.

54
with
P. Prieto

Feb. 5 - Flats ^{and slopes headwaters of} along ~~river~~
Rio Mangan 20 km. n.e. of
Azogues, Prov. Cañar 10800'
semi-open brush and open slopes

L 22793

Valeriana

L 2794

Viola

open ~~flat~~ flat ground

L 2795

Hedyotis capitata

L 2796

Bomarea

L 2797

Hedyotis

rare, on tops of cut banks

L 2798

Lobelia

openings and tops of cut banks

L 2799

Blechnum

common on eroded banks

L 2800

Lycopodium

rare, vertical banks, eroded slope

L 2801

Eryngium humile

common on open slopes

L 2802

Nertera granadensis

rare in open turf

L 2803

Viola ~~sp.~~

L 2804

Gleichenia

very common on banks

L 2805

Valeriana

common on open slopes and banks

L 2806

Hymenophyllum

common locally on vertical banks

bush 2 m. tall, fls. white,
prostrate, fls. purplish,
deepest near apex, with
dark lines on lower petal.

leaves thin, convex below,
concave above, fls. white,
purplish without.

flowers vermillion with
green tips.

small cushions, flowers
rare, white, purple without,
fls. purplish.

bronzegreen, quadrangular

varying in stature, none
seen as ~~abundant~~

short scaped as common in Colombia.

prostrate, fruits orange, red
very small (probably abortive).

stones 2, adherent.

fls. purple

fronds erect, stiff.

erect, fls. white.

rhizome glaucous.

L 22807 *Vicia*
 L 108 *Pinguicula*
 vertical banks of spring

L 09 *Polygonum*
 common in open places

L 4 10 *Vaccinium*
 common very locally on
 vertical banks

L 2 11 *Gaultheria*
 open places

L 2 12 *Polypodium*
 vertical eroded banks

L 2 13 *Azorella*
 open places

L 1 14 *Vicia*
 along stream

L 1 15 *Vicia*
 along stream

L 1 16 *Thalictrum*
 along stream

L 1 17 *Aster*
 along stream

L 2 18 *Wulffia*
 along stream

20 ✓ Feb. 5 - Headwaters of Rio
 Shirincay, west slope
 of Cerro Huairacaja, 10 km.
 n.e. of Azogues, Prov. Cañar
 Partially brushy, partially cleared

L 19 *Weinmannia*

- fls. violet
 leaves thin, yellow-green,
 involute, fls. purple
 with margins fading
 to white

- prostrate, fls. reddish
 green.

- prostrate, corolla bright
 rose, fruit translucent
 white, soft, at first pleasantly
 acid, then bitter to taste.

- prostrate, fls. pink,
 fruit black.

- fronds erect.

forming thick cushions

flowers violet.

flowers violet

fls. blue-violet.

erect herb

10800'
 slopes

tree 6 m. tall

- L 22720 *Chusquea*
abundant on open slopes and
tangled in brush

~~Feb. 5 - ridge bet.~~

- L 4 21 *Valea*?
brushy roadside
- L 4 22 *Mentha granadensis*
steep bank of black soil
- L 4 23 *Protea*
brushy roadside

- 25 ✓ Feb. 5 - ridge bet. upper
Rio Thirineay and upper
Rio Lareay, n.e. of San Marcos,
3 km. n.e. of Azogues,
Prov. Cañar
cleared slopes, partly regrown
to brush 10000'
- L 4 24 *Cinchona pitagorica*
open slope

Plant 1.5 m. tall, canes
arching, not all of
population flowering.
this plant the highest
observed flowering, others
sterile higher on slope,
further down flowering
more commonly.

fls. & bracts white.

- 10000' prostrate, trailing, fruits
red, juicy, with 2 stones.
- 10500' (photos) shrub 3 m. tall, leaves
gray-glaucous beneath,
flowers white, corolla
turning pinkish, fruit
clusters in lower forks
of branches.

stump with dense
clump of sprouts 2 m.
tall, scarcely fruiting, leaves
smaller than in #22825. (same
tree as Camp #1815). fruits
reddish-orange, leaves
glossy. "patate gallinaza blanca".

- 22825 *Cinchona* ~~pitagorica~~
open slope

same but Feb. 2

- 26 *Cinchona* ~~pitagorica~~
bushy slope

- Feb. 2 - Headwaters of Rio
Shirinay, west slope of
Cerro Huairacaja, 10 km. n.e.
of Azogues, Prov. Cañar
- 27 *Hedyotis capitata*
rocky bank with small bushes

- 28 *Galium hypocarpium*
rocky bank

- Feb. 5 - Rio Shirinay 5 km.
n.e. of Azogues, Prov. Cañar
- 29 *Hedyotis*
30 "
31 "

(photo)

stump with ^{dense} clump of
sprouts, heavily fruiting,
scarcely flowering. Leaves
glossy, larger than in 22824.
Fls. purple. Fruit bronze-
red. Leaves turning bright
crimson when old. "Pato de gallinazo
blanca." ~~Cañar~~ same tree as
Camp 21913.

small tree or developed
sprout 4 m. tall, leaves
deep green, glossy, above,
pale and less glossy
below, when old turning
deep red. Corolla purple.
hairs brownish-gray.
"pato de gallinazo blanco".

- 10300' erect shrub 3 dm. tall,
leaves keeled, fls. in terminal
clusters, buds pale lavender
corolla almost white
- 10500' creeping, fruits bright
orange, fleshy

Three different plants, one more
or less erect but with main woody
stem prostrate, others pendent from
bank, fls. white

with
M. A. Jelen
to 2500'

Feb. 8 - Tablon de Oña, slope to south, 3 km.
s. of Oña, Prov. Azuay 2500'

L 22832 *Euphrea*

Common on open slope

Feb. 8, Oña, ^{Cayamant} Rio Oña, Prov. Azuay 7600'

L 2 33 *Hedyotis*

crumbly ledges of earth and decomposing rocks.

29 Feb. 8, - Hacienda Zuzudel, 2 km.
s. of Santa Rosa, s. end of Cordillera
Alpachaca, Prov. Azuay 9300'
slopes covered with low brush

L 2 34 *Befaria*

L 3 35 *Vaccinium*

L 1 36 *Linum*

L 3 37 *Vaccinium*

L 2 38 *Melast.*

L 1 39 *Befaria*

L 2 40 *Befaria*

L 3 41 *Vaccinium*

L 1 42 *Lycopodium*

L 8 43 *Hedyotis*
abundant

L 3 44 *Vaccinium*

24 Feb. 8 - Nudo (Paramo) de Tinajillas,
32 km. s. of Cuenca, Prov. Azuay 10300'
grassy slopes

L 1 45 *Galium hypocarpium*

L 1 46 *Croton*

L 4 47 *Gnaphalium*

L 5 48 *Hedyotis capitata*

L 1 49 *Gentiana*

L 2 50 *Luzula*
rocky roadcut

flowers magenta, calyx
brick red.

dwarf shrub, fls. white
leaves glossy, pale beneath.

"Payama" dwarf shrub, fls. rose, somewhat viscons.

low shrub, leaves stiff, fls. dull coral red.

flowers yellow.

low shrub, fls. dull coral, pale toward tip, ^{stiff}

fls. dull, dirty pink, rather brown ^{stiff}

small shrub, fls. rose, buds viscons.

small shrub, fls. rose, buds viscons.

shrub 2-3 dm. tall, fls. pinkish, fruit globose.

branchlets much compressed.

(photo) prostrate to erect, young stems reddish

purple, fls. white flushed with

the palest lavender. Longistylous, ^{several}

low shrub, fls. dull coral. Note ^{glabrous}

fruit reddish black.

prostrate, fruit fleshy, orange.

fls. lemon yellow, inv. blackish-green.

upright herb. ^{anthers purple, buds purple}

lvs. concave & channelled above, fls. white, ^{longistylous}

erect, fls. bright yellow with part of red outside.

erect, caespitose, branches

or incl. pendulous.

22851 *Nertera granadensis*L 1 52 *Geranium*L 2 53 *Hedyotis*L 2 54 *Stellaria*L 3 55 *Stellaria*18 Feb. 8 - Loja, Prov. Loja 7000'
Along bank of riverL 1 56 *Salix Humboldtii* (diffuse form)L 3 57 *Salix Humboldtii* (diffuse form)L 5 58 *Salix Humboldtii* (diffuse form)L 3 59 *Baccharis*L 2 60 *Antennaria ambrosia*L 4 61 *Alnus*28 Feb. 9 - Paso de Cajanuma, 9 km. S. of
Loja, Prov. Loja 8000'
bushy ridgeL 2 62 *Salix*L 5 63 *Weinmannia*L 4 64 *Weinmannia*L 1 65 *Cyrtandra*L 1 66 *Salix*L 5 67 *Valeriana*L 1 68 *Vaccinium*L 3 69 *Weinmannia*L 7 70 *Viola scandens*

abundant on cleared slopes.

L 1 71 *Befaria*L 1 72 *Monarda*L 1 73 *Antennaria*

on rocks

Feb. 9 - Headwaters of Rio Zamora, 8 km.
S. of Loja, Prov. Loja

greenish, fr. orange-red, 2 stamens.

greenish green, fl. white

fl. white, slightly purplish ^{longer} withers

etc, pale green, fl. white.

etc, pale green

22785

Calceolaria obtusa Nees

above

m. tall, verticillate catkins

m. tall, staminate catkins

m. tall, fruiting

2 m. tall, diffuse, fl. white.

tangled aromatic herb.

m. tall, leaves ^{somewhat glaucous} beneath.

shrub, fls. pinkish orange.

m. tall, fls. reddish, stamens white

m. tall, fls. rose, stamens white

shrub 2 m. tall, fls. white

vine climbing in ^{fruit} fl. dull vermilion, ^{anthers white}

fruit indehiscent when dry (lost.)

vine, fls. minute, white, fruit green.

shrub 1 m. tall, fls. lustrous, ^{green} red with ^{yellow} paler

shrub 3-4 m. tall, fls. greenish, stamens white

herb up to 1 m. tall, rooting at nodes,

fl. scarlet.

shrub 1.5 m. tall, leaves glaucous beneath.

erect shrub 2 m. tall, fls.

indigo-purple, fruits maroon (young).

caespitose, flowers scarlet.

- 22851 *Nertera gran*
 52 *Geranium*
 53 *Hedyotis*
 54 *Stellaria*
 55 *Stellaria*

Feb. 8 - Loja

Along bar

- 56 *Salix Humboldt*
 57 *Salix Humboldt*
 58 *Salix Humboldt*
 59 *Baccharis*
 60 *Antennaria*
 61 *Alnus*

Feb. 9 - Pasado

Loja, Prov. Loja

bushy ridge

- 62 *Salix*
 63 *Weinmannia*
 64 *Weinmannia*
 65 *Clusia*
 66 *Clusia*

- 67 *Valeriana*
 68 *Vaccinium*
 69 *Weinmannia*
 70 *Viola*

abundant on cleared slopes.

- 71 *Befaria*
 72 *Morona*
 73 *Citrus*
 74 *Patagonia*

on rocks

Feb. 9 - Headwaters of Rio Zamora, 8 km.
 S. of Loja, Prov. Loja

63-108

TIME

DATE

WISHES AN APPOINTMENT ☐IS WAITING TO SEE YOU ☐

EXT. NO.

YOU WERE VISITED BY

- Prostrate, fls. greenish, fr. orange-red, 2 stamens.
 leaves grayish green, fls. white
 prostrate, fls. white, slightly purplish, ^{longer} withers
 prostrate, pale green, fls. white.
 prostrate, pale green

- tree 10 m. tall, verticillate catkins
 tree 8 m. tall, staminate catkins
 tree 8 m. tall, fruiting
 shrub 2 m. tall, diffuse, fls. white.
 low, rather tangled aromatic herb.
 tree 10 m. tall, leaves ^{somewhat glaucous} beneath.

- erect aromatic shrub, fls. pinkish orange
 shrub 1.5 m. tall, fls. reddish, stamens white
 shrub 2 m. tall, fls. rose, stamens white
 shrub 2 m. tall, fls. white
 vine climbing in ^{shrubs} fls. dull vermilion, ^{another white}
 fruit indehiscent when dry (only one seen)
 vine, fls. minute, white, fruit green.
 shrub 1 m. tall, fls. lustrous, ^{green} red with yellow
 shrub 3-4 m. tall, fls. greenish, stamens white
 herb up to 1 m. tall, rooting at nodes,
 fls. scarlet.
 shrub 1.5 m. tall, leaves glaucous beneath.
 erect shrub 2 m. tall, fls.
 indigo-purple, fruits maroon (young).
 caespitose, flowers scarlet.

- 22851 *Nertera granadensis*
 52 *Geranium*
 53 *Hedyotis*
 54 *Stellaria*
 55 *Stellaria*
 Feb. 8 - Loja, Prov. Loja 7000'
 Along bank of river
 56 *Salix Humboldtii* (diffuse form)
 57 *Salix Humboldtii* (diffuse form)
 58 *Salix Humboldtii* (diffuse form)
 59 *Baccharis*
 60 *Antennaria*
 61 *Alnus*
 Feb. 9 - Páase de Cajanuma, 9 km. S. of Loja, Prov. Loja 8000'
 brushy ridge
 62 *Salix*
 63 *Weinmannia*
 64 *Weinmannia*
 65 *Elephantopus*
 66 *Elephantopus*
 67 *Valeriana*
 68 *Vaccinium*
 69 *Weinmannia*
 70 *Viola* *scandens*
 abundant on cleared slopes.
 71 *Befaria*
 72 *Monarda*
 73 *Polemonium*
 on rocks

Feb. 9 - Headwaters of Rio Yamora, 8 km. S. of Loja, Prov. Loja

- Prostrate, fls. greenish, fr. orange-red, 2 stamens.
 leaves grayish green, fls. white
 prostrate, fls. white, slightly purplish ^{longer} ~~with~~
 prostrate, pale green, fls. white.
 prostrate, pale green
 tree 10 m. tall, pistillate catkins
 tree 8 m. tall, staminate catkins.
 tree 8 m. tall, fruiting
 shrub 2 m. tall, diffuse, fls. white.
 low, rather tangled aromatic herb.
 tree 10 m. tall, leaves ^{marked} ~~marked~~ glaucous ^{below}
 erect aromatic shrub, fls. pinkish, orange
 shrub 1.5 m. tall, fls. reddish, stamens white
 shrub 2 m. tall, fls. rose, stamens white
 shrub 2 m. tall, fls. white
 vine climbing in ^{fruit} fls. dull vermillion, ^{anthers white}
 fruit indehiscent when dry (only one seen)
 vine, fls. minute, white, fruit green.
 shrub 1 m. tall, fls. lustrous, red with yellow
 shrub 3-4 m. tall, fls. greenish, stamens white
 herb up to 1 m. tall, rooting at nodes,
 fls. scarlet.
 shrub 1.5 m. tall, leaves glaucous beneath.
 erect shrub 2 m. tall, fls.
 indigo-purple, fruits maroon (young).
 caespitose, flowers scarlet.

rocky, bushy slopes 7600'

- 22874 *Elaphoglossum*
 75 *Galium hypocarpium*
 76 *Labiata*
 77 *Hedyotis*
 78 *Hedyotis*
 79 *Stellaria*
 80 *Cinchona officinalis* L.
 in brush.

Feb. 9 - S. slopes of Nudo de Cajanuma,
 above Pueblo Nuevo, opposite Cerro Urituzinga,
 11 km. S. of Loja, Prov. Loja 7500-7600'
 Cleared slopes with bushy ravines

- 81 *Palicourea*
 82 *Vallea stipularis*
 83 *Labiata*
 84 *Galium*
 85 *Galium*
 86 *Stellaria*
 87 *Cinchona officinalis*
 88 *Drymaria*
 cultivated fields as weed common
 89 *Hedyotis*
 fence rows and pastures, common
 90 *Cinchona officinalis* L.
 91 *Oenothera*
 92 *Cinchona officinalis*
 A-F open clearings
 93 *Apocynum*
 94 *Cinchona officinalis*
 95 *Vallea stipularis*
 96 *Cinchona officinalis* L.
 bushy ravine
 97 *Zanthoxylum*
 edge of brush

- leaves stiff
 prostrate, roots yellow, fruits orange, fleshy.
 aromatic shrub, fls. pinkish orange.
 dwarf shrub, fl. white, (from several plants)
 fls. white.
 7750' fls. white
 7750' sprouts up to 1 m. tall,
 leaves thin, not flat, veins prominent
 clumps of sprouts and small
 trees 4-6 m. tall and no more than
 3 cm. thick, ^{of *Cinchona officinalis*} common, but barks
 had been taken from all.
 shrub, lvs. venulose beneath, veins impressed above.
 small tree, flowers pink.
 aromatic shrub 2 m. tall, flowers pinkish-orange,
 tangled in bushes, fls. greenish-white.
 fls. and fruits greenish.
 fls. white.
 small tree 6 m. tall, partly peeled,
 prostrate, flowers white.
 petals lipid, $\frac{1}{3}$ longer than sepals.
 fls. white.
 small tree 4 m. tall, leaves ^{deep crimson} ~~leaves~~ ^{leaves not} ~~tending to be irregular rather than plane~~
 fls. rose pink.
 sprouts, each from different ^{leaves not} ~~leaves~~ ^{flat}
 clump, to show variation.
 vine climbing in trees, flowers with pink purple
 trees 5 m. tall, leaves thin
 small tree, fls. rose, fruit green, ^{covered with} ~~fleshy tubercles~~
 small tree 6 m. tall, 3 cm. thick,
 leaves thin, fls. crimson-pink, odorless.
 single prickly stem 1 1/2 m. tall,
 fruits green.

- 22898 *Cinchona officinalis* L.
open slope
- 299 *Hypoxis*
trampled pasture
- 22900 *Hypericum*
trampled pasture
- 601 *Bocconia frutescens*
- Feb. 9 - Valley of Malacatos s. of Malacatos
(Valladolid), 25 km. s. of Loja, Prov. Loja
dry slopes covered with *Acacia*, *Annona*, etc.
- 402
- 203 *Solanum*
- 504
abundant
- 205 *Oxalis*
- 106 *Tribulus terrestris*
- 207 *Heliotropium*
- 108 *Apoc.*
- 409 *Annona cherimolia*
wild, abundant part of vegetation
- 410 *Annona cherimolia*
wild, abundant in vegetation
- 311 *Croton*
common
- 112 *Euphorbia*
common
- 213 *Mirabilis*
- Feb. 9 - Landanguin, 6 km. n.e. of
Malacatos (Valladolid), 20 km. s. of Loja, Prov. Loja
- 214 *Solan.*
- 115 *Nicotiana glauca*
- 216 *Melast.*

- small gnarled, partially
peded tree, fls. deep crimson pink, odorless.
fls. yellow
- fls. range yellow plant
not even eaten by goats.
bush 2.5 m. tall, range later not abundant, ^{fruits} juicy.
inflorescence apparently terminal
- 5200' bush 2 m. tall, fls. yellow, fruit red.
- " bush 1.5 m. tall, fls. white, anthers orange, ^{all on one side}
- " shrub 1-2 m. tall, receptacle
~~flower~~ - shaped, single petal white ^{standing many}
- " bush up to 1 m. tall, fls. yellow
- " fls. yellow.
- " suffrutescent herb, fls. white.
- 5300' vine, fls. purple, reputed to be poisonous.
- 5300' spreading tree 5 m. tall, ~~fls.~~ leaves
somewhat fragrant when crushed, fls.
with petals fleshy, fruit dry on tree.
- 5500' small tree 4 m. tall, as above
except fruits not ripe yet.
- " shrub 1 m. tall.
- " fls. rose pink
- leaves thin, infl. sticky, fls. crimson
- shrub, fls. purple.
- herb 1 m. tall, fls. pink (said to be no
good as tobacco)
- erect, fls. violet.

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.
steep slope above road 7900-7900

22917

218

219

420

521

322

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

Hedyotis

Hedyotis

Agave

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Passiflora

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

Feb. 10 - Terrace 3-4 km. w. of Loja, P. M.

steep slope above road 7900-7900

leaves stiff, not fleshy, calyx ^{corolla pale pink} fl. white, greenish outside, ^{very marked} small bush, flowers white, longistylous, same, brevistylous.

rosette of great, fleshy, bluish leaves, erect stalks from center. vine, fl. greenish, corolla ^{purple} white.

fl. bluish, fruit green
fls. green.

fls. rose-purple.

fls. yellow

small gnarled tree. gum from cuts in bark and fruits used for sizing hats and mixing with whitewash.

bush, fls. orange.

fls. red.

fls. white.

shrubby, white very fragrant. looks and smells like H. anomalum.

Also shows same variation in corolla erect herb, 1 m., sticky, footed, ^{yellow} white.

low spreading tree, stamens white
same

122935

L 1 36

Tribulus

L 2 37

Kallstroemia

L 1 38

Boerhaavia

L 2 39

Euphorbia

L 5 40

Celtis

Feb. 10 - near San Pedro, 10 km. n. w.
Catamayo (La Tana), Prov. Loja 5900'

L 1 41

Evolvulus

dry rocky slope

39

Feb. 10 - n. e. slope of Cerro Matapero
3 km. s. w. San Pedro, 10 km. n. w. of
steep dry slope of decomposed slate

L 3 42

Acacia

L 3 43

Passiflora

L 2 44

Begonia

L 1 45

Galium

L 1 46

Senecio

L 3 47

Cantua

L 2 48

Lupinus

L 2 49

Dodonaea viscosa

L 2 50

Hedyotis

L 4 51

Lupinus

L 4 52

Drymaria

L 3 53

Dodonaea

L 2 54

Solanum

L 1 55

Gumplera ^{leaves, n. w. of}
Feb 10 - near San Chinchas, s. w. slope
of Cerro Matapero, 14 km. s. of Catamayo,
moist foggy bushy slope 6300'

L 8 56

Lupinus

L 2 57

Stellaria ovata

L 1 58

Stellaria

L 2 59

Heliotropium

L 6 60

Adiantum

- fl. pale yellow.

- prostrate, fls. yellow.

- prostrate, fls. straw-color.
internodes with viscous band, fls. red.

low, broadly spreading tree 6 m. tall.

prostrate, flowers blue.

Catamayo, Prov. Loja.
steep dry slope of decomposed slate
shale. 7500'

- vine, fls. dark purple.

- vine, fls. rose, ~~at base~~ ^{at base}- fl. rose without, white within
tangled in bushes

- fls. yellow.

- shrub, 1 m. tall.

- rounded shrub 1.5 m. tall.

- erect shrub, 1 m. tall.

- fls. white.

- lactiferous rigid shrub 2-3 m. tall, fls. yellow.

- grayish leaves, petals white, bifid, ^{exceeding} calyx.

- low shrub (probably an aberrant plant).

- shrub, flowers purple.

- heads narrow - black.

(La Tana) Prov. Loja.

- stem fleshy, panicle white.

- diffuse-prostrate, fls. white.

- prostrate, fls. white.

- shrub 1 m. tall, fls. white

- young leaves reddish.

Feb. 10 - Rio Chiguango, just above Chiguango, 13 km. w.n.w. steep canyon wall, rather dry

22961 *Hamelia patens*

62 *Patunia*

Feb. 10 - Headwaters of Rio Salado, w. of Catamayo (La Toma) Prov. Loja. steep slope, rather dry

63 *Adiantum*

shade of great rocks

64 *Rondellia*

65 *Polygala*

66 *Lantana*

67 *...*

shade of great rocks

Feb. 10 - Rio ~~Chiguango~~ near Puente ~~Chiguango~~

10 km. south of Patate, Prov. El Oro 2000'

68 *Cratogeomys Contarea hexandra*

crusky bank above river

Feb. 11 - Monoz, 17 km. w.n.w. of Patate

wet forest on steep slope

69 *Coum...*

70 *Psychotria*

71 *...*

72 *Guettarda*

73 *Hedyosmum*

74 *Palicourea*

75 *Psychotria*

76 *Palicourea*

77 *Burmeistera*

78 *Cephaelis*

79 *Burmeistera*

80 *Cephaelis*

of Catamayo (La Toma) Prov. Loja
3500'

shrub, fls. orange, fr. black.
roots orange, fls. very white.

km. n.n.w.

young fronds reddish.

shrub, fls. deep rose without, ^{within} pale pink.
fls. ^{large} purple, roots smell of wintergreen.
shrub, m. tall, fls. and fruits lavender.
fls. white.

shrub 2 m. tall, flowers white, odorless.

Patate, (near Zamana), Prov. El Oro 4000-4500'

fls. white, fruit orange, fleshy.

unbranched shrub, m. tall, fls. white.

shrub 2 m. tall, fls. white

leaves glaucous beneath

widely spreading tree, fls. white, ^{lobes} ^{edges} ^{apical}

shrubs or small trees, aromatic, fruit white, fleshy.

elongate shrub, infl. orange, fruit green.

erect unbranched shrub, fls. & fr. white

elongate, scrambling shrub.

fls. & infl. orange, (infl. reddish).

vine-like, bud maroon, fruit bright blue.

unbranched shrub, m. fr. immature

vine-like, fruit magenta.

branched shrub, fruit immature

- 22981 *Palicourea*
 3 82 *Psychotria*
 4 83 *Psychotria*
 1 84 *Chusquea*
 3 85 *Cephaelis*
 1 86

in trail

87

88 *Fuchsia*

Feb. 11 - La Garganta de Pinas,
 w. of Piñas, El Oro

89

road cut

Feb. 12 - ^{below} Curtinca, 3500'
 8 km. e. of Portovelo, Prov. El Oro
 brush along trail

90 *Psychotria*

Feb. 12 - Curtinca, 10 km.
 e. of Portovelo, Prov. El Oro

91 *Cinchona pubescens*
 bushy roadside

~~92 *Cinchona*~~

92 *Emmenanthe*

bushy roadside

93 *Cinchona pubescens*

bushy woods

Feb. 12 - ridge between El Madillo
 + Hacienda Chapel, 20 km. e. Portovelo, Prov. El Oro

94 *Cinchona*

bushy ridge

95 *Cinchona*

bushy ridge

greenish-yellow.

- scrambling shrub, fls. & infl.
 erect unbranched shrub 1 m., fls. white.
 branched shrub 2-3 m. tall, fls. greenish white.
 climbing in trees, two clusters seen, both flowering.
 unbranched shrub, 1 m. tall, fl. white.
 fl. white

erect herb. fls. purplish
 fl. vermillion, not stipules

flower white, lip yellow
 within, very fragrant.

fls. white

4500' sprouts 1 m. tall.

4800' vine-like, fls. white

5500' small tree, 5 m. tall, 5 cm. thick,
 or cluster of green fruit (Bark sample)

9100' sapling 1.5 m. tall, sterile

9200' sapling 3 m. tall, sterile

Feb. 12 - Quebrada Chapel, Hacienda
Chapel, 22 km. e. of Portovelo, Prov. El Oro
Open burned-over slopes

- L 22996 *Hedyotis capitata*
L 297 *Hedyotis capitata*
L 298 *Vaccinium*
L 199 *Hedyotis* common
L 23000 *Hedyotis* "
L 801 *Cinchona* "

slope with scattered small trees
~~at~~

- L 102 *Baccharis*
Feb. 12 L 103 *Prot.*
L 104 *Escallonia*
L 105 *Desmanthus Cinchona* +
low wet woods.

Feb. 13 - Bebedero de Oro, affluent
of Rio Luis, reg. called Trancilla map,
n. of Hacienda Chapel, 22 km. e.
of Portovelo, Prov. El Oro
wet steep wooded sides of ravines

- L 106 *Cinchona*
L 207 *Hedyotis*
open slopes, scattered low brush
L 108 *Cinchona*

Feb. 13 - Hacienda Chapel, 22 km.
e. of Portovelo, Prov. El Oro

- L 109 *Hedyosmum*

- 9000' fls. white, longistylous
" fls. white, brevistylous
9100' depressed, fls. bright rose pink, ^{inf. fruit black.}
8800' prostrate, ~~almost so~~, ^{fls. white,} longistylous
9900' prostrate or almost so, brevistylous
7800' small tree 4-5 m. tall, rounded,
several stems 10 cm. thick, fls.
deep crimson, odorless, fruit
reddish, (bark sample)
9200' aromatic, fls. cream-white.
9200' shrub 1.5 m. tall, fls. yellowish, style purple.
9000' shrub, fls. lavender, stamens white.
8900' small tree 4 m. tall 6 cm. thick,
flowers maroon, lvs. glossy.
7900' tree 20 cm. thick, 12 m. tall,
fls. maroon but with green
basal 1/4, tube hairy within, odors
7700' ~~open slopes~~, fls. white
7500' tree 30 cm. thick, 18 m. tall
fls. maroon, greenish
toward base, tube hairy within,
odorless, lobes hairy on entire inner surface
9200' aromatic shrub, fruit
green, used for tea. "Huainca"

Feb. 13 - El Nudillo, ridge 13 km. e.
of Portovelo, Prov. El Oro

23010 *Diospyros*

very common in low wet woods

11 *Pinguicula*

sides of deep trail - cut, in dripping fog - forest

Feb. 13 - Between Cutincala and
Mediamontaña, 12 km. e. of
Portovelo, Prov. El Oro

12 *Cinchona pubescens*
wet woods

Feb. 13 - El Tablon, 6 km. e. of Portovelo, Prov. El Oro

13 *Guadua*

near houses, possibly planted

Feb. 14 - Grade east of Catamayo
(La Toma), Catamayo Valley, Prov. Loja
dry brushy slope with mostly legumes & Cota

14 *Euphorbia*

15 *Croton*

dominant in vegetation

16 *Sida*

17 *Baccharis*

18 *Verbena*

common

Feb. 14 Cruz Loma, Alto de Villanaco,
6 km. n. of Loja, Prov. Loja
steep ridge with low brush and open slope

19 *Hedyotis*

20 *Cynoglossum humile*

21 *Plantago*

22 *Weinmannia*

9000'

tree 4 m. tall, fls. white
waxy, old leaves turning red.
leaves pale green, involute,

slender tree 6 cm. thick, 7 m. tall.
fls. crimson, deeper distally,
fragrant, (approaching *C. officinalis*
in appearance). Old leaves bright
red. (bark had been taken from lower part)

canes 3 m. tall, arching at top.

6000'

lactiferous, ribbed stems, fls. dark reddish
bush 1 m. tall.

fls. orange
fls. whitish, bush 1 m. tall.
bush 1.5 m. tall, fls. pink without,
white within, very fragrant.

9850'

various plants, shrubs 0.5-0.8 m., fls. white.

shrub 3 m. tall.

- 23027 *Fuchsia*
 1 24 *Hedyotis*
 1 25 *Hedyotis*
 4 26 *Hedyotis*
 1 27 *Orthosanthus chumbragensis*
 2 28 *Hedyotis*
 3 29 *Hedyotis*
 3 30 *Hedyotis*
 1 31 *Galium*
 1 32 *Galium hypocarpium*
 1 33 *Drymaria*
 in opening
 2 34 *Brunellia*
 1 35 *Weinmannia*
 2 36 *Fuchsia*
 1 37 *Hedyotis*
 flat open top of ridge
 2 38 *Hedyotis*
 2 39 *Ilex*
 40 *Ilex*
 41 *Ilex*
 42 *Hedyotis*
 in bush
 43 *Weinmannia*
 44 *Hedyotis*
 in bush
 45 *Arch.*
 epiphytic on mossy stems of bushes
 46 *Viola*
 prostrate on open ridge top.
 47 *Hedyotis*
 in bush
 48 *Lycopodium*
 49 *Hedyotis*
 steep open ridge

- 2900' shrub 1 m. tall, fls. vermillion.
 " shrub 0.6 m. fls. white.
 " shrub, prostrate, tip erect, fls. white.
 9100' shrub 1.5 m. tall, fls. yellowish.
 " erect, fls. pale blue-violet.
 " shrub 0.6 m. tall, fls. white.
 9400' shrub 0.8 m. tall, fls. white.
 9500' shrub 0.6 m. tall, fls. white.
 " prostrate, fls. & fruits green.
 " prostrate, fruits orange, fleshy.
 " decumbent, branches ascending, fls. white.
 " shrub 2 m. tall.
 9500' shrub 3 m. tall, buds only
 " shrub tangled in others, fls. pendent, vermillion
 9450' lvs. channelled above.
 " fls. white, buds purplish,
 " ~~same data~~ same data.
 " dwarf shrub 3 dm. tall, fr. immature.
 9600' dwarf shrub, 2 fls. white.
 9700' dwarf shrub, 0 fls. white.
 " shrub 1 m. tall, fls. white,
 buds purplish.
 " shrub 2 m. tall, stamens white.
 " shrub 1 m. tall, leaves channelled
 " above, fls. white, buds purplish.
 " fls. scarlet with dark
 red patch on top of middle of column.
 " prostrate, fls. purplish
 " white, marked with dark purpl. trans
 centers, esp. on lower petal.
 " bush 1 m. tall, lvs. channelled above, fls. white.
 " prostrate, branches erect.
 9600' compact, much branched shrub 3 dm. tall,
 lvs. channelled above, fls. white, buds purplish.

same - steep slope, low woods, - with M.A. G. G.

- 23050 *Orchid*
 1 51 *Valeriana*
 1 52 *Galium*
 1 53
 2 54 *Euphorbia*
 2 55 *Stellaria*
 2 56
 4 57 *Manettia*
 3 58 *Psychotria*
 2 59 *Lisyrinchium* (wet place)
 1 60 *Faramia*
 1 61 *Heiracium* (open place)
 1 62 *Manettia*
 Feb. 15 - Hacienda Guaycopamba,
 Rio Guaycopamba (Rio ~~Guaycopamba~~ ^{Guaycopamba})
 20 km. S. Vilcabamba (La Victoria), Per. Liza
 flat bottom lands and slopes at sides.
 vegetation generally thorn forest type, but bottom
 lands with much ground-water. 5700' - 5800'
 4 63 *Orchid*
 rocky open slopes
 1 64 *Polygala*
 no day open slopes
 3 65 *Tillandsia*
 flats along river, common
 3 66 *Orchid*
 flats
 5 67 *Cinchona officinalis* L.
 flats
 1 68 *Cinchona officinalis* L. flats
 2 69 *Tillandsia*
 flats
 70 *Cinchona officinalis* L.
 flats, in opening

- fls. bronze-maroon.
 vine
 prostrate, fls. & fruits green.
 vine, fls. white.
 shrub, fls. green.
 fls. white, stems succulent.
 shrub, fls. violet-blue.
 vine, fls. white.
 shrub, fls. white.
 fls. yellow.
 fls. white within, purplish without, ^{interior black}
 fls. yellow, involucre blackish green.
 vine, fls. white.
Cinchona officinalis here
 and in the tributaries, such as
 the quebrada Amarillo grows
 in the flat, gravelly riverbed
 as well as on the lower brushy
 slopes above them.
 canes erect, roots fleshy,
 fls. deep crimson-magenta.
 fls. purple.
 spreading tree, fls. yellow,
 fruits said to be edible. "sacha capuli"
 vine, fls. white
 Tree 3 m. tall, leaves dull or "underling"
 slightly glossy (bark sample)
 Tree 2.5 m. tall, fls. dull crimson.
 spreading tree, fruits said to be
 edible "sacha capuli".
 small sapling 2.5 m. tall, leaves
 semi-glossy "urituzing"

230,71

Drymaria

Feb. 15 - Quebrada Amarilla, ~~affluent of Rio Guaycumbamba~~ ^{flat}
 affluent of Rio Guaycumbamba 2 km.
 above Hacienda Guaysapamba, 22
 km. s. of Vilcabamba (La Victoria), Prov. Loja. 5800-6000'
 bottom of deep ravine along gravelly stream bed

72

open gravel flat

73

Cinchona officinalis L.

thickets at bottom of slope, edge of open gravel flat.

74

Cinchona officinalis L.

thickets at bottom of slope, edge of gravel flat.

75

Cinchona officinalis

open gravel flat

76

Lucuma

thickets at base of slopes

77

Cinchona officinalis L.

open gravel flat

78

Dodonaea viscosa

open gravel flat, very common

79

Gaultheria

open gravel flat

80

Cantua

open gravel flat, gravel flat, common.

81

Richardia

open gravel flat

82

Tagetes

open gravel flat

83

Tagetes

opening in forest

84

Tillandsia usneoides

hanging from trees, common

shrub 2 m. tall.

small ^{bent} tree 3 m. tall, 6 cm. thick.fls. crimson. somewhat fragrant
with vanilla-like fragrance

leaves rather dull, not plane.

sapling 3 m. tall, leaves

dull, not plane (bark sample)

sapling 2.5 m. slender leaves

dull, fls. dull crimson, odorless

spreading tree, somewhat

lactiferous, fruit edible "lucuma".

sapling 3 m. tall, dull, leaves

very irregular, red when

old. "Urituzings".

erect shrub.

shrub 2 m. tall, fls.
white.

shrub 1 m. tall.

prostrate

prostrate

odor like fennel, rays white.

pendent

Feb. 16 - Upper quebrada Aguacora
 affluent of Rio Guaycospamba (Rio ^{Quingua} ~~Quingua~~)
 e. slopes of ~~Quingua~~ ^{Quingua} ~~Quingua~~, 22 km. s.
 of Vilcabamba (La Victoria), Prov. Loja 8300-9600
 wet, densely wooded canyon.

23095

*Cinchona pubescens*L 6 86 *Cinchona pubescens*L 6 87 *Cinchona officinalis* "hoja de lugma"L 8 88 *Cinchona officinalis* "hoja de lugma"L 5 89 *Ladenbergia* "hoja de cafe"L 1 90 *Cinchona officinalis* L. "hoja de lugma"L 8 91 *Cinchona officinalis* L. "hoja de lugma"L 5 92 *Cinchona officinalis* L. Feb. 16 - quebrada Pico Azul, affluent of Q. AguaL 17 93 *Cinchona*

Feb. 16 - Ridge bet. quebrada Agua Cora
 and Q. Amarilla, e. slope ~~Quingua~~ ^{Quingua} ~~Quingua~~
 above Hacienda Guaycospamba, on Rio
 Guaycospamba (Rio ^{Quingua} ~~Quingua~~), 21 km. s. of Vilcabamba
 open ridge, bushy above, and in places

L 1 94 *Hedyotis*L 1 95 *Valeriana*L 2 96 *Valeriana*L 1 97 *Valeriana*L 3 98 *Paepalanthus*

Cinchona "hoja de lugma" 8300-9300'

"hoja de yambo" 8400-8600'

"Urituzinga" below 8400'

"hoja de ahumada" 9200'

"hoja de yambo"

tree 30 cm. thick, 20 m. tall, leaves
 dull or semi-glossy above. with ^{coarse} ~~coarse~~ ^{sample}
 dead fruiting panicles, + young bud
 sterile tree 15 cm. thick, lvs. large.
 leaves dull above (bark sample).

tree 10 cm. thick, 10 m. tall, leaves small,
 glossy above, leathery (bark sample)

tree 6 cm. thick, 8 m. tall, leaves
 smooth, glossy above, leathery (bark sample)

tree, fls. white, fragrant.

sterile sprout from peeled stump

small tree 6 cm. diam., 6 m. tall,
 lvs. glossy above, leathery. Bark adherent (bark sample).

Corra (see above)

9100' recently felled & peeled tree 75 cm. thick,
 15 m. tall, leaves glossy, leathery (bark sample)

9200' tree 10 cm. thick, 12 m. tall, lvs.
 glossy above, venulose beneath, brittle (bark sample)

of n. spur of Nudo de Labanilla,

(La Victoria), Prov. Loja

on slopes.

9000' fls. white.

8800' dwarf shrub, fls. white

8700' fls. white.

8600' low shrub 0.7 m. lvs. stiff, fls. pale yellow-green

8700' fls. violet to pale 2 ser. inner reflexed.

8800' fls. white, rosettes single

- 23100 *Symbolanthus*
ridges with low brush
- 01 *Hedyotis*
- 02 *Myrsine*
- 03
- 04 *Lycopodium*
- 05 *Linum* or *Lycopodium*
- 06 *Eccelesia*
- 07 *Hedyotis*
- 08 *Hedyotis*
- 09 *Hedyotis*
- 10 *Hedyotis*
- 11 *Vernonia*
- 12 *Pellaea ternstroemia* rocky place
- 13 *Hedyotis*
- Feb. 19 - Upper Rio Zamora, trail to Zamora,
Cordillera Zamora, 7 km. e. of Loja, Prov. Loja
- 14 *Palicourea*
- Feb. 19 - Divide bet. headwaters of Rio
Zamora and Quebrada Jipim, Cord.
Zamora 9 km. e. of Loja, Prov. Loja
- 15 *Cinchona microphylla*
common in dense brush on ridge
- 16 *Cinchona microphylla*
- 17 *Cinchona microphylla*
- 18 *Myrtus*
- 19 *Ardisia*
- 20 *Befaria*
- 21 *Hedyotis*
common on open, recently burned slope
- 22 *Puya*
- 23 *Cinchona microphylla*
- 24 *Puya*
common on burned open slope

- 9000' shrub up to 0.3 m. fl. rose, whitish
in throat, oblique.
- 9000' fls. white, buds purple.
- 9000' small tree, fls. whitish
- 9000' fls. pinkish white
- 9000' erect
- 3300' fls. yellow.
- 9000' fls. purplish blue
- 8500' fls. white
- 8000' fls. white
- 7000' fls. white
- 6500' fls. white, shrub 0.8 m. tall.
- 9000' fls. purple.
- 8000' tufts
- 3000' fls. white, plant prostrate
- 7200' shrub 1 m., fls. dull purple.
- 3500' shrub 1.5 m. tall
- shrub 1 m. tall.
- shrub 1.5 m. tall.
- shrub 1 m. tall, fls. white.
- shrub 1.5 m. tall, fls. whitish.
- shrub 1 m. tall, fls. pink "pazama".
- fls. white.
- shrub 2 m. tall.
- shrub 2 m. tall, lvs. revolute. (bark sample)
- caespitose, scapes erect,
fls. deep rather dull blue.

Feb. 19 - Headwaters of Quebrada Jipirú,
Cord. Zamora, 10 km. e. of Loja, Prov. Loja.
dense brushy mossy forest below

- 23/25 Cinchona
26 Cinchona
27 Cinchona
28 Cinchona
29 Cinchona
30 Cinchona

Feb. 19 - main divide of Cordillera
Zamora (El Condor), between
headwaters of Rio San Francisco
and R. Jipirú, 10 km. e. of Loja, P.
open grassy shrubby flat topped

- 31
32 Manettia
33 Palicourea
34 Manettia
35 Hedyotis
36 Cephælis
37 Meritensia granadensis

Feb. 19 - headwaters of n. fork of
Rio San Francisco, Cord. Zamora (El

- 38 Cinchona
brushy ridge

Feb. 19 - Ridge bet. 2 forks of
Rio San Francisco, Cord. Zamora

- 39 Ladenbergia

brushy ridge

Feb. 19 - S. fork Rio San Francisco

- 40
41 Rondellia

9100'

west of ridge.

gnarled tree 5 m. tall, lvs. glossy (bark sample)
sapling, young sprout with lvs. dull above, older
gnarled tree 4 m. tall, 8 cm. thick, lvs. glossy.
sapling, young sprout with dull leaves, older
sapling 3 m. tall (bark sample)
clump of sprouts 3-4 m. tall, lvs. glossy.

9250'

Loja - Santiago Zamora

ridge.

bush 1 m. tall, pubescent brown, fls. deep magenta
vine, lvs. pallid beneath.
shrub, fls. white.
vine on ground, fls. white.
forming a mat on ground, fls. purplish white
low shrub, fls. blue
forming a mat on earth bank, fruits greenish red, fls.

11 km. e. of Loja,
Cord. (El Condor), Prov. Santiago Zamora 9000'

bush 1.5 m. tall, lvs. more or
less glossy, stiff.

(El Condor), 11 km. e. of Loja, Prov. Santiago Zamora
shrub 2 m. tall, lvs. dull-glossy.

Cord. Zamora (El Condor), 12-13 km. e. of Loja, Prov.
vine climbing in trees, lactiferous, fls. whitish.

shrub, fls. rose-red

203 1945 Ecuador

Feb. 19 - Rio San Francisco, Valley of Rio Jamora,

23142 *Cinchona*

wet wooded slope

6500'

Feb. 19 - Canillara, ~~12 km~~ Rio San Francisco

wet wooded slope

43 *Ladenbergia magnifolia*

44 *Chusquea*

Prov. Santiago Zamora

203

16 km. e. of Loja, Prov. Santiago Zamora

climber of sprouts from shrubs, 1 m. tall

Valley of Rio Jamora, 13 km. e. of Loja, Prov. San. Zam.

tree 7 m. tall, 6 cm. thick (bark sample)

forming dense tangle, not all in fruit.

Coll. Gualberto Rodriguez Feb. 13, 1945
near Morona, 13 km. above Portovelo,

Prov. El Oro 4000'

A *Cinchona pubescens*
tree 13 cm. thick
(bark sample)

B *Cinchona pubescens*
sprout 4 cm. thick
(bark sample)