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Collection and Field Note Book

No. 22

(Oct. 27, 1947 -- June 10, 1948)

(28869 --- 29472)

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% nearest U.S. Consulate  
al consulado americano mas cerca

c/ E. P. Killip  
Smithsonian Institution, Washington, D.C.

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Collection and Field Note Book

No. 22

(Oct. 27, 1947 -- June 10, 1948)

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F. R. Fosberg  
Collection Book # 22

Nos. 28869 - 29472



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1947 Peru

1

Oct. 27 Rio Yuroyacu runs from Fundo Linchona eastward, winding thru the Cordillera azul in a deep canyon, finally emerging into the Pampa de Sacramento through the spectacular gorge called El Boqueron de Padre Abad, after the priest who, many years ago, traversing this wilderness on foot, recorded the existence of this gorge, saying that this river

... the Rio Ucayali ... lines then, ... marks were ... ed, it being ... only believed ... river joined ... allaga. On the ... of his report, ... highway was built, a party ... years searched ... days before ... the Boqueron, ... which the ... road was then built.

180 m.  
 25 km. E. 2 E. Puc.  
 10 km. S.E. 2. 20' W

Minapiles 2 25' S 2 25' W

Agua Santa 8° 35' 24' 30" W

DIR. F. R. FOSBERG  
 BOTANICO

Post. Canal Petilla O. 200'

Puc. 9° 20' S 2 40' W

Prov.

Coronel Portillo

D. Forest

Prov. 8° 20' S 71° 40' W.

Aguaytia 8° 35' S 71° 30' W

DR. F. R. FOSBERG

BOTANICO

Minaplaes 8° 25' S 72° 25' W

25 km. S. E. of Prov.

10 km. S. E. 8° 25' S 72° 25' W

180 m.

Alberto Filken

---

Ing. Reynaldo Crespo  
Dir. Inst. Técnico Químico  
Industrial  
Iquitos



1947 Peru

1

Oct. 27 - Rio Yurocayacu runs from Fundo Simbano eastward, winding thru the Cordillera azul in a deep canyon, finally emerging into the Pampa de Sacramento through the spectacular gorge called El Boqueron de Padre Abad, after the priest who, many years ago, traversing this wilderness on foot, recorded the existence of this gorge, saying that this river entered the Rio Ucayali drainage. Since then, his remarks were ignored, it being commonly believed that the river joined the Huallaga. On the basis of his report, when the highway was being built, a party of surveyors searched for 90 days before locating the Boqueron, through which the road was then built.

✓ (70)  
↓

Oct. 28 - Aquaytia,  
Rio Aquaytia  
Weedy roadside in  
jungle, with <sup>wet</sup> sandy  
cut banks

28869 *Sabicea*  
weedy bank

6 70 *Clidemia graciliflora* Huber (det. Wurdack (1968))  
~~steep bank~~  
steep bank with thicket

2 71 *Leandra secunda* (Don) Cogn (det. Wurdack (1968))  
steep bank

2 72 *Paspalum conjugatum*  
sterile roadside, common

1 73 *Borreria laevis* (Lam.) Griseb.  
rare, sterile roadside

3 74 *Passiflora*  
common, weedy roadside

3 75  
weedy roadside

5 76 *Paspalum*  
common, sterile roadside

5 77 *Cyclopodium cernuum* L.  
abundant locally on vertical  
wet sandy banks

4 78 *Solanum schlechtendalianum* Wolf  
weedy bank Oct. 4. 2 this

8°35' S

vine, climbing in  
bush; flowers white;  
fruit red-purple.  
shrub, 1 m. tall  
flowers white; fruit  
blue-black.  
ripe fruit black.

stoloniferous

erect; flowers white.

vine; flowers scarlet

vine, flowers bright  
yellow  
small tufts,  
erect, to 1.5 m. tall.

low, branched, weak  
shrub, flowers  
white, berries black  
when ripe.

1947 Peru

Oct. 28 - 20 km. w. of  
Pucallpa, valley of  
Rio Ucayali  
weedy roadside in  
clearing in wet forest  
or plain.

28879

*Prophyllum nudicale*  
uncommon

80

*Croton*  
very common weed

Oct. 28 - Aquaytia to  
Pucallpa via road.

The country between  
Aquaytia and San Alejandro  
through relatively flat,  
is a dissected alluvial  
plain with deep  
ravines and flat-  
topped ridges. It is  
covered with thick  
wet forest of tall  
trees, typically  
umbrella-shaped,  
but of rather uneven  
height, so that no  
true canopy is formed.  
Palms of one or two kinds  
are occasional.

The cleared edges,  
along the road, are  
filled with *Cecropia*,  
*Ochroma*, etc. and dense

~~San Mateo~~  
Loets - Coronel Portillo

8° 31'  
74° 45'

erect, glaucous, ill-  
smelling.  
erect.

weedy brush. *Laden-  
bergia magnifolia*  
may be seen as far  
as San Alejandro,  
as also *Condaminea*  
*cymbosa* and *Cosmi-  
buena grandiflora*,  
the latter two being only  
seen on cut banks and  
only small plants.  
Of *Cosmibuena*, no  
plant was seen large  
enough to flower. It  
would be interesting  
to know where the  
seeds come from.

The soil this far  
contains pebbles,  
and is rather gravelly.  
From San Alejandro  
on, the country flattens  
out much more, and

1947 Peru

becomes less pebbly, where there are cuts, at first layers of consolidated material may be seen. Then all rock disappears.

The forest becomes more and more filled with palms. About 10 kinds may be seen in this stretch, including, very rarely, *Desmondius*.

Maize, yuca, pineapples, and a few screwy bananas are produced in clearings. Houses are made of split palm trunks, thatched with palm leaves.

As Pucallpa is approached the forest thins out. It has obviously been cleared at one time.

The Rio Ucayali is about 1 km. wide here, very muddy, running between banks about 8 m. ~~wide~~ high.

Lumber, mainly cedar and caoba, is the chief product, though quantities of cube roots are shipped by truck

Peru - Coronel Portillo 7

from here to Lima. Most of it comes here by river boat.

environs of

Oct. 29 - Pucallpa, Rio Ucayali

weedy roadside

23881

*Stachytarpheta* <sup>dichotoma R. & P.</sup> ~~australis~~ Moldenke

det. Moldenke 1967

82

*Solanum lycopersicum* L.

occasional

83

*Zinnia*

occasional

84

*Heliotropium indicum* L.

common

Oct. 30 - same

weedy places around settlement

85

*Clitoria*

occasional, weedy roadside

86

*Cosmos*

occasional, weedy roadside

87

common, weedy roadside

88

*Malachra alceifolia* Jacq. det. Fryxell

common locally, weedy roadside

89

*Cyperus difformis*

wet roadside, common

90

*Jussiaea limfolia*

muddy pond, common

det. Moldenke 1975

erect herb, up to 1 m. tall, flowers purple.

— sprawling herb; flowers yellow; fruit subglobose, 3 cm. across, red when ripe.

— branched herb, ~~up to~~ 0.8 m. tall, rays scarlet above, pink beneath.

— branched herb; flowers lavender.

— vine, twining around tall weeds and bushes, flowers lavender.

— erect herb; <sup>ray</sup> flowers dull pink.

— erect herbs 1-1.5 m. tall (others seen 2-2.5 m.); flowers bright yellow. heads whitish when mature.

— erect, basal part of stem and roots much thickened with white spongy aerenchymatous tissue, petals yellow, 2-3 cm. long, all fallen by 3 w. m.

- 28891 Mandevilla  
rare in thickets
- 3 92 Cissus  
common in thickets
- 7 93 Palicourea  
rare in thickets
- 8 94 Polymnia  
common in thickets
- 5 95 Lasiacis  
rare in thickets
- 5 96 Heliconia  
common in thickets
- 5 97  
occasional in gardens
- 5 ✓ 98 Talinum patens  
common locally near houses
- 5 99 Digitaria  
common locally in garden
- 28900 Lygodium venustum Sw. det. Sclinger, 1975  
common weed in burned  
over field.
- 2 01 Bidens pilosa  
common weed in burned field
- 2 02 Euphorbia hirta  
weed in burned field. local

- wine, somewhat milky; flowers yellow, with red line in throat in center of each lobe, red spot at each sinus. vine climbing in bushes, panicle flat, red, flowers yellowish red.
- shrub 4 m. tall; thyrse and flowers bright purple.
- semi-scandent shrub, flowers yellow, achenes green.
- plants tangled, 1.5 m. high; spikelets purple.
- herb up to 1 m. tall; bracts red, flowers yellow.
- erect clumps
- erect branched herb, 1 m. tall, leaves fleshy, flowers straw yellow.
- leaves somewhat glaucous.
- all seen sterile, scandent
- disk yellow, rays none.

28903

- occasional in burned field
- 04 *Physalis*  
common locally in burned field
- 05 *Pring lappacea* (L.) Box. ~~det~~ Moldenke  
rare weed in burned field
- 06 *Cyperus*  
rare weed in burned field
- 07 *Portulaca oleracea*  
occasional weed in burned field
- 08 *Cyperus*  
occasional weed in burned field
- 09 *Elysius indica* (L.) Gaertn.  
occasional weed in burned field
- 10 *Desmodium*  
rare weed in burned field
- 11 *Phyllanthus minor*  
occasional weed in burned field
- 12 *Conchus*  
abundant weed in burned field
- 13 *Fimbristylis*  
abundant weed in burned field
- 14  
in <sup>water</sup> water of swampy  
stream course
- 15  
common among trees in  
swampy place

much-branched herb  
up to 1 m. tall, spreading  
flowers pale yellow. <sup>multicaulis</sup>  
erect <sup>erect</sup>

fleshy, spreading

erect, tending to arch  
or nod at tips. flowers  
yellow, style sharply  
set off from ovary, fruit  
sub-flattened, 2-celled.

erect - stemmed  
herb, weak, branched,  
somewhat glaucous; flowers  
white, corolla 5-lobed, very quickly  
green caducous.

herb 1.5 m. tall; flowers  
orange-yellow

28916 *Cordia* *corymbosa* (L.) G. Don  
common in weedy thickets

3 17 *Annona* <sup>*tesseraeformis* Diels, det. S. Smith</sup> ~~*hypoglauca* Mart.~~ 1984  
common tree in thickets

4 18  
common, climbing in  
thickets

7 19 *Cordia* *feruginea* (Lam.) H.B.K.  
common in thickets

2 20  
common in dirty places  
around pig-pens, etc.

✓ Nov. 1 - same

3 21 *Commelina*  
roadside

5 22 *Jatropha* *gossypifolia*  
in dooryard, doubtless  
planted.

shrub 1-1.5 m. tall,  
flowers whitish; ripe  
fruit red.  
- spreading bushy tree;  
leaves ~~with~~ aromatic  
when broken, glaucous  
beneath; flowers with  
corolla very fleshy,  
greenish yellow.  
- vine, very lactiferous;  
flowers greenish white;  
fruit immature.  
shrub 1.5 m. tall,  
flowers white

prostrate with branchlets  
ascending; flowers  
blue with one petal  
smaller and paler.  
shrub 1 m. tall, young  
growth, petioles, under  
sides of leaves, etc. deep  
purple, latex watery,  
abundant; ~~flowers~~  
hairs with green tips;  
flowers red, fruit  
green. "piñon morada"  
young tips said to be  
macerated in water,  
let stand over night in open,  
then taken as purgative.



- 23922 *Stachytarpheta* *dichotoma* R. & P. det. Moldenke 1975  
*Andralis mollis* det. Moldenke 1967  
 common along roadsides
- 23 *Hibiscus radiatus* Cav. det. Fryxell  
 planted in garden

- Nov. 1 - 5 km. <sup>sw.</sup> of Pucallpa  
 Valley of Rio Ucayali  
 along road in second growth  
 and in somewhat logged  
 out wet forest, very  
 much grown to lianas.
- 24 *Jatropha curcas*  
 abundant in fence rows

- 25  
 occasional in undergrowth
- 26  
 occasional in undergrowth

- 27 *Aegophila elegans*  
 in thick undergrowth
- 28 *Solanum*  
 in thick undergrowth
- 29  
 in thicket

- erect much branched  
 herb, 1 m. tall; flowers lavender
- shrub up to 1 m. tall  
 flowers deep purple,  
 redder in center.
- shrub 2 m. tall,  
 latex watery; flowers  
 pale green "pinnon"  
 latex used for cuts,  
 seeds, toasted, as a  
 purgative.
- herb up to 1 m. tall,  
 leaves in 3 spiral ranks,  
 caespitose, roots  
 with slight ginger  
 odor when broken, canes  
 leafy, 2-2.5 m. tall,  
 flowering branches  
 from bases, bracts  
 orange, flowers yellow.
- slender shrub 2-3 m.  
 tall, fruits orange.
- erect, flowers <sup>pinkish</sup> whitish,  
 immature fruit deeply  
 purple
- liana, red seeds  
 used for necklace

- 28990 *Tibouchina longifolia* (Vahl) Baill. (det. Wurdack (1968))  
occasional along road
- 31 *Miconia nervosa* (Sm.) Triana (det. Wurdack (1968))  
rare in undergrowth
- 32 *Inga*  
occasional in thickets
- 33 *Lubicea*  
occasional in undergrowth
- 34  
occasional in undergrowth
- 35 *Scleria vaginata* Steud. det. Gerrit Davidse 1992  
occasional in undergrowth
- 36 *Cephaelis tomentosa*  
common in undergrowth
- 37 *Tournefortia maculata* Jacq.  
occasional in undergrowth
- 38 *Solanum*  
rare in undergrowth

- much branched herb,  
1.5 m. tall, fruiting  
very heavily, flowers white.  
shrub, inflorescences  
and young fruits  
old rose, flowers white,  
leaves deep purple  
beneath, green above.  
shrub 3 m. tall,  
mature pods green  
and fleshy, seeds  
surrounded by white  
cottony-fleshy  
aril that is insipidly  
sweet and eaten by  
local people.
- herbaceous vine, tangled  
in shrubs; flowers  
white.
- weak shrub 4 m.  
tall, cyms red,  
ripe fruit purplish,  
mostly very immature.  
culms up to 2 m.  
long, tangled;  
fruits black.
- shrub up to 2 m.  
tall, bracts red,  
smaller bracts yellow,  
fruit blue.
- wine-like shrub,  
flowers green, fragrant.  
liana; fruit red.

78939

5

occasional in undergrowth

6 40

*Sipanea lepidantha* Perle det.occasional in undergrowth  
R. Leonard 19825 41 *Psychotria*

occasional in undergrowth

Visited Jose M. Schunke,  
Peruvian collector of  
insects and other animals,  
also plants. He is German-  
Indian. His father also  
collected and taught him  
what he knows. He lives  
in a palm thatch house  
just out of Pucallpa,  
but has lived in Iquitos  
and other parts of Peru.  
It originally from Chanchamayo

This country around  
Pucallpa has been  
largely cleared, or at  
least logged out. The  
soil is sterile. Pineapples  
do well. Bananas poorly.  
There is some sugar cane.  
They burn the land, making  
it even more sterile.

liana; fruit orange

slender shrub  
to 4 m. tall, fruits  
green, odor possibly  
of lemon mixed with  
geraniol.shrub 1 m. tall;  
buds whitish; ripe  
fruit red, (mostly immature)

His wife an Iquitos  
Negro-Indian-white  
mixture, helps him  
enthusiastically. Both  
collected with avidity,  
but with a thoroughly  
commercial viewpoint.  
I took photos of a horned  
epichef they found at  
Iquitos. I found  
Heliconia - Maranta trash.

at 10 a.m. Nov. 1 I felt  
a strong earthquake. The  
ground swayed for  
several minutes quite  
noticeably. No damage  
was done here, as the palm  
houses are not at all  
susceptible to earthquake  
damage.

- ✓ (43) No. 2 - Pucallpa, flats along Rio Ucayali just above town silt flats and bluffs
- 28942 Solanum common in thickets
- 43 Euphorbia common on bare ground
- 44 Cyperus occasional in damp ground
- 45 Piper in dooryard, possibly planted but probably persisting from forest
- 46 Solanum in thickets along slough
- 47 Capsicum not common on low river bluff
- 48 Alternanthera common along low river bluff
- 49 ~~Jussiaea~~ Ludwigia affinis (DC) Hara rare on low river bluff
- 50 Pippia rare on low river bluff
- 51 ~~Alysicarpus~~ Vigna luteola (Jacq.) Benth det. R. Liesner 1980 common on low river bluff
- 52 Solanum nigrum rare on low river bluff
- 53 Melothria pendula L. occasional on low river bluff

- largely dominated by a large sterile grass
- small tree 4 m. tall; leaves both spiny and spineless, flowers violet, fading to white. prostrate, purplish green.
- small tree 5 m. tall, spikes erect.
- shrub 3 m. tall, flowers white
- herb, 1 m. tall, flowers white; fruit red when ripe. prostrate
- flowers whitish.
- vine, twining over everything, flowers yellow. flowers white, ripe fruit black, glossy. vine, flowers white, ripe fruit dark green.

29954  
5

common on low river bluff,

5 55

*Lesbania sesban*  
rare, in edge of water,  
probably on dry ground  
in low water.

5 56

*Tournefortia bicolor* Sw.  
common around  
trickle of water

4 57

*Cissus sicyoides* L. det. R. Liesner  
1979  
common in low thickets

6 58

*Eclipta*  
common in ~~wet~~ damp depression

5 59

*Lippia alba* (Milla) H. E. Pol. det. Moldenke  
~~damp~~ depression

2 60

*Croton*  
rare on grassy flat above river.

loose clumps

shrub 3 m tall;  
flowers yellow  
banner marked with  
purple-black.

low spreading  
bushes, 1 m tall;  
flowers white,  
fragrant.

vine, flowers  
white, in flat-  
topped panicles.

much branched herb,  
heads white (smaller  
than common for *E. alba*)

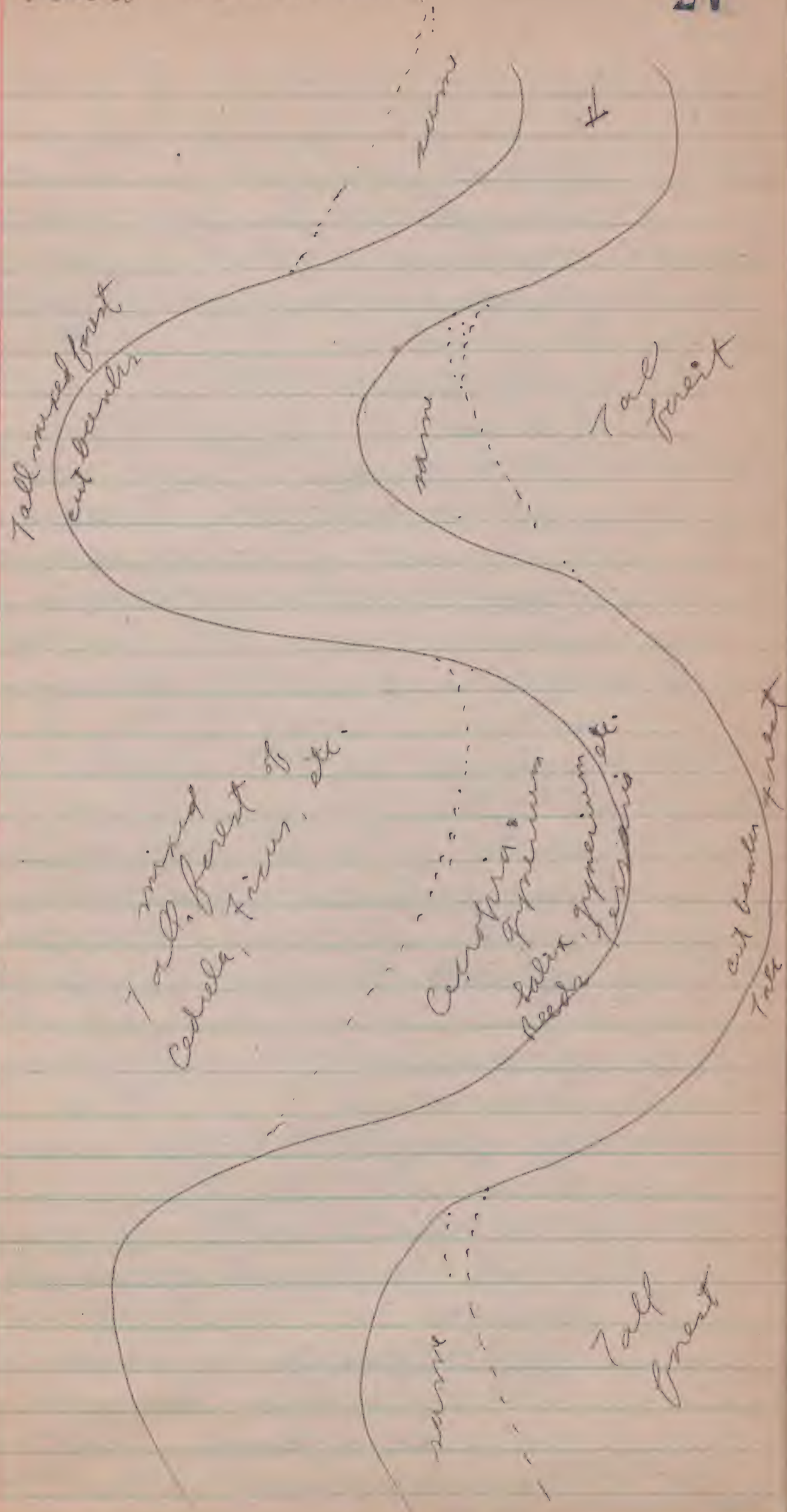
erect suffrutescent  
herb, flowers lavender.

Nov. 3 - Trip by motor boat about 30 km. up the river Ucayali to Miraflores (logging camp)

Basically the vegetation of this valley floor is a dense tall jungle of *Ficus*, *Cedrela*, *Calycophyllum* and various other genera, with an undergrowth of *Sauriminea* with some shrubs and with many lianas. The canopy is not well developed because of varying heights of trees.

The river meanders through its flood plain, every year rising and flooding all but the highest parts. At this season it is rising and has flooded the <sup>low</sup> beaches, but is not up to even the lowest vegas yet.

The general pattern of vegetation, as seen from the river is: on the outer sides of the curves the river is gradually cutting into the wooded vega, bringing the tall forest to the very edge of the water. Trees are falling in rows and then. On the inner sides of the curves land



1947 Peru

is apparently being built up by deposition. On this there has not been time to develop a real mixed forest. There is a succession going on that is very obvious.

At the water's edge (present) is a thick but low growth of what appears to be *Tessaria* (pajaro bobo) and a red-like sterile grass.

This may be as much as 15 m. wide, usually narrower. Then a narrow strip with *Salix chilensis* (diffuse form, small trees only) and *Gynerium sagittatum* + *Salix* only seen small (largest ~~ca.~~ 5 m. tall), probably from seed washed down from above.

Then a forest of *Cecropia* ("setico") of graded sizes away from beach. This is mixed with *Gynerium* and extends back to where it, rather abruptly, changes to mixed forest.

The *Cecropia* is perhaps only one species, though individuals that may

Luzo - Coronel Portillo

be another were seen rarely. Willows not seen mixed with *Cecropia* except at edge. In places *Ficus* sp. (*atracchi* (ajé or oje) and several other trees begin to appear among the *Cecropia*.

No *Ochroma* seen, though said to be common ~~on~~ on abandoned farms.

Some clearings here, devoted to bananas, plantains, yuca, and maize. The *Musa* is apparently not seriously damaged by temporary flooding.

The soil is a dark gray under the dead leaves, rapidly lightening downward. It is a rather coarse friable silt. Very sticky where roads are opened or where cuts are made down to river.

Enormous Cedrela logs, 1-1.5 m. thick, being taken out.

Aguaje - <sup>scaly</sup> fruit of a palm, cooked and eaten, sold in straws.

day IV

46

Nov. 3 - trail bet. Buenos Aires and La Libertad, Pucallpillo, 10 km. s.e. of Pucallpa, Rio Ucayali  
thick wet forest of tall trees on flood plains of river

28961

3 62

*Calypophyllum?*  
occasional

4

63 *Palicourea*  
common locally

1

64

rare

3

65

*Campomanesia lineatifolia* R. & P.  
det. McVaugh  
planted near dwelling

8° 26' S.  
74° 31' W.

vine, flowers greenish.  
small tree 5 m. tall,  
bark smooth, at times  
peeling completely - when  
freshly peeled, of a smooth  
greenish-lead color,  
becoming reddish brown.  
(Other trees seen very  
much larger).

"capirona" wood used  
for construction and for  
charcoal.

weak shrub to 3 m. tall,  
almost vine-like; thyrises  
deep orange, darkening  
to red when in fruit,  
flowers rusty yellow,  
turning dull red. Fruit immature  
vine trailing in litter  
on ground, petals rose.

(if vine was followed for  
several m, always leafless  
till lost in undergrowth)

tree 4 m. tall, flowers  
white. "palillo" fruit  
eaten, said to be large  
as an egg or larger.



78966 *Hamelia oxilabris* Sw. det. T. ELIAS 1978  
common in undergrowth

Hda.

Nov. 3 - Palonillo, about 25  
km. above Pucallpa, Rio  
Ucayali  
silt bluffs banks above  
river level, at times  
inundated

8° 31' S  
74° 25' W.

67 *Borreria*  
rare

68 *Mecardonia procumbens* (Miller) Small det. R. Liesner  
1980  
common

erect, flowers white.

flowers yellow.

Nov. 3 - Miraflores (logging camp)  
30 km. above Pucallpa (25  
km. ~~W~~ E. of Pucallpa) on  
Rio Ucayali

8° 26' S  
74° 5' W.

Tall wet forest with  
relatively sparse undergrowth  
largely of *Scitamineae*.

69 ~~*Geophila*~~ *Geocordia*  
very common, carpeting  
ground in open spaces

prostrate, peduncles  
erect, flowers white.

70  
rare in small openings in  
undergrowth

ascending, leaves deep  
purple beneath.

71 *Acalypha*  
occasional in undergrowth

shrub 2.9 m. tall, diffusely  
branching (leaves on younger  
growth much larger)  
culms erect.

72  
occasional in undergrowth

78973

occasional in undergrowth

74 Psychotria

common in undergrowth

75 Solanum

occasional in undergrowth

76

rare in undergrowth

77 Ficus

common

78 Sommera sabiceoides Sch. det. Kirkbride, 1977

occasional in undergrowth

79 Piper

common in undergrowth

80 Dioscorea

climbing on base of tree

Nov. 5 - Puerto Loreto (~~San Jeronimo~~),  
Rio Ucayali  
Weedy terraces of silt 150m. (100)

81 Elephantopus

edge of second terrace

82 Hyptis

~~was~~ abundant in pasture  
on second terrace 4 m. above water

83 Ambrosia

local on first terrace, 2 m. above water

On outside of curves river is  
undercutting jungle.

Gull-like birds with  
long yellow bill apparently  
catching small fish.

shrub 2 m. tall

shrub 2-3 m. tall,  
flowers white.

shrub 2 m. tall, flowers  
white, corolla stiff, waxy.  
small tree 4 m. tall,

fruit green.

tree 15 m. tall; fruits  
green, stripes with leaf  
maroon red. "oje" "aje"

weak shrub 2 m. tall,

flowers white.

low weak shrub 0.6 m. tall

vine, flowers pale green.

2 terraces, the first 1-2 m.  
above water and cracking,  
ready to slide into water.  
Here are broad bars of newly ↓

aromatic herb 1 m. tall,  
flowers lavender.

herbs 1.5 m. tall

deposited silt, covered with  
grass slightly older ones  
with Tassarica, then  
Gynerium, then Cecropia.

7°54' S,  
74°52' W.

Indians of Santa Rosa use root of "renacuillo", taken as tea, with cooked ripe plantain, produce nausea and vomiting. Take this for 3 days, said to vomit up stomach tumors and cancers.

~~Cashapi~~ "Cashapi" Cashapi root of a grass, taken in aqua diende as tonic or aphrodisiac. Is a vigorous grass which crowds out pasture grasses.

Toasted breast of crocodile, ground to powder. For leprosy, give thorough bath with soap & water. Then rub this powder on whole body. Said to absorb something from powder that cures the disease.

"Remocaspí" tree from which canoe paddles are made. Bark very bitter, said to cure malaria.

In Putumayo, the tree "Citaragui" is known by the Indians to be the tree from which the army ants, "citaragui", obtain a substance with which they cure badly injured ants. Walks almost instantaneously. If an ant is injured, a number of others gather around and apply the substance. Then all separate. The injured ant walks away with rest. If he is not quite cured, the process is repeated and it is impossible to tell which is the injured one.

Castilla 1334

Magdalena Mar  
Peru  
address of David Boyle  
also Contamana  
and Chiclayo

Wants to send specimens of Sarsaparilla, and various other plants - clove substitute, canella, etc. and hides of alligators, etc.

Nov. 5 - Tivintan,  
~~around~~ Rio Ucayali  
around edges of village  
on vega of river, about 8 m.  
above river level

28984

*Chrysophyllum*  
above river

5.

4.

85 *Chrysanthemum*

~~at~~ edges of muddy stream.

5.

86 *Chlorophora tinctoria*

occasional in shallow  
ravine.

5.

87 *Scleria*

occasional in edges of thicket

4.

88 *Hypoxis*

occasional in edges of thicket

4.

89 *Croton*

occasional in edges of thicket

3.

90 *Spilanthes*

muddy ground, in open

2.

91

parasitic on #28992  
*Neea divaricata* Poepp. & Endl. det. R.  
Liesner 1983

5.

92

~~tree~~ on bank above river

5.

93 *Solanum*

open ground in village

4

94 *Bunchosia glandulifera* det. Anderson  
thicket

753' S

74°56' W

tree 5 m. tall, lactiferous,  
flower greenish white, fruit immature  
semi-prostrate; heads  
greenish.

large spreading  
tree with drooping  
branches, some sprouts  
spiny.

loose clumps 1 m. tall

herb 1.5 m. tall, aromatic;  
flowers lavender.

weak herb, flowers  
white.

heads pale greenish.

flowers white, ripe  
fruit red.

tree 6 m. tall; ripe  
fruit purple.

shrub 2.5 m. tall,  
with strong disagreeable  
odor; flowers green;  
fruit said to be poisonous.

small tree 5 m. tall,  
flowers yellow; fruit  
purple when ripe, fleshy.  
"ciruelo de China" eaten.

28995 Annona  
growing spontaneously around  
villages

96 Eryngium foetidum  
growing spontaneously  
around village

97 Chenopodium ambrosioides

98 Ixora coccinea L.  
planted near houses

99 Piper  
in thickets near village

Nov. 5 - Santa Lucia,  
just above Tivuntan,  
Rio Ucayali  
river-banks

29000 Celipta alba

common weed

01 Phacelium  
Vigna luteola (Jacq.) Benth. det.  
R. Kiesner 1980  
common weed

small tree, flowers  
greenish yellow, fruit  
yellow, with prominent  
projection, flesh white  
gelatinous in texture,  
delicious - more so than  
any other species of  
Annona known to me.

"anona" (photo)

very disagreeably  
oily aromatic; "calada"  
"ciuta culentis" used  
for flavoring foods.

aromatic herb, growing  
around dwellings.

shrub 1 m. tall,  
flowers bright red.

shrub 3 m. tall,  
spikes erect.

7°55'S

74°54'W

bushy herb, flowers  
white

vine "soya"

Nov. 6 - Contamana  
weedy banks and flats  
in town at edge of river  
banks, above flood water

29002

*Priva*  
common

03

abundant locally

2.

04

*Pavonia peniculata* Cav. det Fryxell  
~~*Hibiscus*~~

rare at edge of water

4.

05

*Chloris*

common

5.

06

common

7.

07

*Desmodium*

common locally on flats

Nov. 6 - Rio Ucayali, about  
1/2 km. below Contamana  
silt flat overgrown  
with *Gynerium* and  
with some *Cecropia*  
about 4 m. above water of river.  
tangled with vines.

1.

08

*Spilanthes*

at edge of water in mud.

2.

09

*Ipomoea Lindenii* det. Auster, 1978

common on banks and  
reefs above water

7°15' S.  
74°51' W.

flowers lavender

spreading by rhizomes  
considered a bad weed  
"cashambsha" roots (or  
rhizomes said to be taken  
in aguardiente as an  
aphrodisiac.

herb, 1 m. tall, flowers  
orange yellow.

erect to 1 m. tall,  
flowers purplish-  
greenish.

7°12' S.  
75° W.

~~herb~~ sprawling  
herb, heads pale greenish.  
vine, flowers purple,  
anthers white, straight.

- 29010 *Evolvulus abscissus* (L.) L. det. Austin,  
common on banks above river
- 11 *Heliconia rostrata* R. & P. det  
occasional
- 12 *Ipomoea (Operculina)*  
common on ground  
and climbing on  
reeds, both on exposed  
banks and among canes.
- 13 *Mendonica hirsuta* (Poepp. & Endl.) Nees det.  
common climbing  
on canes
- 14 *Dioscorea*  
common, climbing on  
canes
- 15 *Dioscorea*  
one plant seen in fruit,  
climbing on canes

In an open place, seedlings  
of *Cecropia* were very  
abundant, up to about  
1 m. or a little more, tall.  
The smaller ones  
had the cavity filled  
with pith and very  
small, as they reached  
a little over 1 m. the  
cavity became larger  
and the pith disappeared.

- 1978  
vine, flowers white
- R. Oliver  
herb 2-2.5 m. tall,  
leaves erect, inflorescence  
red, pendent, spirally  
twisted, red, bracts  
red with yellow  
margins.
- vine, flowers  
deep yellow, throat  
funnel form, ~~as~~  
plicate to base, anthers  
spiral curved,  
flowers greenish,  
~~with~~ with purple on  
tube.
- D. Wasshausen  
vine, flowers  
pale greenish.
- vine, fruit green

at this time a queen  
and was found gnawing  
a hole in the upper  
end of the internodes. In  
a plant slightly older,  
a queen was found  
in each internode hollow.  
The wings were still  
present on some, but  
fell off very easily.  
In the large trees there is  
apparently a colony in each branch. I note

Some there are not except a few wandering on surface.

- ✓ done  
↓  
Nov. 7 - Arellana, Río Ucayali  
weedy places around village 3-6 m. above water
- 79016 *Clerodendrum fragrans* var. *det. maldenke*  
local *planiflorum* Schau.
- 5. 17 *Lantana camara* L.  
local
- 6. 18 *Piper aduncum*  
local
- 7. 19 *Malachra ruderalis* Gürke *det. Fryxell*  
common
- 3. 20 *Scirpus* (or *Cyperus*)  
local in wetter places
- 2. 21 *Solanum*  
against dwelling probably planted.
- 2. 22 *Jasminum pubescens*  
planted
- 3. 23 *Panicum laxum* Swartz *det. G. Davidse 1978*  
along wet <sup>grassy</sup> ravine
- 3. 24 *Cyperus*  
grassy places
- 5. 25  
along wet <sup>grassy</sup> ravine
- 5. 26 *Cyperus*  
grassy places
- 5. 27 *Citrullus* *Cucumis anguria* L.  
grassy places
- 2. 28 *Lida rhombifolia*

6° 54' S  
75° 5' W

two distinct flood plain levels here, the higher represented by remnants.

- calyx purple, corolla white; herbage foetid.*
- spreading shrubs 2 m. tall, aromatic; flowers orange turning red; fruit fleshy, lead color when ripe.
- shrub 1.5 m. tall, spikes arching.
- herb up to 1 m. tall; flowers butter-yellow "malva".
- stems terete
- herb, tending to be scandent, flowers white
- low shrubs, flowers white, fragrant.
- prostrate, flowers yellow
- ascending, roots winged; flowers orange-yellow



1947 - Peru

29029 *Leonurus sibiricus*  
very common

Nov. 7 - Florencia, Rio Ucayali  
growing in village 6° 45' S

30 *Lolidago chilensis* Meyen det. J. Cuatrecasas  
common 75° W

31 *Jatropha*  
planted

32 *Sambucus*  
planted

33 *Ocimum*  
spontaneous

34 *Hura crepitans*  
on bank of river

Nov. 7 Gran, Rio Ucayali  
edge of village

35 *Muntingia calabura*  
planted

36 *Cyperus brevifolius*  
common

erect herb, to 1.5 m.  
tall, branched. flowers  
rose pink, lower  
lip maroon.

erect herb, to 0.7 m.  
flowers yellow.  
shrub 1.5 m. tall,  
flowers red, latex watery.  
(note compound stipules)  
small tree 4 m. tall;  
flowers white, fruit  
immature. "sauco" flowers  
used medicinally for  
grippe.

aromatic herb, flowers  
lavender. "albaica" used  
to flavor foods.

large spreading tree  
with thorny trunk,  
watery latex, flowers  
dark red. "catapura"  
latex said to be poisonous  
on contact, especially  
to eyes. Used as fish poison.  
Fish said to sink when  
killed by this plant.

6° 35' S.  
77° 8' W.

tree 3 m. tall, 2 dm. thick,  
petals white, fruit immature  
heads green.

x  
 29037 Nov. 7 - Catalina, Rio Ucayali  
*Aspiphila filipes* Mart. & Schum. det. Moldenke  
 sticks used as fence  
 around garden that  
 took root.

Here bark cloth is  
 in use as sleeping  
 mats, etc. It is very  
 coarse and thick, called  
 janchani, made from  
 plant of same name.  
 (prob. *Chlophora tinctoria*)

x  
 Nov. 8 - Lagarto, Rio Ucayali  
 around edge of clearing  
 in forest.

v. 38 *Acclepias curassavica*  
 common in clearing

v. 39 *Cassia occidentalis*  
 common in clearing

v. 40 *Piper*  
~~edge~~ edge of clearing

v. 41  
 edge of clearing

v. 42  
 common in clearing  
 v. 43 *Blechnum brownii* Juss. f. *puberulum* Leonard  
 common in clearing

v. 44 *Piper*  
 common in clearing

v. 45 *Cordia ferruginea* (Lam.) H.B.K.  
 common in thickets

6°40'S  
 75°W

5°53'S  
 74°35'W

flowers white.  
 ripe fruit red.  
 "chinapa sachá" said to be  
 used medicinally.

The forest in this part  
 of the river in places appears  
 to have been destroyed at some  
 time and not to have recovered completely.

erect herb to 0.8 m. corolla  
 red, corona orange, fruit erect.

herb 1 m. tall, flowers  
 yellow.

shrub 2 m. tall.

tree 5 m. tall, 1 dm. thick,  
 fruit immature  
 prostrate

det.  
 D. Wasshausen  
 1969

spikes erect; flowers

shrub 1.5 m. tall, rather  
 unpleasantly aromatic.

"Santa Maria"

scrambling shrub climbing  
 to 4 m. in trees, flowers white.

29046  
2.

parasitic on lemon tree

3. 47 *Erechtites hieracifolia* (L.) Raf. det. J. Cuatrecasas  
common in clearing

Nov. 9

San Roque, across from  
Santa Rosa, Rio Ucayali  
around dwelling in  
banana patch in forest  
along river

5. 48 *Ruellia malacosperma* Greenw.  
det. D. Wasshausen

6. 49 *Parthenium*

I

Nov. 9 The part of the river  
near Isla de Punagua,  
above San ~~Juan~~<sup>Antonio</sup> del Cururoy  
has forest of slightly  
different appearance. It  
looks as though it had  
been logged out, leaving  
a few species of trees, and  
filled with second growth.  
Vines are more abundant  
and also a number of kinds  
of palms.

Salix is still evident  
but infrequent or common  
only very locally.

erect, flowers <sup>pale</sup> greenish  
yellow.

5° 50' S  
74° 25' W

120m

low bushy herb. flowers  
clear violet.  
bushes 1.5 m tall,  
flowers white with  
black anthers, fruiting  
heads fleshy, black.  
"huaca" used for  
poisoning fish.

1947 - Peru

The villagers and casarios have about the same flora, both weeds and cultivated plants. In addition there are usually a few plants persisting from the original forest

## Cult. plants

*Mangifera indica*  
*Carica papaya*  
*Spondias* 2 sp.  
*Musa sapientum*  
*Musa paradisiacum*  
*Psidium guajava*  
*Zea mays*  
*Matisia peltata*  
*Persea americana*  
*Artocarpus altilis*  
*Lambucus*  
*Annona*  
*Inga*  
*Brassica oleracea*  
*Rhacocotus vulgatus*  
~~*Sesuvium*~~ *Onyza sativa*  
*Capsicum frutescens*  
*Capsicum annuum*  
*Manihot esculenta*

Herbs

## Weeds

*Cyperus* 3 sp.  
*Desmodium* 2 sp.  
*Ipomoea* 2 sp.  
*Paspalum conjugatum*  
*Phaseolus digna* (29001) (78951)  
*Piper* (peltate)  
*Digitaria* + about 4 other grasses  
*Cassia occidentalis*  
*Asclepias curassavica*  
*Spilanthes*  
*Corchorus*  
*Priva aspera*  
*Crochites*  
*Parthenium*  
*Blechnum*  
*Aciumum*  
*Jatropha curcas*  
*Leonurus sibiricus*  
*Ambrosia*  
*Malachra* 2 sp.  
*Sida rhombifolia*  
*Chloris*  
*Eryngium foetidum*  
*Chenopodium ambrosioides*  
*Eclipta alba*  
*Solanum nigrum*  
*Croton*  
*Hyptis*  
*Chrysanthemum*  
*Euphorbia* 3 sp.  
*Physalis*  
*Cleusine indica*  
*Momordia charantia*

Nov. 9 - Sintica, Rio Ucayali  
Wet flood-plain, around  
cultivated patches, mostly  
Musa, and along paths.  
Weed vegetation luxuriant.

5° 25' S. 74° 15' W.

Day 5

- 29050 *Cyperus*  
common along trail
- 51 *Digitaria*  
common along trail
- 52 *Panicum*  
common along trail
- 53  
common in more or less  
shaded places
- 54  
near houses, probably  
planted
- 55 *Euphorbia hypericifolia*  
common along trail
- 56 *Fleurya interrupta*  
common along trail
- 57 *Achyranthes* <sup>*Ayathula*</sup> *achyranthoides* (HBK.) Moq.  
common along trail
- 58 *Momordica charantia* L.  
common along trail

trees of *Mangifera*,  
*Spondias*, etc. common.  
Several dense patches  
of a seedy variety of  
breadfruit, ground to  
large size, with  
myriads of seedlings  
beneath. Sugar cane.  
leaves and bracts  
whitish beneath.

plant prostrate  
with erect tips;  
leaves fleshy;  
peduncles erect; flowers  
white 3 parted, sym-  
metric.  
thick clumps; flowers  
white.

erect, tips arching;  
glands white.  
erect herb, with  
stinging hairs but  
not violently so.  
branched herb, erect  
or ascending with  
decumbent base.  
extensive herbaceous  
vine, odor unpleasant;  
flowers yellow fruit red, fleshy,  
elastically dehiscent

29059 *Priva lappulacea* (L.) Pers det. Moldauer  
occasional along trail

5 60

local along trail in  
wet ground

2 61

*Bidens*  
common

9

61

*Geocardia*  
common, carpeting ground  
in shade.

24 63

*Passiflora*  
common along trail

flowers pale lavender

flowers deep yellow.

herb 0.3 m. tall; heads  
greenish yellow.

stems prostrate,  
leaves and peduncles  
erect; flowers white;

fruit black, juicy,  
pulp greenish, antho-

cyanin only just  
under skin and  
immediately around

stones, these almost  
flat on inner surface.

Extensive herbaceous  
vine, flowers blue.

violet, calyx pale  
green veined with rose,

petals pale violet,  
corolla blue violet

banded with white  
in basal half; anthers

and stigma yellow,  
filaments green.

~~style~~ styles purplish,  
ovary and gynophore white.

1947 - Peru

Nov. 9 - below Sintonia  
the forest gradually  
becomes more even-aged,  
less decadent-looking,  
but is not quite as  
tall as further up the river,  
and with smaller trees.  
The presence of breadfruit  
trees suggests that this  
is not original forest,  
but primary-type forest  
resulting from recovery  
after clearing a long  
while back.

Nov. 9 - Puinagua (Popeja),  
Rio Ucayali opposite mouth  
of Canal de Puinagua

64

abundant everywhere  
along water, mostly sterile

From here on breadfruit  
is quite common in  
the forest. The large  
size of some of the trees  
shows that the forest has  
been opened up a long  
time ago.

One of the things that  
probably contributes a  
lot to the ragged look  
of some parts of the  
forest is the continual

5° 17' S

74° 12' W.

Forests - Requena

Willows have again  
become more common,  
but are more localized  
and more abundant  
locally.

comes up to 2 m. tall.  
"gawalate" pith used to  
make artificial flowers.

wood cutting for fuel for  
the river boats.

The soil of these  
flood plains, as shown  
by the cuts, is a rather  
uniform dark brownish  
gray. Although it does  
not show a large humus  
content neither is there  
the impoverishment of  
humus that is ordin-  
arily expected in such climates.

1947 - Peru

Nov. 10 - Below the junction of Rio Ucayali and Rio Marañon - Rio Amazonas. Recently deposited material seems more sandy here, grayer, with less humus. Forests more ragged. Still plenty of breadfruit.

Nov. 10 - Puritania, Rio Amazonas (R. Lolicmoes) High ground, 10 m. above level of river, of a stiff clay, edge of forest. *Lipakuna lepidantha* Per. det. R. Liesner 1982

Don J 29069

- 66 just inside edge of forest
- 67 just at edge of forest

Nov. 10 Paraiso, Rio Amazonas (R. Lolicmoes) muddy seepy place in clearing just above water's edge.

- 68 *Eclipta*
- 69 *Tournefortia* *procumbens* (Mill.) Small det. R. Liesner 1980
- 70 *Ludwigia* *hissopifolia* (L. Don) Exell det. Ramamoorthy 1984
- 71 *Desmodium*

Loets - ~~Asunta~~ Mayra

The river is at least a mile wide, here at its beginning.

Small floating rafts or islands of grass may be seen occasionally.

4° 16' S  
73° 23' W

This high ground runs for some distance along north bank.

slender sapling 9 m. tall, 2 cm. thick, herbage somewhat aromatic.

flowers pinkish-lavender.

- erect herb, rays white
- flowers yellow
- low branched herb. flowers yellow ~~1.5~~ 1.5 mm across
- prostrate, flowers purplish



- 290 72 *Stemodia durantifolia* (L.) Sw.
- 1/2 73 *Fimbristylis*
- 1 74  
rare
- 2 75 *Eclipta*
- 1 76 *Azolla*
- 4 77 *Jussiaea*
- 5 78 *Jussiaea*
- 2 79
- 1 80 *Heliotropium*
- 5 81  
common on bare drying mud

Nov. 12 - Puncchana, just outside Iquitos to <sup>North</sup> east, scrubby second-growth woods on sandy soil on high ground. 106 m. (m)

- 5 82 *Bredomeyera myrtifolia* det. Wardach
- 7 83  
occasional
- 5 84  
common
- 3 85 *Passiflora*  
occasional

- erect, flowers purple
- small tufts
- erect, slightly glaucous, flowers white
- prostrate
- on drying mud.
- plant. bronze-purple
- flowers yellow.
- flowers orange
- flowers lavender
- prostrate, pale green.

3° 44' S  
75° 14' W.

- scrambling shrub 3 m. tall, fruit green.
- flowers pale greenish, fruit maroon; small tree.
- small tree, fruits immature, purple above, green below.
- woody liana, leafy in upper part, flowering near base; calyx deep red, corolla and corona scarlet, filaments purple, anthers green, styles red, stigmas green.

1947 - Peru

29086 Cinchona pedunculata  
5 common in woods

16 87 Cinchona pedunculata  
common in woods

I  
4 Nov. 14 - Iquitos  
cultivated in city

1 88 in garden

5 89 Ficus  
commonest street tree

9 Nov. 15 - high ground  
just <sup>south</sup> west of Iquitos

sandy sterile soil  
with low second growth  
woods

3 90 common

5 91 Saurauhea corallina (Mart.) de Roon  
Vochysia det. H. Bedell 1982  
common

5 92 common

small ~~tree~~ sapling  
3 m. tall, bushy, fruit  
immature. (bark sample)  
tree 7 m. tall, 7 cm. thick;  
leaves dull; fruit imma-  
ture. (bark sample).

29089  
73° 16' W.

irregularly branching  
shrub, 1 m. tall, flowers white,  
odorless.

compact rounded tree,  
6 m. tall, 2 dm. thick,  
with pendent roots  
from branches, lactiferous,  
figs greenish, or pinkish  
when ripe.

30 501 S  
73° 17' W.

straggling shrub  
flowers white, fruiting  
calyx red.

shrub, tending to  
sprawl, corolla yellow,  
calyx and spur red,  
fruit green, said to be  
poisonous.

small tree, 4 m. tall,  
flowers white.

1947 - Peru

29093 Distictella magnuliiiflora (HBK) Sandwi. det. A. Gentry 1974  
rare in brush

5 94 Apodandra loretensis (Ule) Pax & Hoffm.  
local det. M.J. Huft. 1981

5 95 Selaginella  
abundant, densely carpeting  
the ground.

7 96  
occasional

8 97 Cephaelis tomentosa  
common

Nov. 15 - Itaya, above Iquitos

3° 48' S  
73° 17' W

roadside banks.

98 Boneria

99 common, weedy

Nov. 16 Iquitos  
dominant plant in  
open pasture

29111 ~~99~~ Rynchospora

Nov. 18 Iquitos  
public park

3° 47' S  
73° 16' W

01 Cleome

weed

02 Polypodium  
abundant epiphyte on  
Ficus trunk.

03 Hemigraphis colorata (Bl.) Hallier det. D. Wasshausen 1969

cultivated

woody vine,  
flowers cream-white.  
shrub 1 m. tall,  
flowers green.  
erect to ascending

small tree, flowers  
white.

shrub 1 m. tall,  
outer bracts scarlet,  
inner yellow; flowers  
yellow; fruit bright blue.

flowers pale lavender.

densely caespitose

flowers white

prostrate leaves deep  
purple. corolla white, caducous  
very readily.

4 - ① Nov. 20 - Transvaal, Pebas.

due ↓ second growth woods on slight elevation, clay soil.

9104 *Rantam canosa* L. common in openings

2. ? 05 ~~*Centropogon*~~ *Liphocarpus* occasional in bush

4. 06 occasional

7. 07 *Gonzalagunia* common in undergrowth

6. 08 *Lebelaginella* common in woods

4. 09 *Gonzalagunia* in woods in undergrowth

4 ✓ 10 Nov. 20 - Quelbrada just above Pebas inundated woods along river banks

2. 2. 10 *Paragonia pyramidata* (L. Rich.) Burdet. A. Gentry 1974 hanging from trees

30 10' 9  
71° 40' W.

shrub 1 m tall, flowers orange turning red.

shrub 1 m tall, flowers of rose pink, with white lobes, column white, anthers gray.

vine-like, climbing in bushes, flower blue-violet; fruit green, fleshy, dehiscent seeds with deep orange

slender shrub 1 m tall, flowers and fruit white. vine climbing in small trees and shrubs, sending rhizopodia down to soil, living on by these even after original connection with ground has rotted away.

shrub 1 m tall; flowers and fruit white. (appears to be a variation of #29117 with shorter denser spikes.)

large liana, flowers bright rose-purple.

1947 - Peru

Nov 20 - coming by boat  
from Iquitos to Pebas

Observed a phenomenon  
the origin of which is not  
at all clear.

Great stretches of the  
central part of the river,  
where the current is  
strongest, are filled  
with sticks, logs,  
stumps, etc. mostly  
long dead and rotting,  
with quantities of  
reeds, gramalote and  
other rubbish, and  
great numbers of dead  
fish of all sizes, many  
very large, mostly  
apparently cat-fish, relatives,  
and some other animals.  
The stench of the river  
was nauseating.

This has been passing  
Pebas for 2 days. It was  
reported above, passing  
Pucallpa and Contamana,  
and is said to be 15 days  
in extent, to have there  
contained human bodies  
and many dead animals.  
People were warned officially  
not to drink water from  
the river.

Loeto - Maynas

It is commonly thought  
here that the number of  
dead fish is augmenting  
constantly because the  
living fish with scavenger  
habits are eating the dead  
over and poisoning themselves.

General speculation asso-  
ciates the catastrophe  
with the earthquake  
of Nov. 1. Some think  
that a landslide must  
have occurred and  
filled the river with  
trees and perhaps released  
some chemical into the  
water. The fact that  
the sticks are old, rotting  
wood ones, obvious driftwood  
is against this.

Nov. 27 - Actually the duration  
of the serious part of this  
was about 4-5 days.

Certain theories ascribe the  
origin to damming up of  
quebradas by slides resulting  
from the earthquake, then  
sudden release, drowning  
animals and muddying  
water so as to suffocate  
the fish.

Probably it is really due to  
the sudden and month-early  
rise of the river.

Nov. 21 - Transvaal, Pebas  
 thick <sup>wet</sup> second-growth  
 woods on slight elevations,  
 formerly cleared for farms.  
 thick underbush & lianas

29117

29111 Miconia nervosa Triana (det. Wurdack (1968))  
 common along trails

↑  
?

down 5

same  
 along cleared trail in wet  
 woods

2

12

*Clidemia hirta* (L.) D. Don (det. Wurdack (1968))

4

13

*Clidemia dentata* D. Don (det. Wurdack (1968))

5

14

*Borreria*  
 common weed

4

same - to  
 wet forest badly  
 disturbed and logged  
 out, much undergrowth

15

*Isertia*  
 common

a hen was observed to  
 catch a 10 inch snake,  
 peck at it a few times,  
 then swallow it slowly,  
 tail first, still alive.

100 m. (6)

shrub 1.5 m. tall;  
 thyrse red, immature  
 fruit orange, ripe fruit  
 dull purple, fleshy, both  
 in same inflorescence  
 now seemingly intermediate

low shrub;  
 flowers white  
 low shrub; flowers  
 white; fruit dull  
 blue-purple.  
 erect; flowers white

tree 10 m. tall 12 cm. thick,  
 wood rather hard;  
 flowers vermillion,  
 with yellow hair within,  
 with small projections  
 without below sinuses.

29116

in undergrowth

13 17

4 18 *Cephaelis*  
rare in undergrowth

*Miconia lateriflora* Cong. (det. Wurdack (1968))

4 19  
rare in undergrowth

Nov. 22 - Pebas, Rio Ampiyacu  
"restingas" or high ground  
with ~~very~~ dense wet  
forest, partly second-  
growth, partly primary  
but with cedrela ~~logged~~  
out, trees tall, with  
canopy of vines.

2 20 *Heliconia schumanniana* Loes. det. 1982  
Anderson  
common locally in second growth

4 21  
occasional in second growth

6 22  
common

det. Kirkbride  
5 1977 23 *Psychotria poeppigiana* subsp. *barcehana*  
common in second growth

6 24  
rare in understory

15 25 *Cinchona magnifolia*  
rare and very local  
in second growth

- shrub 1.5 m. tall;  
- fruit immature.
- small tree 7 m. tall,  
lactiferous; flowers  
- pale green.
- shrub 1 m. tall;  
flowers and bracts  
- white.
- slender shrub about  
1 m. tall; flowers white.

reddish clay soil,

occasional very large  
trees even in second growth.

- erect, 1 m. tall, 2 spikes
- erect, bracts orange,  
- red distally.
- woody vine, fruit  
- crimson.
- slender shrub 2 m. tall;  
flowers greenish.
- shrub 1.5 m. tall; involucre  
red, deeply cup-shaped
- flowers yellow, fruit blue.
- slender tree 4 m. tall, fruit green.
- tree 15 m. tall, 16 cm. thick;  
leaves glossy; flowers  
white, fragrant; fruits  
green, variable in size.

(M.-Arg.)  
Steyerim

29126  
2 *Cephaelis*  
rare in undergrowth  
in second-growth.

7 27 *Couma*  
now rare, formerly common  
(mostly has been cut out)  
in second growth

3 28 *Costus*  
occasional in second growth

9 det  
Kirkbride, 1977

29 *Psychotria poeppigiana* subsp. *parcellana* (M.-Arg.) Steyererm.  
common in second growth  
in underbrush.

9 30  
occasional in undergrowth  
in second-growth

4 31  
in undergrowth in  
second growth.

4 32  
in second-growth woods

erect, flowers white.

straight tree 12 m.  
tall, branches horizontal,  
only in upper part,  
latex very abundant,  
with pleasant taste,  
white. "leche caspi"

~~for~~ latex harvested  
for chicle. Tree cut down  
laid on sticks, <sup>rings cut</sup> in bark to drain  
latex.

erect, spiral stems  
1 m. tall, leaves  
conspicuously spiral  
in arrangement;  
bracts and flowers yellow.

shrub 1.5 m. tall;  
involucre red, erect,  
deeply cup-shaped,  
catching water in rain,  
flowers yellow, fruit blue.

erect, un-branched,  
1 m. tall, bark very ~~thin~~  
tough, with a burning  
effect on mouth, delayed  
but lasting for hours;  
fruit orange, fleshy.

shrub 2 m. tall,  
pedicels thick, <sup>yellow</sup> ~~red~~  
fruit purple-black.

small tree, fruits  
pale green.



- 29133 *Duroia*  
rare in second growth
- 34  
rare in second growth
- 35 *Cephaelis*  
rare, in primary forest  
in small opening
- 36 *Tococa cf. juruensis* Pilger. det. Wurdack  
occasional in primary forest
- 37 *Geocordia*  
occasional on floor of <sup>primary</sup> forest
- 38 *Pithecellobium lactum* (P. & E.) Benth.  
<sup>primary</sup> det. R. Liesner 1982  
rare in woods in understory
- 39  
rare in primary woods
- 40 *felaginella*  
occasional along trail  
in primary woods.
- 41  
rare on wet banks  
of stream in ravine.
- 42 *Triolena amazonica* (Pilger) Wurdack  
rare on wet banks of  
stream in ravine
- 43 *Justicia emata* (L.) Lam. det. D. Wasshausen
- 43a *Pseuderanthemum* det. D. Wasshausen  
rare in wet ravine
- 44  
rare in primary forest
- 45 *Tococa guianensis* Aubl. s.l. det. J. Wurdack  
common in undergrowth

- shrub 2 m. tall,  
flowers greenish white.
- shrub; calyx and  
corolla bright yellow.
- shrub 1.5 m. tall,  
involucres purple.  
(plant not thriving)
- 1975) shrub 2 m. tall, fruit  
immature; bladders  
of leaves inhabited by  
ants.
- prostrate, scapes  
erect, ripe fruit scarlet.
- slender small tree  
4 m. tall.
- shrub 2 m. tall; fruit  
yellowish.
- leaves deep bronx-green;  
fruit scarlet.
- det. Wurdack 1978  
plant fleshy, infl.  
reddish, corolla white.
- erect <sup>up to</sup> 1 m. tall; flowers  
lavender.
- vine; fruit white  
with rose pink wings.
- shrub 2 m. tall,  
leaves with ants  
inhabiting bladders;  
flowers white.
- det. Wurdack 1969

1947 - Peru

- 29146 *Duroia*  
rare in primary forest
- 47 *Tibouchina*  
rare in primary forest
- 48 ~~*Beloperone*~~ *aphelandra neurosa* T. Anders. det. D. Warshausen  
rare in primary forest
- 49  
rare in primary forest.
- 50 *Miconia* det. J. Wurdack  
rare in primary forest
- 51  
rare in primary forest
- 52 *Duroia*  
rare in primary forest
- 53  
rare in secondary forest
- 54 *Polypodium*  
abundant on floor of  
second growth wood
- Nov. 23 - same  
second growth wet woods
- 55 *Couma*  
occasional, in wet ravine

- shrub, flowers whitish.
- shrub 1.5 m. tall;  
thyrse purple fruit green.
- ~~shrub 1.5 m. tall~~  
bracts rusty-red.
- shrub 1.5 m. tall; flowers  
greenish, stigma white,  
mace-shaped.
- shrub 1 m. tall.
- shrub 1.5 m. tall,  
fruit green.
- small tree with irreg-  
ular trunk, ants  
living in enlargements  
in twigs; flowers white.
- wine, extensive;  
bracts reddish; corolla  
yellow.
- small tree, very lactiferous;  
fruit green. "leche casti"  
latex harvested by  
cutting tree down,  
laying it across sticks,  
cutting rings around  
bark to drain out latex  
which is caught in leaves,  
used for chicha.

29156

rare, edge of clearing

5 57

occasional

6 58

*Sommera sabiceoides* Sch. det. Kirkbride, 1977

rare in wet ravine at edge of stream.

5 59

occasional in woods

8 60

*Wassylewiczia coccinea*  
occasional in woods

6 61

*Cephaelis*  
occasional in woods

4 62

common in woods

6 63

*Bertiera guianensis*  
occasional in woods

4 64

*Cephaelis*  
occasional in woods

3 65

*Peperomia*  
epiphytic on tree trunks

7 66

rare on side of wet ravine

8 67

rare on side of wet ravine

~~68~~

↑

unbranched shrub  
1 m. tall; fruit green.

shrub 2.5 m. tall,  
fruit green.

shrub 2 m. tall,  
much branched,  
flowers white.

tree 8 m. tall flowers  
white.

slender tree 10 m. tall;  
flowers yellow, enlarged  
calyx lobe scarlet.

shrub, 1 m. tall;  
bracts whitish, flowers  
bristly, white.

tree 12 m. tall; flowers  
white, fragrant,  
corolla lobes valvate.

shrub 2.5 m. tall,  
excurrently branched;  
thyrses drooping;  
flowers white.

shrub 1 m. tall; bracts  
whitish, flowers  
longistylous, white.

vine like.

erect shrub 1.5 m.  
tall; fruits white.

tree 10 m. tall,

1947 - Peru

4

same

~~open~~ clearing, dominated  
by andropogon, being  
encroached upon by  
Vismia, soil a fine white sand

29168

Scleria

4

common

2. 69

Xyris

in wet place

2. 70

Spathiphyllum

abundant near stream

1.

71

Psychotria cf. deflexa DC. det. Kirkbride,  
rare in brush

3.

72

andropogon

dominant in open ground

4.

73

Liparuna

in brush, common

x

Nov. 23 - Risampuyacu  
below Pebas

low margins of river,  
impounded at this season  
dense brushy woods

6.

74

Psidium densicomum DC. det. McVaugh  
dominant at river margin  
near mouth of river

Roreto - Maynas

caespitosa

flowers yellow.

spathe and spadix  
white (spathe green  
without); in flower,  
green in fruit.

1977

erect shrub, 1 m.  
long, fruit brilliant  
orange.

erect, small tufts

shrub 2 m. tall,  
with strong citronella  
odor, fruit dark red  
marked with green,  
dehiscent irregularly  
when ripe opening  
out flat, terminally.

tangled shrub with smooth  
bark, fruit immature  
"guayaba" "guayabilla"

1947 - Peru

29175 *Palicourea*  
4. common5. 76 *Myrciaria dubia* (HBK) Mc Vaughn det. Mc Vaughn  
*Psidium*  
dominant at river margin  
near mouth of river3. 77  
common in bushy margin  
of river4. 78 *Psidium acutangulum* DC. det. Mc Vaughn  
common in bushy  
margin of river

In the Amazon at this point and in the lower Ampiyacu there are two types of porpoises, a small blue-gray one and a large pinkish one. Manatees are supposed to occur, but more in the lakes.

Here the difference between high and low water may be as much as 10 m.

When I came here, Nov. 20, Rio Ampiyacu was clear and black. Nov. 23 it was muddy with Amazon water that had come from above through a ~~canal~~ natural

Loreto - Maynas

shrub, thyrse vermilion, flowers yellow; fruit blackish (rare)  
tangled shrub with smooth bark, flowers white.

wine, fruit pendent, immature.

tangled shrub; fruit immature.  
"quayabilla"

canal that is only open at high water

The system of agriculture here is to clear a patch <sup>burn it</sup>, farm it for 2 years, then abandon it to jungle. The tangled second growth resulting is called "purma".

The soil is a gray to yellowish or reddish clay. Down a short way is a stratum of clay mixed with small pebbles, mostly quartz. Occasionally there are patches of white sand. None of the "restinga" or high ground soils have much humus.

1947 - Peru

71

(23)

Nov. 23 - Puca Urquilla,  
9 km. above Pebas on  
Rio Ampiyacu

"restingas" a high  
ground, clay soil, with  
tangled second-growth  
forest.

79179 *Clidemia hirta* (L.) D. Don var. *tiliaefolia* (D.C.) Macbride  
(det. Wurdack (1968))  
common in undergrowth

2 80 *Sabicea*  
occasional in undergrowth

6 81  
common

7 82 *Palicourea*  
occasional

5 83 *Piper*  
common in undergrowth

1 84 *Sertia*  
common

10 85 *Gesneria* *Carinata*  
common on forest floor

5 86

3 87 *Clidemia hirta* (L.) D. Don var. *tiliaefolia* (D.C.) Macbride  
(det. Wurdack (1968))  
common in undergrowth

88 *Liparuna* *magnifica* Perk. det. R. Kiesner  
1982  
common in undergrowth

3° 8' S  
71° 43' W

low shrub, 1 m. tall;  
flowers white; fruit  
purple, fleshy.

- vine, twining in  
bushes; flowers white;  
- fruit rose purple.

- tree 7 m. tall; fruit  
- green.

- tree 9 m. tall; flowers  
and thyrse  
rose-magenta; fruit  
immature.

tree 10 m. tall.

- prostrate, scapes erect;  
flowers dull white;

- fruits bright scarlet.  
- vine; flowers dull  
purplish with yellow  
staminodes.

- shrub; flower white,  
- fruit bluish.

- semi-scandent shrub,  
unpleasantly aromatic

Nov. 24 - Pebas  
second growth woods  
on "restingas" a high ground,  
clay soil.

29-139

2  
4. 90 *Mandevilla*  
in ~~brushy~~ bushy opening  
in bushy opening

4. 91 *Clerodendrum thompsonae*  
persisting around old  
house site.

5. 92 *Tragia*  
in bushy clearing

6. 93 *Ficus*  
in bottom land of small  
stream, dense forest

4. 94 *Jussiaea*  
rare in woods

4. 95 *Passiflora*  
in undergrowth

1-96 *Jussiaea*

Nov. 25 Transvaal, mouth  
of Rio Ampiyacu, below Pebas,  
on Rio Amazonas

~~at~~ muddy river bank  
1. 96 *Ludwigia hyssopifolia* (L. Bon) Exell det.  
*Jussiaea* Ramamoorthy 1984  
rare

7. 97 *Jussiaea*  
common

lactiferous vine  
- ~~to~~ flowers bronzy-yellow  
vine; flowers  
yellow with large  
red center.  
- vine; calyx white,  
corolla red.

vine; flowers green.

large banyan-type  
tree, sterile, "lanchama"  
(pron. janchama), bark  
used to make a heavy  
bark cloth.

sterile sapling 3 m. tall.

liana, flowers  
scarlet.

flowers yellow, about  
5 mm. across, petals  
narrowly ~~oblong~~ oval.  
flowers yellow, about  
5 mm. across, petals  
narrowly elliptic.

1947 - Peru  
same - clearing on "restinga"

29198

*Borreria*

weed on bank above  
ravine

5.

99

*Henriettella sylvestris* Gleason det. J. W. W. deack 1969  
common tree in ravine

west bank of

Nov. 25 - Rio Ampiyacu  
below Pebas  
inundated margin  
of river

29200

*Annona muricata*

3.

01

*Crataeva benthamii* Eichl.  
common

5.

02

common

6.

03

occasional

4.

04

*Myrciaria dubia* (HBK) McV. det. McVaugh

7.

05

*Polygonum portoricense* Benth.  
local colony in  
shallow water at  
mouth of lake outlet  
det. R. Liesner 1981

5.

06

*Myrciaria dubia* (HBK) McVaugh det.  
common along margin of river  
on inundated land.

Porpoises are quite common  
along the lower part  
of the river. called  
"bufeo". come to surface  
to breathe and show

Loreto - Maynas

flowers white

tree 8 m. tall; fruit green.

small tree, flowers  
greenish, fleshy,  
fruit large, prickly.

- small tree
- shrub; leaves glossy,  
fruit pendent.
- shrub, flowers white,  
fruit immature.
- shrub; fruit immature.

erect, stems swollen,  
flowers whitish.

McVaugh

tangled shrub,  
fruit green, sour, imma-  
ture (purple and edible  
when ripe) "camucami"

heads very quickly,  
but move more slowly  
than sea furms.



1947 - Peru

Nov. 26 - Transvaal,  
mouth of Rio Ampiyacu,  
below Pebas, Rio Amazonas  
low bench, just about  
level of Rio Amazonas,  
inundated at really  
high water, wet woods  
with dense underbrush

29207

common at edge of water.

5. 08

edge of river.

3. 09

edge of river

3. 10

*Somnera sabiceoides* Sch. det. Kietbride,  
common

1977

4. 11

*Acalypha*  
common

4 -

same - restingas on  
high ground, with  
second growth wet  
forest.

6. 12

*Polypodium Wulffia baccata* (L.f.) Ktze.  
common on ravine slope  
in clearing

det. J. Cuatrecasas

3. 13

occasional in clearing

6. 14

*Jussiaea*  
~~rare~~ rare in forest

2. 15

*Styrax*  
rare in forest

Loets - ~~Ataria~~ May 1954

~~edge~~ slender small  
tree, 4 m. tall, flowers  
white.

- small tree 6 m. tall;  
flowers green.

- shrub 2 m. tall;  
fruit green.

- shrub 3 m. tall,  
flowers white.

- shrub 3 m. tall,  
catkins pendent,  
stigmas rose-red.

tangled herb; flowers  
white.

erect; flowers green.

sterile tree 10 m. tall  
(bark sample)

small tree; buds white

- 79216 1. *Palicourea subspicata* Huber det. Kirkbride, 1977  
rare in sparse undergrowth in deep shade
- 1. 17  
rare in sparse undergrowth in deep shade
- 2. 18 *Cephaelis*  
rare on steep slope in deep shade
- 1. 19 *Sanchezia peruviana* (Nees) Rusby det. D. Wasshausen  
ravine in weedy clearing
- 2. 20 *Sabicea*  
common on weedy slope in clearing
- 3. 21 *Geocardia*  
common in shade
- 4. 22 *Hamelia patens*  
common in woods
- 3. 23 *Manettia*  
weedy clearing, side of ravine.

↑  
Although the Inca empire did not come down into the lowlands of Amazonia, Quechua words are common down here -  
sacha = forest or of the forest  
yacu = water

- unbranched shrub 0.8 m tall; thyrse red, flowers yellow
- fruit green
- stem brown, greenish above, flower white.
- erect branched herb, bracts red, flowers yellow.
- vine, flowers white, fruit purple.
- prostrate; flowers white; ripe fruit scarlet.
- small slender tree 4 m tall, flowers orange-red; fruit black, glossy.
- vine, flowers dull reddish; fruit green.

*Pistia stratiotes* is common floating free in the river (large plants, mostly) and in the grass, etc. along the banks (small plants, mostly).

Nov. 24 - Ramon Castilla,  
Rio Amazonas, across  
from Leticia (Colombia)  
second growth wet forest  
on river bench

29224 *Couma*  
common

25 *Lindernia*  
common on silt soil of  
wet grassy clearing

The forests along the  
Peruvian Amazon are  
much like those of  
the Rio Ucayali, with the  
same process of land-  
building and cutting-  
away, the same succession  
of gramalote, caña brava  
and willow - setios (Cecropia-  
like) oje and young mixed  
forest - mature primary  
forest. Here the caña brava  
seems to become less  
abundant downward.  
*Capirona* (*Calycophyllum*)  
also diminishes to the  
point where it is no  
longer common.

Oje (*Ficus* of several species)  
remains the most  
common tree close to the  
river. A banyan-type  
*Ficus* reaches enormous

40° 13' S  
70° W.

shrub 7 m. tall, very  
lactiferous; flowers white.  
prostrate, flowers  
purple.

size - called llanchama,  
- but not too abundant.  
Bark used for bark cloth,  
as also occasionally of  
floating loose masses  
of "gramalote" the common  
reed-like grass of the  
river margin, up to  
some yards across, make  
up most of the "floating  
islands", but apparently  
have no body at all,  
carry no soil, and  
certainly do not serve  
a very important purpose  
in plant migration. Very  
occasionally a patch  
of broad-leaved vege-  
tation floats by - none  
were seen closely  
enough for examination.  
Also, on floating logs and  
tree trunks are occasionally

to be seen seedlings or plants growing in root crotches. Pistia and Eichornia, esp. the former, are abundant, floating in midstream and caught and reproducing in the gravelly margins.

The banks are predominantly low and flat, inundated at high water, with consequent deposit of silt. Here and there, more especially on the north bank, are patches of high ground called "restingas" largely of a red to yellow or grayish clay, occasionally varying to yellowish or white sand. The forest here is of a different composition from that on the low flats. The soil, after the coating of leaves is kicked away, almost lacks humus. These are usually occupied by settlements, but the land is only cultivated for a couple of years, then abandoned to forest - second growth or "puma". This is also the system

on the lowlands, but the period is apparently longer. Here the annual inundation adds a fertile silt layer each year, but if the flood comes unusually early, it may catch the rice, etc. unharvested (as in 1947) and destroy most of it.

The system of clearing, farming and abandonment of "chacras" results in widespread destruction of the primary forest. Logging out of Cedrela and Swietenia also has a destructive effect.

After some days of observation, I have reached the conclusion that wherever the forest seems to be of trees of uneven height, without a well-formed canopy, there has been clearing, or at least intensive logging. The giant trees that remain are simply ones that it was too much trouble to cut down. A great part of the jungle along the river is of this nature.

1947 - Peru

This does not, evidently, go back far from the river margin.

Even here, burning is universally practiced after clearing. It would not seem possible, but, after a few dry days, is.

Maize, <sup>Manihot</sup> Muzo, and rice are the principal things planted.

Manatees are rare and almost confined to lakes. Crocodiles are also much more abundant in lakes, especially now, when they have been hunted strenuously for their skins.

Piranhas or pañas are common, but found mostly in lakes.

Another fish, ~~the~~ the "carnero", described by some as a small catfish, but more probably a lamprey or hagfish, also is a hazard to swimmers in the river. It is particularly feared by the women as it is popularly believed that it will enter the vagina and bite inside. There is also a far-fetched story that it will enter the urethra and anus. At any rate, it does bite the flesh externally.

A gull-like bird with a very long yellow bill is common on the water, as is also a tiny one, like a snipe but size of a chickadee.

V (21)  
all same  
J

Dec. 1 - Caisada, <sup>above Teffé.</sup> opposite mouth  
of Rio Caqueta, Rio Amazonas  
Grassy wet pasture  
surrounded by and  
invaded by dense second-  
growth thickets

29716

in bush in pasture, rare

6 27 *Couma*  
dominant in certain  
bushy areas in pasture

1 28 *Justicia laevilinguis* (Nees) Lindav. det. D. Wasshausen  
rare in moist <sup>or wet</sup> areas in grass

3 29 dominant locally in pasture

1 30 rare in bush in pasture

1 31 *Turnera*  
local in pasture

5 32 *Fimbristylis*  
dominant in wet clay

6 33 *Jussiaea*  
common in wet clay

2 34 *Scleria*  
occasional around edges  
of clearing

2 35 *Justicia comata* (L.) Lam. det. D. Wasshausen 1969  
occasional, edges of clearing

2 36 *Dichromena*  
common in grass

2 37 *Peperomia*  
occasional in grass

3° 14' S  
64° 50' W.

erect shrub 1.5 m. tall,  
flowers yellowish.  
shrub 1-1.5 m. tall,  
very lactiferous; flowers  
white, corolla lobes reflexed.  
flowers rose-purple.

D. Wasshausen

prostrate to ascending.

erect shrub 2 m. tall,  
flowers yellow.  
flowers yellow.

caespitose, weak.

prostrate with ascending  
tips; ~~flowers~~ petals white.  
claws yellow.  
erect, fruit black.

flowers white,  
lips marked with purple.  
heads and involucre  
white  
succulent, erect.

- 29238 *Peperomia*  
common on branches of trees
- 39 *Croton*  
common in pasture
- 40 *Miconia longifolia* (Aubl.) DC. (det. Wurdack (1968))  
common at edge of bushy woods
- 41 *Heliconia*  
abundant in clearing
- 42 *Scoparia dulcis*  
occasional in pasture
- 43  
rare in wet grassy places
- 44 *Dioidia*  
common locally in pasture
- 45 *Hyptis parkeri* Benth.  
common locally in pasture
- 46 *Calopogonium mucunoides* Desv.  
common locally in pasture
- 47 *Hyptis brevipetala* Poit.  
occasional in pasture
- 48 *Solanum stramonifolium* Jacq.  
common locally in pasture
- 49 *Dioscorea*  
rare in ~~thicket~~ thicket in pasture
- 50 *Tococa coronata* Benth. det. J. Wurdack 1969  
common in thickets around pasture
- 51 *Psychotria*  
common in thickets around pasture

- Amazonas
- prostrate, succulent.
- bushy tree 5 m. tall, fruit yellow.
- erect
- erect, flowers pale green.
- flowers violet.
- prostrate, flowers white
- fruit fleshy.
- flowers white.
- vine; flowers lavender.
- aromatic; flowers white.
- vine climbing over bushes, flowers green.
- shrub 3 m. tall, with ants in pulps at base of leaves; ~~flowers~~ buds pink; fruits immature, apparently becoming blue above when ripe
- erect shrub 2 m. tall, flowers white.
- (galls)

1947 - 13 days  
above Teffé, mouth of Rio

Dec. 1 - ~~entrance to~~  
Teffé opposite mouth of Rio Caquetá,  
Rio Amazonas  
flood plain, inundated  
at high water, woods  
alternating with patches  
of reeds.

29252 Cissus  
4 common, climbing in trees  
over water.

1 53 Costus arabicus L. det. P. J. M. Meas 1983.  
occasional in undergrowth

1 54 occasional in woods

5 55 Palicourea  
common in undergrowth

5 56 Psidium? ovatefolium Berg. det. Mc Vaughn  
I common in woods

✓ (77) Dec 2 - 28 de Julio, above  
Codajas, Rio Amazonas  
cultivated and weedy  
land around village  
on silt plain that is  
rarely flooded.

3 57 weed in semi-shaded places

2 58 Crotalaria nitens H.B.K.  
weed in semi-shaded places

2 59 Phaseolus pilosus H.B.K.  
weed in semi-shaded places

3° 19' S  
64° 50' W

vine, panicles red,  
flat-topped; fruit immature

herb 2 m tall; flowers  
purple with white limb.  
shrub 2 m tall.

semi-scandent shrub  
3 m tall; thyrse red,  
flowers yellow, fruit immature  
shrub 6 m tall, many  
trunks from base  
fruit immature.

3° 44' S  
62° 25' W

cacao, mangoes, oranges,  
lemons, papayas, maize,  
yuca, and various  
ornamentals, such as  
Cosmos, Portulaca, Coleus,  
Zinnia patrifolia curcas,  
J. gossypifolia, Ocimum.

infl. glaucous

erect branched herb 1 m  
tall; flowers yellow.

vine; flowers yellow, ped  
coiled.



- 29260 Euphorbia  
1 common on bare ground
- 2 61 Borreria  
common in semi-shaded  
weedy places
- 3 62  
common in weedy places
- 1 63 *Desmodium canum* (Emel.) Sch. & Thell.  
occasional in semi-shaded  
places
- 2 64 *Commelina*  
common in weedy open places
- 1 65 *Malachra*  
weed in shaded places
- 2 66 *Theobroma cacao*  
cultivated
- 2 67 *Scutellaria agrestis* St. Hilaire  
planted as ornamental
- 1 68 *Pereskia*  
planted as ornamental
- 1 69 *Amaranthus*  
weed in shaded place
- 3 70 *Amaranthus spinosus*  
weed in semi-shaded places
- 3 71 *Panicum*  
weed in semi-shaded places

- prostrate, purplish.  
flowers white
- leaves and inflorescence  
glaucous.  
leaves glaucous  
beneath; flowers violet.
- ascending from  
prostrate main stems;  
petals blue, one smaller.  
flowers bright yellow  
"malva" used medicinally.
- dense rounded tree  
6 m. tall; sepals cream white  
petals cream-yellow  
with purple base, stamens  
deep purple.
- leaves deep purple beneath;  
flowers pale lavender,  
limb blue-violet with  
white patch in center  
of lower lip.
- rounded bush 0.7 m.  
tall; leaves fleshy; flowers pink.
- branched herb 1 m. tall  
panicle <sup>leaf</sup> purple.

- 29272 Sesamum  
3 planted
- 1 73 Vigna vexillata (L.) A. Rich.  
weed in thicket
- 1 74 Zinnia  
planted as ornamental
- 1 75 Ocimum  
planted as ornamental
- 2 76  
common weed in semi-shaded places.
- 1 77 Coleus  
planted as ornamental
- 2 78 Cosmos  
weed in open places
- 2 79 Portulaca  
planted in beds as ornamental
- 2 80 Passiflora foetida var. hirsuta  
weed in open place
- 1 81 Anacardium occidentale  
planted
- 3 82 Solanum nigrum L.  
weed in open places
- 2 83 Erechtites hieracifolia (L.) Raf. det. J. Cuatrecasas  
weed in open places
- 1 84  
weed in open grassy places
- 1 85 Ocimum  
planted as a condiment
- 86 Heliotropium  
weed

- branched herb 1.5 m. tall,  
flowers pale lavender.
- vine; flowers pale  
lavender, bed twisted.
- herb 1.5 m. tall;  
rays red.
- sterile, very pleasantly  
aromatic (like O. basilicum)
- sterile; leaves maroon  
marked above.
- herb 1-1.5 m. tall, ray-  
flowers purplish-red.  
Herbage aromatic when  
crushed.
- fleshy; flowers crimson,  
closed in morning (7 a.m.)
- vine; flowers white,  
~~corolla~~ corona segments  
with basal third purple.
- rounded tree 4 m. tall;  
flowers bony green  
"cashew"
- large branched herb,  
flowers white, fruit black.
- heads greenish-yellow.
- flowers deep yellow.
- very aromatic; flowers lavender.
- erect herb; flowers  
lavender.

29237

2

rare weed

2

38

Solanum

common weed

I

While above Leticia the restingas all seem to be on the north bank of the river, at Leticia they are on both sides. Below here none were seen on the north side, though they occur commonly along the south side, at least to well below the Catana, until near Codajas, what appear to be very low restingas appear on the north side. These, however, are so low that they may not even be the same thing, though they are not covered by high water.

The succession on built up lands changes somewhat on the Brazilian part of the river. The gramalote strip is still well marked, and stands of *Cecropia* are occasionally seen, but the *caña brava* belt becomes less and less marked. As one goes down the river it

shrub; flowers  
cream yellow.

shrub, m. tall, sparsely  
or not branched; flowers  
white.

almost completely disappears, except for occasional small patches of *Salix*. ~~This~~ *Gynerium* itself becomes more and more rare. None was seen below Codajas. This change in the succession seems to be correlated with an apparent dominance of the cutting away process over that of building up by deposition of bars. The vegetation on many of the large islands appears quite young, but practically none are to be seen below the mouth of the Rio Caquetá in either of the first two successional stages.

One seen in distance above Codajas that may have been covered by *Caña Brava*. The river here is 305 km. broad.

Nights of Dec. 1 & 2 noticed a few phosphorescent animals in river. Strong continuous light.

1947 -

~~Isle do Cariro~~  
Brazil

Isle do Cariro

Dec. 3 - Cariro, south  
bank of Rio Amazonas  
just ~~above~~ Rio Negro mouth  
salt plain high enough  
to be rarely if ever flooded,  
but here cleared and  
in cultivation

79 239

Acalypha

weed in manihot patch

4

5 90

common weed in dooryard  
and along paths, edges of  
of cultivated ground

91 *Stemodia peruviflora* Aiton  
weed in marsh

Dominant weed here is  
*Paspalum conjugatum*,  
which is also eaten by  
cattle.

One of principal foods  
is farinha, powdered  
up dried Manihot starch,  
toasted. Tasteless, mixed  
with soup, etc.

The region on the east  
bank of the Rio Negro  
is very high restinga,  
perhaps 40 m. with bright  
pink cliffs above the  
river. The debris at the  
bottom forms a hard  
sloping beach, that does  
not form a mud to dirty the river.

cult. Manihot esculenta

Passiflora sp.

Mangifera indica

Carica papaya

red mango

Citrus spp.

erect.

ascending; flowers  
white.

prostrate, flowers lavender.

The change from the  
muddy tawny waters  
of the Rio Amazonas to  
those of the Rio Negro  
is as striking as it  
has been described.

The difference is sharp,  
even bits of Rio Negro  
water imperfectly mixed  
with those of Rio Amazonas  
are clearly visible.

The Rio Negro is typical  
lean brown swamp  
water, as seen in the rivers  
of the New Jersey pine barrens.  
It gives an astonishing  
impression of purity,  
after weeks of the Amazon.  
Porpoises (small gray) were  
playing in it near mouth.

1947 - Brazil

✓ (14) Dec. 4 - 7 km. n.e. of  
Manaos  
high sandy restinga  
white sandy with  
open second-growth and  
thickets.

29292 Remigia  
3 rare in thickets

3 93 Borreria  
common along roadside

6 94 *Vismia*  
~~small~~ <sup>large</sup> common  
in thickets

4 95 *Alchornea* *cordata*  
in thicket

6 96 *Vismia*  
common everywhere

4 97 *Labiata*  
occasional in thickets

4 98  
occasional in open second-growth

Amazonas

The entire region  
back of Manaus seems  
to be second growth, in  
some places with some  
patches of larger trees persisting

sterile sapling 2 m.  
tall; leaf bases  
with bladders containing  
ants.

- erect; flowers white.

small tree, pubescent  
bright rusty, buds  
yellowish <sup>white</sup>.

- semi-scandent  
shrub 4 m. tall.

small tree; fruit  
green.

- twining vine; flowers  
white.

shrubs 2-3 m. tall,  
flowers white (2 plants  
represented in coll.)

Dec. 7 - Cafeyal, just n.e. of Belem

date ✓

Tall moist forest, mixed large trees and second growth on relatively high ground

29299 *Cephaelis* in weedy tangled cleared ground

29300 *Hirtella* in weedy tangled cleared ground and forest undergrowth.

01 in undergrowth, rare

01 *Cephaelis tomentosa* rare in undergrowth

02a *Coccoloba* on forest floor, occasional in duff.

14 03 *Syzygiopsis oppositifolia* <sup>Ducke</sup> rare tree in forest  
(*Pouteria oppositifolia* (Ducke) Baehni)

6 04 *Palicourea* common in bushy second-growth, rare in undergrowth.

7 05 *Heisteria sessilis* occasional in undergrowth.

06 *Palicourea* rare in undergrowth.

1° 25' S 48° 25' W

shrub 1 m. tall; bracts purple.

low shrub, flowers rose-purple.

involucre scarlet, smaller bracts yellow. prostrate, leaves dark bronze-green; flowers whitish.

tree 30 m. tall; fruits yellow when ripe, pulp around seed sweet, in astringent.

shrub 3 m. tall; flowers yellow, thyrse yellow with brownish-purple peduncles.

slender shrub 2 m. tall, flowers whitish.

slender shrub 1.9 m. tall, thyrse red; fruit green.

1947 - Brazil

- 29307 *Maieta guianensis* Aublet (det. Wurdack (1968))  
Tococa?
- 7 common in undergrowth
- 4 08 *Psychotria*  
rare in undergrowth
- 1 09 *Palicourea*  
rare in undergrowth
- 4 10 *Trichomanes*  
forest floor
- 11 *Piper*  
forest floor
- 1 12 *Carludovica*  
climbing on tree trunks
- 8 13 *Rhinorea*  
common in undergrowth
- 14 *Cephaelis*  
rare in undergrowth
- 5 15 *Cephaelis*  
common in undergrowth
- 7 16 *Casearia*  
occasional in undergrowth
- 2 17 *Cephaelis*  
rare in undergrowth
- 1 18 *Leiphaemora*  
rare in duff of forest floor
- 2 19 *Piper*  
occasional in undergrowth
- 1 20 *Piper*  
occasional in undergrowth
- 3 21 *Metaxya restrata* (Humb. & Bonpl.) Presl  
common in undergrowth
- 1 22  
occasional in undergrowth
- 7 23 *Marattia coccinea*?  
epiphytic on tree-trunk

- low shrub; fruit red.
- low shrub, fruits green. flowers white.  
fruit red, thyrse green.
- shrub 0.3 m. tall;  
fruit green.  
vine; flowers green.
- small flat-topped tree  
3 m. tall.
- shrub 0.7 m. tall;  
heads and bracts purple.  
suffrutescent herb;  
flowers whitish.
- shrub 4 m. tall,  
flowers white with  
rose-pink centers.
- sub-shrub, buds  
only.  
yellow
- subshrub; fruit green.
- subshrub
- det. Sellinger, 1978.  
fronds erect or ascending  
from erect rhizome.  
fronds ascending from  
erect rhizome.
- vine-like, flowers red  
on pendent inflorescences.

- 29374 Piper
- rare in forest
- 17 25 Lactia
- occasional in forest

~~Nov~~ Dec. 3 - Agua Preta  
(Urtinga), 5 mi. n. of  
Belém

weedy patches and  
desiccating ponds.

- 3 26 *Blechnum serrulatum* L.C. Rich
- common at edge of desiccating  
pond.
- 3 27 *Rhynchospora*
- common in mud of pool
- 5 28 *Mandevilla*
- common on stone wall
- 5 29
- common on stone wall
- 2 30 *Marsiphanthes hypnoides*
- common in weedy places
- 1 31 *Urospatha sagittifolia* (Rudg.) ~~Schott~~ <sup>det</sup> ~~Nees~~ <sup>1978</sup>
- in muddy pool
- 4 32 *Tetraplacus tauberti* Mez. det. D. Wasshausen 1961
- abandoned garden
- 2 33
- bare ground
- 2 34 *Friesea*
- common in desiccating pools
- 1 35 *Xyris*
- desiccating pool.

shrub, 1 m. tall

tree 40 m. tall; fruits  
fleshy, dehiscent "tuchava"  
very sticky with a  
milky sap (rest of  
plant not lactiferous)

1° 20' S 48° 27' W

5 m

det. Sillinger 1978  
fronds very erect.

caespitose, erect.

milky vine; flower  
yellow with red throat.  
lactiferous vine;  
flowers white.  
flowers ~~white~~ purple.

spathe bronze green

flowers violet  
with white center.  
prostrate, flowers  
yellowish white.

flowers yellow.





Para (unclear)

29376

5 common in desiccating pools

4 37 Melampodium  
common in weedy ground

1 38 Panicum  
desiccating pool

1 39 Tonina fluviatilis  
desiccating pool

3 40 →  
in patch of forest  
in old cacao plantation

6 41 Geocardia herbacea  
common on floor of

Dec. 8 - Cacaosal, Instituto  
Agronomico del Norte,  
Belem

broken forest around  
old cacao plantation  
and old ruins

3 42 Codonanthe ~~calcarata~~ calcarata (Miq.) Hanst.  
epiphytic, growing  
out of ant nest on tree trunk

6 43 Inga ingoides (Rich.) Willd.  
common in forest

1 44 Peperomia  
epiphytic, growing  
out of ant nest on tree  
trunk

Dec. 9 - Instituto Agronomico  
del Norte, Belem  
dry weedy roadside

7 45 Hedryotis  
common on bare ground

flowers yellow

large tree

branching, fleshy,  
vine-like

tree 8 m tall.

fleshy vine.

1°25'S 48°27'W  
5m

diffuse; flowers pale lavender

1947 Brazil

29346 *Cinchona* (*Remigia amazónica*  
cultivated in lath-house)

I

Dec. 5 - Belterra, Rio Tapajoz  
26 mi. above Santarém  
weed in open ground  
in rubber plantation

47

unbranched or sparsely  
branched shrubs 1-3 m.  
tall, varying in leaf  
size, pubescence, and  
in whether or not valves  
of fruit split at apex,  
sometimes both entire  
and split valves in  
same capsule.  
flowers white.

prostrate, heads greenish.

Dec. 12 - flying from  
Maracairé to Barranquilla.

The low rocky hills  
of the Guajira peninsula  
are separated from the  
northern extremities of  
the Cerros de Perija by  
flat lands slightly above  
sea level.

The valley of Rio Cissas  
between the Cerros de  
Perija is definitely a  
syncline, running  
about n.e. - s.w., not  
a stream cut valley.  
Thus it is open at both  
ends, though the river  
flows to the Magdalena.  
Along the n.w. side runs  
a ridge representing  
the uppermost bed,  
which has broken off  
~~into~~ forming an  
escarpment parallel  
to the Cerros de Perija but  
across the valley from it  
at the foot of the east  
end of the Sierra Nevada.  
This is true at the n.e.  
end, at least.

The north slope of the  
Sierra Nevada is  
densely forested, at  
middle altitudes, when

we passed, a dense layer  
of clouds nested  
against the flanks  
of the mountain.

In the big lagoon  
between the west  
end ~~is~~ of the Sierra  
Nevada were two  
villages built  
out in the water,  
on stilts, with no  
contact whatever  
with land. In the  
larger one were well  
over 100 houses, perhaps  
more.

Sailing canoes are  
the means of transportation.

There are extensive  
mangrove swamps  
around this lake.

(100)

Dec. 13 - El Pedregal, about 10 km. s. of Mexico City,

Dry lava flow, surface bare and clinkery, with sparse brushy vegetation

29348 Selaginella forming patches on bare sloping rock

3 49 Plumbago common

3 50 Porophyllum (or Tagetes) commonest herb in open places

1 51 Renecis praecox (Cav.) DC. det. J. Cuatrecasas very common

4 52 Wigandia common

23

Dec. 13 - San Andres, 16 km. s. of Mexico City dry volcanic slope, weedy

2 53 Galium common

4 54 Loeselia mexicana (Lam.) Brand. common

2400<sup>m.</sup> est.

Commonest shrubs a fleshy-stemmed Renecis Wigandia sp. etc. Schinus molle, etc.

prostrate

spreading suffrutescent herb, flowers ~~pink~~ blue-lavender, very strong nauseating odor, flowers deep yellow with red markings more or less developed toward center of ~~ligule~~ <sup>ligule</sup>. stems fleshy, leaves shed from most individual at this season, ~~fls~~ heads yellow. shrub 2 m. tall, young portions of stem with stinging hairs, ~~the~~ lower parts glandular! one branch glandular to inflorescence - all sheets from same plant, flowers purple.

2500m. est.

prostrate, tangled.

det. D. Wasshausen 1969

suffrutescent herb, much branched at base, branched; flowers scarlet, some

what? Hippocrepis?

Dec. 13 - hills above San Andres,  
18 km. s. of Mexico City.

dry volcanic slope, weedy  
edges of cultivated ground,  
ravine sides, etc.

29755  
3

*Sedum*  
occasional, rocky place

5

56 *Hypericum*  
occasional, weedy road cut

1

57 *Galium*  
occasional, ravine walls  
and road cuts

6

58 *Salvia lavanduloides* Kunth  
common

3

59 *Erigeron* det. J. Cuatrecasas  
common

1

60 *Alchemilla*  
occasional

3

61 *Oxypetalum*  
occasional

2

62 *Selaginella*  
common in rocky places

3

63 *Prunus serotina*  
common along highway

101

Dec. 14 - Selva oscura, km. 65 on  
highway to Vera Cruz, just over  
high pass  
Pine forest

5

64 *Rosa*  
common on earth banks

2602 m. alt.

fleshy, stems faintly  
purplish, roots fascicled,  
fleshy; flowers white  
with pink tips to petals.  
much branched at base, erect.

roots yellow, from  
slender rhizomes,  
plant prostrate, tangled  
bushy suffrutescent  
aromatic herb, stems erect;  
flowers blue-violet.  
erect; rays white,  
disk greenish, turning  
reddish.

scape reclining

plant weak; flowers pink.

curling up, with dryness.

much branched tree 6 m.  
tall; flowers white.

1100 m (alt)

prostrate, matted.

29365 Crataegus  
common along ravine

Dec. 17 - ~~at~~ Mountains  
west of Apapantillo

wet ridge with second  
growth bushy woods

66 Gouania  
common

67 Piper  
in undergrowth

68 Passiflora  
common

69 ~~Scroph. (H. ...)~~  
rare in undergrowth

70 Phyllanthus  
weed along trail

71 Borreria laevis  
weed along trail, common

72 Hedyotis  
common weed along trail

73 ~~...~~  
rare weed along trail

74 Hamelia patens  
rare in brush

(105) Dec. 17 - (10 km. N) Pachuca - Tzucpa road  
20 km. e. of Pachuca, Hidalgo  
slope of rather unweathered fine  
volcanic tuff

75 Eupatorium  
common

tree 5 m. tall, fruit green.

800 m. alt.

20° 20' N

97° 55' W.

liana, fruit green

shrub 1.5 m. tall,  
spike red.

small tree 5 m. tall  
leaves badly galled, fruit  
immature.

elongate suffrutescent  
herb, 1.5 m. tall; flowers red.

flowers white

ascending to erect, flowers  
white.

erect, roots fleshy, flowers  
yellow.

shrub 1 m. tall; flowers  
orange-red.

2500 m. alt.

flowers white.

29376 *Buddleia*  
common

77 *Dalea*  
common

78 *Paronychia*  
common

79  
common

Dec. 17 - Heredia, 5 km. w. of  
Tehuacotal, about 1700 m  
Pachuca - Tuxtepec road,  
Pine forest (Pinus # 29381)

80 *Laguna*  
in ravine, near <sup>small</sup> stream

81 *Pinus*  
common, also planted for  
reforestation nearby.

82 *Salvia elegans* Vahl  
occasional along small stream

83 *Acaena elongata* L.  
common along small stream

84 *Alchemilla*  
common in mud along small stream

85 *Drymaria nummularioides*  
common in mud of small stream

86 *Galium*  
rare in mud along small stream

tree 4 m. tall

tangled dwarf shrub;  
flowers deep rose-purple.  
prostrate, mat-forming,  
spreading  
flowers lavender

prostrate, flowers white.  
petals entire.

tree 14 m. tall, 25 cm. thick,  
leaves conspicuously drooping.

spreading herb; flowers  
scarlet.

prostrate, flowers  
green.

prostrate

prostrate; fruit black, fleshy.



- (191)  
 Dec. 18 - 5 km. e. of Huauchirango,  
 on Pachuca-Tuspan highway  
 bushy, weedy road  
 embankments
- 29387 *Erigeron karwinskianum*  
 common on weedy slopes
- 5 88 *Tibouchina* cf. *rufipilis* (Schl.) Cogn.  
 on weedy slope
- 2 89 *Centropogon*  
 bushy slope
- 2 90 *Euphorbia*  
 weedy roadside
- 3 91 *Geranium*  
 weedy slope
- 2 92 *Galium*  
 weedy slope

- (105)  
 Dec. 19 - Aroyo de Santa Maria,  
 Panamerica Highway, about  
 halfway between Colonia and  
 Actopan, n.w. of Pachuca, Hidalgo  
 rocky outcrops, sides  
 of arroyo, with shrubs
- 3 93 *Selaginella*  
 common in rock crevices
- 1 94 *Verb.*  
 rare weed along roadside
- 1 95 *Galinsoga*
- 4 96 *Drymaria*  
 common between rocks

1050 m. alt.

93° W.

20° 10' N.

plant decumbent to  
 ascending; rays white  
 to pinkish, disk greenish.  
 suffrutescent herb,  
 flowers rose-pink.  
 sprawling shrub  
 1.5 m. long; corolla <sup>corolla</sup> red  
 with yellow lobes, ~~staminal~~  
 filament tube reddish,  
 anthers brownish gray.  
 plant sprawling,  
 lactiferous; glands white.  
 elongate, several stems  
 from root; flowers pink.  
 vine like, roots yellow;  
 flowers white.

2500 m. alt.

and cacti of various sorts.

prostrate

odor disagreeable, oily;  
 flowers white.  
 rays white.  
 erect or ascending; <sup>petals</sup> flower  
 white, bifid at apex, subequal  
 with sepals.

97 *Salvia reflexa* Hornem<sup>m</sup> det. Ramamoorthy 1984  
common but mostly dried up

98

rare, between rocks

5 99 *Artemisia*  
common in rocky ground

29400 *Rhamnus*  
5 common

01 *Reseda*  
weed along road  
Dec. 19 - Hills just west of  
Tasquillo, above Tula River,  
Panamerican highway, Hidalgo  
rocky cactus-covered hill,  
badly grazed by goats

02 *Acalypha*  
rare

03  
rock crevices on vertical banks

04 *Selaginella*  
rocky banks and crevices

05  
common shrub

06  
common

07 *Asclepias linifolia* det. Spellman,  
occasional

08 *Cheilanthes*  
common in rock crevices

09 *Cheilanthes*  
rare in rock crevices

10 *Evolvulus*  
rare on open ground between rocks

11 *Celtis pallida*  
common

flowers pale lavender

erect, very aromatic

rounded bush 1 m.  
tall, fruit brownish red.  
flowers pale yellowish

20° 35' N  
99° 20' W  
6000'  
1850' m

prostrate

gray; flowers white

rosettes tending to curl  
up with dryness.  
shrub 1.5 m. tall.

spreading flowers purple.

1978

suffrutescent herb,  
densely caespitose;  
flowers white.

spreading; flowers blue.

shrub 1.5 m. tall; fruit yellow,  
juicy.

29412 Drymaria  
rare

~~29412~~  
Dec. 19 - Ximapan, Hidalgo  
in park.

29413 Taxodium mucronatum  
5

Dec. 19 - Barranca de los  
Mármoles, mountains  
~~south~~ north of Ximapan  
scrubby coniferous (Pines - Cupressus)  
forest on limestone slopes.

14 Cupressus  
one of dominant trees

15 Cuphea  
common on slopes between trees

Dec. 19-20 - mountain slopes  
south of Jacala  
bushy slopes, Rhus most common

16 Rhus schiedeana Schlecht. ♂  
common

17 Berberis  
occasional in brush

18 Rhus schiedeana Schlecht. ♂  
common

19 Croton  
common

20 Dodonaea viscosa  
common

flowers white

~~745 m. (est.)~~  
1700 m. est.

enormous tree, about 15 m.  
tall, 4 m. through at base,  
branchlets pendulous.

20°45' N  
99°20' W.

Cupressus)  
7300'

small tree 5 m. tall,  
branchlets pendulous,  
erect; flowers rich purple.

900 m. est.

21° N  
99°10' W.

shrub 1.5 m. tall; flowers  
white, center yellow, turning  
red.

tall sparsely branched  
shrub 3 m. tall, inner  
bark yellow. fruit green.

shrub 1 m. tall, flowers  
white ♂.

shrub 0.6 m. tall.

tall shrub, 2 m. tall, fruit  
2-4 - red.

- 79421 *Rhamnus*  
common
- 22 *Rhus trilobata*  
common
- 23 *Vernonia*  
very common
- 24 *Rhus schiedeana* Schlecht. ♀  
common
- 25 ~~Lobelia~~ *Hedeoma*  
occasional
- 26 *Lobelia*  
rare
- 27 *Rhus schiedeana* Schlecht. ♀  
common
- 28  
common
- 29 *Salvia*  
rare in openings
- 30  
common in thickets
- 31 *Castilleja*  
rare in openings
- 32 *Euphorbia*  
in burned spot
- 33 *Euphorbia*  
common in burned spot
- 34 *Euphorbia*  
common in burned spot

- shrub 1 m. tall, rose color,  
much branched, fruit  
black when ripe.
- low & criss shrub flowers  
bracketed base of leaves.
- low shrub; flowers  
bright purple
- shrub 1 m. tall; flowers  
white; fruit immature.
- erect, flowers purple
- flowers purplish.
- low shrub; flowers white,  
fruit immature, fragrance  
unpleasant
- prostrate; rays orange,  
disk black.
- spreading herb 1 m.  
long, flowers blue-violet.
- shrub 3 m. tall.
- calyx green, bracts  
scarlet distally
- prostrate
- prostrate
- prostrate

Dec. 20 - on bank of Rio Axtla  
 1 1/2 miles S of Amoyaco, 10 mi.  
 south of Huichihuyan, 20 mi.  
 beyond Tamayunchato on  
 Panamerican Highway, S.P.  
 Coffee plantation shaded  
 by native trees, wet vege  
 of river, at foot of hills

29435 Piper  
 common at edge of plantation

7 36 Faramea  
 shaded

5 37 Psychotria  
 common in edge of plantation

det. Schomer  
 41 ~~38~~ 38 *Desmantha* *Chenissa* *altissima* var. *altissima*  
 1946 common in edges of plantation (Jacq.) HBK

5 39 Panicum  
 occasional in shade

4 40 *Oplismenus* *hirtellus*  
 abundant, common carpeting ground  
 in plantation

3 41  
 common under trees

1 42 *Rivina* *humilis*  
 occasional along road

1 43 *Phyllanthus*  
 common at edge of plantation  
 in sun.

1 44 *Acalypha*  
 common on roadside

21° 25' N  
 98° 50' W

250 m. est  
 100 m.

shrub 1 m. tall; spikes  
 erect.

shrub 2.5 m. tall,  
 fruit not quite mature.  
 weak shrub 1 m. long;  
 ripe fruit red, ripe and  
 green both in same inflorescence.

vine, sprawling in  
 other vegetation  
 elongate, loose culms

prostrate, spikes ascending.

ascending; petals 3,  
 equal, white.  
 flowers white, fruit red.

shrub 2.5 m. tall.

Dec. 21 - 17 mi. north of Valles,  
~~San Luis~~ on Panamerican  
 highway, San Luis, Potosí  
 flat plain, rather dry  
 second growth thorn forest  
 with scattered trees.

- 2 445 *Crescentia*  
occasional
- 4 46 *Lantana velutina* f. *violacea* Moldenke det. Moldenke.  
common
- 4 47 *Azadirachta*  
common
- 4 48 *Bougainvillea*  
common
- 4 49  
occasional
- 4 50 *Lantana camara* f. *aculeata*  
occasional

Hills between Antigua Morales  
 and Rio Marsuiza on San Luis, Potosí  
 road covered by dense thorn  
 forest or rainy-green forest.

A conspicuous element is  
 a tree with grass-like leaves,  
 a cylindrical inflorescence of  
 small flowers, and a huge  
 swollen base - *Beaucarnea*

Rio Marsuiza valley filled  
 with labal forest, partly  
 cleared for cultivation.

150 m. alt. Much of this area north  
 of Valles is thorn forest, of a  
 99° W. dense bushy type, also much  
 22° 12' N labal forest.

small rounded trees  
 6 m. tall, fruit spherical,  
 borne on trunk and larger  
 branches, shortly pedicelled.  
 low slender shrub,  
 internodes glaucous purple,  
 spreading from crown.

erect; flowers white.

low tangled subshrub  
 herb, flowers deep violet.  
 shrub 1 m. tall; flowers  
 orange, turning bright red.

As toward falls becomes  
 tangled thorn forest.

The falls is where the  
 river descends over limestone  
 bluffs into a deep canyon.

The water is evidently  
 charged with CaCO<sub>2</sub> and is  
 of a vivid blue-green color.  
 Travertine is abundantly  
 deposited and below the fall  
 forms series of pools  
 surrounded by irregular  
 dikes with water spilling over  
 edges.

Dec. 21 - Rio Naranjo at  
lower falls of El Salto

Brushy bluffs and flats  
above them with tangled  
second-growth forest.

29451

in brush at top of canyon wall

3 52

on open

53 *Ruellia*

edges of

5 53 *Randia*

occasional at cliff top in brush

6 54 *Celtis*

common in tangled forest

58

Dec. 21 Rio Naranjo at  
foot of upper falls of  
El Salto

Travertine ledges and  
cliffs, and soil formed  
from limestone, brushy  
open woods, mainly *Taxodium*

7 55 *Beloperone guttata*  
common in moist brush  
near base of falls

4 56 *Ruellia menthaefolia* Leonard sp. ined.  
occasional in edges of

600 m. est.

99° 20' W

22° 40' N

low tangled shrub,  
flowers cream-white,  
turning brown.

vine growing on open  
rocky top of cliff.

rigid shrub, 1 m. tall,  
fruit pale green.

woody thorny vine,  
fruit orange-yellow  
when ripe.

99° 20' W

22° 40' N

600 m. est.

low slender shrub,  
bracts rust color, spikes  
nodding, corolla white  
with purple marking  
on lower side  
rooting at nodes,  
flowers purple.

det. D.  
Wasshausen

- 29457 *Parthenium*  
occasional in ~~brush~~ open
- 58 *Psychotria*  
occasional in brush  
at edges of cliffs
- 59 *Lippia hypoleia* Briq. det. Malldenke  
occasional in thickets
- 60 *Nama jamaicense* L. det. H. Robinson '69  
common on wet rocks
- 61 *Regonia franconis* Liebm. det. L.B. Smith  
common on wet rocks
- 62 *Galvesia*  
common on cliffs
- 63 *Borreria*  
occasional along trail
- 64 *Teucrium cubense* Jacq.  
common on flat semi-open  
ground.
- 65  
rare in brush near  
foot of falls
- 66 *Hypoxis*  
rare on wet soil near foot
- 67 *Hedyotis*  
rare on wet rocks near  
foot of falls.
- 68 *Lobelia*  
occasional in edges of  
brush on flat ground
- 69  
common in open places  
on flat ground
- 70 *Rhus toxicodendron*  
rare on travertine near water

- flowers whitish.
- low shrub, fruit  
red, fleshy when ripe.
- small tree, 4 m. tall,  
aromatic, flowers white.
- prostrate, flowers  
white.
- stem fleshy, flowers  
white.
- scandent shrub;  
flowers scarlet.
- flowers white.
- flowers white.
- erect branched shrub;  
collar white, falling  
readily.
- flowers yellow
- flower white
- flowers <sup>blue-</sup>violet and white.
- shrub 1.5 m. tall;  
rays yellow.
- creeping, sterile



29471 *Taxodium mucronatum*  
 2 dominant tree along river banks

72 *Azemia*  
 1 common on travertine  
 ↑

small tree, others  
 very large, swollen  
 at base, branchlets  
 pendulous.  
 fronds erect.

162

163

Jan. 10 - trip by U.P. R.R. through Valley of Platte from west of Kearney to North Platte, Ogallala, Julesburg, ~~to~~ Sidney, etc.

The country west of Kearney is flat, bare, and with trees only around farms and along watercourses. The low rounded contours of the sandhills lie in the distance to the north.

As North Platte is approached the line of low bluffs south of the Platte is to be seen. The bottom-lands are dominated by cottonwoods and low reddish brush that may be willow or *Cornus*, probably willow.

The general color is a rich tawny yellow in the sun, with patches of old-rose dried andropogon. Wheat and corn fields are the dominant feature. The complete lack of snow is

surprising at this season.

East of Ogallala the divide between the two forks of the Platte is marked by low rounded hills with occasional outcrops of flat sedimentary bed. Hilly country is common from here west low rounded knolls, marking the ~~soo~~ north scarp of the South Platte ravine. This is high prairie pasture with dried grasses. Andropogon, and abundant clumps of a caespitose, scapulent *Yucca* with a low flower stalk. It is pretty thoroughly grazed and difficult to identify much else, except *halimolobos*. Even *Populus* becomes scarce west of Julesburg except around villages and farms. The South Platte bottom is largely cultivated.

1948 Feb. - Wyo.

In extreme western Nebraska the railroad runs through a ravine with low bluffs of flat sedimentary beds with a sparse vegetation of small pines.

Eastern Wyoming is rolling grassland with ravines. It seems completely treeless outside the towns. There is still no snow except in treeless places.

Still west of here, but east of Laramie, is a region that is almost a peneplain, low rocky outcrops with expanses of alluvium between them. The alluvium is grassland. The rock knobs are sparse scrubby pine forest. The rock seems to be a coarse red granite or gneiss. The rock and the pines become more abundant as we climb to the westward.

174

175

PLANTS OF PERU  
Dept. de Loreto

Locality *Tanarivali, below*

PEBAS (Pevas), at mouth of Rio Ampiyacu,  
on Rio Amazonas, Prov. de MAYNAS

Lat. 3°10' S. Long. 71°40' W.

Occurrence *Common in low brush with*  
*along rivers, clay soil or mixed sand and clay*

Date ~~Nov. 20-24~~, 1947 Alt. 100 m. (estimated)

Coll. F.R. Fosberg No. *29207*

Remarks *Slender small tree, 4m. tall;*  
*flowers white.*

1947 Cinchona Expedition

PLANTS OF PERU

Dept. de Loreto

Det.

Locality *Transvaal, below*  
PEBAS (Pevas), at mouth of Rio Ampiyacu,  
on Rio Amazonas, Prov. de MAYNAS

Lat. 3°10' S. Long. 71°40' W.

Occurrence *Common at edge of water on low bench just*  
*above level of Rio Amazonas, inundated at*  
*really high water, wet woods on "restinga" or high ground with dense undergrowth*

along rivers, clay soil or mixed sand and clay

Date Nov. 26-27, 1947 Alt. 100 m. (estimated)

Coll. F.R. Fosberg No. 29207

Remarks *Slender small tree, 4m. tall;*  
*flowers white.*

1947 Cinchona Expedition

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*high water, wet woods on "restinga" or high ground with dense undergrowth*

along rivers, clay soil or mixed sand and clay

Date Nov. 26-27, 1947 Alt. 100 m. (estimated)

Coll. F.R. Fosberg No. 29207

Remarks *Slender small tree, 4m. tall;*  
*flowers white*

1947 Cinchona Expedition

# PLANTS OF PERU

Dept. de Loreto

Stachytarpheta

Det.

Locality Environs of

PUCALLPA, on Rio Ucayali,  
Prov. de Coronel Portillo

Lat.  $8^{\circ}26'S.$ , Long.  $74^{\circ}36'W.$

Occurrence Common along roadsides  
rain-forest region, ~~benches and steep slopes,~~  
~~partly shaded~~

Date Nov. 1, 1947 Alt. 180 m. (estimated)

Coll. F.R. Fosberg No. 28922a

Remarks Erect much branched herb 1 m. tall;  
flowers lavender.



In city 28922.



