mencionar que la Republica de Honduras es la única en Centro América que ha creado, desde hace algunos años un Ministerio de Recursos Naturales.

Pero no basta lo hecho. La parte más grande de la tarea queda por delante. Y he aquí dónde reside la responsabilidad de cada Zamorano. He aquí su puesto de lucha en el complejo ecológico. Esta es su tarea y ha de desarrollarla con alegría; con convicción y voluntad; con constante y dinámica consecución; con fecundo ordenamiento de ideas y con inquebrantable fe y energía; con sentido filosófico; con sentido de orgullo y lealtad a esta Escuela, con sentido patriótico, con respeto y amor al prójimo presente y futuro —con sentido conservacionista.

Jóvenes "Zamoranos" si con estas palabras he logrado despertar en Uds. una inquietud y una preocupación por los recursos naturales renovables de sus países me sentiré satisfecho.

A KEY TO THE TRIPINNATE AND BIPINNATE LEAVED TREES OF COSTA RICA

By
L. R. HOLDRIDGE [1]

The following key attempts to provide a simple means of identification for the twice — or thrice-pinnate leaved trees of Costa Rica, utilizing only vegetative characters. Tree ferns are not included, nor are rare exotic trees with bipinnate leaves which are occasionally seen in plant collections. Some of these may become of more general ocurrence in the future, but are not at present considered to be sufficiently common to warrant inclusion. Specific ranges within the country and a few additional notes are given as supplementary aids, following the key, as well as the total range, which will be of help in tracing individual species in the literature.

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One of the major difficulties encountered has been that of determining the correct scientific name for some of the species, or, in some cases, whether one, or more than one species was involved. Though tentative decisions have been reached, no pretension is made that these are final, since such matters must await further taxonomic study.

The key has received little field testing subsequent to preparation and the author would appreciate any comments or suggestions for its improvement.

A Leaves tripinnate, or at least partly so at base of leaf
B Leaflets toothed.
Petiole more than 5 mm. in diameter.
Sciadodendron excelsum

Petiole less than 5 mm. in diameter.
Melia Azederach

BB Leaflets entire.
Moringa oleifera

AA Leaves bipinnate only
C Leaves opposite
D Peciolules winged
Jacaranda lasiogyne

DD Peciolules not winged
Leaflets 2 to 6 cm. long or longer
Jacaranda Copaia

Leaflets less than 2 cm. long
Jacaranda acutifolia

CC Leaves alternate
E Leaflets toothed
Leaflets more than 10 per pinna
Dipterodendron costarricense

Leaflets less than 10 per pinna
Melia Azederach

EE Laflets entire
F Branchlets spiny
G Leaflets more than 1 cm. wide
H Leaflets hairy beneath at base on narrow side
Peciolules somewhat flattened
Pithecolobium oblongum

Peciolules sulcate above but not flattened
Pithecolobium dulce

HH Leaflets not hairy beneath at base on narrow side
Pithecolobium lanceolatum

GG Leaflets less than 1 cm. wide
1 Petiole or rachis or both with glands
2 Pinnae less than 4 pairs

Prosopis juliflora

22 Pinnae 4 or more pairs
3 With glands on the rachis at all or most of the insertions of the pairs of pinnae
4 Spines short, recurved

Acacia riparia

44 Spines long, straight or of the hollow, bullhorn type on older branches
Without glands on petiole

Acacia melanoceras

With glands on petiole

Acacia Cookii

33 Without any glands or with glands on the rachis at less than half the insertions of the pairs of pinnae
5 Spines of hollow, myrmecophilous, bullhorn type
6 Stipular spines united for about one half their length

Acacia Hindsii

66 Stipular spines united for much less than half their length
With 2 to 4 conic glands on the petiole

Acacia costarricensis

With 1 petiolar gland much longer than wide

Acacia spadicigera

55 Spines slender, solid, not myrmecophilous
Leaflets 1 mm. wide

Acacia Farnesiana

Leaflets 2 to 3 mm. wide

Acacia glomerosa

11 Petiol and rachis without glands
Rachis less than 2 cm. long, spine-tipped

Parkinsonia aculeata

Rachis much longer than 2 cm., not spine-tipped

Caesalpinia pulcherrima

FF Branchlets not spiny

I Leaflets less than 1 cm. wide

J With glands on the petiole or rachis or both

1 With glands between all or at least the lower half of the pairs of pinnae

2 With glands between 2 or more of the terminal pair of leaflets of the pinnae

Leaflets 5 to 20 mm. wide

Pithecolobium costarricense

Leaflets 2 to 3 mm. wide

Pithecolobium pseudo-tamarindus

22 With a gland between the terminal pair of leaflets only or with no glands between the pairs of leaflets

3 Pinnae 8 pairs or more

Pithecolobium arboreum

33 Pinnae less than 8 pairs

Leaflets densely whitish-pubescent on lower surface

Albizzia nicoyana

Leaflets glabrous or nearly so beneath

Pithecolobium sophorocarpum

11 With a gland between only 1 to 3 of the terminal pairs of pinnae or without such glands

4 With a gland between 1 to several of the terminal pairs of leaflets on the pinnae

5 With a gland between the terminal pairs of pinnae

6 Leaflets lighter green beneath.

Leaves and branchlets conspicuously pubescent as seen with the naked eye; apices acute

Albizzia carbonaria

Leaves and branchlets not conspicuously pubescent as seen with the naked eye; apices obtuse

Albizzia caribaea

66 Leaflets concolorus above and below

Only the costa extending over half the length of the leaflet

Enterolobium cyclocarpum

Other veins as well as the costa extending over half the length of the leaflet

Acacia glomerosa

55 Without a gland between the terminal pair of pinnae

Leaflets less than 4 mm. wide, acute apically

Leucaena glauca

Leaflets more than 4mm. wide, rounded apically

Schizolobium parahybum

44 Without a gland between the terminal pair of leaflets

7 Stipules large, ovate, conspicuous

Lysiloma auritum

77 Stipules neither particularly large nor conspicuous

With 2 or 3 glands between the terminal pairs of pinnae

Albizzia caribaea

With a gland between the terminal pair of pinnae only

Lysiloma demostachyum

JJ Without glands on the petiole or rachis

1 Pinnae one pair only

Calliandra Magdalenae

11 Pinnae more than one pair

2 Branchlets quadrangular

Calliandra tetragona

22 Branchlets not quadrangular

3 Stipules persistent in clusters

Calliandra Cumingii

33 Stipules not persistent in clusters

4 Leaflets less than 20 pairs per pinna

5 Leaflets less than 5 mm. wide

Leucaena glauca

55 Leaflets more than 5 mm. wide

Leaflets sessile

Caesalpinia eriostachys

Leaflets petiolate

Caesalpinia pulcherrima

44 Leaflets more than 20 pairs per pinna

6 Leaflets more than 4 mm. wide

Schizolobium parahybum

66 Leaflets less than 4 mm. wide

7 Leaflets 1 to 4 mm. in width

Leaflets 1 to 2 mm. wide

Pentaclethra macroloba

Leaflets 3 to 4 mm. wide

Delonix regia

77 Leaflets 1 mm. or less in width

8 Leaflets grayish - lepidote beneath

Mimosa Bracaatinga

88 Leaflets not grayish lepidote beneath

9 Petioles shorter than ½ the length of one of the lowest pinnae

Calliandra confusa

99 Petioles longer than ½ the length of one of the lowest pinnae

Costa of leaflet medial

Caesalpinia coriaria

Costa of leaflet very eccentric

Acacia angustissima

II Leaflets more than 1 cm. wide
K Leaves with one pair of pinnae only
1 Pinnae with an odd leaflet, not paired at the base
2 Petiole and rachis without glands
Leaflets 1 to 1.5 cm. wide

Calliandra Seemannii

Leaflets 1.5 to 4 cm. wide

Calliandra arborea

22 Petiole and rachis or one of these with a gland or glands
3 Leaflets only 3 per pinna
Second lateral vein above base longer than one half length of leaflet

Pithecolobium latifolium

Second lateral vein above base less than or only one half length of leaflet

Pithecolobium longifolium

33 Leaflets 5 or more per pinna
Terminal leaflets more than 20 cm. long

Pithecolobium sp. (Sarapiquí)

Terminal leaflets less than 20 cm. long

Pithecolobium latifolium

11 Pinnae with all leaflets paired
4 Petiole less than 2 cm. in length
5 Terminal leaflets less than 20 cm. long
Lateral veins long, arcuate

Pithecolobium latifolium

Lateral veins short, angling towards the border

Pithecolobium Valerioi

55 Terminal leaflets more than 20 cm. long

Pithecolobium gigantifolium

44 Petiole more than 2 cm. in length
6 Terminal leaflets less than 6 cm. long

Pithecolobium palmanum

66 Terminal leaflets more than 6 cm. long
Petiole and rachis conspicuously ferruginous-pubescent

Pithecolobium catenatum

Petiole and rachis glabrous or inconspicuously puberulent

Pithecolobium racemiflorum

KK Leaves with 2 or more pairs of pinnae
1 Leaves with a gland 1 cm. or more in length between the lowest pair of pinnae

Pithecolobium macradenium

11 Leaves without such a large gland between the lowest pair of pinnae
2 Leaflets rounded apically
3 Leaves with glands between all or most of the pairs of pinnae

Pithecolobium Saman

33 Leaves with glands between only the terminal pair or pairs of leaflets
Pinnae subopposite

Stryphnodendron excelsum

Pinnae all opposite

Albizzia longepedata

22 Leaflets acuminate or acute at the apex
Terminal leaflets more than 6 cm. long

Pithecolobium racemiflorum

Terminal leaflets less than 6 cm. long

Albizzia adinocephala

Acacia angustissima (Mill.) Ktze. A shrub or treelet rarely over 7 m. tall found in the upper part of the Subtropical and the lower portion of the Lower Montane Belts, i.e. in Costa Rica, around 1400 m. above sea-level. It is common along the San José-Cartago highway near El Alto de Ochomogo. Extends from México to middle South America. The

species is most conspicuous when in bloom with its fairly large panicles of white flowers.

Acacia Cookii Safford. A tree, up to around 10 m. tall, which may be thick-trunked but often dividing near the base into several stems. As the pinnae are short and numerous, the long narrow-rectangular shape of the leaf is striking. Apparently, this is a species of the Subtropical Wet Forest on the Caribbean slope. It is common along the latter half of the highway between Cariblanco and San Miguel de Sarapiquí. Extends from Guatemala and British Honduras to Panama. This may not be a truly separate species from *A. melanoccras* which was described many decades earlier. At least they are closely related species.

Acacia costarricensis Shenck. A shrub or treelet of low tropical areas apparently confined to the Pacific side of Costa Rica. Allen reports it from the Terraba Valley. Extends from Mexico to Colombia.

Acacia Farnesiana (L.) Willd. A shrub or treelet common to the Tropical Dry Forest area on the Pacific slope of Costa Rica, i.e. the Guanacaste area, but the species does occur in s. w. Costa Rica in special edaphic conditions. Extends from southern U.S.A. to the West Indies and on the mainland to Argentina.

Acacia glomerosa Benth. A medium sized to large tree ocurring from sea-level up to the Subtropical Belt. In Costa Rica it is occasional in the Tropical Dry Forest of the Pacific side. Dr. Jorge León has shown me three trees planted at Turrialba which he says are the "Casha" collected near Siquirres on the Caribbean side by W. A. Dayton and mentioned by the latter as possibly a *Mimosa*. Vegetatively, these trees at Turrialba are indistinguishable from *A. glomerosa*, even to bearing an occasional spine on the branches and I thus include "Casha" here until we know more about the tree.

Acacia Hindsii Benth. A shrub or treelet of the Tropical Dry Forest in Costa Rica. Extends from Mexico to Panama

Acacia melanoceras Beurl. A shrub to medium sized tree reported by Allen as occasional in pastures around Golfito. To date known only from southwestern Costa Rica and Panama unless, as mentioned under *A. Cookii,* it should include that similar relative as one species.

Acacia riparia HBK. I have included this as a tree because it is so reported in the literature, but have seen it in Costa Rica only as a climber, at low elevations. It is found from middle South America to southern Central America and may extend to southern Mexico.

Acacia spadicigera Schlecht. & Cham. A shrub or small tree of the Tropical Dry Forest and reported from Boruca in the southwest.

Albizzia adinocephala (Donn. Smith) Britt. & Rose. A medium sized to large tree, occasional in the Moist and Wet Subtropical and Tropical Life Zones. Other species which might be confused with this are *Pithecolobium sophorocarpum* and *P. glanduligerum* Standl. & L. Wms. *P. sophorocarpum* has narrower leaflets and glands on the rachis which are missing in *A. adinocephala.* I have seen no specimens nor a complete description of *P. glanduligerum* and thus could not include it in the key. The photograph of a flowering branch which Allen kindly sent me does not show clearly the presence or absence of glands. The picture does show from 5 to 10 pairs of leaflets per pinnae which together with its restriction to southwestern Costa Rica should serve to separate this species from *A. adinocephala* with typically 2-5 pairs of leaflets per pinna.

Albizzia carbonaria Britton ex Britt. & Wils. A medium sized to large tree utilized as coffee-shade and escaped to the river valleys on both the moist and wet slopes of Costa Rica. Probably native of northern South America. I can see no significant difference in either sterile or fertile specimens between coffe shade trees on the Institute grounds at Turrialba called *A. moluccana* by Leon, similar coffee shade trees in the Meseta Central, the specimens collected by Allen in southwestern Costa Rica and identified as *Albizzia filicina* Standl. & L. Wms., and trees observed as far

apart on the Caribbean slope as the valleys of the Sarapiquí and Madre de Dios rivers. Thus I have considered all of these as one species which match well the description of *A. carbonaria* in the Flora of Panama. As indirect evidence, it would be surprising if such a conspicuous species were to have escaped observation up until recently in the well botanized areas of the Reventazón valley and along the San Miguel route. In the case of Madre de Dios, it is common now, but I saw no specimens in nearly a year's stay there as recently as 1949.

In correspondence, Allen has sent the following notes which he used for separation of the two species.

A. carbonaria — Individual leaflets 3-4 mm. long, densely pubescent on the lower surface.

A. filicina — Individual leaflets 6-10 mm. long, sparsely pubescent on the lower surface.

Because the key may be weak in the separation of this from the 3 subsequent species in the key, the following bark notes are given which should be helpful, especially in larger trees:

A. carbonaria — External bark gray, shaggy, separating into long strips curled outward at the ends.

A. caribaea — Bark smooth, light khaki-tan in color, with occasional depressions as if some of the exterior bark had been gouged out.

Enterolobium cyclocarpum — Bark relatively smooth except for numerous conspicuous lenticels.

Acacia glomerosa — Bark smooth to scaly, occasionally with scattered spines, lenticels not prominent.

Albizzia longepedata (Pittier) Britt. & Rose. A large tree of the Tropical Dry Forest in Costa Rica. Superficially, the species looks much like *Pithecolobium Saman,* but keys out readily. Also, the flowers of *A. longepedata* are

white to cream colored while those of *P. Saman* are pink. This is apparently the same tree as *Pseudosamanea guachapele* (H.B.K.) Harms, reported as extending from Guatemala to Ecuador, but surprisingly, neither the Flora of Panama nor the Flora of Guatemala mention this latter name as a synonym.

Albizzia nicoyana Britt. & Rose. A large tree reported only from the Nicoya Peninsula and perhaps still of questionable identity. I know nothing about the present status of this species.

Caesalpinia coriaria (Jacq.) Willd. A low, spreading-crowned tree of the Tropical Dry Forest formation. Extends from Mexico to the West Indies and northern South America.

Caesalpinia eriostachys Benth. A large shrub or small tree from the Tropical Dry Forest. Extends from northern Mexico to Panama and occurs in Cuba. *C. Conzattii* (Rose) Standl. has been separated by some from *C. eriostachys* but was not included in the key on the basis of the statement in the Flora of Guatemala: "The differences supposed to separate the two seem to be little more than variations in density of pubescence".

Caesalpinia pulcherrima (L.) Sw. A shrub or treelet commonly planted as an ornamental or escaped in the Tropical and Subtropical Belts of Costa Rica. Widely dispersed in the tropics and probably native of northern South America. Both the red and yellow flowered forms are found in C. R.

Calliandra arborea Standl. A small tree from the Subtropical Wet Forest in Costa Rica found at Moravia de Chirripó, San Antonio de Turrialba and near Juan Viñas. Reported also from Honduras between 600 and 1500 meters in elevation. Similar to *C. Seemannii* in appearance but with much larger leaflets.

Calliandra confusa Sprague & Riley. A shrub or treelet of the Subtropical Moist Forest in Costa Rica. Extends from Southern Mexico to Panama. It is common along

streams and fence rows in the Meseta Central and is especially noticeable when the flowers of the terminal inflorescences with their long purplish-red stamens have developed.

Calliandra Cumingii Benth. A shrub or treelet of the Tropical Dry Forest. Common locally as in the lower northwestern portion of Finca El Tenorio in Guanacaste. The Costa Rican plant was considered as an endemic species, *C. pallida* (Britt. & Rose) Standl., but there seems to be little reason for separation from *C. Cumingii*. Also known from Panama and perhaps more extended.

Calliandra Magdalenae (Bert.) Benth. A treelet, readily distinguishable from the other bipinnate species of *Calliandra*. Reported from Costa Rica. Extends from Southern Mexico to northern South America depending on the definition of the species. *Calliandra* has been divided into many species and the tendency in this work has been to follow the interpretation of broad species.

Calliandra Seemannii Benth. A shrub or treelet reported from Costa Rica. Standley mentioned Nicoya as a locality. Extends from Northern South America to Costa Rica.

Calliandra tetragona (Willd.) Benth. A shrub or treelet, occasional as a wild plant or cultivated as an ornamental in the Meseta Central of Costa Rica. Ranges from southern Mexico to northern South America.

Delonix regia (Bojer) Raf. A spreading tree reaching medium size, native to Madagascar, but widely planted in the tropics for its ornamental flowers. The species is not common in Costa Rica, but found planted occasionally in the Tropical and Subtropical Belts. There are a few trees in San José, one of the largest of these on the plaza at San Pedro de Lourdes.

Dipterodendron costarricense Radlk. A tree reaching large size in Dry to Wet Forests of the Tropical Belt. Allen mentions the tree as fairly common in southwestern Costa

Rica from sea-level to nearly 600 meters elevation. Occasional trees may be found in the upper part of the Tropical Dry Forest, as around Turrucares. Native to Costa Rica and Panama. In addition to the toothed leaflets, the alternate pinnae are characteristic.

Enterolobium cyclocarpum (Jacq.) Griseb. A large spreading tree of the Tropical Dry Forest, but planted or escaped in moister regions of Costa Rica. Extends from Mexico to Northern South America. The large tree in Parque Central in San José is of this species. One tree found at Finca Tempisque is over 2.5 meters in diameter. Helpful in identification are the conspicuous lenticels on the bark and the ear-shaped pods.

Jacaranda acutifolia H. & B. A medium sized tree commonly planted as an ornamental in Costa Rica and other tropical countries. Native from Costa Rica to Northern South America.

Jacaranda Copaia (Aubl.) D. Don. A medium-sized tree of the Tropical and the lower part of the Subtropical Belts in Moist or Wet Forests. Extends from British Honduras to Brazil.

Jacaranda lasiogyne Bur. &. K. Schum. A large tree from the Tropical Wet Forest in southwestern C. R.

Leucaena glauca (L.) Benth. A shrub or treelet of the Tropical Dry Forest. Widely spread in Tropical America.

Lysiloma auritum (Schlecht.) Benth. A medium sized tree of the Tropical Dry Forest. Extends from Southern Mexico to Costa Rica. There is a specimen in the National Museum collected near Bagaces, but apparently the species is not common in Costa Rica.

Lysiloma demostachys Benth. A medium sized tree with shaggy bark on the larger specimens which is fairly common in the Tropical Dry Forest. I have taken the conservative view of including *L. guanacastense* Standl. & L. Wms.

of Guanacaste and southwestern Costa Rica within this species. Allen has written me that they are certainly extremely close and that the differences he could find in observing a few specimens were a slightly broader legume in *L. guanacastense* (to 4.5 cm. rather than 3.5) and in the presence of a pair of minute, pitted glands at the base of each pair of leaflets which seemed to be lacking in the material of *L. demostachys.*

Melia Azedarach L. A small tree native to Asia occasionally planted or escaped in the cultivated regions of Costa Rica. Several examples may be seen along the Alajuela-Atenas highway.

Mimosa Bracaatinga Hoehne. A small tree native of Southern Brazil but occasionally found as a planted tree in Costa Rica in the Subtropical and Lower Montane Belts. The general gray-green color of the fine foliage is diagnostic.

Moringa oleifera Lam. A small tree native to Africa and the East Indies occasionally planted or escaped in the Tropical Dry Forest in Costa Rica.

Parkinsonia aculeata L. A shrub or treelet of uncertain origin found planted or escaped from Southern U.S.A. to the West Indies and Argentina. In Costa Rica, it is occasional in the Tropical Dry and Subtropical Moist forests and possibly has been planted elsewhere. There are a few specimens along the main street in San Antonio de Belén.

Pentaclethra macroloba (Willd.) Ktze. A medium-sized to large tree common in the Tropical Moist and Wet Forests of both coasts. In one tract in the Sarapiquí Valley 39 percent of the timber volume of the stand was made up of this species.

Pithecolobium arboreum (L.) Urban. An attractive tree up to large size of the Subtropical and Tropical Moist Forests of the Pacific slopes of Costa Rica. A few specimens may be seen in the Parque Nacional of San José. Native from Southern Mexico to Costa Rica and in the Greater

Antilles. I have hesitated to separate our species as *Pithecolobium austrinum* Standl. & L. Wms. until we know more about their differences. Allen writes that they may be separated on the following basis:

Individual leaflets less than 8 mm. long *P. arboreum*
Individual leaflets more than 10 mm. long. *P. austrinum*

Pithecolobium catenatum Donn. Smith. A small tree apparently of the Tropical Wet Forest of the Atlantic Coast of Costa Rica. I have seen it at Guápiles and near Puerto Viejo de Sarapiquí.

Pithecolobium costarricense (Britt. & Rose) Standl. A small to medium sized tree up to 50 cm. in diameter but with a low, dense, spreading crown. Apparently confined to the Lower Montane Wet Forest above about 1400 meters. Native to Costa Rica and Panama. Easy to recognize at that elevation because of its bipinnate leaves.

Pithecolobium dulce (Roxb.) Benth. A small to medium-sized tree of the Tropical Dry Forest. Ranges from Mexico to Northern South America. Vegetatively, this species is very close to *P. lanceolatum* and *P. oblongum* of the region and to P. *unguis-cati* of the Antilles.

Pithecolobium gigantifolium (Schery) León. A small tree, incompletely known, which was described from collections in the Bocas del Toro region of adjacent Panama. The species is included here on the basis of Leon's statement that it has been collected near Puerto Limón. Additional knowledge of this species and the unidentified *Pithecolobium* from Sarapiquí may show that they are the same although none of the leaflets of the latter demostrate the large size given for those of *P. gigantifolium*.

Pithecolobium lanceolatum (Humb. & Bonpl.) Benth. A small to medium-sized tree from the Tropical Dry Forest. Extends from Mexico to Northern South America.

Pithecolobium latifolium (L.) Benth. A shrub or small tree from the Tropical Belt, apparently not common.

Occurs in the West Indies and from Honduras to Brazil and Bolivia.

Pithecolobium longifolium (H. & B.) Standl. A medium-sized tree very common along rivers and streams in the Tropical and lower part of the Subtropical Belt. Extends from Honduras to Northern South America.

Pithecolobium macradenium Pittier. A small to medium sized tree of the Tropical Wet Forest found so far only near Palmar Norte in Southwestern Costa Rica, near Puerto Viejo de Sarapiquí and near Monte Lirio in the Canal Zone of Panama.

Pithecolobium oblongum Benth. A treelet or small tree of the Tropical Dry Forest.

Pithecolobium palmanum Standl. A shrub or treelet endemic to Costa Rica and collected only in the Subtropical Wet Forest near San Ramón. Sterile specimens which very likely belong to this species have been observed growing in swamps near Puerto Viejo de Sarapiquí in the Tropical Wet Forest at an elevation of only 100 meters.

Pithecolobium pseudo-tamarindus (Britt.) Standl. A medium-sized tree up to 25 m. tall with a flat spreading crown and light-colored, yellowish-brown bark. This has been reported previously only from Bocas del Toro, Panama but occurs as an occasional individual in the Tropical Wet Forest near Puerto Viejo de Sarapiquí.

Pithecolobium racemiflorum Donn. Sm. A small tree with spreading crown from the Subtropical Wet or Rain Forests. The species is endemic to Costa Rica, having been found only in the Turrialba region and at Comares de Puntarenas.

Pithecolobium Saman (Jacq.) Benth. A large, widespreading tree of the Tropical Dry Forest, but often planted in moister districts. Native from Mexico to South America.

Pithecolobium sophorocarpum Benth. A shrub or small tree apparently of the Subtropical Moist Forest. Found only in the central regions of Costa Rica but apparently rare.

Pithecolobium Valeriori (Britt. & Rose) Standl. A shrub or treelet apparently from the Subtropical Wet Forest life zone of Costa Rica and Panama although as with *P. palmanum* it descends to a low elevation in swamps of the Tropical Wet Forest in the Sarapiquí Valley.

Pithecolobium sp. An as yet undetermined treelet or small tree from the Sarapiquí region which may turn out to be *P. gigantifolium*. The large, flat, glabrous pods are borne on the trunks of the trees.

Prosopis juliflora (Sw.) DC. A small to medium-sized tree in the Tropical Dry Forest of Costa Rica. In a broad definition of the species, its range extends from the U.S.A. to the West Indies and Argentina.

Schizolobium parahybum (Vell.) Blake. A medium-sized tree from the Tropical Dry to Wet Forests and the adjoining lower portion of the Subtropical Belt in Costa Rica. Extends from Mexico into South America. Saplings of this species with an unbranched stem and huge leaves look very much like similarly-sized trees of *Jacaranda Copaia*. Both give somewhat the impression of a tree-fern.

Sciadodendron excelsum Griseb. A medium sized tree of the Tropical Dry Forest. Ranges from El Salvador to Colombia.

Stryphnodendron excelsum Harms. A medium-sized tree usually with spreading crown from the Tropical Moist and Tropical Wet Forests and extending up partially into the Subtropical Belt. Common in the San Miguel-Puerto Viejo region of the Sarapiquí valley and found also near Madre de Dios on the Caribbean side and near San Isidro del General on the Pacific slopes.

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