

**A Pictorial Field Guide to the
WOODY PLANTS OF THE AMAZON**

Volume I - IX



Marc G.M.van Roosmalen



VOLUME I

FRUIT DRAWING PLATES

Plain-bellied Emerald (*Amazilia leucogaster*) pollinating *Combretum rotundifolium* (COMBRETACEAE) flowers in coastal Suriname (Courtesy Mason Fischer, Alabama, U.S.A.).



For the two most important women in my life
'Mijn moeder' *Maria van Remmerden* & 'Meu Amor' *Antônia Vivian S. Garcia*

VOLUME I

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SHORT AUTHOR'S BIOGRAPHY



Dr. Marc G.M. van Roosmalen (born June 23, 1947 in Tilburg, The Netherlands) is a Dutch-Brazilian primatologist, botanist, rainforest ecologist, and evolutionary psychologist. He studied biology at the Universities of Utrecht and Amsterdam. From 1976 – 1979, doctoral fieldwork was conducted in the Central Suriname Nature Reserve on the synecology of all eight primates that occur there and, in particular, on the autecology of the red-faced black spider monkey (*Ateles paniscus*). From 1983-1985, he conducted post-doc research in the south of French Guiana on plant-animal relations in seed dispersal and seed/seedling predation ecology of Guianan primary upland rainforest. As a preparation for long-term fieldwork on predominantly fruit-eating primates living up in the canopy, Van R. first compiled the ‘Illustrated Guide to the Fruits of the Guianan Flora’, a catalogue that included all trees and woody climbers known to occur in the north-eastern part of South America. The publication of it in 1985 got him contracted by the Brazilian Government as senior scientist at INPA (National Institute of Amazon Research), Manaus-Amazonas. From early 1987 on, being based in the very heart of the Amazon, he took on the seemingly impossible (though self-imposed) task to extend his fruit catalogue of the Guayanan Shield flora (describing and depicting about 2,000 fruit species) to a ‘magnum opus’ (here presented more than three decades later) aimed to cover some 10,000 woody plant species hitherto described from lowland Amazonia. During his long-lasting and still ongoing fieldwork on the unique biodiversity of the Amazon, his concept of an utterly detailed fruit catalogue turned out to be the best introduction to the rain forest a naturalist could wish for. Taking the author’s pictorial guide to wild fruits along in the field enables even

the lay(wo)man to identify whatever local woody flora element in the entire Amazon right at the spot, just with flowers, fruits and/or seeds picked up from the forest floor in hand, all of this without the need of a native tree-climber and a full-fledged botanical library. In order to understand the basics of Amazonian rainforest ecology, animal behaviour, co-evolution, archaeology, physical anthropology of ancestral as well as contemporary indigenous peoples, and, moreover, for the solitary human intruder as a means to survive in this utterly complex, potentially dangerous environment, the author has learned that it all comes down to knowing its plants. This knowledge undoubtedly has led the author to discover at least twenty mammal species new to science, among which the second smallest monkey in the world belonging to a new monotypic genus he named *Callibella* (Van Roosmalen's Dwarf Marmoset). On account of his discoveries and efforts to have the hotspots of biodiversity (where he found them) effectively protected, in 2000 the author was awarded one of Time Magazine/Ford Company's 'Heroes for the Planet'. Since 2013, Van Roosmalen has been laying down in writing his lifelong experience, knowledge, philosophical thoughts and theories about natural and human history forthcoming his (often barefoot) walking and sailing across the Amazon – an intellectual legacy he feels obliged to pass on to future generations.

HOW TO USE THIS NINE-VOLUME FIELD GUIDE

Volume I of *Woody Plants of the Amazon* focuses on the fruits of all known Guianan plants covering about one-hundred families, 546 genera, and over 2,000 species. Moreover, the fruits of a few important edible-fruit producing families that occur in the larger Amazon and not in the Guianas are included, such as Anacardiaceae, Annonaceae, Lecythidaceae, Myristicaceae, and Sapotaceae. Furthermore, besides the fruits of all Amazonian trees of the families Lecythidaceae and Myristicaceae, all fruits that have been cultivated for food and/or spread across the Amazon over the past 11,000 years by now extinct Neolithic Amerindian hunter-gatherers and/or *terra preta* anthrosol farming peoples, are depicted in colour (Courtesy aquarelle artist Mrs. Lambertha Blijenberg). The catalogue is restricted to woody plants, i.e. trees and shrubs reaching over 1.5 m in height when full-grown, lianas, vines, (hemi)-epiphytic climbing shrubs, and (sub)-ligneous epiphytes. Some rare plants too poorly collected or described in literature are omitted. Among the Chlamydospermae, only the family Gnetaceae is treated. The remaining 98 families belong to the Angiospermae. Among the Monocotyledoneae, the families Araceae, Musaceae/Strelitziaceae, Liliaceae, and Arecaceae (Palmae) are included. The remaining 94 families belong to the Dicotyledoneae.

Volumes II – IX of *Woody Plants of the Amazon* treat 114 plant families in alphabetical order, whether or not they belong to the Chlamydospermae or the Angiospermae (Monocotyledoneae or Dicotyledoneae). Each family is headed by a short family description based mainly on the more practicable field characters of *leaves*, *inflorescences*, *flowers*, and *fruits*. The section *Notes* includes remarks on habit, secretory systems, and seed dispersal - only when one may generalize on family level.

Following a family description, each genus within the family is numbered and mentioned together with the author's name. A genus description is given when more than one species within the genus are described.

Each genus is followed by the species in alphabetical order and sub-numbered. This facilitates a quick determination of both the number of genera treated within a certain family and the number of species treated within a certain genus. The species name is followed by the author's name according to up-to-date taxonomic literature, while one or more synonyms may be added in brackets. When known to the author, vernacular names used by the most prominent sections of the population, such as Aruak-Amerindian (A), Carib-Amerindian (C), Surinamese Dutch (SD), Spanish (Sp.), English (E), Brazilian Portuguese (B), Sranan-tongo or Surinamese (S), and Bushland-Creole, Quilombola or Paramaccan (P), have been included.

When a fruit species is depicted in Volume I, plate and figure numbers are given. Plates are numbered 1-208; figures are numbered within each plate. The species descriptions as presented in Volumes II-IX usually include four sections, the first word of each section being printed in italics (see example below). The first section gives simple leaf characters as far as they are practicable in the field, using for instance a pair of binoculars. The second section describes main characters of inflorescence, infructescence, (fruiting) calyx, flowering and/or fruiting pedicel. The third section describes, as detailed as possible, external and internal characters of fruit and seed(s). The fourth section, "*Notes*", gives various remarks that may be useful in the field, such as plant habit, presence of secretory systems, bark features, seed dispersal strategy, phenology, occurrence (based on data from literature and samples in the Utrecht Herbarium plant collection), habitat and soil type (data usually taken from labels), and

geographical distribution within the Guianas and the larger Amazonian region (data based on the literature and checklists from the respective countries, label information and the internet).

In Volume I, I tried to include drawings of as many fruits as possible. However, the fruits of a number of species were insufficiently represented in the Utrecht Herbarium. When the botanical literature could not provide me with a good drawing or picture, I opted to confine myself to just a description. In case of great interspecific resemblance, only one of the fruits has been depicted. Depending on the available material, fruits and seeds are drawn by the author from different angles, cross sections, and/or longitudinal sections, showing the morphological properties that are most important for visual identification.

This Amazonian fruit catalogue includes too many species to make a usable key down to genus or species level. However, here I have included a synoptical key to the one-hundred plant families treated. The user of the catalogue without any botanical background may best develop an overall morphological concept of forms of fruits by frequently leafing through the plate section (Volume I). One will soon be able to place a given fruit in one or a few families. If a certain fruit closely resembles a figure, one has to turn to the text first checking family and genus descriptions, and finally the species description. If more species are treated within a certain genus, but not all depicted, one has to use the species descriptions of these fruits for final identification of the fruit at hand. In order to facilitate direct identification of the fruits, figures are drawn on a 1:1 scale as much as possible. Large fruits are usually reduced to about half their natural size (and then indicated by an asterisk), in a few cases they have been reduced even more.

Although my own field observations have reduced the amount of errors in the original line drawings as published in *Fruits of the Guianan Flora* (1985), a number of rare species may still be drawn inadequately. Because of a lack of material, in particular when I only had dried fruits still attached to the twig at my disposal, they may be depicted in immature state or with artificial characters caused by the drying process. In general, plant collectors focus on twigs with flowers and/or fruits attached. These fruits are sometimes immature, for most ripe fruits fall to the ground or are picked by animals. However, nowadays botanists tend to pickle ripe fruits separately, even when they are large, fleshy and difficult to preserve.

As exemplified in this catalogue the diversity of fruit types in the tropical rain forest is great. The principal means of seed dispersal is served by the complex vertebrate fauna obtaining nutrients from either seeds or fleshy fruit parts. Comparative morphological investigation of fruits, as compiled in "A Guide to the Fruits of the Guianan Flora", together with five years of field observations on plant-animal relationships in seed dispersal ecology in the rain forests of Suriname and French Guiana, has led to some calculations with respect to seed dispersal strategies in Neotropical rainforest plants. Among the 1,727 plant species described in the 1985 fruit catalogue representing the great majority of woody plants known to occur within the Guianan territory, 6% disperses its seeds *autochorically* (by itself), 11% *anemochorically* (by wind), 9% *hydrochorically* (by water), and 74% *zoochorically* (by means of animals). Since these plants show different habitat preferences, and the majority of water-dispersed fruits are found in wet forest types such as riverine, swamp and marsh forests, and wind-dispersed fruits in edge habitats such as forest margins, for primary rain forest or high upland forest the zoochorous component may even range from 87-90%. These figures emphasize the vital importance of the vertebrate fauna for the natural rejuvenation of undisturbed Neotropical rain forest. Moreover, apart from seed dispersal, other interactions between animals and fruits are

important in shaping the forest, such as seed predation, both pre-dispersal and post-dispersal, and seedling predation. Since the seed represents the most critical stage in a plant's life cycle, one may expect a number of strategies to have evolved serving the plant with both an adaptive seed dispersal mechanism and a means to prevent seed and fruit predation. As shown in this Neotropical fruit catalogue, an enormous range of functional morphological adaptations have indeed been evolved. Moreover, the nutrient content and occurrence of repellent compounds in various parts of the fruits are important adaptations.

Linking functional fruit morphology to seed dispersal, in the rain forests of the Guianan region six major strategies of seed dispersal can be recognized, characterized by different dispersal agents:

1 – Attractive, brightly colored fruits with 1-few large seeds within a relatively firm, fleshy, lipid-rich aril, mesocarp, pulp or sarcotesta. These may be drupes or berries (e.g., many fruit species belonging to the families Anacardiaceae, Burseraceae, Celastraceae/Hippocrateaceae, Chrysobalanaceae, Clusiaceae or Guttiferae, Humiriaceae, Lauraceae, Loganiaceae, Mimosoideae, Moraceae, Palmae/Arecaceae, Sapotaceae), or thick-walled, dehiscent capsules (e.g., many fruit species belonging to the families Meliaceae, Myristicaceae, Sapindaceae, Sterculiaceae). They are swallowed by so-called *specialist frugivores*, such as the larger monkeys (*Ateles*, *Alouatta*, *Cebus*, *Sapajus*), kinkajous (*Potos*), coatis (*Nasua*), and rather large birds that process the aril, sarcotesta, or mesocarp and regurgitate the seeds (e.g., caracaras, cotingids, guans, curassows/hokkos, toucans, aracarís, trumpeter birds). As a rule, the seeds are treated gently within the digestive tract/gut of the animal and dispersed *endozoochorically*.

2 – Attractive, brightly coloured drupes or berries with thin, often coriaceous (leathery) epicarp, watery, sugar-rich mesocarp/pulp/aril, and often numerous small seeds (e.g., many Apocynaceae, Cactaceae, Melastomataceae, Moraceae and Cecropiaceae, Myrsinaceae, Myrtaceae, Ochnaceae, Olacaceae, Passifloraceae, Polygonaceae, Rubiaceae, Simaroubaceae, Solanaceae, Verbenaceae, Vitaceae). These fruits or parts of them containing seeds are swallowed by so-called *generalist frugivores*, such as the smaller monkeys (*Saguinus*, *Saimiri*, *Cebus*, *Pithecia*), small, partly insectivorous birds (the majority of Neotropical birds), marsupials, bats, and tortoises that so disperse the seeds *endozoochorically*. These fruits, in general, are ignored or only incidentally exploited by specialist frugivores.

3 – Relatively large fruits with a tough, indehiscent, inedible, green, yellow, orange, brown, or purplish rind or epicarp enclosing the 1-several large, soft seeds/pyrenes/kernels with lipid-rich, tightly adhering mesocarp/pulp/aril (e.g., fruit species belonging to the genera *Annona*, *Ephedranthus*, *Fusaea*, *Rollinia*, *Couma*, *Macoubea*, *Pacouria*, *Parahancornia*, *Capparis*, *Cheiloclinium*, *Salacia*, *Platonia*, *Rheedia*, *Gustavia*, *Enterolobium*, *Inga*, *Strychnos*, *Chrysophyllum*, *Manilkara*, *Pouteria*, *Theobroma*, *Leonia*). These fruits are selected by mammalian frugivores that peel or bite through the fruit wall and ingest the flesh passing the seeds/pyrenes through the gut (*endozoochory*), or carry the fruits over some distance from the fruiting tree top (crown), while dropping the seeds intact (*synzoochory*). These specialist feeders are mainly animals with manipulative skilfulness and special dental adaptations, such as spider monkeys (*Ateles*), capuchin monkeys (*Cebus*, *Sapajus*), and saki monkeys (*Pithecia*, *Chiropotes*), and probably also kinkajous and coatis, of which only spider monkeys swallow and disperse the large seeds and pyrenes/kernels to 4.5 cm in length endochochically.

4 – Dull green or brown fruits with fleshy or dry pericarps surrounding 1-few large pyrenes (e.g., fruit species belonging to the genera *Caryocar*, *Curvea*, *Couepia*, *Licania*, *Parinari*,

Gnetum, *Dipteryx*, *Elephantomene*). These fruits are carried off by large frugivorous bats (e.g., *Artibeus*) and/or monkeys (e.g., *Ateles*, *Cebus*, *Sapajus*, *Pithecia*, *Saguinus*) that scrape off the flesh and discard the pyrenes often at some distance from the fruiting tree top or crown (*synzoochory*).

5 – Dry, large-seeded, nut-like, green or brown, dehiscent or indehiscent fruits that are carried off after they fall from the crown/tree top and are often buried by seed-eating, scatter-hoarding rodents, such as agoutis, acouchis, and perhaps also spiny rats and mice (*synzoochory*). Examples are: *Duguetia*, *Pachira*, *Caryocar*, *Couepia*, *Licania*, *Bertholletia*, *Corythophora*, *Couroupita*, *Eschweilera*, *Gustavia*, *Lecythis*, *Andira*, *Cynometra*, *Hymenaea*, *Vouacapoua*, *Carapa*, *Astrocaryum*, *Attalea*, *Syagrus*, and *Sterculia*.

6 – Dry, dehiscent, small-seeded fruits with a structure implicating autochory, the seeds being provided with a tiny, lipid-rich food body or elaiosome too small to attract bird dispersers (e.g., some Euphorbiaceae, Turneraceae, and Rutaceae). After the seeds fall to the forest floor, ants carry them off feeding on the fat bodies in their nest and discarding them at the nest's entrance (*myrmecochory*).

TEXT EXAMPLE LEGUMINOSAE AS TREATED IN VOLUME V

24. *Ormosia* Jackson *tento*, *olho-de-cabra* (B)

Leaves imparipinnate, leaflets coriaceous, opposite, stipules small or wanting, some species are vegetatively distinctive in strongly pubescent under-surface of discolourous leaflets. *Panicles* terminal, bracts small; pedicels short, bracteoles 2, at calyx base; calyx unequally 5-dentate; petals purple to lilac, rarely yellow, approximately equal in length. *Pod* capsular, thick, dryish leathery or sub-woody, usually dehiscent; seeds 1-3, depressed-globose, very hard, red (rarely completely black), shiny, often with black patch (seeds called mimetic as they seem to imitate a colourful arillate seed).

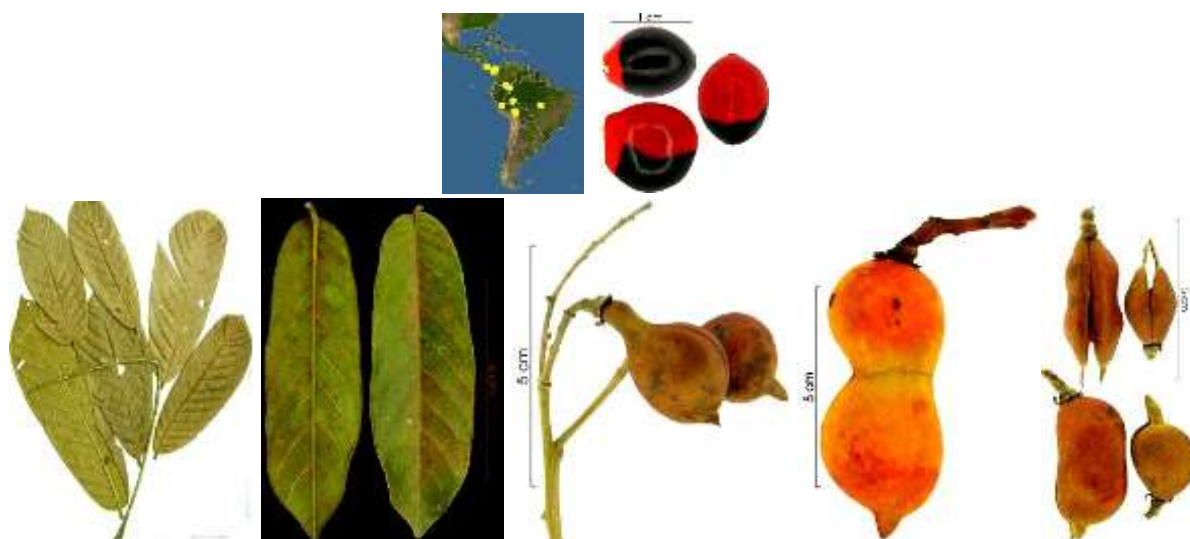
Notes. Mostly large canopy trees (50 spp. in the Neotropics), pantropical; seed dispersal sometimes hydrochorous (i.e., *O. excelsa*, *O. coutinho*), but mostly endozoochorous by means of so-called mimetic seeds - hard, shiny, bright red or half red and half black fruit- or aril-like seeds misleading birds – a strategy that does not work with the smarter primates; seeds widely used for ornamental beads; Carlos Peres and I published a paper describing mimetic seeds being endozoochorically dispersed by large forest-floor dwelling birds such as trumpeter birds (*Psophia* spp.), tinamous (*Crypturella*, *Tinamu* spp.) and curassows (*Crax*, *Urumutum*, *Mitu*, *Pauxi* spp.), which use the seeds as a kind of grit in their gut, for often there is a lack of gravel on the forest floor; as such these birds enable the hard seeds to germinate, in this way being softened or slightly damaged.





24.1. *Ormosia amazonica* Ducke

Notes. Tree; not common; primary *terra firme* rain forest. *Central America; Colombia + Peru + Bolivia; Brazilian Amazon* (Amazonas, Mato Grosso, Rondonia).



24.2. *Ormosia cinerea* R. Ben. *nekoe-oedoe* (S)

Leaves 5-11-foliolate, leaflets glabrous. *Panicles* gray-tomentose; calyx tomentose, ca. 0.9 cm long. *Pod* depressed-globose, 4-5 x 3.5-4 x ca. 1.8 cm, margin flattened, indehiscent; seeds 1, 2.5 x 2.5 x 1.5 cm, reddish-brown, hilum linear, long.

Notes. Large tree; rare; riverine forest. *French Guiana* (more common than in Suriname), *Suriname* (especially along Marowijne River).



24.3. *Ormosia coarctata* Jackson *barakaro* (A); *tento-vermelho, olho-de-cabra* (B) **Pl. 105, fig. 1**

Leaves 5-9-foliolate, leaflets abaxially tomentose. *Panicles* brown-tomentose, 25 cm long; calyx persistent in young fruit, tomentose, tube 0.5 cm long, teeth acute, ca. 0.3 cm long. *Pod* (when young) somewhat oblique, depressed-globose, 2.5 x 1.8 x 0.8 cm, when ripe to 4.5 x 3.5 x 1.6 cm, brown-tomentose, stipe short, apex acuminate over ca. 0.6 cm, dehiscent along one suture; seeds 1 (from ripe fruit), compressed, somewhat obliquely quadrangular, ca. 1.2 x 0.9 cm, testa hard, shiny, red and black.

Notes. Tree to 30 m tall, trunk cylindrical, bark light chestnut-brown, peeling in small thin pieces; rare; primary *terra firme* rain forest and seasonally white-water flooded forest (*várzea*), also on rocky islands in rivers. *Guianas; Colombian + Peruvian + Bolivian Amazon; Brazilian Amazon* (Amazonas, Mato Grosso, Pará, Rondonia, Roraima); *SE Brazil* (Atlantic Forest).



24.4. *Ormosia coccinea* (Aubl.) Jackson *barakaro* (A); *hoogbos kokriki* (S); *panakoko, agi* (P) **Pl. 105, fig. 2**

Leaves 7-11-foliolate, leaflets glabrous. *Panicles* ferruginous-tomentose; pedicels ca. 0.4 cm long, calyx campanulate, tomentose, 0.6-0.8 cm long. *Pod* obliquely depressed-subglobose, soft-leathery, 3-4.5 x 2-2.5 x 1.3-3 cm, reddish-brown, shiny, pericarp thick, constricted somewhat between seeds if 2-seeded, base obliquely attenuate over ca. 0.5 cm, apex obliquely acuminate over 0.1-0.7 cm, dehiscent along ventral suture; seeds 1(-2), depressed-globose, 1-1.2 x 1-1.2 x 0.8 cm, red with large, black spot.;

Notes. Fairly small tree; common; primary *terra firme* rain forest. *Panama + Colombia + Venezuela + Peru + Bolivia; Guianas; Brazilian Amazon* (Acre, Amapá, Amazonas, Mato Grosso, Rondonia, Roraima).



INTRODUCTION

“For the tree is known by its fruit.”

MATTHEW 12:33

“In all works on Natural History, we constantly find details of the marvelous adaptation of animals to their food, their habits, and the localities in which they are found.”

ALFRED RUSSEL WALLACE (1823-1913)



REVEAL ME YOUR FRUITS AND I KNOW WHO YOU ARE

I remember as of yesterday that before I decided to tackle plant taxonomy using fruit characters, I used to associate the term “fruit” with fleshy, pulpy, juicy things like pears and apples. In my layman’s eyes of those days, dry fruits like chestnut or oak seemed not to deserve the name “fruit”. I called them seeds. As a biology student, I learned that any fertilized ovary grows into a fruit and that any fertilized ovule grows into a seed. I also learned that the Angiosperms (Higher Plants) in a Neotropical rain forest do not produce apple- and pear-like fruits (the scientific name for such a fruit is “pome”). The closest thing to a ‘pome’ -my former concept of a fruit- is a berry, with its many, often small seeds embedded in a juicy flesh.

As a preparation to fieldwork on the ecology of predominantly fruit-eating primates in a Neotropical rain forest, I have first compiled an illustrated guide to the fruits of the flora of Suriname alone. Back in the Netherlands, from 1979 to 1983, I then translated, extended and improved the “Surinaams Vruchtenboek” before returning to the field in order to conduct a post-doc study on plant-animal interactions in seed ecology in the interior of French Guiana. It was in 1985 that I published the “Illustrated Guide to the Fruits of the Guianan Flora”. Herein, I treated almost 2,000 species of woody plants and provided the descriptions with line drawings, a number of them corrected and improved in the field. Furthermore, I added useful field notes forthcoming my three years stay in the rain forests of Suriname.

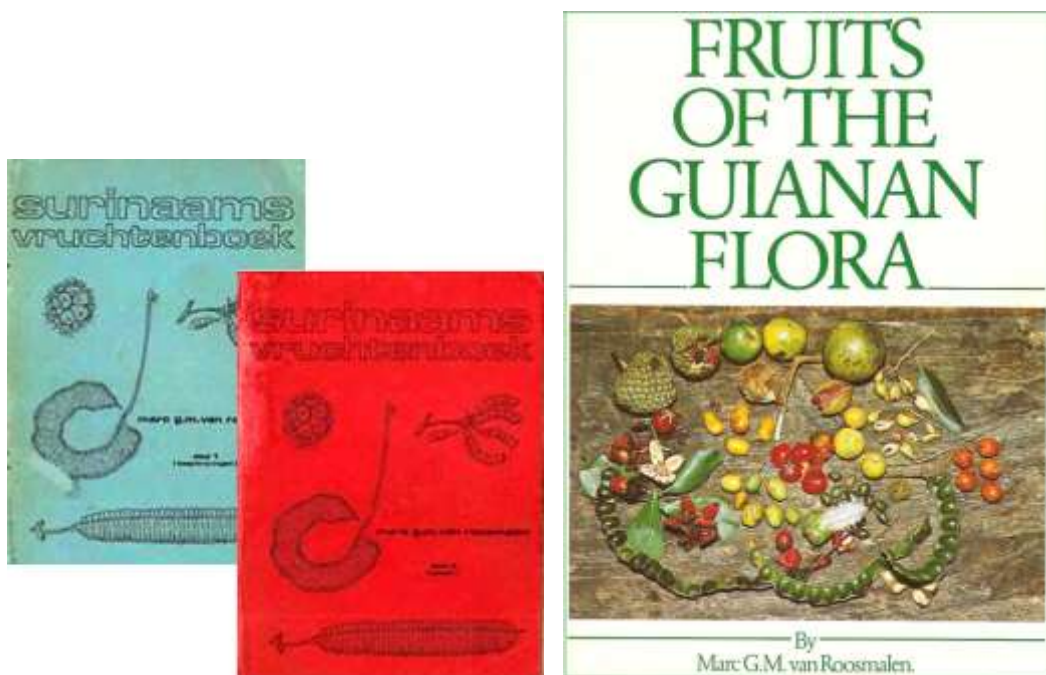


Living alone in a base camp at the foot of the 240 m high Voltzberg granite dome in central Suriname watched from above by a party of red-faced black spider monkeys (*Ateles paniscus*), the monkeys that taught me which fruit to eat, when and where to find it, and how to process in particular the seeds.

While I was compiling these field guides I had no reference whatsoever from those days’ botanical literature. Notwithstanding a long botanical history, this sort of useful practical field guides to the fruits of a certain geographic area had never been compiled before, at least not for

tropical rainforest regions anywhere in the world. Ever since, my field guides guide me through the complex world of an Amazonian rain forest, enabling me on the spot to label any plant on whose fruits I can lay my hands. Testing my first fruit catalogue in the rain forest of Suriname, I quickly managed to recognize a number of tree species solely on their habit and other macroscopic peculiarities, as well as the vegetation types and habitats they seemed to thrive in. It was like recognizing the streets in a city by knowing some individual buildings. Using my pocket book, I could right from the start identify the plants that animals used for food, just by picking up the left-over of their meal from the forest floor. And most importantly, I managed to do this all by myself without the help of tree climbing equipment or native tree climbers to collect plant materials from up there, and most conveniently, without a truck-load of literature to identify down to species the materials coming down from the forest roof.

While following spider monkeys on their search for food throughout the Voltzberg study area, I fully depended on the “Surinaams Vruchtenboek” that I had compiled in the early seventies at the Utrecht Herbarium, in the Netherlands. For my PhD dissertation I was tackling spider-monkey ecology. My self-imposed task was to document to great detail what the monkeys eat throughout the year and how plant-food resources determine their daily life, in time and space. As my first fruit catalogue lacked relevant field notes on fruit color, texture, taste and phenology, I was particularly puzzled by some non-descript fruits with nothing special to refer to - wrinkled and colorless as they were because of the preservation process. One example would fit in well here.



“Surinaams Vruchtenboek”, my 1977 two-volume fruit catalogue, written in Dutch (left), and my 1985 “Illustrated Guide to the Fruits of the Guianan Flora” (right) depicting and describing the fruits of about all known woody plants from Suriname (former Dutch Guiana), and the Guianas (the larger geographic area delineated by the pre-Cambrian Guayanan Shield), respectively.

During the second year of study, 1977, the spider monkeys were eating for over two weeks a lot of green to dark reddish-brown, globose to ellipsoid fruits that grew to 3.2 cm long and 2.7 cm wide. A single marbled yellowish pyrene or kernel was surrounded by a juicy flesh (mesocarp) that had a sweet apple flavor. Aside of the spider monkeys, only I was fond

of these fruits, at least it seemed so. Travelling from one fruiting tree to the other, many in a row, the up to five km long itineraries of each spider-monkey party I tracked for some time seemed to be fully determined by the location and distribution pattern of this fruit species. As frantically as the monkeys were going for these fruits, as desperate was I trying to find out which fruit species one was dealing with. After leafing every free minute through the plates of my 'Surinaams Vruchtenboek' that contained at least one thousand line drawings, I still did not have a clue. I even could not say to which family the tree belonged. I felt frustrated like a philatelist using 'state-of-the-art' illustrated catalogues and still being disabled to fit a rare stamp. The irony was that I could not blame it on somebody else. Did it mean that my fruit guide was failing? No doubt, the tree in question was most common in this area. Surely, it would have been collected before. In colonial times, Dutch botanists went everywhere within their former colonies and overseas departments to collect plants. My standard procedure was as follows: I collected every fruit I came upon and pickled several samples of each species on formalin. Although I was aware that prolonged exposure to formalin may cause cancer, and also that one's body could develop a bad allergy for it, I preferred to preserve my samples on formalin diluted down to 4%. As such, the pickled fruit did not lose its color on the spot nor changed its texture. Pickled and exposed in a baby-food jar, it looked as fresh and edible as it had been on the tree. In the evening back in my camp, I used to process the samples after a full day running after the monkeys and collecting as many food items as possible. In this controversial case, I had collected too many and therefore had left some behind exposed on the table. A few days later my eye happened to fall on them. Instantly, I recognized the fruit from a drawing in my fruit catalogue, black, wrinkled and shapeless as it was now: "*Couepia caryophylloides*, family of *Chrysobalanaceae*", I cried to the moon! Ever since, I got in the habit of letting some fruits dry in a (not too) dark corner of my camp...

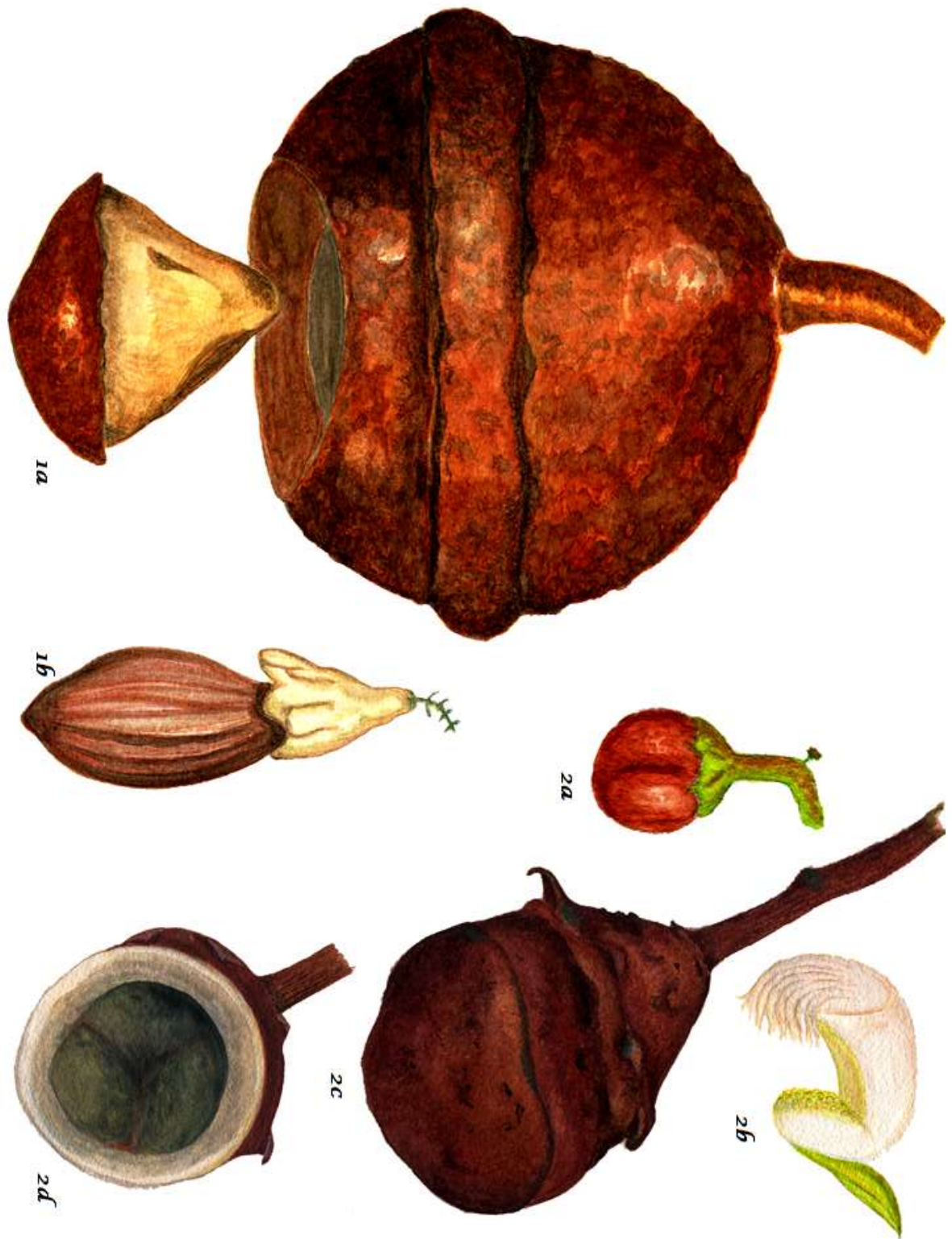


PLATE 81. LECYTHIDACEAE. Figs. 1-2. 1. *Lecythis pisonis*, dehisced fr. and operculum (a), seed with basal aril and part of long funicle (b), 2. *Lecythis poiteaui*, flower bud (a), open flower (b), fr. (c), dehisced fr. seen from below, all seeds already released (d).

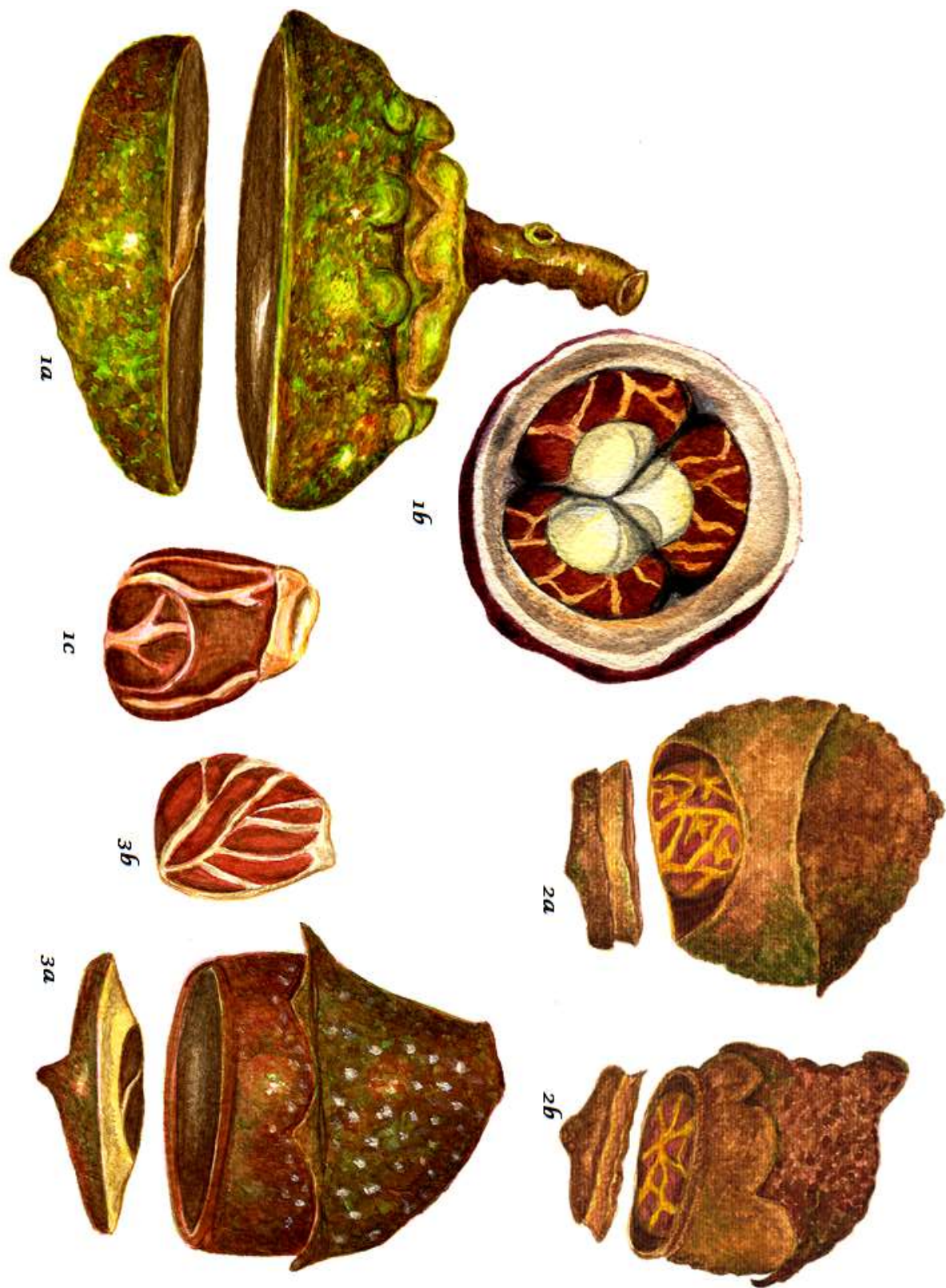


PLATE 82. LECYTHIDACEAE. Figs. 1-3. 1. *Lecythis poiteaui*, different type of fr. (a), dehisced fr. seen from below, revealing three seeds with a basally attached aril (b), seed with basal aril (c). 2. *Lecythis prancei*, dehisced 1- and 2-seeded fr. with an opercular opening that does not allow the seed(s) to escape (a,b). 3. *Lecythis retusa*, dehisced fr. (a), seed with basal aril.

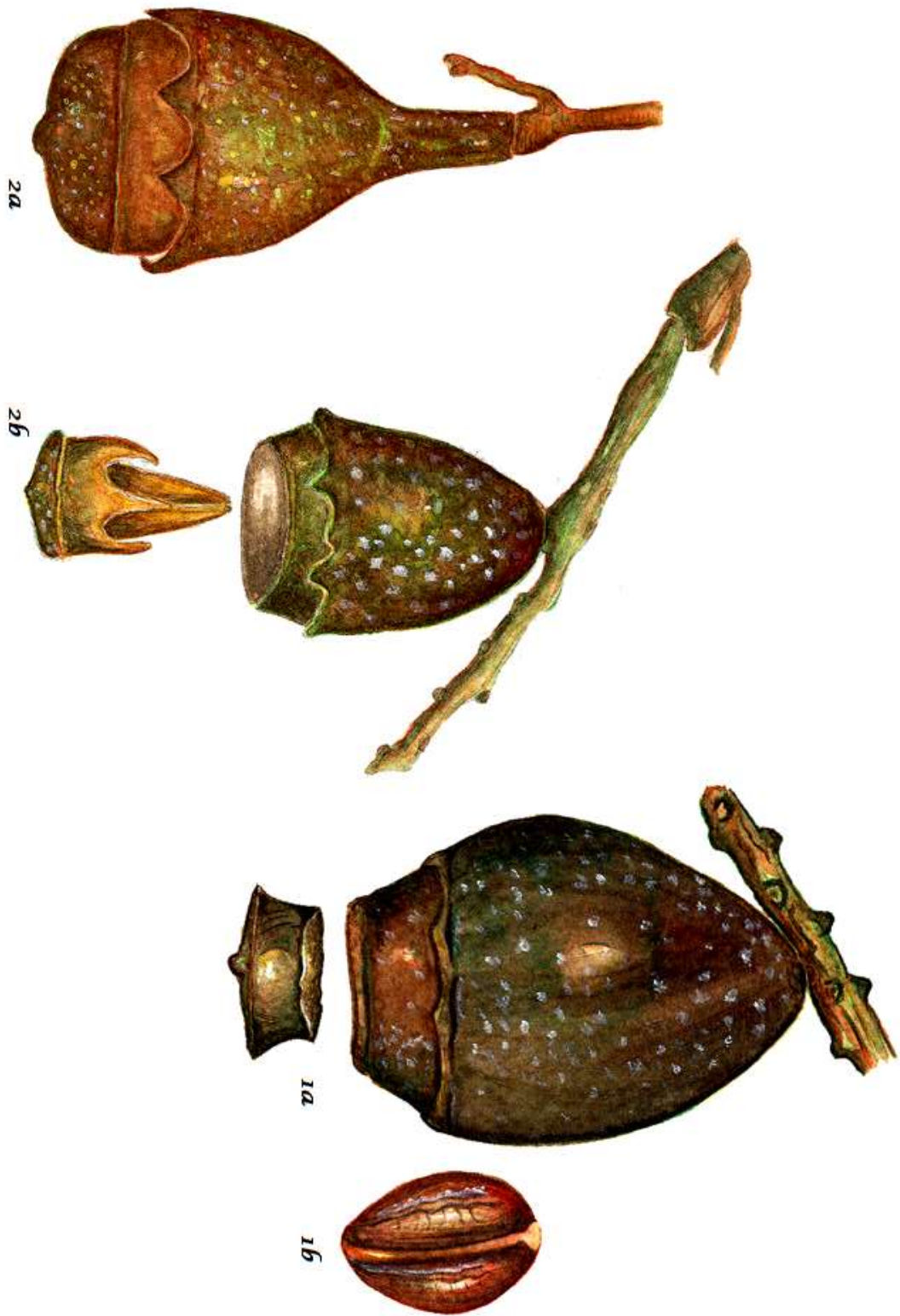


PLATE 83. LECYTHIDACEAE. Figs. 1-2. 1. *Lecythis rorida*, indehiscent water-dispersed fr. (a), the operculum and one seed (lacking an aril) removed (b). 2. *Lecythis serrata*, fr. (a), dehisced fr. showing the operculum with columella (b).

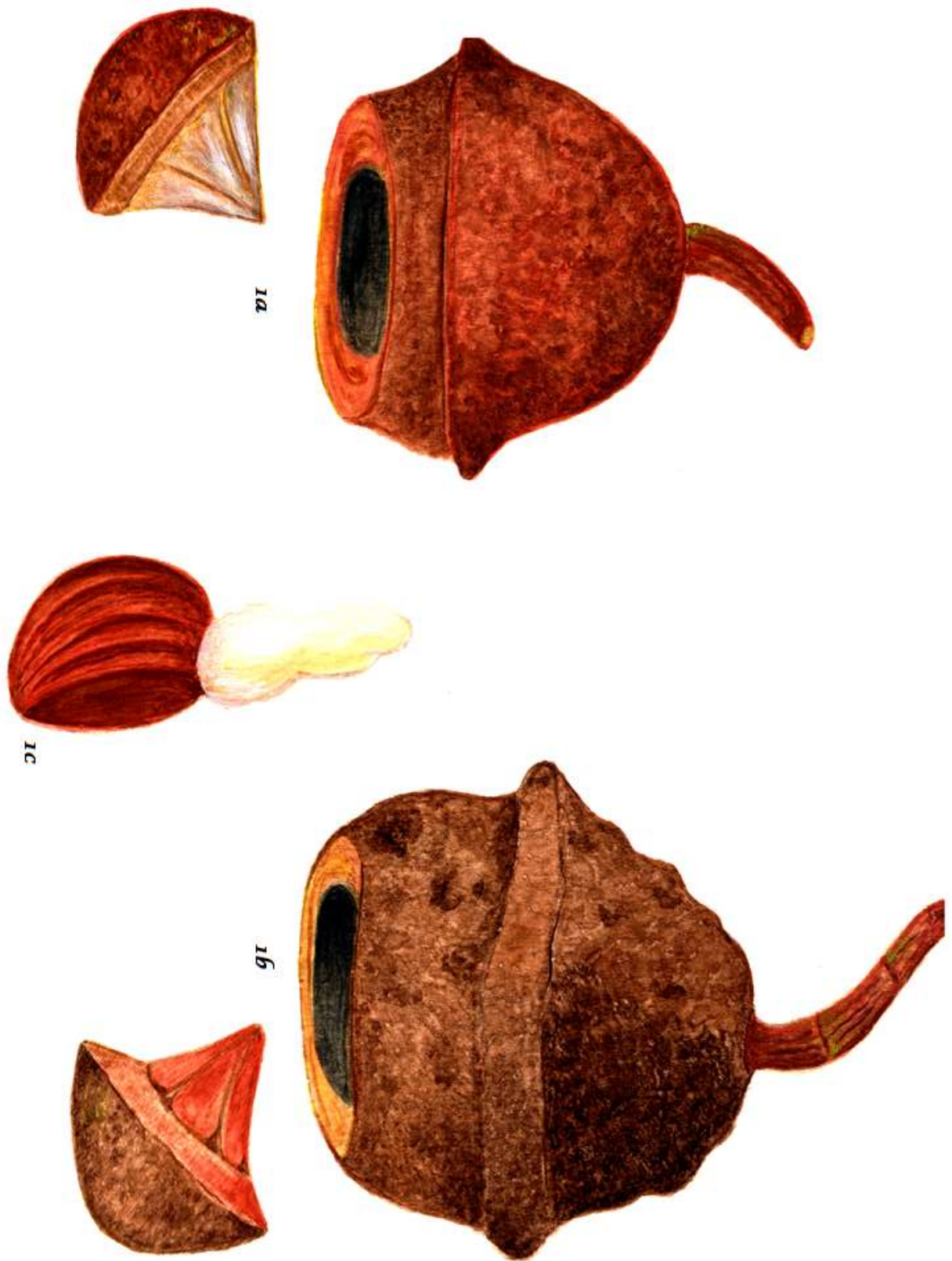


PLATE 84. LECYTHIDACEAE. 1. *Lecythis zabucayo*, differently shaped fr., the operculum falling off releasing a number of seeds attached to a basal fleshy aril (c).

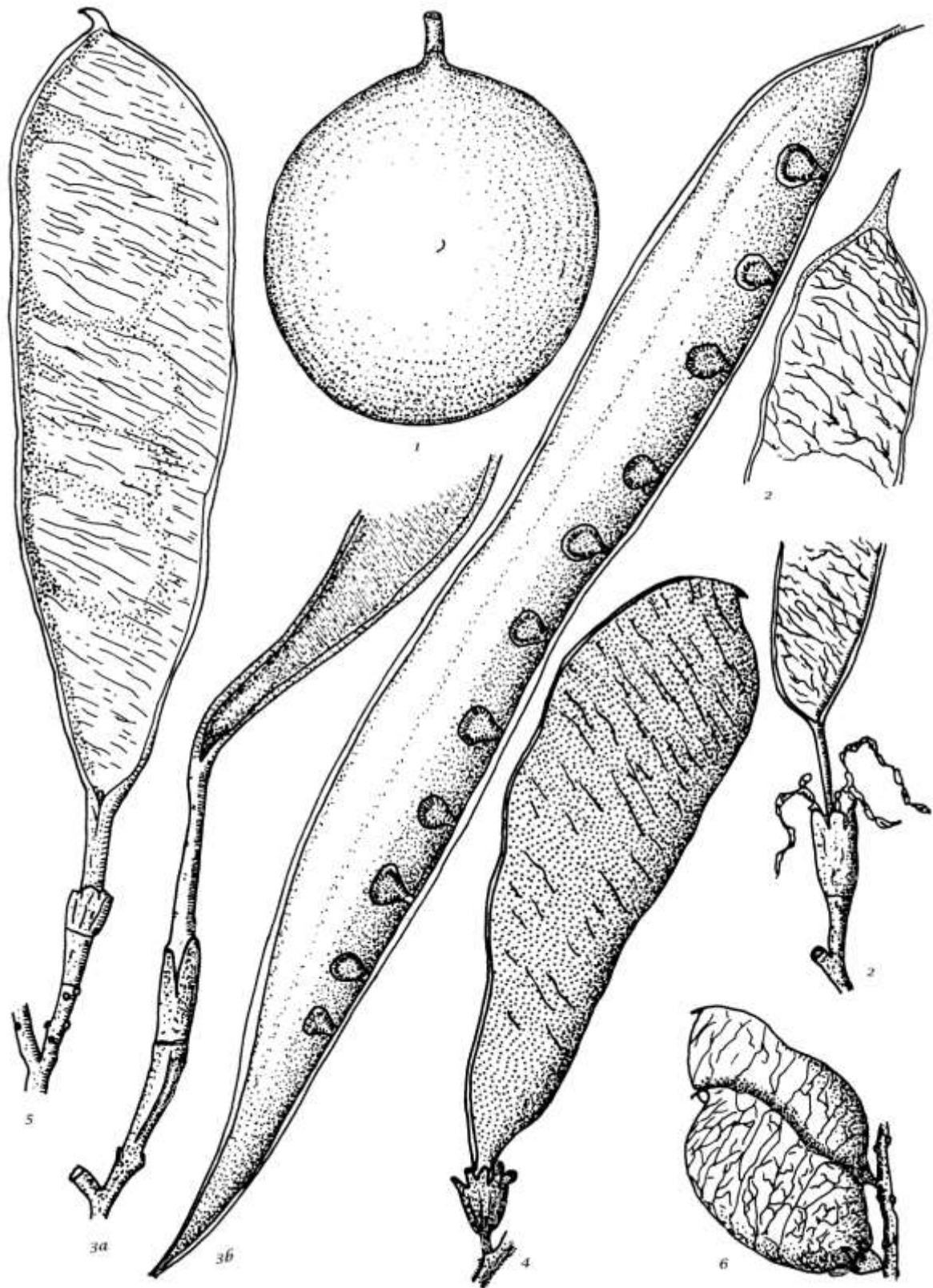


PLATE 85. LEGUMINOSAE/CAESALPINIACEAE. Figs. 1-6. 1. *Aldina insignis*. 2. *Bauhinia cinnamomea*. 3. *Bauhinia eilertsii*, basal part of fr. (a), dehisced fr. (b). 4. *Bauhinia guianensis*. 5. *Bauhinia kunthiana*. 6. *Bauhinia poiteauana*.

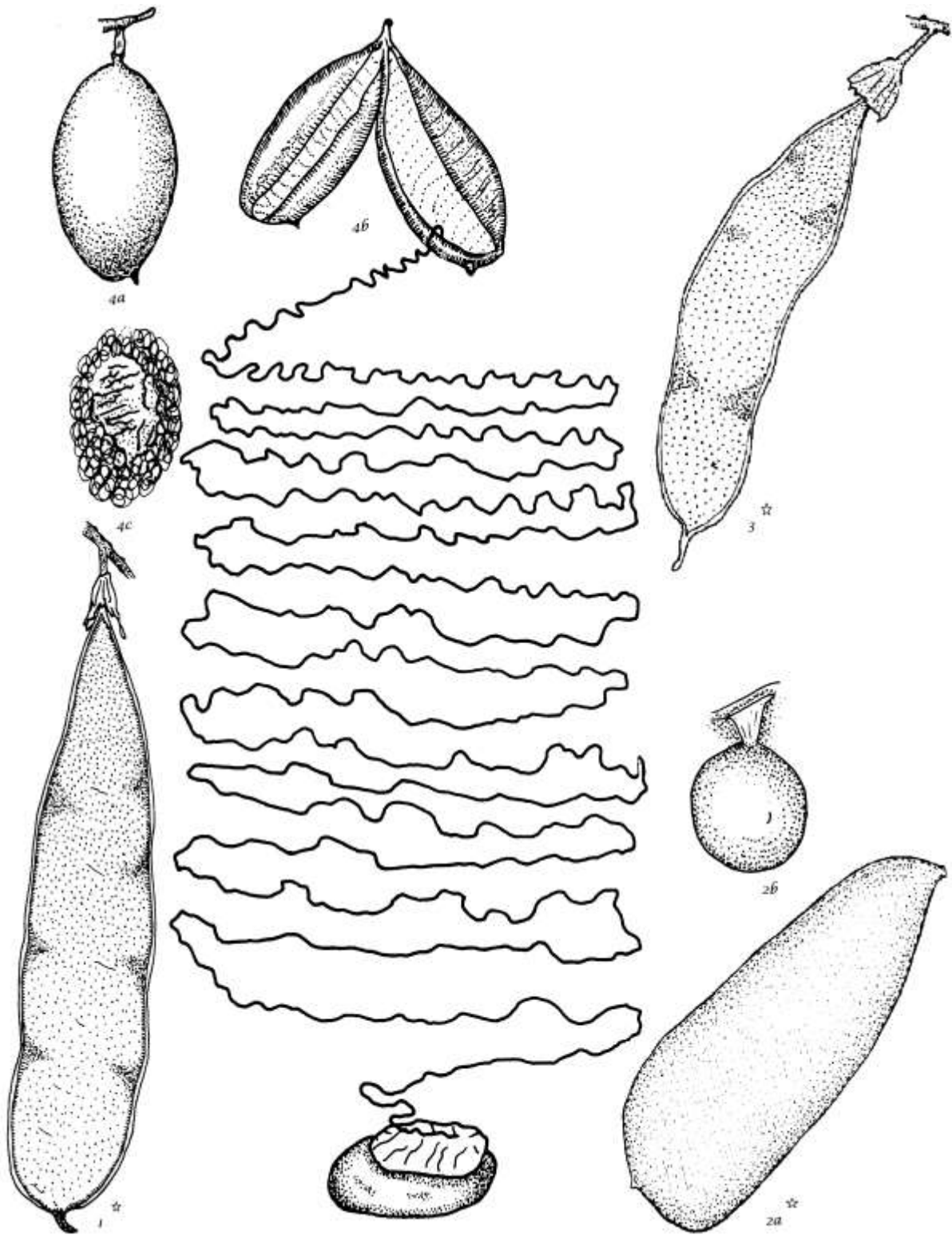


PLATE 86. LEGUMINOSAE/CAESALPINIACEAE. Figs. 1-4. 1. *Bauhinia rubiginosa*, fr. reduced in size. 2. *Bauhinia scala-simiae*, fr. reduced in size (a), seed (b). 3. *Bauhinia surinamensis*, fr. reduced in size. LEG/PAPILIONACEAE. 4. *Bocoa prouacensis*, fr. (a), dehiscent fr., the seed with aril attached to long funicle (b), fr. with valves removed (c).

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Volume II



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ACANTHACEAE de Jussieu
(including subfamily **MENDONCIACEAE** Bremek)

Leaves opposite or, occasionally, ternate, often with cystoliths on upper surface. *Inflorescences* simple or compound racemes or spikes, in cymes or panicles, sometimes 1 or few in leaf axils, often red coloured, hummingbird-pollinated. *Fruit* a loculicidal capsule, 2-valved dehiscent; seeds lenticular, sometimes flung away by the valves, but more often ejected from the latter by a contraction of the hook-like funicles or by the incurving margin.

Notes. Herbs fruticose (*Thunbergia* cultivated, escaped and naturalized), some lianas (*Mendoncia*), arborescent subshrubs or middle-sized trees (*Trichanthera*) with conspicuously bi-labiate flowers, usually subtended by conspicuous bracts and/or bracteoles, and very characteristic narrowly obovate 2-valved fruits with elastic dehiscence; seed dispersal autochorous.

1. *Mendoncia* Vell. ex Vand.

Leaves opposite, simple. *Fruiting pedicels* axillary, slender, long; bracts 2, persistent, large; fruits solitary or in pairs. *Fruit* a drupe, concealed by large bracts; pyrene 1.

Notes. Herbaceous twiners or sub-ligneous vines or lianas (66 spp. in the Neotropics, plus few in Old World); seed dispersal endozoochorous (birds, monkeys).



1.1. *Mendoncia aspera* (Ruiz et Pav.) Nees **Pl. 1, fig. 1**

Fruiting pedicels 2.5-4 cm long, appressed-puberulous; fruiting bracts narrowly ovate, acute, to 2.5 x 1.2 cm, medially ribbed, brown, appressed-puberulous outside. *Drupe* ovoid, somewhat flat, to 1.4 x 0.9 x 0.7 cm, green to reddish-black, somewhat pilose, crowned by filiform, to 1.2 cm long stylar remnant; pyrene to 1.2 x 0.8 x 0.6 cm, sharply ribbed, apex continuing into firm, sharp wing or crest.

Notes. Sub-ligneous twiner or liana to 5 m tall, climbing in shrubs; common; primary *terra firme* rain, savanna, creek, and ridge forests. *Guianas*; *Brazilian Amazon*.

1.2. *Mendoncia bivalvis* (L.f.) Merr.

Fruiting pedicels patent, to 2.5 cm long, dark brown-pilose (hairs 0.15-0.2 cm long); fruiting bracts broadly obtuse with small point (0.05-0.15 cm long), dark brown-(later colourless) pilose outside (hairs 0.15-0.2 cm long). *Drupe* resembling *M. aspera*.

Notes. Twiner or liana; not common; primary *terra firme* rain and creek forests. *Guianas*; *Brazilian Amazon*.



1.3. *Mendoncia hoffmannseggiana* Nees *cipó-tuíra* (B)

Fruiting pedicels 5.5-6 cm long, densely appressed-pilose (hairs to 0.1 cm long); *fruiting bracts* oblong, 3.5-4.5 x 0.8-0.9 cm, densely appressed-pilose outside; *flowers* red. *Drupe* resembling *M. aspera*, densely pilose (hairs to 0.1 cm long).

Notes. Herbaceous or barely woody liana climbing in trees and shrubs; seed dispersal endozoochorous (at least spider monkeys – *Ateles*); not common; secondary growth, especially in mountainous regions. *Guianas; Brazilian Amazon* (Amapá, Amazonas).



1.4. *Mendoncia pedunculata* Leonard *cipó-tuíra* (B)

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Volume III



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CACTACEAE de Jussieu

Leaves rarely present and then flat or cylindrical, caducous, mostly reduced to thorns. *Flowers* sessile, bisexual, perfect, sometimes zygomorphic, tepals and stamens numerous, ovary inferior with 4-8, parietal placentas, style 1. *Fruit* a berry, pulp edible; seeds usually numerous.

Notes. Usually fleshy plants, herbs usually epiphytic, trunk fleshy with ribs and cushion-like leafy shoots.

1. *Epiphyllum* Haworth

Leaves and glochidia absent. *Flowers* sessile, corolla long, tubular-infundibuliform. *Fruit* a fleshy berry with innumerable tiny black seeds.

Notes. Epiphytes (15 spp. in the Neotropics), with flat spineless joints, night-flowering (mostly sphingid- or bat-pollinated); seed dispersal endozoochorous (canopy birds and monkeys).



- *Epiphyllum phyllanthus* (L.) Haworth *acutirém-biú* (B)

Twigs strongly flattened, with undulate margins. *Berry* oblong, maturing purple.

Notes. Epiphyte, always growing in canopy and emergent trees; occasional; primary *terra firme* rain and savanna forests. *Central America; West Indies; N South America; SE Brazil; Argentina; Paraguay.*





2. *Hylocereus* (A. Berger) Britton et Rose

Leaves absent. *Stems* triangular. *Flowers* large, long-tubular, nocturnal, *Epiphyllum*-type (sphingid-pollinated), with conspicuous bracts on ovary. *Fruit* a fleshy, juicy, edible berry.

Notes. Epiphytic climbers (15-20 spp., in the Neotropics, mostly West Indies, Central America, and Northern South America).



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Volume IV



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GNETACEAE Lindley

Leaves opposite, entire, coriaceous. *Inflorescences* dioecious, flowers arranged by whorls in spikes or in more or less ramified panicles, each whorl supported by 1 collar; male flowers numerous, small; female flowers few, small, consisting of 3 envelopes (perianth and 2 integuments). *Fruit* drupaceous, epicarp thin (= part of perianth), mesocarp fleshy, fibrous (= part of perianth); 'endocarp' hard (= outer integument), 'testa' chartaceous (= inner integument).

Notes. Monocot family of vines including only 1 genus (*Gnetum*); stem with concentric rings in xylem, the branchlets conspicuously jointed; seed dispersal syn- and endozoochorous.

1. *Gnetum* L.



1.1. *Gnetum nodiflorum* Brongn. *kô-sjiton* (P); *ituá* (B) **Pl. 51, fig. 5**

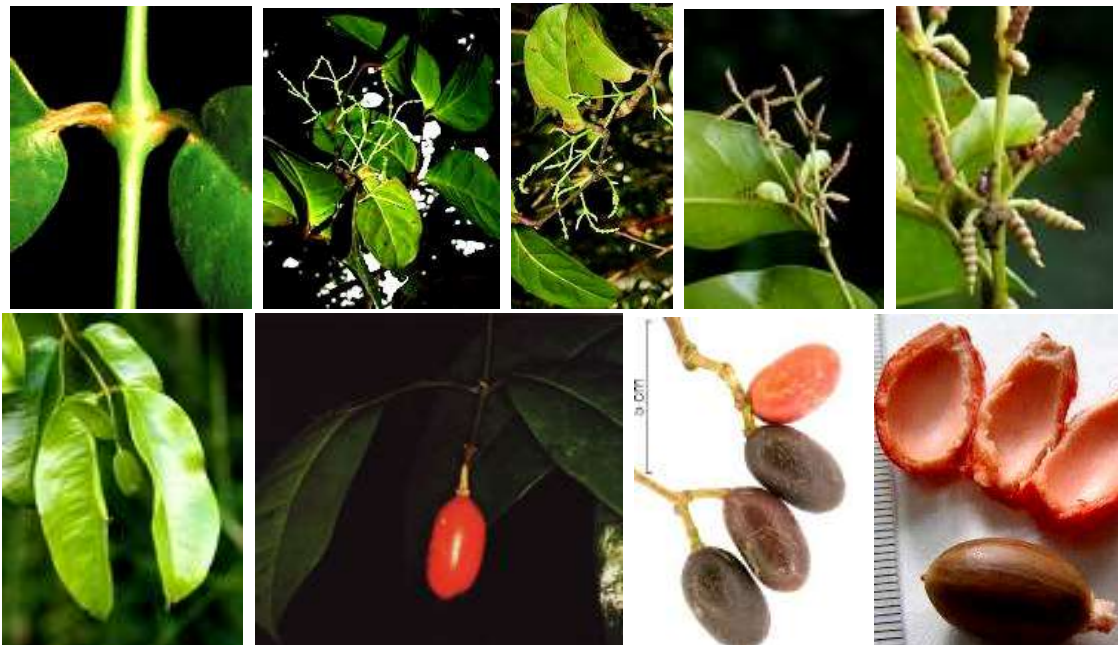
Fruit broadly oblong, to 3.5 x 1.9 x 1.9 cm, green turning reddish-brown, glabrous, irregularly obscurely ribbed (especially at base), base usually oblique, somewhat cuneate, apex oblique, without perianth measuring up to 2.5 x 1.7 x 1.7 cm, green, glabrous, shiny, longitudinally striate, apiculate.

Notes. Woody liana or hemi-epiphyte climbing in low trees and shrubs, stem without latex; fairly common; primary *terra firme* rain and savanna forests, brushwood, savanna-forest margins, riverbanks, scrub savannas, also on ridges. *Guianas*; *Brazilian Amazon* (Acre, Amazonas, Mato Grosso, Pará, Rondonia, Roraima).



1.2. *Gnetum paniculatum* Spruce ex Benth. *ituá* (B)

Notes. Woody liana climbing into canopy, leaves chartaceous; not common; primary *terra firme* rain forest, especially in low-lying swampy areas. *French Guiana; Brazilian Amazon* (Amapá, Amazonas – Rio Negro Basin).



1.3. *Gnetum schwackeanum* Taub. ex Schenk *ituá* (B)

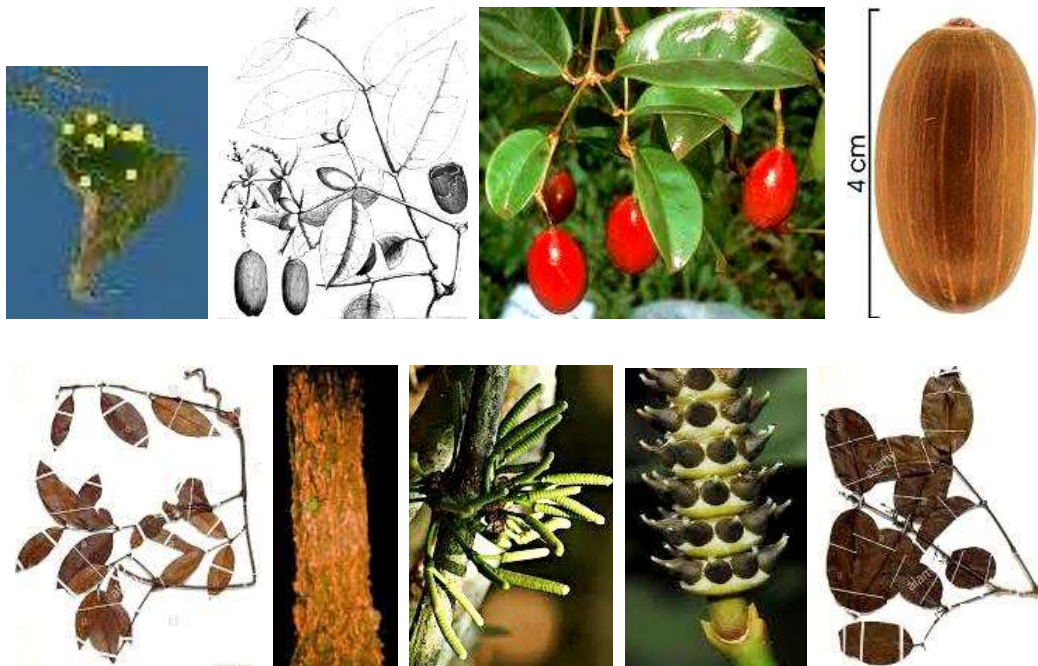
Notes. Low-climbing small- to medium-sized woody liana, bark slash exuding sticky resin; leaves chartaceous; rare. *Brazilian Amazon* (Amazonas).



1.4. *Gnetum urens* (Aubl.) Blume *ituá* (B) **Pl. 51, fig. 6**

Spike rachis and peduncle much slenderer than in *G. nodiflorum*. *Fruit* narrowly ellipsoid, somewhat pyriform, 3.1 x 1.9 cm to 4 x 2 cm, at first yellow, maturing purplish-red, e-costate, apiculate, without dry-fibrous perianth measuring 2.3 x 1.4 x 1.4 cm; true seed edible.

Notes. High-climbing woody liana, bark with white to yellowish-brown latex; seed dispersal endozoochorous (at least spider monkeys swallow the fruit whole and pass the seed unharmed through the gut); not common; primary *terra firme* rain forest, especially along rivers and on slopes up to 900 m altitude. *Guianas; Venezuelan + Colombian + Peruvian Amazon; N Brazilian Amazon* (Amapá, Amazonas, Mato Grosso, Pará, Rondonia, Roraima).



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Volume V



Marc G.M. van Roosmalen (Pico da Neblina, 3,009 m altitude)



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LEGUMINOSAE

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LEGUMINOSAE de Jussieu

The *Leguminosae* is the most important tree family of the Flora Neotropica and also the predominant family of slender vines, including some lianas and herbs as well. The main characteristics of the superfamily *Leguminosae* as a whole are: 1/ a compound leaf with a hinge at the base of the petiole and petiolules; 2/ a superior, 1-locular ovary with 1 or 2 series of ovules that often grow into a legume or pod, which at maturity splits along one or both sutures.

When sterile, the *Leguminosae* are characterized by the pinnately compound, often bipinnate or 2-3-foliolate leaves, the leaflets having the *entire petiolule evenly cylindrical and pulvinate (with a hinge)*; the leaf itself also has a cylindrically pulvinate petiole base - the only non-legumes sharing this character are *Connaraceae* and the genus *Picramnia (Simaroubaceae)*. Many legumes have bipinnate leaves or bifoliolate leaves – both extremely rare characteristics in other families.

With respect to leaf and flower characteristics combined, the superfamily of *Leguminosae* can be divided into the following three major legume groups, often recognized as families: *Caesalpinioideae*, *Papilionoideae*, and *Mimosoideae*. Legumes are generally distinguished by the complex, bilaterally symmetrical, pea-like flower of *Faboideae* vs. the tubular actinomorphic flowers of *Mimosoideae* –the latter usually small, with numerous exerted anthers, and densely arranged into a conspicuous spicate, capitate or umbellate inflorescence- vs. the slightly bilaterally symmetric flower with 5 separate, more or less equal petals of *Caesalpinioideae*. Moreover, the *Mimosoideae* and *Faboideae* usually have a conspicuous, rather rank ‘green-bean’ vegetative odor; the *Caesalpinioideae* often lack this odor. Vegetatively, the *Mimosoideae* are usually characterized by bipinnate leaves (except *Inga*) with large, usually cupular petiolar and/or rachis glands (except *Pentaclethra*, *Mimosa*, *Entada*, and *Calliandra*). The *Caesalpinioideae* are characterized by mostly paripinnate (or 2-foliolate) leaves; most caesalpinoid genera with imparipinnate leaves have the leaflets alternating on the rachis, and bipinnate caesalpinoids lack the large petiolar or rachis gland(s) being found in most bipinnate mimosoids. The *Papilionoideae* are vegetatively characterized by 3-foliolate or imparipinnate leaves, the latter often with strictly opposite leaflets. With respect to habit, mimosoids are usually trees, often with spreading crowns, the vine and liana genera of mimosoids usually having numerous small spines on both stem and leaf rachis (the only non-spiny mimosoid liana being *Entada*); most papilionates are uniquely 3-foliolate vines, whereas papilionate lianas and some tree genera typically have red latex; caesalpinoids are almost always trees (except a few *Caesalpinia* species and some species of the very diverse genera *Cassia* and *Bauhinia*), which lack the red latex.

Caesalpinioideae are now considered to be the most primitive (sub)family, as multiple stamens in *Mimosoideae* as well as the complex bilaterally symmetrical flowers of *Papilionoideae* derived secondarily. The Tribe *Swartziae* including *Bocoa* and *Swartzia* is intermediate and is treated here as papilionate.

CAESALPINIOIDEAE R. Br.

Leaves alternate, 1- or 2-pinnate, rarely simple, stipules present, stipels sometimes present. *Flowers* usually bisexual, 5-merous, actinomorph or (frequently) zygomorph; sepals free or sometimes connate in bud, petals 5 or often less, free, sometimes absent, with ascending aestivation, usually different in size but not in form, stamens 10 (sometimes less), arranged in a single ring, usually free, ovary with 1 placenta and 2 (sometimes 1) series of ovules, style 1, stigma 1. *Fruit* a many-seeded, dehiscent pod, sometimes 1-seeded and then indehiscent.

Notes. Trees, lianas, shrubs, or under-shrubs, rarely herbs.

1. *Batesia* Spruce *ex* Benth.

Notes. Amazonian trees (1 sp. in South America).

1.1. *Batesia floribunda* Spruce *ex* Benth. *tento-miúdo*

Leaves impari- (=odd)-pinnate, leaflets strictly opposite, with 1 large *Inga*-like gland between (at least) basal pair of leaflets, and sometimes all pairs, rachis flattened, shallowly grooved above, leaflets oblong-elliptic, with rather close, straight secondary veins, typically drying darkish or grayish. *Inflorescences* paniculate, terminal, flowers light yellow. *Fruit* oblong, subglobose, 2-3 cm long, conspicuously longitudinally ca. 8-costate, dehiscing by means of 4 'valves'.

Notes. Tree, trunk slightly flattened, young twigs angular; locally common; primary *terra firme* rain forest. *Venezuela* (Amazonas); *Peruvian Amazon*; *Brazilian Amazon* (Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Rondonia, Roraima); *SE Brazil* (Atlantic Forest).



2. *Bauhinia* L. *pata-de-vaca*, *escada-de-jabutí* (B)

Leaves 1-foliolate, bifid (incompletely split in half, *or* the two halves completely fused, but the venation being palmate), the leaflet somewhat to entirely connate, the pulvinus (hinge) therefore situated in lamina, and remains of rachis deciduous or absent; stipules free, caducous. *Inflorescences* racemose or paniculate, axillary or terminal; calyx entire in bud, sometimes with appendage-like lobes in bud, splitting when flower opens. *Pod* flat, often woody, usually dehiscent; seeds several, flat.

Notes. Lianas with tendrils and often with conspicuously flattened stems ('monkey's ladder', 'turtle-ladder'), infrequently erect shrubs or small trees, in dry areas with spines (150 spp. plus 200 spp. in Old World); seed dispersal autochorous, some species maybe anemochorous (wind-dispersed).



2.1. *Bauhinia alata* Ducke *escada-de-jabotí* (B)

Notes. Liana with flattened sinuous woody stem, bark light yellow, red-striate, slash exuding sticky red resin; occasional; primary and disturbed *terra firme* rain forest. *C+E Brazilian Amazon* (Amazonas, Mato Grosso, Pará, Rondonia).



2.2. *Bauhinia cinnamomea* DC. *ankono* (A) **Pl. 85, fig. 2**

Leaves entire. *Racemes* terminal, ferruginous-tomentose, flowers in pairs; pedicels ca. 0.6 cm long, in fruit 0.7-1.3 cm long, ferruginous-tomentose; flowers with persistent calyx, in fruit purple-brown velutinous, tube ca. 1 cm long, 0.5 cm wide, lobes twisted, reflexed, ca. 2.5 cm long. *Pod* linear, very flat, to 22(-31) x 1.5-2 cm, green to blackish-

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Volume VI



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LOGANIACEAE C. Martius

Leaves opposite, entire, dentate, or lobed. *Inflorescences* cymose, terminal or lateral; flowers bisexual, regular, 4- or 5-merous, corollas 4- or 5-lobed, tubular; ovary superior, 2-locular. *Fruit* a septacidally dehiscent bivalved capsule or a 1-many-seeded (sub)globose berry (*Potalia* and *Strychnos*); seeds various, winged, often tiny.

Notes. Trees, shrubs, or herbs; seed dispersal anemochorous or endozoochorous (in particular specialist frugivores such as spider and woolly monkeys).

1. *Antonia* Pohl

1.1. *Antonia ovata* Pohl *tamanokware* (C); *lika-oedoe*, *kasaba-oedoe*, *soekroe-oedoe* (S); *kasaba-oedoe* (P) **Pl. 120, fig. 7**

Corymbs terminal, dense; flowers small, yellow, fragrant, each with many, persistent bracteoles; fruiting pedicels ca. 0.1 cm long. *Capsule* oblong, to 1 x 0.3 x 0.3 cm, yellowish-green, 2-locular, 2-valved dehiscent; seeds 1, rarely 2, per locule, wings (especially on ends) membranaceous.

Notes. Tree to 20 m tall, trunk base with very sharp buttresses; bark slash smelling after boiled sugarcane juice; seed dispersal anemochorous; fairly common; primary *terra firme* rain and savanna forests, also as shrub on savannas. *Guianas*.



2. *Bonyunia* Rich. Schomb. ex Progel

Notes. Shrubs of the Guayana Shield (4 spp. in tropical South America) with small coriaceous leaves and 2-valved capsular fruits containing small winged seeds (dispersed anemochorically).



2.1. *Bonyunia aquatica* Ducke

Older twigs lenticellate; leaves coriaceous, glabrous, adaxially with prominent central nerve and 6-8 pairs of secondary veins.

Notes. Small tree, bark pinkish; seed dispersal anemochorous (by wind); rare; primary *terra firme* rain forest. *CN Brazilian Amazon* (Amazonas, Roraima).

3. *Mostuea* Didr.



3.1. *Mostuea surinamensis* Benth. **Pl. 120, fig. 8**

Dichasia terminal or axillary; central flowers sessile, lateral flowers pedicellate; fruiting calyx 5-partite, 0.15 cm long. *Capsule* compressed, consisting of 2 diverging lobes, each lobe oblong, to 1 x 0.5 x 0.25 cm, green to black, glabrous, smooth, apex rounded, 2-locular; seeds 2, lenticular, winged especially on base and sides.

Notes. Shrub to 3 m tall (1 sp. in the Guayana Shield, plus 7 in Africa); seed dispersal anemochorous (by wind); not common; primary *terra firme* rain forest and riverine forest between granite boulders. *Suriname*.

4. *Potalia* Aubl.

Leaves coriaceous, very large, long narrow oblanceolate, clustered in terminal tuft

Notes. Small pachycaul understory tree (1 sp. in tropical South America) of lowland primary *terra firme* rain forest, especially on poor-nutrient soils; in Amazonia used as anti-venom against snake bites.



4.1. *Potalia amara* Aubl.

Leaves grouped at twig ends, glabrous, membranaceous, secondary venation inconspicuous.

Notes. Small understory tree, monocaulous; occasional; primary *terra firme* rain and savanna forests, especially in low-lying areas. *Guianas*; *Peruvian Amazon*; *Brazilian Amazon* (Amazonas, Pará, Roraima).



5. *Strychnos* L.

Leaves entire, very conspicuous, easily recognized being opposite, conspicuously 3- or 5-veined (unique feature in Neotropics except for very different leaves of *Melastomataceae*). *Pedicels* with 2 bracts, usually strongly thickened towards apex. *Fruit* a berry, globose, ellipsoid, or oblong, usually large, epicarp leathery or corky, mesocarp (pulp) often edible, juicy, sweet tasting; seeds 1 or 2 (by abortion), to numerous, discoid, soft-coated, testa thin-leathery, endosperm highly poisonous.

Notes. Usually canopy lianas, climbing with tendrils, occasionally spindly shrubs (70 spp. in the Neotropics, plus many in Old World); many species rich in alkaloids (especially strychnine, some types of curare); seed dispersal endozoochorous (involving exclusively specialized frugivores like spider monkeys that usually swallow seeds together with pulp without any mastication, as such treating toxic seeds with care).



5.1. *Strychnos asperula* Sprague & Sandwith

Twigs beset with small lenticels; leaves coriaceous, roundish, glabrescent, apex long-acuminate, base with 3 secondary veins; petiole glabrous,

Notes. Liana, stem bark beset with lenticels and tubercles; rare; primary *terra firme* rain forest. *Brazilian Amazon* (Amazonas).

**A Pictorial Field Guide to the
WOODY PLANTS OF THE AMAZON**

Volume VII



Marc G.M. van Roosmalen



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MYRISTICACEAE R. Br.

Leaves alternate, simple, entire. *Inflorescences* racemose, paniculate, or umbellate, axillary or terminal, flowers unisexual, tiny, tan to greenish, 3-parted, often fascicled at ends of or along the ramification in open multi-flowered panicles (male *Virola*), racemes (most *Iryanthera*), or contracted to few-flowered fascicles (female flowers in many species of several genera); many species of *Iryanthera* are strikingly cauliflorous, others at least ramiflorous; flowers monoecious (*Iryanthera*) or dioecious, unisexual, small; ovary superior, 1-locular. *Fruit* a 2-valved dehiscent, woody capsule, absolutely distinctive in that mesocarp splits in half to reveal a single large, aril-covered seed; seeds 1, large, enclosed in entire or frequently (*Virola* + *Otoba*) conspicuously lacinate/lacerate, fleshy, lipid-rich, usually bright red (white in *Otoba* + some *Compsonaura*) aril (=sarcotesta), endocarp ruminant (*Virola* + *Otoba*).

Notes. Medium- to large-sized trees (only *Compsonaura debilis* being shrub of white-sand savannas and catingas with subscandent branches), easy to recognize to family, when sterile, by the combination of Ranalean odour, regularly spaced 2-ranked leaves, myristicaceous branching, and bark slash exuding thin red (straw-coloured in *Osteophloeum*) transparent latex (at first thin, watery, pinkish, after minutes turning red); bark on trunk often either vertically ridged or peeling in rather thick fibrous plates; stilt-roots are typical of some swamp species; seed dispersal always endozoochorous (seeds dispersed through the gut of specialized frugivores, such as toucans, guans, some cotingas, howling and spider monkeys).



Myristica fragrans

1. *Compsonaura* Warb.

Leaves glabrous, easy to recognize by conspicuously finely parallel tertiary venation. *Male flowers* with 4-10 anthers, more than other Neotropical genera (except *Osteophloeum*), 3-25 in each fascicle; female flowers 1-8 in each fascicle. *Capsule* oblong-ellipsoid, glabrous, smooth

or obscurely carinate, pericarp leathery, sometimes woody; aril weakly developed (primitive character?), subentire, usually red, sometimes white (seeds of these sometimes edible); seed ellipsoid, seed coat smooth, usually with irregular black or purple streaks; endosperm non-ruminant.

Notes. Small-sized trees or shrubs (*C. debilis*) (9 spp. in S Central America. And NE tropical South America).



1.1. *Compsonera capitellata* (A. DC.) Warb. Pl. 138, fig. 1

Fruiting pedicels 0.4-0.5 cm long. *Capsule* ellipsoid to subglobose, 4.3-6.8 x 3.9-4.8 cm, glabrous, maturing green to dark yellow, apex rounded, sometimes sulcate, base stipitate, rounded, at one side with 1, longitudinal suture, pericarp dehiscent at first along one side, fleshy when fresh, hard woody when dry, 0.4 cm thick; seed 2.7-4.3 x 3-3.2 cm, seed coat hard, brown, not painted with black streaks and dots.

Notes. Tree to 28 m tall; occasional; primary *terra firme* rain forest. *Colombian + Ecuadorian + Peruvian Amazon; Brazilian Amazon* (C Amazonas).





1.2. *Compsonaura debilis* (A. DC.) Warb. Pl. 138, fig. 2

Infructescence 3.4-4.5 cm long, peduncle 0.5-1.9 cm long, containing 2-4 ripe fruits; fruiting pedicels stout, 0.5-0.8 cm long, distally dilate, with 3 persistent sepals. *Capsule* ellipsoid to slightly oblong, 1.9 x 1 cm, obtuse at apex, stipitate towards base, with 1, sunken longitudinal suture, pericarp fragile, epicarp smooth, aril thick, entire, purplish, fatty; seed ellipsoid to oblong, 1.4 x 0.7 cm.

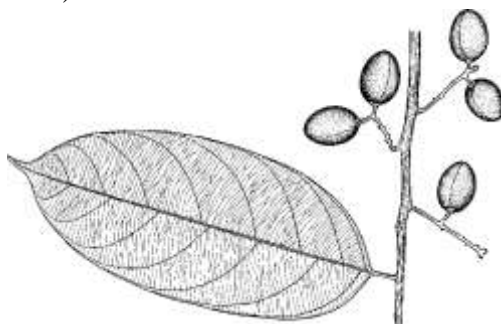
Notes. Small tree to 6 m tall; locally common; mature *caatinga* on sand, low savanna forest, open scrub savanna (*campina*). *Venezuela + Colombia; Brazilian Amazon* (Amazonas).



1.3. *Compsonaura sprucei* (A. DC.) Warb.

Capsule ovoid, green to orangish-yellow; aril entire, not lacinate, bright red or purplish; seed ellipsoid, glossy, gray and artistically painted with black streaks and patches – used as beads in ornamentals, necklaces, etc. by Yanomami and Já Amerindian tribes.

Notes. Low tree; occasional; *caatinga-do-Rio-Negro* and mountain savanna forest. *Brazilian Amazon* (Amazonas – Upper Rio Negro Basin); *Colombian Amazon* (Guianía, Vaupés); *Venezuelan Amazon* (Amazonas).





1.4. *Compsonaura ulei* Warb. Pl. 138, fig. 3

Leaves, young twigs, and petioles glabrous, leaf blade chartaceous, with ca. 8 pairs of secondary veins, 5-24 x 2-10 cm, tertiary venation subparallel, sub-perpendicular onto the main nerve. *Infructescence* 5.2-6 cm long, peduncle 0.5-1.8 cm long, each infructescence with 1-2 mature pedicellate fruits, sepals 3, persistent in fruit; fruiting pedicels 0.4-0.8 cm long. *Capsule* ellipsoid, 1.9-2.4 x 1-1.1 cm, at first green, maturing yellow, apex obtuse or acuminate, base stipitate (stipe ca. 0.1-0.2 cm long), with 1 longitudinal, somewhat sunken suture; pericarp fragile; aril white; seed ellipsoid, with black streaks and patches.

Notes. Shrub or small tree to 8 m tall; seeds reported to be dispersed by at least brown capuchin monkeys (*Sapajus*); common; primary and secondary *terra firme* rain forest, often in low-lying, temporarily somewhat swampy areas, also in shrub savannas on sand.

Notes. Small tree to 7 m tall; occasional; primary *terra firme* rain forest. *French Guiana*, *Guyana*; *Bolivian Amazon*; *Brazilian Amazon* (Acre, Amapá, Amazonas, Mato Grosso, Maranhão, Pará, Rondonia).



**A Pictorial Field Guide to the
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Volume VIII



Marc G.M. van Roosmalen



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RUBIACEAE Juss.

Leaves decussate or verticillate, simple, usually entire, stipules usually between petioles and often connate pairwise, sometimes ochrea-like around twig, or calyptriform around bud. *Flowers* 4-6-merous; ovary inferior (except *Pagamea*), usually 2-, sometimes 1- or many-locular; style 1. *Fruit* usually crowned by calyx (remnants), very variable, *either* a capsule with numerous, small, angular seeds attached to globose placenta, or seeds flattened and marginate or winged or provided at one end with a hairtuft covering an elongated placenta, *or* a berry (sometimes with a leathery or woody epicarp) with flattened, angular, hemispherical or globose seeds, *or* a drupe with 1 or more, 1- or several-seeded pyrenes.

Notes. Trees, shrubs, or herbs, rarely climbing hemi-epiphytic shrubs, vines, or lianas (i.e., *Chiococca*, some *Chomelia*, *Malanea*, *Manettia*, some *Randia*, *Sabicea*, *Schradera*, *Uncaria*); trunk fenestrated in *Alseis*, *Amaioua*, and some *Remijia*; papery outer bark peeling to show strikingly smooth inner bark in the following genera: *Capirona*, *Chomelia*, and *Guettarda*; several genera (i.e., *Uncaria*, *Randia*, *Chomelia*) armed with spines; pollination by hawkmoths in the following genera: *Hillia*, *Hippotis*, *Isertia* (trees only), *Kotchubaea*, *Ladenbergia*, *Posoqueria*, *Randia*, *Tocoyena*; seed dispersal zoochorous or anemochorous.

1. *Alibertia* A. Rich.

Leaves rather small, opposite, coriaceous, usually with distinctive acute to strongly acuminate triangular (rarely truncate) stipules (often fused into tube at base and at least the base usually persistent) and brown twigs. *Inflorescences* dioecious, flowers sessile, white, several together to only 1, rather fleshy, with ca. 5 cm long, pointed lobes; male heads terminal; female flowers solitary, terminal; calyx cupular, truncate, or obscurely dentate. *Fruit* a berry, smaller than in most relatives, sessile, globose, ca. 2-2.5 cm in diameter, yellow, apex with a conspicuous cylinder formed by persistent calyx tube; epicarp usually leathery; pulp jelly-like; seeds lenticular or subglobose.

Notes. Shrubs or small trees (35 spp. in tropical South America), usually riparian, similar to *Randia*, but plant non-spiny; seed dispersal endozoochorous (mainly birds).

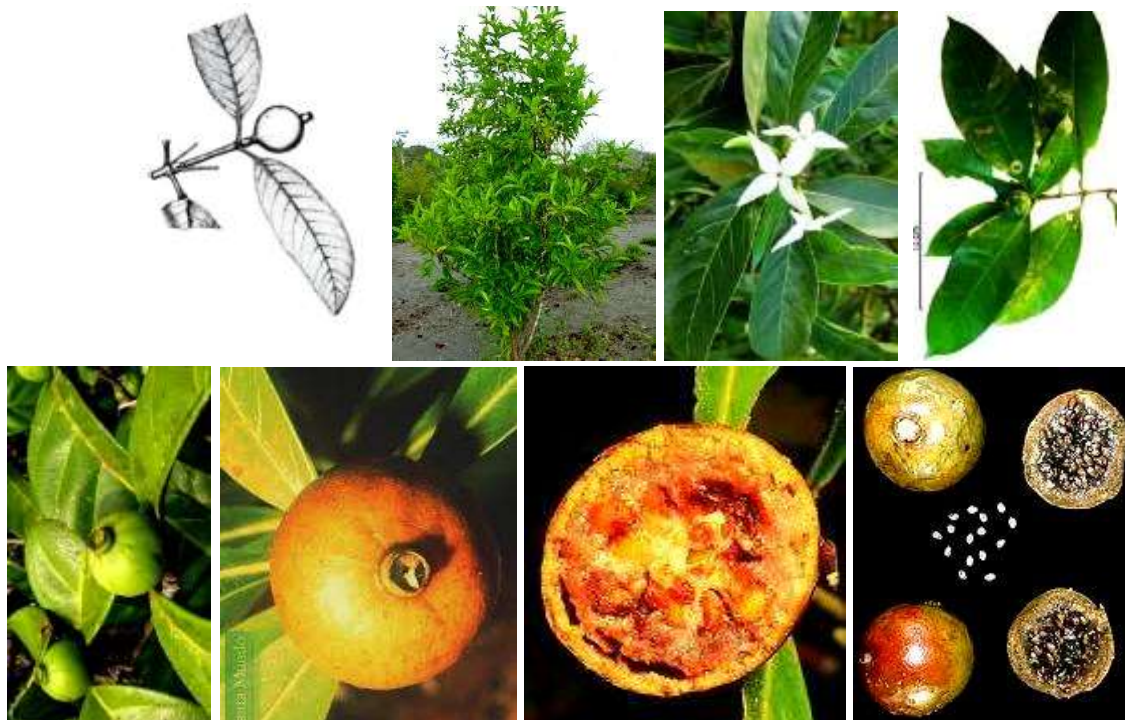




1.1. *Alibertia edulis* (L.C. Rich.) A. Rich. ex DC. *marmelada* (B) Pl. 161, fig. 6

Male heads sessile or pedunculate, to 10-flowered; female flowers subsessile; fruiting calyx 0.4 x 0.5 to 1 x 0.7 cm, obscurely dentate. *Berry* to 4.5 x 3.5 cm, green to yellowish-brown, base sometimes tapering over 0.5 cm; pulp yellow, edible; seeds numerous, angular, flattened, 0.5 cm in diameter.

Notes. Shrub or tree to 5 m tall; not common; especially along creeks. *Guianas; Brazilian Amazon (Amazonas).*



1.2. *Alibertia hispida* Ducke

Young twigs terete, pilose; leaves cross-wise opposite, spreading, nerves pilose on both sides; stipules lanceolate, large, outside pilose, inside glabrous.

Notes. Small tree, dead outer bark reddish-brown, striate, bark slash cream to yellowish; locally common; primary *terra firme* rain and savanna forests, especially in low-lying, periodically somewhat swampy places. *Peruvian Amazon; C+W Brazilian Amazon (Amazonas).*



1.3. *Alibertia myrciifolia* K. Schum. var. *myrciifolia puruna-do-bosque* (B) Pl. 161, fig. 7

Leaves, young twigs and stipules glabrous, stipules truncate, with abaxially prominent primary vein *Male heads* sessile, ca. 6-flowered; female flowers subsessile, sometimes in pairs; fruiting calyx 0.02-0.1 cm long, 0.25-0.4 cm in diameter. *Berry* to 1 cm in diameter, green, pulp edible, sweet-tasting.

Notes. Shrub or understory tree to 11 m tall, trunk furrowed, outer bark brown; seed dispersal endozoochorous (at least by tamarin monkeys); occasional; especially in low-lying periodically swampy places in savannas, savanna forest, riverbanks, also secondary forest on sand. *Guianas*; *Colombian Amazon*; *Venezuela*; *Brazilian Amazon* (Amapá, Amazonas, Pará, Roraima).



1.4. *Alibertia surinamensis* (Bremek.) Steyerem. (formerly *Ibetrulia surinamensis*) *boesikofi* (S) Pl. 161, fig. 8

Stipules 0.4-0.5 cm long, persistent. *Male flowers* 6-merous; female flowers 7-merous; fruiting pedicels stout, ca. 0.5 cm long; fruiting calyx 0.5-0.7 cm long, ca. 0.5 cm wide, irregularly dentate. *Berry* ellipsoid, to 4 x 3 cm, dark green to orange-yellow, glabrous, subrugulose; epicarp woody, fairly thin; seeds few, ovoid, angular, 1 x 0.7 cm, finely ribbed.

Notes. Tree to 5 m tall; rare; mountain savanna forest. *French Guiana*, *Suriname*.

1.5. *Alibertia triflora* (A. Rich.) K. Schum.

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Volume IX



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SAPOTACEAE A.L. de Jussieu

Leaves spirally arranged, or alternate and distichous, sometimes opposite or verticillate, simple, entire, with large, caducous stipules in all species of *Ecclinusa* and *Chromolucuma*, leaving a distinctive scar. *Inflorescences* fasciculate, axillary, ramiflorous, or cauliflorous, often being densely clustered on twigs, branches, or trunk, or occasionally several arranged along short, leafless, axillary shoots, flowers bisexual or unisexual (plant monoecious or dioecious), small, regular, 3-6(-7)-merous, calyx with a single whorl of (4-)5(-6) free, imbricate sepals (as in most *Pouteria* species), or with 6-12 spirally arranged sepals (as in *Pouteria* section *Aneulucuma*), or biseriate, consisting of 2 whorls, each with (2-)3-4 sepals (as in *Manilkara*), petals more or less connate, cyathiform or shortly tubular, usually with included stamens (as in most *Pouteria* species), or with widely spreading lobes (rotate) and exerted stamens (as in *Pradosia* species), ovary superior, 1-15-locular, with uni-ovulate loculi, but reduced to 3, 2, or 1 locule in many *Pouteria* species (*Diploön* has 1 locule with 2 basal ovules), styles 1. *Fruit* a berry with undifferentiated endocarp, or, as in *Pradosia*, a drupe with a cartilaginous endocarp, globose, ovoid, obovoid, or ellipsoid, the small-fruited species often with a soft pericarp, the larger-fruited species often with a leathery and hard pericarp, with the innermost 0.1-0.3 cm surrounding the seed being a succulent, sweet, watery jelly, the fleshy part always edible and sweet-tasting, the pericarp indehiscent (only dehiscent in some *Chrysophyllum* species); seeds 1-several, very distinctive – the family characteristic being the smooth, shiny, brown testa contrasting with the conspicuous pale, rough scar (hilum), by which the seed is attached to the rest of the fruit – seed shape, position of the scar, and extent of the scar provide useful, sometimes decisive taxonomic characters – and many species have strongly laterally compressed seeds (as in many *Chrysophyllum* and *Manilkara* species), or broadly ellipsoid seeds with a narrow or broad adaxial scar (as in many *Pouteria* species), or broadly ellipsoid, subglobose or obovoid seeds with a small or large, basal or basi-ventral scar (e.g., *Diploön* and some *Chrysophyllum* species).

Notes. Small to large trees, with a cylindrical bole (in all species of *Manilkara*), or fluted bole (in many species of *Pouteria*), the base of the trunk often buttressed, the bark rarely smooth, often fissured or scaling, with white, rarely yellow, rather thick, sticky or at least milky latex in trunk, branches and young fruit; pollination by bats (as in *Manilkara* species), small bees and other insects (as in *Pouteria* species), and flies and perhaps larger vertebrates (such as woolly opossums – *Caluromys*) in species of *Pradosia*; seed dispersal – at least in the small-fruited species with a soft pericarp - by birds (e.g., cotingids, toucans, and guans), and monkeys (this family is probably the most important food-supplier for most of the 19 genera of Neotropical primates), the smaller and larger seeds swallowed and endochorically dispersed by spider monkeys (*Ateles*), woolly spider monkeys (*Brachyteles*), woolly monkeys (*Lagothrix*), howling monkeys (*Alouatta*), tufted or robust capuchin monkeys (*Sapajus*), gracile capuchin monkeys (*Cebus*), titi monkeys (*Callicebus*), the small seeds also dispersed by smaller monkeys such as night monkeys (*Aotus*), squirrel monkeys (*Saimiri*), lion tamarins (*Leontopithecus*), tamarins (*Saguinus*), Goeldi's monkey (*Callimico*), Amazonian marmosets (*Mico*), ouistitis (*Callithrix*), dwarf marmoset (*Callibella*), and pygmy marmosets (*Cebuella*), and, furthermore, coatis (*Nasua*), kinkajous (*Potos*), marsupials (*Didelphis* and *Caluromys*),

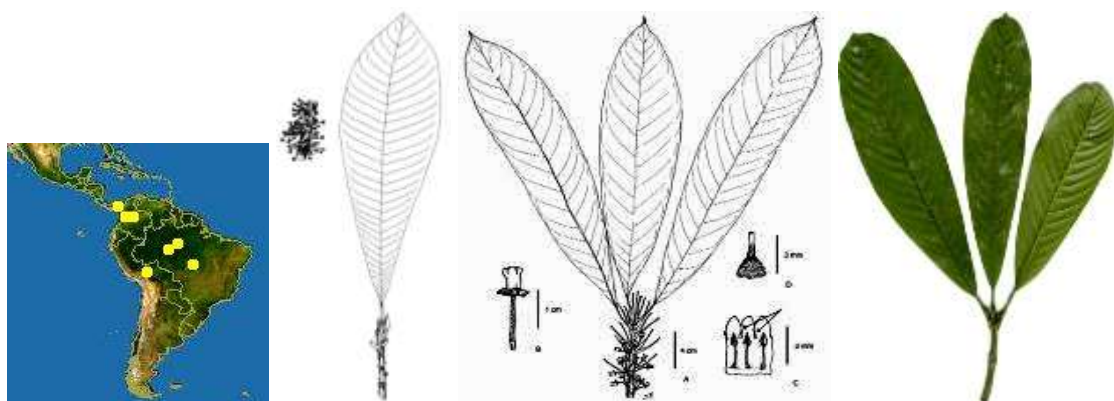
fish (some *igapó* and *várzea* floodplain-forest species are probably exclusively dispersed by fish), tortoises (*Chelonoidis*), and bats (only those soft-skinned, sweet-tasting fruit species containing a seed that is easily removed from the pericarp); predation of the immature (and sometimes also mature) seeds of almost all Sapotaceae is common in parakeets, parrots, and macaws, and also very common in pitheciine monkeys, such as bearded sakis (*Chiropotes*), sakis (*Pithecia*), and uakaris (*Cacajao*), often leaving only very few seeds to mature on the tree and to be dispersed.



1. *Chromolucuma* Ducke

Leaves spirally arranged, stipules present, large, leaving behind conspicuous scars. *Flowers* unisexual, pedicellate, sepals 5. *Fruit* a 1-seeded berry; seed testa dull, rough, scar broad adaxial, covering up to 2/3 of the seed length.

Notes. Trees (2 spp. in tropical S America), bark with yellow latex.



1.1. *Chromolucuma baehiana* Monachino

Leaves sericeous below, with 13-26 pairs of secondary veins. *Fascicles* 2-6-flowered, axillary and also below the leaves, pedicels 0.5-0.9 cm long, flowers unisexual. *Berry* chestnut-colored velvety when young.

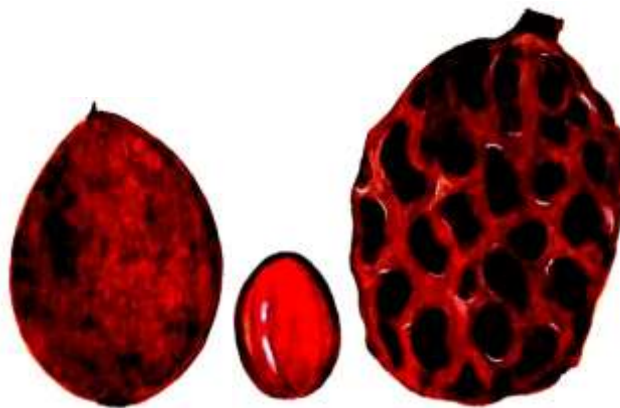
Notes. Tree to 30 m, trunk diameter to 70 cm, buttresses to 3 m high, bole fluted, bark scaling, reddish brown; rare; primary *terra firme* rain forest over white sand, especially along creeks. *Guyana*; *Venezuelan Amazon* (Amazonas); *Peruvian Amazon*; *NW Brazilian Amazon* (Amazonas – Pico da Neblina National Park, Roraima).



1.2. *Chromolucuma rubriflora* Ducke *abiurana-do-chavascal, abiurana-grande-do-igapó, majá, sapota-brava* (B) **Pl. 170, fig. 1**

Leaves glabrous, with 17-40 pairs of secondary veins. *Fascicles* many-flowered, below the leaves, pedicels 1.5-3.7 cm long, flowers unisexual. *Berry* broadly ellipsoid to ovoid, 5.5 x 4.5 cm, to 8 cm long, rounded at base and apex, smooth or rugose (when immature dried strongly and irregularly ribbed and furrowed), ferruginous-brown shortly velutinous, becoming subglabrous at maturity; seed ellipsoid, sometimes 2-seeded, then seeds plano-convex, 2.5-5.5 cm long, or 3.5 x 2.9 x 2.0 cm, rounded at base and apex, apex with stout prickle, testa caniculate furrowed, scar 3.5 x 2.7 cm.

Notes. Tree to 30 m, trunk diameter to 40 cm, buttressed; immature seeds were seen eaten by black-headed uakaris (*Cacajao hosomi*) along Rio Cauaburí, mature fruits seen eaten and seeds dispersed by woolly monkeys (*Lagothrix lagotricha*) along Rio Apaporis, Colombian Amazon; periodically flooded forest along riversides, also occurring in *terra firme* rain forest over white sand. *Colombian Amazon; Venezuelan Amazon (Amazonas); Brazilian Amazon (Amazonas, Pará).*



2. *Chrysophyllum* Linnaeus

Leaves spirally arranged, or alternate and distichous. *Inflorescences* axillary, ramiflorous or cauliflorous, flowers unisexual or bisexual, fasciculate, rarely solitary, calyx a single whorl of (4-)5(-6) sepals, sometimes accrescent in fruit. *Fruit* a 1- to many-seeded berry, sometimes dehiscent; seeds laterally compressed, with a narrow adaxial scar, sometimes extending around the base of the seed, *or* not laterally compressed and then the scar broader, basi-ventral or adaxial, testa smooth, shining, or rough and then adherent to the pulp.

Notes. Trees or shrubs (Pantropical genus, ca. 43 species in the Neotropics).



Chrysophyllum L. section 1. *Chrysophyllum*

Leaves spaced, usually alternate and distichous. *Fascicles* mostly axillary, flowers bisexual, sepals not accrescent in fruit; seed not or only rarely laterally compressed, usually with a broad basi-ventral or adaxial scar, testa smooth, shiny, free from pericarp.

2.1a. *Chrysophyllum argenteum* Jacquin subsp. *auratum* (Miquel) Pennington *sururuburuen* (A); *pinto-boletri* (S); *caimito-de-mono* (Sp); *rosada-brava*, *abiurana-batinga* (B) **Pl. 170, fig. 2**

Leaves golden-sericeous below, with (8-)10-16(-25) pairs of secondary veins. *Fascicles* (2-)5-15(-25)-flowered, sepals 5, pedicels (0.2-)0.3 cm long, in fruit pedicels solitary or in pairs, 0.4-0.5 cm long. *Berry* ellipsoid, 2-2.5 x 1.5-2 cm, smooth, glabrous, at first green to yellow, eventually reddish to purplish black, shiny, pericarp fleshy, sweet-tasting; seeds 1, slightly to strongly laterally compressed, scar usually heart-shaped, basi-ventral, about half the length of the seed.

Notes. Tree to 35 m, trunk diameter to 65 cm, with small, rounded buttresses and fluted bole, slash pink or reddish, exuding copious, sticky, white latex; in Suriname, the author saw the mature fruits being eaten and the seeds dispersed by golden/red-handed tamarin monkeys (*Saguinus midas*), red howling monkeys (*Alouatta macconnelli*), and red-faced black spider monkeys (*Ateles paniscus*), whereas the immature seeds were seen heavily predated upon by bearded saki monkeys (*Chiropotes sagulatus*); lowland *terra firme* rain forest, montane and cloud forest, along riverbanks, and sometimes in periodically inundated floodplain forest (*igapó*). *Guianas*; *Amazonian Colombia*, *Peru* + *Venezuela*; *Brazilian Amazon* (Acre, Amapá, Amazonas, Pará, Roraima).



2.1b. *Chrysophyllum argenteum* Jacquin subsp. *nitidum* (G.F.W. Meyer) Pennington
kokeritiballi (A); *paripiballi* (G)

Leaves glabrous below, with (8-)10-16(-25) pairs of secondary veins. *Fascicles* (2-)5-15(-25)-flowered, sepals 4-5, pedicels (0.2-)0.3-0.7(-1.0) cm long. *Berry* violet when ripe, pericarp with copious latex.

Notes. Tree to 25 m, bole fluted; in seasonal semi-evergreen *terra firme* forest, pioneer vegetation, high mixed ‘wallaba’ forest, and dry *Mora* forest. *Guianas*; *Venezuelan Amazon*; *Brazilian Amazon* (Amapá, Pará).



2.2. *Chrysophyllum cainito* L. *sterappel*, *star’apra* (S); *caimito* (B); *star-apple* (E) **Pl. 170, fig. 3**

Leaves golden(-ferrugineous) sericeous below, with 14-26 pairs of secondary veins. *Fascicles* dense, 5-20(-30)-flowered, pedicels 0.6-1.2 cm long, sepals (4-)5(-6), sometimes persistent in fruit, red-sericeous. *Berry* broadly ellipsoid to globose, to 7.5(-12) x 6.5(-8) cm, green to purplish, apex and base obtuse to rounded, smooth, glabrous, pulp white, translucent, sweet-tasting; seeds 3-10 (some may be abortive), 1-1.8 cm long, usually laterally compressed, brown, with a smooth, shiny testa, scar adaxial, 0.6-1.3 cm long, always more than half the seed length, about equaling the width of the seed, often with a small, rounded beak near the apex, cross section of fruit shows stellately arranged locules (hence the name “star-apple”).

Notes. Tree to 15(-25) m, with eventually slightly fluted bole, the bark deeply and narrowly fissured; lowland *terra firme* rain, riverine and montane forests. Also a widely cultivated and naturalized horticultural tree occurring throughout the *Neotropics*, probably native only to the *West Indies* (*Greater Antilles*).



***Chrysophyllum* L. section 2. *Villocuspis* A. de Candolle**

Leaves spaced, alternate and distichous. *Fascicles* axillary, flowers bisexual (unisexual only in *Chrysophyllum sparsiflorum*), sepals not accrescent in fruit. *Seed* not laterally compressed, scar broad, adaxial or basi-ventral, testa smooth, shiny, free from pericarp.

2.3. *Chrysophyllum sparsiflorum* Klotzsch ex Miquel in Martius *abiurana*, *mangabarana* (B) Pl. 171, fig. 1

Leaves at first pale sericeous below, glabrescent, with 11-16 pairs of secondary veins. *Fascicles* 2-6-flowered, sepals (4-)5, in fruit 0.15 cm long, pedicels 0.15-0.5 cm, in fruit 0.5-1.0 cm long. *Berry* ellipsoid or obovoid, to 3.0 x 2.2 cm, apex rounded, apiculate, base rounded or slightly tapered, smooth, glabrous, maturing yellow, pericarp fleshy; seed solitary, ellipsoid, plano-convex, 1.3 cm long, up to 2.0 x 1.2 cm, testa smooth, shiny, very hard and woody, scar broad, covering the adaxial face, 1.1-2.0 x 0.8-0.9 cm.

Notes. Tree to 25 m, trunk diameter to 75 cm, bark containing white, milky latex; primary *terra firme* lowland rain and savanna forests. *Guyana*; *Bolivian + Venezuelan Amazon*; *Brazilian Amazon* (Mato Grosso, Pará, Rondonia).



***Chrysophyllum* L. section 3. *Ragala* (Pierre) Pennington**

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5.9. *Vochysia tomentosa* (G.F.W. Mey.) DC. *iteballi hariraru* (A); *wana-kwari* (S); *alankopi* (Sa.); *asjiwa, wana-kwali* (P) **Pl. 208, fig. 7**

Twigs brown-puberulous, when young. *Leaves* opposite, abaxially ferrugineous-puberulous, petioles slender, 0.3-0.5 cm long. *Panicles* racemose, to 20 cm long, cylindrical, flowers yellow; fruiting pedicels slender, erect, 0.6-1 cm long. *Capsule* to 3.8 x 1.5 x 1.3 cm, dark green, fairly rough, ribs 3, fairly acute, rounded near base and to 0.4 cm wide; fruit apex broadened and abruptly acuminate; seeds to 3 x 0.6 x 0.25 cm, seed body ca. 1.5 cm long, 0.4-0.5 cm wide, wing slightly curved, tip rounded.

Notes. Emergent tree to 50 m tall, trunk base buttressed, bark brownish-red, peeling; very common; primary *terra firme* rain forest. *Guianas; Brazilian Amazon* (Amapá, Mato Grosso, Rondonia).



5.10. *Vochysia vismiifolia* Spruce ex Warm. *dima-vermelha, quaruba-vermelha* (B)

Young twigs 4-angled, strongly sulcate, densely pubescent, ferrugineous. *Leaves* with midvein channeled above, sericeous, beset with appressed white indumentum, tertiary venation oblique.

Notes. Canopy tree; rare; primary *terra firme* rain forest. *Brazilian Amazon* (Amazonas).

INDEX OF VERNACULAR NAMES USED IN BRAZIL

- abacate* - *Persea americana*
abejurú - *Chrysobalanus icaco*
abiú - *Chrysophyllum sanguinolentum* ssp. *spurium*, *Chrysophyllum prieurii*; *Micropholis guyanensis* ssp. *guyanensis*, *M. venulosa*; *Pouteria engleri*, *P. gonggrijpii*, *P. jariensis*, *P. reticulata* ssp. *reticulata*, *P. opposita*, *P. oblanceolata*, *P. oppositifolia*, *P. caimito*, *P. guianensis*
abiú-farinha-seca - *Pouteria eugeniifolia*
abiú-grande - *Pouteria macrocarpa*
abiú-jiboia - *Pouteria decorticans*
abiú-maparajuba - *Pouteria rodriguesiana*
abiú-peludo - *Pouteria manaosensis*
abiú-rosadinha - *Pouteria bangii*
abiú-ucuíba - *Pouteria eugeniifolia*
abiú-ucuíbarana - *P. oppositifolia*
abiurana - *Chrysophyllum sparsiflorum*, *C. sanguinolentum* ssp. *balata*, *C. prieurii*, *C. pomiferum*; *Ecclinusa lanceolata*; *Elaeoluma glabrescens*; *Micropholis egensis*, *M. mensais*, *M. trunciflora*; *Pouteria aubrevillei*, *P. bilocularis*, *P. engleri*, *P. pachyphylla*, *P. virescens*, *P. williamii*, *P. cuspidata* ssp. *robusta*, *P. elegans*, *P. gabrielensis*, *P. oblanceolata*, *P. oppositifolia*, *P. macrophylla*, *P. caimito*, *P. decorticans*, *P. filipes*, *P. franciscana*, *P. lucens*, *P. macrocarpa*
abiurana-abiú - *Ecclinusa guianensis*; *Pouteria glomerata* ssp. *glomerata*, *P. guianensis*
abiurana(-arana) - *Pouteria cuspidata* ssp. *dura*
abiurana-bacurí - *Ecclinusa guianensis*
abiurana-batinga - *Chrysophyllum argenteum*
abiurana-branca - *Pouteria reticulata* ssp. *reticulata*
abiurana-brava - *Pouteria hispida*
abiurana-cajú - *Ecclinusa guianensis*
abiurana-caramurí - *Pouteria hispida*
abiurana-caranazal - *Pouteria torta* ssp. *glabra*
abiurana-casca-fina - *P. guianensis*
abiurana-cascuda - *Pouteria reticulata* ssp. *reticulata*, *P. procera*
abiurana-cutití - *Pouteria petiolata*
abiurana-da-casca-grossa - *Pouteria laevigata*
abiurana-de-baixo - *Pouteria gomphiifolia*
abiurana-de-goma - *Pouteria torta* ssp. *tuberculata*
abiurana-de-igapó - *Pouteria glomerata* ssp. *glomerata*
abiurana-de-massa - *Micropholis obscura*
abiú-balatarana - *Micropholis guyanensis* ssp. *duckeana*
abiú-branco - *Chrysophyllum lucentifolium*
abiú-da-mata - *Chrysophyllum amazonicum*
abiú-do-campo - *Pouteria ramiflora*
abiú-do-cerrado - *Pouteria ramiflora*
abiurana-de-várzea - *Pouteria glomerata* ssp. *glomerata*, *P. plicata*
abiurana-do-chavascal - *Chromolucuma rubriflora*
abiurana -do-igapó - *Pouteria gomphiifolia*, *P. plicata*
abiurana-estreita - *Pouteria gomphiifolia*
abiurana-ferro - *Pouteria fimbriata*
abiurana(-floribunda) - *Pouteria vernicosa*
abiurana-flor-miúda - *Pouteria cuspidata* ssp. *cuspidata*
abiurana-folha-estreita - *Pouteria reticulata* ssp. *reticulata*
abiurana-folha-larga - *Pouteria cicatricata*
abiurana-gigante - *Pouteria guianensis*
abiurana-grande - *Pouteria retinervis*, *P. venosa* ssp. *amazonica*
abiurana-grande-do-igapó - *Chromolucuma rubriflora*
abiurana-gutta - *Pouteria torta* ssp. *glabra*
abiurana-jacaré - *Pouteria platyphylla*
abiurana-maparajuba - *Pouteria gomphiifolia*
abiurana-massaranduba - *Chrysophyllum amazonicum*
abiurana-matamatá - *Pouteria cuspidata* ssp. *cuspidata*
abiurana-murta - *Micropholis humboldtiana*
abiurana-preta - *Pouteria venosa* ssp. *amazonica*
abiurana-roxa - *Micropholis casiquiarensis*, *M. cylindrocarpa*
abiurana-sabia - *Pouteria guianensis*
abiurana-sapota - *Pouteria laevigata*
abiurana-seca - *Diploön cuspidatum*; *Pouteria cladantha*
abiurana-seringa - *Pouteria rostrata*
abiurana-vermelha - *Pouteria platyphylla*
abóbora-do-mar - *Coccoloba uvifera*
abricó-de-macaco - *Couroupita guianensis*
abricó-do-Pará - *Mammea americana*

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