

Trees, treelets and shrubs of white-sand “campinarana” vegetation

Layon Oreste Demarchi¹, Daniel Praia Portela de Aguiar², Viviane Pagnussat Klein¹, Florian Wittmann^{1,3} & Maria Teresa Fernandez Piedade¹

¹Instituto Nacional de Pesquisas da Amazônia (INPA), Pós-Graduação em Botânica, Brasil; ²Ministério Público do Estado do Amazonas, Brasil;

³Karlsruhe Institute for Technology (KIT), Rastatt, Germany.

Photos: L. O. Demarchi [layon.lod@gmail.com]. Produced by the authors. Support: CNPq fellowship, program PELD – MAUA (MCTIC/CNPq/FAPs-GN: 441590/2016-0). Acknowledgment: Amazonas Environmental State Secretary (SEMA), and the Amazon Tall Tower Observatory (ATTO).

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[1395] version 1 7/2023



1 *Tapirira guianensis*
ANACARDIACEAE
D. de Aguiar



2 *Tapirira guianensis*
ANACARDIACEAE
D. de Aguiar



3 *Annona angustifolia*
ANNONACEAE



4 *Annona angustifolia*
ANNONACEAE



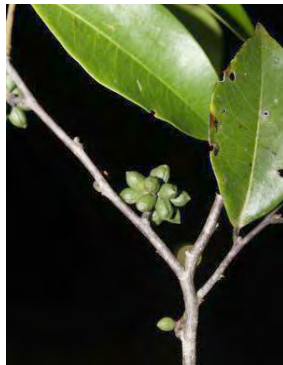
5 *Guatteria cf. duckeana*
ANNONACEAE



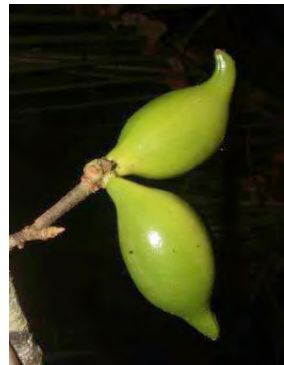
6 *Guatteria cf. duckeana*
ANNONACEAE



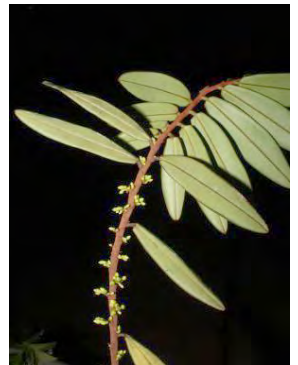
7 *Guatteria schomburgkiana*
ANNONACEAE



8 *Guatteria schomburgkiana*
ANNONACEAE



9 *Tetrameranthus duckei*
ANNONACEAE



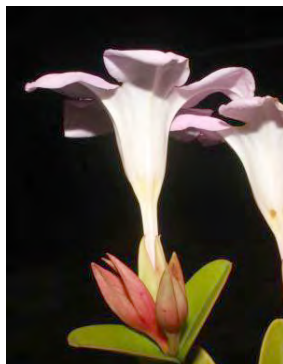
10 *Xylopia spruceana*
ANNONACEAE



11 *Xylopia spruceana*
ANNONACEAE



12 *Couma utilis*
APOCYNACEAE



13 *Galactophora crassifolia*
APOCYNACEAE



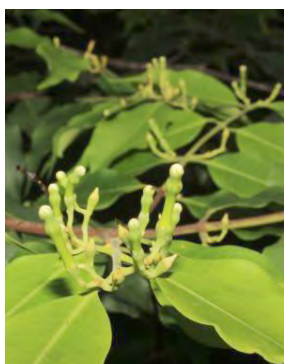
14 *Galactophora crassifolia*
APOCYNACEAE



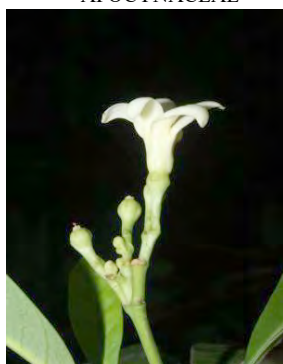
15 *Lacmellea arborescens*
APOCYNACEAE



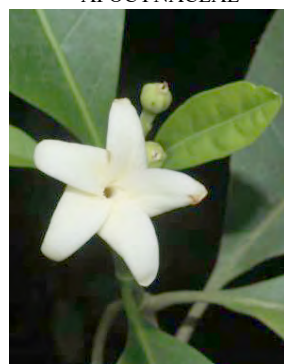
16 *Lacmellea arborescens*
APOCYNACEAE



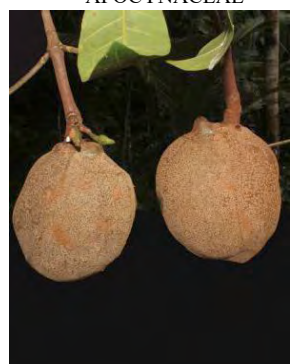
17 *Lacmellea gracilis*
APOCYNACEAE



18 *Macoubea sprucei*
APOCYNACEAE



19 *Macoubea sprucei*
APOCYNACEAE



20 *Macoubea sprucei*
APOCYNACEAE

Trees, treelets and shrubs of white-sand “campinarana” vegetation

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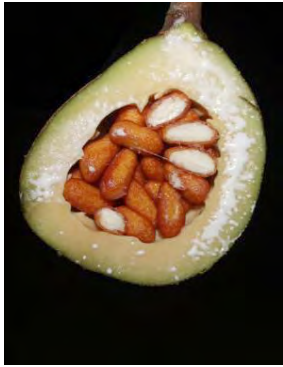
³Karlsruhe Institute for Technology (KIT), Rastatt, Germany.

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21 *Macoubea sprucei*
APOCYNACEAE



22 *Tabernaemontana flavicans*
APOCYNACEAE



23 *Tabernaemontana flavicans*
APOCYNACEAE



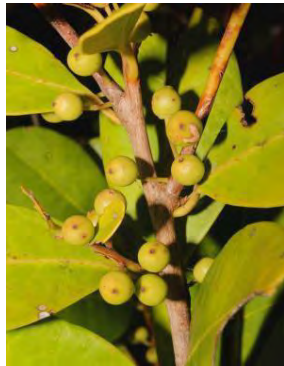
24 *Chaenochiton angustifolium*
APTANDRACEAE



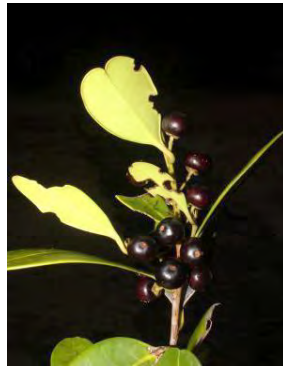
25 *Chaenochiton angustifolium*
APTANDRACEAE



26 *Chaenochiton angustifolium*
APTANDRACEAE



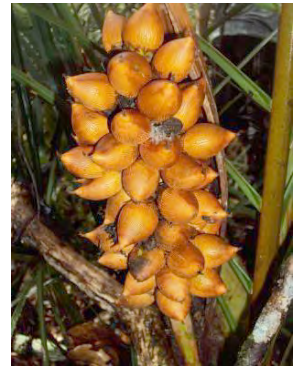
27 *Ilex divaricata*
AQUIFOLIACEAE



28 *Ilex divaricata*
AQUIFOLIACEAE



29 *Ilex divaricata*
AQUIFOLIACEAE



30 *Attalea microcarpa*
ARECACEAE



31 *Bactris simplicifrons*
ARECACEAE



32 *Bactris simplicifrons*
ARECACEAE



33 *Euterpe catinga*
ARECACEAE



34 *Euterpe catinga*
ARECACEAE



35 *Iriartella setigera*
ARECACEAE



36 *Mauritia carana*
ARECACEAE



37 *Mauritia carana*
ARECACEAE



38 *Mauritiella armata*
ARECACEAE



39 *Oenocarpus minor*
ARECACEAE



40 *Oenocarpus minor*
ARECACEAE


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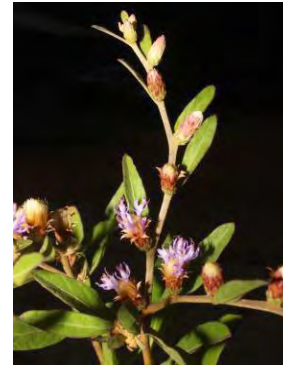
41 *Gongylolepis martiana*
ASTERACEAE



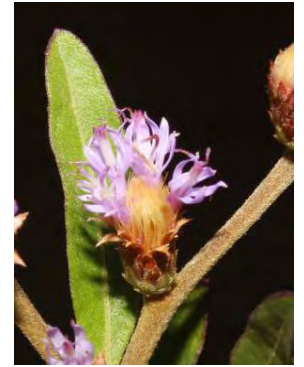
42 *Gongylolepis martiana*
ASTERACEAE



43 *Gongylolepis martiana*
ASTERACEAE



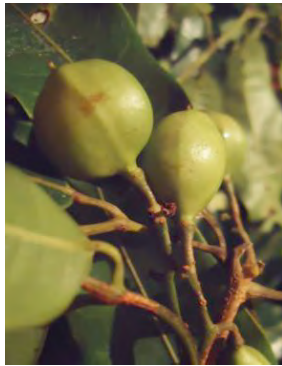
44 *Lepidaploa arenaria*
ASTERACEAE



45 *Lepidaploa arenaria*
ASTERACEAE



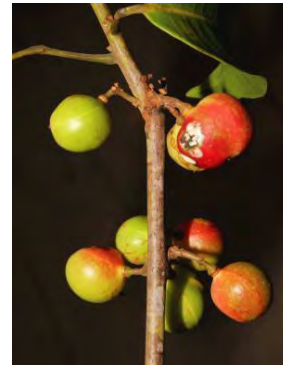
46 *Lepidaploa arenaria*
ASTERACEAE



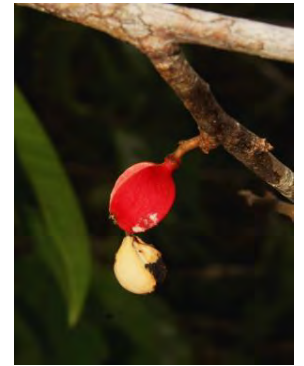
47 *Protium altsonii*
BURSERACEAE



48 *Protium heptaphyllum*
BURSERACEAE



49 *Protium heptaphyllum*
BURSERACEAE



50 *Protium heptaphyllum*
BURSERACEAE



51 *Protium llanorum*
BURSERACEAE



52 *Protium llanorum*
BURSERACEAE



53 *Protium llanorum*
BURSERACEAE



54 *Protium paniculatum*
BURSERACEAE



55 *Protium paniculatum*
BURSERACEAE



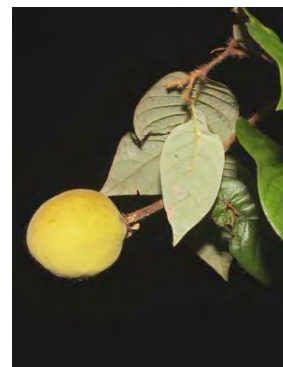
56 *Protium paniculatum*
BURSERACEAE



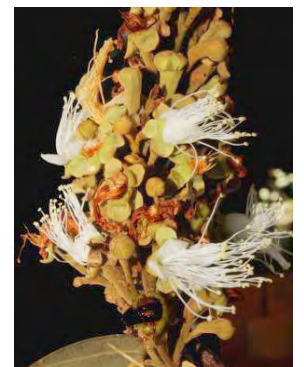
57 *Protium paniculatum*
BURSERACEAE



58 *Calophyllum* cf. *pachyphyllum*
CALOPHYLLACEAE



59 *Gaulettia parillo*
CHRYSOBALANACEAE



60 *Gaulettia racemosa*
CHRYSOBALANACEAE

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61 *Gaulettia racemosa*
CHRYSOBALANACEAE



62 *Hirtella racemosa*
CHRYSOBALANACEAE



63 *Hirtella racemosa*
CHRYSOBALANACEAE



64 *Hymenopus laevigatus*
CHRYSOBALANACEAE



65 *Hymenopus laevigatus*
CHRYSOBALANACEAE



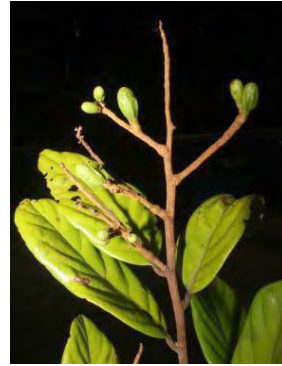
66 *Hymenopus laevigatus*
CHRYSOBALANACEAE



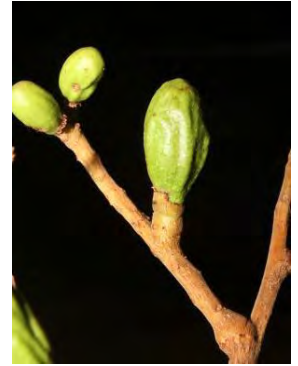
67 *Hymenopus oblongifolius*
CHRYSOBALANACEAE



68 *Hymenopus oblongifolius*
CHRYSOBALANACEAE



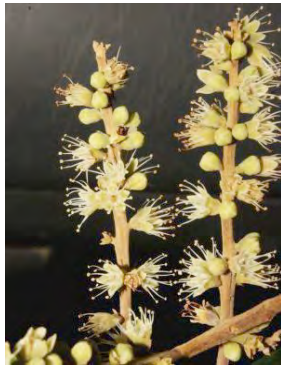
69 *Hymenopus prismatocarpus*
CHRYSOBALANACEAE



70 *Hymenopus prismatocarpus*
CHRYSOBALANACEAE



71 *Hymenopus reticulatus*
CHRYSOBALANACEAE



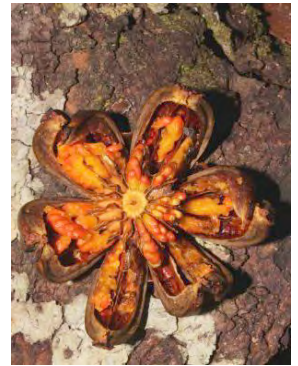
72 *Leptobalanus latus*
CHRYSOBALANACEAE



73 *Leptobalanus latus*
CHRYSOBALANACEAE



74 *Licania hypoleuca*
CHRYSOBALANACEAE



75 *Clusia insignis*
CLUSIACEAE



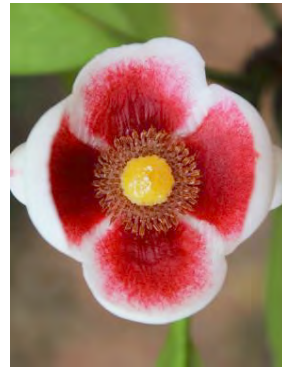
76 *Clusia nascimentojuniorii*
CLUSIACEAE



77 *Clusia nascimentojuniorii*
CLUSIACEAE



78 *Clusia nascimentojuniorii*
CLUSIACEAE



79 *Clusia nemorosa*
CLUSIACEAE



80 *Clusia nemorosa*
CLUSIACEAE


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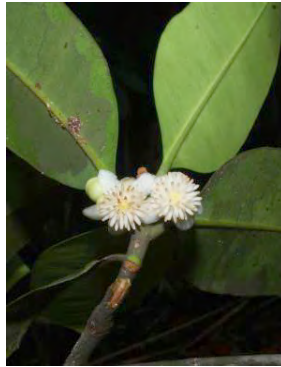
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81 *Clusia nemorosa*
CLUSIACEAE



82 *Clusia nemorosa*
CLUSIACEAE



83 *Tovomita calophyllophylla*
CLUSIACEAE



84 *Tovomita calophyllophylla*
CLUSIACEAE



85 *Tovomita calophyllophylla*
CLUSIACEAE



86 *Tovomita cornuta*
CLUSIACEAE



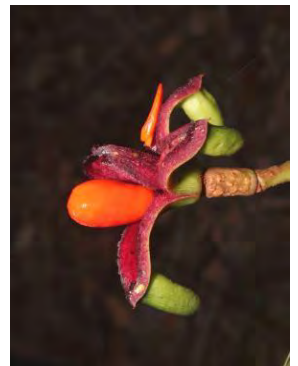
87 *Tovomita cornuta*
CLUSIACEAE



88 *Tovomita cornuta*
CLUSIACEAE



89 *Tovomita cornuta*
CLUSIACEAE



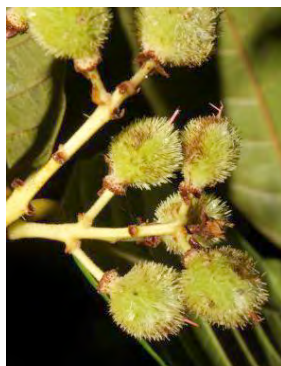
90 *Tovomita cornuta*
CLUSIACEAE



91 *Terminalia macrophylla*
COMBRETACEAE



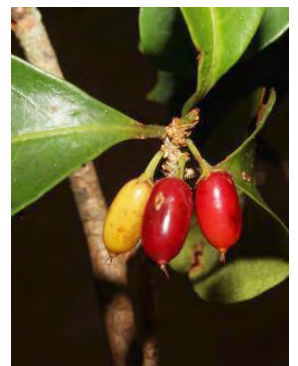
92 *Terminalia macrophylla*
COMBRETACEAE



93 *Sloanea duckei*
ELAEOCARPACEAE



94 *Sloanea duckei*
ELAEOCARPACEAE



95 *Erythroxylum campinense*
ERYTHROXYLACEAE



96 *Alchornea discolor*
EUPHORBIACEAE



97 *Croton dissectistipulatus*
EUPHORBIACEAE



98 *Croton dissectistipulatus*
EUPHORBIACEAE



99 *Croton dissectistipulatus*
EUPHORBIACEAE



100 *Hevea rigidifolia*
EUPHORBIACEAE

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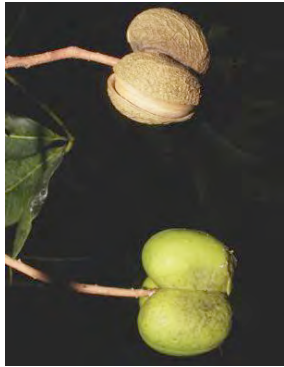
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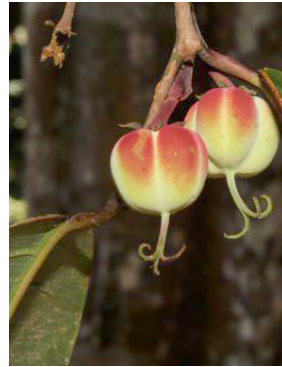
101 *Hevea rigidifolia*
EUPHORBIACEAE



102 *Hevea rigidifolia*
EUPHORBIACEAE



103 *Mabea uleana*
EUPHORBIACEAE



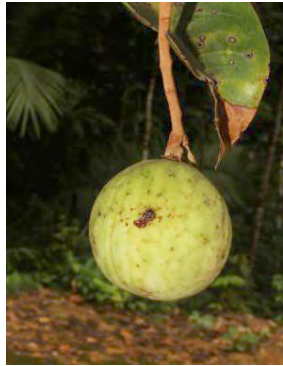
104 *Mabea uleana*
EUPHORBIACEAE



105 *Aldina heterophylla*
FABACEAE
D. de Aguiar



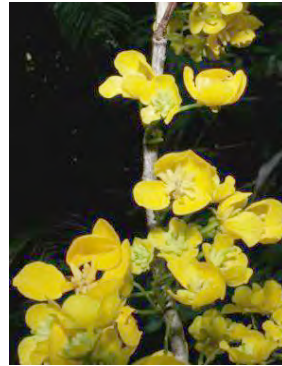
106 *Aldina heterophylla*
FABACEAE



107 *Aldina heterophylla*
FABACEAE



108 *Chamaecrista adiantifolia*
FABACEAE



109 *Chamaecrista adiantifolia*
FABACEAE



110 *Chamaecrista adiantifolia*
FABACEAE



111 *Dimorphandra campinarum*
FABACEAE



112 *Dimorphandra campinarum*
FABACEAE



113 *Dimorphandra campinarum*
FABACEAE



114 *Dimorphandra pennigera*
FABACEAE



115 *Dimorphandra pennigera*
FABACEAE



116 *Eperua glabriflora*
FABACEAE
D. de Aguiar



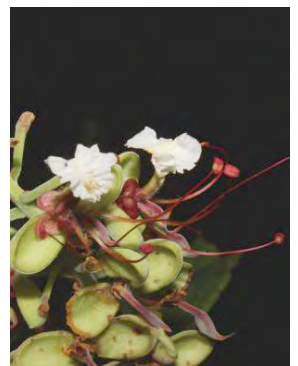
117 *Eperua glabriflora*
FABACEAE
D. de Aguiar



118 *Inga paraensis*
FABACEAE
D. de Aguiar



119 *Macrobium duckeanum*
FABACEAE



120 *Macrobium duckeanum*
FABACEAE

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121 *Macrobium duckeanum*
FABACEAE



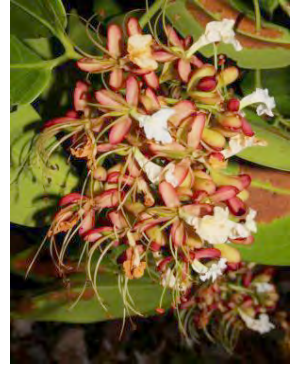
122 *Macrobium gracile*
FABACEAE



123 *Macrobium huberianum*
FABACEAE



124 *Macrobium huberianum*
FABACEAE



125 *Macrobium punctatum*
FABACEAE



126 *Macrobium punctatum*
FABACEAE



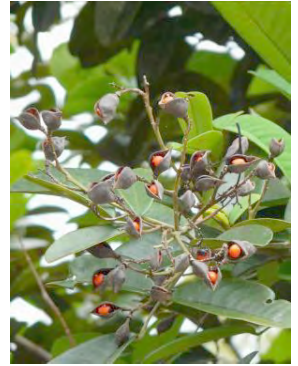
127 *Macrosamanea pubiramea*
FABACEAE



128 *Ormosia discolor*
FABACEAE



129 *Ormosia trifoliolata*
FABACEAE

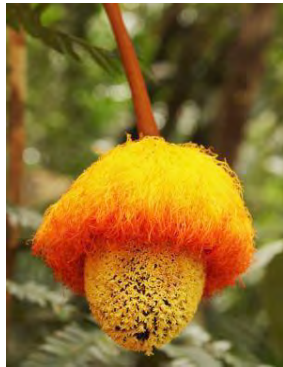


130 *Ormosia trifoliolata*
FABACEAE

D. de Aguiar



131 *Ormosia trifoliolata*
FABACEAE



132 *Parkia aff. igneiflora*
FABACEAE



133 *Parkia igneiflora*
FABACEAE



134 *Parkia igneiflora*
FABACEAE



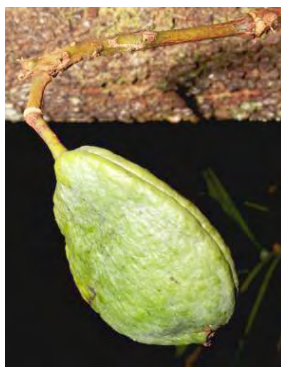
135 *Parkia panurensis*
FABACEAE



136 *Parkia panurensis*
FABACEAE



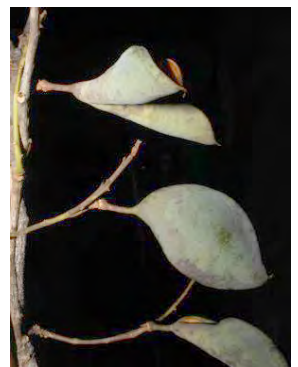
137 *Swartzia brachyrachis*
FABACEAE



138 *Swartzia brachyrachis*
FABACEAE



139 *Swartzia brachyrachis*
FABACEAE



140 *Swartzia polyphylla*
FABACEAE

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Photos: L. O. Demarchi [layon.lod@gmail.com]. Produced by the authors. Support: CNPq fellowship, program PELD – MAUA (MCTIC/CNPq/FAPs-GN: 441590/2016-0). Acknowledgment: Amazonas Environmental State Secretary (SEMA), and the Amazon Tall Tower Observatory (ATTO).

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[1395] version 1 7/2023



141 *Swartzia polyphylla*
FABACEAE



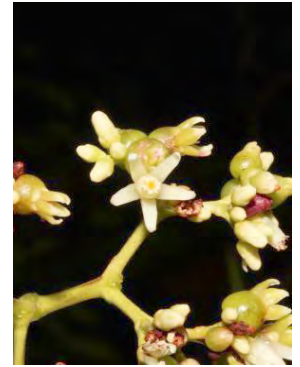
142 *Potalia amara*
GENTIANACEAE



143 *Potalia amara*
GENTIANACEAE



144 *Humiria balsamifera*
HUMIRIACEAE



145 *Humiria balsamifera*
HUMIRIACEAE



146 *Humiria balsamifera*
HUMIRIACEAE



147 *Humiria balsamifera*
HUMIRIACEAE



148 *Sacoglottis guianensis*
HUMIRIACEAE



149 *Sacoglottis guianensis*
HUMIRIACEAE



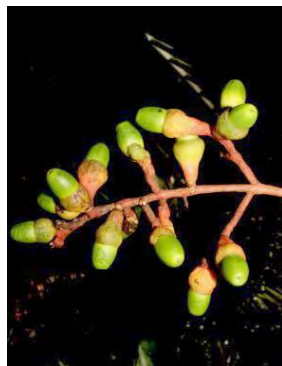
150 *Sacoglottis mattogrossensis*
HUMIRIACEAE



151 *Vitex duckei*
LAMIACEAE



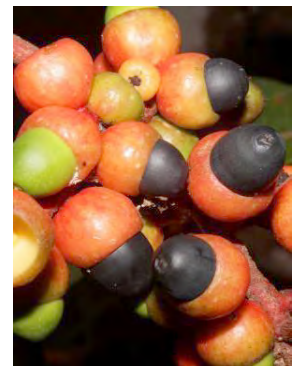
152 *Vitex duckei*
LAMIACEAE



153 *Endlicheria arenosa*
LAURACEAE



154 *Endlicheria arenosa*
LAURACEAE



155 *Endlicheria arenosa*
LAURACEAE



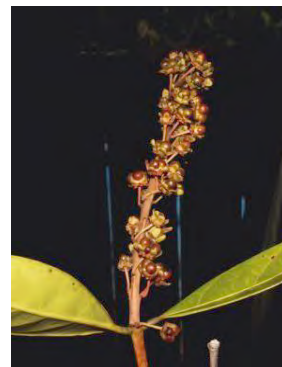
156 *Ocotea debilis*
LAURACEAE



157 *Hebepetalum humirifolium*
LINACEAE



158 *Acmanthera minima*
MALPIGHIACEAE



159 *Acmanthera minima*
MALPIGHIACEAE



160 *Acmanthera minima*
MALPIGHIACEAE

Trees, treelets and shrubs of white-sand “campinarana” vegetation

Layon Oreste Demarchi¹, Daniel Praia Portela de Aguiar², Viviane Pagnussat Klein¹, Florian Wittmann^{1,3} & Maria Teresa Fernandez Piedade¹

¹Instituto Nacional de Pesquisas da Amazônia (INPA), Pós-Graduação em Botânica, Brasil; ²Ministério Público do Estado do Amazonas, Brasil;

³Karlsruhe Institute for Technology (KIT), Rastatt, Germany.

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161 *Byrsonima laevis*
MALPIGHIACEAE



162 *Byrsonima laevis*
MALPIGHIACEAE



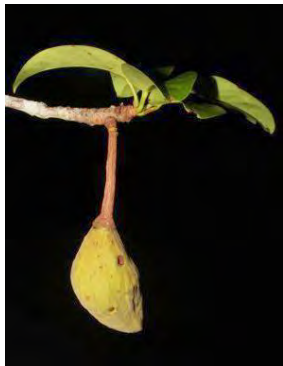
163 *Heteropterys orinocensis*
MALPIGHIACEAE



164 *Heteropterys orinocensis*
MALPIGHIACEAE



165 *Catostemma sclerophyllum*
MALVACEAE



166 *Catostemma sclerophyllum*
MALVACEAE



167 *Pachira faroensis*
MALVACEAE



168 *Pachira faroensis*
MALVACEAE



169 *Pachira faroensis*
MALVACEAE



170 *Henriettea granulata*
MELASTOMATACEAE



171 *Henriettea granulata*
MELASTOMATACEAE



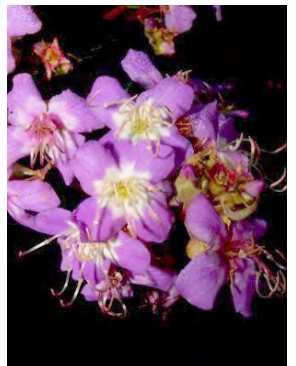
172 *Henriettea granulata*
MELASTOMATACEAE



173 *Henriettea maroniensis*
MELASTOMATACEAE



174 *Henriettea maroniensis*
MELASTOMATACEAE



175 *Macairea theresiae*
MELASTOMATACEAE



176 *Macairea theresiae*
MELASTOMATACEAE



177 *Miconia waimiri-atroari*
MELASTOMATACEAE



178 *Miconia waimiri-atroari*
MELASTOMATACEAE



179 *Miconia gratissima*
MELASTOMATACEAE



180 *Miconia gratissima*
MELASTOMATACEAE


Trees, treelets and shrubs of white-sand “campinarana” vegetation

Layon Oreste Demarchi¹, Daniel Praia Portela de Aguiar², Viviane Pagnussat Klein¹, Florian Wittmann^{1,3} & Maria Teresa Fernandez Piedade¹

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[1395] version 1 7/2023



181 *Miconia subsimplex*
MELASTOMATACEAE



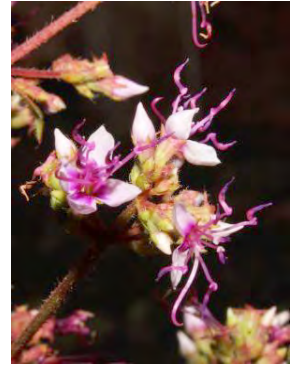
182 *Mouriri nervosa*
MELASTOMATACEAE



183 *Mouriri nervosa*
MELASTOMATACEAE



184 *Sandemanianthus hoehnei*
MELASTOMATACEAE



185 *Sandemanianthus hoehnei*
MELASTOMATACEAE



186 *Tococa macrosperma*
MELASTOMATACEAE



187 *Tococa macrosperma*
MELASTOMATACEAE



188 *Emmotum orbiculatum*
METTENIUSACEAE



189 *Emmotum orbiculatum*
METTENIUSACEAE



190 *Iryanthera laevis*
MYRISTICACEAE



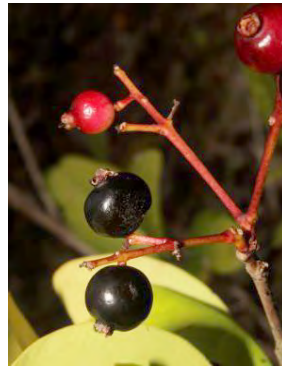
191 *Iryanthera laevis*
METTENIUSACEAE



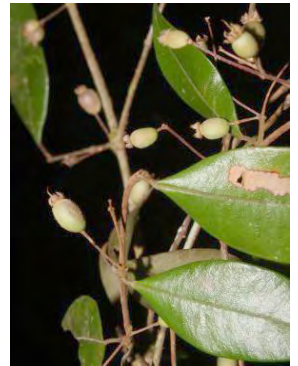
192 *Eugenia biflora*
MYRTACEAE



193 *Myrcia citrifolia*
MYRTACEAE



194 *Myrcia citrifolia*
MYRTACEAE



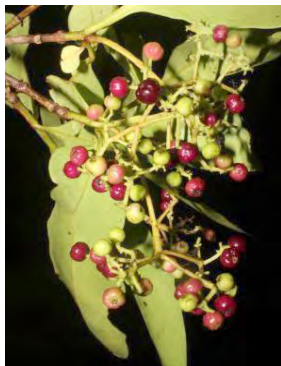
195 *Myrcia servata*
MYRTACEAE



196 *Neea obovata*
NYCTAGINACEAE



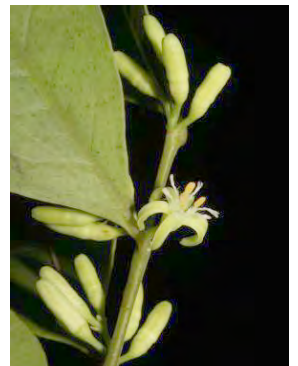
197 *Neea obovata*
NYCTAGINACEAE



198 *Neea obovata*
NYCTAGINACEAE



199 *Neea obovata*
NYCTAGINACEAE



200 *Dulacia candida*
OLACACEAE

Trees, treelets and shrubs of white-sand “campinarana” vegetation

Layon Oreste Demarchi¹, Daniel Praia Portela de Aguiar², Viviane Pagnussat Klein¹, Florian Wittmann^{1,3} & Maria Teresa Fernandez Piedade¹

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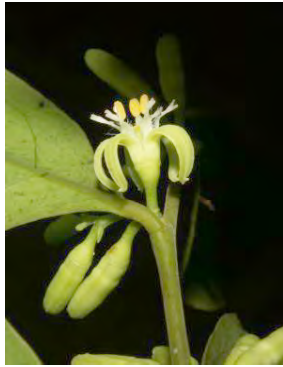
³Karlsruhe Institute for Technology (KIT), Rastatt, Germany.

Photos: L. O. Demarchi [layon.lod@gmail.com]. Produced by the authors. Support: CNPq fellowship, program PELD – MAUA (MCTIC/CNPq/FAPs-GN: 441590/2016-0). Acknowledgment: Amazonas Environmental State Secretary (SEMA), and the Amazon Tall Tower Observatory (ATTO).

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201 *Dulacia candida*
OLACACEAE



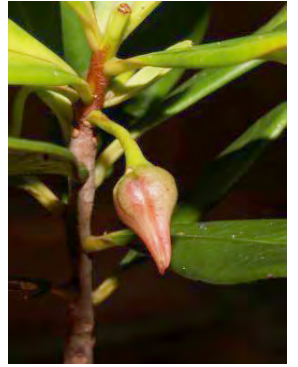
202 *Dulacia candida*
OLACACEAE



203 *Prychopetalum olacoides*
OLACACEAE



204 *Ternstroemia* cf. *dentata*
PENTAPHYLACACEAE



205 *Ternstroemia pungens*
PENTAPHYLACACEAE



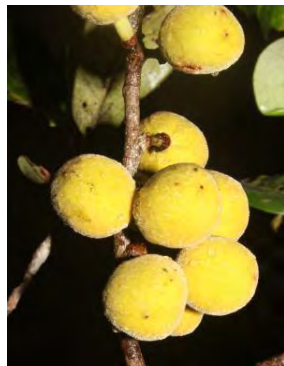
206 *Ternstroemia pungens*
PENTAPHYLACACEAE



207 *Ternstroemia pungens*
PENTAPHYLACACEAE



208 *Pera bicolor*
PERACEAE



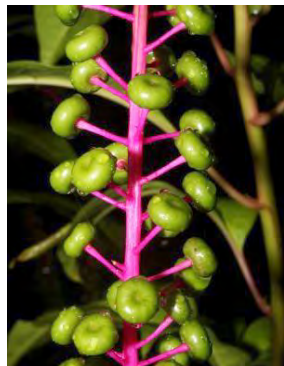
209 *Pera bicolor*
PERACEAE



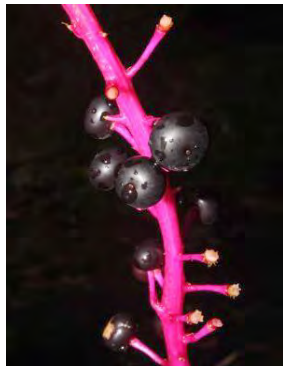
210 *Phytolacca rivinoides*
PHYTOLACCACEAE



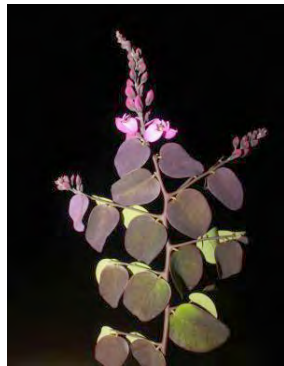
211 *Phytolacca rivinoides*
PHYTOLACCACEAE



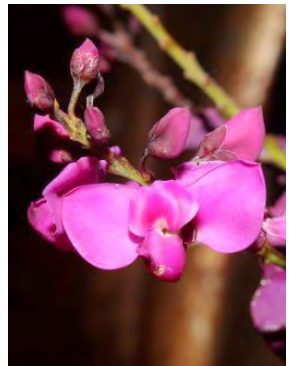
212 *Phytolacca rivinoides*
PHYTOLACCACEAE



213 *Phytolacca rivinoides*
PHYTOLACCACEAE



214 *Securidaca retusa*
POLYGALACEAE



215 *Securidaca retusa*
POLYGALACEAE



216 *Securidaca retusa*
POLYGALACEAE



217 *Coccoloba parimensis*
POLYGONACEAE



218 *Coccoloba parimensis*
POLYGONACEAE



219 *Cybianthus amplus*
PRIMULACEAE



220 *Cybianthus amplus*
PRIMULACEAE

Trees, treelets and shrubs of white-sand “campinarana” vegetation

Layon Oreste Demarchi¹, Daniel Praia Portela de Aguiar², Viviane Pagnussat Klein¹, Florian Wittmann^{1,3} & Maria Teresa Fernandez Piedade¹

¹Instituto Nacional de Pesquisas da Amazônia (INPA), Pós-Graduação em Botânica, Brasil; ²Ministério Público do Estado do Amazonas, Brasil;

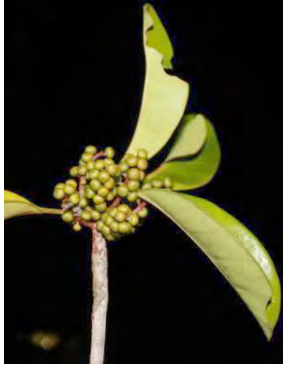
³Karlsruhe Institute for Technology (KIT), Rastatt, Germany.

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221 *Cybianthus fulvopulverulentus*
PRIMULACEAE



222 *Cybianthus fulvopulverulentus*
PRIMULACEAE



223 *Cybianthus* aff. *fulvopulverulentus*
PRIMULACEAE



224 *Cybianthus* aff. *fulvopulverulentus*
PRIMULACEAE



225 *Cybianthus reticulatus*
PRIMULACEAE



226 *Cybianthus reticulatus*
PRIMULACEAE



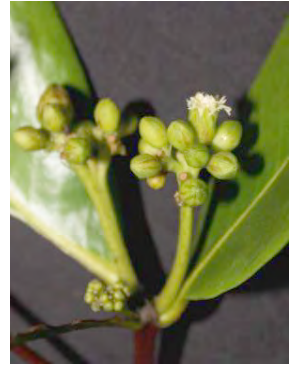
227 *Cybianthus reticulatus*
PRIMULACEAE



228 *Rhabdodendron macrophyllum*
RHABDODENDRACEAE



229 *Rhabdodendron macrophyllum*
RHABDODENDRACEAE



230 *Sterigmapetalum plumbeum*
RHIZOPHORACEAE



231 *Sterigmapetalum plumbeum*
RHIZOPHORACEAE



232 *Calycophyllum obovatum*
RUBIACEAE



233 *Calycophyllum obovatum*
RUBIACEAE



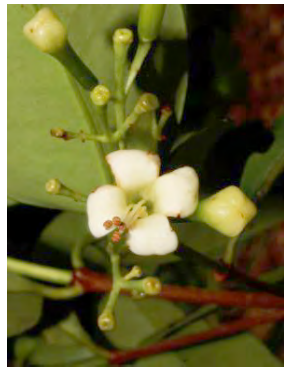
234 *Duroia saccifera*
RUBIACEAE



235 *Duroia saccifera*
RUBIACEAE



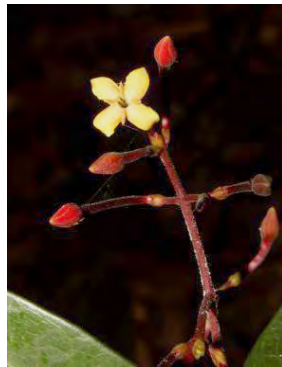
236 *Ferdinandusa guainiae*
RUBIACEAE



237 *Ferdinandusa guainiae*
RUBIACEAE



238 *Ferdinandusa guainiae*
RUBIACEAE



239 *Ixora intensa*
RUBIACEAE



240 *Ixora intensa*
RUBIACEAE


Trees, treelets and shrubs of white-sand “campinarana” vegetation

Layon Oreste Demarchi¹, Daniel Praia Portela de Aguiar², Viviane Pagnussat Klein¹, Florian Wittmann^{1,3} & Maria Teresa Fernandez Piedade¹

¹Instituto Nacional de Pesquisas da Amazônia (INPA), Pós-Graduação em Botânica, Brasil; ²Ministério Público do Estado do Amazonas, Brasil;

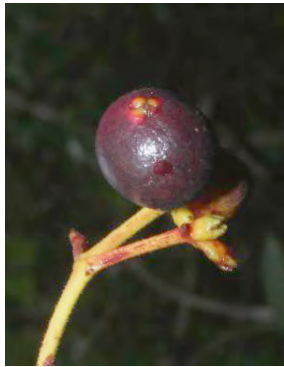
³Karlsruhe Institute for Technology (KIT), Rastatt, Germany.

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[1395] version 1 7/2023



241 *Ixora intensa*
RUBIACEAE



242 *Kutchubaea oocarpa*
RUBIACEAE



243 *Kutchubaea oocarpa*
RUBIACEAE



244 *Kutchubaea oocarpa*
RUBIACEAE



245 *Kutchubaea sericantha*
RUBIACEAE



246 *Pagamea coriacea*
RUBIACEAE



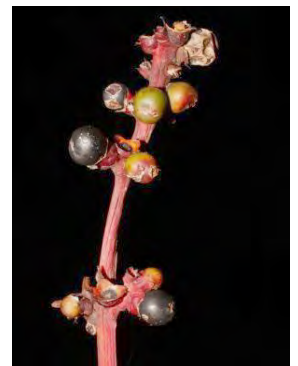
247 *Pagamea coriacea*
RUBIACEAE



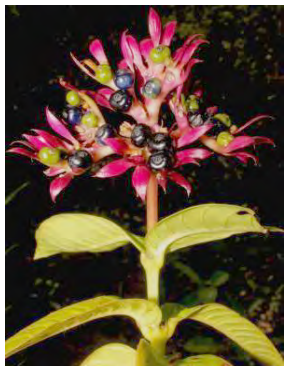
248 *Pagamea coriacea*
RUBIACEAE



249 *Pagamea coriacea*
RUBIACEAE



250 *Pagamea coriacea*
RUBIACEAE



251 *Palicourea blakei*
RUBIACEAE



252 *Palicourea blakei*
RUBIACEAE



253 *Palicourea hoffmannseggiana*
RUBIACEAE



254 *Palicourea hoffmannseggiana*
RUBIACEAE



255 *Palicourea hoffmannseggiana*
RUBIACEAE



256 *Palicourea hoffmannseggiana*
RUBIACEAE



257 *Palicourea huberi*
RUBIACEAE



258 *Palicourea huberi*
RUBIACEAE



259 *Palicourea huberi*
RUBIACEAE



260 *Palicourea nitidella*
RUBIACEAE


Trees, treelets and shrubs of white-sand “campinarana” vegetation

Layon Oreste Demarchi¹, Daniel Praia Portela de Aguiar², Viviane Pagnussat Klein¹, Florian Wittmann^{1,3} & Maria Teresa Fernandez Piedade¹

¹Instituto Nacional de Pesquisas da Amazônia (INPA), Pós-Graduação em Botânica, Brasil; ²Ministério Público do Estado do Amazonas, Brasil;

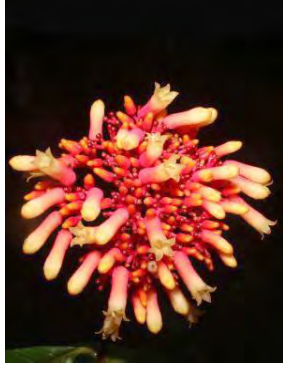
³Karlsruhe Institute for Technology (KIT), Rastatt, Germany.

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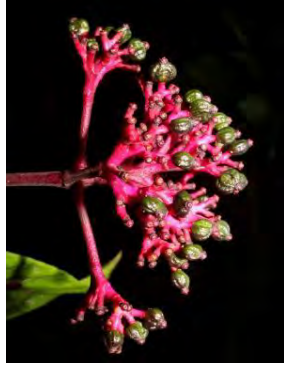
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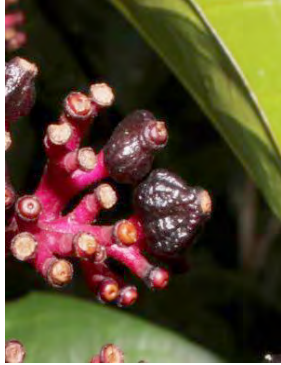
[1395] version 1 7/2023



261 *Palicourea nitidella*
RUBIACEAE



262 *Palicourea nitidella*
RUBIACEAE



263 *Palicourea nitidella*
RUBIACEAE



264 *Remijia amazonica*
RUBIACEAE



265 *Remijia amazonica*
RUBIACEAE



266 *Remijia hirsuta*
RUBIACEAE



267 *Remijia hirsuta*
RUBIACEAE



268 *Remijia hirsuta*
RUBIACEAE



269 *Remijia hirsuta*
RUBIACEAE



270 *Remijia hirsuta*
RUBIACEAE



271 *Remijia morilloi*
RUBIACEAE



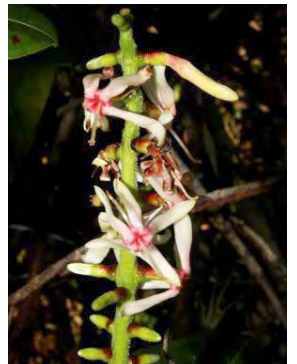
272 *Remijia morilloi*
RUBIACEAE



273 *Remijia morilloi*
RUBIACEAE



274 *Retiniphyllum chloranthum*
RUBIACEAE



275 *Retiniphyllum schomburgkii*
RUBIACEAE



276 *Retiniphyllum schomburgkii*
RUBIACEAE



277 *Retiniphyllum schomburgkii*
RUBIACEAE



278 *Adiscanthus fusciflorus*
RUTACEAE



279 *Adiscanthus fusciflorus*
RUTACEAE



280 *Adiscanthus fusciflorus*
RUTACEAE

Trees, treelets and shrubs of white-sand “campinarana” vegetation

Layon Oreste Demarchi¹, Daniel Praia Portela de Aguiar², Viviane Pagnussat Klein¹, Florian Wittmann^{1,3} & Maria Teresa Fernandez Piedade¹

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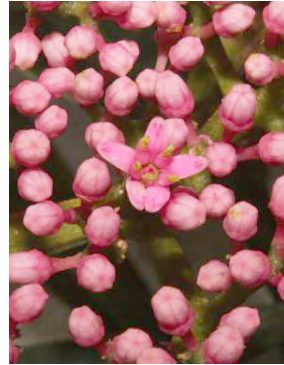
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281 *Hortia longifolia*
RUTACEAE



282 *Hortia longifolia*
RUTACEAE



283 *Hortia longifolia*
RUTACEAE



284 *Hortia longifolia*
RUTACEAE



285 *Matayba inelegans*
SAPINDACEAE



286 *Matayba inelegans*
SAPINDACEAE



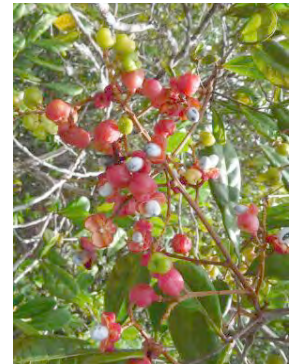
287 *Matayba inelegans*
SAPINDACEAE



288 *Matayba opaca*
SAPINDACEAE



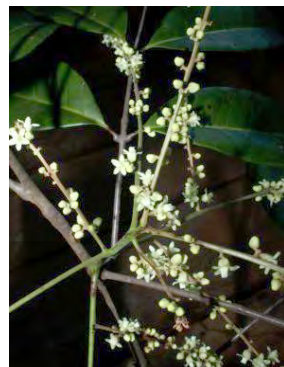
289 *Matayba opaca*
SAPINDACEAE



290 *Matayba opaca*
SAPINDACEAE
D. de Aguiar



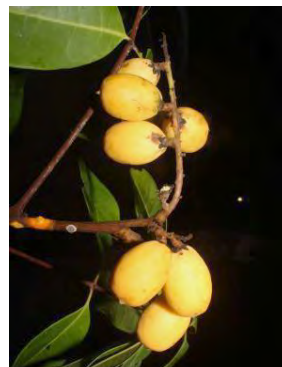
291 *Matayba opaca*
SAPINDACEAE



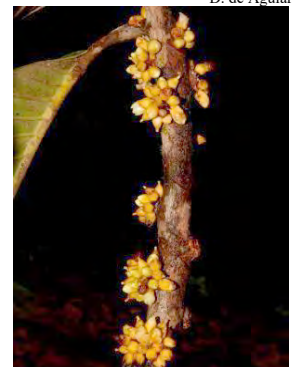
292 *Talisia ghilleana*
SAPINDACEAE



293 *Talisia ghilleana*
SAPINDACEAE



294 *Talisia ghilleana*
SAPINDACEAE



295 *Chrysophyllum sanguinolentum*
SAPOTACEAE



296 *Chrysophyllum sanguinolentum*
SAPOTACEAE



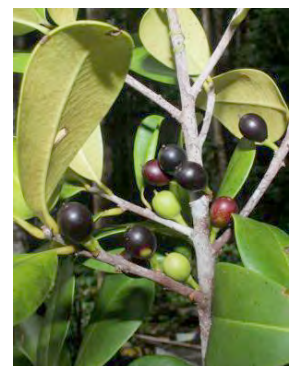
297 *Chrysophyllum sanguinolentum*
SAPOTACEAE



298 *Elaeoluma* cf. *glabrescens*
SAPOTACEAE



299 *Elaeoluma* cf. *glabrescens*
SAPOTACEAE



300 *Elaeoluma schomburgkiana*
SAPOTACEAE


Trees, treelets and shrubs of white-sand “campinarana” vegetation

Layon Oreste Demarchi¹, Daniel Praia Portela de Aguiar², Viviane Pagnussat Klein¹, Florian Wittmann^{1,3} & Maria Teresa Fernandez Piedade¹

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³Karlsruhe Institute for Technology (KIT), Rastatt, Germany.

Photos: L. O. Demarchi [layon.lod@gmail.com]. Produced by the authors. Support: CNPq fellowship, program PELD – MAUA (MCTIC/CNPq/FAPs-GN: 441590/2016-0). Acknowledgment: Amazonas Environmental State Secretary (SEMA), and the Amazon Tall Tower Observatory (ATTO).

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[1395] version 1 7/2023



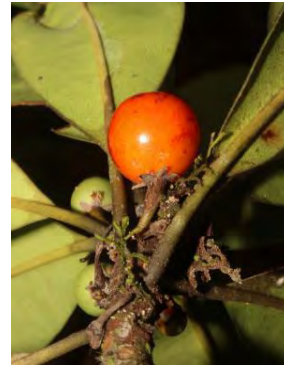
301 *Elaeoluma schomburgkiana*
SAPOTACEAE



302 *Manilkara bidentata*
SAPOTACEAE



303 *Manilkara bidentata*
SAPOTACEAE



304 *Manilkara bidentata*
SAPOTACEAE



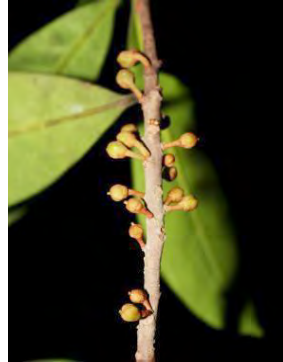
305 *Pouteria cuspidata*
SAPOTACEAE



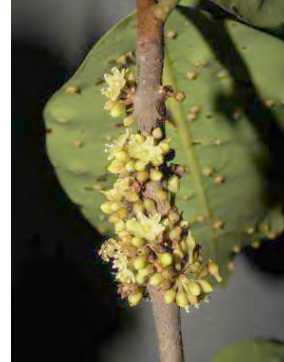
306 *Pouteria cuspidata*
SAPOTACEAE



307 *Pouteria scrobiculata*
SAPOTACEAE



308 *Pouteria scrobiculata*
SAPOTACEAE



309 *Pradosia schomburgkiana*
SAPOTACEAE



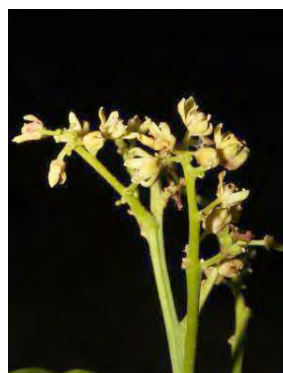
310 *Pradosia schomburgkiana*
SAPOTACEAE



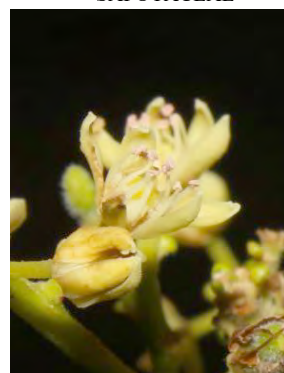
311 *Pradosia schomburgkiana*
SAPOTACEAE



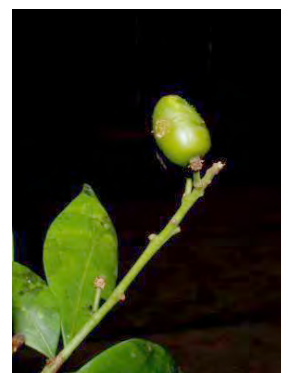
312 *Pradosia schomburgkiana*
SAPOTACEAE



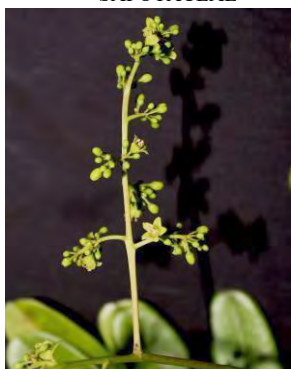
313 *Simaba guianensis*
SIMAROUBACEAE



314 *Simaba guianensis*
SIMAROUBACEAE



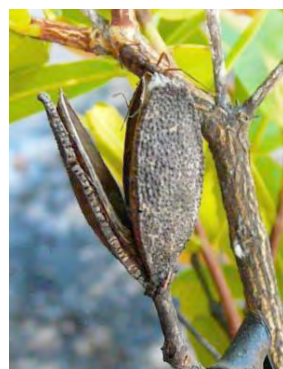
315 *Simaba guianensis*
SIMAROUBACEAE



316 *Simarouba amara*
SIMAROUBACEAE



317 *Ruizterania retusa*
VOCHYSIACEAE



318 *Ruizterania retusa*
VOCHYSIACEAE

Trees, treelets and shrubs of white-sand “*campinarana*” vegetation

Layon Oreste Demarchi¹, Daniel Praia Portela de Aguiar², Viviane Pagnussat Klein¹, Florian Wittmann^{1,3} & Maria Teresa Fernandez Piedade¹

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The white-sand “*campinaranas*” of the Uatumã SDR are composed of different shrub- and forest formations that occur as fragmented “islands” surrounded by upland (*terra-firme*) forest. There are striking structural and floristic differences between the different *campinarana* vegetation formations, but they share the sandy and very nutrient-poor soils. Sandy soils often have an underlying hardpan that causes surface flooding through high groundwater levels during the rainy season. *Campinaranas* are relatively open forest formations, where high incidence of solar radiation combined with the low water retention capacity of sandy soils subject plants to seasonal drought during the dry season. *Campinarana* plants need a series of adaptations to cope with these environmental stressors. Although relatively species poor when compared to the surrounding *terra-firme*, *campinaranas* are (therefore) composed of many specialized and endemic taxa.

Campinarana vegetation formations



319 Open shrub physiognomy / *campina* or *campinarana arbustiva*



320 Highly dense forested physiognomy / *paliteiro* or *campinarana arborizada*



321 Forested physiognomy with high groundwater level / *campinarana florestada* or *chavascal*



322 Forested physiognomy in transition to *terra-firme* / *campinarana florestada*

Special thanks to the taxonomists who helped with identification in specific families: Maria de Fátima Freitas (Primulaceae); Charlotte Taylor (Rubiaceae); Maihyra Marina Pombo (Annonaceae); Anderson Alves-Araújo (Sapotaceae); Renato Goldenberg (Melastomataceae); Guilherme Sousa (Fabaceae); Mike Hopkins (Fabaceae); Ana Sofia Sousa de Holanda (Humiriaceae); Fernanda Cabral (Clusiaceae); Lucas Cardoso Marinho (Clusiaceae); Magno Luis Vasques Pilco (Bursaceae). Thanks also to parataxonomo José Ferreira Ramos and technicians from INPA: Mariana Mesquita, Valdeney Araújo, Elizabeth Rodrigues Rebouças, Celso Rabelo Costa. The ATTO project team for logistics and field support: Nagib Alberto Souza, Amauri Rodriguês, Antonio Huxley do Nascimento, André Matos, Wallace Rabelo Costa, and the people who helped in the field: Gildo Oliveira Feitoza, Maria Julia Ferreira, Gabriel Caldas, Natalia Kinap, Jeisiane Santos da Silva, Gilvan da Silva Costa, William Bercê.