



Forest Types of Suriname

High Dryland Forest

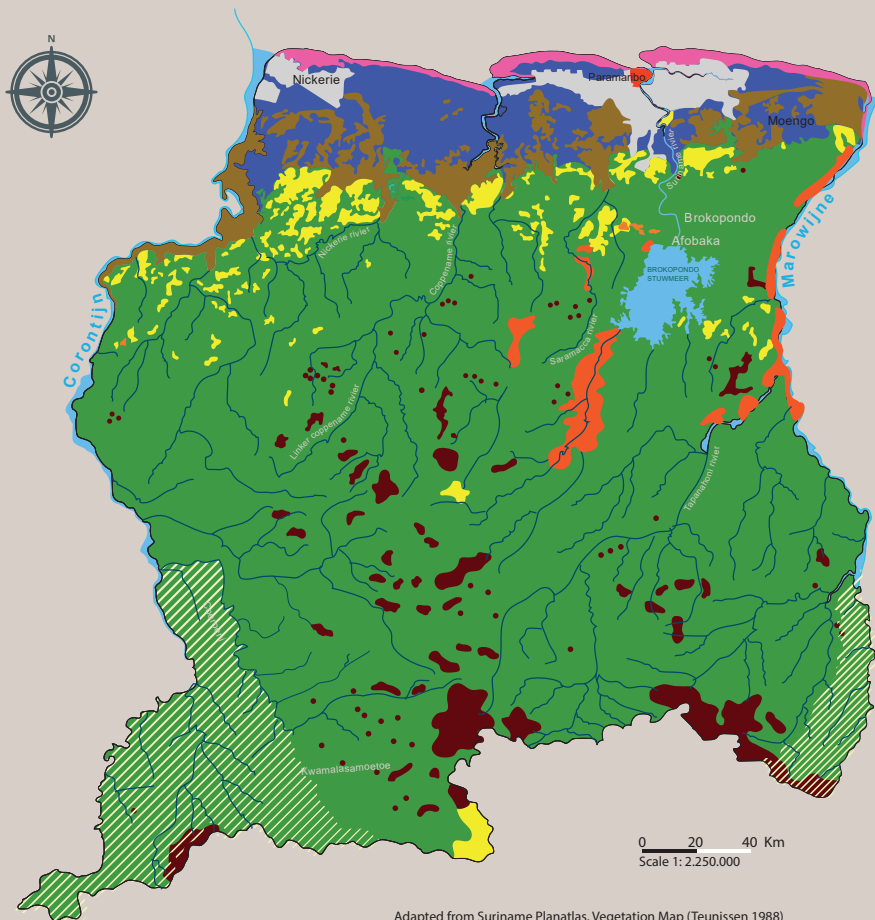
Example 1: Tonka Island

Based upon the knowledge of Frits van Troon

**Manual
#5**

Learning about Forest Types from Frits van Troon





Forest Types of Suriname

Coastal Plain	Mangrove Forest w/ brackish lagoons and herbaceous brackish swamps
Coastal Plain	Swamp Forest w/ herbaceous freshwater swamps
Coastal Plain	Marsh Forest w/ high dryland forest
Savanna-areas	Savanna Forest & Savanna
Guiana Shield	Secondary Forest
Guiana Shield	High Dryland Forest
Guiana Shield	Mountain Forest (> 500 m)
Sipaliwini-savanne	Sipaliwini Savanna (at border with Brazil)
	Urban area, agricultural land and abandoned plantations
	Disputed area

This training manual and map is one of a series in the Forest Types of Suriname project conducted with Mr. Frits van Troon. Please refer to the Introductory Manual of the series for more information.

Color bars represent the different image contributors © in this manual.



The Pre-Cambrium Guiana Shield

Traveling south of the Coastal Plain and Zanderij Belt of Suriname, one encounters tall rainforest on hilly land with conspicuous laterite (red-dish-orange) soils. This is where the geological formation known as the Pre-Cambrian Guiana Shield or Basement begins, with underlying rocks estimated to be more than 2 billion years old.

This zone, commonly referred to as “The Interior” or the “Hill Country”, extends east, west and south to the Brazilian border - covering more than 80% of Suriname’s territory. It is dominated by a plain of low, rolling hills that gradually increases in elevation, from 40-50 meters in the north to more than 250 meters in the south. In some places, the lower hilly plain is interrupted by mountains and plateaus rising up to 750 meters.

Diverse types of rocks, soils, and biota occur across this landscape, although the blanket of green high forest canopy gives the appearance of uniformity from above.



What are High Dryland Forests?

High dryland forest is a term introduced in the 1950s in Suriname to describe all forest types which are on “dry” land, mostly well-drained laterite soils (no purely sandy soils). “High” means that these forests are tall - with a canopy reaching 25-50 meters height. This is the forest type that dominates the Precambrium Guiana Shield.

Others apply the more common names used in the Amazon such as “mesophytic tropical forest” or “rainforest”. High dryland or mesophytic forest is a forest type in-between hydrophytic or wet forests (swamp, marsh) and xerophytic or dry forests (savanna forest).

More than 70% of the forests of Suriname are high dryland forest. As for all tropical forests, they are not homogeneous. Every watershed in the Interior includes some marsh, swamp, and riparian forest in the wetter and lower areas. Also, the local mix of species present in high dryland forest changes from north to south and east to west in Suriname. We start here with one example: Tonka Island high dryland forest.



Key Species of High Dryland Forests Example 1: Tonka Island



Medium to Large Trees

- | | |
|-----------------------|-------------------------------|
| - Agrobigi | - <i>Parkia nitida</i> |
| - Basralokus | - <i>Dicorynia guianensis</i> |
| - Bergi Gronfolo | - <i>Qualea rosea</i> |
| - Hoogland Manbarklak | - <i>Eschweilera coriacea</i> |
| - Ijzerhart | - <i>Bocoa prouacensis</i> |
| - Kaw udu | - <i>Bagassa guianensis</i> |
| - Letterhout | - <i>Brosimum guianense</i> |
| - Tonka | - <i>Dipteryx odorata</i> |
| - Wiswis Kwari | - <i>Vochysia guianensis</i> |
| - Zilverpisi | - <i>Ocotea guianensis</i> |

Small trees

- | | |
|-------------|----------------------|
| - Marmadosu | - <i>Duroia spp.</i> |
|-------------|----------------------|

Palms

- Bugrumaka

- *Astrocaryum sciophilum*

- Kumbu

- *Oenocarpus bacaba*

- Paramaka

- *Astryocaryum paramacca*

Lianas

- Sekrepatutrapu

- *Bauhinia* spp.

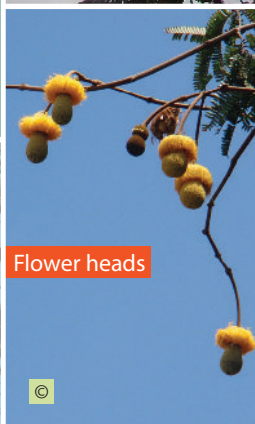
- Watratitei

- *Doliocarpus* spp.

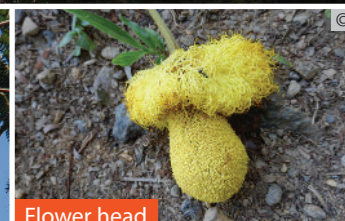
- *Moutabea guianensis*

Agrobigi (Grootbloemige) *Parkia nitida* Fabaceae

Trees to 50 m tall, canopy often horizontal, trunk straight, round, with large buttresses; bark reddish, smooth, with lenticels. Leaves opposite, bi-pinnate (fine leaflets). Flowers and fruits pendent - hanging from branches on cords to 1.5 meters long. Inflorescences in dense heads of yellow flowers, to 6 cm long each. Fruit pods in clusters, each pod slightly curved, to 35 x 4-5 cm, black and shiny, with sticky gum inside.



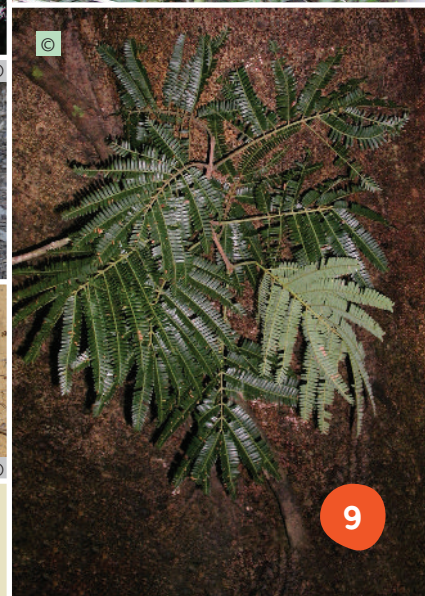
Flower heads



Flower head



Fruit pods

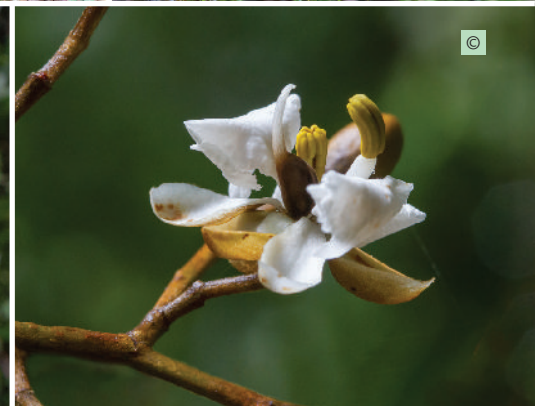
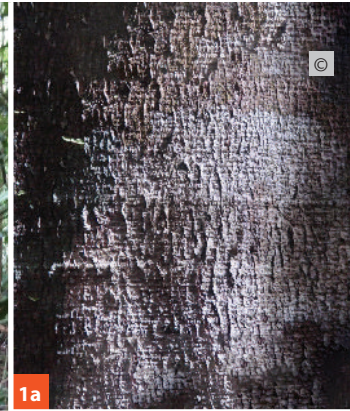


Basralokus *Dicorynia guianensis* Fabaceae

Large tree to 45 m tall,
60-150 cm diam., trunk
round, buttresses small.
There is a 'red' and a 'white'
variety (FvT). Leaves alter-
nate, pinnate-compound,
with 5-7(9) leaflets.
Flowers white. Fruit (not
pictured) a winged-oval
pod w/ pointed tip, 5-8 x
3-4 cm.

1a Bark peels off in small
papery scales.

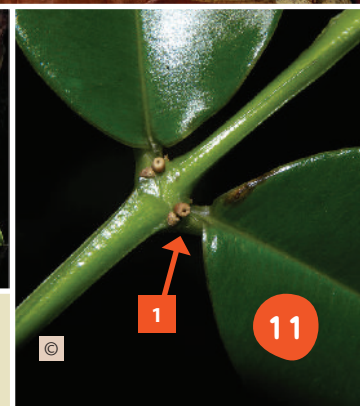
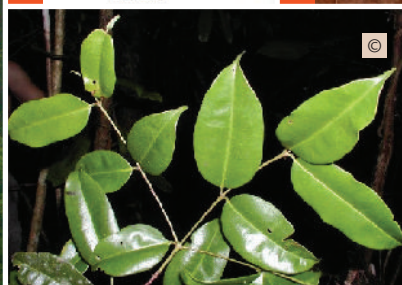
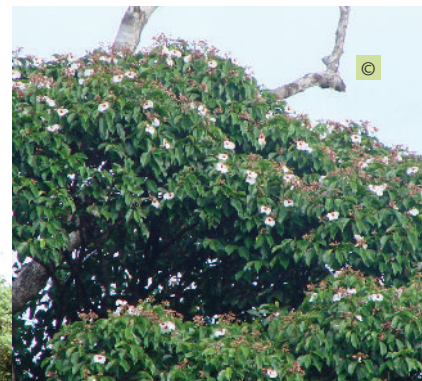
1b Sap is a thick gel, not
brightly colored.



Bergi Gronfolo *Qualea rosea* Vochysiaceae

Tree 30-60 cm tall,
60-100 cm diam.,
trunk round,
buttresses large, thick.
Bark brown-grey,
smooth, with papery
scales and lenticels.
Leaves opposite,
simple.

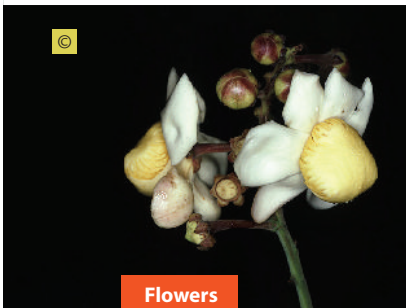
- 1 Glands at leaf bases
- 2 Flower of 1 large, colorful petal
- 3 Fruit capsule w/ winged seed



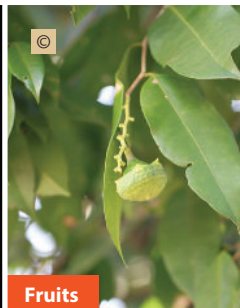
Hoogland Manbarklak *Eschweilera coriacea* Lecythidaceae

Medium-sized tree to 25 m tall. Bark soft, fibrous, peeling in long strips, slash without colored sap. Leaves alternate, simple, long. Flowers complex, with white petals and yellow in-folded center. Fruit a wide, woody capsule with a lid (to 5.5 x 2.5 cm); seeds edible.

Peeling bark, the distinctive flowers and woody capsules are useful for identifying the Brazil Nut family in general (Lecythidaceae).



Flowers



Fruits



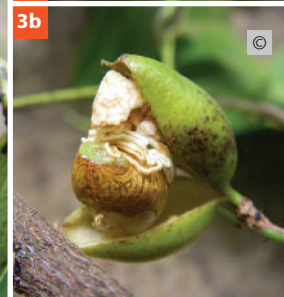
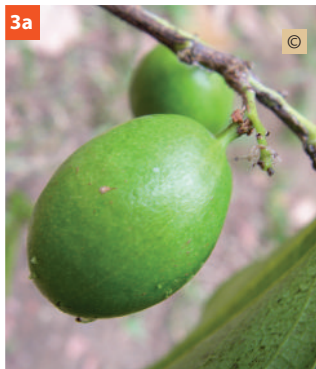
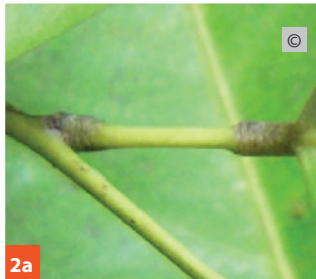
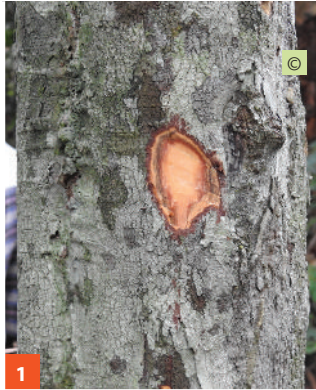
Ijzerhart

Bocoa prouacensis

Fabaceae

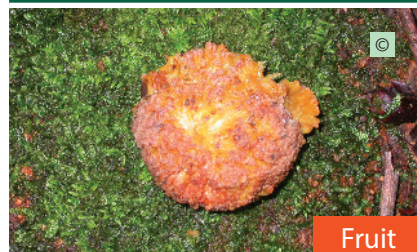
Small to medium-sized tree, 10-25 m tall, 20-40(70) cm diam. Trunk straight, round, no buttresses.

1. Older bark flaky, fissured. Slash showing red/brown ring (inner bark) (common in some other Fabaceae trees - Dipteryx, Swartzia, Pterocarpus). Sometimes w/ small amount of red sap.
2. Leaves alternate and simple (Fabaceae lvs typically compound).
- 2a. Leafstalk with double-swelling.
3. 3a. Fruit pod with 1-2 seeds;
3b Open fruit, seed connected by 'string';
3c. Old fruit pod;
3d. Seed hanging 1-3 meters from fruit pod.

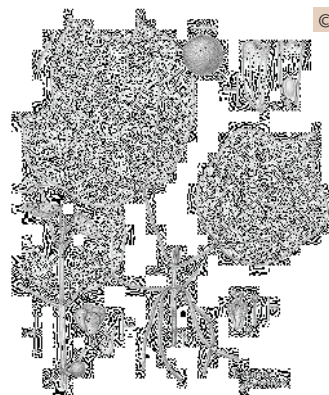


Kaw udu *Bagassa guianensis* Moraceae

Tree to 45 m tall,
70-100 cm diameter,
trunk straight, with
large buttresses.
Bark white, fissured,
sap abundant, milky
and sticky. Leaves
opposite (unusual for
Moraceae), simple,
3-lobed, 3-veined.
Fruit round, 4-6 cm
diam., hairy, edible.



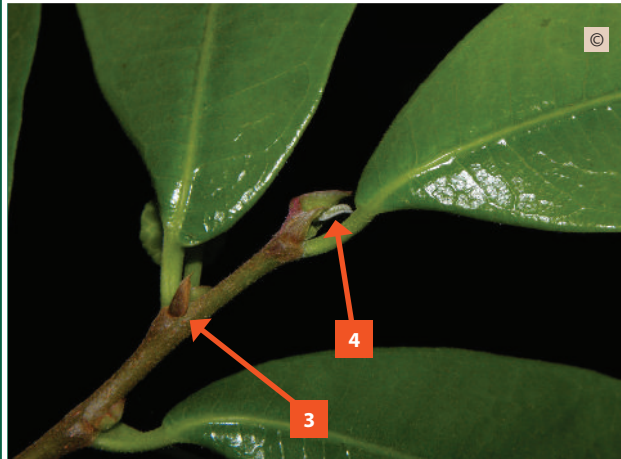
Fruit



Letterhout *Brosimum guianense* Moraceae

Tree up to 45 m tall, trunk round, straight. Leaves alternate, simple, midvein off-center, veins below prominent, sap white/yellow.

- 1 Wood very hard, with unique, attractive patterning
- 2 Slash with white to yellow sap, becoming cream-colored
- 3 Free stipules present at base of leaf stalk on twigs, falling off early
- 4 Conical bud present at twig apex
- 5 Clustered fruits



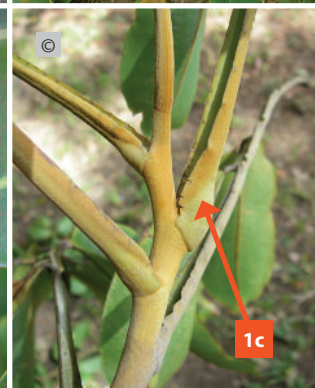
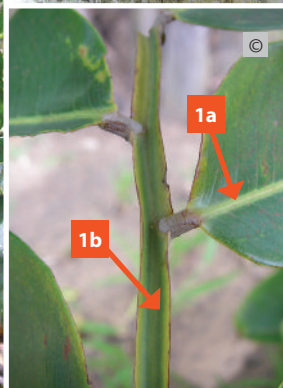
Tonka

Dipteryx odorata

Fabaceae

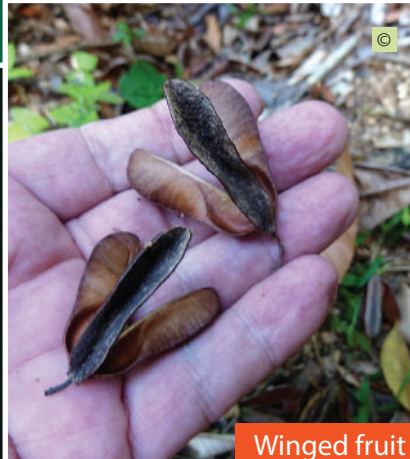
Tree 25-50 m tall, 30-100 (200) cm diam., trunk straight, buttresses variable. Bark brown-yellow to white, variable - smooth, rough, fissured, flaky. Slash w red-purple and yellow bands, sometimes with red sap, sweet-scented (vanilla-like). Leaves alternate, pinnate-compound, leaflets 4-8.

- 1 Leaf detail:
 - a. leaflet midvein off-center;
 - b. leaf rachis flattened or canal-like, extending beyond final leaflet;
 - c. leaf base thick, boat-shaped.
- 2 Fruit oblong, 5-6 cm length, seed (Tonka Bean) 1 per fruit, to 3 cm long, aromatic (coumarin oil).



Wiswis Kwari
Vochysia
guianensis
Vochysiaceae

Large trees, 30-50 m tall, canopy rounded, buttresses present. Bark reddish-grey, soft, scaly, colored sap absent. Leaves opposite, simple, leathery. Flowers yellow to yellow-orange, with nectar spur. Fruits winged.



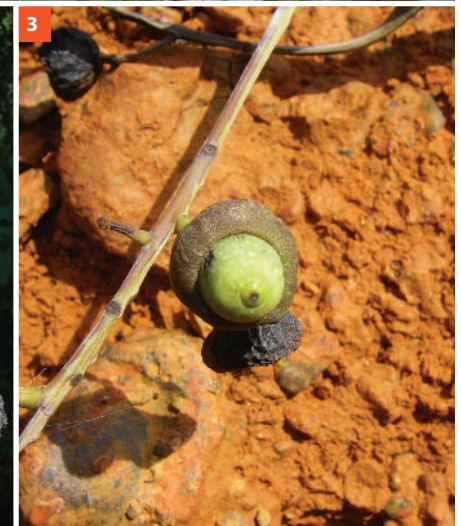
Winged fruit



Zilverpisi *Ocotea guianensis* Lauraceae

Medium-sized tree, to 25 m tall, 35 cm diam., in old growth and secondary forests. Trunk straight, bark grey-white to brown, with many lenticels (bumps). Slash with clear and sticky sap (not colored), with strong scent - spicy or aromatic (Lauraceae wood is typically aromatic, some species may also smell like urine).

- 1 Leaves alternate, simple, pointed, with white-silvery hairs - especially when young.
- 2 Inflorescences large, terminal, with many tiny, golden flowers.
3. Fruits: a nut held within a cupule. This is the typical fruit type for the entire Lauraceae family.



Marmadosu
***Duroia* spp.**
Rubiaceae

Small tree to treelets, 10-20 m tall. Trunk irregular, with vertical holes. Slash without colored sap. Leaves large, opposite, simple. Flowers white, tubular. Fruits large, oval to round, 5-9 cm wide, smooth (e.g., *Duroia aquatica*) or hairy (e.g., *Duroia eriophylla*).



Bugrumaka *Astrocaryum sciophilum* Arecaceae

Spiny palm, often dominating
understory in high, dryland forest.
Trunk single, 2-4 (12) meters tall,
10 cm diam. Fruit 6 x 3-4 cm, edible.



Koemboe
Oenocarpus
bacaba
Areaceae

Spineless palm, single trunk to 20 m tall. Trunk smooth, ringed with old leaf scars. Inflorescence hanging like a horse's tail, Fruits edible, purple-black at maturity, to 2 cm diameter.



Paramaca palm
Astryocarum
paramaca
Areaceae

Spiny palm, stem
absent (below ground),
often surviving fires.
Fruit splitting open at
maturity (flower-like)
to reveal yellow palm
seed, 3-4 x 2 cm.



Sekrepatutrapu *Bauhinia* spp. Fabaceae

Woody lianas with flat, wavy stems (sometimes almost round), to 40 cm diameter. Climbing via tendrils. Leaves alternate, usually with 2-hinged leaflets (FvT: like scissors), sometimes fused into one. One of the most recognizable genera in the forest.



Bauhinia Stem



Bauhinia stem in forest



Young Tendril



Fruit pod

Watratitei *Doliocarpus* spp. Dilleniaceae

Woody lianas or shrubs in open. Stems round, robust, to 30 cm diam., bark reddish-brown often w/ large flakes peeling off, in cross-section with concentric rings. Flowers showy, with many white stamens. Fruit maturing bright red, 2 cm diam., with white pulp (aril) surrounding black seed.



Doliocarpus dentatus



Moutabea guianensis **Polygalaceae**

Woody liana or shrub. Stem round, to 30 cm diameter, with concentric circles in cross-section, providing fresh water. Bark grey or greenish, flaky. Leaves alternate, simple, leathery, never toothed. Flowers cream-white. Fruit orange, round, to 4 cm diameter, pulp edible.





Threats to High Dryland Forests

- **By far the highest threat to the forests of the interior is the small scale goldmining** which has been thriving since the arrival of Brazilian garimpeiros back in the 1990s. Goldmining is doing irreparable damage to the forests and freshwaters of Central, East and South East Suriname.
- **Another threat is the increase of logging since 2017.** For decades annual log production was around 200,000 cubic metres; however, in 2020 it surpassed 1 million cubic meters. Damage is done by new logging roads and overharvesting of trees in concessions leading to serious degradation.
- **Several new roads** have been built over the last decades, and projects for more roads and hydro-dams are in the pipeline.
- **Finally, there has been an increasing frequency and intensity of drought** in the past decade, which is likely linked to global warming. The forests of Suriname have not been impacted by fire as has been seen in Brazil, but there are serious negative impacts upon plants, animals and traditional peoples from extreme drought or flood events.

“Kibri a high busi lek
a high busi kibri yu”





European Union

dwb ecology

CARING
FOR NATURE. FOR LIFE
SURINAME CONSERVATION FOUNDATION

 **AMAZONIA**
2.0 Connected
for our
forests



the Amazon Conservation Team
Suriname

