



FLAAR



Yellow Brush Flower

Which species of *Combretum* Vine?

Parque Nacional Yaxha, Nakum and Naranjo (PNYNN)
Reserva de la Biosfera Maya (RBM)
Peten, Guatemala

NICHOLAS HELLMUTH



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Which species of *Combretum* Vine?

October 2022

We appreciate a donation during November 2021 and a subsequent donation in early June 2022 to help cover the costs of FLAAR research projects specifically to assist and support the current FLAAR project of flora and fauna in the Reserva de la Biosfera Maya (RBM). This continuing donation is also assisting the FLAAR (USA) and FLAAR Mesoamerica (Guatemala) research project searching for wild edible plants in the wetlands of the Municipio de Livingston area of the departamento of Izabal, Guatemala.

These donations are from a family in Chicago in honor of the decades of botanical field work of botanist Dr John D. Dwyer, who worked in many areas of Mesoamerica, including in the Yaxha area in the 1970's while the site was being mapped by FLAAR.

This donation is also in recognition of the urgency and need for conservation of both wildlife and rare plants in the bio-diverse ecosystems of the Reserva de la Biosfera Maya (RBM) of Guatemala. Parque Nacional Yaxha, Nakum and Naranjo (PNYNN), Parque Nacional Laguna de Tigre (PNLT) and the wetlands of Municipio San Jose are three parts of the over 5 million acres of the RBM.

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PHOTO FROM FRONT COVER

Combretum fruticosum

Photo by: Nicholas Hellmuth, FLAAR Mesoamérica, Jan. 26, 2021. Petén, Guatemala.
Camera: Sony 7RM4

PHOTO FROM TITLE PAGE

Combretum fruticosum

Photo by: Nicholas Hellmuth, FLAAR Mesoamérica, Jan. 21, 2019. Petén, Guatemala.
Camera: Nikon D5

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Introduction to *Combretum fruticosum* of Guatemala

There are several species of genus *Combretum* with beautiful flowers in the Maya Lowlands of Guatemala and surrounding countries. During January of our 2018-2019 field trips we found one species in full bloom. The completely yellow flowers and their supporting structure were of remarkable size and shape: the cluster was the size and shape of a long hair brush.

When we began research to identify which species we had found, we noticed that most of the flowers of this size and hair-brush shape in botanical data bases and on the Internet were brilliant red. But 100% of the ones we saw and photographed were brilliant yellow.

Botanists Standley and Steyermark (1962: 272) claimed "if it was a red flower it was *C. fruticosum* and if it was a yellow flower it was *C. argenteum*."

But after hour-after-hour of further research, in botanical reports and on-line, I could not find many yellow flowers of *C. argenteum*. Most of the yellow flowers on the Internet were named *C. fruticosum*! (I fully realize that an unfortunate percent of plant names on popular websites are quick guesstimates based on copy-and-paste and not peer-reviewed). And to my total surprise I learned that the species were awkward to identify even by botanists.

To make it more complex, the flowers of *Combretum farinosum* Kunth are pictured as yellow (for western Mexico, Rendon and Ibarra-2018: Fig. 2, F and G, but in F you can see the yellow is turning to red at the top; does not mean that in another several weeks everything will be red?).



Combretum fruticosum seeds of flor de cepillo.

Photo by: David Arrivillaga, FLAAR Mesoamérica, Jan. 26, 2021. Petén, Guatemala.
 Camera: Sony 7RM4 Lens: Sony FE 200-600mm
 Settings: 1/2000 sec; f/6.3; ISO 1600.

So the following report is to document our research and to present our findings to botanists in the hope of finding a specialist in plant family Combretaceae so that they can correct our suggested plant name if we are incorrect; or they can indicate that I made the correct estimate.

If you are visiting the Peten area of Guatemala in the month(s) when *Combretum* vines are blooming be sure to look for it.



Combretum fruticosum, road Yaxha to Nakum.

Photo by: Nicholas Hellmuth, FLAAR Mesoamérica, Jan. 21, 2019. Petén, Guatemala.
Camera: Nikon D5 Lens: Nikon 800mm
Settings: 1/125 sec; f/5.3; ISO 2500.

My Personal Experience with *Combretum fruticosum*

These flowers are common in several parts of Guatemala and you can't miss them if you are driving through rain forest areas. But 2019 was the first time that I dedicated time and the entire team to photograph them. This was a challenge since they were often far away from the edge of the trail, so I had to use an 800mm prime lens for some of the photographs. But in other locations the flowers were closer. In this year we did not yet have our 3-meter high ladder so we can get our cameras and photographers closer to the flowers. From year 2022 onward we have a 3-meter high ladder with us every single hour, every kilometer, every day on a field trip. We carry it up to 18 kilometers a day (9 km to reach a savanna or tasistal; then 9 km back to the base camp). Fortunately most hikes are only 5 to 6 km in and 5 to 6 km back to base camp.



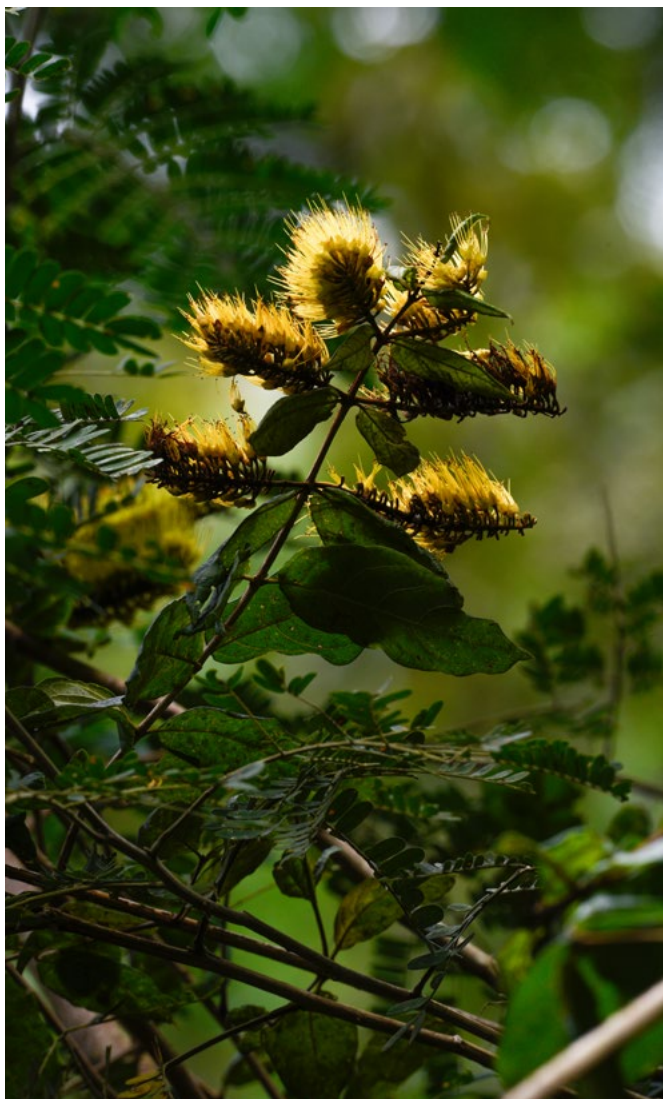
Combretum fruticosum, road Yaxha to Nakum.

Photo by: Nicholas Hellmuth, FLAAR Mesoamérica, Jan. 21, 2019. Petén, Guatemala.
Camera: Nikon D8 Lens: Nikon 400mm
Settings: 1/30 sec; f/2.8; ISO 640.

Full Botanical Name

Combretum fruticosum (Loefl.) Stuntz is the accepted name.

Family name Combretaceae, bushwillow family or white mangrove family. Most of these family names are based on India, Africa, Asia.



Here are synonyms for *Combretum fruticosum*

- ***Combretum aurantiacum*** Benth.
- ***Combretum benthamianum*** Van Heurck & Müll.Arg.
- ***Combretum farinosum*** var. *phaenopetalum* Donn.Sm.
- ***Combretum formosum*** G.Don
- ***Combretum gloriosum*** Rusby
- ***Combretum lepidopetalum*** Pittier
- ***Combretum loeflingii*** Eichler [Illegitimate]
- ***Combretum loeflingii*** subsp. *ornithophilum* Suess.
- ***Combretum micropetalum*** DC.
- ***Combretum multidiscum*** Rusby
- ***Combretum occidentale*** L. [Illegitimate]
- ***Combretum oxypetalum*** G.Don
- ***Combretum phaenopetalum*** (J.D.Sm.) Pittier
- ***Combretum reticulatum*** C.Presl
- ***Combretum secundum*** Jacq.
- ***Combretum superbum*** Pittier
- ***Combretum tetragonum*** C.Presl
- ***Combretum trinitense*** Britton
- ***Combretum warszewiczianum*** Eichler
- ***Gaura fruticosa*** Loefl.
- ***Gaura laxa*** Loefl.

Combretum fruticosum, road Yaxha to Nakum.

Photo by: Nicholas Hellmuth, FLAAR Mesoamérica, Jan. 21, 2019.
Petén, Guatemala.
Camera: Nikon D8 Lens: Nikon 400mm
Settings: 1/30 sec; f/2.8; ISO 320.

Local names for *Combretum fruticosum*

Botanical name is *Combretum fruticosum* (Loefl.) Stuntz. Local names of course depend on in what part of Mesoamerica you ask, and whether you ask a local person or a botanist. One name is **peineto** (in Guatemala). Other sites call it **flor de fuego**, though so far 100% of the flowers of *Combretum* around Yaxha are pure yellow: only the seed pod was red. However on the Internet, you see the name **flame red**. Perhaps we will experience this color in mid-February when we return to Parque Nacional Yaxha, Nakum and Naranjo in that month?

Orange Flame Vine is the name most commonly used; **Chameleon Vine** is also listed but not used as often. But as we will learn later either there are two species: red inflorescence and yellow inflorescence, or there is one species with different colors for various factors. If the flowers change from green (as the buds develop) to yellow (as they open) to red (as they mature) then this would be a possible reason why they are called Chameleon Vine (the flowers change color?).

Called **bottlebrush** in Belize (where it is listed as a food source of the black howler monkey (Silver, Ostro, Yeager and Horwich 1998: 269)).

In Yucatan the plant (based on its flowers) is called **peine de mico** or **peine de milo**. Flowers there in January, February, and March

[Click here](#)

Called **punto** on www.conabio.gob.mx list (whose URL is too long to show here).

I suggest a name for the ones at Yaxha: **YELLOW brush flower**; because they are ALL bright yellow; they are the size and shape of a woman's hair brush. So, not Orange Flame Vine because flames are not yellow and the flowers on the Nakum to Yaxha road are ALL BRIGHT YELLOW: no red, no orange.

Mayan names for *Combretum fruticosum*

quie-tzine (Este es uno de los nombres que se le da en Oaxaca y desconozco si es de origen maya, todos los demás nombres que encontré son en español) (**Pagaza and Fernández 2005: 131**).

Habit for *Combretum fruticosum*

Usually, a woody liana to 30 m (usually much less), with stems to 18 cm diam.

In what Ecosystem(s) can you find native *Combretum fruticosum*?

This species develops in alluvial or igneous, stony or silty soils, usually shallow, on the banks of permanent or temporary streams, within the tropical sub-deciduous and deciduous forest, from sea level to 980 m (Rendón 2009: 39).



Photo by: David Arrivillaga, FLAAR Mesoamérica, Jan. 22, 2019.
Peten, Guatemala.
Camera: Nikon D5 Lens: Nikon 800mm.
Settings: 1/500 sec; f/5.3; ISO 3200.

Combretum fruticosum, road Yaxha to Nakum.



What other Trees or Plants are often found in the same Habitat?

There is no information given on the subject.

Where has *Combretum fruticosum* been found in the PNYNN?

I first noticed yellow *Combretum* flowers six kilometers from the park entrance, at the left side of the dirt road to Yaxha from Flores-to-Melchor de Mencos highway.

You can also see more *Combretum fruticosum* growing on living fence trees used for living fences along the main highway (from Flores (Santa Elena)-to-Melchor de Mencos).

I estimate it is also present among the treetops along Rio Ixtinto (which you enter on the west side of Topoxte Island in Lake Yaxha).

We found the thickest area of *Combretum fruticosum* growing atop low trees in the bajo area between Yaxha and Nakum. Most had to be photographed with an 800mm prime telephoto lens since they were so far away (we did not want to use a machete in the park to hack a trail to enable us to photograph them from closer). One tree had the vines accessible with a 200mm telephoto lens. It was only along the road from the main highway towards the park entrance that the vine flowers were low enough to do close-ups.

Combretum fruticosum, road Yaxha to Nakum.

Photo by: David Arrivillaga, FLAAR Mesoamérica, Jan. 22, 2019.
Peten, Guatemala.
Camera: Nikon D5 Lens: Nikon 200mm.
Settings: 1/250 sec; f/4; ISO 6400.

When does this species flower?

We found them flowering in late January 2019 in PNYNN and flowering along the edge of seasonally inundated flatland parallel to Rio Calix (tributary of El Golfete, Municipio de Livingston) in late January 2021. So January seems to be when they start flowering. How long the flowers last, and whether they change from yellow to orange or red, we can only find out during year 2022. So in late January into early February we will be checking on these flowers to update the present report.

Where has *Combretum fruticosum* been found elsewhere in the Peten?

It would take a long time to search every international herbario data base but the easiest to search is Neotropical Flora data base. In this data base not one is from Yaxha park, so possibly we are the first to document these flowers for PNYNN (keeping in mind we have not checked herbaria in Guatemala due to them being closed during COVID pandemic).

Guatemala, Petén, Los Arcos-Cadenas Road, Km 142/143, [east], 15.96 -89.27

Guatemala, Petén, En orillando el camino para El Remate, a Km 64, lado este del camino, en Parque Nacional de Tikal., 17.21 -89.62

Guatemala, Petén, La Libertad, La Libertad and vicinity, 16.79 -90.11, 209m

Guatemala, Petén, Dolores, Dolores, on Santo Toribio trail. In high forest, 16.53 -89.45

Guatemala, Dept. Peten, Puerto Chimono, Laguna Petexbatun, 20 km South of Sayaxche., 16.566667 -90.233333

Neotropical Flora data base. To start your search click on this page:

<https://serv.biokic.asu.edu/neotrop/plantae/collections/harvestparams.php>

Then put in the name of the plant you wish to learn about, in this case ***Combretum fruticosum***.

Tell the search engine what country you want to learn about. Then you get your results.

Are *Combretum fruticosum* vines registered for Parque Nacional Tikal?

In the Neotropical Flora data base yes. But to be completely “registered for Tikal” it helps when they are included in the Plan Maestro.

Combretum fruticosum is present in a plant list for Tikal in Thompson’s 2013 PhD dissertation (Appendix 4, no pagination in the on-line edition).

Is *Combretum fruticosum* registred for Parque Nacional Yaxha Nakum y Naranjo?

Plan Maestro del Parque Nacional
Yaxha – Nakum – Naranjo 2006-2010
(Not metioned)

Ficha de Parkwatch
(Not mentioned)

Ficha informativa de humedales de RAMSAR de
Yaxha
(Not mentioned)

What species of *Combretum* trees did Cyrus Lundell find in Peten?

Lundell discusses only the names *Combretum farinosum* and *Combretum mexicanum*.

- *Combretum farinosum*, pages 48, 71, 109, 139, 179
- *Combretum mexicanum*, pages 190, 191, 201

His work in the 1930’s was primarily around La Libertad (Peten), savanna country, far west of the hills of Yaxha. So work from the 1930’s into 1960’s is not reliable for the names or color issues (because Lundell rarely mentions the color of most flowers).

Combretum farinosum is an accepted name:

www.theplantlist.org/tpl1.1/record/kew-2732586

Combretum mexicanum is a synonym of *Combretum laxum* Jacq.

Synonyms of *Combretum farinosum*:

- *Combretum polystachyum* Pittier
- *Grislea secunda* L.

Synonyms of *Combretum laxum*:

- *Combretum laxum* Jacq.
- *Chrysostachys ovatifolia* Pohl
- *Combretum accedens* Van Heurck & Müll.Arg.
- *Combretum adenophyllum* Mart.
- *Combretum brunnescens* Gleason
- *Combretum bugi* Cambess.
- *Combretum cordatum* G.Don
- *Combretum epiphyticum* Pittier
- *Combretum ferrugineum* G.Don
- *Combretum ferrugineum* Hoffmanns. Ex Walp.
- *Combretum fulgens* Gleason
- *Combretum jacquinii* Griseb. [Illegitimate]
- *Combretum jacquinii* f. rasilense Eichler
- *Combretum jacquinii* f. bugi (Cambess.) Eichler
- *Combretum jacquinii* f. laxum (Jacq.) Eichler
- *Combretum jacquinii* var. laxum (Jacq.) Pulle
- *Combretum jacquinii* f. ovatifolium (Pohl) Eichler
- *Combretum jacquinii* f. pulchellum (Mart.) Eichler
- *Combretum jacquinii* var. pulchellum (Mart.) Pulle
- *Combretum laxum* var. aurantiacum Kuntze

- ***Combretum laxum*** var. *epiphyticum* (Pittier) Croat
- ***Combretum laxum*** var. *laxum*
- ***Combretum laxum*** var. ***viridulum*** Kuntze
- ***Combretum marchii*** Fawc. & Rendle
- ***Combretum mexicanum*** Humb. & Bonpl.
- ***Combretum mexicanum*** var. ***laxiflorum*** C.Presl
- ***Combretum mexicanum*** var. ***obovatum*** DC.
- ***Combretum oblongifolium*** Rusby
- ***Combretum obtusifolium*** Rich.
- ***Combretum obtusifolium*** var. ***griseolepidotum*** Sagot
- ***Combretum obtusum*** Walp.
- ***Combretum odoratissimum*** Sessé & Moc.
- ***Combretum odoratum*** Pav. Ex G.Don
- ***Combretum puberum*** Rich.
- ***Combretum pulchellum*** Mart.
- ***Combretum terminalioides*** Steud.
- ***Combretum variabile*** Mart.
- ***Combretum variabile*** var. ***angustifolium*** Mart.
- ***Combretum variabile*** var. ***detersum*** Mart.
- ***Combretum variabile*** var. ***oblongifolium*** Mart.
- ***Combretum viscidum*** Griseb.

[Click here](#)

Is *Combretum fruticosum* a vine? Or a bush? Or a Tree?

Some botanists call *Combretum fruticosum* a tree (Grandtner and Chevrette 2013: 152).

It is sometimes called a bush (arbusto); other times viewed or considered as a vine. In one thesis it is called an arbusto in one tabulation (Garcia 2008: 8) but called an tree in another in same thesis (page 92). In different eco-systems, and depending on what plants or trees are nearby, its growth style may vary?

Lundell calls *Combretum farinosum* "A large woody scrambler"; he calls *Combretum mexicanum* a liana (1937).



Combretum fruticosum seeds of flor de cepillo.

Photo by: David Arrivillaga, FLAAR Mesoamérica, Jan. 26, 2021. Peten, Guatemala.
Camera: Sony 7RM4 Lens: Sony FE 200-600mm.

Where are the most common species found for the Maya Lowlands?

Mexico, surrounding Peten (Villaseñor 2016)	Belize, to east of Peten	Lundel 1937, for Peten	Standley & Co-authors, for Peten or Izabal
<i>Combretum argenteum</i> Bertol. CAM, CHIS, GRO, MEX, OAX, VER			<i>Combretum argenteum</i> Bertol. (S&W 1962: 272)
<i>Combretum decandrum</i> Jacq. CHIS, GRO, JAL, MICH, NAY, OAX, TAB, VER			
	<i>Combretum cacoucia</i> Exell		
		<i>Combretum farinosum</i>	
<i>Combretum formosum</i> G. Don. CAM, CHIS, OAX, QROO			
<i>Combretum fruticosum</i> (Loefl.) Stuntz CAM, CHIS, CHIH, COL, DGO, GRO, HGO, JAL, MEX, MICH, MOR, NAY, OAX, PUE, QROO, SLP, SIN, TAB, TAMS, VER, YUC	<i>Combretum fruticosum</i> (Loefl.) Stuntz		<i>Combretum fruticosum</i> (Loefl.) Stuntz
<i>Combretum laxum</i> Jacq. CAM, CHIS, COL, GRO, JAL, MEX, MICH, MOR, NAY, OAX, QROO, TAB, VER	<i>Combretum laxum</i> Jacq.	<i>Combretum laxum</i> under synonym <i>Combretum mexicanum</i>	
<i>Combretum rovirosae</i> Exell CAM, CHIS, OAX, TAB, VER			

Brief list of *Combretum fruticosum* trees for Belize by Standley and Record (1936) and by Balick, Nee and Atha (2000)

Belize, names used in year 2000 (Balick, Nee and Atha 2000: 103)	Belize, names used in 1930's (Standley and Record 1936: 277)
<i>Combretum cacoucia</i> Exell —Reg Use: POIS. — Habit: Liana.	<i>Combretum cacoucia</i> Exell. <i>C. coccineum</i> Engler & Diels.
	Stann Creek Railway, in forest, Schipp 87; Central America to the Guianas. A large woody vine, sometimes 18 meters long, with a trunk diameter of 7 cm.; leaves oblong, acuminate, almost glabrous; flowers in long, stout, very dense, leafy-bracted racemes, the whole flower 2 cm. long. An exceedingly showy plant because of its abundance of spirelike spikes of bright, deep red flowers.
	<i>Combretum farinosum</i> HBK. Tietie, Carasow Comb. Frequent large vine; leaves oval to elliptic-oblong, with sparse or dense pale scales on the lower surface; spikes very dense and thick, the flowers varying from dark red to yellowish; fruit 2 cm. long. A showy, handsome plant, its flowers much visited by insects and hummingbirds.

<p><i>Combretum fruticosum</i> (Loefl.) Stuntz —Loc Use: MED. — Reg Use: MED, PRD. — Nv: chupa miel, curassow comb, monkey brush, monkey brush tie, monkey brush tie-tie, sepillo, sepillo amarillo, tietie, tie male, yellow brush. — Habit: Liana. —</p>	
<p><i>Combretum laxum</i> Jacq. — Syn: <i>Combretum mexicanum</i> Humb. & Bonpl. — Ref: FG 7: 275, 1962. — Habit: Vine, woody. —</p>	<p><i>Combretum mexicanum</i> Humb. & Bonpl. Occasional in thickets; Mexico to Nicaragua. A large, woody vine; leaves oval to broadly oblong, obtuse to acuminate, glabrous or nearly so; flowers whitish, fragrant, in paniced spikes; fruit 2-2.5 cm. long.</p>

Botanical Description of *Combretum argenteum* by Standley and Williams (1962)

Combretum argenteum Bertol. Fl. Guat. 412. 1840 (type from Volcan de Agua, Velasquez). ***C. erianthum*** Benth. PL Hartw. 73. 1841 (type from Retalhuleu, Hartweg 526). Peine de mico; chupamiel. Moist or dry thickets, 600 meters or less; Zacapa; Jutiapa; Santa Rosa; Escuintla; Guatemala; Suchitepequez; Retalhuleu. Mexico; El Salvador; Honduras; Nicaragua.

A large vine with brownish or grayish stems; leaves short petiolate, oblong-elliptic to oblong-ovate, mostly 10-15 cm. long, acute or acuminate, rounded or obtuse at the base, glabrous above or nearly so, yellowish-lepidote beneath and more or less puberulent or short pilose; inflorescence simple or branched, often forming large panicles, densely pilose with short spreading yellowish hairs; flowers usually yellowish green to bright yellow; calyx limb 5 mm. long; petals glabrous, about equaling the calyx lobes; fruits 2 cm. long, usually deep red at maturity, pilose or tomentose, broadly winged.

Called "chupamiel" in El Salvador. This species is very similar to ***Combretum fruticosum*** but even at a distance is of easy separation, because in ***C. argenteum*** the inflorescences are yellow, in ***C. fruticosum*** various shades of red to almost gray.

(Standley and Williams 1962: 272)

So, according to Standley and Williams, the YELLOW flowered species is ***C. argenteum***.



Combretum fruticosum seeds flor de cepillo.

Photo by: Nicholas Hellmuth, FLAAR Mesoamérica, Jan. 26, 2021. Peten, Guatemala.
Camera: Nikon D5 Lens: Nikon 50mm.
Settings: 1/640 sec; f/6.3; ISO 1600.

Botanical Description of *Combretum farinosum*

Combretum farinosum Kunth is an accepted name. *Combretum farinosum* Kunth has yellow flowers (at least when young). *Combretum farinosum* is mentioned by Lundell for Peten (1937).

No *Combretum farinosum* Kunth is described in Standley and Williams 1962, nor any of its synonyms:

- *Combretum polystachyum* Pittier
- *Grislea secunda* L

On the Internet, over 90% of the flowers labeled *Combretum farinosum* are pure red. Yet one report has 100% of its flowers pure yellow, and labeled *Combretum farinosum*.

[Click here](#)

Botanical Description of *Combretum fruticosum* by Standley and Williams (1962)

A small or often large vine, climbing over trees, unarmed; leaves short-petiolate, broadly oval to elliptic oblong, 5-15 cm. long, obtuse or short-acuminate, acute or obtuse at the base, lustrous above and glabrous or nearly so, densely lepidote beneath; flower spikes very thick and dense, secund, usually paniculate; flowers sweet-scented, usually blood-red to orange-red; petals 1.5-2 mm. long, obtuse or acute; stamens very long and exserted, red; fruit 2 cm. long, densely lepidote, broadly winged, usually dark red.

Known in El Salvador by the names "chupamiel," "peineta," "chupamiel de peineta," and "chupachupa;" called "tietie" and "curassow comb" in British Honduras. The plant is a common and characteristic one of the forest and thickets of the Pacific lowlands.

The showy flowers, full of nectar, are much visited by insects and hummingbirds. It is said that the cut stem yields a considerable amount of sap that may be drunk when water is lacking. In Mexico the branches are used for weaving coarse baskets, and generally they are employed as a substitute for rope, for tying firewood and other temporary uses. In the dry lower Motagua Valley the vine is in flower in late March. Material referred to ***C. fruticosum*** is rather variable in size of flowers and other characters, but not remarkably so. We are quite unable to separate most of the species of this group maintained by Pittier (Contr. U. S. Nat. Herb. 18: 241. 1917).

(Standley and Williams 1962: 273-275)

Note that Standley and Williams state clearly that the "flowers sweet-scented, usually blood-red to orange-red". Yet 100% of the flowers that we found-and-photographed are bright yellow: none were red or orange (but perhaps in January the flowers are still turning from original green to open yellow...) but then turn red when they mature; we saw the flowers only in January.

Botanical Description of *Combretum laxum* by Standley and Williams (1962)

This is a third species of genus ***Combretum*** listed for Peten plus all areas of Mexico around Peten (CAM, CHIS, QROO, TAB, Villasenor 2016). ***Combretum laxum*** is also in Belize.

Combretum laxum Jacq. Enum. PL Carib. 19. 1760. ***C. mexicanum*** Humb. & Bonpl. Pl. Aequin. 2: 159, t. 132. 1809 (type from Acapulco, Mexico). ***C. epiphyticum*** Pittier, Contr. U. S. Nat. Herb. 17: 247. 1917 (type from Panama, Pittier 6819).

Wet forests or thickets at or little above sea level, sometimes in mangrove swamps; Peten; Alta Verapaz; Izabal; Escuintla; San Marcos. Mexico; British Honduras to Panama; West Indies; southward to Argentina.

A large vine with tough, brown or blackish stems; leaves short-petiolate, oblong or lance-oblong,

mostly 11-20 cm. long, glabrous or nearly so, scarcely at all lepidote, subcoriaceous, acute or acuminate, obtuse or rounded at the base; flowers creamy white, fragrant, 4-parted, usually in large panicles, the spikes mostly dense; calyx finely pubescent, rarely glabrate; petals slightly exceeding the calyx lobes, glabrous; stamens exerted; fruit oblong to suborbicular, 2 cm. long, reddish green or dark red, broadly winged or sometimes only angulate, glabrate, usually sparsely sericeous at first, not lepidote. Called "tamborillo" in Chiapas, Mexico.

(Standley and Williams 1962: 275)

Is *Combretum fruticosum* from the Maya Highlands or from the Maya Lowlands (or both)?

Not only the lowlands but, surprisingly, also in the corridor bosque seco parallel to the Motagua Valley.

Botanical Description of *Combretum fruticosum* in Trees and Shrubs of Mexico

Combretum mexicanum Humb. & Bonpl. Pl. Aequin. 2: 159. pi. 132. 1809.

Combretum odoratissimum Sesse & Moc. Fl. Mex. 99. 1894.

Guerrero to Oaxaca ; type from Acapulco. Nicaragua.

Large vine; leaves short-petiolate, oblong or oval-oblong. 6 to 15 cm. long, obtuse to acuminate, glabrous or nearly so; flowers white, sweet-scented, in dense paniculate spikes; fruit 2 to 2.5 cm. long, puberulent, the wings 4 to 5 mm. wide.

Combretum palmeri Rose. Contr. U. S. Nat. Herb. 5: 13G. 1897.

Known only from the type locality, Acapulco, Guerrero. Large vine; leaves elliptic to oblong-obovate, 5 to 7 cm. long, obtuse or acute, sparsely pilosulous beneath along the nerves; spikes very lax, in large panicles; flowers white, sweet-scented; petals 2 mm. long; fruit (immature) 1.5 cm. long, glabrous.

Combretum erianthum Benth. Pl. Hartw. 73. 1840.

Oaxaca and Campeche. Guatemala, the type from Retalhuleu. Large vine; leaves oblong to elliptic, 7 to 15 cm. long, obtuse to acuminate, densely brownish-lepidote beneath; spikes solitary or paniculate, dense; calyx limb sometimes 1 cm. long; petals 2.5 mm. long; fruit about 2 cm. long, puberulent, with broad wings. "Bejuco de peine," "bejuco de toro" (Oaxaca); "chupamiel," "peine de mico" (El Salvador).

Combretum farinosum H. B. K. Nov. Gen. & Sp. 6: 110. 1823.

Combretum argenteum Bertol. Nov. Comm. Acad. Bonon. 4: 412. 1840.

Sinaloa to Chiapas and Veracruz; type collected between Acapulco and Venta del Ejido, Guerrero. Guatemala and El Salvador. Large vine, unarmed; leaves broadly oval to elliptic-oblong, 5 to 15 cm. long, obtuse or short-acuminate, sparsely or densely lepidote beneath; spikes very thick and dense, solitary or paniculate; flowers blood-red or greenish yellow, sweet-scented; calyx limb often 1 cm. long; petals oblong-spatulate to broadly ovate, 1.5 to 2 mm. long, obtuse or acute; fruit about 2 cm. long, lepidote. "Carape" or "carapi" (Michoacan, Guerrero) "peinetillas" (the spikes), "compio" (Sinaloa); "angarilla" (Durango, Patoni); "peinecillo" ("Veracruz); "quie-tzine" (Oaxaca, Selser); "abacamiel," "abamiel" (Central America); "papa-miel" (Nicragua); "chupamiel," "peineta," "chupamiel de peineta," "chupa-chupa" (El Salvador). The branches were formerly used for arrow shafts and are now sometimes woven into baskets. The showy flowers are full of sweet nectar.

When cut, the stems yield a considerable amount of water, a fact of which advantage is taken by travelers through the forests when other water is absent. In Sinaloa the leaves are applied as a remedy for headache. In a recent account of the species of *Combretum* of the section *Micropetalae*¹, Pittier has treated *C. argenteum* as a valid species, distinguished from *C. farinosum* chiefly by its broader petals. Examination of the available material shows that there is too great variation in petal shape to admit of its use as a basis of specific segregation.

(Standley 1924: 1031-1032)

In which States of Mexico is *Combretum fruticosum* listed by Villaseñor

Species	Mexico state
<i>Combretum argenteum</i> Bertol.	CAM, CHIS, GRO, MEX, OAX, VER
<i>Combretum decandrum</i> Jacq.	CHIS, GRO, JAL, MICH, NAY, OAX, TAB, VER
<i>Combretum formosum</i> G. Don.	CAM, CHIS, OAX, QROO
<i>Combretum fruticosum</i> (Loefl.) Stuntz	CAM, CHIS, CHIH, COL, DGO, GRO, HGO, JAL, MEX, MICH, MOR, NAY, OAX, PUE, QROO, SLP, SIN, TAB, TAMS, VER, YUC
* <i>Combretum igneiflorum</i> Rendón & R. Delgad	COL, JAL, NAY, OAX
<i>Combretum laxum</i> Jacq.	CAM, CHIS, COL, GRO, JAL, MEX, MICH, MOR, NAY, OAX, QROO, TAB, VER
* <i>Combretum rovirosae</i> Exell	

(Villaseñor 2016: 699)

World Range for *Combretum fruticosum*

Different species of *Combretum* vines, bushes, or trees can be found around the world: Africa, Asia, with several dozen in the Americas. The species we discuss on this page are all native to the Mayan areas of Mesoamerica.

Relative(s) of Genus *Combretum*, within Family COMBRETACEAE

- *Bucida buceras* L.
- *Conocarpus erecta* L.
- *Terminalia*, several species



Combretum fruticosum seeds flor de cepillo.

Photo by: David Arrivillaga, FLAAR Mesoamérica, Jan. 26, 2021. Peten, Guatemala.
Camera: Sony 7RM4 Lens: Sony FE 200-600mm
Settings: 1/320 sec; f/2.8; ISO 1600.

Close relative(s) of *Combretum fruticosum*; how many other species of *Combretum fruticosum* are in Peten

Lots of other species of *Combretum* genus in Guatemala. As examples I mention a few species; several other species also occur widely in Guatemala and obviously also in adjacent Chiapas, Tabasco, etc. Here I list only those in or near Peten or Izabal.

Combretum farinosum Kunth can be found in Baja Verapaz Chiquimula, El Progreso, Jalapa, Huehuetenango and also Petén. *Combretum farinosum* Kunth is an accepted name.

[Click here](#)

Combretum laxum Jacq. is found in Belize and nearby

[Click here](#)

This other web page shows map: thus this species should also be in many parts of Peten:
www.gbif.org/pt/species/7908521

Nowadays *Combretum laxum* is considered (by some botanists but NOT all) as a synonym of *Combretum fruticosum*. However most authors writing on Belize plants still use the name *Combretum laxum*, even in 2014. Plus, Flora Mesoamerican web site does NOT list *C. laxum* as a synonym (www.tropicos.org/name/08200197?projectid=3). Hmmm, botanical name choices are definitely confusing.

Levy (1977) uses both *Combretum laxum* and *Combretum fruticosum* as separate plants.

[Click here](#)

***Combretum fruticosum* in Izabal of Guatemala**

In Punta de Manabique there are seven species of the Combretaceae family and two species of the *Combretum* genus: *Combretum cacoucia* Exell and *Combretum laxum* Jacq.

(FUNDARY 2007 Sheet 22)

In the Chocon Machacas Biotope there are 2 species of the Combretaceae family and one species of the *Combretum* genus: *Combretum cacoucia* Exell.

(PEREZ-Consuegra 2001: 92)

***Combretum fruticosum* in Chiapas**

En las regiones cercanas a Tuxtla Gutiérrez es donde hay mayor registro muestras de *Combretum fruticosum*.

<https://enciclovida.mx/especies/163591>

***Combretum fruticosum* in Tabasco**

Most of the *Combretum fruticosum* samples registered belong to the municipality of Teapa.

<https://enciclovida.mx/especies/163591>

Practical uses of *Combretum fruticosum* for the Lacandon Maya of Chiapas

There are 5 species of the Combretaceae family: *Bucida buceras* that is used as building material and firewood, *Combretum fruticosum* and *Combretum laxum* that are used as firewood; also, *Terminalia anazonia* which is used as a building material and *Terminalia catappa* which is a food source.

(Tacher, Aguirre, García y Martínez 2006: 84).

Combretum fruticosum in Campeche

Combretum fruticosum can also be found in all the areas around Peten: Calakmul (Campeche) is one example (Portal de datos abiertos UNAM).

Combretum fruticosum in Quintana Roo

Most of the ***Combretum fruticosum*** samples registered belong to the municipality of Othóm P. Blanco, which borders Belize and Guatemala.

<https://enciclovida.mx/especies/163591>

Do ***Combretum fruticosum*** trees also grow in home gardens?

In South America the species is known as an ornamental in gardens and is commercialized in this way, it is also mentioned as an ornamental in parks in the state of Chiapas in Mexico.

Are any parts of ***Combretum fruticosum*** edible?

You definitely do not want to eat any ***Combretum*** plant part. I need to double-check, but notes by our team, in a tabulation, show ***Combretum fruticosum*** as food by Ford and Nigh (2015: 181). Either this is a mistake in our tabulation or is a mistake in their monograph or is an edible aspect not mentioned by Balick, (Nee and Atha 2000).

[Click here](#)



Combretum fruticosum, road Yaxha to Nakum.

Photo by: Nicholas Hellmuth, FLAAR Mesoamérica, Jan. 21, 2019. Petén, Guatemala.
Camera: Nikon D8 Lens: Nikon 400mm
Settings: 1/30 sec; f/2.8; ISO 320.



Combretum fruticosum, road Yaxha to Nakum.

Photo by: Nicholas Hellmuth, FLAAR Mesoamérica, Jan. 21, 2019. Petén, Guatemala.

Camera: Nikon D8 Lens: Nikon 400mm

Settings: 1/30 sec; f/2.8; ISO 320.

Practical Uses of *Combretum* in Guatemala and Mexico

In his *Trees and Shrubs of Mexico*, Standley states for *Combretum farinosum*:

The branches were formerly used for arrow shafts and are now sometimes woven into baskets. The showy flowers are full of sweet nectar. When cut, the stems yield a considerable amount of water, a fact of which advantage is taken by travelers through the forests when other water is absent. In Sinaloa the leaves are applied as a remedy for headache.

In a recent account of the species of *Combretum* of the section *Micropetalae*, Pittier has treated *C. argenteum* as a valid species, distinguished from *C. farinosum* chiefly by its broader petals. Examination of the available material shows that there is too great variation in petal shape to admit of its use as a basis of specific segregation.

(Standley 1924: 1032)

It is said that the cut stem yields a considerable amount of sap that may be drunk when water is lacking (Standley and Williams 1962: 275). In Mexico the branches are used for weaving coarse baskets, and generally they are employed as a substitute for rope, for tying firewood and other temporary uses. The use of what is identified as *Combretum farinosum*, for basketry is also mentioned by Galberto (n.d.).

Practical Uses of other species of *Combretum* in nearby areas

Some species of *Combretum* can produce tannin (for tanning animal hides). Just Google *Combretum tannin*. Then add Belize, Guatemala, Mexico (one by one).

Is there potential medicinal usage of *Combretum fruticosum* by local people

Yes, you can find mention of medicinal usage of *Combretum fruticosum* by local people in various areas.

Are any parts of *Combretum fruticosum* trees eaten by mammals?

The foliage of *Combretum fruticosum* is consumed by cattle in dry season, it is a moderately preferred species by ruminants.

(Colón 2009: 55)

What are the primary pollinators of *Combretum fruticosum* flowers?

Butterflies and bees; and potentially other happy flying pollinators.

Concluding Discussion and Summary on *Combretum fruticosum*:

Diverse Colors: Red for some flowers; yellow for others Are they two different species?

Standley and Williams say that *Combretum fruticosum* has red inflorescence and *Combretum argenteum* is “yellowish green to bright yellow...” (1962: 272). So according to these experienced botanists (albeit with very little experience in Peten area...) there are two species: one yellow inflorescence (*Combretum argenteum*) and one flame red inflorescence (*Combretum fruticosum*).

Yet the New York Botanical Garden web site has two photos labeled *Combretum fruticosum*; both are greenish yellow (and not red). Assumed from Belize and not from the botanical garden

www.nybg.org/bsci/belize/Combretum_fruticosum.html

Same with a Czech Republic botanical web site. Even though the flower is yellow and not red, he still calls it *Combretum fruticosum*. www.biolib.cz/en/image/id47945/ Gorgeous photo, full-page size (which is helpful). Flowers are greenish to greenish-yellow. Photographed in Las Pacayas, Peten, February 2007.

And again for Ceibal (spelled in English as Seibal, near Sayaxche), the web site www.biolib.cz/en/image/id45374/ shows awesome close-up of group of about six clusters: flowers are greenish to greenish-yellow. Again, even though it is yellow and not red, he still calls it *Combretum fruticosum*. Photographed in Ceibal (Seibal), Peten, February 2008. Sharp, clear, photo, at helpful LARGE size.

So clearly there is a botanical mishmash here: Standley and Williams claim two different species. But no one nowadays uses the botanical name *Combretum argenteum*. And no web site says *Combretum argenteum* is synonym for *Combretum fruticosum*.

I have assumed that there may be a red type and a yellow type. Or the yellow ones may turn red when they mature? Or the yellow ones are in different eco-systems than the red ones?

I hope botanists can sort this out and help me understand, as so far, all photos of ***Combretum fruticosum*** in botanical web pages are yellow (what's on the Internet from people's home gardens is typical copy-and-paste from the Internet; what counts is the name provided by botanists).

Lundell discusses only the names ***Combretum farinosum*** and ***Combretum mexicanum***. His work in the 1930's was primarily around La Libertad, savanna country, far west of the hills of Yaxha. So work from the 1930's into 1960's is not reliable for the names or color issues.

I accept ***Combretum fruticosum*** as yellow based on two photos of pure yellow inflorescences labeled as ***Combretum fruticosum*** by capable botanist Michael J. Balick (his co-author Rosita Arvigo says they are "used to make wine, known as "chew stick vine" (2015: 259). Balick et al. 2000 have zero photos but the common names feature the word yellow: sepillo Amarillo, yellow brush (in other words, they are not called red flame in Belize!).

Thus I tentatively conclude that the species in Yaxha is ***Combretum fruticosum*** and not ***Combretum argenteum***. Information on ***Combretum argenteum*** on the Internet varies from nothing to never explaining its similarities or difference from other species. Yet ***Combretum argenteum*** is never listed as a synonym. Surely a major botanical garden can issue a peer-reviewed journal article on these issues and resolve the inconsistent naming. Plus, why has no botanist mentioned the yellow vs red discrepancies in the literature?

Let's hope a capable student does a thesis on ***Combretum*** species of the Mayan areas and works out all the non-synchronized plant names.

We also found and photographed a ***Combretum*** species in a totally different part of Guatemala circa two years ago. Since our focus is on PNY-NN, PANAT, PNLT and nearby parts of our study area of the RBM of Peten, we do not have time during our project to write many reports on plants elsewhere in Guatemala.



Combretum fruticosum, road Yaxha to Nakum.

Photo by: Nicholas Hellmuth, FLAAR Mesoamérica, Jan. 21, 2019. Peten, Guatemala.
Camera: Nikon D8 Lens: Nikon 400mm
Settings: 1/30 sec; f/13,0; ISO 500.

Our final comments will come when an experienced botanist can let us know whether the pure-yellow flowers are **Combretum fruticosum** or another species. But in the meantime, here are notes by Hellmuth.

If you **Google** the text:

Combretum argenteum (Combretaceæ) moves against the sun.

You will learn that Charles Darwin noted that these flowers may follow the sun, which I estimate is common in other plants as well. The book is his "The Movements and Habits of Climbing Plants."

Below are the three species that we need to learn more about. The major question is whether the beautiful yellow flowers are:

- Always yellow their whole life? (we saw them only one day in their cycle)
- Are yellow only when young and turn red a few weeks later?
- Are yellow regional variant and there is also a red variant?
- Or we have missed another potential species of **Combretum**?

Combretum fruticosum (Loefl.) Stuntz	Combretum laxum Jacq.	Combretum argenteum
Lots in Izabal and Peten, including Tikal.	Lots in Izabal and Peten, including Tikal.	None notes for Tikal; none for Izabal; only near Santa Elena (central Peten)
various shades of red to almost gray		the inflorescences are yellow
Photos on the internet show yellow merging into red; one other species in South America, Combretum rotundifolium is the same: yellow turning into red. So the yellow is a "phase" on this species.	One photo pure yellow (no red whatsoever). One photo pure bright red (no yellow whatsoever). Other photos red: not yellow). So, either not all photos are correctly named; or this species can be either yellow or red.	One photo, green when opening; turn into red. Other photos, only red. Not one photo is yellow. So this raises the immediate question of whether Standley and Williams color comments are correct.

Standley and Williams say the yellow-flowered **Combretum** is **Combretum argenteum**.

The Internet photos show that the yellow-flowered ***Combretum*** is ***Combretum laxum***

Some websites say that ***Combretum laxum*** is a synonym...

So, if there is no reliable identification, this is a total mess. So we will send all our photos in this PDF to pertinent botanists and try to get an answer to this mess.

I accept ***Combretum fruticosum*** as yellow based on two photos of pure yellow inflorescences labeled as ***Combretum fruticosum*** by capable botanist Michael J. Balick (his co-author Rosita Arvigo says they are "used to make wine, known as "chew stick vine" (2015: 259). Balick et al. 2000 have zero photos but the common names feature the word yellow: sepillo Amarillo, yellow brush (in other words, they are not called red flame in Belize!).

Thus I tentatively conclude that the species in Yaxha is ***Combretum fruticosum*** and not ***Combretum argenteum***. Information on ***Combretum argenteum*** on the Internet varies from nothing to never explaining its similarities or difference from other species. Yet ***Combretum argenteum*** is never listed as a synonym. Surely a major botanical garden can issue a peer-reviewed journal article on these issues and resolve the inconsistent naming. Plus, why has no botanist mentioned the yellow vs red discrepancies in the literature?

While doing my last read-over of my notes that I will join to scores of photographs so we can ask botanists how to handle the confusion, I read Exell's 1953 report where he is the most direct (honest) mention of the total mish-mash of species names (since he had no DNA documentation to work with in those years). What I find most notable as a curiosity is he provided no information whatsoever on the colors of the flowers. Is that because all the herbaria specimens are dry, withered, flattened? I did not notice a single discussion on the variability of the color of the flowers of different species:

As here delimited, this widespread species shows considerable variation in the size of the flowers, shape and size of the petals, shape and indumentum of the upper receptacle, and shape and indumentum of the leaves. Although the species, in its present circumscription, appears heterogeneous, the variations mentioned show no correlation with each other or with geographical distribution. To divide it into a number of 'species' or taxa of lower rank, in our present state of knowledge, would not serve any useful purpose. Some of the specimens cited above approach ***C. argenteum*** and others approach ***C. farinosum***. In fact the members of this section form a 'complex' of closely related species and the system proposed is largely one of convenience. I have separated as species those groups of individuals that seem sufficiently distinct for herbarium identification, and left the great mass of material under the name ***C. fruticosum***. Field-work, combined with genetical studies, will no doubt eventually produce a much more accurate classification. Fig. 3 shows the more extreme variations and these, indeed, appear very different, but future workers should beware of separating a number of microspecies without studying the large amount of material which I have been able to see, for otherwise it is impossible to realize the extent to which the extreme forms are linked by intermediates.

(Exell 1953: 121)

As final documentation that one species starts as green-yellow (and not intermittent to orange or red), I show the photos from the Municipio de Livingston:



Combretum fruticosum, frizzy flower.

Photo by: Nicholas Hellmuth, FLAAR Mesoamérica, Jan. 26, 2021. Izabal, Guatemala.

Camera: Nikon D5 Lens: Nikon 50mm

Settings: 1/640 sec; f/13,0; ISO 1000.

Whether green to yellow, or green to red, or green to yellow to red these flowers are so unique in shape and features that visitors will be very happy to learn where to see them. The amount of nectar in these flowers makes them a paradise for pollinators (and for biologists studying pollinators).

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Very helpful and nice collaboration with local Itza' Maya people. But would help in the future to have a single index that has all Latin, Spanish, and English plant names so that you can find plants more easily. Suzanne Cook's Lacandon ethnobotany index is significantly easier to use.

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FUNDARY-ONCA

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GALBERTO (no full name on article)

N.D. Chupamiel planta muy versátil para nuestros ecosistemas, y usado como cuerda.

No complete name, no other information but the photographs are excellent (pure yellow color) and he indicates the vine can make basketry. He identifies these pure yellow flowers as *Combretum farinosum*.

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Free download:

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In this one monograph the species are not listed in alphabetical order, so it's a mental adventure finding the species you are looking for.

All monographs by Standley and co-authors can be easily found and downloaded. I would recommend finding the .pdf versions as they are easier to store, easier to copy, and easier to share with students and colleagues.

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Unfortunately the PDF is locked, so no way to show the information without having to hand type each letter, each word, each list.

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This is one of the better dissertations that I have seen and is as good as most peer-reviewed articles in scientific journals. Even has location maps for most of the trees.

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Helpful web sites for any and all plants

There are several web sites that are helpful even though not of a university or botanical garden or government institute.

However most popular web sites are copy-and-paste (a polite way of saying that their authors do not work out in the field, or even in a botanical garden). Many of these web sites are click bait (they make money when you buy stuff in the advertisements that are all along the sides and in wide banners also. So we prefer to focus on web sites that have reliable information.

<https://serv.biokic.asu.edu/neotrop/plantae/>

Neotropical Flora data base. To start your search click on this page:

<https://serv.biokic.asu.edu/neotrop/plantae/collections/harvestparams.php>

<http://legacy.tropicos.org/NameSearch.aspx?projectid=3>

This is the main SEARCH page.

<https://plantidtools.fieldmuseum.org/pt/rrc/5582> **(Not available)**

SEARCH page, but only for collection of the Field Museum herbarium, Chicago.

<https://fieldguides.fieldmuseum.org/guides?category=37> **(Not available)**

These field guides are very helpful. Put in the Country (Guatemala) and you get eight photo albums.

<http://enciclovida.mx>

CONABIO. The video they show on their home page shows a wide range of flowers pollinators, a snake and animals. The videos of the insects are great.

www.kew.org/science/tropamerica/imagedatabase/index.html **(Not available)**

Kew gardens in the UK is one of several botanical gardens that I have visited (also New York Botanical Gardens and Missouri Botanical Gardens (MOBOT), in St Louis. Also the botanical garden in Singapore and El Jardín Botánico, the open forest botanical garden in Guatemala City).

www.ThePlantList.org

This is the most reliable botanical web site to find synonyms. In the recent year, only one plant had more synonyms on another botanical web site.

Web pages specifically on *Combretum fruticosum* and/or relatives

<http://archivo.infojardin.com/tema/flor-de-fuego-combretum-fruticosum-ficha-de-planta-trepadora-de-flores-naranjas.373909/>

Information and photos

www.biolib.cz/en/image/id47945/

Gorgeous photo, full-page size (which is helpful). Flowers are greenish to greenish-yellow. Even though it is yellow and not red, he still calls it *Combretum fruticosum*. Photographed in Las Pacayas, Peten, February 2007.

www.biolib.cz/en/image/id45374/

Close-up of group of about six clusters: flowers are greenish to greenish-yellow. Again, even though it is yellow and not red, he still calls it *Combretum fruticosum*. Photographed in Ceibal (Seibal), Peten, February 2008. Sharp, clear, photo, at helpful LARGE size.

<https://biogeodb.stri.si.edu/bioinformatics/croat/specie/Combretum%20fruticosum,e>

Photos and information.

www.cicy.mx/sitios/flora%20digital/ficha_virtual.php?especie=1179

Information.

<http://enciclovida.mx/especies/163591>

Distribution map and photos

www.igoterra.com/taxa.asp?genusid=307157

Lists what country each species is found in (but not what part of each country...).

<http://jardinbotanico.montevideo.gub.uy/node/107/combretum-fruticosum-loefl-stuntz>

Photos and description.

<http://micol.fcien.edu.uy/flora/Combretum-fruticosum.htm>

Information and photos

<https://steemit.com/nature/@galberto/chupamiel-planta-muy-versatil-para-nuestros-ecosistemas-y-usado-como-cuerda>

Every single flower here is bright yellow; they are named *Combretum farinosum*

www.tropicos.org/name/08200197?projectid=3

Information, distribution map, photos



The absolute best photos but does not indicate where in the world it was filmed. Most are flame red; some are light green; not many are yellow. So the Peten version is either a “yellow zone” or we have to see in February whether any turned red.

We try to find videos on *Combretum fruticosum* of Guatemala or at least in adjacent countries in Mesoamerica (Central Mexico down to northwestern Costa Rica; Mesoamerica is the área of the Americas either occupied by (Mexico, Guatemala, Belize, western Honduras, western El Salvador) or influenced through long distance trade (down to northwestern Costa Rica) by the Olmecs, Teotihuacanos, Mayans, Toltecs, and then Aztecs.

Appendix A

<https://serv.biokic.asu.edu/neotrop/plantae/>

Neotropical Flora data base. To start your search click on this page:

<https://serv.biokic.asu.edu/neotrop/plantae/collections/harvestparams.php>

In this herbaria data base zilch for Yaxha area but two species found in or near Tikal. The “yellow flowered species”, ***Combretum argenteum***, that is the most likely one for between Nakum and Yaxha (due to bright yellow flowers) is ironically the species not yet collected anywhere near Tikal or PNYNN (albeit in central Peten). But there are nine records for ***Combretum laxum*** in nearby Belize and zero for ***Combretum argenteum***.

Most herbaria in Guatemala are closed due to COVID and none are on-line (none are scanned and digitized).

<i>Combretum argenteum</i>	<i>Combretum farinosum</i>	<i>Combretum fruticosum</i> (Loefl.) Stuntz	<i>Combretum laxum</i> Jacq.
	Only in the Highlands, or in El Progreso or Zacapa. Nothing listed for Peten by Neotropical Flora data base	Guatemala, Izabal, Santo Tomás de Castilla, several km past Las Escobas, on the road to the tower., 15.69 -88.65	Guatemala, Izabal, At Shell Station and vicinity just S. of Rio Dulce., 15.658788 -89.001798, 20m
Guatemala, Petén, Orillando al camino para Cuxú, 13 km de la población de Santa Elena, 16.92 -90.02		Guatemala, Petén, Los Arcos-Cadenas Road, Km 142/143, [east], 15.96 -89.27	Guatemala, Petén, Guayacán, La Pita, between Guayacán and El Ceibo, 8 km [from Guayacán]. In high forest, in ramonal, 17.18 -90.99

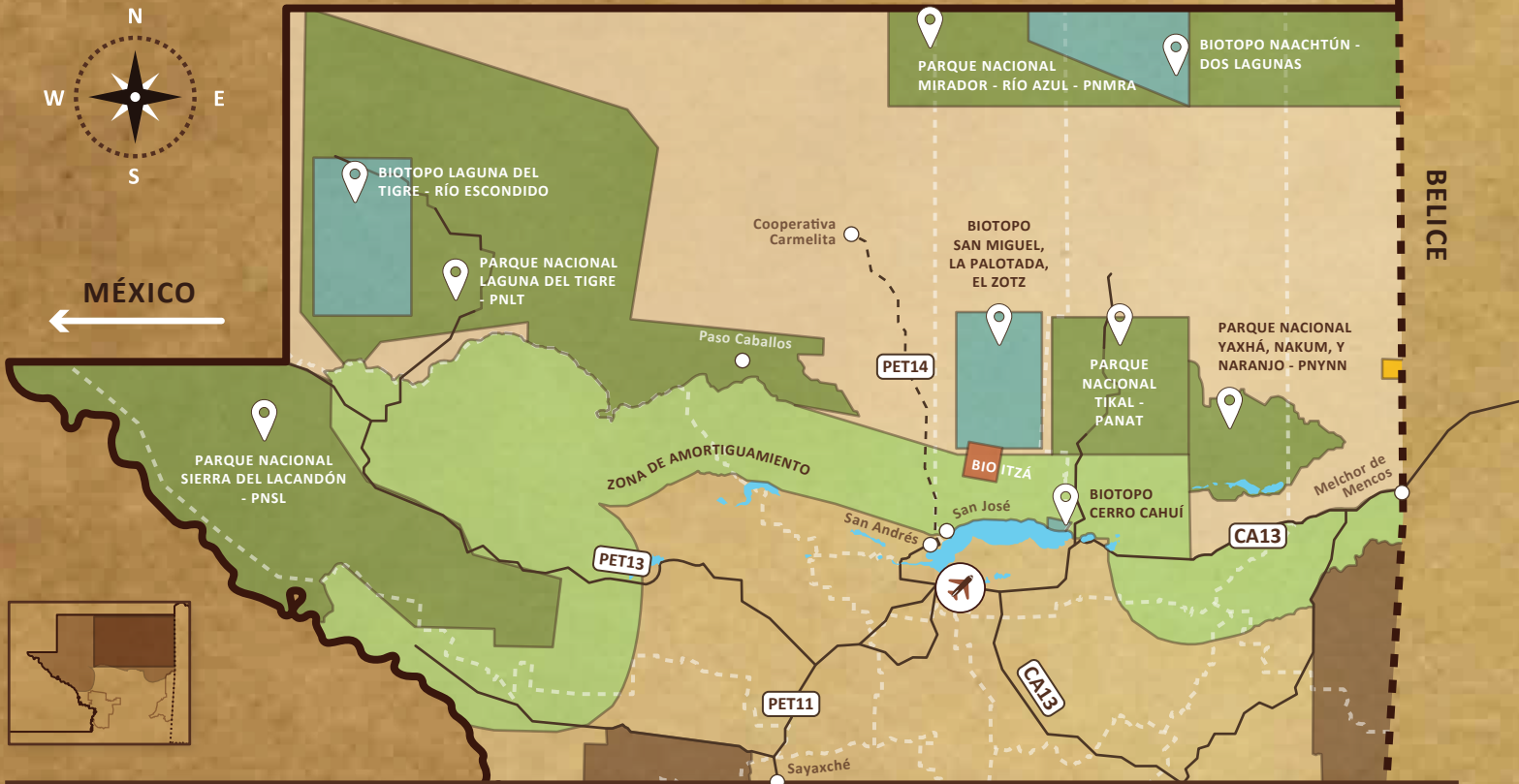
		Guatemala, Petén, En orillando el camino para El Remate, a Km 64, lado este del camino, en Parque Nacional de Tikal., 17.21 -89.62	Guatemala, Petén, Tikal National Park, Tikal. In ramonal covering the ruins, 17.23 -89.61
		Guatemala, Petén, La Libertad, La Libertad and vicinity, 16.79 -90.11, 209m	Guatemala, Petén, Cadenas-Puerto Méndez, bordering Cadenas Road, Km 166. In clearing, 15.9 -89.23
		Guatemala, Petén, Dolores, Dolores, on Santo Toribio trail. In high forest, 16.53 -89.45	Guatemala, Petén, Santa Elena, en orillando el camino para Poctún, a Km 40, lado norte saliente. En foresta baja, 16.65 -89.66
		Guatemala, Dept. Peten, Puerto Chimono, Laguna Petexbatun, 20 km South of Sayaxche., 16.566667 -90.233333	
			Guatemala, Departamento Izabal. South shore of Lake Izabal between Izabal and Mariscos, at sea level. Vicinity Lago Izabal., 15.416667 -89.205
Guatemala, Izabal, Vicinity of Quiriguá, 15.27 -89.04, 75 - 225m		Guatemala, Izabal, Vicinity of Quiriguá, 75 - 225m	

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RESERVA DE LA BIÓSFERA MAYA - RBM - DEPARTAMENTO DE PETÉN, GUATEMALA



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- MONUMENTO CULTURAL
- ÁREAS PROTEGIDAS DEL SUR DE PETÉN



Base Camp Assistance in Parque Nacional Tikal

While doing field work in the Tikal national park about a decade ago we appreciate the house provided to us by the park administration. We also thank the Solis family, owners of the Jaguar Inn, for providing a place to stay when park facilities had other occupants. We also thank the Solis family for food in their Jaguar Inn restaurant.

Base Camp Assistance in PNYNN

We thank Biologist Lorena Lobos and both co-administrators of PNYNN (Arq. Jose Leonel Ziesse and Lic. Jorge Mario Vazquez for providing a place to stay for the photographers, biologists, and assistants of the FLAAR Mesoamerica team of flora and fauna.

In turn FLAAR purchased and donated a cooking stove when the original one no longer functioned.

Ec lodge El Sombrero

I thank Gabriella Moretti, owner of Ec lodge El Sombrero, for providing hotel room and meals while we have been doing field work at Parque Nacional Yaxha Nakum Naranjo. We also appreciate the hospitality of her sons Sebastian de la Hoz and Juan Carlo de la Hoz. Every workday is exhausting because we are carrying and then using very heavy cameras, super-telephoto lenses, sturdy tripods, large gimbals or ball tripod heads. Thus it is crucial for my health to be able to rest and totally recuperate every night in order to be ready for the following day of botanical and zoological adventures in Parque Nacional Yaxha Nakum Naranjo.

Equally crucial is having a place to charge the batteries of the computers, or all the cameras, and of the cell phones. Solar power is great, but it lasts only an hour, or less, if you plug in multiple computers and cameras and flash batteries to charge. So a place with enough electricity to charge the entire mass of essential field work equipment is essential and thus very much appreciated.

Contact Info: +502 5460 2934, VentasElSombrero@gmail.com or WhatsApp.

www.elsombreroecolodge.com/en-us

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Dr Nicholas (Hellmuth) is flown all around the world to lecture. He has spoken in Holland, Belgium, Germany, Austria, Greece, Italy, Serbia, Croatia, Bosnia, Russia, UK, Dubai, Abu Dhabi, Thailand, Korea, China, Japan, Canada, USA, Mexico, Panama, Guatemala, etc. He can lecture in Spanish, German, or English (or simultaneously translated to your language). He has lectured at Harvard, Yale, Princeton, UCLA, Berkeley and dozens of other universities, colleges, museums, alumni clubs, etc.

He also writes cartoon books on plants and animals of Guatemala so gives presentations to primary school, high schools, etc. www.MayanToons.org shows our educational material for children.

In today's COVID era, we present via ZOOM, Google Meet or comparable platforms. This way there are no costs for airfare, airport shuttle, hotel, or meals. But it is appreciated when a donation can be provided before the lecture presentation to assist our decades of research.

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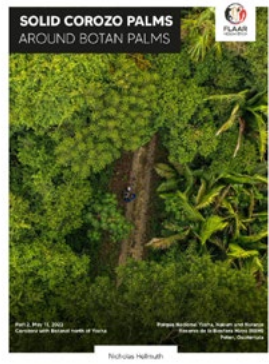
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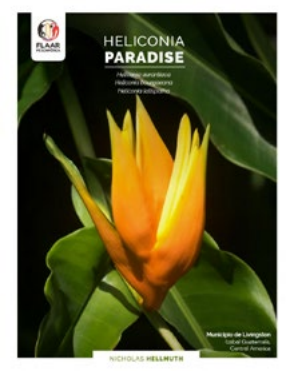
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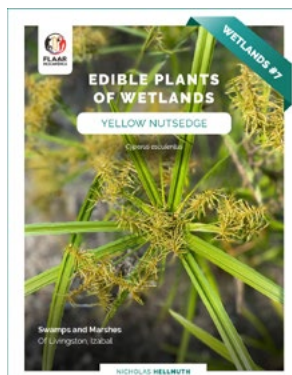
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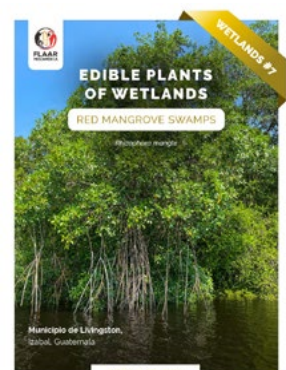
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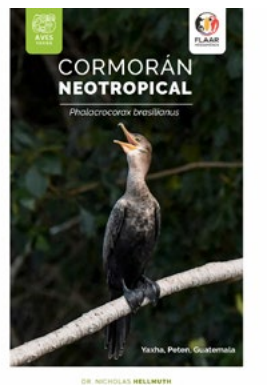
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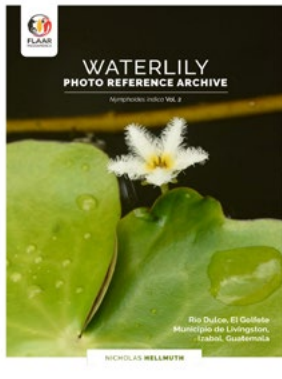


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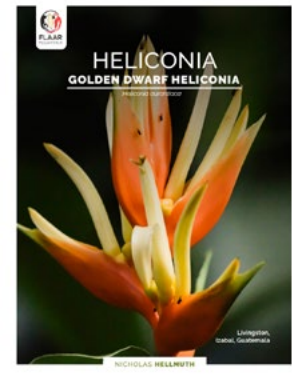
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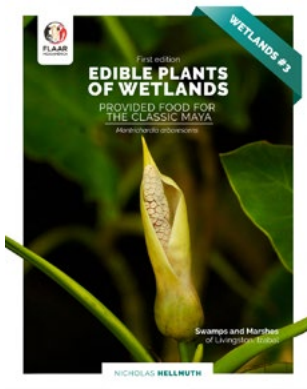
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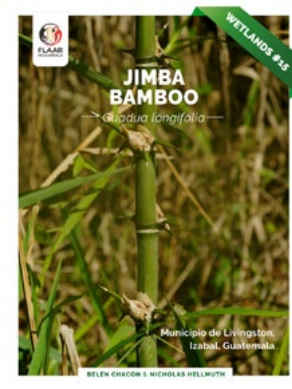
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