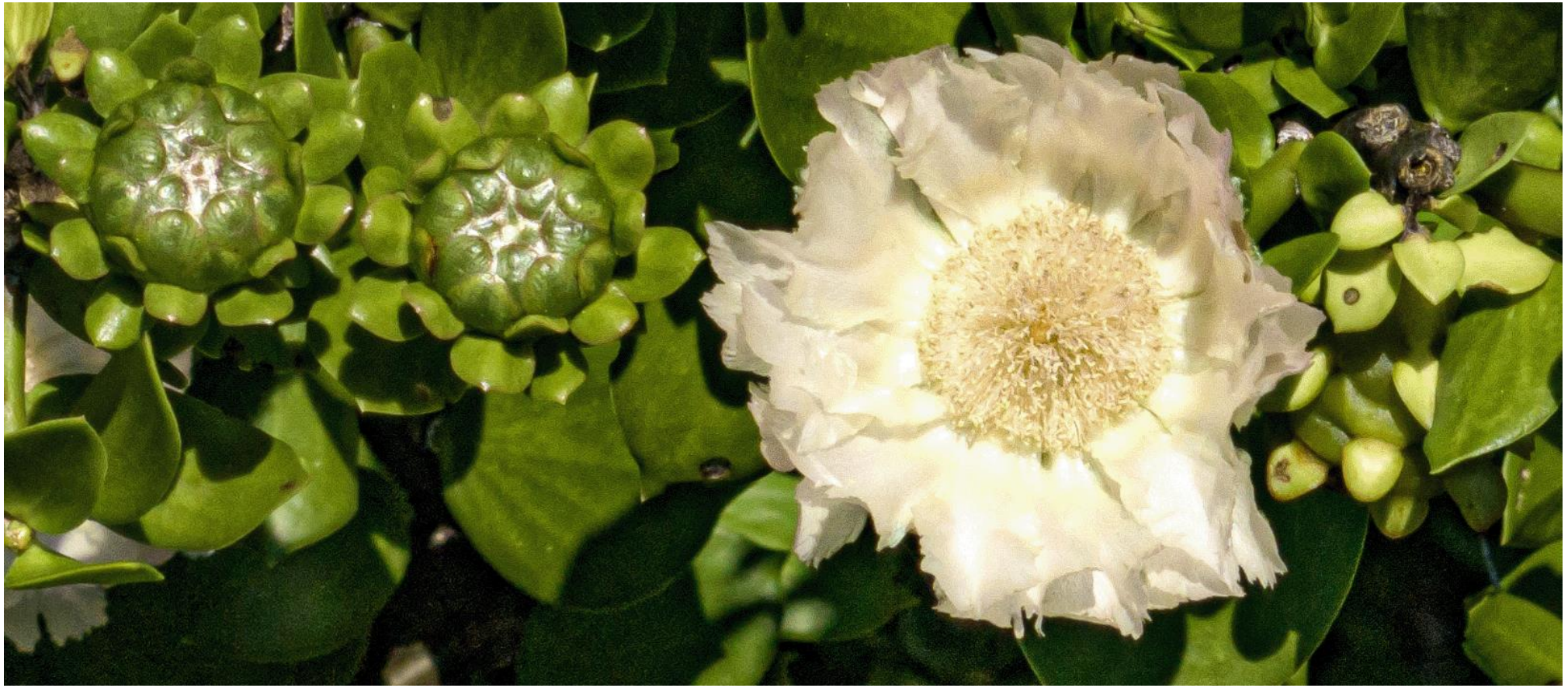
Leuenbergeria lychnidiflora,

white flowering mutant of Manzanote Cactus Tree

Aldea Agua Caliente, Rio Tambor, Zacapa, Guatemala

June 21, June 27 and June 28, 2023



FLAAR Mesoamerica Aerial Photos by drone pilot Haniel Lopez, Text: Nicholas Hellmuth

FLAAR Reports, FLAAR (USA) and FLAAR Mesoamerica (Guatemala), June 2025

Introduction to the mutant of *Leuenbergeria lychnidiflora* cactus tree that has white flowers instead of the normal orange flowers, on a hill overlooking the Rio Tambor, Guatemala

On June 21, 2023, the research team of FLAAR (USA) and FLAAR Mesoamerica (Guatemala), together with Heloderma nature reserve park ranger Gilberto Salazar, discovered a *Leuenbergeria lychnidiflora* cactus tree that had white flowers. Drone pilot Haniel Lopez and the team were on the bridge over Rio Tambor (photos on last pages). They were documenting and photographing the wild *Plumeria* shrubs that are common in many areas of Guatemala—*Plumeria* that have white flowers. As the drone was flown up the cliff to photograph *Plumeria* shrubs overlooking the top, the drone captured photos of a large tree a few meters behind (wild frangipani trees native to Guatemala survive best on steep rocky cliffs since these areas are obviously not chopped down to make slash-and-burn milpa agriculture or cleared to make a cow pasture). *Plumeria* are called flor de la cruz in Zacapa and flor de mayo in other parts of Guatemala.

Since all of the thousands of manzanote trees have orange flowers, Gilberto Salazar correctly said that white flowers on the tree would unlikely be a *Leuenbergeria lychnidiflora* cactus tree. But Hellmuth is always curious, so he drove the team to aldea Agua Caliente at the top of the hill and then turned left along a dirt road with lots of large rocks sticking up throughout this 100 meters or so from the village. When we all arrived in front of the tree we saw that it was identical to the hundreds of other *Pereskia lychnidiflora* tree cacti that we had seen in recent years (in these years almost all botanical data bases used *Pereskia lychnidiflora* as the accepted name). Today more botanists use the name *Leuenbergeria lychnidiflora* for the same manzanote tree.

Since the white-flowering manzanote tree is potentially the rarest tree in the entire country of Guatemala, we want to show its natural beauty in the hope that the one that fell over in mid-May 2025 can be preserved (fallen manzanote trees can often continue to grow even without roots). Plus fallen branches need to be planted in all the nearby nature reserves. Plus the nearby sole remaining white-flowering manzanote tree (possibly the only one in all of Mesoamerica) needs to be protected.

Fig. 1. At 3:12pm on June 21, 2023, two of the flowers have folded their petals and other flower is beginning to fold.

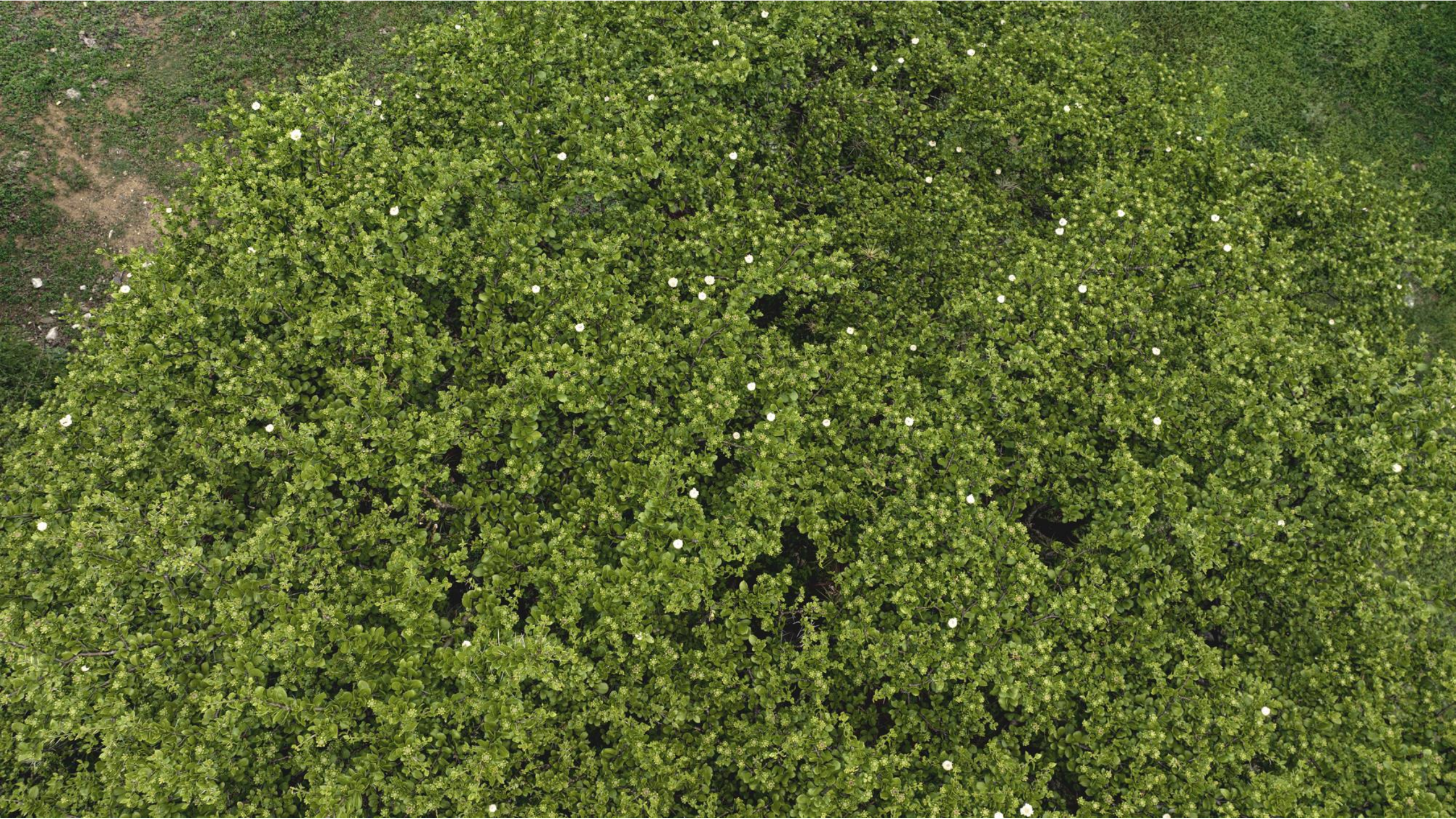


Fig. 3.

All these are aerial photos by drone pilot Haniel Lopez on June 21, 2023.

Fig. 5.

These trees have a few flowers in late May and a few flowers in August but in June and July there are LOTS of flowers.

June 21, 2023.

Fig. 7.

Both these flowers seem to be closing their petals. These flowers last only one day—how long during that day depends on whether there is full sun all day or thick clouds in the morning and afternoon.

Fig. 8.

On June 21, 2023, you can see lots of buds that will open in July. We have a separate FLAAR Reports on the white manzanote flowers that we photographed July 6 and July 7, 2023. When we find a botanical, zoological, or ecological aspect in Guatemala that has not often been studied we accomplish several sequential field trips to find, photograph, document, and publish these aspects.

Road at upper left goes around this cattle field. Road comes from Aldea Agua Caliente (about a football field length away). Then the road at the right goes parallel to the top of the steep cliff down to Rio Tambor.

Epiphytes are very common on lots of manzanote cactus trees. Aerial photo by drone pilot Haniel Lopez, cropped and processed by Nicholas Hellmuth, FLAAR Digital Photo Archive of Flora, Fauna and Biodiverse Ecosystems of Guatemala.

June 21, 2023, 3:11pm.

This is the white-flowering manzanote tree that was blown over by a storm in May 2025. This photo is June 21, 2021. Across the upper right is the river bed of the Rio Tambor. It is actually far far below. The second white-flowering manzanote tree—that is still standing in 2025—is at the right.

Fig. 10.

June 21, 2023,
3:11pm.

It would help greatly to have timelapse photos of the opening of the flowers in the morning (8 to 9am if it's sunny) and a time lapse of them closing (2pm to 5pm).

But in the meantime at least we have photos from other days in the morning, and today (June 21) in the early afternoon.

Fig. 12.

Epiphyte is sticking out.

June 21, 2023.

Fig. 13.

June 21, 2023.

An insect is working to dig deep into the center of the flower.

Fig. 14. All the photos up to here are from June 21, 2023. All by Haniel Lopez.

All the following photos are from June 28, 2023.

There is an additional, separate, FLAAR Reports on the aerial photos by Haniel Lopez of July 6 and July 7, 2023, when this same tree was still filled with flowers and still filled with buds that would open all July and probably a bit into early August.

In year 2025 we found a few flowers in May 19th and May 20th. But the tree had fallen down the week before we arrived—but it had one flower May 19th and two flowers on May 20th. *Leuenbergeria lychnidiflora* tree cactus can continue to grow even when the entire trunk has broken off and the complete tree has smashed to the ground during a storm. We show these photos in a separate FLAAR Reports.

All following photos are from June 28th, 2023, starting at 12:57pm.

Fig. 15.

All following aerial photos by Haniel Lopez with FLAAR drone Mavic 3 are from June 28th, 2023, starting at 12:57pm.

FLAAR Digital Photo Archive of Flora, Fauna and Biodiverse Ecosystems of Guatemala.

Fig. 16.

12:59pm, some of these flowers are fully open. They attract lots of pollinators. July 28, 2023.

Notice the ring of almost pure white, albeit with a slight yellow tint. The rest of the petals are “off-white”, sort of a dusty (dirty) white color.

The small bud below the flower will probably bloom in early August.

All photos in this FLAAR Reports are by Haniel Lopez. All these digital files are in the FLAAR Digital Photo Archive of Flora, Fauna and Biodiverse Ecosystems of Guatemala.

Fig. 17.

This is the manzanote cactus tree that we photograph-ed several times in 2023. In late May 2025 we saw that it had fallen over the week before we arrived.

There is a separate FLAAR Reports showing the fallen tree—completely uprooted—but still flowering!

A few black wilted flowers atop the now closed former buds. Lots of young buds are here that will bloom in July to early August.

Fig. 20.

This motorcycle path comes from nearby aldea Agua Caliente.

The Rio Tambor is off to the right, down below a very steep cliff.

Fig. 21.

Lots of manzanote flowers have pollinating insects on them.

Fig. 22.
All the manzanote tree cactus flowers point straight up to face the bright tropical sun. Buds with black tops have wilted remains.

Fig. 24. Lots of epiphytes grow on manzanote cactus plants, usually bromeliads or orchids that can survive in bosque seco. 1:04pm, June 28, 2023.

Fig. 26. This is the most common epiphyte on manzanote trees, but there are also occasionally a few orchids.

Fig. 27.

A separate botanical research project should be to list and document all the plants that grow on manzanote and other nearby cacti here in the Departamento de Zacapa.

Fig. 28.

Fig. 30,a.

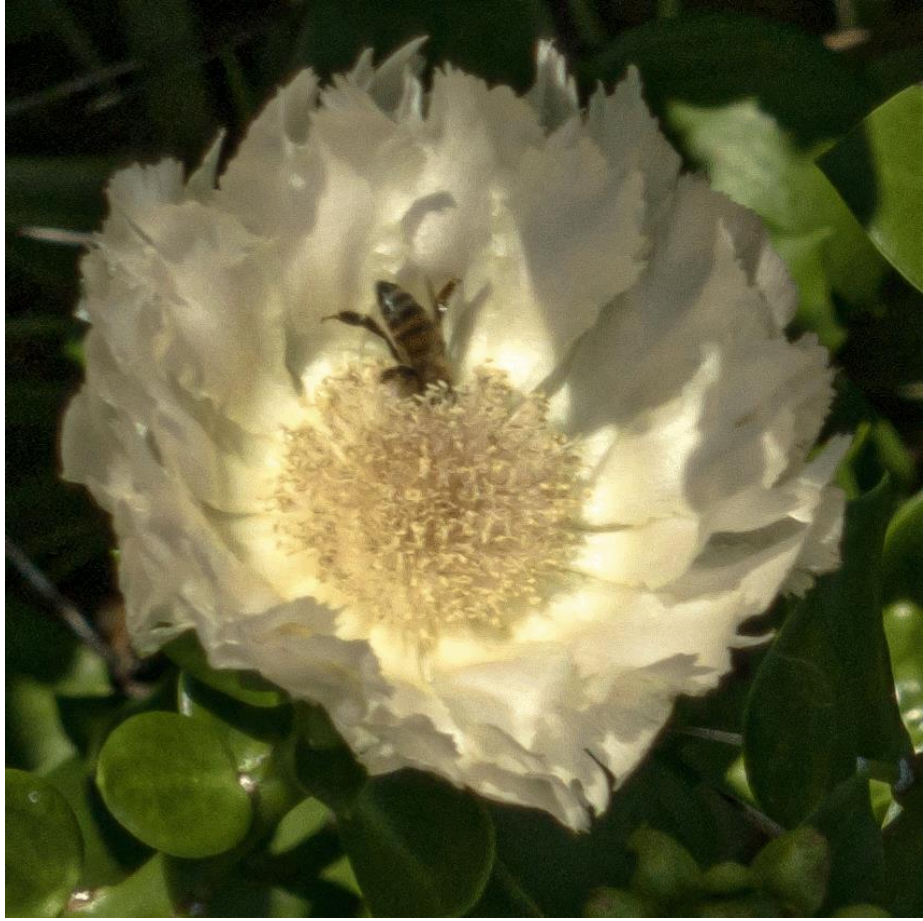


Fig. 30, b.

Lots of pollinating insects. June 28, 2023, 1:06pm.

Fig. 32.

While Haniel Lopez (at the right) is piloting the drone and taking aerial photos, Nicholas Hellmuth is up on a very tall ladder so he can photo-graph the white flowers from above.

Fig. 34.

These are all aerial photos by Haniel Lopez. The photos by Nicholas Hellmuth and Edwin Solares are in separate FLAAR Reports.

Fig. 35

Insects of many different genera and different sizes love to visit manzanote flowers, both these white flowers plus the more common orange flowers elsewhere in this same area.

We have a separate FLAAR Reports on the white manzanote tree flowers that were photographed by the drone on June 29, 2023, because on that day the flowers of one of the two nearby mutant trees had a pink tone. By having that as a separate PDF you can put both onto you monitor at the same time and see the unexpected difference in color.

Fig. 36.

The larger of these buds will burst open in early July. The smaller buds may open in early August.

Fig. 37.

Fig. 38.

Fig. 39.

Wasps are the most frequent visitors to these manzanote flowers. We found wasp nests all over the trees in this bosque seco area—most were honey producing wasps. Yes, wasps that make edible honey. During June we will publish multiple FLAAR Reports on wasps that make edible honey in Alta Verapaz, Zacapa, and Huehuetenango departamentos of Guatemala.

But the insect here is neither a wasp nor a bee—or if a wasp is very different than other ones.

Fig. 40.

Wasp or bee.

Fig. 41.

Nice view from the side. Here you can see petals and sepals.

Fig. 42,a.

b

All the following photos are by Haniel Lopez, with Sony Alpha 7c with 50mm Sony lens, FLAAR Digital Photo Archive of Flora, Fauna and Biodiverse Ecosystems of Guatemala.

Possible pollinator on the top of the petals—not a bee or a wasp but we have seen the same insect inside other manzanote flowers. Fig. 43, a and b.

Fig. 44.

Wasp, or if a bee of atypical length.

Fig. 45.

Closer view—there are lots of green bees that like to search for nectar of flowers. The hundreds of stamens are visible in all the white manzanote flowers. In a few you can see the more yellow stigma buried in the middle.

Would help if a wasp entomologist could provide a list of wasps of Guatemala that have greenish tone. Yellow and black are by far the most common colors on wasps.

Cropped by Hellmuth from photo by Haniel Lopez, Sony camera and Sony lens.

Fig. 46.

Eager large pollinator.

Fig. 47.

Fig. 48.

Most manzanote trees have bright healthy leaves and large bright green flower buds.

Fig. 49. All aerial photos on June 21, 2023 are by drone pilot Haniel Lopez, helpfully saved by him and now also in FLAAR Digital Photo Archive of Flora, Fauna and Biodiverse Ecosystems of Guatemala. It is essential to have a drone that can accomplish photos of this quality. We appreciate that the land owner has preserved these rare white-flowering cactus trees.

Highway RDZAC-06 going south

The Haniel Lopez aerial panorama view of this part of Guatemala **on the following page** shows why it is such a great place to accomplish research on flora, fauna and biodiverse ecosystems. In the far background is the range of mountains with Baja Verapaz and Alta Verapaz out of view to the north. We highly encourage field research in Guatemala to provide documentation to botanists, zoologists and ecologists. CONAP and CECON have worked for decades in these areas as well, as have researchers from UVG and other universities in Guatemala. Our goal is to share our photos with them by presenting them in our FLAAR Reports.

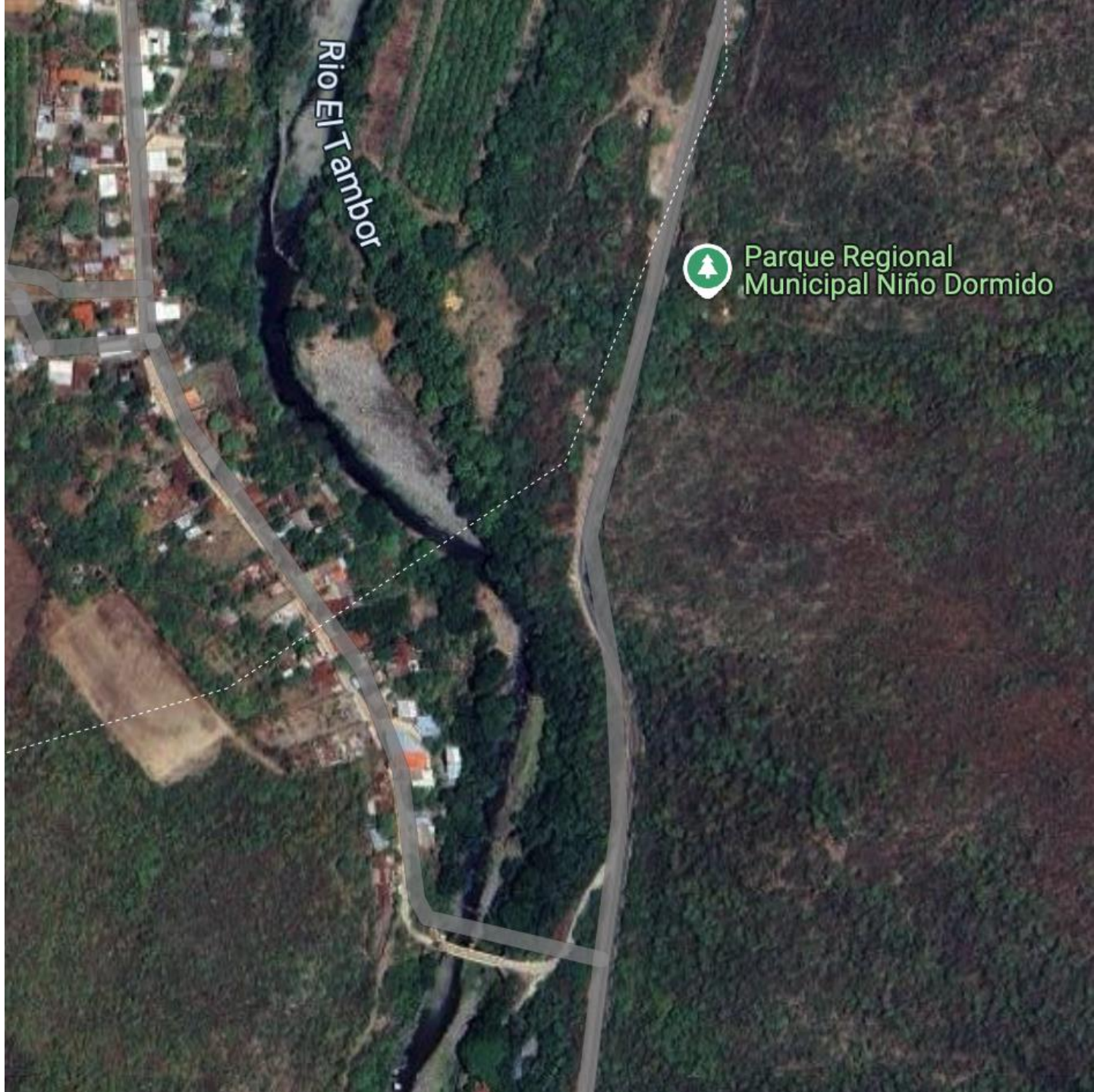
Fig. 51.

This is aldea Agua Caliente, parallel to Rio Tambor.

There is also a rural road from here north to highway PRO-1, but we have not yet driven that route—we always go nearer to Cabañas since that's the easiest place to meet the Heloderma nature reserve park ranger, Gilberto Salazar.

The location of the two white-flowering manzanote trees are on the following two maps.

All are cropped from Google Maps, satellite view.



Turn around another block above and then return south.

This is aldea of Agua Caliente.

Niño Dormido is a few kilometers north.

This is where you turn west

Fig. 52.

GoogleMaps, satellite view

Trees are a bit south.


Manzanote tree,
white flowers -→
Second white flowering
manzanote tree ---------→
Rio El Tambor
Highway
RDZAC-06

Fig. 53.

About a kilometer or so south, after Niño Dormido, turn west, cross the Rio Tambor, drive up the hill to aldea Agua Caliente.

The turnoff to the dirt road leading to the white-flowering manzanote tree is so sharp we always drive into Agua Caliente and turn around on streets there, and then drive onto the dirt road towards the white-flowering manzanote trees. There are large rocks sticking up at all angles all over the first hundred meters of this road—so don't try it with a normal car. Best in a pickup truck. Then you are in front of the white-flowering manzanote trees.

This is where you turn west.

Bridge over Rio Tambor.

GoogleMaps, satellite view

All aerial photos on June 21, 2023 by drone pilot Haniel Lopez.

None of us had any idea that the common orange-flowering manzanote tree had a white-flowering mutant close to the Rio Tambor.

It was pure luck, June 21, 2023, that drone pilot Haniel Lopez happened to have manzanote trees in same view as all the *Plumeria*.

Fig. 55.

Finding the Parque Regional Municipal Niño Dormido on the map is a good start, since the white manzanote trees are just a few kilometers away. Niño Dormido is one of several nature reserves for the Guatemalan version, *Heloderma charlesbogerti*, of the Gila Monster of northern Mexico and southwest USA, *Heloderma suspectum*. *Heloderma horridum* is also in Mexico. Another even more rare species is *Heloderma alvarezi*, found in southern Mexico and adjacent northern Guatemala.

Drive south before you reach Cabañas. To get to Cabañas, best to leave CA9 at El Rancho and drive east on PRO-1 that is renamed RD ZAC 01 when it enters the Departamento de Zacapa. But Cabañas is in El Progreso. Before you get to Cabañas (so west of Cabañas) turn south from PRO-1 onto a highway that has no number on 90% of the maps on the Internet. About a kilometer or so south, after Niño Dormido, turn west, cross the Rio Tambor, drive up the hill to aldea Agua Caliente.

If you download Google Earth Pro (which is free, but you have to download it) you can find the name, RDZAC-06.

Plumeria is the genus. Local name is flor de la cruz in this part of Guatemala, and flor de mayo in most parts of Guatemala. The name is frangipani elsewhere, and in Hawaii the cultivated deep dark pink are used to make lei necklaces. Thus these flowers are known around the world—but the white-flowering *Plumeria* is native to Guatemala. FLAAR has dedicated field trip after field trip after field trip to finding and photographing where *Plumeria* is wild in diverse ecosystems of Guatemala—bosque seco, high in mountains of Alta Verapaz, and on many hills in central Peten (around La Libertad and northwest of San Benito, Peten. Last month (in 2025) we found Plumeria high on karst mountain cliffs west of the Candelaria cave areas, especially on the cliff overlooking the gasoline station at the turnoff to Raxruha.

We use a Mavic 3—as you can see, the photos are very helpful to study botany and ecology. But the new Mavic 4 Pro, available since mid-May 2025, has lots and lots of extra features, such as higher-resolution camera and the ability to fly the drone much further away—so you can ascertain whether there are any other white-flowering *Leuenbergeria lychnidiflora* cactus trees nearby.

Concluding Comments

On most field trips we have at least two different photographers—one is an aerial photographer (drone pilot) and the other photographer takes photos from the ground or from the tall ladder. You need a pickup truck to transport this ladder—shorter ladders are better than nothing but we learned over the years (with shorter ladders) that it's far better to bring the tallest ladder that can easily be bought in hardware stores across Guatemala.

We highly recommend a pickup truck—and not a rental car. Most cars are too low and the deep ruts or tall rocks in the middle of the dirt roads will scrape off the underside of the motor and other parts. You can rent a 4x4 pickup truck from InterAmerican at the airport—they can even bring it to your hotel for you to start your field trip—and pick it up when you return from your field trip. Just be sure you know how to drive stick-shift. Or, you can also hire a driver.

Obviously it is essential to register your field trip with the administrator of the nature reserve or national park. You must also request permission to use a drone. It is not easy to bring a drone through Aduana in your suitcase—best to find a drone pilot in Guatemala who has their own drone. You can hire any of the capable drone pilots who do aerial photography on FLAAR field trips.

Obviously botanists will be studying the flowers, but you can usually find lots of pollinating insects—LOTS more than just local bees. Many wasp species in Guatemala love flowers.

The tree photographed for several hours each day near the aldea of Agua Caliente no longer exists—it was blown over in a wind storm about a week before we returned on May 19th, 2025. But the adjacent manzanote tree also has white flowers, however its branches are much higher so not even a tall ladder will help—you will need a drone with a high-resolution camera.

Introductory Bibliography on the Manzanote Tree, *Leuenbergeria lychnidiflora* (DC.) Lodé especially the unexpected discovery of White Flowers

https://flaar-mesoamerica.org/tag/lychnidiflora/ Blog info on Manzanote cactus from year 2021.

https://flaar-mesoamerica.org/2021/01/22/manzanote-a-special-cacti-from-the-dry-forest/
Photo of trunk, of leaves, of spines on trunk; has 3-item bibliography.

https://www.tiktok.com/foryou FLAAR Mesoamerica video of a few seconds.

https://www.instagram.com/reel/Cu2mI8ptq3q/ FLAAR Mesoamerica, same video as on TikTok of the orange flowers.

https://www.instagram.com/flaarmesoamerica/reel/Cwlp8MlPJeL/ Posted August 30, 2023, with photos and video by Edwin Solares, FLAAR Mesoamerica. Shows the white flowers discovered by FLAAR in summer 2023. Videos in this Instagram post show the pollinators at work.

https://www.digital-photography.org/digital-camera-vs-iPhone-14-Pro-Max-review/iPhone-14-Pro-Max-macro-mode.php
Posted July 14, 2023, shows the white flower variant with a bee ready to pollinate it. So Hellmuth published the white flowers already in summer of 2023.

During June we will be posting our complete photo corpus of the white-flowering manzanote tree as we found it in summer 2023.

BUNKENBURG, Alexander and Laia HAURIE

2025 The discovery of dioecious *Leuenbergeria lychnidiflora* (DC.) Lodé (Cactaceae) in Guatemala. *Bradleya* 43/2025, pages 54-60.

Article kindly sent to FLAAR by Bunkenburg. In the article they document their botanical discovery (by Laia Haurie) that this species is also dioecious. Also has helpful References Cited. The park ranger of the Heloderma reserve took Bunkenburg and Haurie to the same white-flowering manzanote tree in their visit of 2024 that the FLAAR Mesoamerica team had already discovered in 2023 and that Hellmuth already published.

HURTADO, Vivian and Nicholas HELLMUTH

2023 FLAAR Annual Report, For Year 2023. 69 pages.

The back cover shows a green-colored bee popping out of the white manzanote flower. Page 35 shows this bee before it dives down into the center of the flower. So FLAAR had published its discovery of the white mutant of *Leuenbergeria lychnidiflora* already in several places in 2023—all on-line.