FLAAR Reports

Flowers of Maya Art
Visible at Tikal

Pachira aquatica, Zapotón

Parque Nacional Tikal Peten, Guatemala

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Introduction: Flowers in Murals and Paintings of the Maya

In my PhD dissertation I wrote about the most commonly pictured flower in Maya art, the white water lily. Now, twenty-seven years later I am still doing research on flowers in Maya art. Over the past several years I have worked in the library and out in the field to complete my list of sacred flowers, edible flowers, and flowers that are related to Maya culture of Guatemala. Most of these flowers, plants, and trees are also associated with the Maya art of Mexico, Honduras, and El Salvador as well.

My list of all flowers which could potentially be of interest to archaeologists, iconographers, and epigraphers is in an annual report of FLAAR for 2010-2011. One of these flowers is *Pachira aquatica*. The fruit is called zapotón. There is a separate list of flowers from independent research of Charles Zidar. One of the FLAAR photographs of a flower painted on a vase is utilized in his article. Otherwise we worked independently. But since by coincidence we now both reside in St Louis, Missouri, we are exchanging notes now.

In Belize *Pachira aquatica* may be called money tree, provision tree, shaving brush tree (based on shape of the flower), or water chestnut.

I have yet to see any local people use this tree, but spend an hour on the Internet and you will find that many products can be made from different parts of this tree:
Seed oil with industrial potential for manufacturing soap. Young leaves and flowers are eaten as a vegetable. Wood is white and soft, suitable for manufacturing paper, yielding 36% cellulose paste. Bark is used for caulking boats and cordage and yields a dark red dye. Bark is also used medicinally to treat stomach complaints and headaches while a tisane from the boiled bark is used for blood tonic. Suitable for live fence posts and street trees, it is also planted as an ornamental species (www.fao.org/docrep/V8929e/v8929e06.htm).
This is in addition to the seeds being edible.

And I would continue to stress the enticing fragrance of the flowers, even when dead and having been on the ground several days.

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Pachira aquatica trees at Tikal

The trees at Tikal are a bit taller than those of AutoSafari Chapin but not as tall as those of Rio Dulce (over 12 meters high along the shores of the river in the Izabal area). The book by Travey Parker, Trees of the Maya, lists heights up to 15 to 20 meters. I have not noticed any that high. 20 meters is the height of a seven story office building. Even 15 meters is the height of a five story apartment building. Most of the trees are about 7 to 9 meters (at most the height of a three story building).

Her book is based on compliations of Standley and other early botanists; it is unlikely the author herself has inspected each of the thousands of trees in her book. But even if primarily a compilation, her book is so much easier to utilize than the early Chicago Museum of Natural History monographs with their endless list of synonyms and botanical jargon. Plus, her book has all trees within one single volume, and most of the major species are illustrated.

The altitude of Tikal's aguada is over 200 meters above sea level. The main plaza is about 243 meters (if I can remember my measurements from 1965, which is a tough task for my brain cells so many decades afterwards). Rio Dulce is probably less than 50 meters above sea level (I am making a guess).

Zapotón is listed in the tabulation of Luis Villar 's enjoyable book on the culturally remarkable percent of trees of Guatemala (p. 143), but there is no chapter on the *Pachira aquatica* or even a photograph of the lovely flower. Considering the enticing fragrance of this flower, and its other properties, for a book on Arboles Magicos y Notables, it is unfortunate that this flower and tree is absent.

Zapotón is totally absent from "Animals & Plants of the Ancient Maya" by Victoria Schlesinger (2001). The absence of many crucial plants in such an oft-touted book is precisely why I have spent so many years building up a research library on plants (and animals) and launching our two educational web sites: www.maya-ethnobotany.org and www.maya-ethnozoology.org. But Schlesinger does provide excellent drawings of the animals and plants that she did select.

The fruit in Guatemala is smooth: not ridged; not like a cacao

An illustration of a *Pachira aquatica* tree with flower and three fruits (Peixoto and Escudiero 2002:127), shows the flower more or less acceptably, though the buds are longer and rounded at the end (not sharp). But the fruit in their drawing is the precise proportions of a cacao; and not at all the correct size, shape, or outside smoothness of a zapoton fruit of Guatemala. Perhaps the fruits in Brazil are ridged?

In fact if you search out more photos of *Pachira aquatica* fruits in South America you see that they look precisely like a cacao pod. /www.flickriver.com/photos/kanakoa/tags/bombacaceae/ Indeed they are even sometimes called fake cacao. But these are the South American ones. All the Guatemalan fruits are much much larger and totally smooth: no ridges whatsoever. There are separate FLAAR Reports on *Pachira aquatica* along Rio Dulce and especially *Pachira aquatica* at AutoSafari Chapin where we show the fruits in high resolution photographs.

The *Pachira aquatica* fruits shown for Nicaragua have shallow but still clearly defined flutes (http://fm2.fieldmuseum.org/plantguides/view.asp?chkbox=1467) . So evidently the fruits are smooth in the north and fluted like cacao in South America. Halfway in between north and south, the fruits are halfway fluted!

Most fruits are onlong, but occasionally are spherical http://biogeodb.stri.si.edu/biodiversity/species/26628/

The flowers of *Pachira aquatica* are harvested by leaf-cutting ants

In the remarkable historical narration of the Popol Vuh, the Hero Twins utilize leaf-cutting ants to harvest and carry four different colors of flowers. Since one of the botanical research interests of FLAAR is to find all plants and animals out in the real world that are featured in the Popol Vuh, I am always on the lookout for leaf-cutting ants carrying flowers. During the last three years I have found leaf-cutting ants carrying flowers near Sayaxche (Posada Caribe), at Las Guacamayas research station (Rio San Pedro Martyr, Peten), and near Rio Dulce, Izabal.

Thus it was of special interest to find *Pachira aquatica* being cut up and carried off by leaf-cutting ants at Tikal. You can see this around the aguada at Tikal (behind the museum of stelae). Just be careful near the shore: there are crocodiles in this aguada.

In order to document the *Pachira aquatica* flower being harvested by the zompopos, we show those high resolution photographs in a separate PDF (otherwise the present PDF would be too large a file size). The camera we are using is a 21 megapixel Phase One P25+ and/or a 21 megapixel Canon EOS-1Ds Mark III.

Leaf-cutting ants are called zompopo in local Guatemalan Spanish.

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Bombacaceae, a tree family of interest for Mayanists

Pachira is only one genus of the fascinating family of trees, the Bombacaceae. The genus Ceiba is another member of the Bombacaceae. We have separate reports on Ceiba trees which we have found and photographed elsewhere in Guatemala and El Salvador.
Below is a list of the other genus of trees. In addition to *Pachira aquatica*, we are particular interested in Pseudobombax, Quararibea and other ceiba species.

Bernoullia
Bombax
Ceiba
Chorisia, but is not native to Guatemala.
Ochroma
Pachira
Pseudobombax
Quararibea

Many of the trees of this family have conical spines, but not all. Many of the flowers are similar to that of *Pachira aquatica*, but by no means all. For example, the flowers of Ceiba pentandra are totally different. We are preparing a separate FLAAR Report which will be a comparative tabulation of all trees, of each genus in Mesoamerica which has conical or comparable spines on the trunk. This tabulation will indicate which flowers have a structure similar to the flowers of *Pachira aquatica*, and which flowers are totally different.

Only a small percent of *Pachira aquatica* trees have spines on their trunk. Yes, I have seen one or two at AutoSafari Chapin and one tree along Rio Dulce with spines. But there are other trees, such as many many species of the genus Zanthoxylum, which have larger and more impressive spines. Some of the Zanthoxylum species we show in other FLAAR Reports. There are so many of these trees that it will take another year to track them all down and photograph each species.

It would be interesting to do more research in the Parque Nacional Tikal to see how many of the trees, which are related to *Pachira aquatica*, or related to Ceiba, are native to this part of Guatemala.

Some of these trees, such as Quararibea have remarkable properties. To find these in Tikal would be wonderful.

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Tikal offers flowers and animals, in addition to Maya monuments

The art of the Classic Maya pictures jaguars, macaws, spider monkeys, insects, scorpions and other creatures, especially in their paintings on vases, bowls, and plates. The artists over a thousand years ago frequently painted images of flowers. Indeed in the Tomb of the Jade Jaguar, Burial 196, which I discovered and excavated in 1965, there were paintings of stylized flowers, and of a vase showing a man smoking a cigar. So plants (tobacco and the other ingredients of Maya cigars a thousand years ago, such as guarumo leaves), and flowers, are a part of Maya archaeology. This means that the local guides can provide additional knowledge to tourists when they add comments about the role of plants, flowers and animals in Maya religion, mythology, and art.

So one of our goals is to provide the local guides, and the visitors, the raw material, so the role of flowers, tree spines, and sacred birds are easier to explain to visitors. Plus naturally we wish to assist scholars, and students, with a data base of usable photographs, so they can continue study of the hieroglyphs which picture or talk about sacred flowers and referred animals.

But there is much more than the archaeological and artistic aspect of sacred creatures. There is the raw reality of the actual tropical rain forest.

Mirtha Cano has worked to spread the message, that “the Parque Nacional Tikal offers the visitor, national and international, so much more, in addition to the famous Maya ruins.

Tikal offers remarkable plants, flowers, vines, fruits; and of course gorgeous birds, fascinating animals. I must admit that I find even the spiders and insects wonderful examples of the beauty provided on earth by Mother Nature.

Thus our goal at FLAAR is to utilize our experience as photographers, and our long-term interest in studying the flora and fauna of Mesoamerica, to provide a message for students, scholars, and the general public, that Guatemala is worth visiting to see, and experience, the trees, flowers and animals of the tropical world.

For these reasons we have done the photography of *Pachira aquatica* around the aguada (water reservoir) in the Parque Nacional Tikal). And now, with this publication, we can bring this information to the world.

There is no cost to the reader; this report is for you to read, enjoy, and learn from.

Protection of the natural eco-systems: protecting *Pachica aquatica* trees

When hotels and marinas are built along the rivers and lakes of Guatemala, Mexico, Guatemala, and Central America, it would help if Pachira aquatica trees were not slaughtered with chain saws and bulldozers. The tree is so beautiful it will help attract tourists, both local and foreign. Plus, this tree is a reminder of the sacred cultures of the ancestors of the Maya people.

And, even more important for future generations, the *Pachira aquatica* tree is a part of the natural eco-system. It is rather senseless to pour concrete and asphalt across the fragile coastal eco-systems. In many countries of the world endangered eco-systems are protected either by law, or by respect by individuals who wish to avoid senselessly destroying the flora and fauna of the natural world. Thus it is helpful that lakes such as Yaxha and Sacnab are protected, and that parks such as Tikal can help preserve the natural beauty of Guatemala.

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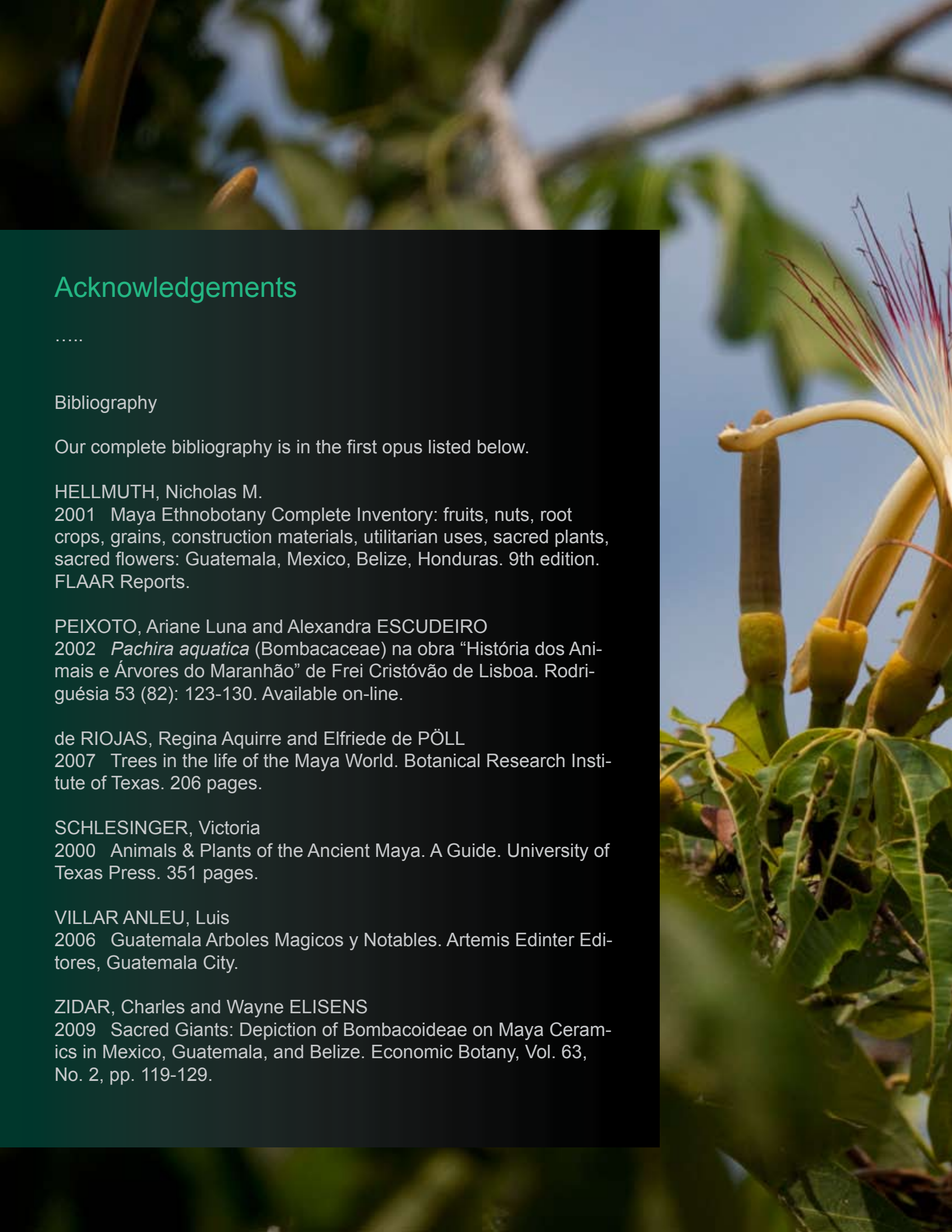

Acknowledgements

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Special thanks

Photographs taken within the Tikal National Park were taken with respective permission as part of a cooperative program whereby FLAAR Mesoamerica provides free photography to the park programs and FLAAR Mesoamerica provides enlargements for photo exhibits for the park museums. We appreciate the permission of the Parque Nacional Tikal to undertake photography of flora and fauna related to the Maya culture which is protected by the Ministerio de Cultura y Deportes. We thank Biologo Mirtha Cano, Coordinadora de la unidad de biología at the park. Tikal is a UNESCO World Heritage Site in addition to being a reserve for endangered plants and animals.

For visitors who wish to consider coming to Guatemala as tourists, we highly recommend you are aware of the natural beauty of the flora and fauna of Mesoamerica. The national parks of Guatemala are justifiably world heritage sites for their pre-Columbian civilization, but these parks, especially the Tikal park and the Lake Yaxha park, have even more value as reservoirs of plant and animal diversity.

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