

Were

Domesticated INSECTS

part of Maya civilization ?

Niiij

Dr Nicholas M. Hellmuth

 FLAAR Reports

Prepared for
IMS



Niij



Photograph taken from a video by Gustavo Gallegos
<https://www.youtube.com/watch?v=zgxZ4kQt-NM>

Three or so years ago I saw my first “lacquer insect”. I have long known that lacquer in Asia comes from two sources: sap from a tree and from the lac insect. But I had no idea there was also a “lacquer insect” in Guatemala. This insect is called the Niij in local Achi Mayan language.

The lacquer insect is similar to the cochinita insect (cochinilla in local Spanish, cochineal in English). The cochineal is a smaller related “scale” insect which is a primary source of red dye (for some lipstick and rouge, among other modern industrial uses). Yes, if you use lipstick, rouge or other red-colored products, the source of the red may be the cochineal insect (now raised by the ton in the Canary Islands). But the origin of these insects is Mexico and Guatemala.

Cochinilla insects are tiny (the size of the head of a pin or pen). Cochinilla insects are found on Opuntia cactus plants. The area around Antigua was a major production zone after the Spanish conquest. But today most cochinita insects are raised in Oaxaca, Mexico, and in the Canary Islands.

The present article is on the larger lacquer insect of the Achi Mayan people of Rabinal, Baja Verapaz. This is an update of an article I did for REVUE magazine in Guatemala several years ago. We can do the update because we drove the long drive to Rabinal about two months ago to do more close-up photography.

Several scale insects have a fat that can be used as a varnish

- *Llaveia axin* is the Mesoamerican pre-Columbian lacquer insect
- *Dactylopius coccus* is the Mesoamerican pre-Columbian red dye insect.
- *Kerria lacca* is the Asian insect that produces lacquer.

With the Mesoamerican lacquer insect, it is the female that produces the fat that is ground with a pestle to produce the liquid.

With the red dye insect, it is also the female that produces the red dye. With the varnish insect, the outside shell is orange in color but the lacquer insect does not produce much usable color when pressed.

The varnish insect looks very similar to the red dye insect, except the lacquer insect is over a centimeter in length and thus has a correspondingly visible body. The red dye insect is very small.

In Asia, in addition to the lac insect, there is also a "lacquer tree." So Chinese and Japanese artists had plenty of sources of lacquer for their handicrafts.



Photograph taken from a video by Gustavo Gallegos
<https://www.youtube.com/watch?v=zgxZ4kQt-NM>



The lacquer insect of Guatemala lives on the jocote tree

In Rabinal we found the niij primarily clinging to a jocote tree (*Spondias* species).

It was absolutely fascinating to see the insects. Most live under a "tent" of white powder-like material. When you harvest the insects, you clean off the white surface layer and you then see that the insects are a nice light orange color. But this is not a color that produces an orange or red dye colorant: these insects are used more as lacquer-like material than as a colorant. For a colorant insect, that is the cochineal scale insect, a close relative (but which lives primarily on *Opuntia* cactus, nopal).

They do not bite or sting, nor are they otherwise aggressive. I hold them in my hand with no hesitation (but then I also hold tail-less whip scorpions in my hand also; these wander around our office at night, and are also common in cave entrances).

While we were in Rabinal several years ago, Gustavo Gallegos did HDSLR video of the insects and preparation of the varnish. Camila Morales did a report on the trip, with comments on the manner of preparing the insect fat and then applying it to the gourds. These reports will be available at no cost on www.maya-ethnozoology.org.

Photograph by Dr. Nicholas Hellmuth

Other host trees for supporting life cycle of niij insects in Rabinal

Biologists indicate that this insect can also live on *Jatropha curcas* trees (physic nut) and various species of *Acacia*. There are several articles on these insects by Thomas MacVean.

- Ixcanal, *Acacia* of various species
- palo de piñón, *Jatropha curcas*
- Physic nut, *Jatropha curcas*

In Chiapa de Corzo (Chiapas, Mexico) and in Michoacán, Mexico, you can expect similar but perhaps slightly different species as host plants.

Other host trees for aje or Ni-in insects in other parts of Mexico

Herrera lists “Uruapam, Yucatan, Tlacotalpan, etc.” as locations for where lacquer insects were raised to his knowledge (late 1800's) (1871: 383).

- *Spondias mombin*, jocote, jobo
- *Spondias rubra*, ciruelo
- *Zantoxylum affine* (sic), palo mulato (should be spelled *Zanthoxylum*).
- *Zantoxylum clava-herculis* (should be spelled *Zanthoxylum*).

Acacia cochliacantha is the favored host tree in Michoacan, Mexico. There were *Haematoxylum* (sic) species nearby. In the Rabinal area there are *Haematoxylum* in the same valley area, most likely Palo de Brazil, *Haematoxylum brasiletto*, since Palo de Campeche, *Haematoxylum campechianum*, requires standing water at least some of the year. I can only know which species if we happen to be there when the tree happens to flower.

Acacia angustissima is a host in Tuxtla Gutiérrez area of Chiapas. (TEC 2007). But a web page of Graciela Diaz Perez lists “ciruelo” trees also. That probably means a jocote species (*Spondias* species).

www.tecnm.mx/ciencia-y-tecnologia/investigadores-del-tec-de-tuxtla-gutierrez-y-de-la-unam-descubren-bacteria-reforestadora

Where were nij lacquer insects raised in pre-Columbian Mayan areas?

Many Prehispanic cultures had lacquer insects in Mexico. So Sahagun briefly mentions these insects under their Nahuatl name in Central Mexico.

The current report is primarily on the Mayan areas. Bishop Diego de Landa mentions these domesticated Mayan insects for his area of Yucatan:

“Hay un gusanito del cual se hace un unguento muy bueno, amarillo, para hinchazones y llagas, con nomás batirlo amasado; sirve de óleo para pintar y hacer fuerte la pintura. Esta ‘grasa’ mezclada con aceite de linaza o chía se utiliza en el laqueado de bateas y jícaras, como lo son las famosas jícaras michoacanas.”

It is notable that the jícaras of Michoacan were so internationally known already in that early century. Raul MacGregor-Loeza says you can buy the aje material “in pharmacies in San Luis Potosi, Oaxaca, Michoacan, and Chiapas.”

I am surprised that so far I have not been able to find mention of the Yucatec Lacandon making lacquer from these insects. I will need to check all their dictionaries.

Also worth looking at Chol and Cholti-Lacandon dictionaries to see if they include words for nij (obviously spelled differently in each regional language). In Yucatan the insect may be called Ni-in. So the Lacandon word would be hopefully comparable.

Several web sites give Nz'uz'n as the word in Yucatec language, but aside from that not looking like a Mayan word, when you Goggle just that you get nothing but junk pages. The correct word in Yucatec Maya language is Ni-in.

In Michoacán area of Mexico the insect is called aje (spelled several ways).

Many years ago biologists named this insect Coccus axin. But Llaveia axin is the accepted zoological name today.

Are *Llaveia axin* insects Parasites?

Biologists consider the insects are “parasites” yet the insects do not seem to seriously threaten the host plant in any significant way. The most parasitic plant I have found in Guatemala so far is the *Cuscuta americana* vine (American dodder), and Matapalo, strangler fig tree. We raise the remarkable *Cuscuta americana* vine because its system to drill deep into the host plant and suck nutrients out is remarkably effective. Plus *Cuscuta americana* is bright orange (when healthy) and very photogenic, including its tiny flowers.

The cochinilla for red color is rare in Guatemala

Many places in Oaxaca raise the dye insect, but it is rare in Guatemala today. Wild cochineal insects can easily be found on *Opuntia* cactus plants near the Rio de los Esclavos. But these are not domesticated. We brought some back to our office garden and they wander around on different plants; not focused just on the *Opuntia* cactus. 200 years ago Guatemala raised domesticated dye insects by the ton.

As soon as we can find domesticated *Dactylopius coccus* in Guatemala we will write an article on this red relative of the orange varnish scale insect. Although the lacquer insect is not everywhere, you can easily find it by visiting the families in Rabinal who raise them.

Fortunately Hugo Noel Solares Pineda has written his thesis on cochinilla for red colorant, so it should be possible to find the red dye insect in Jalapa.

Almost all this colorant nowadays is bought and brought from Oaxaca (where cochineal insects are a major business).



Photograph by Erick A. Flores

Insects in Mayan Diet and Daily Life

The leaf-cutting ant was unlikely domesticated, but the queen of these common insects are eaten, by the bag full. They are called zompopos de Mayo (since May is the month you can see them).



Photograph by Sofía Monzon

Other insects of note, in Maya mythology, are the lightning bugs which created a faux cigar for the Hero Twins in the myth of the Popol Vuh. These are probably a species of Elateridae. These insects were clearly known and used by the Maya, but were unlikely domesticated.

If you are grossed out by the number of insects raised, eaten or used by the Maya, the Aztecs were even more into insects.

Sharing our experiences with flora and fauna in Mayan utilitarian use, hieroglyphics, iconography, religion, diet, and mythology is one of the goals of the FLAAR Reports. We hope this introduction to lacquer insects in Maya culture was a topic that is completely new to you.

You can see the insects by visiting the Achi Mayan families in Rabinal who harvest, prepare, and decorate calabash as handicrafts.

Bibliographies

Our bibliographies of plants and animals of Maya culture are found in two FLAAR Reports, one on the 400 plants used by the Maya; the second report on the roughly 100 animals used by the Classic Maya. These reports are on www.maya-ethnobotany.org, www.maya-ethnozoology.org Even more information is on our "Mayan bibliography web site" www.maya-art-books.org.

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So far this is the only thesis on nijj from this university which can be downloaded easily.

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Unfortunately, we do not have a copy of this thesis.

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Local people using aje for varnish-like effect.

www.feriamaestros.com/spanish-diazgraciela.html

For Flores Magon area of Chiapas. Lists "ciruelos" as one host tree. One page, tiny photos. Ciruelo may be *Spondias rubra*.

<https://prezi.com/lpa7itokl-kj/tecnicas-de-decoloracion-prehispanicas-y-el-maque/>

Demanded that I download Flash Player 11.1 or better. I never ever upgrade from a random link such as this. So I did not see the presentation.

Acknowledgements

We thank Doña Olga Garniga and her family for hospitality on our visit during 2011. About two years earlier we visited her sister, who has a separate gourd decoration production business also in Rabinal. Unfortunately both sisters passed away in subsequent years. But both families are still continuing with their Achi Mayan cultural heritage.

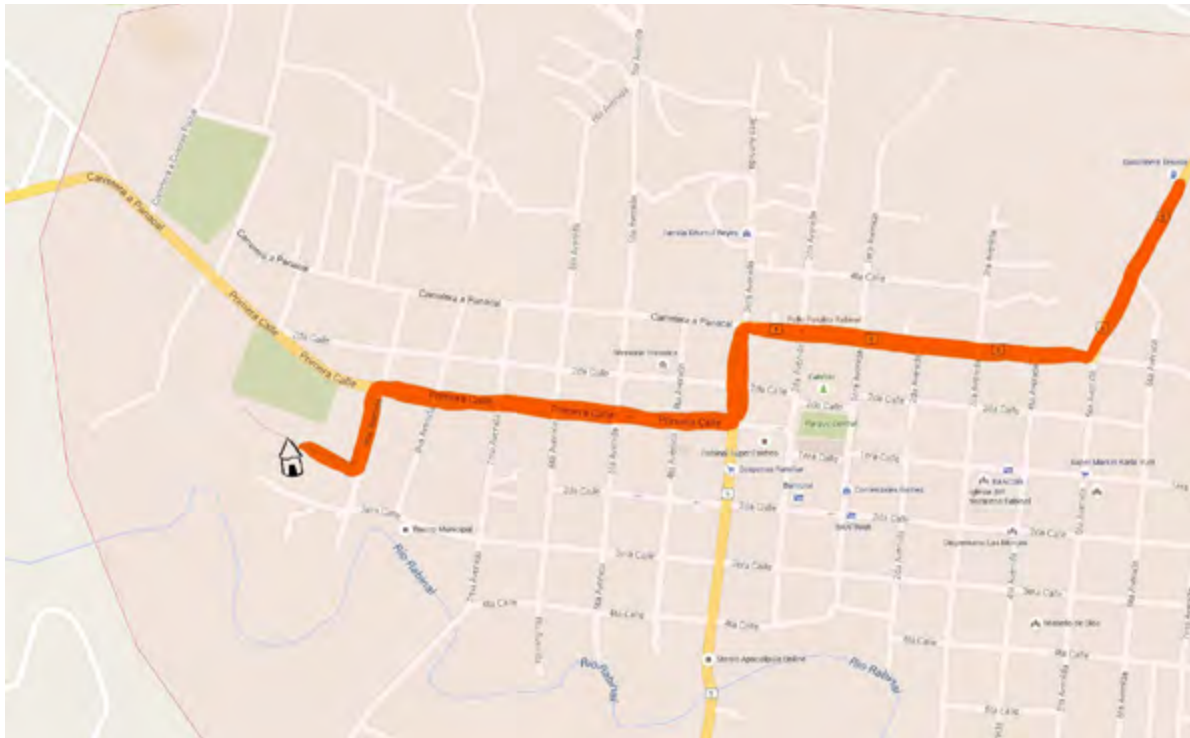
Jose Luis Garniga. Maestro de Primaria-Rabinal, cel. 5570-5219

Jose Luis "Colocho" Garniga.

"Colocho" is his nickname in Rabinal.

The best way to figure out how to get to their location is to ask a Tuk-tuk driver to lead you there (I stay in my own car and just follow the Tuk-tuk.)

Then you park on that street and walk about 60 meters. Both families are on the left; several house lots separated from each other. They are competing separate companies.



There are several modest hotels in Rabinal. We stayed in one, and also had breakfast and dinner there. It is family owned and operated.

Hotel San Pablo, Address: 3 Av 1-50 Zona1. Phone: 7938-8025. Owner is Miguel Osorio Diaz.