FLAAR REPORTS BELAARS of the MAYA



Unexpected diversity in Guatemala

Nicholas M. Hellmuth Copyright FLAAR 2014





Black beans, Phaseolus vulgaris

Introduction to beans of the Maya

After years of eating primarily frijoles negros, I finally learned from the Q'eqchi' people about the real diversity of species of beans (Phaseolus) in milpas. I now am learning even more that species and variants of maize, of beans, of squash, and all the fruits and vegetables of Mayan people in Guatemala, what can be raised (or not) varies by elevation, soil type, and rainfall; so varies by the eco-system. In each eco-system of Guatemala you can find different sizes and colors of beans (Phaseolus) in the milpas of the local Mayan people.

An eco-system here means elevation, temperature by season, rainfall pattern over the seasons, soil type, etc. For over 50 years I have enjoyed eating frijoles negros (a food I definitely really like with huevitos and tortillas). Now I need to learn how to cook, and eat, lots of other sizes, shapes, and colors of beans native to Mesoamerica. This full-color report is to show the first step, the recognition of the diversity of beans available to the Maya.



Red beans, Phaseolus vulgaris

What food did the Mayan people eat?

As a student in the 1960's, I was aware that most traditional monographs on Mayan food focused on "maize, beans, and squash." Then came a deluge of helpful articles and dissertations on the belief that maize-beans-squash focus was totally incorrect: the new slogan was root crops, or ramon nuts. Today people talk about Chaya also. Plus dozens of other articles trying to show how inaccurate the maize-beans-squash focus of early Carnegie Institution of Washington and other scholars before the 1960's.

When I started getting serious about learning about Mayan agriculture and food, I did research for several years (keeping in mind I had already lived in El Peten 6 years by 1975, and the first of these years was at age 19). So even before I really focused on plants full time, I had already lived off Maya gardens on the shores of Lake Yaxha, El Peten.

One by one I re-read the articles and books which debunked the focus on maize, beans, and squash. Take root crops for example: I even found in my own studies that Bennett Bronson did not even list all the root crops the Maya really raised and ate! So, on paper, I found even more evidence to support one theory after another.



I am keenly interested in home gardens, especially the fruit trees which grow around Mayan houses. Most of these would not be found in a list of food products since most Neotropical fruits bruise easily or rot so quickly after picking they would not be viable trying to sell them in a distant market.

But as I spent more time out in remote areas, we hiked through countless milpas. I enjoy exploring caves since as a child in the Missouri Ozark Mountains my brother and I spent many weekends in the caves on our family farm. To reach caves in Alta Verapaz you always have to hike through mile after mile of milpas. So I have a relatively first-hand, in-person understanding what is in a milpa.

Plus we have found several really hospitable local people in many towns who take us out into their milpas at different seasons of the year. So month by month, milpa by milpa, eco-system by eco-system, I can't help but notice that MAIZE is the #1 crop by far, followed by beans and squash. In our own office, maize, as tortillas, is still the primary food preferred by our Kagchiguel and K'ekchi' assistants.

So after decades of looking at the several HUNDRED other foods available, and after spending years making a list of every single edible food of the entire Maya area, I must admit that maize keeps popping up (pun intended, though popcorn is mainly in the modern movie theatres, not out in the slash-and-burn milpas of Guatemala).

However not all Maya areas have hills as in Alta Verapaz or Peten. Plus there are many other eco-systems. So even if you see maize and beans in lots of areas, two thousand years ago the local agriculture may have been more diversified. However maize and beans are still the core of the diet of a high percentage of Maya people. Squash is definitely third in the trinity of plants.

Despite the obvious primacy of maize, beans are important in Maya diet

When driving through Guatemala (or rural areas of other adjacent countries) you see maize fields everywhere. Beans (frijoles, (Phaseolus species) are not as noticeable. However after the maize cobs have been harvested, and the top of the plants bent down, then you notice the bean vines more than before.

But to see an entire field solely of beans, these are not as common (and may be a more modern style of mono-culture). Where I see beans are primarily as vines wrapping around the maize stalk, in areas of traditional slash-and-burn agriculture.

Black beans are the most common in Guatemala, but other colors are available

When I eat my meals, for decades, 95% of the beans served to me in my own house are black beans. In restaurants (in Guatemala), at least half of the beans are also black. But when you go to nearby countries, often you get beans of other colors.

The red, white, and other color beans are also present in the markets of Guatemala. So people do use beans of other colors. But I must admit that the black bean is what I am fully content with, unless I ask for chile con carne, which is a Tex-Mex concoction with yummy reddish beans.

In our ethnobotanical garden we have two rare kinds of beans

Since my own taste sensors prefer black beans, I don't pay as much attention to other varieties. But the local people who take care of my ethnobotanical garden, they discretely plant several other bean species so they can have a free meal out of the garden (which we allow them; we also raise bananas, which although are not native, are very popular, especially since we let all the staff eat them at no cost and even take bananas back home with them).

Our garden is like a literal jungle, and often we have to use a machete to get from the main gate to the front door of the office.

This week (December 2014) much to my surprise, the K'ekchi' gardener came with three kinds of bean pods. Plus there was a fourth species or variety of bean pod still on the vines. So just in a simple garden around our house we have four kinds of beans (none of which are frijol negro because these you can buy at any supermarket within a two-block walk).

K'ekchi' (Q'eqchi') Mayan names for beans

Chux, white flowered beans (or Ch'ux) Lol (Q'ienk), red flowered beans, Phaseolus coccineus Mis Q'ienk, Gato frijol, cat's beans, with yellow flowers (but called rice beans in Spanish) Nun (Q'ienk), green, beans, Phaseolus coccineus

There are many spellings for each word, depending on whether you are a North American ethnobotanical linguist (Mike Wilson, PhD on K'ekchi' ethnobotany) or a K'ekchi' farmer. Wilson spells the word guenk'. Our gardener, a native Q'eqchi' Mayan speaker, spells it another way, and a university trained agronomist, also a Q'egchi' speaker, spells it Q'ienk. I would estimate in Belize it may be spelled differently again. This is natural, since scholars use their own system for spelling Mayan languages. And these systems change every decade or so.

Considering how many species of beans were known by our Q'eqchi' gardener from Senahu, I am surprised that a PhD ethnobotanist found only 75% of them (though this is better than most other treatises on Mayan agriculture where they discuss beans).

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I would expect that there are many variable spellings for these beans; these are the names given by agronomist Mauro Gulielmo García, who lives in Cobán, Alta Verapaz, Guatemala, and who speaks K'ekchi'.

We raise the beans with red flowers and the variety with yellow flowers at 1500 meters elevation. The beans flower and provide beans (which our K'ekchi' gardener really loves).

Since I could not quickly find any treatise on slash-and-burn agriculture which provided an easy to understand tabulation of the different beans of Maya agriculture, I spent several nights on the Internet and was able to develop this tabulation. I need to do a lot more research, need to speak to more Q'eqchi' people, and would like to raise the missing fifth species so I can photograph the flowers also.

We will be issuing a dictionary on *Phaseolus* species and varieties found in Mayan areas as soon as we have funding to hire more Q'eqchi' milpa farmers. But in the meantime we would like to provide the following preliminary tabulations.

Botanical name	Common name in English	Local name(s) in Spanish	Q'eqchi' Mayan	What color is the flower
Phaseolus acutifolius	Tepary bean,	piñuelero bean		
Phaseolus coccineus	(scarlet) Runner bean		Nun (Q'ienk),	
Phaseolus lunatus	Lima bean			
Phaseolus polyanthus or synonym Phaseolus dumosus	Year bean,	Piloya, ayocote.		
Phaseolus vulgaris	Common bean			

Thesis or dissertations on beans of the Maya would be helpful

It would be really a useful contribution to Maya studies of diet and agriculture if different students could do at least two separate dissertations on beans

- beans in Maya slash-and-burn agriculture, tabulated comparisons across diverse eco-systems in Mexico, Guatemala, Belize, and Honduras
- Biological, Ethnobotanical and linguistic study of beans in slash-and-burn agriculture of the approximately 21 Mayan languages of Guatemala plus the several Mayan languages of Mexico, plus studies in Belize and Honduras.

Q'eqchi' Mayan words related to beans (of Senahu area, Alta Verapaz, Guatemala)

XK´AB´A´EB´ LI KENQ´ FRIJOLES BEANS				
Q'eqchi' (Senahu area)	Spanish (Guatemala)	English (being worked on)		
CH′UX	Frijol de bejuco	Spanish is bean of vines		
KAQI KENQ´	Frijol colorado	Red bean		
KAXCHE´KENQ´	Arveja	Pea		
KENQ´	Frijol	Bean, generic word for bean		
LOL	Piloy	Piloy		
MIS KENQ´	Frijol de arroz	MIS is cat; but Spanish is rice beans, due to rice-like decoration		
MUCH	Chipilín	We do not know why our Q'eqchi' translator put in Chipolin; maybe because it belongs to the family Fabaceae.		
NUN	Variedad de frijol	Bean variety		
Q´AP	Ejote	Green bean		
SAQI KENQ´	Frijol Blanco	White bean		
KARAB´ANS	Garbanzo	Not native		
K´AAM KENQ´	Frijol de vara	Cane bean		
Q'EKI KENQ'	Frijol negro	Black bean		
KAQMOYIN RATZ'UM KENQ'	Flor Colorado frijol	Red bean flower		
SAQI RATZ'UM LOL	Flor blanca de piloy	Piloy white flower		
RAXCHOXA RATZ'UM KENQ'	Flor celeste de frijol	Vine bean light blue flower		
SAQIKAQ RATZ´UM CH´UX	Flor Rosado de frijol de bejuco	Vine bean pink flower		
RAXMOYIN RATZ'UM CH'UX	Flor azul de frijol de bejuco	Vine bean blue flower		
MICH OK KENQ	Arrancar frijol	To pick or harvest bean		

It would be tough to do seriously in-depth fresh field research in all these languages unless a student is really motivated to produce a dissertation that will be cited for many decades. So I have suggested two different topics: one for BA or MA thesis; the second for a PhD dissertation. Both would require being in all pertinent eco-systems and with all Mayan language groups.

Now we can see why there is no such dissertation (or if so, it is not cited often enough for me to have found it yet).

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Pinto beans, Phaseolus vulgaris

Pictures of Mayan food

We have been photographing raw beans in markets throughout Guatemala for decades. Gradually we will be considering photographing the actual food (cooked and being eaten in real homes). The people on my staff say that these beans (most of which I have never seen before the gardener harvested them) are very tasty.

However this year all the beans we harvested we either needed for replanting, or we gave away to other people who asked for them. So not many left to cook. But hopefully in the coming year we can move to the recipes.

















Frijolillo, flower



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Palo de Pito, Erythrina berteroana



Carboncillo, Ormosia isthmensis Standl





More on Maize and Squash in preparation

Our goal during January is to prepare photo albums on maize and on squash, both the corn cobs and squash fruit. For squash we will also feature the flowers, since squash flowers appear in the art of the Maya and of Cotzumalhuapa (Bilbao, Costa Sur area of Guatemala).

Each of these photo essays will show the remarkable diversity of color and shape and size. Then we will include Q'egchi' words for all the sizes, shapes, forms and varieties. We hope these FLAAR Reports will raise interest for students to do their thesis or dissertation on eco-systems and varieties of Maize in the Maya area (and comparable thesis or dissertation on squash). These would need the words in all 27+ Mayan languages of Guatemala and Mexico.



Photographs by Nicholas Hellmuth and by Sofia Monzon, FLAAR Photo Archive.

Introductory Bibliography on Beans of Maya & Mesoamerica

This is our "first stage" bibliography which means it is a list of books and articles to get you started. Since we are studying over 600 plants and several hundred species of animals, insects, etc. until a kind soul sends us funding for bibliography research and writing staff, better computers and software, it will take a while to update each bibliography.

But at least we can provide the references to about four dictionaries of Q'egchi' and several articles on beans.

There are 21 Mayan languages in Guatemala and another several in Mexico, but our initial focus is words for beans in Q'egchi' (also written K'ekchi').

Academia de Lenguas Mayas de Guatemala

2004 Vocabulario Q'egchi'. Academia de Lenguas Mayas de Guatemala, ALMG, Guatemala City.

On-line version is dated 2004 and is 417 pages long. The softcover book version that I bought a few years ago has 407 pages, and no date anywhere to indicate when it was printed (at least nowhere that I could find easily).

It really helps when a dictionary is on-line, as is this one.

ANDUEZA NOH, R. H., SERRANO SERRANO, M. L., CHACÓN SANCHEZ, SANCHÉZ DEL PINO, I., CAMACHO PÉRZ, L., COELLO COELLO, J., MIJANGOS, CORTES J., DEBOUCK, D. G., and J. MARTINEZ CASTILLO

AZURDIA, César

2008 Guatemala y su Biodiversiad. Chapter 10, pp. 465-495. CONAP

BEEBE, Stephen E., RAO, Idupulapati M., BLAIR, Matthew W., and Jorge A. ACOSTA-GALLEGOS

2013 Phenotyping common beans for adaptation to drought. Frontiers in Physiology. 4:35

FREYTAG, George F., and Daniel G. DEBOUCK

Taxonomy, Distribution, and Ecology of the Genus Phaseolus (Leguminosae-Papilionoideae) in 2002 North America, Mexico, and Central America. Botanical Research Institute of Texas, Fort Worth.

GUTIERREZ Salgado, GEPTS, P., and D. G. DEBOUCK

1995 Evidence for two gene pools of the Lima bean, *Phaseolus lunatus* L., in the Americas. Genetic Resources and Crop Evolution 42:15-28.

HAESERIJN, V., Esteban

1979 Diccionario q'egchi-español. Piedra Santa, Guatemala City.

We do not yet have this dictionary, so do not know to what extent it covers flora and fauna.

KAPLAN, Lawrence

1965 Archeology and Domestication in American Phaseolus (Beans). Economic Botany 19 (4):358-368.

KUMAR, B. Mohan and P. K. R. NAIR (editors)

2006 Tropical Homegardens: A Time-Tested Example of Sustainable Agroforestry

Lists only three species for Mesoamerica P. c, P. p, and P. v

2013 Multiple Domestications of the Mesoamerican Gene Pool of Lima Bean (Phaseolus Lunatus L.): Evidence from Chloroplast DNA Sequences. Genetic Resources and Crop Evolution 60:1069–1086.

PICKERSGILL, B.

2007 Domestication of Plants in the Americas: Insights from Mendelian and Molecular Genetics. Annals of Botany 100:925-940.

Lists only four bean species cultivated. Phaseolus vulgaris, Phaseolus acutifolius, Phaseolus coccineus, and Phaseolus lunatus)

POPENOE, Wilson

1919 The Useful Plants of Copan. American Anthropologist, New Series, Vol. 21, No. 2 (Apr. - Jun., 1919), pp. 125-138.

Popenoe is one of the great botanical contributors to knowledge of Maya agriculture. Yet in his otherwise helpful article there is literally zilch about beans.

Phaseolus spp. The frijol, or bean. Several species are represented among the beans commonly cultivated in Central America. The black bean, a form of P. vulgaris L., is by far the commonest.

Only four simple lines, with effectively zero information. I was really surprised.

Proyecto Lingüístico Francisco Marroguín

n.d. Diccionario Q'egchi'. Proyecto Lingüístico Francisco Marroguín, Guatemala. 456 pages.

For some reason language schools do not put dates on their books, so there is no date I could easily find (and nowadays people don't have time to look through umpteen pages; the date should be on first several pages or, for many Latin American books, on the last page. Zilch here. In fact there is no inside title page nor publisher's page at the front (and the printing company page at the back has zero date).

SEDAT S., Guillermo

1955 Nuevo Diccionario de las Lenguas K'ekchí y Española. Alianza Para el Progreso. Chamelco, Alta Verapaz, Guatemala.

This new printing is by the Summer Institute of Linguistics, 1971. We (FLAAR) are scanning to prepare a digital edition, but with no funds available it takes longer. We appreciate the permission from David Sedat to scan and utilize the material of his father.

We estimate that at least a few words for beans are in this dictionary.

SINGH S. P., GEPTS P., and D. G. Debouck

1991. Races of common bean (*Phaseolus vulgaris*, Fabaceae). Econ. Bot. 45, 379–396.

VELA, Enrique

Edición Especial 36. Mexico City.

WILSON, Michael Robert

K'ekchi'. PhD dissertation, Dept. of Geography, University of Oregon. 475 pages.

The ethnozoological dictionary starts on page 396 (listed in Contents, but in the actual dissertation starts on page 402).

Lists 44 mammals. We have 64, minus about three from other sources, so our FLAAR team (of two Q'eqchi' Mayan speakers from Senahu) produced more animal names than the helpful dissertation of Wilson.

The entire Wilson dissertation is available on-line at no cost from his own web site. www.guantamike.ca

We have tried to contact Dr Wilson, but the e-mail on his web site is no longer active. If you have a telephone number of viable e-mail for him or his family, we would appreciate hearing (FrontDesk "at" FLAAR.org).

A few web sites:

www.botanical-online.com/english/bean types.htm

Lists several bean species but not complete (but still lists more than most descriptions of Maya agriculture).

www.utexas.edu/courses/stross/ant322m files/florafaun.htm

Flora and fauna of Middle America. Professor Stross unfortunately passed away circa 2014.

Beans - (mostly *Phaseolus vulgaris*, but also other types, including jack beans, runner beans, kidney beans [habichuelas], lima beans [habas]). Extremely important source of vegetable protein in Mesoamerica. Called *frijoles* in Mesoamerica, generically beans are known as *habichuelas* in the Caribbean.

2010 El frijol. Pp. 64-90 In La calabaza, el tomate y el frijol. Catálogo. Argueología MEXICANA, Oct. 2010,

1972 A Highland Maya People and their Habitat: The Natural History, Demography and Economy of the

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