

Harvest of *Palmiche* (*Pholidostachys synanthera*) by Communities in the Peruvian Amazon

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Amazon settlers use *palmiche* leaves (*Pholidostachys synanthera*) as materials to thatch their houses (Mejia 1988, Balslev et al. 2008). Thatch made with *palmiche* leaves lasts 10–12 years; such thatch is three times more resistant than that made with other palm species used in the region. In this paper the utilization of the leaves and the economic importance for local settlers are discussed.

Pholidostachys synanthera (Mart.) H.E. Moore, is a single-stemmed, understory palm 1.8–5 m tall and 3–8 cm in diameter with 10–25 leaves with sigmoid pinnae (Henderson et al. 1995, Henderson 1995). This species is found in Colombia, Ecuador, Brazil and Peru (Amazonas, Cuzco, Junin, Huanuco, Pasco, Loreto, Puno, San Martin), from the lowlands up to an altitude of 1650 m above sea level (Henderson et al. 1995, Henderson 1995, Borchsenius et al. 1998, Galeano & Bernal 2010).

It is commonly called "*palmiche grande*" in Peru, *ubim* in Brazil and *chalar* in Colombia. The most frequent use of this plant in these countries is as a thatching material for houses, and occasionally the fruits and palm heart are also consumed (Mejia 1988, Balslev et al. 2008). In Colombia there are reports of this species being used traditionally as a medicinal

plant (Borchsenius et al. 1998). In Loreto, in the Peruvian Amazon, it is widely distributed; nevertheless in rural communities it is rarely observed as thatch because there are other species more commonly used, such as *Lepidocaryum tenue* (*irapay*) and *Phytelepas macrocarpa* (*yarina*).

Methods

This study was conducted from April 2009 until March 2010 in the communities of Chingana (4°44'45"S; 73°37'9"W), Sapuena (4°41'37"S; 73°35'36"W), and Flor de Castaña (4°45'49"S; 73°35'22"W), located in the Province of Requena, Dept. Loreto. The main streams in which the community members extract their *palmiche grande* leaves are called the Breo, the Carahuite and the Chingana.

We conducted 25 semi-structured interviews in the three communities. After the first round of



1. Harvest of *Pholidostachys synanthera* leaves in Amazonian Peru.

interviews, we returned after 3 and 11 months to interview the same people as before, as well as a few new participants who were involved in the *palmiche* harvest. The number of persons interviewed is by no means a comprehensive sample of all people who use these palms in the communities, but they represent well the population who commonly harvest *palmiche*. The interviews are meant to complement field studies regarding uses of this resource. We conducted inventories of three natural populations of *palmiche grande*. Each population was divided into 25 m² quadrats and each stem was counted and measured. For two of these sites, we accompanied local people on subsequent days, to observe how the plants were harvested, packaged and transported to the community, and how the *criznejas* were manufactured. *Crizneja* is the palm leaf weaving technique used to thatch Amazonian houses.

Results and Discussion

Pholidostachys synanthera is found in upland forest, in well-drained sandy-clay to clayey-sand soils, with a pH of 3.9–4.6. It forms small patches (called *manchales*) with up to 110 individuals ($X=89.33$; $sd=21.55$), occurring

together with other palm species, such as *Geonoma* sp.

For the initial harvest, 8–12 leaves are removed, leaving 3 or 4 young leaves on the plant. After this harvest, it takes 2 or 3 years, according to local harvesters, until a second harvest can occur; however, this second harvest is said to produce only 4–6 leaves. What often happens is that many people in the community, either because of improper harvest techniques or because they do not have the time to locate new populations, end up killing the plant during the first harvest, causing a depletion of this resource.

In the natural populations that we observed, we found plants as tall as 3.8 m in height and 5.7 cm in diameter, but the harvest of leaves was only undertaken with individuals less than 2 m in height; in larger individuals the petioles are too thick and they have lost some elasticity, causing the leaves to rip when they are tied together to weave the *criznejas*.

Leaf harvest is performed in the early morning; the harvester selects mature palm fronds (which are light green in color), and he uses a machete to cut the leaves off the plant, leaving



2. Preparing the loads of *Pholidostachys synanthera* leaves in Amazonian Peru.

ca. 50 cm of the petiole still attached to the plant (Fig. 1). Then the harvester proceeds to arrange the leaves together in a package and prepares them for transport.

The unit of measure for leaves transported from the place of harvest is locally called a *carga* (load) (Fig. 2). One load consists of about 500 leaves, which represents an average of 50 individual plants harvested from a natural population. In a palm patch (*manchal*), a person can complete the harvest of one load in 1.5 hours; the packing and preparation of the load can take an additional 3 to 3.5 hours. The transport of the load from the harvest location to the community can take another two hours, and this is achieved with small dugout canoes, propelled by paddles or, rarely, by small outboard engines.

The extraction of *palmiche grande* occurs during the months in which the levels of the Ucayali River (and its tributaries) reach their maximum height (February to April in most years), which facilitates access to the palm populations, as well as transport of leaves back to the communities. A second reason why this is a good time for palm leaf harvest is that in this high-water season, there is no agricultural work

to be done due to the flooding.

To make thatching units, the palmiche leaves are woven by their petioles onto split stems of *Socratea exorrhiza* (*cashapona*). Each of these units is called a *crizneja*. One *crizneja* is 3 m long and 1.3 m in width, and contains 98–105 leaves, the variation relating to the size and maturity of the *palmiche grande* leaves (Fig. 3).

A man can weave up to 10 *criznejas* in one day, working from 5:00 a.m. until 6:00 p.m. In order to make a roof for a standard sized (54 m²) house in these communities, one would need 75 *criznejas* which are placed 30–33 cm apart on the roof beams (Fig. 4). Roofs thatched with *criznejas* of *palmiche grande* can last 10–12 years, two or three times more resistant than *criznejas* made from *Lepidocaryum tenue* (*irapay*), which is considered one of the most long-lasting materials in the region. When all the materials are available, three people can roof a standard house in one day.

Economic Importance

Palmiche grande is harvested almost exclusively for thatching a family's own house (82% of people surveyed), and a much smaller



3 (top). Weaving *criznejas* of *Pholidostachys synanthera* leaves in the community of Chingana, Amazonian Peru. 4 (bottom). A typical house thatched with *Pholidostachys synanthera* leaves in the community of Flor de Castaña, Amazonian Peru. The palms in the background are *Mauritia flexuosa*.

proportion is sold to neighbors in the community either as loose leaves or in the form of *criznejas*. About 95% of the people who sell *criznejas* sell their leftover materials after putting a new thatch on their own house. Despite its high durability in comparison to the leaves of other common species in the region, the *palmiche grande* does not have a large market in the big Amazonian cities such as Iquitos. This is due to the large distances involved in transport from the place of harvest, in addition to the low prices offered by companies that would commercialize these products, making it unattractive as an economic activity for community members.

The Cost of one load of *palmiche grande* leaves in 2010 was US\$3.77, which is equivalent to what is paid for a full day of agricultural work. The manufacture of each *crizneja* costs US\$2.64–3.01. To make a standard-sized roof, one would need to buy US\$84.52 worth of *criznejas*. This is calculated as US\$61.13 in leaves (16.2 loads) and US\$23.39 for the manufacture of the 75 *criznejas*.

Conclusions

Palmiche grande is a good example of a non-timber forest product that has great social and cultural importance in the communities of the Ucayali River. The species has a wide distribution in Amazonia, but its use in villages is not very common. Despite the fact that it is extracted for subsistence use for housing, we observed that harvest locations become increasingly further from each community, which is evidence of the overexploitation of the resource. It is thus necessary to initiate a program of environmental education for Amazonian communities in order to promote sustainable use, to restore this plant in

degraded areas, and improve the methods commonly used to harvest the leaves.

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