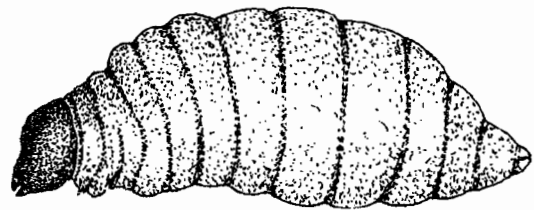


*Rhynchophorus phoenicis* Ol.



## Weevil larvae

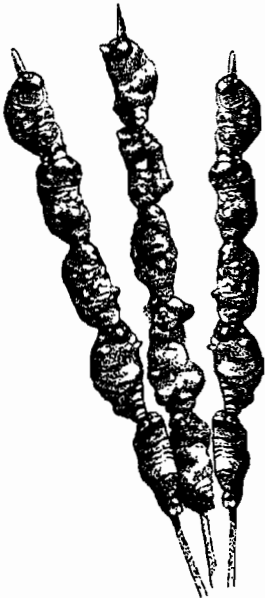
Cameroonian case by Edmond Dounias

# Edible weevil larvae: A pest for palm trees but a delicacy for city-dwellers

*The finger that extracts a weevil larva should not be stiff.  
Cleverness is sometimes more suitable than force.*  
Mvae Proverb, southern Cameroon

Insects have played an important role in the history of human nutrition, and in Africa, Asia and Latin America, hundreds of species are still eaten. Some of the more important groups include grasshoppers, caterpillars, beetles, termites, bees, ant larvae and pupae, cicadas, and a variety of aquatic insects. Generally having a high cultural and symbolic value, insects are also rich in nutrients and are available in large quantities, without the risk of resource extinction. Some insects, like the larvae of the African palm weevil (*Rhynchophorus phoenicis*), are even sources of substantial and sustainable profits.

The edible larvae of *Rhynchophorus* weevils are found throughout tropical areas. With a flavour resembling hazelnuts, they are a true delicacy for forest inhabitants of the Amazon, Borneo, Papua and Central Africa. However, it is Cameroon where these edible insects have the highest economic value. City-dwellers in Yaoundé and Douala crave these fatty larvae, which are sometimes as big as a thumb, and do not hesitate to pay for them.



Roasted palm weevil larvae are sold at toll roads or city bars as a nutritious snack.

## The palm-insect marriage: A long evolutionary story

Palm weevil larvae are mainly harvested in *Raphia* palms, and secondarily, in oil-palms. Palms belong to the Palmaceae family, which is distributed throughout the tropics and contains more than 1400 wild and domesticated\* species. Palms are visited by countless insect species. Some, like mosquitoes, find optimal conditions for their reproduction. Others, like bees, occasionally visit the palm flowers, and insects like spiders may take up residence in search of prey. Other insects, like certain weevil species, have developed relationships with palms that provide mutual benefits to both partners. In exchange for 'bed and breakfast', the insect actively contributes to the reproduction of its host-plant\*, for example, by fertilising flowers. However, this is not the case for the African palm weevil, which is a true pest.

Nicknamed the 'stipe driller', the adults perforate the palm trunks and exploit injuries to the plant caused by human activities, fungal disease or the attack of other insects. When they invade agro-industrial\* oil-palm plantations they can cause severe economic damage.

## Finding Larvae: Look, smell, listen and feel

Most ethnic groups of the humid forest zone of Cameroon harvest and consume weevil larvae from oil-palms. The larvae are systematically extracted from trunks that have been cut down for palm-wine production. Adult females lay eggs in the decaying trunks that are left after the extraction of sap. Mature larvae may then be harvested a few weeks later. But their unpleasant fermented wine taste confines their consumption to a domestic level.

In Cameroon, larvae are mainly extracted from the trunk of *Raphia* palms, growing densely in swampy lowlands. Harvesters spend hours in the dark, muddy waters, often up to their waists, suffering insect bites and encounters with snakes. Only half a dozen villages in southern Cameroon specialise in the harvesting of larvae for trade. A few ethnic groups, such as the Maka, Bulu, Eton and Mangisa, have developed some expertise, each with specific harvesting tools and techniques.

Larvae may be collected from juvenile trees, although identifying infested ones does require some expertise. Slightly yellow leaves can be a good indication. A skilled harvester may detect the particular smell that larvae emit or if they listen carefully, they might recognise the characteristic sound of larvae crawling within the palm frond stalks (rachis). This insect movement also causes a small vibration, which harvesters may be able to feel. Sometimes, the palms are also host to large *Oryctes* caterpillar larvae. Although edible, these are less favoured than the weevil larvae and are seldom traded. *Oryctes* adults leave recognisable holes when they pierce the rachis, providing an access point for the weevils.

Weevil larvae are mainly sought in adult *Raphia* palms. Identifying infested plants is much easier, as the weevils colonise only sick palms, causing them to lose their leaves and turn a greyish colour. The *Oryctes* holes are also more visible on the adult trunks, and both caterpillar and weevil larvae are frequently harvested simultaneously.



Extracting sap from oil-palms. The consumption of weevil larvae associated with palm-wine is an unforgettable gastronomic experience!



A single adult *Raphia* palm may yield up to 500 weevil larvae.

## A small maggot that makes big money

The average monthly income for larvae harvesters is about US\$ 71 for live larvae, sold to retailers supplying city markets, and US\$ 50 for roasted larvae, sold as snacks along roadsides or in bars. Such income is significantly higher than that obtained by unskilled workers in town, or by the producers of coffee (US\$ 50 in good years) or cocoa (US\$ 28). Compared with other notable Cameroonian forest products, weevil larvae generate better income than bushmeat (US\$ 58), *Gnetum* leaves (US\$ 31), or rattan (US\$ 26). Margins for retailers are also good: larvae

bought from harvesters for US\$ 0.14-0.19 apiece fetch around US\$ 0.53 apiece in the Douala markets. Uncooked larvae are always traded alive and can be maintained for around 10 days. For consumers, this guarantees the product is 'fresh'.

## Is the resource sustainable?

*Raphia* palms are among the most utilised plants on the African continent. Numerous plant parts are used - for construction, furniture-making, fuelwood, basketry, weaving, cosmetics, textiles, and even for making fish poison, lubricants, medicinal soap and cough mixture. Fruits, as well as the sap, stolons\* and young shoots are also consumed, and even the ash obtained after burning the leaves is used as a salt. Yet despite these age old, multiple uses, scientists know relatively little about the ecology\* of this tree, and in turn, this lack of knowledge about the weevils' host plant, hinders a better understanding of the larvae.

Larvae harvesting does not endanger the weevil populations, as larvae production continues all year round, and a female adult may lay up to 800 eggs at a time. The factor limiting the long-term exploitation of weevil larvae is the host-tree: *Raphia* swamps are generally perceived as low value and inhospitable ecosystems\*. The biodiversity\* of swamps that shelter indigenous\* plant and animal species is neglected by forest management plans, which often call for a drastic conversion of these landscapes. The economic value of weevil larvae could provide a strong argument for the preservation of *Raphia* swamplands. What a nice ending to the story if the *Raphia* palms could finally be saved by their insect parasites!

Riches of the forest:  
For health, life and spirit in Africa

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