

Cultivated Açai Palm (*Euterpe oleracea*) and Associated Weevils: *Foveolus maculatus* and *Dynamis borassi* (Coleoptera: Dryophthoridae)

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1. Damage by the larvae with a pupal cell, on a rachilla of an inflorescence of *Euterpe oleracea*.

Observations on two species of weevils that live on the açai palm in cultivated areas of Brazil are provided.

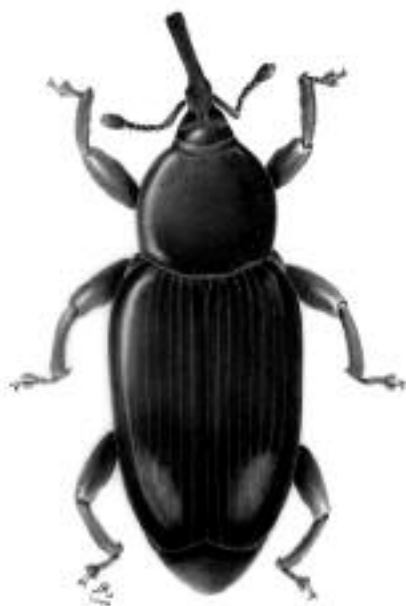
The açai palm (*Euterpe oleracea* Martius), is a palm native to eastern Amazonia (Henderson et al. 1995) and forms dense populations in the estuary of the Amazon River in Brazil. The açai palm is now cultivated in private and experimental orchards. It is exploited for palm heart and for fruit pulp used for the preparation of açai wine, sorbet and other products (Oliveira et al. 2000b). Para State is the principal producer of fruits with 54.507 metric tons in 1979 (Moussa & Kahn 1997) and 91.851 metric tons in 1995 (Alves 2002).

We report observations on two species of weevils that live on the açai palm (Fig. 1) in cultivated areas. The observations have been made in the experimental plantation of Embrapa Eastern Amazon (Embrapa Amazonia Oriental) at Belém, State of Pará, Brazil (1°25' S; 48° 32' W).

Foveolus maculatus O'Brien (Fig. 2)

Biology: the adults are attracted to the inflorescence before the peduncular bract is open and aggregate at its median part. The female bores the bract with her mouthparts and inserts the eggs. The larvae live in the bract and eat the flowers and the rachilla. At the end of their development the larvae make a pupal cell with fibers of the rachilla in the bract (Fig. 1). When there is a large number of larvae in the bract, the bract will not open

2. *Foveolus maculatus* O'Brien (male). Length of the insect = 11 mm (original drawing by Maurice Tran).



normally and cannot produce fruits. The time of the larval and pupal stages are not known.

Two species of parasitoides of this weevil have been observed: *Cyclaulacidea matilei* Villemant & Simbolotti, and *Lixophaga* sp. near *aristalis* Townsend (Diptera Tachinidae).

Euterpe oleracea was the first host plant reported for *Foveolus maculatus*. Three other species of *Foveolus* are known on palms: *F. aterpes* on *Oenocarpus mapora* H. Karst, in Eastern Amazonia (Couturier et al. 2000), *F. anomalus* on inflorescences of *Attalea maripa* (Aubl.) Mart. in Manaus, Central Amazonia (Cravo 1997) and *F. atratus* on *Attalea microcarpa* Mart. in Central Amazonia (Küchmeister et al. 1998).

Dynamis borassi (Fabricius 1801)

This weevil is known on various Amazonian palms including *Astrocaryum carnosum* Kahn & Millan and *A. chonta* Martius in natural areas where the larvae live in the stem (Couturier et al. 1998), and in *O. mapora* where the larvae live in the inflorescence, before the opening of the peduncular bract, and in the stem. This species causes much damage in plantations (Oliveira et al. 2000a). In *E. oleracea*, we found it only in the stem of adult plants. There are 1–4 larvae in an infested stem. At the beginning of the attack the presence of the larvae cannot be detected. Later, a characteristic smell of fermentation permits the localization of the damage. After some months the palm weakens and dies. *E. oleracea* is not previously reported as a host plant for *D. borassi*.

Foveolus maculatus and *D. borassi* are potential pests in all the areas where *E. oleracea* is cultivated for production of fruits and hearts of palm.

Acknowledgments

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LITERATURE CITED

- ALVES, L. DE S. 2002. Insetos pragas em acessos de açazeiro em viveiro. Embrapa Amazônia Oriental, Belém, Comunicado técnico, no. 75, 5 p.
- CRAVO, M. J. DE S., 1997. Estudo de parâmetros palinológicos e aspectos ecológicos do inaja, *Maximiliana maripa* (Aublet) Drude (Palmae) em área conservada e áreas desmatadas da Amazônia. Manaus: tese mestrado, UA/INPA, 94 p. + ilustrações.
- COUTURIER, G., P. BESERRA AND M. DO S.P. DE OLIVEIRA. 2000. Besouros nocivos a bacabeira. *Dynamis borassi* e *Foveolus aterpes*. Comunicado Técnico, Embrapa Amazônia Oriental, Belém Pará, no. 19, 5 p.
- COUTURIER, G., C. W. O'BRIEN AND F. KAHN, 1998. *Astrocaryum carnosum* and *A. chonta* (Palmae), new host for the weevil *Dynamis borassi* (Curculionidae: Rhynchophorinae). *Principes* 42: 227–228.
- HENDERSON, A., G. GALEANO, AND R. BERNAL. 1995. Field Guide to the Palms of the Americas. Princeton Univ. Press, 376 p.
- KÜCHMEISTER, H., A.C. WEBBER, I. SILBERBAUER-GOTTSBERGER AND G. GOTTSBERGER. 1998. A polinização e sua relação com a termogênese em espécies de Arecaceae e Annonaceae da Amazônia central. *Acta Amazônica* 28: 217–245.
- MOUSSA, F. AND F. KAHN. 1997. Trois palmiers pour trois capitales amazoniennes. *Bulletin de l'Institut français d'études andines* 26: 1–9.
- OLIVEIRA, M. DO S.P. DE, G. COUTURIER AND P. BESERRA. 2000a. Avaliação do ataque de besouro *Dynamis borassi* na coleção de germoplasma de bacabinha. Embrapa Amazônia Oriental, Belém, *Comunicado técnico* no. 30, 5 p.
- OLIVEIRA M. DO S.P. DE, J.E.U. DE CARVALHO AND W.M.O. DO NASCIMENTO 2000b. Açai (*Euterpe oleracea* Mart.), Funep, Jaboticabal, 52 p.

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