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Local Distribution and Ecology of "Palha Preta"—A Pioneer and Invasive Palm in Jari, Lower Amazon

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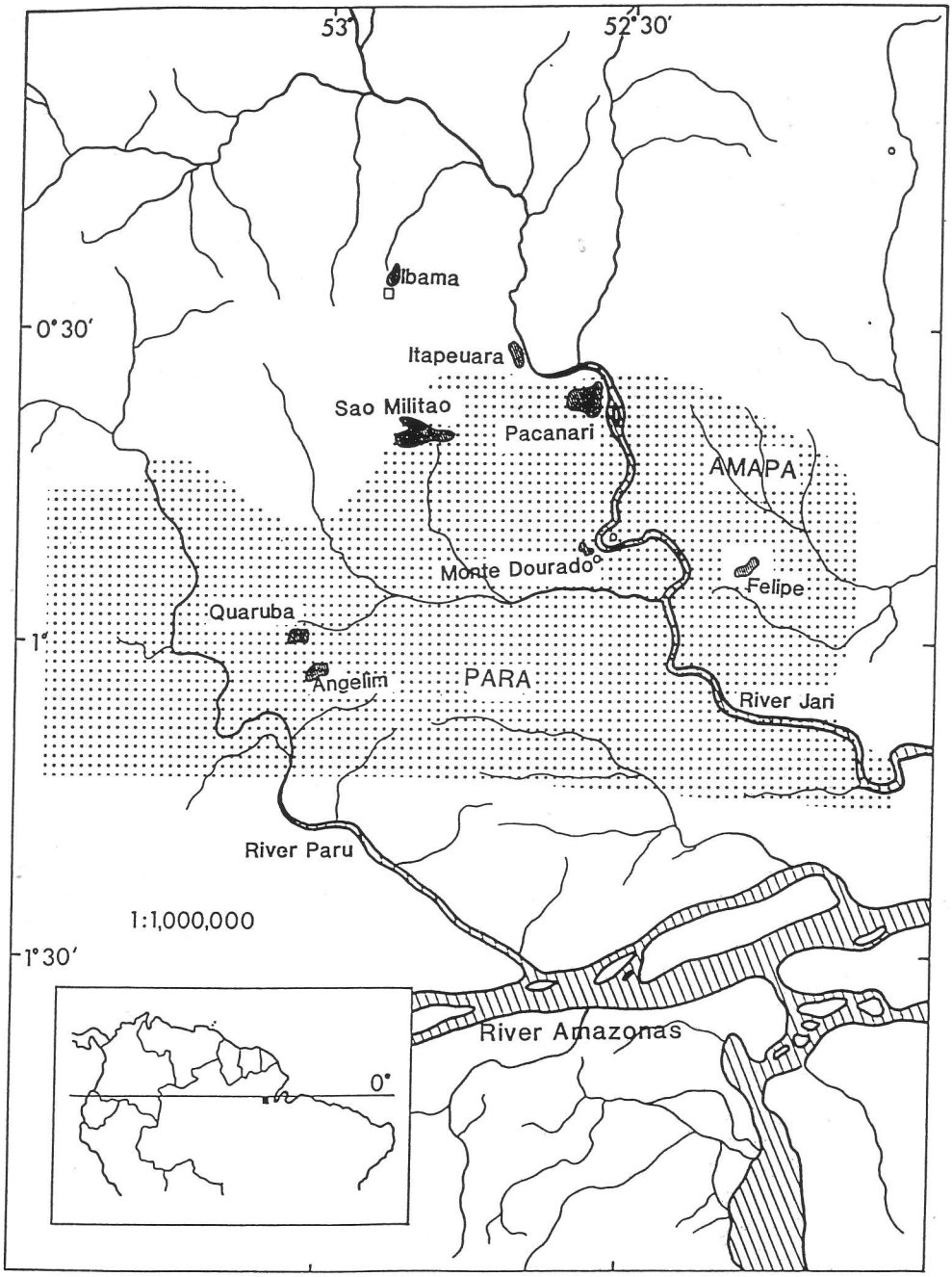
The region of the Jari River, situated between the Brazilian states of Pará and Amapá, is dominated by some 110,000 hectares of forestry plantations of *Gmelina*, *Pinus* and *Eucalyptus* managed by "Companhia Florestal Monte Dourado," formerly Jari Project. This Company started in 1969 in a very large land holding (estimated in 1.6 million hectares) in the mid-low Parú-Jari river basins. Outside the northern boundary of the Company's lands is the Jari Ecological Station, a large native forest reserve with lodgings, administered by "Instituto Brasileiro do Meio Ambiente" (IBAMA = Brazilian Institute of the Environment). A total of eight forest communities from the area of Jari was subject of botanical surveys and an extensive phenology study from 1985 to 1990 by the author and collaborators (Fig. 1). Of these, seven were native forests set aside as gene banks by "Companhia Florestal Monte Dourado," and the one remaining was a forest community located at IBAMA's Jari Ecological Station. The "palha-preta" palm described in this paper is one of the commonest plants of the native forests of the Jari river basin, also occurring in disturbed areas such as forestry plantations.

Taxonomy and Ecology

The Jari species described here was identified as *Attalea spectabilis* Martius by Andrew Henderson. However, there are many problems with the taxonomy of neotropical palms. At present *Attalea-Orbignya* forms a difficult complex still unresolved taxonomically. The Jari collection was originally identified as *Orbignya sagotii* Trail ex Im Thurm, a Guyana species, not known to occur in the Amazon. According to Rodrigues (1903), the specimens identified as *O. sagotii* have been confused with *Attalea spectabilis* Mart. and *Attalea monosperma* Barb. Rodr. He distinguishes the two last species by pointing out that the leaves from "*A. monosperma*" are long-lasting and can be used to cover houses while those of *A. spectabilis* deteriorate quickly (Rodrigues 1903). Wessels Boer (1965) recommended reducing certain species now in *Orbignya* and in other related genera to *Attalea*, proposing the new combination *Attalea sagotii* (Trail ex Im Thurm) W. Boer (Boer 1965). Andrew Henderson (personal communication) endorses the return of certain *Orbignya* species to *Attalea* and plans to reduce the name *Orbignya sagotii* Trail ex Im Thurm to a synonym of *Attalea spectabilis* Martius (Andrew Henderson, personal communication).

In Jari the "palha-preta" palm reaches 11 m. It is very frequent in the understory of most lowland forests of the Parú-Jari basin (Fig. 2). The leaves are up to 6 m long, pinnate (palmate in the young plant); sometimes the pinnae remain united at the apex. Inflorescence is light yellow, and the floral rachis is 65 cm long, of one sex only, the plants being dioecious or monoecious but also reproducing through underground runners. Mature fruits are 5 × 3 cm,



1. Map of the Parú-Jari River basins in the Lower Amazon region, showing the area of occurrence of *Orbignya sagotii* Trail ex Im Thurm.

2. *Orbignya sagotii* in one of the Jari forests studied.

ovate, reddish-brown, and the rachis bears some 140 mature fruits. Each fruit has one single seed within the thick and hard mesocarp. Found in association of *Ananas ananosoides*, the species occurs most frequently in poor sandy soils. The only known economic importance of this palm is that the leaves are used to cover local dwellings.

The architecture of "palha-preta" can be described as an inverted cone made of the convergence of its very large leaves, which act as a trap for the debris which fall from the upper canopy (Fig. 2). It is very difficult to observe flowering of this species because the inflorescence is normally completely concealed under the trapped debris. Such behavior could be an indication of cantharophily, but more observation is needed to establish the pollination mechanism. For a period of three years (1987–90), my field crew and I paid monthly visits to the eight forest sites of Jari (Fig. 1) to collect phenological data on trees. During that period I systematically searched for individuals in flower and fruit to make fertile collections. By inspecting a large number of neighbors of a flowering individual, I found that only a few individuals flowered synchronously (September), while most remained in the vegetative stage. Vegetative reproduction through underground runners was observed by the author.

The "palha-preta" palm is a very strong pioneer which invades newly disturbed habitats and any open area available. In the forestry plantations of Jari, this palm species is one of the most noxious weeds, especially in areas recently harvested and cleared for the next crop. Because of its size and shape, it takes up the space as well as the light needed for young forest seedlings to establish. Information from the plantation engineers is that all attempts to kill this palm with herbicides, including concentrated doses of Monsanto's herbicide "Roundup," have failed.

Distribution

The complex *Attalea-Orbygnya* has a large number of species, some of which

are found in the Amazon rainforest. The most widespread species of this complex, *O. phalerata* Mart., known as "babassú," occurs mainly in Maranhão and in eastern to southeastern Pará and Amapá, and is considered an ecological marker of the Amazon transition forest. *A. spectabilis* occurs mainly in the east Amazon. Its synonym, *O. sagotii* Trail ex Im Thurm, was described from a collection from British Guyana (Im Thurm 1984). The "palha-preta" variety seems to be more abundant in the eastern-northeastern Atlantic Coast phytogeographic region of the Amazon sensu Pires and Prance (1985), occupying mainly dry open forests on alluvial sandy soils.

Although the "palha-preta" palm is abundant in the region of Jari, observation of the major forest types found in the region showed that it does not occur with equal frequency in the eight forests. It is more frequent in the dry forests with lower canopy than in mesophytic forests with higher canopy, and it is absent in the dense high forest of Ibama's Jari Ecological Station. The forests where "palha-preta" are more abundant turned out in the first of four clusters in which the eight forests of Jari were classified by Pires (1991). This suggests that the "palha-preta" palm follows closely the soil-relief-geomorphology gradient found in the region of Jari, and could be used as an ecological marker for Tertiary terrains of that region.

Specimens Examined

G. S. Jenman-520, s/d, 1879, Corentine River, British Guyana (Fl.), K; E. F. Thurm-27, s/d/, Corentine River, British Guyana. Holotype (Fl. + Fr.), K; Sagot-631, s/d/, 1856. Karouany, in wet woodlands, K; M. J. Pires & N. T. Silva-1765 (Fl. + Fr.), NY, JARI, MG.

Acknowledgments

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