DISTRIBUTIONAL AND ECOLOGICAL NOTES ON **POLYGONANTHUS AMAZONICUS** DUCKE

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Polygonanthus was first erected in 1932 by Adolpho Ducke as a monotypic genus based on **P. amazonicus** (Figs. 1 to 4). The genus has had a checkered taxonomic history. Since its original assignment to the Euphorbiaceae (Ducke 1932, 1933), it has been placed in the Saxifragaceae (Baehni and Dansereau, 1939), Olacaceae (Croizat, 1939) and Rhizophoraceae (Kuhlmann, 1944). It has also been placed in its own family, the Polygonanthaceae, segregated from the Olacaceae by Croizat (1943) and in two families segregated from the Saxifragaceae: Escalloniaceae and Hydrangeaceae (Hutchinson, 1973; Cronquist, 1981). Furthermore, Pires and Rodrigues (1971) remarked about the similarity to **Euplassa** and **Panopsis** of the Proteaceae in their stud of **Polygonanthus**' wood anatomy, while Ducke (1932, 1933) noted a resemblance in the floral anatomy to **Ruprechtia** and **Triplaris** of the Polygonaceae. Based largely on their study of wood anatomy Pires and Rodrigues (1971) agreed with Kuhlmann (1944) in placing **Polygonanthus** in the subfamily Anisophylleoideae of the Rhizophoraceae. Cronquist (1981) gave the Anisophylleoideae familial status, placing **Polygonanthus**, **Anisophyllea**, **Combretocarpus**, and **Poga** in the **Anisophylleaceae**.

In his description of **P. amazonicus**, Ducke noted that the type specimen was from the only tree seen. This collection (**RB 23650**) was made on 05 October 1929 " in ripis fluminis arenosis periodice inundatis" near Maués in the state of Amazonas. According to J. M. Pires (pers. comm.) all further collections of **P. amazonicus** have come from a single tree, probably the same tree collected by Ducke. An investigation of the collections held at INPA, MG, IAN, RB, NY and GH revealed three collections of this one tree subsequent to the type collection: **J.M. Pires 53**, collected 30 November 1946; **J.M.**

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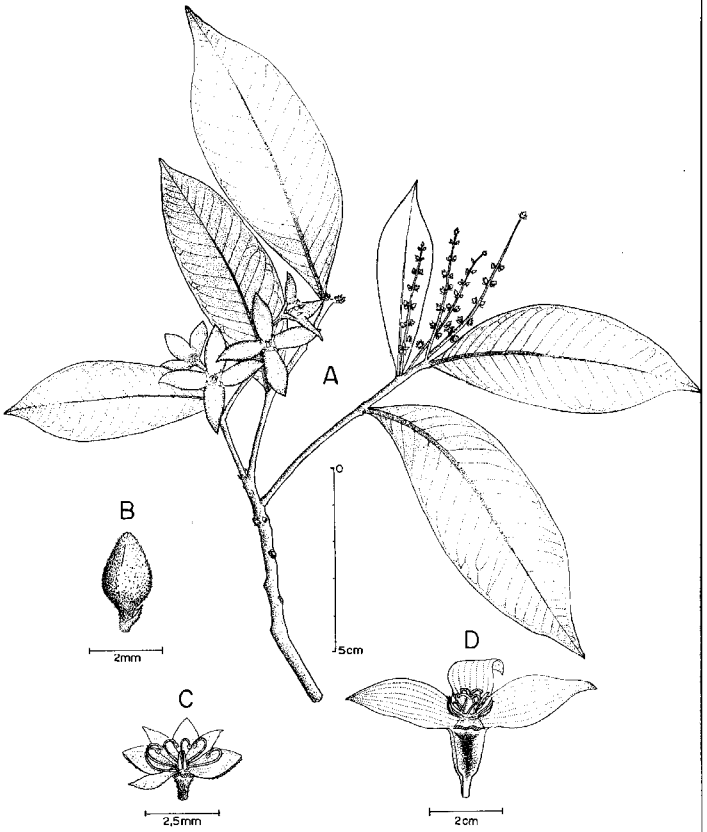

Fig. 1. **Polygonanthus amazonicus** Ducke, ex **Hill 12922**. A, flowering and fruiting branch; B, floral bud; C, male flower; D, young fruit.

Figs. 2-4. **Polygonanthus amazonicus.** 2: Habit, with male flowers and mature fruit, ex **Hill 12922** (photo S.R. Hill slide nº 5887); 3: male flowers and young fruit, ex **Hill 12922** (photo S.R. Hill slide nº 5877); 4: tree from which Adolfo Ducke probably collected the type specimen in 1929. The species was known only from this tree for almost 54 years (photo J.L. Zarucchi).

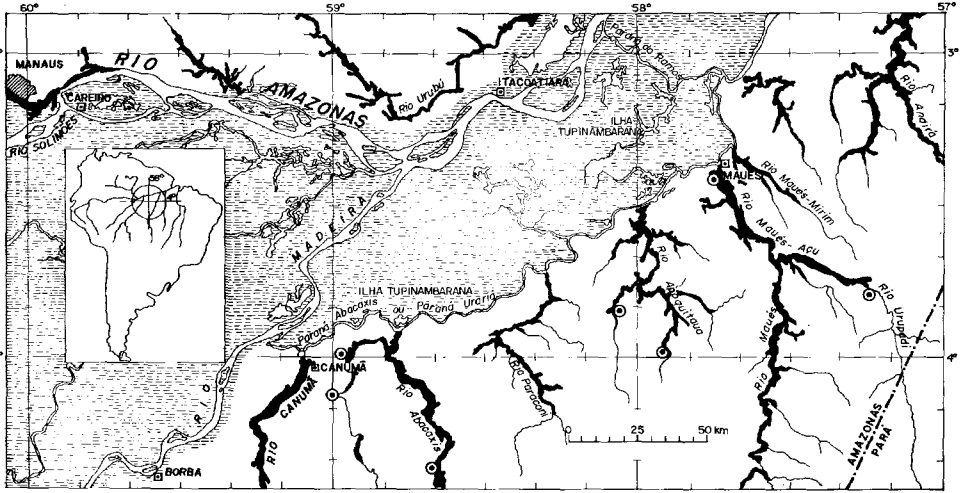

Fig. 5. Distribution map of **Polygonanthus amazonicus** Ducke.

Pires 1281, collected 28 September 1948; and **N.T. Silva 4486** collection 16 November 1977.

In 1983 Dr. Ghillean T. Prance encouraged us to locate more specimens of this fascinating plant placed in eight different families but still known from only a single tree. A Projeto Flora Amazônica excursion to the Maués and Borba regions of Amazonas provided the opportunity.

Vouchers now deposited at INPA and NY were collected form the Rios Mari-mari (**Ferreira 3992**), Paca (**Hill 12922**), Abacaxis (**Todzia 2311**), Apoquitaua (**Zarucchi 3184**) and Urupadi (**Zarucchi 3115**) (Fig. 5). We also located fruits floating in the Rio Canumã. These rivers are all of the mouth-bay type, with clear or black waters draining northward into the Paraná Urariá, a natural canal in the várzea connecting the muddy waters of the Rios Madeira and Amazonas. **Polygonanthus amazonicus** was found to occur at the upper margin of igapó forests associated with the drowned terra firme stream valleys of the aforementioned rivers. It does not occur in the várzea, which apparently limits its range to the north and west. With these collections the range of **P. amazonicus** is now extended to an area approximately rectangular in shape, measuring 250 km by 70 km. Future collections will probably show that the plant also occurs on the shores of the Rio Paraconi, which we did not visit, and possibly the Rios Andirá and Mamuru near Parintins.

Although endemic to the Maués/Borba region, **P. amazonicus** is rather common within its range. It is most numerous in protected igapó forests near the level of annual high water. One specimen was collected from an interior site periodically waterlogged by rain, but without connection to any river. Probably this plant was dispersed by wind as the fruit has four wings. Buoyancy is provided at the blossom end of the fruit by these wings, so the fruit floats in water and settles with the narrow end down. Most fruits are dispersed by water so that vast numbers of them were found in the nearly stagnant water among tree trunks of the igapó forest in quiet protected coves where they are accumulated by wind and currents. This may explain the tree's preference for this type of habitat. In this environment **P. amazonicus** grows quite large, commonly 30 meters tall and 100cm DBH. On the Rio Apoquitaua we counted more than 20 trees in one small protected cove. A sawmill on this river uses **P. amazonicus** for board lumber, but many specimens are useless for this purpose, as they are frequently hollow. The common name applied in the regions is "Laranjinha", quite probably a reference to the green fruit's gross resemblance to an immature citrus fruit. The name might also refer to the small dead leaves, orange in color, which are dispersed among the green leaves of the crown.

We also located and made a voucher (**Zarucchi 3138**) of the presumed type specimen located on the western shore of the mouth-bay of the Rio Maués, across from the city of Maués and in front of the guaraná processing plant of the Magnani family. This tree, apparently the only representative known to science for 54 years, is an atypical specimen. It is stunted, attaining only eight meters height, due to its location on an exposed west shore beach. Much of the root system has been bared by erosion (Fig. 2).

The second species of **Polygonanthus, P. punctulatus** Kuhlmann, is also a phytogeographical oddity. First collected in 1882 on the Rio Negro between Manaus and Tarumã by Schwacke (**RB 3940**), this tree has never again been found near Manaus, despite intensive collecting there. Fifty eight years after Schwacke made his unique find J.G. Kuhlmann described the species based on better material (**RB 37727**) collected from the igapó by Ducke in 1936 along the Rio Curicuriari, a tributary of the upper Rio Negro. Finally, a third collection (**Alvaro Roa T. 708**) was made in 1977 about 200 km from the Curicuriari locality along the lower Rio Apaporis, which joins the Rio Japurá at the Brazil/Colombia border.

Our investigation of important depositories of Amazonian collections -- INPA, MG, IAN, RB, NY and GH -- revealed no other collections of **Polygonanthus**. Indeed, many Amazonian species are known from only one or a few collections. For example, a survey of the Chrysobalanaceae in the INPA herbarium showed that 60 species (38% of the Brazilian Amazonian Chrysobalanaceae species at INPA) were represented by three or fewer collections. Clearly, for a large percentage of Amazonian plant species the herborized data base remains too depauperate for meaningful phytogeographic studies. Our extension of the known range of **Polygonanthus amazonicus** from a single tree to appropriate habitats within an area of at least 17,500km^2 further illustrates the continuing need for botanical exploration in Amazonia.

RESUMO

Polygonanthus amazonicus Ducke já foi incorporada em oito famílias diferentes, mas era conhecida de apenas uma árvore desde a primeira coleta em 1929. Uma excursão do Projeto Flora Amazônica comprovou sua área de ocorrência, que é de pelo menos 17.500 km^2 na região compreendida entre Manáes e Borba no Estado do Amazonas. Seu habitat e provável meio de dispersão são descritos. O caso desta e de muitas outras espécies com escassa representação nos herbários demonstra a necessidade de se manter um intenso programa de coleta botânica para se obter uma base mais realista da distribuição de muitas espécies.

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