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FOREIGN WOOD SERIES

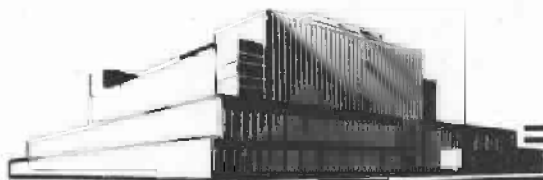


ISHPINGO

Amburana acreana (Ducke) A. C. Smith

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FOREST PRODUCTS LABORATORY
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UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

In Cooperation with the University of Wisconsin

ISHPINGO
Amburana acreana (Ducke) A. C. Smith
Leguminosae (Papilionaceae)

By

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Introduction

Ishpingo is reported to supply one of the best timbers in the Territories of Acre and Amazonas, Brazil. The wood has a well-established reputation in Peru for decorative purposes and durability. This species is as yet little known in this country, although it appears to show considerable promise as a shipbuilding wood, as well as for other uses requiring an attractive, durable, and dimensionally stable wood.

Information presented here is based on wood from Peru.

Distribution

Ishpingo is native to Amazonas and Acre Territories of Brazil, the Department of La Paz, Bolivia, and eastern Peru. Wood specimens identified as Amburana originating in Para, Brazil, suggest that the range is much more extensive than the literature would indicate.

Nomenclature

This species was first described in 1935 by Ducke (2)² under the name Torresia acreana. The genus was originally described in 1864 and was spelled Torresea. The use of the generic name Torresea is excluded by the earlier Torresia R. & P. of the family Gramineae. According to the International Rules, names must be considered orthographic variants when a difference of only one letter causes confusion. A. C. Smith (3) transferred Ducke's Torresia to the next valid generic name Amburana, with the resulting new combination Amburana acreana (Ducke) A. C. Smith.

The Tree

Ishpingo trees reach heights of 100 feet and more with diameters commonly of 2 to 3 feet. The trees are of good form and will average three 12-foot logs per tree.

¹Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

²Underlined numbers in parentheses refer to Literature Cited at the end of the report.

The Wood

The wood is yellowish to light brown with a slight orange cast. The color deepens upon exposure to a golden brown or light brown color. The vessel or pore lines show distinctively on longitudinal surfaces because of the abundance of encircling parenchyma. Grain is interlocked, the resulting stripe showing narrow on quartered surfaces. The heartwood has a slightly oily or waxy feel and a pronounced coumarin odor.

One specimen in the Forest Products Laboratory wood collection, obtained by B. A. Krukoff (his No. 5495) in Acre Territory, has a pinkish cast and is finer textured than the wood of the typical species. According to Smith (3), this specimen may represent a new species.

Specific Gravity

Specific gravity determinations made on ishpingo from Peru gave an average of 0.55 based on the volume when green and weight when oven-dry, with a range of 0.51 to 0.59. The specific gravity based on the weight and volume when oven-dry was 0.61, with a range of 0.57 to 0.63. On a weight basis, ishpingo would be similar to yellow birch (Betula alleghaniensis) and white ash (Fraxinus americana) and only slightly lighter than teak (Tectona grandis).

Shrinkage and Equilibrium Moisture Content

The shrinkage of ishpingo from the green condition to the oven-dry state is very low, as is also the ratio between radial and tangential shrinkage. Given below are the total shrinkage values for ishpingo and teak. The teak data are a composite average of values obtained from six different sources.

<u>Type of shrinkage</u>	<u>Ishpingo Percent</u>	<u>Teak Percent</u>
Radial	2.7	2.4
Tangential	4.4	4.4

Shrinkage of ishpingo from the green condition to equilibrium at 80° F. and two different relative humidities gave the following results:

<u>Type of shrinkage</u>	<u>Shrinkage at 65 percent relative humidity</u>	<u>At 30 percent relative humidity</u>
	<u>Percent</u>	<u>Percent</u>
Radial	1.1	2.0
Tangential	1.8	3.3

The corresponding change between the above humidities for the radial direction is 0.9 percent and for the tangential direction 1.5 percent.

British (1) data for teak in changing from a relative humidity of 90 percent to a relative humidity of 60 percent shows movement values of 0.8 percent for the radial direction and 1.3 percent for the tangential direction. The total shrinkages as well as the intermediate values for teak and ishpingo are strikingly similar.

Ishpingo in equilibrium at a temperature of 80° F. and 65 percent relative humidity arrives at an equilibrium moisture content of 11 percent. At the same temperature and a relative humidity at 30 percent, the wood has an equilibrium moisture content of 6 percent.

Seasoning

Kiln-drying data are not available. The low shrinkage and small ratio of radial to tangential shrinkage suggests, however, that little, if any, difficulty would be encountered. It is reported that, even when sun-racked for air seasoning, the lumber does not warp and shows little, if any, end or surface checking.

Machining

Machining data are not available. While the presence of interlocked grain may cause some picking up when quarter-sawn surfaces are planed, with proper handling the wood finishes smoothly.

Durability

Ishpingo reportedly has a well established local reputation for resistance against insect attack and decay. Heartwood samples exposed at the temperature of 80° F. and a relative humidity of 97 percent showed no deterioration after an exposure of two years. More comprehensive laboratory and field exposure tests are in progress.

Identification

Ishpingo is readily identified by its yellowish to light brown color, distinctive pore lines, waxy feel, and distinctive coumarin odor.

Uses

Ishpingo is unknown in much of the United States trade and, as a consequence, its best usage has not been established. Its gross features and physical properties indicate that it would be well suited for boat building, furniture, decorative veneer, and many other uses demanding an attractive and dimensionally stable wood.

Availability

Good.

Literature Cited

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1935. New Forest Trees of the Brazilian Amazon. Tropical Woods No. 43, pp. 19-
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