

INFORMATION LEAFLET
FOREIGN WOODS

Forest Products Laboratory,¹ Forest Service
U. S. Department of Agriculture
Revised 1956

INFORMATION REVIEWED
AND REAFFIRMED
1962

YEMERI

Vochysia hondurensis Sprague
Family: Vochysiaceae

By

JEANNETTE M. KRYN, Botanist
Division of Timber Growth and Utilization Relations

Distribution and Habitat

The genus Vochysia includes about 55 species of trees and shrubs, all but 4 of which occur in South America, especially in the Guianas and Brazil. Two Central American species, V. guatemalensis Donn. Smith and V. hondurensis Sprague, are separated botanically by very slight

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

differences. Vochysia hondurensis is rather common in the rain forests of Central America, and it grows in almost pure stands in some areas near the coast of British Honduras (3, 5).²

The Tree

The trees may grow to very large size. Heights up to 160 feet and diameters of 3 to 4 feet are frequently attained. The boles are straight and clear (3).

The Wood

The heartwood varies from a uniform, dull pink to pinkish brown. It is distinctive, but it is not always sharply demarcated from the sapwood, which is whitish, gray, or buff. Vertical traumatic gum ducts may be present. The ducts are usually filled with orange-brown gum, and they may be large enough to be considered a defect in the lumber.

Yemeri is typically straight grained, but it sometimes has interlocked grain, which produces a striped figure when the wood is quartersawn. The texture is coarse to medium, and the wood may have a medium to high luster. There is no distinctive odor or taste.

Mechanical Properties

The average strength values of yemeri in the green condition are equal to or greater than those of many woods with similar relatively low density (3). Table 1 shows strength values for yemeri and black willow (Salix nigra Marsh.) in both green and air-dry conditions.

²Underlined numbers in parentheses refer to the list of numbered references at the end of the article.

Seasoning and Shrinkage

Yemeri has been rated moderately difficult to air dry (7). For kiln drying, schedule A of the British Forest Products Research Laboratory has been recommended (1). The U. S. Forest Products Laboratory schedule that appears to be the most applicable for 4/4 stock is T~~4~~-D~~4~~ (6). An effective procedure for minimizing warping is to keep all stickers in good vertical alignment spaced not more than 18 inches apart and to apply weights to the top of the pile. Shrinkage data for yemeri and black willow (Salix nigra), a comparable North American hardwood, are given in table 2.

Resistance to Decay and Marine Borers

In British Honduras, two classes of Vochysia timbers are recognized. One is white yemeri, which is low in resistance to decay, and the other is red yemeri, which is moderately resistant to decay. In decay-resistance tests, the heartwood of yemeri was rated durable to moderately durable in its resistance to a representative white rot fungus (Polyporus versicolor (L.) Fr.) and moderately durable to nondurable in resistance to a fungus (Poria monticola Murr.) representing the brown rot group. Both heartwood and sapwood can be treated with preservatives with little difficulty (3, 7).

Working Characteristics

Results of tests of machining properties at the U. S. Forest Products Laboratory showed that yemeri rated poor in planing, turning, and boring; fair in sanding; and good in shaping and mortising. Yemeri takes paint well, and it has fair steam-bending qualities (2, 3, 7).

Uses

Yemeri is used locally for dug-out canoes, railroad ties, carpentry, exterior siding, and to a limited extent in interior construction.

It promises to be a suitable general-utility wood for the manufacture of boxes and crates, inexpensive furniture, articles requiring a painted finish, and plywood (3, 5).

Identifying Features

Growth rings of yemeri are not distinct. The pores, which are large and readily visible without magnification, are mostly solitary, but occasionally radial groups of 2 or 3 pores are found. Solid white deposits and tyloses are sometimes present, and vessel lines are distinct. The parenchyma, which is visible without magnification, surrounds the pores and forms narrow, winglike extensions that are often confluent, forming continuous bands. Rays are visible on cross section without magnification, and they form a high but inconspicuous fleck on the radial section. Vertical gum ducts occur irregularly. These ducts are sometimes quite large, and they are frequently filled with orange-brown gum.

Table 1. -- Mechanical properties of yemeri (7) and a comparable North American hardwood (4)

| Property | Species ¹ | |
|--|---|---|
| | Yemeri (<u>Vochysia</u> <u>hondurensis</u>) | Black willow (<u>Salix</u> <u>nigra</u>) |
| Moisture content ² | | |
| Green percent: | 226.4 | 139 |
| Air dry percent: | 11.9 | 12 |
| Specific gravity | | |
| Based on volume when green and weight when ovendry. | .33 | .34 |
| Static bending | | |
| Fiber stress at proportional limit | | |
| Green p. s. i.: | 3,500 | 1,800 |
| Air dry p. s. i.: | 4,930 | 3,900 |
| Modulus of rupture | | |
| Green p. s. i.: | 5,580 | 3,800 |
| Air dry p. s. i.: | 7,900 | 6,200 |
| Modulus of elasticity | | |
| Green 1,000 p. s. i.: | 1,040 | 560 |
| Air dry 1,000 p. s. i.: | 1,160 | 720 |
| Work to proportional limit | | |
| Green in.-lb. per cu. in.: | .67 | .36 |
| Air dry in.-lb. per cu. in.: | 1.20 | 1.94 |
| Work to maximum load | | |
| Green in.-lb. per cu. in.: | 4.6 | 10.8 |
| Air dry in.-lb. per cu. in.: | 5.8 | 7.9 |
| Compression parallel to grain | | |
| Fiber stress at proportional limit | | |
| Green p. s. i.: | 2,050 | 960 |
| Air dry p. s. i.: | 3,350 | 2,020 |
| Maximum crushing strength | | |
| Green p. s. i.: | 2,610 | 1,520 |
| Air dry p. s. i.: | 4,140 | 3,420 |

(Sheet 1 of 2)

Table 1. --Mechanical properties of yemeri (7) and a comparable North American hardwood (4) (continued)

| Property | Species ¹ | |
|------------------------------------|---|---|
| | Yemeri (<i>Vochysia</i> <i>hondurensis</i>) | Black willow (<i>Salix</i> <i>nigra</i>) |
| End hardness | | |
| Green | lb.: 510 | : 350 |
| Air dry | lb.: 670 | : 550 |
| Side hardness | | |
| Green | lb.: 410 | : 360 |
| Air dry ³ | lb.: 400 | : 450 |
| Compression perpendicular to grain | | |
| Stress at proportional limit | | |
| Green | p. s. i.: 420 | : 220 |
| Air dry | p. s. i.: 450 | : 480 |
| Tension perpendicular to grain | | |
| Green | p. s. i.: 440 | : 430 |
| Air dry ³ | p. s. i.: 410 | : 460 |
| Shear | | |
| Green | p. s. i.: 700 | : 620 |
| Air dry | p. s. i.: 1,030 | : 1,050 |

¹-Tests of yemeri were made on specimens from 3 logs from Nicaragua; tests of black willow were made on specimens from 10 trees from Missouri and Wisconsin.

²-Air-dry values were adjusted to a 12 percent moisture content unless otherwise indicated by footnote 3.

³-Values were based on the actual moisture content of 11.9 percent.

Table 2. --Shrinkage values for yemeri (7) and a comparable North American hardwood (4)

| Species and source | Shrinkage ¹ | | |
|---|------------------------|----------------|----------------|
| | Radial | Tangential | Volumetric |
| | <u>Percent</u> | <u>Percent</u> | <u>Percent</u> |
| Yemeri (<u>Vochysia hondurensis</u>) Nicaragua | 2.0 | 8.0 | 9.8 |
| Black willow (<u>Salix nigra</u>) United States | 2.5 | 7.8 | 13.8 |

¹Shrinkage values represent shrinkage from the green to the oven-dry condition expressed as a percentage of the green dimension.

References

- (1) British Forest Products Research Laboratory
1955. Kiln-Drying Schedules. British Forest Products Research Laboratory Leaflet No. 42 (revised). Princes Risborough, Aylesbury, Bucks, England.
- (2) Davis, E. M.
1949. Exploratory Tests on Machining and Related Properties of Fifteen Tropical American Hardwoods. U. S. Forest Products Laboratory Report No. R1744, 5 pp. Madison, Wis.
- (3) Hess, Robert W., Wangaard, Fred F., and Dickinson, Fred. E.
1950. Properties and Uses of Tropical Woods, II. Tropical Woods No. 97, pp. 116-121. New Haven, Conn.
- (4) Markwardt, L. J., and Wilson, T. R. C.
1935. Strength and Related Properties of Woods Grown in the United States. U. S. Dept. Agr. Tech. Bull. 479, 99 pp. Washington, D. C.
- (5) Standley, Paul C., and Steyermark, J. A.
1949. Flora of Guatemala. Fieldiana: Botany, Vol. 24, Pt. 6, pp. 2-5. Chicago, Ill.
- (6) Torgeson, O. W.
1951. Schedules for the Kiln Drying of Wood. U. S. Forest Products Laboratory Report No. D1791, 9 pp., Madison, Wis.
- (7) Wangaard, F. F., and Muschler, A. F.
1952. Properties and Uses of Tropical Woods, III. Tropical Woods No. 98, pp. 181-186. New Haven, Conn.

PUBLICATION LISTS ISSUED BY THE FOREST PRODUCTS LABORATORY

The following lists of publications based on research at the Forest Products Laboratory (Madison 5, Wis.) are obtainable on request:

Boxing and Crating

Building Construction Subjects

Chemistry of Wood and Derived Products

Fungus Defects in Forest Products

Furniture Manufacturers, Woodworkers,
and Teachers of Wood Shop Practice

Glue and Plywood

Logging, Manufacture, and Utilization of
Timber, Lumber, and Other Wood Products

Mechanical Properties and Structural Uses
of Wood and Wood Products

Pulp and Paper

Seasoning of Wood

Structure and Identification of Wood

Wood Finishing Subjects

Wood Preservation

Since Forest Products Laboratory publications are so varied in subject no single big list is issued. Instead a list is made up for each Laboratory division as shown above. Twice a year, a list is made up showing new reports for the previous 6 months. This is the only item sent regularly to the Laboratory's mailing list. Anyone who has asked for and received the proper subject lists and who has had his name placed on the mailing list can keep up to date on Forest Products Laboratory publications. There is no charge for single copies of any of the reports.