MONKEY-POD

Pithecellobium saman (Jacq.) Benth.;
syn. *Samanea saman* (Jacq.) Merr.

Trees and Forests

Monkey-pod seed was brought to Hawaii from Mexico in 1847 (Anon. 1938). One seedling raised was planted at Koloa, Kauai, and another on the site now occupied by the Alexander Young Building in Honolulu. The tree was early recognized as a desirable shade tree and was soon planted on all the islands. It is primarily a roadside and garden tree, but is also found near old home sites along streams out in the forest. It has become naturalized in several pasture areas and is spreading. A few forest plantations have also been made with monkey-pod.

The tree usually has a short main stem which breaks up into massive, wide spreading branches. When forest-grown, the stem will sometimes be limb-free for 24 feet or more, but such growth is rare. Typical older monkey-pod trees are over 30 inches d.b.h. and have an 8- to 12-foot butt log. The

branches contain a large volume of wood and are usually used as well as the main stem.

It is difficult to estimate accurately the volume of monkey-pod present in the islands because of the sparse, irregular occurrence of the tree, its use as a yard and street tree, and the difficulty of estimating branch-wood volume. Garden trees and roadside trees are cut as urbanization intensifies. These cuttings form the main source of monkey-pod wood processed in Hawaii. At least 6 million board feet of monkey-pod sawtimber are present in Hawaii. The heaviest concentrations are on the island of Hawaii, in a belt along the Kona coast, in Kau, and in Waipio Valley; and on the west side of Kaneohe Bay on Oahu. Logs are generally sold to mills by tree-trimming companies that are paid to remove unwanted or dangerously decadent trees from yards and roadways. The resource is not plentiful.

Though Hawaii is famous for carved monkey-pod bowls, the tree is found in the tropics all over the world. Originally from northern South America, primarily Venezuela, it goes by many names in the countries to which it has been introduced. In most English-speaking countries it is called raintree, while in the Philippines it is called acacia. Today, most of the wood seen in carved bowls, even in Hawaii, is wood that was grown in the Philippines and Indonesia. As in Hawaii, yard and street trees are the principal source of logs in the Philippines, and this resource is becoming increasingly scarce.

Wood Characteristics

Appearance—Monkey-pod has a cream-colored sapwood 1 to 2 inches thick that changes abruptly into a golden-brown to dark-brown heartwood. The wood is coarse textured and usually prominently figured with light and dark bands of color in the growth rings and by varying degrees of interlocking in the grain. Occasionally, the wood is marked with wavy or rippled figure and ribbon striping is common in quarter-sawn faces. Color and figure vary from tree to tree.

Weight—Monkey-pod grown in Hawaii weighs 36 pounds per cubic foot (specific gravity 0.52) when air dry. This is a little heavier than monkey-pod grown in Venezuela (Wangaard, Koehler, and Muschler 1954) or Puerto Rico (Longwood 1961) and probably results from the tendency in Hawaii to use wood from branches as well as from the main stem. Branch wood is generally of higher density than wood in the stem. The wood is comparable in density to sweetgum and black cherry.

Shrinkage and stability—Monkey-pod has a very low shrinkage in drying and is stable once dried. This low shrinkage gives monkey-pod its high rank as a craftwood species. It can be worked into shape while green and dried afterwards. With most woods, such a practice would result in badly misshapen and checked articles, but with monkey-pod there is hardly any spoilage from degrade resulting from drying.

Strength—The mechanical properties of Hawaii-grown monkey-pod have not been tested, but properties of the same wood grown in Venezuela and of similar specific gravity indicate what can be expected of it (Wangaard, Koehler, and Muschler 1954). It compares with sweetgum and bigleaf maple *(Acer macrophylla)* in hardness and with silver maple in bending strength and stiffness. The wood is strong and hard enough to use in furniture.

Workability—Monkey-pod saws easily and well, but is not as good in other types of machining as its uses would indicate. Machining tests of wood grown in Puerto Rico, which was considerably lower in density than Hawaii-grown wood, indicated that its irregular grain frequently resulted in torn grain and fuzziness in machining (Longwood 1961). This problem has not been observed as a serious one in Hawaii, but small tearouts in planing are not uncommon. When dry, the wood is poor in turning, but when green it turns and carves exceptionally well. It sands and takes finishes well.

Seasoning—Monkey-pod wood seasons easily. Owing to its low and uniform shrinkage it dries with very little degrade from checks, splits, or warp. When bowls that have been turned or carved while green are dried, about 10 percent are reduced in value owing to effects of drying, usually minute end checks. This proportion of loss is remarkably low for wood handled so harshly. Free-form tabletops sawn to shape from green wood occasionally split at the ends in drying, but the problem is not considered serious by manufacturers.

Durability—The wood is resistant to decay and insects. This, of course, applies only to heartwood. In its usual indoor uses about the only hazard to which monkey-pod is exposed in Hawaii is the drywood termite. Tests of the wood in Puerto Rico indicate that it is resistant to this insect (Wolcott 1946).

Wood Uses

The use of monkey-pod for decorative carved and turned articles probably originated in Hawaii. This use of the wood began on a commercial scale about 1946 and became so important an industry that 10 years later Hawaii was importing large quantities of the wood from other islands in the Pacific. Today, high labor costs in Hawaii and intense competition

from Southeast Asia have greatly reduced the size of the local craftwood industry, but it is still important. To compete, the local industry is gradually changing its emphasis from monkey-pod to other more uniquely Hawaiian woods, such as koa and milo *(Thespesia populnea).*

The main products made of monkey-pod in Hawaii are craftwood articles (mostly carved bowls), free-form coffee tables, and furniture. At least one company still specializes in coffee tables made of local wood, but for the most part the tables are now simply finished in Hawaii, the wood being imported already cut to size and sanded. Many homes in Hawaii have dining room and living room furniture sets made of monkey-pod, but most of these pieces were made about 15 years ago when the wood was "in style."

The wood has also been used for paneling, cabinetry, boatbuilding, and even flooring. It is too soft for flooring, but has performed well in the other uses. In boats, it has been used as a substitute for teak in trim, butt-blocks in planking, and heavy framing members.

Monkey-pod is an excellent ornamental wood that commands a high price. It will probably have continued wide use if supplies are grown, but few land owners or industry agents are interested in this aspect of resource supply. The industry is now mining a resource that is in short supply.

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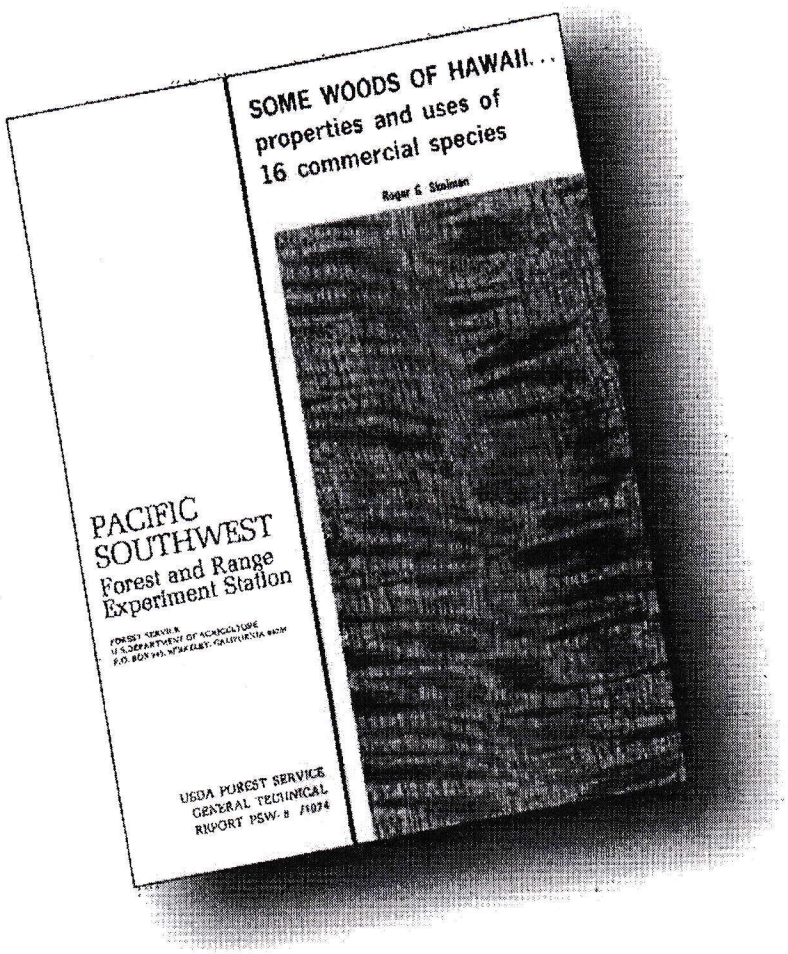
Some Woods of Hawaii

Properties and Uses of 16 Commercial Species

Roger G. Skolmen



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