



# Sweetgum:

This Dixie star  
is a master of disguise

BY JON ARNO

As a wood consultant, I am often asked to identify various species of wood. Exotic tropical timbers account for a good many of these requests, but among domestic hardwoods, no species seems to cause as much confusion as sweetgum. The confusion is especially acute if the sample in question has been stained or is old and very oxidized. It's no surprise that so many people are stumped, because sweetgum is a true chameleon, with similarities to many other woods in terms of density, texture, appearance and working characteristics. Sweetgum also takes stain well enough to pass for anything from maple to cherry, even mahogany and walnut. Given all of this, confusion is virtually inevitable. And frankly, it is often intentional. You see, the sad truth is sweetgum is a counterfeiter's delight. As a result, it is often overlooked as a wood in its own right, and this is a great shame, because despite some drawbacks, it is a very fine wood for cabinet work.

## One tree, two timbers

Our native sweetgum, *Liquidambar styraciflua*, produces two woods so strikingly different in terms of color that the lumber trade markets them separately. The abundant sapwood tends to be just to the creamy side of stark white in color and is sold as sapgum. The heartwood, by contrast, is a complex reddish-brown with a slight grayish hue and is typically marketed as redgum or simply gum. Unfortunately, the name gum leads to some confusion, because several species of tupelo, or blackgum, also sometimes find their way to market as simply gum. Although sweetgum and tupelo are quite similar in texture and density, and their sapwoods can be easily confused, they are not closely related. Tupelo belongs to its own small botanical family, Nyssaceae, and is more akin to dogwood, while sweetgum belongs to the witch-hazel family, Hamamelidaceae. In fact, sweetgum is the witch-hazel family's only major timber-producing species in North America.

Sweetgum's native range (see the drawing above) extends from Missouri to Connecticut and from the Ohio River Valley south to



# Neglected Wood with an Elusive Identity

the Gulf of Mexico, but it grows best on river flood plains deep in Dixie from Louisiana through Alabama. When grown in dense forests, it is a magnificent timber tree capable of attaining heights well in excess of 100 ft. and diameters of up to about 5 ft. Its cork-like grayish-brown bark contrasts with its bright green, star-shaped leaves, which turn vivid red in the fall. The seeds are encased in small, 1-in.-dia. woody burs vaguely similar to those of sycamore. The tree is so attractive that it is a popular cultivar wherever it can be grown, and landscapers have managed to push its range as far north as extreme southern Ontario, where it occasionally suffers from winterkill and seldom attains its full potential.

## **Much used, somewhat abused**

Sweetgum's great beauty as a living tree has not spared it from heavy, long-term exploitation by the lumber trade. Vast quantities of both sapgum and redgum were used in the 19th century for loose cooperage and railroad ties. Demand for these products declined, but equally great quantities have since been diverted to the crating and pallet-making industries. As to the high-volume use of top-quality redgum, this has historically centered in the millwork and plywood industries. Over the years demand has noticeably shifted. It is still an important species, but its use in millwork seems to have peaked in the 1930s. Until that time it had been one of the primary low-cost, paintable hardwoods used for interior trim, and these products were shipped to markets throughout the country. However, as supplies diminished and prices increased, this role has largely been taken over by yellow poplar.

Redgum has much more effectively maintained its market position in the furniture industry as a popular secondary wood. Its role here seems secure, because it is substantially stronger than yellow poplar, and its great versatility when it comes to subterfuge provides a key benefit. In the hands of a skilled finisher, it can be quickly doctored with stains and then used in conjunction with more prestigious woods. The application of dark brown pigments allows it to blend in passingly well for the less noticeable parts in walnut furniture, while red pigments make it one of the better counterfeits for cherry. Sapgum offers some sleight-of-hand opportunities as a blond-wood substitute in birch and maple commercial furniture. I think these efforts at misdirection degrade the image of sweetgum, suggesting that somehow it is an inferior cabinetwood when, in fact, it merits considerably more respect. It may



**Easily recognized but underutilized.** Sweetgum's snazzy, star-shaped leaf makes the tree a snap to identify. The value of its lumber, however, is less widely recognized, at least by makers of fine furniture.



**Suitable for framing.** Although often employed as a secondary wood and for paint-grade millwork, redgum, if selected for streaked figure, yields pieces pretty enough to take center stage. Seattle furniture maker Larry Rohan used redgum for the panels of the cabinet above.

**Dutch treat.** Colonial-era cabinetmakers in New York and New Jersey used sweetgum extensively for large case pieces. This Dutch-influenced linen press from 1790 (right) employs sweetgum as the primary wood; sweetgum was also often used as a secondary wood.

take some looking to find a retailer that carries redgum. Two that do are MacBeath Hardwood in Berkeley, Calif. (800-479-9907), and M.L. Condon in White Plains, N.Y. (914-946-4111).

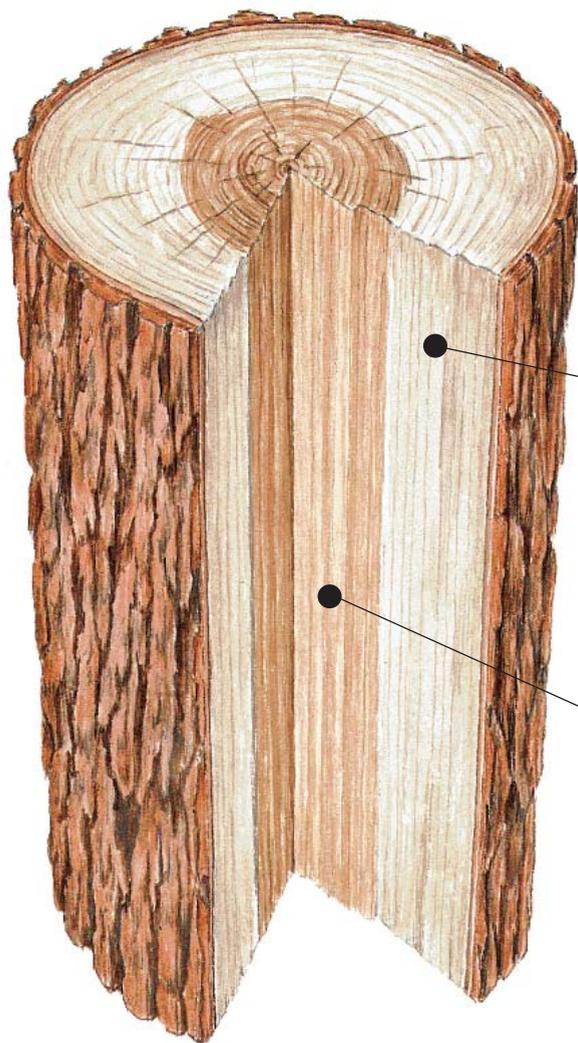
### Sweetgum is appreciated overseas

While we Americans often use our native sweetgum in rather fraudulent ways, this is not a practice shared on the international scene. Europeans are more appreciative of the wood's virtues, welcoming our export of redgum for use as a primary cabinet-wood. In England, it is commonly called satin walnut, and it is fair to say that the Brits know a good deal when they see one. Whereas redgum must be stained to approximate the appearance of North American black walnut, its natural color is almost identical to that of Old World walnut (*Juglans regia*, a.k.a. English walnut), which has long been both scarce and very expensive over there.

The fact is redgum has excellent working characteristics, almost identical to those of cherry. It shapes beautifully, and the tendency for it to friction-burn when routed or sanded is somewhat less of a problem than it is with cherry. Like cherry, it contains a natural gum that gives the wood a satiny surface luster, but the gum is not present in high enough quantities to cause serious friction burn or major finishing problems. This natural gum, called Storax, is a commercially important commodity used in the manufacture of medicines and perfumes, but the average sweetgum tree can be coaxed to produce only about 8 oz. of the sticky fluid per year.

It would be a gross exaggeration to suggest that all redgum is





## INSIDE THE SWEETGUM TREE

Sweetgum's heartwood and sapwood are so disparate in color and figure that they are marketed as two separate woods. The colorful, often streaked heartwood is sold as redgum; the pale, homogeneous sapwood is marketed as sapgum. In autumn, the sweetgum tree's bright green leaves turn a vibrant red. The two trees at left illustrate the shift, one turning a few days ahead of the other.



stunningly beautiful, but like maple it often produces some very attractive special figures. Quartersawn stock almost invariably yields a ribbonlike grain appearance. When this feature is especially pronounced, it is exceptionally showy because of the wood's satiny natural luster. Although less common, even flatsawn redgum occasionally yields a wavy, fiddleback figure, or it may also be highlighted with dark, chocolate brown streaks. These more carefully selected examples of sweetgum are very attractive and deserve to be ranked as prime cabinetwoods.

### Sweetgum's shortcomings

Like all woods, sweetgum has at least a couple of potentially serious shortcomings. Its very poor resistance to decay represents one of its more important limitations, but this is not a particularly serious problem when it is used for furniture and other interior projects. Of far greater concern is its notorious lack of stability. The reason for its instability is somewhat of a mystery. Laboratory tests indicate that its average volumetric shrinkage is 15.8% green to oven-dry. This is, admittedly, very high compared with most cabinetwoods such as genuine mahogany (7.8%), cherry (11.5%) and walnut (12.8%). It is even high compared with notably unstable species like sycamore (14.1%) and sugar maple (14.7%). But volumetric shrinkage alone does not account for serious distortion. A wood's propensity to warp is better predicted by its T/R ratio (the

ratio between its tangential and radial shrinkage). Woods with a T/R ratio below 2:1 tend to be less prone to distortion. But the surprise here is that sweetgum's T/R ratio is a rather comfortable 1.92:1. Statistically, it should be less prone to distortion than it is.

So why does it have such a high tendency to warp? I suspect the combination of its interlocked grain, with its very high volumetric shrinkage, is at the core of the problem. Similar attributes are shared by a few other woods, such as elm, that distort in much the same way. Because of the interlocked grain, even relatively uniform shrinkage, if it is high enough, appears to induce extreme stress in such woods.

The fact that sweetgum has a significant propensity to distort presents a challenge, but it should not be viewed as a catastrophic shortcoming. In the hands of a skilled cabinetmaker, it is simply an attribute of the wood that must be managed in the same way it is managed when working with maple or sycamore. Care must be taken to allow wide panels to float, and the project should be designed with an eye for counterbalance. In other words, various subassemblies and structural elements should interact in ways that allow them to be mutually restraining. Redgum's many other positive attributes in terms of appearance, working characteristics and affordable price make it well worth the effort. □

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