

Hardwood Lumber and Veneer Series



Hickory and Pecan Species

FNR-285-W

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EXPERT
REVIEWED



Dan Cassens and shagbark hickory

Hickory is our most dense and strongest North American hardwood lumber category. As a result, the lumber and trees have had a number of interesting applications ranging from drum sticks and tool handles to car bodies and kitchen cabinets. A full cord of air dried hickory firewood is equal to nearly a ton of coal. Pecan is included in the hickory lumber category and NHLA graders will not separate it from the other hickory species.

The various species that comprise the hickory lumber category grow throughout the Eastern United States and a portion of Canada along Lake



Dan Cassens and bitternut hickory

Ontario and Lake Erie and the St. Lawrence River (Table 1). The species are broken into two groups based on the number of leaflets on each leaf.

The first group is referred to as the true hickories, and the second group is called pecan hickories. The true hickories include species such as shagbark, shellbark, mockernut, and pignut. Some species are less dense than others. The pecan group includes true pecan and bitternut hickory. Depending on species, the trees grow on uplands to wet alluvial bottoms to dry sandy sites. Pecan is the largest and fastest growing of the hickories. Pecan may reach

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Pignut and bitternut hickories are referred to as “tight bark” by the lumber industry. They tend to have fewer character marks, thinner sapwood, and a beautiful light brown heartwood as compared to other hickories.

110 to 140 feet in height and 2 to 4 feet or more in diameter. Most other commercial species seldom exceed two feet in diameter by 80 feet in height. The largest pecan is reported to be 7 feet in diameter at 4½ feet above the ground and the largest true hickory is 6 feet in diameter at 4½ feet above the ground.

Wood Color and Texture

Wood characteristics vary greatly in hickory. The wood is nearly semi-ring porous, so the growth rings are usually somewhat subdued like walnut. Northern trees are usually very slow growth, and the rings are very tight. Southern trees may be somewhat faster growth. In true hickories the change from large to smaller pores is abrupt so these woods appear grainier as compared to the pecan hickories where the change is more gradual. Some trees may have a very wide, white sapwood of several inches while others may have less than an inch wide sapwood. Heartwood color in true hickories may range from a pale brown to reddish-brown, whereas pecans have a rich reddish-brown color. The wood can be streaked. Bird

peck, small bark pockets, and small knots are very characteristics of the species. In some applications, these characteristics are left in the finished wood product, and they provide a rustic accent.

The sapwood on hickory like any white wood is subject to oxidation stain. The white wood becomes a gray color during warm summer months. This discoloration is very difficult to prevent. The wood is also subject to fungal blue stain and decays rapidly. In addition, the wood is subject to powder post beetle attack.

Workability

Hickory is an excellent wood for boring, and it is rated better than average to intermediate in planing, turning, and shaping.

Strength

At 12 percent moisture content, the true hickories range in density from 50 to 78 pounds per cubic foot while the pecan hickories have a density of 46 pounds per cubic foot. The true hickories produce the strongest wood of any of the North American

commercial hardwood species. There is no difference in strength between the white sapwood and the dark colored heartwood.

Steam Bending

Hickory is rated as one of the better woods for bending.

Drying

The wood is dried with a mild kiln schedule.

Shrinkage

As our densest wood, true hickories also experience the greatest shrinkage when drying. Pecan hickory shrinks somewhat less.

Decay Resistance

True hickories and pecan have no resistance to decay. Deterioration occurs rapidly if the logs are allowed to lie for any length of time.

Commercial Use, Grading, and Value

Hickory has a wide variety of uses. Currently, it is popular in the kitchen cabinet industry where it may be selected for all clear wood or with many of the small character marks left in the cuttings. It can also be selected for color as there is substantial contrast between the white sapwood and the brown heartwood. It is also used in flooring and furniture. Products made from hickory are often marketed as pecan regardless of the hickory species used.

One unique application in the furniture industry is furniture called “Old Hickory Furniture”, which originated about 1900 in Indiana. This furniture is made from hickory rounds or saplings with the bark left on. Chair seats are woven from either hickory wood or from the inner bark of hickory. This rustic furniture was placed in many parks and other natural areas being developed at the time. It has seen a renewed interest in the last 10 to 15 years and much of it is still manufactured in Indiana.

Because of the hardness, strength, toughness, and resiliency, hickory has had and continues to have many traditional uses. One traditional use is tool handles, such as sledge hammers, axes, picks, and hammers. Hickory is able to withstand the impact that occurs with these tools. Ash is typically used for long handles and in bending such as forks and shovels. Hickory is also used for ladder rungs, drum sticks, and other dowel type applications. In the sports arena, it has been used in the past for skies,

golf club shafts, and gymnastic bars. It has been used in agricultural implements, such as Pitman rods, and initially in car bodies, and for spokes in wood wheels. It is prized for smoking meats, making skewers, and for using as fuel wood due to its high density.

There are important exceptions in the NHLA grading rules for hickory. Green FAS lumber for most species is usually required to be 6" and wider. For hickory, it is only required to be 4" and wider but 4" and 5" wide pieces must yield 91 $\frac{2}{3}$ percent clear face in one cutting. The standard grade requires 83 $\frac{1}{3}$ percent clear face. In addition, bird peck not exceeding $\frac{3}{8}$ " diameter are admitted in No. 2A Common and better grades. If the peck marks exceed $\frac{1}{12}$ ", the total area required in cuttings the piece is reduced one grade only. In essence, narrow boards are allowed in the top grade and average bird peck is not a defect.

Hickory is a relatively inexpensive wood being priced somewhat more than yellow-poplar but substantially less than the oaks.



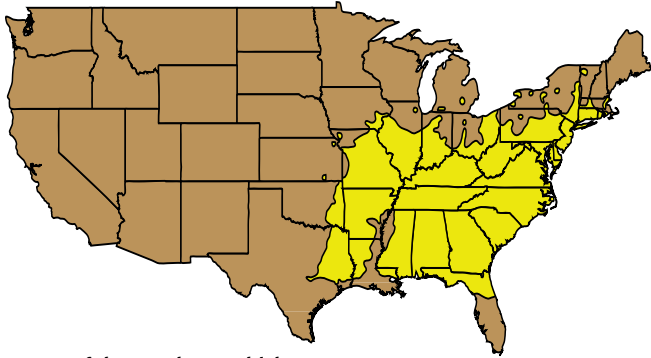
Streaking and existing bark around a knot are characteristic of hickory.

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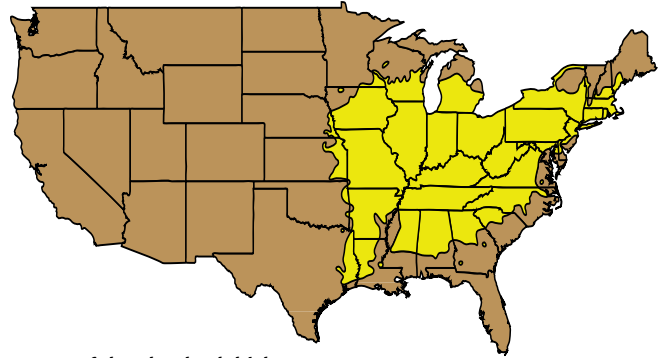
Table 1. Common and scientific name, range, site and other information for both true hickory and pecan hickory species

Common and Scientific Names	Range	Site	Comments
True Hickories			
Shagbark hickory <i>Carya ovata</i> (Mill.) K. Koch	Eastern United States, except gulf and Atlantic coastal plain, also in portions of Canada along Lake Erie and Ontario, and the St. Lawrence River	Upland areas in the North and moist, alluvial soils to the south	Easily identified due to its shaggy bark and it is an important commercial species
Shellbark hickory <i>Carya laciniosa</i> (Michx. f.) Loud.	Isolated portions of NY, PA, VA, WV and TN. Otherwise in the central United States along the OH, MS, and MO drainages and north to southern MI	Wet alluvial bottoms, can tolerate standing water	Commercial species
Mockernut hickory <i>Carya tomentosa</i> (Poir.) Nutt.	From NH west to IA, then south to TX and east to northern FL except the flood plain of Mississippi River from Memphis south.	Common on dry sandy soils with pine in the southern coastal plain, also on terraces along the Mississippi and lower Ohio rivers	Commercial species
Pignut hickory <i>Carya glabra</i> (Mill.) Sweet	Range is nearly the same as Mockernut	Upland species	Commercial species
Red hickory <i>Carya glabra</i> var. <i>odorata</i> (Marsh.) Little	From NH east to southern MI, south to eastern MO and northeastern AR and central MS then east to SC	Important upland species	Red and pigment hickory have been treated as one and two species, and also as two varieties. Separation of the two in certain areas is not possible
Sand hickory <i>Carya pallida</i> (Ashe) Engl. and Graebm. (also called Pignut)	Southern NJ through the Piedmont and coastal Plains to western FL and LA	Dry soils	Minor species
Black hickory <i>Carya texana</i> Buckl.	Mostly west of the Mississippi River from MO to TX	Dry, rocky, sandy uplands and along creeks	Minor species
Scrub or Florida hickory <i>Carya floridana</i> Sarg.	North central peninsula of FL	Coastal dunes and sand ridges	Scrub vegetation
Pecan <i>Carya illinoensis</i> (Wamgenh) a K. Koch	Natural range is Ohio, Wabash, Illinois and Mississippi and Missouri river valleys south from Central IN and IA through LA and west through central TX, OK, and southeastern KY, also portion of Mexico. Widely planted elsewhere	Scattered trees on moist but well-drained ridges in river bottoms	Largest of native hickories. Fastest growing hickory
Bitternut hickory <i>Carya cordiformis</i> (Wamgenh) a K. Koch	From the Atlantic coast to the Great Plains and east, north through much of MN and the St. Lawrence River, except the gulf coastal plains and the lower Mississippi flood plain	On dry gravelly uplands to rich moist bottomlands	Probably most abundant, wide spread hickory
Water hickory or bitter pecan <i>Carya aquatica</i> (Michx. f.) Nutt.	Coastal Plains from VA to FL, west to eastern TX and north in the Mississippi Valley to southern IL	Poor sites	Minor species
Nutmeg hickory <i>Carya myristiciformis</i> (Michx. f.) a Nutt.	Scattered patches in SC, AL, MS, AR, LA and TX and along the southern portions of the Red River Valley	Along stream banks and elsewhere on rich moist soil	Reaches good size but not common

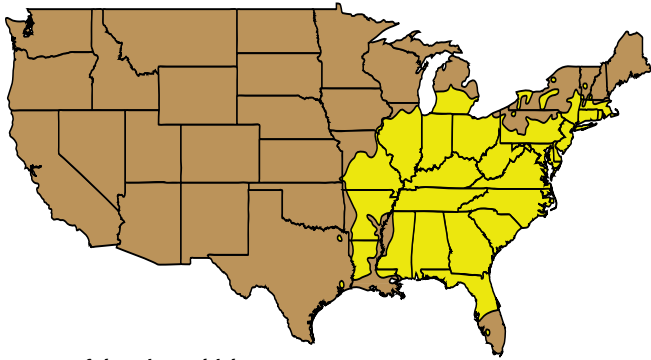
Hardwood Lumber – Hickory and Pecan Species



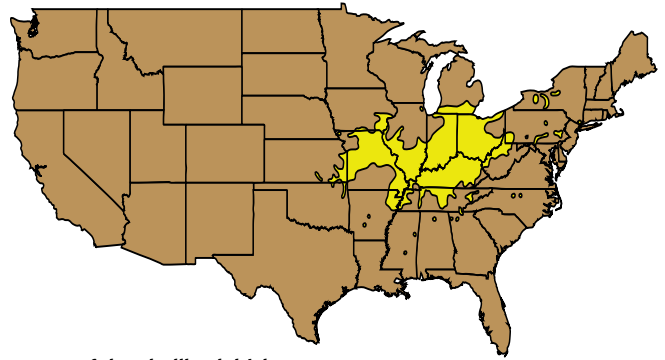
Range of the mockernut hickory



Range of the shagbark hickory



Range of the pignut hickory

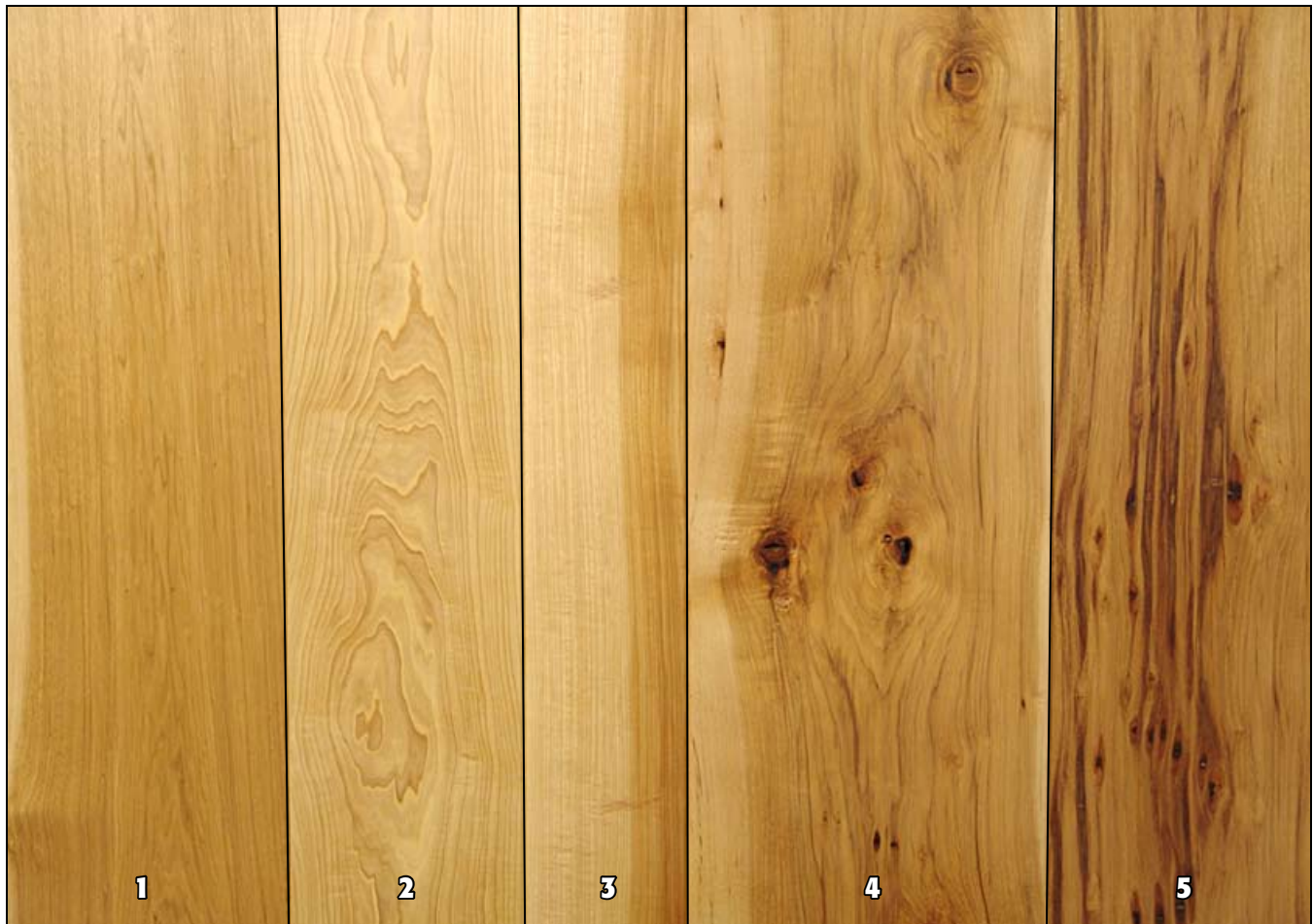


Range of the shellbark hickory



Bird peck and associated discoloration in hickory. Whitish inclusions as seen in the pores here are not uncommon.

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The visual characteristics of hickory are extremely variable. Botanically, there are two groups of hickory species, one of which contains pecan. Pecan and the other tight barked hickories tend to be lighter in weight. However, pecan is not separated from the other species in the hardwood lumber grading rules.

Board 1 shows a beautiful light reddish brown heartwood color and a white band of sapwood on the left. The growth rings are not as distinct as oak and ash, but are characteristic of the semi-diffuse porous wood such as walnut. Very little defect-free, all-heartwood hickory such as this is available. When the light, reddish, brown clear heartwood is sorted, the wood almost appears as a different species, and it is truly unique.

Board 2 is all white sapwood. Some hickory, particularly bottomland species will have a very wide sapwood while others will have a relatively narrow sapwood. The white sapwood when mixed with the reddish heartwood results in substantial contrast. The sapwood in hickory can easily stain to a dirty grey color and sticker marks are also hard to control.

Board 3 is quartered and mostly sapwood. A small ray fleck will be evident.

Board 4 shows characteristic knots and bird peck while Board 5 shows more bird peck and resulting dark stain. Heavy bird peck is very common in hickory.

Hickory with mixed sapwood and heartwood, small knots, bird peck, and other abnormalities is often used for a rustic type of kitchen cabinet.

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