# Can eastern hardwoods offset timber cutbacks?

*Technical and market obstacles remain, but research shows opportunities exist for more hardwood applications in traditional softwood territory*

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Efforts to conserve habitat of the northern spotted owl in the Pacific Northwest have placed softwood timber supplies under a great deal of pressure and driven up the price of softwood lumber. Hardwoods could meet some of the demand for products that previously have been made from softwood species. Research in this field has been under way for some time; more is needed in some areas.

Hardwood structural lumber may soon become economically feasible as an alternative to softwood lumber. Increased use of hardwood veneer in southern pine plywood and as furnish for oriented strand board is likely. Opportunities also exist for treated hardwood lumber, shakes and shingles. Hardwoods also might claim a greater share of the market for secondary wood products.

Pacific Northwest log shortages may open up some West Coast markets to eastern hardwood producers, but more likely will lead to new market opportunities for eastern hardwoods in the East and Midwest.

Increases in softwood product prices brought about by log shortages should cause eastern US wood products manufacturers and users to look at the feasibility of substituting hardwoods for softwoods in certain applications. Undocumented reports from some companies indicate that this conversion has already started.

**Structural lumber.** States affected most by timber harvesting restrictions associated with owl habitat conservation efforts—Washington, Oregon and California—are the top three softwood lumber producing states in the country.

Over 80% of the softwood lumber manufactured there is sold and used as structural building material. The major species groups competing with Pacific Northwest sources in the structural lumber market are Canadian spruce-pine-fir (SPF) and southern yellow pine.

Two alternative products that have been researched and developed but are not being produced on a large scale are framing lumber and laminated veneer lumber (LVL) made from yellow poplar.

The Hardwood Research Council has identified the need for research into the economics and marketing aspects of yellow poplar structural lumber production. Research on economics will be published shortly by the authors. and many technical questions have been resolved.

Hesitancy of eastern sawmillers to produce yellow poplar framing lumber is due in large part to the hardwood sawmill industry's lack of product knowledge and marketing experience and uncertainties about the relative profitability of producing structural lumber.

Given the small size of most hardwood mills, even moderate demand in local markets could not be met unless multiple mills began producing yellow poplar structural lumber at the same time. However,a larger softwood mill could produce hardwood framing lumber on a sufficiently large scale to provide a constant supply to several customers.

Eastern softwood lumber producers might look at this option if softwood log prices continue to rise.

Information on resource availability (to be published shortly by the authors), building contractor perceptions, and manufacturing productivity and costs is needed to reduce the uncertainty that is acting as a barrier to production of yellow poplar framing lumber.

During the next several years, the financial incentive to try manufacturing yellow poplar framing lumber should be much stronger than it has been in the past. Softwood framing lumber prices have risen sharply and are projected to continue to do so as log supply problems continue in the spotted owl region.

LVL has typically been constructed of southern pine and western softwood species. Yellow poplar and sweetgum also have been used in the manufacture of LVL, although only in limited quantities to date.

Resource analysts, pointing to the decrease in the availability of old- growth timber, predict LVL will be an important part of the structural lumber market in the near future. Uniform high strength properties relative to sawn material from the same species make LVL suitable for large structural members such as roof trusses, door headers and wood I-beam flanges.

A company in Virginia that started operations during the summer of 1991 is using oak, yellow poplar and hickory to manufacture single-species LVL for export. The product is used in architectural millwork and furniture.

**Veneer, plywood and panelboard.** Plywood's share of the structural market has been decreasing for a couple of decades. This decline will accelerate in the next decade due to new technologies in replacement board products and harvest restrictions associated with spotted owl habitat.

Yellow poplar and sweetgum face and core veneer have

been used in combination with southern pine in the manufacture of structural plywood since the performance standard was established in the mid- 1980s. Use of hardwoods should continue to grow as southern pine plywood producers look to expand into markets formerly served by the western softwood plywood industry.

Waferboard an OSB have been eroding plywood's position as the dominant structural panel form since their introduction in the 1960s. These products typically are manufactured from small-diameter and low-grade logs. OSB recently has been introduced as an alternative material for shingles.

OSB is the more highly valued of the two flakeboard products because the orientation of the strands on alternating layers gives it high strength. OSB gives much higher log yields from a lower-cost log resource compared to plywood. The American Plywood Assn. estimates expansion in structural panel production capacity will come almost exclusively from added OSB capacity in the future.

Soft hardwoods and softwoods are the preferred raw materials for OSB. Yellow poplar, sweetgum, soft maple, basswood and birch are eastern hardwood species that are being used or have been suggested for use in OSB.

The cost of shipping OSB to distant markets can be more readily justified if the price of Pacific Northwest softwood plywood goes up due to increased stumpage costs.

**Shakes, shingles and other exterior wood products.** The shake and shingle industry, although much smaller than the sawmill, plywood and export industries in the Pacific Northwest, will be hugely affected by timber setasides due to its heavy reliance on old-growth timber.

The more decay-resistant hardwoods lack certain characteristics possessed by western red cedar, the dominant shake and shingle species with 95% of the market. Locust, osage-orange and white oak are very heavy woods that are not as easily worked as western red cedar. Black walnut is too expensive and too heavy for shakes and shingles.

Yellow poplar siding has been shown to weather well when pretreated with chromium oxide and finished with acrylic latex paint. Hardwood species such as aspen, cottonwood, basswood and soft maple are relatively light in weight and easily worked but lack decay resistance.

The Hardwood Research Council has identified the need for research into preservative treatment of hardwood products to prevent decay. Borate compounds, used in Australia and New Zealand to treat hardwoods, are the current focus of research efforts in hardwood products treatment. The southern pine industry recently entered this market, promoting treated pine shakes and shingles.

The redwood lumber industry in California also will be greatly affected by the s potted owl conservation strategy. Approximately 22% of the lumber produced in California is redwood. Redwood's natural durability makes it popular as an exposed building material for siding, decking, patio and garden furniture, stadium seats, posts and fence material. Redwood lumber also is remanufactured into millwork and dimension.

Treated southern pine competes with redwood in most of these markets. High-value markets exist for many decay-resistant hardwood species. Research into hardwood preservative treatment could make some of the more underutilized species available for exterior applications.

**Secondary processing.** A large percentage of the secondary wood processing mills in Oregon, California and Washington buy softwood lumber species that will be less available and more expensive in coming ears. Mills opersting with healthy profit margins may be able to pay a higher price for raw material. Industries operating with a narrow profit margin may be more inclined to look for less costly raw material sources.

Furniture and cabinets, architectural millwork, moulding, millwork and flooring are regularly manufactured of hardwoods as well as western softwoods and southern pine.

Many of the more highly demanded eastern hardwood species are more expensive than Douglas fir, western hemlock and others. However, some of the underutilized hardwood species such as yellow poplar and soft maple could be substituted for softwood species used by secondary processors. A survey of 128 architectural millwork producers indicated that mouldings, paint-grade mouldings, miscellaneous paint-grade material, doors, trim and cabinet parts were considered viable product lines for yellow poplar.

Shipment of substitute East Coast hardwood lumber to West Coast secondary manufacturers may become feasible if West Coast softwood lumber prices climb to anticipated levels.

Pacific Northwest softwood lumber also is shipped to eastern and Midwestern secondary manufacturers. About 15% of mills east of the Mississippi making architectural millwork, moulding, millwork or flooring process Douglas fir, redwood, ponderosa pine or western cedar. On a volume basis, however, softwood use in the moulding and millwork industry far exceeds hardwood use.

Eastern hardwood lumber manufacturers are experiencing increased demand from this market segment, contributing to a rise in the price of yellow poplar lumber.

West Coast furniture manufacturers predominantly use red and white oak and red alder. Continued production of red alder at current levels is uncertain because it and other hardwoods grow on sites considered to be prime softwood timberland. Whether hardwood acreages on prime sites will be converted to softwood plantations is an unanswered question. If conversion occurs, eastern hardwood species would be more in demand by the California furniture industry.

Production of red alder lumber has tightened as a result of the spotted owl situation. Hardwood logs have traditionally been obtained for a very low price off softwood timber sale blocks. The Northwest hardwood sawmill industry has had to adjust to the idea of paying higher stumpage prices for hardwood logs.

This situation is likely to be remedied eventually, but for the short term it presents a hardwood timber supply problem in the Pacific Northwest. During this adjustment period, eastern hardwoods should gain market share in Pacific Northwest and California markets.

Increased utilization of West Coast hardwoods and/or increased shipments of eastern hardwood lumber to the Pacific Northwest may be needed to sustain Pacific Northwest secondary wood products operations presently dependent on a timber resource that will be less available and more expensive in the coming decade. ■

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