

The Case For Yellow Poplar Ties, Part II

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Editor's Note: The full title of this research article is "An Assessment of the Market Potential for Yellow Poplar Railroad Ties Based on Historical Price Trends and Standing Timber Volume." Authors Gazal, Hassler and McNeel represent the West Virginia University Appalachian Hardwood Center, where McNeel serves as director.

The below represents the final installment in a two-part series discussing conclusions of a study that focuses on a historical time series comparison of yellow poplar lumber prices with lumber prices of other routinely marketed hardwood species, cants and tie prices over two NHLA grades.

Read Part I in full in the May/June issue of *Crossties* available at RTA.org/crossties.

Discussion & Conclusions Pricing Analysis

The initial assumption is that the price of No. 2A Common lumber is a strong indicator of market competitiveness between various product markets. The reasoning here is that heart-centered cants contain lower grade lumber and the decision to cut up larger cants/ties into bords and a smaller cant is strongly dependent on the price of No. 2A Common lumber. That is, if cant or tie pricing exceeds No. 2A Common pricing, then there will be an incentive to retain the larger cant/tie, thereby increasing revenue. The other advantage of retaining heart-centered cants in larger dimensions is a reduction in sawlines (thereby reducing the sawing cost of logs from which a large cant/tie is produced) and an increase in net volume by reducing kerf loss due to fewer sawlines.

For discussion, the focus will be on the nominal pricing in Figures 1 and 3 (No. 2A Common and No. 1 Common lumber, respectively). It is assumed that the actual pricing at any point in time provides the necessary price comparisons for rational

decisions about the procurement of yellow poplar ties. The real pricing (Figures 2 and 4), adjusted for inflation, is provided as a backup to the nominal pricing data to identify any apparent anomalies. Since real pricing generally mirrors nominal pricing, no additional analysis of real pricing is required.

No. 2A Common lumber in Figure 1, for the second quarter of 2004 through the first quarter of 2022, except for two quarters, indicates that pallet cant prices on a "\$ per MBF basis" were greater than yellow poplar No. 2A Common lumber, indicating more incentive to produce cants than the low-grade lumber. The average price, over the period, for No. 2A Common lumber was \$334.24/MBF and for cants \$376.67/MBF. During the same period tie pricing was significantly above both No. 2A Common lumber and cant, with an average price of \$552.22/MBF. Had yellow poplar ties been a marketable product during this period, there would have been significant incentive for mills to produce ties rather than cants or No. 2A Common lumber.

Alternatively, for red oak and white oak across the whole time series, No. 2A Common prices were consistently above pallet cant prices. As such, the incentive for hardwood sawmills would be to saw the lumber and not pallet cants. Average prices for No. 2A lumber, across the entire time series, for red oak, white oak and pallet cants were \$561.76/MBF, \$503.53/MBF and \$369.88/MBF, respectively, illustrating the magnitude of the incentive. Because of this built-in incentive, tie buyers had to compete with the No. 2A Common pricing, leading to an average tie price over the 22-year period of \$527.36/MBF. This situation was further exacerbated during the 2018 third quarter and 2022 first quarter periods, as tie producers experienced increasing difficulty in procuring ties. Pricing increased for No. 2A Common red oak to \$632.67, white oak to \$649.67 and \$724.87 for ties. That is, buyers were forced to regularly increase their offering price to maintain their supply chain. It is important to remember that tie procurement



is in direct competition for the same lumber grades as the hardwood flooring industry, a situation that does not exist for yellow poplar.

Soft maple trends were more like yellow poplar trends, although for two time periods, 2004 to 2006 and 2014 to 2018, the price spiked above cant pricing. Soft maple tie producers obviously benefited from the spike in red oak and white oak No. 2A Common pricing and the concurrent increase in tie pricing.

For No. 1 Common lumber pricing, beginning in the second quarter of 2003 through the end of the series, except for two quarters

To view charts in this article, please visit RTA.org/crossties and refer to the "Yellow Poplar" article listed under the May/June 2022 issue of *Crossties*.

in 2010 and 2021, tie prices exceeded No. 1 Common yellow poplar prices. Overall, for the period beginning in 2003 through the end of the time series, the average tie

attempt sawing boards from a tie hoping to get No. 1 Common lumber.

For almost the entire time series, tie prices were below No. 1 Common lumber prices for red oak, white oak and soft maple. The average prices for no. 1 Common lumber, over the entire time series, were red oak \$693.18/MBF, white oak \$731.00/MBF and soft maple \$709.29/MBF, while tie prices averaged \$527.36. The opportunity to saw the ties into additional boards with only the potential to produce No. 1 Common or better lumber (even with a No. 1 Common

face on the tie, there is no guarantee that the resulting board will maintain that grade) was not sufficient to significantly increase the overall supply of railroad ties, particularly given current tie pricing.

Timber Resource Availability

Figure 5 clearly shows that yellow poplar volumes are as abundant as the oaks, with existing growing stock approaching 16 billion board feet (International Tree Scale)

and generally increasing. Figure 6 shows net growth (net of mortality) to be generally downward for yellow poplar removals declining the most, from 250 MMBF to 150 MMBF (40 percent), over that period. And considering the general increase in yellow poplar volumes over the same period (Figure 8), the overall resource availability of this species seems excellent.

Table 1 reports the ratios of removal to net growth for the species of interest, ranging from 0.29 for soft maple up to 0.59 yellow poplar (2008-2019) and 0.48 in 2019 for yellow poplar (or, in other words, removals/harvests of yellow poplar could increase by a factor of 2.08 and not exceed net annual growth). This table also suggests that a significant capacity exists for the standing timber resource to support expanded demand for timber.


In conclusion, the ability of our standing timber resources, particularly of yellow poplar, to support the forest products industry is exceptionally strong and sustainable. Adding yellow poplar to the list of species that supply ties to the rail industry should not significantly affect its sustainability or availability to other markets. ■

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price was \$546.66 and the yellow poplar, No. 1 Common was \$450.40. Again, if the tie market were to expand to include yellow poplar, the incentive to produce ties would remain strong. Even with the spike in No. 1 Common lumber prices during the most recent three quarters, the average price for No. 1 Common yellow poplar was \$823.33/MBF and the average tie price was \$831.65/MBF, hardly enough of a price difference to

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