

NTFPs from Trees: Nontimber Forest Products that Support our Society and Economy

TULIP POPLAR

Product: Specialty siding

Plant part used: Bark



Tulip poplar (*Liriodendron tulipifera* L.) is a fast-growing, long-lived tree that grows on deep, well-drained rich soils found in forest coves and lower slopes. The species is common throughout the Eastern United States, from New England to north-central Florida (shown in green on the map below). It reaches largest size classes in the Ohio River Valley and lower mountain slopes of Appalachia. It is shade intolerant and overcomes competition through vigorous reproduction.



Key Points

- Growing fast, straight, and tall, tulip poplar is found on Forest Inventory and Analysis (FIA) plots in 24 States.
- Because of its easily worked, defect-free wood, tulip poplar has been used for canoes and vessels to store food and other perishables.
- Tulip poplar bark is used for attractive, high-end siding, which may qualify for Leadership in Energy and Environmental Design (LEED) certification.
- Although large volumes of tulip poplar bark are available, markets are limited for this specialty niche product.
- Estimated growth of tulip poplar exceeded mortality and removals over the last 20 years, resulting in an increase in net volume.

Nontimber Uses

- Native Americans called tulip poplar 'canoe wood' because of its wide use for dugout canoes.
- Tulip poplar wood has been used to make a variety of containers, from basic utilitarian storage vessels to fancy decorated possessions.
- The primary nontimber product from tulip poplar is the bark, which is used for decorative siding for exterior and interior applications.
- Tulip poplar is an important source of nectar for honey bees, producing a flavorful confection with a red-amber color. A young tree can produce enough nectar for >4 pounds of honey.
- Leaf meal from fall-dropped leaves provides an abundant and underutilized alternative source of feed for ruminants, though the leaves contain anti-nutritive elements.

Markets

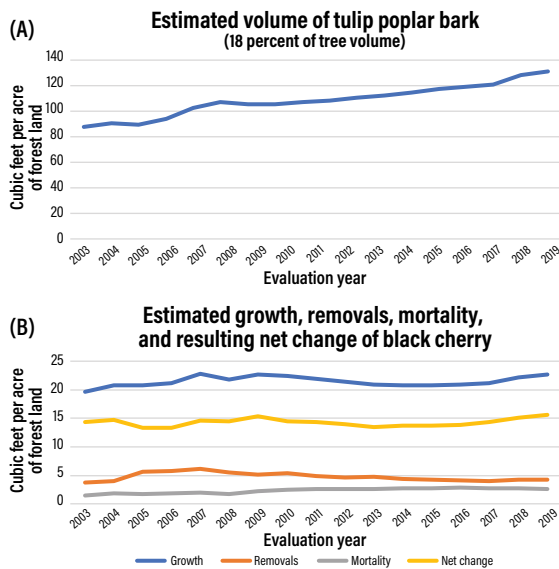
- The markets for tulip poplar bark are developing, so there is very little documentation on the volume or value of the bark products.
- There are only a few tulip poplar bark dealers in the Southern United States, mainly in North Carolina.

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Status^a

- Tulip poplar is found on FIA plots in 24 States, with an estimated 87 live trees per acre of forest land.^b
- Total estimated average volume across all States was 696 cubic feet per acre of forest land,^c ranging from 250 in Louisiana^d to over 1,700 in New Jersey.^e
- Estimated growth across all States (~22 cubic feet per acre of forest land^f) exceeded removals and mortality (~4.4^g and ~2.7^h cubic feet per acre of forest land, respectively).
- Across all States, estimated bark volume was 125 cubic feet per acre of forest land, from about 45 in Louisiana to >305 in New Jersey.
- Over the years 2002 through 2019, there was a 1-percent increase in the estimated number of tulip poplar trees per acre of forest land.
- Since 2002, tulip poplar bark volume has increased >34 percent (see chart [A]).
- From 2003 through 2019, estimated growth exceeded removals fourfold and mortality by even more, resulting in a positive net change in volume (see chart [B]).

^a Estimates are based on observations of at least one specimen of the species in an inventory plot (representing about 6,000 acres of forest land). They are not based on all forest land for the State.

^b At 68-percent confidence interval, standard error is ± 1.73 percent of estimate.

^c At 68-percent confidence interval, standard error is ± 1.29 percent of estimate.

^d At 68-percent confidence interval, standard error is ± 16.95 percent of estimate.

^e At 68-percent confidence interval, standard error is ± 11.50 percent of estimate.

^f At 68-percent confidence interval, standard error is ± 1.51 percent of estimate.

^g At 68-percent confidence interval, standard error is ± 760 percent of estimate.

^h At 68-percent confidence interval, standard error is ± 5.25 percent of estimate.

Management and Implications

- Tulip poplar bark is secondary to timber and is a specialty niche product, yet it provides opportunities for entrepreneurs.
- The supply of bark certainly exceeds demand for the specialty siding, although States with mills that process tulip poplar might consider opportunities for expanded economic ventures with this product.
- Limited evidence suggests that there is an expanding market for the bark for exterior and interior applications.

References

- Beck, D.E. 1990. *Liriodendron tulipifera* L. yellow poplar. In: Burns, R.M.; Honkala, B.H., tech. coords. Silvics of North America: volume 2. Hardwoods. Agric. Handb. 654. Washington, DC: U.S. Department of Agriculture Forest Service: 406–416.
- Hill, D.B.; Webster, T.C. 1995. Apiculture and forestry (bees and trees). Agroforestry Systems. 29: 313–320. <https://doi.org/10.1007/BF00704877>.
- Marvin, G.E. 1931. Nectar production of the tulip tree or yellow poplar. Journal of Economic Entomology. 26(1): 170–176. <https://doi.org/10.1093/jee/26.1.170>.
- McCarthy, E.F. 1933. Yellow poplar characteristics, growth and management. Tech. Bull. No. 356. Washington, DC: U.S. Department of Agriculture Forest Service. 57 p.
- Reynolds, M.W. 1976. *Liriodendron tulipifera*—its early uses. Arnoldia. 36: 119–124.
- Smith, J.K. 2010. Utilization of leaf meal as a potential feed source. Morgantown, WV: West Virginia University. M.S. thesis. 83 p. <https://doi.org/10.33915/etd.2980>.
- Wengert, G. 2016. Yellow poplar. Wood Explorer. <https://www.woodworkingnetwork.com/wood/wood-explorer/yellow-poplar>. [Date last accessed: September 3, 2021].

The U.S. Department of Agriculture Forest Service **Forest Inventory and Analysis (FIA)** program tracks growth, mortality, and removals of forest trees and more. For additional information: <https://www.fia.fs.fed.us/>

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