

**cf. *Liquidambar hisauchii* (sweetgum, redgum)**

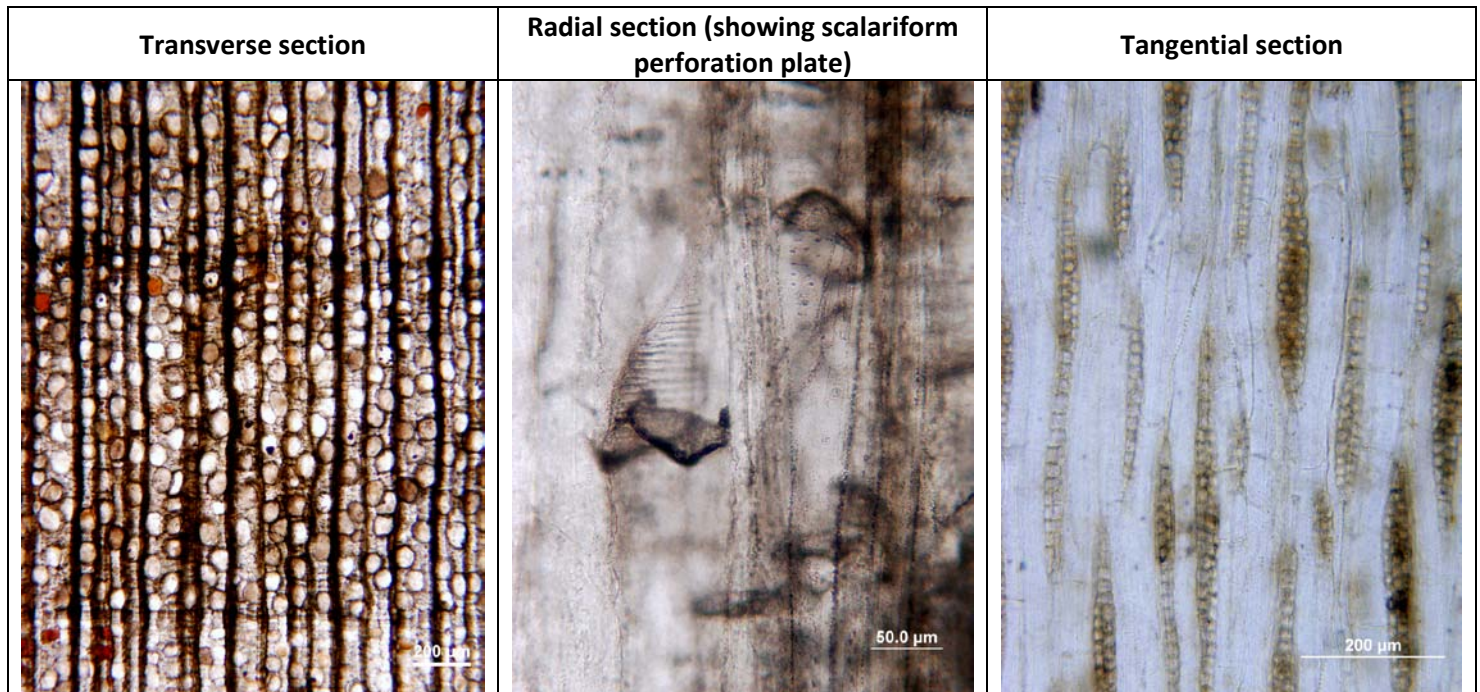
Family: Altingiaceae

Synonym: *Liquidambar* cf. *styraciflua* Prakash & Barghoorn 1961

Naming reference: Suzuki, M. & S. Watari. 1994. Fossil wood flora of the early Miocene Nawamata Formation of Monzen, Noto Peninsula, central Japan. J. Plant Res. 107:63-76

Other references: Prakash, U. & E.S. Barghoorn. 1961. Miocene fossil woods of from the Columbia basalts of central Washington, I. Journal of the Arnold Arboretum XLII, 165-199

Wheeler, E.A. & T.A. Dillhoff. 2009. The Middle Miocene wood flora of Vantage, Washington, USA. IAWA Journal, Supplement 7. 101 p.



Photos courtesy Dr. E.A. Wheeler

Diagnostic features: Growth rings present. Diffuse porous wood with crowded, narrow vessels, vessels solitary and in short multiples. Rays are 1-3(4) seriate, and heterocellular with asymmetric margins – the number of marginal rows can vary from 1-8. Perforation plates scalariform with 15-30 bars. Intervessel pits are scalariform-transitional. Spiral thickenings may be present in the tails of some vessel elements. Axial parenchyma rare, mostly diffuse with occasional cells contacting the vessels. Rarely, specimens have traumatic axial ‘gum’ canals in the beginning of some growth rings.

Discussion: Prakash & Barghoorn originally described this type and considered it to be closely aligned with modern *Liquidambar styraciflua* which is native to eastern North America. Further analysis by Wheeler & Dillhoff concluded that the wood also has similarities to some Asian species and therefore should not be aligned only with the North American type. The Vantage wood is most similar to another Miocene fossil wood previously described from Japan, *Liquidambar hisauchii* Suzuki & Watari. Since the Vantage type is very close to the Japanese wood but does not exactly fit their description, it was given the name cf. *Liquidambar hisauchii*, where the ‘cf.’ means ‘confer’ or ‘compare’, indicating the wood anatomy is very similar to that species. It was not felt that there were enough differences between the Vantage and Japanese woods to assign a new species name.

This wood shares a number of features with *Nyssa*, and can be difficult to distinguish. Thin sections are required to reliably separate the two. Even then, there are many similarities. Main differences are the arrangement of intervessel pits, and the rarity of axial parenchyma in *Liquidambar* (axial parenchyma are fairly abundant in *Nyssa*).

Sweetgum is frequently seen in the Columbia River Basalt wood deposits; Beck (1945) listed it as a common element in the Vantage and Squaw Creek assemblages. In modern forests, *Liquidambar* is native to eastern North America (including parts of Central America) and Asia.