Pawpaw

*Asimina triloba*

Family: the Custard Apple family, Annonaceae.
Also called Custard apple, Poor man’s banana, Indiana banana, Wild banana

Pawpaw is the most well-known temperate zone member of a family that is very successful and diverse in the tropics. The Custard Apple family also has several species whose fruit are known by the colloquial name “pawpaw.” Pawpaw is even an alternative name for papaya (*Carica papaya*). This edible fruit, the pawpaw, is the most well-known feature of this Eastern North American tree. Its custard-like consistency and sweet flavor are typical of the edible fruits in this family, but it can cause dermatitis in sensitive individuals.

The custard apple family is comprised of approximately 122 genera and some 1000 species, of which only a handful are temperate zone inhabitants. The Eastern North American pawpaw is found from Texas to Florida in the south, and from Nebraska to Ontario to New York in the north. It is an occasional component of woodlots, especially at the edges, and even dots grassy savannahs in southwest Michigan.

For the Indigenous First Nations Americans, this was a resource. The fruits are a delicious food, as long as one is careful not to consume the seeds. In fact, every part of the plant is toxic when ingested, except for the edible fruit pulp. Archaeological investigations of the Bluff Shelter cultures from the Woodland Period from Arkansas to Kentucky and Tennessee, show that the bulk of their utility fibers were derived from the inner bark of pawpaw, in much the same way as the bast fibers of basswood (*Tilia americana*) were used in the Great Lakes cultures.

This attractive bush or small tree (from 3 to 10 meters in height) is also the main food plant for one of our most attractive butterflies, the Zebra swallowtail (*Eurytides marcellus*) that flies from late May to early July in Michigan. The larvae of this butterfly sequester the notable toxins (annonaceous acetogenins) from the pawpaw leaves within
Cross-section of Pawpaw flower, *Asimina triloba*, showing the stamens surrounding the ovary. It is shown upside-down from its natural blooming position.

Several entrepreneurs have embarked upon making the Pawpaw a marketplace commercial fruit. As one might expect from the dark maroon color and decay-like scent of the flowers, *Asimina triloba* receive pollination services from flies more than bees, inspiring some growers to hang road-killed animals in their pawpaw groves to effect more efficient fertilization.

their bodies, and they provide a defensive capability to the adult, in much the same way as the cardiac glycosides of milkweeds provide protection for Monarch butterflies that sequestered them, also as larvae. *Asimina* toxins belong to a class of toxins unique to this plant family; the annonaceous acetogenins (nicely reviewed by Bermejo et al., 2005). As a group they are characterized by a $C_{32}$ or $C_{34}$ fatty acid skeleton ending in a $\gamma$-lactone. Of the over 400 such known compounds, many show potentially antitumor, antiparasitic, cytotoxic, and pesticidal characteristics. In 1993, Ratnayake et al. (In: Janick and Simon (Eds.) New Crops. Wiley, New York) show how extracts from *Asimina triloba* could control bean leaf beetles (*Cerotoma trifurcata*) on bush beans.