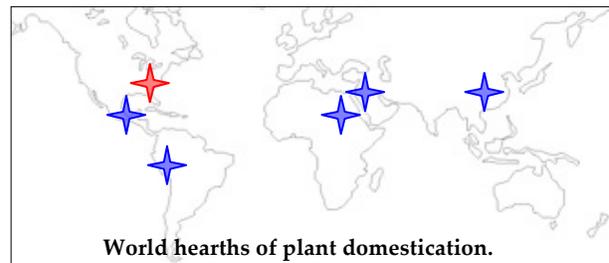


Red River Gorge: Insights Into Native Plant Domestication

The places where people first domesticated particular native plants are scattered all across the globe. Archaeologists call these places *hearths* of plant domestication.

At these hearths, prehistoric people selected seeds with certain desirable traits, like larger seed size or thinner seed coats, and raised them by gardening and farming. Over time, the people's choices domesticated the plants.

The most familiar hearths are those where prehistoric people domesticated the foods we commonly eat today: Mexico (corn), Peru (potatoes), the Middle East (wheat and barley), Africa (soybeans and millet), and east Asia (rice).



North America's Eastern Woodlands, the region between the Mississippi River and Atlantic Ocean, and the Great Lakes and Gulf of Mexico, also is a hearth of plant domestication (the red star shown above). But it's less familiar to us than the others. That's because archaeologists identified it relatively recently.

The plants domesticated there belong in the same category as corn, potatoes, and rice. They include eight seed-producing plants that archaeologists call the *Eastern Agricultural Complex*. The seeds from sunflower and sumpweed were sources of oils, fats, and other nutrients. Goosefoot, maygrass, erect knotweed, giant ragweed, amaranth, and little barley seeds provided starchy carbohydrates. *Fleshy* squash, with soft tissue and thin skin, is another plant they domesticated.



(L-R) sunflower, sumpweed (museum.state.il.us), goosefoot (botany.cs.tamu.edu), maygrass (cas.sc.edu), squashes.

All these native North American plants, except squash, are called *weedy annuals*. They thrive in disturbed ground, like river floodplains and forest clearings.

A key reason we know about prehistoric Native American plant domestication is the research archaeologists have carried out at sites in Kentucky's Red River Gorge. The Gorge was critical to identifying the Eastern Woodlands as a 5,000-year-old center of plant domestication.



Sunflowers were one of the earliest food crops in this region. The nutritious seeds provide oil, fat, protein, fiber, magnesium, calcium, potassium, phosphorus, B vitamins, and Vitamin E. Pre-historic gardeners selected the largest sunflower seeds to plant from year to year. For this reason, domesticated sunflower seeds are longer and bigger than their wild cousins.

In late spring, Native Americans planted seeds in the moist soil of small gardens on the Red River Gorge's hillslopes and floodplains. Spaced about one foot apart, the plants could grow to over eight feet tall. The ripe sunflower seed heads were ready for harvest in late summer and fall, easily harvested by hand picking.

Native Americans ate the entire seed, shell and all, or just the meat inside the shell, as we do today, alone or with other seeds in trail mix. They also ground-up sunflower seeds using hand-held tools, called *grinding stones*, or in man-made depressions in large boulders, called *hominid holes*. They combined the ground sunflower seeds with meats and other seeds to make stews and gruels they cooked in clay pots. Seeds were stored to eat during the winter and to plant in the spring.



Gorge sites contain some of the earliest and best-preserved evidence of prehistoric plant use in the Eastern Woodlands. In Kentucky, the earliest sunflower seeds, pictured here, date to about 3,300 years ago. They come from a rockshelter site in the Red River Gorge called Newt Kash Shelter. Archaeologists also have recovered prehistoric domesticated sunflower seeds from other Gorge sites dating to 3,000-1,000 years ago. Like other archaeological sites in the Daniel Boone National Forest, federal laws protect these important sites.

Today, we still enjoy eating sunflower seeds. Sunflowers are one of the major oil-producing seed crops in the world. We owe a debt of gratitude to Native Americans, who first domesticated this crop thousands of years ago.