



Meramec Ice Age

10,000 BP

We thought it might be interesting to explore the Meramec Valley as it was about ten thousand years ago (10,000 BP, Before Present) during the Pleistocene Epoch or Ice Age. The Pleistocene had begun nearly two millions years ago and consisted of numerous advances of continental glaciers over much of North America, with warm interglacial periods in between. None of the glaciers reached the Meramec Valley itself but came quite close and certainly impacted the area.

10,000 BP saw the latest glacier, called the Wisconsin, in full meltdown as shown in the map above. Its greatest points of advance, in 18,000 BP (black line on the above map), found it reaching southern Iowa and central Illinois.

The enormous amount of water frozen into the glaciers of North America, Eurasia and mountains, caused the ocean level to drop by more than 300 feet. This created a land bridge between Asia and Alaska and widened the link between North and South America, permitting a substantial interchange of animals. Many of these new "immigrants" would find their way to the Meramec.

At this time enormous quantities of meltwater was returning to the oceans and in mid-North America it flowed through the Mississippi River system. This included overflow from the then forming Great Lakes as well as from massive, temporary meltwater lakes along the glacier boundaries. The enormous summer floods down the Mississippi during these times, which filled the river valley, are hard to even imagine.



Bootherium bombifrons

During the late Pleistocene four species of musk oxen dwelled in North America, most adapted to the frigid realm of the tundra. One of these survives today in northern Canada and Alaska. One other, the **Woodland Musk Ox**, adapted to warmer climates and deciduous forest plants, and lived in the Meramec Valley. A bit smaller than the bison, it probably was originally from Asia, and became extinct by around 9000 BP. Remains have been found in St. Louis and Jefferson Counties.



Canis dirus

The **dire wolf** was larger than other wolves, had shorter legs and massive teeth. It likely fed on the larger ice age animals as well as on carrion, and hunted in packs. 10,000 years ago it shared the Meramec Valley with gray and red wolves, both of which survive in North America today. Dire wolf populations dwindled as did the populations of the large herbivores, and it became extinct around 4000 BP. Fossils have been found in Cherokee Cave beneath St. Louis.

When the Wisconsin Glacier was at its maximum, the climate was far cooler than now. Additional cooling to Missouri and the Meramec came from the fierce katabatic winds blowing over the glacial ice. Meramec forests were then similar to today's boreal forests of Canada, consisting of spruce, pine and fir.

Beginning about 10,500 BP a warmer and wet period began, and the Meramec Valley climate became similar to that of the southeastern United States today. Not only did this accelerate the melting of the glaciers but saw the return of deciduous forests to Missouri. It is even likely that many tree and herb species now common to the south and east expanded their ranges into the Meramec region.

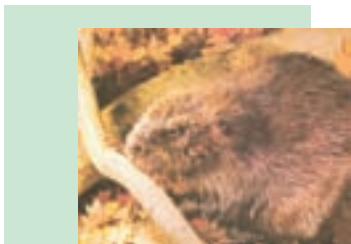
Hence at first glance the valley would appear quite familiar, with the same Ozark setting of low hills, a meandering river and lush forests (below).

The fauna of the Meramec in 10,000 BP included many species still present today (below).



Paramylodon harlani

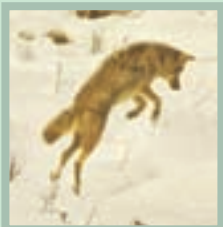
Harlan's Ground Sloth was a large animal six feet tall at the shoulders and weighing 3500 lbs. Its claws were good for pulling down trees and pulling up roots to eat. It was a slow moving creature that likely traveled in small groups. Fossils are easily identified because the animal had small bones (ossicles) in the skin on its neck and back to help protect it from attack. This ground sloth, as well as a few similar species, became extinct about 8000 years ago. Bones have been found at Mastodon State Park.



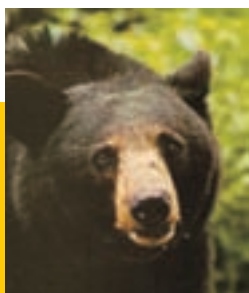
beaver



raccoon



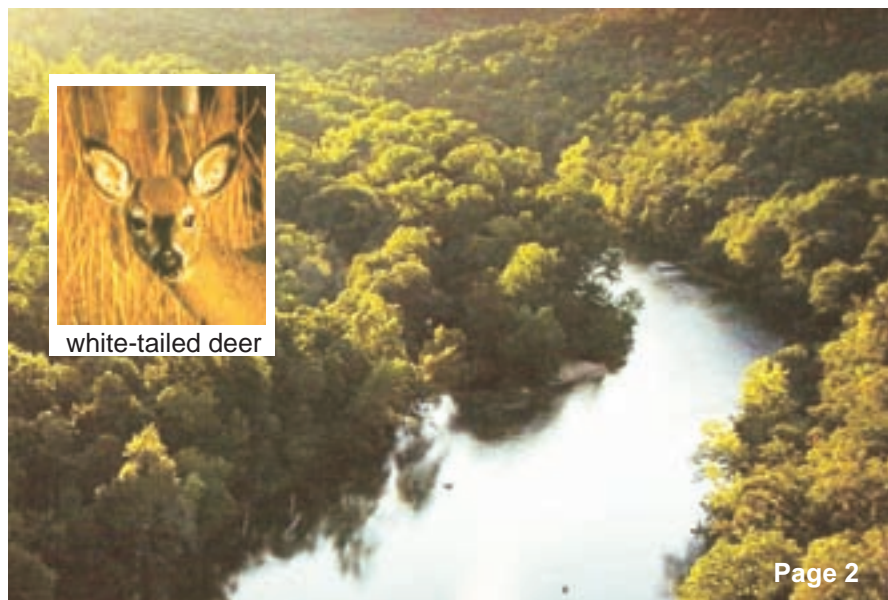
coyote



black bear

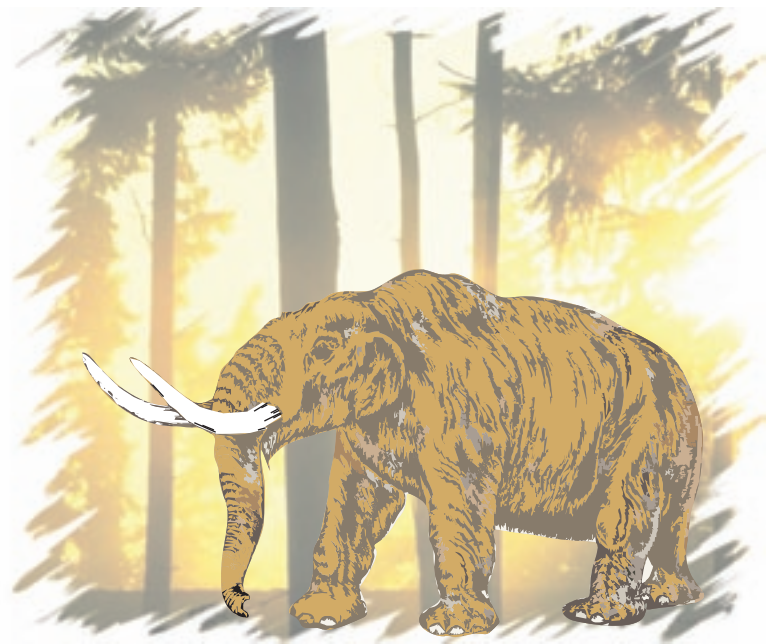


bobcat



white-tailed deer

Likely still to be found near the Meramec was the **mastodon**, a distant relative to the elephants of Asia and Africa. Ten feet tall and weighing up to 10,000 pounds, mastodons were browsers found in the river valley forests near oxbows and other wetlands. Their food included mosses, tree leaves, water lilies and sedges. They became extinct about 4000 years ago. Information about them and their relationship with early Native Americans is found at nearby Mastodon State Park in Imperial, Missouri.



Mammut americanum

Smilodon was the last of a long line of saber-toothed cats. Slightly smaller than today's lions it was nearly twice as heavy with large bones and muscles. It fed primarily on the larger Pleistocene mammals such as ground sloths, musk ox and young mastodons.



Smilodon fatalis

To learn more we suggest:

Ice Age Mammals by Ian M. Lange.
After The Ice Age by E. C. Pielou



Tapirus veroensis

The **vero tapir** was a solitary, secretive animal of the forests. A browser, its favorite foods included young leaves, fruits and berries. It frequented aquatic habitats spending considerable time in the water, and its normal escape from predators was to jump into the river. Tapirs became extinct in the Meramec area about 8,000 years ago, though relatives migrated to South America where they still live today. Fossil teeth are known from Jefferson County.

The warm and wet climate persisted in the Meramec Valley until 8,000 BP, then came a gradual cooling and drying of the climate, similar to what we have today. The remainder of the great glacier, located where Hudson Bay is now, disappeared. Most of the large glacial meltwater lakes drained away.

With less precipitation the prairies of the western Great Plains migrated eastward, replacing the forests of northern and southwestern Missouri, and expanded through Illinois and Indiana to Ohio.

Along the Meramec, forest plant species originally from the south and east died back. The rocky Ozark ridgetops and upper hillsides, now very dry, lost most of their trees, opening glades and savannas lush with prairie grasses and wildflowers. In addition to the climate, these open areas were kept open by wildfire and grazing animals such as elk. Many of the large ice age animals became extinct, partially due to the radical changes in the natural habitats, but also due to the arrival of an intelligent new predator - man.