



Plants and Animals in Ohio

Learn about the flora and fauna of Ohio, including their history and their relationship with Ohio's people.

Introduction

The history of Ohio's plants and animals provides an interesting and informative cross-sectional glimpse into the evolutionary history of life on Earth. Over millions of years, Ohio's lands slowly shifted northward from a position below the equator, as the North American continent gradually differentiated from the Laurasian and Pangaeian supercontinents. There were times when Ohio was submerged, partially or entirely, underwater; times when climatic conditions were warm and tropical; and times when they were cold and arctic. And as Ohio's environment has changed over time, so too, have the plants and animals that have inhabited its environment. From the very first marine organisms that floated in primordial oceans to the brainy hominid possessing the ability to reflect on its own origins, Ohio's natural history tells a fascinating story of organisms large and small, familiar and bizarre, successful and extinct.

Precambrian and Early Paleozoic Eras

Plant and animal life in Ohio is first found in fossils dating from the Cambrian and Precambrian periods (over 600 million years ago). As ancient seas covered the land area now known as Ohio then situated south of the equator, they began to teem with marine life, ranging from simple multicellular and colonial organisms to more complex life such as early mollusks and jellyfish. The Cambrian Period is sometimes termed the "Age of Trilobites," because these distinctive animals make up about 60% of the period's fossil remains. Trilobites are so well-known in Ohio's fossil record, in fact, that the state named *Isotelus*, a large species of trilobite, as the official state fossil in 1985. The largest known complete *Isotelus* fossil, collected at Huffman dam in Montgomery County, was named the representative specimen.

Especially during times when the shallow ancient oceans lay over Ohio, the Ordovician Period (505-438 million years ago) hosted a variety of invertebrate life. Fossils of Ordovician animals are among the most common found in Ohio, especially in the southwest. Examples include bryozoans (small colonial animals that look like twigs), brachiopods (small bivalved animals), clams and early gastropods. The Silurian Period (438-408 million years ago) is sometimes referred to as the "Age of Corals," since great reefs began to spread throughout the marine waters that covered Ohio. The first vascular plants also made their appearance at this time. The Devonian (408-360 million years ago) is a particularly notable period, since this was the time when fish first appeared in the ancient seas that covered Ohio. These fish ranged from early jawless species to primitive sharks and bony fishes. Particularly interesting were the placoderms or armored fishes, whose class includes *Dunkleosteus terrelli*, a fearsome-looking predator that grew to nearly five meters in length and weighed more than a ton.



Carboniferous and Permian Periods

Although plants began their evolutionary march across the land during the Devonian, it was only during the Carboniferous Period (360-286 million years ago) that they reached a level of diversity and coverage that resulted in true forests and lush vegetation. The tropical forests of this time, though recognizable as such, would have appeared strange and otherworldly to modern-day observers. The nickname "Coal Age" is often applied to this period: vast peat swamps covered the eastern part of the state, which over time, compressed to form extensive coal deposits.

Early tetrapods, forerunners of all land animals, began evolving and diversifying in the upper Paleozoic Era, eventually leading to numerous species of amphibians in the Pennsylvanian Period (320-286 million years ago). Insects evolved from early land arthropods before this period, but did not take flight until the middle Carboniferous.

During the Permian Period (286-245 million years ago), Ohio was situated just above the equator. Reptiles, branching off from their amphibian ancestors, became more common inhabitants of the landscape. Unfortunately for all life on the planet, however, the largest extinction event that the earth has ever known occurred during this period. Between 90-95% of all marine animal species were extinguished within a million-year time frame. Causes for this extinction are not precisely known; however, some of the causes that have been proposed include climate change, a comet or meteor impact, sea level changes, global warming or continental drift.

It is also unfortunate that for the periods of the Mesozoic (245-66.4 million years ago) and Tertiary (66.4-1.6 million years ago), the fossil record is nearly non-existent in Ohio: the great age of the dinosaurs and the subsequent rise of the mammals cannot be traced in Ohio's rocks. Although dinosaurs and mammals certainly must have roamed the state during this time, extensive erosion of the fossil strata is probably responsible for erasing the evidence.

Pleistocene Epoch: the "Ice Age"

During the Pleistocene Epoch (1.8 million-11,000 years ago), the northern hemisphere cooled and caused the spread of glaciers over North America. For many plants and animals, this meant extinction or migration; but for others, the change in climate represented opportunities to adapt and thrive. Along the glacial margins, forests of pine, spruce and fir became common: today's deciduous forests and prairies would have to wait for warmer temperature to return. Animals of the Ice Age were interesting and varied; and the Pleistocene fossil record in Ohio provides good documentation of their existence, especially for mammals. Although perhaps recognizable as ancestors of their modern day relatives, Ice Age mammals generally possessed characteristics that would make them stand out to the modern observer: the giant ground sloth and giant beaver, for example, were gargantuan compared to the sloths and beavers we know today.

Although most of the interesting mammals of the Pleistocene are now extinct, one species in particular survived into the modern era: *Homo sapiens*. In fact, modern humans play a major role in the most recent history of plants and animals in Ohio. For example, although it is certain that the climate change accompanying the retreat of the glaciers spelled the doom of



many Ice Age mammals, current researchers vigorously debate if human hunting played an important role in their demise, or merely speeded up the process that was controlled by climatic and vegetative change.

Historic Period

The last 300 years of human habitation has accelerated and intensified the reshaping of Ohio's plant and animal ecology. When pioneers and new settlers arrived on Ohio lands in the 18th century, they were met with abundant flora and fauna: 95% of the state was covered by forests; wetlands, the remains of the Ice Age, covered large portions of the state, especially in the northwest; diverse and abundant animal species filled the forests, roamed the prairies, and inhabited the waterways. Although present-day Ohio was in part made possible by the human exploitation of natural resources, its impact on plant and wildlife communities has been significant, and often, devastating.

For example, by 1900, in the short space of 150 years, Ohio's forests had dwindled to 15% of their pre-settlement area. Its wetlands had shrunk dramatically, as the need for cultivatable land increased. As these ecologies declined, so did the plants and animals that depended on them. Unregulated hunting and fishing also took their toll on animal populations. For example, because beaver pelts were an important commodity during the early settlement period, the beaver population was wiped out from Ohio streams by 1830. By 1904, the white-tailed deer population had dwindled essentially to zero, and remained there until efforts were undertaken to restock them in the 1930s. Similarly, bison, black bear, elk, wild turkeys and prairie chickens faded out during the course of the 19th century. The passenger pigeon was hunted to extinction by the end of the 1800s. Animals that threatened settlers' livestock and food supplies were also eliminated, including mountain lions, timber wolves and lynx.

The loss of these predators made it possible for small animals to rebound and thrive; and the loss of forests, though bad for woodland birds, was good for birds better suited to an open environment, like meadowlarks and bluebirds. During the course of the 20th century, ecological understanding increased and conscious efforts were made to reintroduce many of the wild species that were lost during the course of the 19th century.

State Symbols

One of the true survivors, and a symbolically important plant species for the state of Ohio, is *Aesculus glabra*, known to most as the buckeye tree. Early in the state's history, this hardy tree came to be associated with the residents of Ohio; and in the 1840 election, William Henry Harrison used the buckeye and its nuts as campaign symbols. From that point on, Ohioans and buckeyes became inextricably linked in the national mind. In 1833, Daniel Drake, the great Ohio physician, stated in a dinner speech that, "In all our woods there is not a tree so hard to kill as the buckeye. The deepest girdling does not deaden it, and even after it is cut down and worked up into the side of a cabin, it will send out young branches—denoting to all the world that Buckeyes are not easily conquered, and could with difficulty be destroyed." In 1953, the buckeye became the state tree.

The white-tailed deer, *Odocoileus virginianus*, is also known as the Virginia deer. It became the state animal in 1988. Native to Ohio since the end of the Ice Age, the white-tailed deer



provided prehistoric Ohioans with food, clothing, tools and ceremonial objects. By the end of Ohio's first century the clearing of forests for farming and development, combined with unregulated hunting, nearly eliminated deer from Ohio. Beginning in the 1920s, the population began to increase. By 1995, it exceeded 500,000.

Cardinalis cardinalis, the cardinal, became the state bird in 1933. It is the most popular state bird in the nation; Ohio shares it with Illinois, Indiana, Kentucky, North Carolina, Virginia and West Virginia.

Ohio has both a state insect and a state reptile, the lady bug and black racer, respectively. Also called the ladybird beetle, *Coccinellidae sp.*, is a beneficial predator, eating insects that are harmful to plants. It was designated a state symbol in 1975. Twenty years later, the General Assembly adopted the black racer, which is known as the farmer's friend because it eats rodents that destroy crops.

Alliance, Ohio, is the home of the state flower, the scarlet carnation. The city was the place where some of the first seedlings to be imported from Europe were successfully grown. In 1904, the carnation, *Dianthus caryophyllus*, was named the state flower in honor of slain President William McKinley. It was McKinley's favorite flower. The carnation is not Ohio's only official flower; large white trillium, *Trillium grandiflorum*, became the state wildflower in 1987. It can be found in all 88 counties.

Ohio's most unusual state symbol is its state beverage, tomato juice. Tomatoes are a leading crop in Ohio. At the time that the beverage was adopted, in 1965, Ohio led the country in production of tomato juice.

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