

Urban Fossils in the Nation's Capital

National Park Service
U.S. Department of the Interior



National Capital Region
Washington, D.C.

*These rocks, these bones, these fossil
ferns and shells, shall yet be touched
with beauty, and reveal the secrets
of the book from earth to man.*

ALFRED NOYES, BOOK OF EARTH, 1925

Fossil-bearing limestone borders the Capitol Reflecting Pool.

Stories in Stone

Renowned for its historical and cultural landmarks, the National Park Service National Capital Region also contains remarkable *fossiliferous assemblages* (a group of fossils found in the same type rock unit). Comprised of vertebrates, invertebrates, microfossils, plant fossils, and trace fossils, paleontological resources in the National Capital Region span nearly 550 million years of geologic time. This diverse fossil record is a reflection of the varied geology of the region. As a steward of the nation's most important natural and cultural resources, the National Park Service is working to protect irreplaceable fossils through scientific inventory and monitoring, collaboration, and partnerships.



Detail of crinoids at Capitol Reflecting Pool

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National parks within the four main physiographic provinces (Valley and Ridge, Blue Ridge, Piedmont, and Coastal Plain) of the National Capital Region

Fossil Locations

National parks in the National Capital Region are located in four distinct *physiographic provinces* (landscape regions with distinctive geographical features). From west to east, these are the Valley and Ridge, Blue Ridge, Piedmont, and Coastal Plain. Rocks from these provinces can be found within 100 miles from downtown Washington, D.C. Each province has a rich geologic story that is illustrated by the fossils found in that area.

Locations of national parks (red on map) in the National Capital Region: 1. Antietam National Battlefield; 2. Catoctin Mountain Park; 3. Chesapeake and Ohio Canal National Historical Park; 4. George Washington Memorial Parkway; 5. Harpers Ferry National Historical Park; 6. Manassas National Battlefield Park; 7. Monocacy National Battlefield; 8. National Capital Parks-East; 9. National Mall and Memorial Parks; 10. Potomac Heritage National Scenic Trail; 11. Prince William Forest Park; 12. Rock Creek Park; 13. President's Park, and 11. Wolf Trap National Park for the Performing Arts.

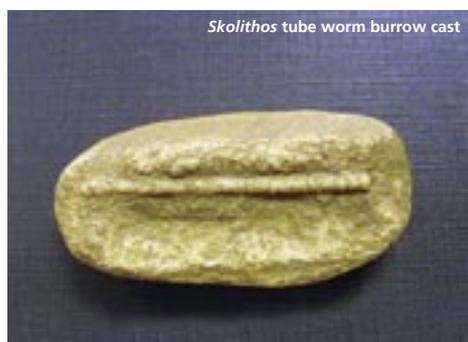
Fossils in the National Capital Region Parks



oyster shell impression

Valley and Ridge Province

The elegantly folded sedimentary rocks of the Valley and Ridge Province were deposited in warm ancient seas during the Paleozoic. These seas, similar in climate to the modern Caribbean, teemed with life. Fossils found within the province's limestones and sandstones include hundreds of species of trilobites, eurypterids (sea scorpions), brachiopods, bryozoans, mollusks, echinoderms, conodonts, and stromatoporoids. This diverse fossil assemblage has provided many clues about the geologic history of the Appalachian Mountains and Atlantic Ocean basin.



Skolithos tube worm burrow cast

Blue Ridge Province

The Blue Ridge Province forms the core of the Appalachian Mountains. Some of the oldest rocks in the United States are found here (some nearly one billion years old). Many of the volcanic and sedimentary rocks of the province were exposed to tremendous heat and pressure. Fossils do not preserve well in such conditions; however, Cambrian *Skolithos* fossils (burrows of tube worms) have been preserved and are rather abundant. *Skolithos* burrows are evidence of ancient tidal flat (beach) environments.



Cucullaea giant clam cast

Piedmont Province

Only the Triassic "red beds" of the Piedmont Province, named for their distinctive color, are fossiliferous. Fossils found in this region include abundant reptilian tracks, and many freshwater lacustrine fossils (clam shrimp, tadpole shrimp, ostracodes, crustaceans, mollusks, and occasionally stromatolites, fish teeth and scales). Tadpole shrimp (notostracan) fossils are noteworthy because examples of these fossils from the Culpeper Basin of Virginia produced the first record of Triassic-aged notostracans in North America.



Isurus shark tooth fossil

Coastal Plain Province

The flat Coastal Plain Province contains a rich paleontological record from the Cretaceous through modern times. Gravels, sandstones, siltstones, and shales of this province include both marine and terrestrial (fluvial) depositional environments. Many significant fossils of this province include abundant plant material, hundreds of species of snails and bivalves, dozens of species of sharks and rays, and diverse marine mammals. Some of the oldest angiosperm (flowering plants) fossils were described from Cretaceous sediments in the National Capital Region, as well as many of the first dinosaur fossils in the United States. During the 1800s, paleontologists from Europe frequented Coastal Plain exposures along the Potomac River and described many mollusk species new to science. Their comparisons of area fossils to those in Europe were some of the first attempts to correlate fossils from disparate geographic locations.



Turitella snail mold

Monumental Fossils

The "monumental core" around the National Mall is a distinct feature of the Nation's Capital where building stone from throughout the country and the world has been used to construct monuments, memorials, and federal buildings. Some of the limestones and sandstones utilized as building stones preserve fossils. For example, the Mississippian Salem Limestone (known as "Indiana Limestone" because it is quarried near Bedford, Indiana) is very fossiliferous and a highly popular building stone. Marine invertebrate fossils from the Indiana Limestone are visible in many downtown structures, especially the Lincoln Memorial and Capitol Reflecting Pool.



The Washington Monument contains 193 commemorative stones that come from every state as well as from other countries. Some of the stones display fossils. The Arizona stone is the most dramatic of these fossiliferous stones. It is made up of three large sections of petrified wood (weighing 6,000 lbs!) similar to specimens found within and near Petrified Forest National Park. The National Mall includes numerous monuments that provide interesting places to view fossils within the National Capital Region.

Good Fossil Stewardship

Fossils record the extraordinary history of life on Earth and are nonrenewable (irreplaceable) pieces of the past. The National Park Service preserves these important resources for this and future generations. You can help the National Park Service care for fossils on parklands by not removing fossils. It is not only illegal to remove fossils, but poor citizenship. If you do discover a fossil, leave it where you found it, note the location, and share your discovery with a park ranger.



For more information, visit this website:

- National Park Service Paleontology Program www2.nature.nps.gov/geology/paleontology

Gwyneddosaurus lizard track (above), Manassas National Battlefield Park