

Are Fossils Important?

Compared to what? -- Medical advances? Aviation inventions? Understanding the origin of the universe? Who won the last 10 World Series games? Importance is a relative term. What is important to one person may be of no interest to someone else.

Fossils do play a role in modern society. Oil, natural gas and coal are **fossil fuels**. They exist because of previous life forms. Oil and gas are created by the decay of marine plants and animals. Coal is formed by the compression and alteration of the remains of land plants.

Fossil-bearing rock is widely used in building stone. Indiana Limestone or Bedford Stone is one of the most widely used building stones in the world. It can be found in the Falls of the Ohio State Park Interpretive Center. Look at it up close. Those sand grains are actually microscopic fossils. Use a magnifying glass to see them better.

What can we learn from fossils?

Fossils tell us about life long ago. A fossil is the evidence or remains (usually in rock) of previously existing life. More than just a curiosity of nature, in the proper context, a fossil can tell us about environments and organisms of long ago. We can learn about the climate and weather. One can decipher current flow in ancient oceans or streams by the alignment of fossils. We can discover if an area was covered by oceans (such as at the Falls of the Ohio) or deserts by the type of fossils observed in the rock. And there is more...

Fossils give us insight in to the development of organisms. Which life forms came first? Which share a common ancestry? How have certain organisms changed over time? Fossils can help answer many of these questions!

Evolution is the process by which life changes over time. This process is almost immeasurable over the life spans of a handful of human generations. At least a million years is needed for a species to change to a new one. Yet the outcomes -- extinctions and changes that evolve new species -- can be found throughout nature.

Changes may evolve from sudden catastrophic phenomena of nature (meteorites, major volcanic eruptions) or through gradual processes like continental drift, mountain building or shifts in the climate. Whatever the cause -- change is a constant force in nature.

Are fossils valuable?

Some fossils are rare -- one (or few)- of-a-kind. Other fossils are widespread. However rarity does not always play a role in the value. Paleontologists can only assign one form of value -- scientific value. The dollar value is assigned like everything else -- by the market -- how much someone is willing to pay for it. How can someone assign a monetary value to something that is priceless / irreplaceable?

Complete dinosaurs are rare - a small number exist in the world. Their value in scientific terms is immeasurable, but in dollars they can be pricy. Dinosaur bones are not rare in certain rock layers, and it is possible to purchase a chunk of bone for a couple of dollars.

Rare fossils do not have to be dinosaurs. Certain species of corals or brachiopods are rare, but not valuable in monetary terms because most fossil collectors do not have an interest in them. The most "valuable" fossils rate because they are "cute" or "beautiful." Complete crinoids or trilobites fall into that category. Indeed, for the paleontologist, the

scientific value makes the monetary value irrelevant. Unfortunately, museums often do not have funds to purchase rare fossils from collectors or dealers. Like artwork, there are probably many great "pieces" in private hands. Like art, private ownership is okay. Eventually some will end up in museums, while others will be discarded or destroyed due to the lack of knowledge by the owner.

Should fossils be considered as a renewal or non-renewable resource?

While there are unique individual specimens, most paleontologists consider fossils to be renewal resources. Fossils are destroyed by the natural forces of erosion and weathering and human intervention (construction, quarrying) much faster than they can be salvaged by professional and amateur paleontologists. (There have never been, nor ever will be, enough paleontologists to preserve but a tiny percent of the fossils exposed by nature or humans.)

Where can I get fossils identified?

No paleontologist can identify every fossil. There are too many different kinds of fossils and paleontologists tend to specialize with specific organisms. Most can provide general assistance and lead you in the right direction to get something identified with at least a general name.

In recent years, professional paleontologists have joined cowboys in becoming a dying breed. Jobs in the petroleum industry are drying up. Universities, colleges and museums have been eliminating positions. Government paleontologists are losing their jobs are part of "down-sizing." There are many states where the number of professional paleontologists can be counted on one hand! These paleontologists end up working in other geology fields. There are hundreds of amateur paleontologists in the United States able to identify different kinds of fossils. In fact, amateurs may be better "generalists" than the professionals. Some amateurs are as knowledgeable as professionals and contribute to the scientific literature.

In Indiana, paleontologists can be found scattered across the state. The Falls of the Ohio State Park, the Indiana State Museum and Geological Survey, Indiana University and some of the regional branches, and some of the other colleges. Look for them now, because in 20 years the situation may be much different!

Should you collect or buy fossils?

Why not? Fossils are a part of our natural world. They tell stories about the earth of long ago. Some make great decorator pieces. Many countries have restrictions on exporting fossils, but Morocco – a primary source for fossils today – does not.

Fossils are found on every continent across the globe. Indiana and Kentucky hold thousands of species in the bedrock. A word of caution is necessary. Observe state and federal laws and the rules of common sense when collecting. Do not collect in parks or preserves. Get permission before collecting on private property. Be courteous when collecting. If you find something you cannot identify -- get help. Buy or go to the library and read fossil books. Join a local geology club if one is available. Most have field trips to places fossils can be found.

The following list of contacts can help you get fossils identified. Remember to call or write before you bring the fossils in to be identified!

Falls of the Ohio State Park

201 W. Riverside Dr.
Clarksville, IN 47129
(812) 280-9970
Alan Goldstein, park paleontologist
www.falloftheohio.org
The Falls Fossil Festival in September is a
great place to get fossils identified.

Indiana Paleontological Society

Phillip Zink
7590 E. 52nd St.
Lawrence, IN 46226

Indiana State Museum

650 W. Washington St.
Indianapolis, IN 46204
(317) 232-7172 (Curator of Geology)

Indiana University

Department of Geosciences
1005 E. Tenth St.
Bloomington, IN 47405
(812) 855-5582

Kentucky Geological Survey

228 Mines and Minerals Bldg.
University of Kentucky
Lexington, KY 40506-0107
(606) 257-5500

Kentucky Paleontological Society

Dan Phelps
365 Cromwell Way, Lexington, KY 40503
www.uky.edu/OtherOrgs/KPS/

Kyana Geological Society

The Louisville metro area's hobby group
Meets 3rd Tuesday, 7:30 pm at the
Louisville Nature Center, across from Zoo.
www.kyanageo.org

Mid America Paleontological Society

An international amateur organization, but most members are located in the middle of the
U.S.
Sharon Sonnleitner
4800 Sunset Dr. N.E., Cedar Rapids, IA 52404
www.midamericapaleo.org/

The Paleontological Society

Largest paleontology organization in the world - mostly professionals, but there are some serious amateur members.

www.paleosoc.org

University of Kentucky

Department of Geological Sciences

101 Slone Building

Louisville, KY 40506-0053

(859) 257-1401