

Generally, in order to be preserved in the fossil record, organisms must possess hard body parts such as shells or bones.

Soft, fleshy structures are quickly destroyed by predators or decayed by bacteria.

Even hard parts left on the surface for any length of time will be destroyed. Therefore, organisms must be buried rapidly to escape destruction by the elements and to be protected from agents of weathering and erosion. Marine organisms thus are better candidates for fossilization than those living on the land because the ocean is typically the site of sedimentation, whereas the land is largely the site of erosion.

The beds of ancient lakes were also excellent sites for rapid burial of skeletal remains of freshwater organisms and skeletons of other animals, including those of early humans. Ancient swamps were particularly plentiful with prolific growths of vegetation, which fossilized in abundance.

Many animals became trapped in bogs overgrown by vegetation.

The environment of the swamps kept bacterial decay to a minimum, which greatly aided in the preservation of plants and animals.

The rapidly accumulating sediments in flood plains, deltas, and stream channels buried freshwater organisms, along with other plants and animals that happened to fall into the water.

Only a small fraction of all the organisms that have ever lived are preserved as fossils.

Normally, the remains of a plant or animal are completely destroyed through predation and decay.

Although it seems that fossilization is common for some organisms, for others it is almost impossible.

For the most part, the remains of organisms are recycled in the earth, which is fortunate because otherwise soil and water would soon become depleted of essential nutrients.

Also, most of the fossils exposed on Earth's surface are destroyed by weathering processes.

This makes for an incomplete fossil record with poor or no representation of certain species.

The best fossils are those composed of unaltered remains.

Generally, it is the inorganic hard parts, composed mostly of calcium carbonate, that form the vast majority of unaltered fossils.

Calcite and aragonite also contributed to a substantial number of fossils of certain organisms.