

# The Mazon Creek Lagerstätte and Paleozoic Ecosystems: Text

GEOL 204 The Fossil Record  
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## 1. The Site:

1. An area spanning 150 km<sup>2</sup> located just southwest of Chicago, named after a tributary of the Illinois River. From the 1900s to the 1980s the area was one of the most profitable coal seams and over 83 shaft mines and 15 strip mines operated here. Several companies extracted coal for over 50 years here and so there were heaps of soil for researchers to pick through. Because of this, there are hundreds of thousands of Mazon Creek fossils that have been donated or sold privately. Unfortunately now many of these mines have been closed and filled, most importantly "Pit 11" which was the largest collection site, and there are few natural exposures.

1a) About 309–307 years ago Illinois was a warm swampy environment at the paleoequator, that was eventually covered by a vast sea from the southwest to the northeast. These seas were very calm in the region as sea levels rose (a process called transgression). This calm environment was mixed with rapid channel switching, this would lead to massive amounts of sediment entering the area which is ideal for the formation of Lagerstätte as the organisms remained still while there was a continuous flow of deposits laid on top of them.

1b) The graph on the right displays the Francis Creek Shale Member deposit that contributed to the mass fossilization of organisms.

## 3. Recent Discoveries:

3. *Infernovenator steenae* was preserved well enough to undergo anatomical comparisons. The importance of this fossil and the Mazon Creek is that it can be used to further understand Palaeozoic lineages. Cranial and postcranial analysis was conducted to link *Infernovenator steenae* to the group of lysorophians, which are small snakes. The diversity and complexity of the Mazon Creek is evident with the emergence of new specimens.

## 2. Fossil Diversity:

2. The Mazon Creek Lagerstätte is most known for its excellent preservation of fossils. There were over 350+ species of plants and animals found and preserved more soft tissues unlike other Carboniferous fossil deposits. Many biomarkers like: sterols from the site also reveal more insight about the diet and trophic position of Carboniferous animals. The exact cause of death of these organisms is undetermined, but it can be linked to anoxia/anoxic mud.

Fig A) *Rhabdoderma* sp. Is from an extinct group of coelacanth fish from the Carboniferous. This fossil contains soft parts impressed such as the fins.

Fig D) Polychaete *Esconites zelus* is from the group that consists of worms. The Mazon creek was able to preserve the soft part protrusions called parapodia.

Fig E) Priapulid *Priapulites konecniorum* is another type of marine worm. Priapulid still exists, but the specific genus of *Priapulites* is extinct.

Fig F) Actinopterygian *Platysomus circularis* is part of an extinct group of ray-finned fish that lived during the Carboniferous period.

Fig H) *Alethopteris* sp. Is also known as seed ferns. They are an extinct group of gymnosperms.

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