



INTEGRATE Life Science

Ancient Ecology

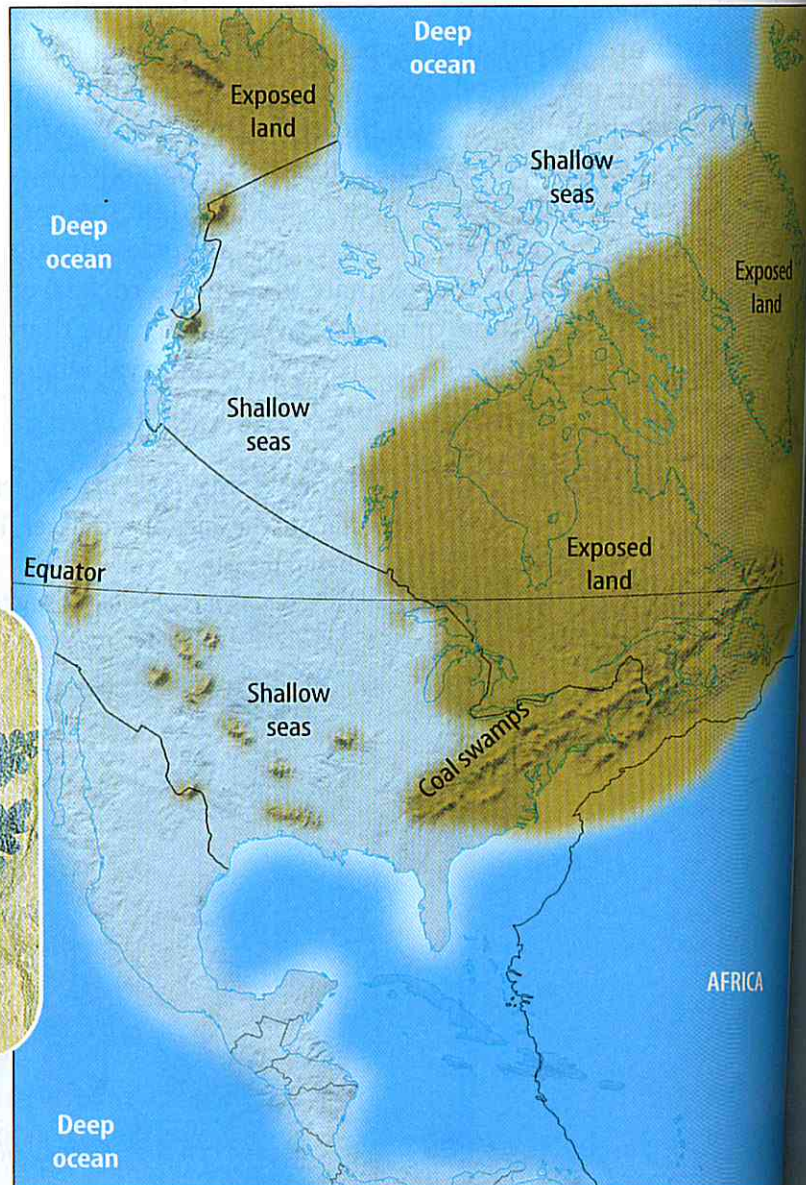
Ecology is the study of how organisms interact with each other and with their environment. Some paleontologists study the ecology of ancient organisms. Discuss the kinds of information you could use to determine how ancient organisms interacted with their environment.

Fossils and Ancient Environments

Scientists can use fossils to determine what the environment of an area was like long ago. Using fossils, you might be able to find out whether an area was land or whether it was covered by an ocean at a particular time. If the region was covered by ocean, it might even be possible to learn the depth of the water. What clues about the depth of water do you think fossils could provide?

Fossils also are used to determine the past climate of a region. For example, rocks in parts of the eastern United States contain fossils of tropical plants. The environment of this part of the United States today isn't tropical. However, because of the fossils, scientists know that it was tropical when these plants were living. **Figure 9** shows that North America was located near the equator when these fossils formed.

Figure 9 The equator passed through North America 310 million years ago. At this time, warm, shallow seas and coal swamps covered much of the continent, and ferns like the *Neuropteris*, below, were common.



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Formation of

- Fossils are past organisms
- Fossilization is the process of hard parts of organisms being preserved

Fossil Preservation

- Permineralization: fossils formed by minerals filling the space around the organism
- Thin carbon films: fossils formed by a thin layer of carbon coating the organism
- Hard parts of organisms: fossils formed by the hard parts of organisms being preserved
- Trace fossils: fossils formed by the remains of an organism's activity

Index Fossils

- Index fossils: fossils of organisms that lived for a short time but were common
- Scientists can use index fossils to determine the age of a rock layer

Fossils and Ancient Environments

- Fossils tell us about the organisms that lived in the past