

Large numbers of dinosaur fossils have been discovered in deposits on Alaska's North Slope, a region that today experiences an extremely cold, arctic climate. One hundred million years ago, when those dinosaurs were alive, the environment of the North Slope was already inhospitable, especially during the winter when it experienced several months of total darkness. How did the dinosaurs survive the wintertime? Paleontologists have proposed that one of the most common North Slope dinosaurs, the elephant-sized edmontosaur (*Edmontosaurus*), survived the winter by migrating south to more hospitable regions. Several arguments support the migration hypothesis. First, the edmontosaur's diet supports the migration hypothesis. Edmontosaurs fed exclusively on plants. Since there would have been no plants growing during the cold and dark North Slope winter, it appears that the edmontosaur must have left for at least part of the year and migrated to more temperate zones to find food. Second, many edmontosaur skeletons have been unearthed from the same site. This suggests that edmontosaurs lived in herds. Many modern-day migratory animals, such as caribou and buffalo, live and migrate in herds as well. Moving in herds helps animals coordinate their migration. The finding that edmontosaurs lived in herds further supports the migration hypothesis. Finally, edmontosaurs were physically capable of migrating long distances. To reach more hospitable regions, the edmontosaur had to migrate about 1,600 kilometers southward. To make such a journey, the edmontosaur needed to move at about five kilometers per hour for several weeks, which it certainly could do. These animals could run very fast, reaching speeds up to 45 kilometers per hour. It could have easily used its locomotive power to move to warmer climates during the harsh arctic winters.

Now listen to part of a lecture on the topic you just read about. The hypothesis that the edmontosaur migrated every winter is not convincing. First, the edmontosaur did not have to migrate to find food. One hundred million years ago, the summer temperatures in the North Slope area were warmer than they are today. And remember, in arctic regions like the North Slope, the Sun shines twenty four hours a day at the peak of the summer. The warm temperatures and extensive daylight created incredibly good growing conditions for plants. So much vegetation was produced during the summer that when the vegetation died as the winter came, there was a lot of nutritious dead vegetation around in the winter. The edmontosaur could have easily lived on the dead plant matter during the winter. Second, just because edmontosaurs lived in herds doesn't mean they migrated. Animals live in herds for many other reasons. Living in herds, for example, provides animals with extra protection from predators. Having extra protection is useful even for the animals that live in the same area the whole year round. A modern example of this is the Roosevelt elk, a large plant eater. Roosevelt elk live in the forests of the western United States. They live in herds but they do not migrate. Third, although adult edmontosaurs were capable of migrating long distances, what about edmontosaurs that were not yet adults? Juvenile edmontosaurs were not physically capable of traveling the great distances required to reach warmer territories and would have slowed the herd so much that the herd never would have made it to its destination. The herd could not have left the juveniles behind, because the juveniles would not have survived on their own. So the whole herd had to stay where they were and survive on the cold North Slope.

Summarize the points made in the lecture, being sure to explain how they challenge the specific points made in the reading passage.

Do you agree or disagree with the following statement? To improve the quality of education, universities should spend more money on salaries for university professors. Use specific reasons and examples to support your answer.