Chasmosaur Dominion

Kosmoceratops *richardsoni*

Order Ornithischia

Suborder Ceratopsia

Family Ceratopsidae

Sub-family Chasmosaurinae

Size 20 ft (6m), 2–3 tons

Size comparison medium-size rhinoceros

Diet plants

Age Late Cretaceous, 75 million years ago

Distribution of Fossil
Kaiparowits Formation, Grand Staircase–Escalante National Monument

Cool Facts

- *Kosmoceratops* ("ornamented horned face") sports 15 horns and spikes on its head—a record among dinosaurs.
- The species name "*richardsoni*" honors Scott Richardson, discoverer of the specimen that the new name is based on.

About 79 million years ago, a new group of Laramidian ceratopsids evolved, with longer faces and massive skull frills **(fig. f)**.

Called **chasmosaurines**, this group quickly dominated southern Laramidia and diversified into a dazzling array of species with the biggest, fanciest skulls of all time. Discovered here in Grand Staircase–Escalante National Monument, *Kosmoceratops richardsoni* tops the charts in bizarre skull ornamentation.

By 76 million years ago, chasmosaurines dominated southern Laramidia. The nasutoceratopsins were the only short-faced forms left and were apparently uncommon. Although both centrosaurines and chasmosaurines have been found in same-aged rocks in Canada, centrosaurines are the most common type. Canadian chasmosaurines are common, but nasutoceratopsins are known from only one, possibly two specimens. These differences are probably a result of differing climates across Laramidia, but physical barriers may have also played a role.

Life in a Hothouse World

When *Kosmoceratops* roamed this landscape, the climate in Canada was likely warm temperate while that of southern Utah was fully tropical, even though the continent was approximately at its present latitude. These higher temperatures, which were felt all over the globe, were largely a result of increased carbon dioxide and water vapor levels.

Hotter climates in the southern U.S. led to higher-diversity ecosystems overall. Even though differences between northern and southern dinosaur diversity may not have been as great as that of other groups (i.e. turtles and crocodylians), by 75 million years ago, the two areas had very few dinosaur species in common. The ceratopsid silhouettes shown on the map illustrate the dramatic differences between the two regions. Map from series "Paleogeography of Western Interior Seaway of North America" © 2014 Colorado Plateau Geosystems Inc.