Graphite Peak was the first place in Antarctica where Triassic fossil vertebrates were discovered. In 1967, Peter Barrett found a fragment (Barrett, Baillie, and Colbert 1968) that was later identified as the labyrinthodont *Astrobrachyops jenseni* (Colbert and Cosgriff 1974). Since then, Graphite Peak has yielded other fossil vertebrates of the Early Triassic *Lystrosaurus* fauna, including the herbivorous tusked therapsid *Lystrosaurus murrayi*, the small carnivorous therapsid *Thrinaxodon liorhinus*, and the eusuchian *Prolacerta broomi* (Colbert 1974; Colbert and Kitching 1977; Hammer 1989, 1990). *Lystrosaurus* was the dominant taxon of a cosmopolitan fauna of low diversity that survived the great extinctions at the end of the Permian (Cosgriff, Hammer, and Ryan 1982; Retallack 1995).

The habitats of *Lystrosaurus* in Antarctica have remained enigmatic because the majority of these fossils were collected from gravelly portions of ancient stream sandstones, where the bones had been transported some distance from where the animals lived (Colbert 1974). Also transported were skeletons of *Thrinaxodon liorhinus* in the flaggy upper portion of a paleochannel on Thrinaxodon col near the confluence of the Shackleton and McGregor Glaciers (locality described by Collinson and Elliot 1984; and visited by us). In contrast, discovery of a skeleton of *Lystrosaurus* on the buried soil on which it died allows a clearer idea of the paleoenvironment of this ancient reptile. These remains are in the saddle between two prominent sandstone bluffs on a low northwestern spur of Graphite Peak (85°2.99'S 172°21.65'E). Much of the skeleton is spread out over about a meter of the bedding plane (figures 1 and 2).

The skeleton is not articulated as an animal overwhelmed by catastrophic burial in a stream would be (figures 1 and 2). Instead, the bones are scattered and weathered, as if the corpse rotted on a soil and then fell apart. The bones were preserved partly in a hard green nodule that forms the lower horizon of an overlying soil similar to the one on which the skeleton lies. This kind of paleosol is common in the lower Fremouw Formation at Graphite Peak (figure 3) and in the Feather Conglomerate of southern Victoria Land, where it has been called the Dolores pedotype (Retallack, Krull, and Robinson 1995). Its drab color with berthierine nodules is evidence of a lowland seasonally waterlogged environment, and its weak development indicates soil formation for only a few hundred to a few thousand years. Fossil horsetails have been

![Figure 1. Skeleton of *Lystrosaurus murrayi* in the lower Fremouw Formation at Graphite Peak, central Transantarctic Mountains, Antarctica.](image)

![Figure 2. Scale drawing of skeleton of *Lystrosaurus murrayi* in the lower Fremouw Formation at Graphite Peak, central Transantarctic Mountains, Antarctica. (cm denotes centimeter.)](image)
found in similar paleosols in southern Victoria Land (Retallack et al. 1995), but these would have been an understory to trees represented by common woody root traces. Dolores paleosols probably supported lowland colonizing woodland among forests represented by other pedotypes (figure 3).

These observations dispel a persistent notion that *Lystrosaurus* was strictly aquatic or amphibious. They support instead indications from functional morphology (King and Cluver 1991), that *Lystrosaurus* was fully terrestrial and capable of burrowing. A nonaquatic lifestyle for *Lystrosaurus* is
also supported by the absence of webbing between the toes on all plausible footprints (Watson 1980; MacDonald, Isbell, and Hammer 1991; Retallack in press). Paleosols can now be added as evidence for the habitats of Lystrosaurus.

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