

Under Sampled Continental Mollusks near the Cretaceous–Paleogene Boundary, Selected Sites in North Dakota, Montana, and Alberta

Anna M. Crowell, Geology and Geological Engineering, University of North Dakota, Grand Forks, ND, **Joseph H. Hartman**, Department of Geology and Geological Engineering, University of North Dakota, Grand Forks, ND and **Arthur R. Sweet**, Natural Resources Canada, Geol. Survey of Canada, Calgary, AB, Canada

Continental mollusks are common and diverse in the Late Cretaceous. The dramatic loss of taxa very near the end of the Cretaceous has been recognized largely from species “easily” found in outcrop and typically preserved in shelly crevasse splay and channel lag depositional environments. Recent discoveries have shown that megascopic sampling limits the potential interpretation of 1) diversity, 2) paleoenvironments represented, 3) molluscan associations through time, and 4) patterns of extinction or survival.

Our eight study localities are preserved in fine-grained clastics, four on either side of the Cretaceous-Paleogene (K/Pg) boundary. The boundary was interpreted on the basis of iridium, palynomorphs, or close approximation based on lithostratigraphic contacts. The stratigraphic order of occurrences is: Hell Creek Formation (Montana, Locality L6771, -8.9 m; North Dakota, Locality, L6521, -2.71 m), Willow Creek Formation (Alberta, L6717a, -1.41 m; L6717b, -0.56 m; L6717a, +0.08 m), Tullock Member, Fort Union Formation (Montana, Locality L5241, +1.7 m; L6594, ~+4.1 m), and Bear Member, Fort Union Formation (Montana, Locality L6107a, b, ~+8.7 m).

Typical caenogastropod (Viviparidae, Pleuroceridae) genera, *Campeloma*, *Viviparus*, and *Lioplacodes* cross the K/Pg boundary, although *Viviparus* is not found in any abundance. Hydrobioids (Hydrobiidae) are present at most of the localities through the sequence and are associated with other quiet water taxa, such as limpets (Acroloxidae), planorbids (Planorbidae), and physids (Physidae). The latter are found in some abundance on both sides of the boundary. *Sphaerium* is also well represented, but particularly in Cretaceous sediments. We recognize without doubt the crossing of three snail species. We also note that certain viviparid, pleurocerid, and physid taxa probably do not cross the boundary. Interestingly, ostracods and conchostracans appear to occur only above the boundary at the sites investigated. With present data, molluscan suites from quiet water settings may not have been as dramatically affected by K/Pg events.

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