

**Sedimentology and paleoecology of the Upper Parrsboro Formation,
Rams Head, Cumberland County, Nova Scotia**

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The Parrsboro Formation is Late Namurian to Early Westphalian A in age and is located in northwestern Nova Scotia along the southern flank of the Maritimes Basin. The formation consists predominantly of clastic rocks varying from siltstone to conglomerate.

The Rams Head study section is located in the upper part of the Parrsboro Formation, approximately 16 km west of the town of Parrsboro. Continuous exposure of sedimentary strata at this locality occurs for hundreds of meters, and the orientation of the strata changes gradually from horizontal to vertical. It is within these strata that a treasure trove of fossils was discovered by a young boy in 1887 and sparked a renewed interest in the area. A detailed measured section of the strata shows that the clastic rocks at Rams Head consist predominately of red or grey fissile siltstone and red or grey medium-grained sandstone as well as minor interbedded 2 to 3 cm coalified layers. New fossil types discovered during this study together with the 1997 finding are predominantly from within two dominant sediment types. The fossils include very finely macerated plant matter to whole *in situ* tree trunks, beautifully preserved tetrapod trackways and horseshoe crab

traces discovered during the course of this study. Large scale interference ripples and load casts were also found. The characteristics of the clastic rocks, fossils and sedimentary structures are important for interpreting paleoclimate, the origin of basin-fill, the creatures that lived in the area and how they interacted with their environment.

The Late Namurian to Early Westphalian A age of Rams Head is based on the occurrence of megafloora. Palynology samples taken from the two locations in the measured section may help better constrain the age of the section. The strata at Rams Head have a range in depositional environments. At the base of the section, well-drained paleosols and tetrapod trackway-impressed beds suggest subaerial exposure. The paleosol strata are sandwiched between the tabular cross-stratified beds. These cross-stratified beds are indicative of shoaling sequences. Higher up in the section, mudstone and platy, planar sandstone are indicative of deposition in a deeper water lacustrine environment. These sediments are overlain by the tabular cross-stratified beds and subaerial sandstone, indicating a return to a shallower environment of deposition.