

# Approaches in vocalizing the science of palaeontology to the public of all ages

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Efforts in offering public-education programs in palaeontology have existed for many years in western Canada through various museums and educational institutions. These programs can be readily found throughout Alberta due in large part to the considerable amount of dinosaurian bones found in the southern badlands of the province. Conversely, palaeontology-focused public resources and programs have been greatly lacking in Northern British Columbia. A large factor is that only in recent years have dinosaurian bones been discovered in British Columbia. During the summer of 2001 BC's northeastern town of Tumbler Ridge proved to double the amount of dinosaurian bones found in the province. By the next summer the largest dinosaurian skeletal matter in British Columbia had been



**Figure 1.** Children learn about dinosaur tracks

trackways and prints. Latex moulds were made throughout the course of the studies and various casts of hadrosaur trackways and theropod prints now line walls and cabinets of the museum in the neighboring town of Hudson's Hope, BC. Due to these finds, residents of the region increased their understanding and interest in palaeontology.

discovered and the excavation had commenced during the summer of 2003 (McCrea, 2003). These events generated much interest within the general public and also the desire for new programs and resources focused on palaeontology. During the summer of 2003 the new programs proved to be an extremely successful method in educating the community.

Northeastern BC has had a long history in palaeontological and geological explorations dating back to the well-known F. H. McLearn and Charles M. Sternberg expeditions of the 1920s and 1930s (Currie and Sarjeant, 1979). Dinosaurian prints and trackways have been known from the Peace River Canyon in British Columbia since the earliest recorded finds from the 1920s (Currie, 1983). During the construction of the W.A.C. Bennett Dam in the 1960s a large portion of the Peace River was drained. This permitted an intense study by members of the Royal Ontario Museum of many *in situ* dinosaur prints and trackways of the Gething Formation (Bullhead Group/Lower Cretaceous) that had been previously submerged (Currie and Sarjeant, 1979). The Peace River was again drained in the 1970s during the construction of the Peace Canyon Dam, not too far downstream from the former dam, which proved again to display *in situ* dinosaur

The extreme importance of fossil recognition by the public and communication with professional



**Figure 2.** Mock excavation teaches data-gathering techniques.

With this accurate identification of the dinosaurian traces the people of Tumbler Ridge were finally able to link the tracks to the proper suborder of Ankylosauria and thus able to view artists' renditions of the extinct vertebrates that once journeyed the town's ancient shorelines. Having these visual aids helped transfer information about these animals not only to the enthusiastic young population of the town but also to the whole community. With this new perspective of the area the local interest in palaeontology had heightened to a greater level. During the summer of 2003 additional trackway sites and display specimens were added to the Tumbler Ridge Museum Foundation's collection due to the benevolent prospecting of many amateur palaeontologists.

Upon my arrival in late May 2003 the people of the town of Tumbler Ridge enthusiastically demonstrated their desire to learn more about dinosaurs and palaeontology as a whole. I was asked to coordinate and instruct a new Dino Camp pilot program intended for children between the ages of 7 and 12 during the months of June, July and August of 2003. Carolyn Golightly, president of the TRMF and head of continuing education at the Northern Lights College in Tumbler Ridge, had actively implemented this new program. The first month consisted of assembling an appropriate curriculum for the camps, securing the proper supplies and materials and obtaining sufficient funding. The five-day palaeontology based Dino Camps were a new concept for the area and for the province of BC. Children and families traveled various distances to attend, from areas including Grande Prairie, AB and Vancouver, BC. There were six weeks of regular camps, one trial week, and one two-day camp for younger children. The interest and anticipation was again apparent when the Dino Camps



**Figure 3.** Well-preserved theropod dinosaur footprint.

palaeontologists had also proved to be of great importance in other localities within the Peace Region of northeastern BC. During the late summer of 2000 two young boys in the town of Tumbler Ridge found the first *in situ* dinosaur trackway on the outskirts of their town (Helm, 2001). Their efforts in contacting specialized palaeontologists were soon acknowledged. The ichnotaxon of the newly found trackway was described by Richard T. McCrea during the summer of 2001 as *Tetrapodosaurus borealis* (McCrea, 2003).

sold out before the first one even began.

The location was ideal for teaching young enthusiasts since so many dinosaurian trackway and print sites were within hiking distance from the town. The children were able to learn various biological and geological processes in class and then later that same afternoon could view these *in situ* fossils to fully understand what they had just learnt (Figure 1). This teaching procedure proved to be extremely effective.

Other approaches had also been utilized in teaching proper scientific methods to the young Dino Campers. A practical component was added to the curriculum that included a mock excavation. The children were taught to properly log information in their field books during their excavation including their geographical position, using a GPS, soil types, weather, sketches, *etc.* The group was able to learn proper practical techniques of in-field excavations (Figure 2) and subsequently they would discover how to reconstruct the mock dinosaur skeletal finds as a team.



**Figure 5.** A field trip to the Hudson's Hope Museum.

volunteer parent, and myself would travel to the neighboring town. As was mentioned, the town also possessed a valuable richness of Mesozoic vertebrate and invertebrate fossils. This trip was key in educating the Dino Campers. The Peace River had been known to bear innumerable trackways and prints. During the trip we would visit both dams and the Hudson's Hope Museum (Figure 5), which contained wonderful trackway and print displays among other local historical artifacts. The key element to the trip was in teaching the palaeoenvironmental differences between geographical locations



**Figure 4.** Dino Campers work on their dino footprint casts.

The children also learnt how to make a cast replica of a dinosaur footprint. After hiking to an extremely well preserved theropod footprint (Figure 3) (other hadrosaur prints at the same site held skin impressions) the group would proceed to a local artist's home to create a plaster of Paris cast of the footprint that had just been viewed. Hazel Peters, local theropod footprint maker for the TRMF, produced over seventy casts throughout the summer with the Dino Campers (Figure 4). Again, the technique of making replica casts of *in situ* trace fossils was learned, thus enhancing awareness of museum displays and research methods.

A trip to Hudson's Hope was one of the major field trips. For one day each week the Dino Campers, a



**Figure 6.** Volunteers move specimen for public display.



**Figure 7.** Temporary museum display at the Tumbler Ridge Community Centre.

and geological times. The emphasis was on the North American Inland Sea and the many vertebrate fossils found in the Peace Region including ichthyosaurs and the exclusive holotype, *Hudsonelpidia breviostris*, found and named after the area (McGowan, 1995). Teaching the students the significance of these past environments and fossil finds, and then having the opportunity to directly observe them once again proved to be extremely valuable in the learning process.

The largest bone bed excavation in BC commenced during the summer of 2003 on the outskirts of Tumbler Ridge. Richard T. McCrea, leading North American footprint palaeontologist, and Lisa Buckley, University of Wisconsin-Madison, coordinated the excavation. Once a week a member of the excavation team would join the Dino Campers and demonstrate how specialized tools, such as air scribes, are used and explained different methodologies practiced. Just as the Dino Campers had been enthusiastic about these visitations so was the whole town of Tumbler Ridge. Weekly talks were held in the community center to inform the public of the updated events at the excavation site. The large attendance demonstrated the interest in the town and that the talks were effective in transmitting information. The community center became a hub for communication between professional palaeontologists and public enthusiasts and throughout the summer various talks and guest speakers presented geological and palaeontological information to the public.

The TRMF members are anticipating the construction of the Tumbler Ridge Museum, which should be erected in the near future. Due to the public interest a portion of the large TRMF specimen collection was put on display in the Tumbler Ridge Community Centre (Figure 6). Charles Helm, TRMF vice president, Joan Zimmer, a local artist, and myself collaborated in creating the temporary museum displays. Most of the specimens had been collected from around the town and some had also been donated by the Royal Tyrrell Museum of Palaeontology in Drumheller (Figure 7). These displays were viewed by the public and by the Dino Camp students.

The Dino Campers were also able to create their own museum displays, which were viewed by parents and guests during presentations at their graduation ceremonies held at the end of every camp week. The students curated and mounted their projects, allowing guests to view the information



**Figure 8.** A happy Camper.

that had been taught (Figure 8). This also helped to express the science of palaeontology by incorporating guardians and guests into the program.

Palaeontology has the potential to intrigue people of all ages. Tumbler Ridge has proven that an entire community can be involved and enthusiastic about palaeontology, promoting not just the science of palaeontology but sciences altogether. The availability of the palaeontological resources has generated new passions seen in many people of the town, from young Dino Campers to eager enthusiasts. The Dino Camp of 2003 was extremely successful and registration for the upcoming summer camps has already begun. New programs have also been proposed for the summer of 2004 including adult courses and interpretative hikes.

The fossil finds in and around the town of Tumbler Ridge were key in initiating the palaeontological interest of the community.

The demand for public palaeontology resources is ever increasing and the town will certainly be seeing many changes in the future. The heightened awareness of the public encourages the exploration of new ideas and the science of palaeontology.

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