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Re: British Columbia's First Complete(?) Dinosaur

To the Peace River Regional District Chair, Vice-Chair, Directors and staff, Greetings!

Thank you for the opportunity to share with you our recent palaeontological discovery which is certainly of regional and provincial significance, but could possibly be internationally significant.

The remains of a large herbivorous dinosaur (hadrosaur = duck-billed dinosaur) were discovered by our staff during a prospecting trip close to the Alberta border in the summer of 2007. Over 100kg of dinosaur bone was surface collected, but *in situ* bone could be seen eroding along a 10 metre long section of bank. Many of the bones were fragmentary, but some were reasonably complete and from these we were able to identify at least some of the bones as hadrosaurian. At the time we could not ascertain whether we were dealing with an individual, or a group of dinosaurs, nor could we tell if the animal(s) were complete (articulated) or just a loose associate of bones (disarticulated). We made this excavation a priority for the summer of 2008 and spent several weeks working on a comparatively small pit (6m²), but were rewarded with a number of loose bones identifiable as hadrosaur (such as vertebrae, ribs, ossified tendons and a partial left femur). In addition we found several associated, shed tyrannosaur teeth.

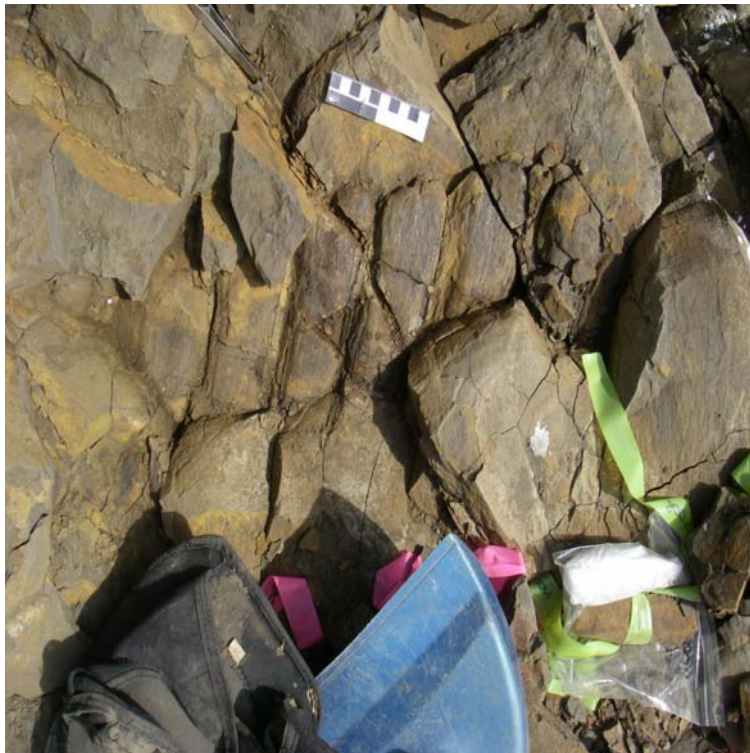
In the summer of 2009 we expanded the excavation pit to cover the full 10 metre length of bone exposure. This required the removal of an enormous amount of overlying sediment before we could properly begin the careful excavation. We conducted the excavation from June to mid-September exclusively due to the significance of the material we were finding. Before the end of August we finally uncovered the intact remains of one individual hadrosaur. The tail section of the animal was exposed at the outer edge of the bank while we were able to follow the front section of the animal into the bank. This is about as good a situation as can be hoped for in the quest for a complete dinosaur. We followed the remains forward into the bank until we were just forward of the animals hips and then we were obliged to wrap things up for the 2009 field season.

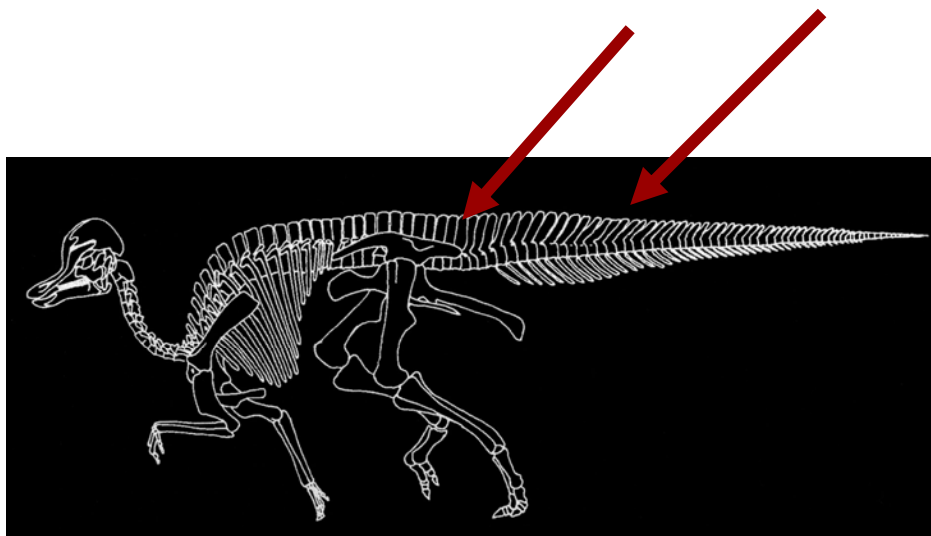
We have included below a few photos from this summer's excavation so you can get an idea of what size of a dinosaur we have been digging up this summer. The top picture is a general photo of the excavation site as it was near the end of the field season. The big plaster jacket is covering the dinosaur from the hips (near our field technician Tyler Shaw in the red shirt) to the tail (near palaeontologist Lisa Buckley in the green shirt). The animal is laying on its right side with its back facing Lisa and Tyler and its head would be out of the frame of this picture to the left and well past Tyler. The arms and legs should be present near the bottom of the picture. Our initial excavation in 2008 concentrated in the area with all of the tools on the right side of the picture where found sections of tail vertebrae, thoracic (chest region) and cervical (neck region) ribs, and a partial left femur. From the number of tyrannosaur teeth we have found this year and last year and from the distribution of the non-articulated bones away from the main body, we think that the hadrosaur was scavenged by one or more tyrannosaurs. Hopefully the head will be present and we are also hoping that the right side of the animal is near pristine.

Nov 26 2009



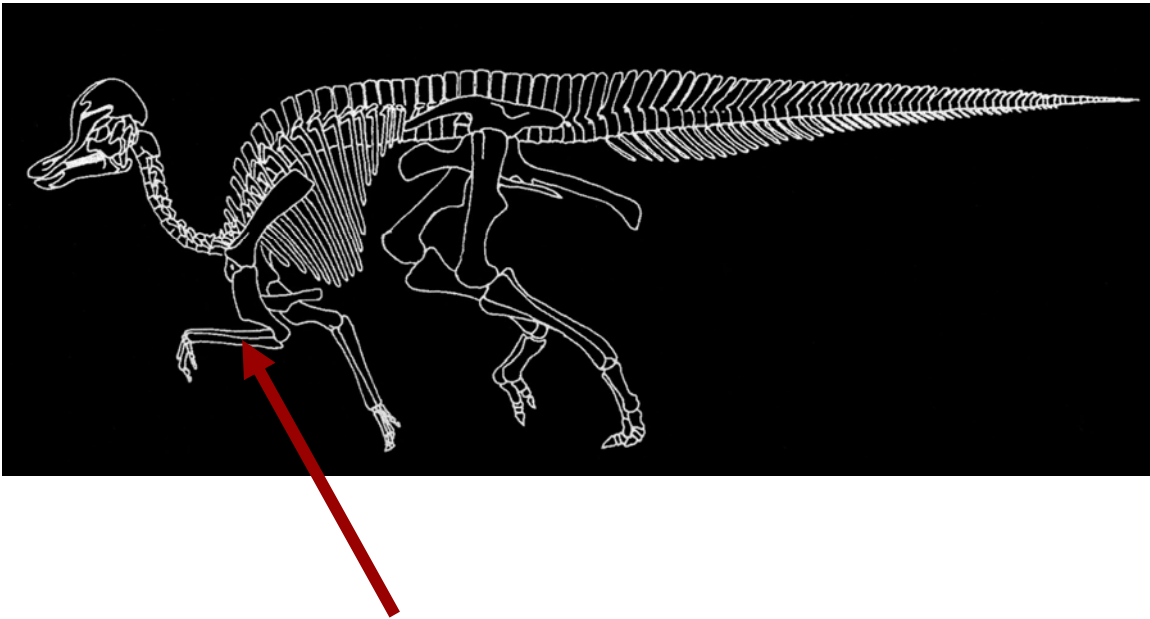
The picture below is of a series of articulated tail vertebrae (the spines are closest to the scale bar and the main body of the vertebrae are still covered in rock). By the end of the excavation we had uncovered over 16 articulated vertebrae before we stopped for the season. Below this image is a skeletal drawing of a hadrosaur showing the approximate position of these tail vertebrae.





One of the first complete and completely prepared dinosaur bones (a left radius – a lower forelimb bone arrowed in image further down)





We are dealing with a pretty big animal and next year we should have the rest of it recovered. We should then be able to identify it once it has been prepared. If we are lucky it may be a species or genus of hadrosaur that is new to science and we can therefore publish the description and give it a name. For museum display we are planning to make replicas of each of the bones to reconstruct the animal in a life-pose which would be a first for British Columbia. We also plan to display the original bones (fully prepared) in the positions they were discovered in at the excavation site.

Similar resources are known or are still waiting to be found. At this time ours is the only institution (fossil vertebrate research facility) in British Columbia with the credentials and expertise to locate, collect, prepare, describe, replicate and display these resources.

We look forward to presenting our findings at the next meeting of the Peace River Regional District next week.

Sincerely,

Richard T. McCrea
&
Lisa G. Buckley

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