

Interpreting the Ancient Environment of Horton Bluff Rocks and Fossils

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Saturday September 23, 2023,
rain date Sunday September 24

Meet Avonport Station Road,
off Bluff Road, Avonport
9:00 am; approx. 3-hour trip

Field Trip Leader: Peter Wallace,
retired Earth Sciences Senior Instructor

Open to ADRP members; trip is intertidal so have appropriate
footwear and clothing; registration is necessary

After the trip plan to join the group at a local winery for lunch
and discussion

Many Nova Scotians have heard of or been given lectures and seminars on the geological history of Earth and the place given to Nova Scotia in that history. Photos showing the rocks and fossils from various locations are usually shown along with their interpretation but how can you assess this evidence? What are the facts? The best way to evaluate the evidence and the interpretation is a geologic field trip where the field participant is given an opportunity to personally view and critique the science. That is what this field trip to Horton Bluff gives you, an opportunity to see firsthand the physical evidence in the rocks and along with your deductions from that evidence to evaluate a small period of this history.

But the rocks and fossils of Horton Bluff are far more interesting than just giving the participant a view of rocks and fossils; these rocks contain some of the oldest amphibian fossils in the world along with their concurrent plant, fish and micro-fossils. Doubly interesting, in the history of science, in 1841 the amphibian trackways at Horton Bluff were recognized as such by Sir William Logan, the first Director of the Geological Survey of Canada, which was a radical interpretation because scientists at that time thought vertebrates only made it onto the land during the Permian Period, millions of years later than the depositional time of these deposits.

On this trip we will view the rocks and fossils along a cliff section and beach for about 1.5 km (the cliffs are over 2.5 km in length but we will not see it all). You will be able to work along the section at your own pace which will most likely be slow because there is so much to see. I do not expect everyone to stick closely together but not to wander too far in case someone, including me, finds something interesting which should be seen by everyone. We will stop sporadically and group up where I will point out features, discuss what we have seen so far, etc. I will not be guiding you from place to place explaining everything that can be observed, rather you, using the handout as a guide (which I will give you at the introduction) will be making your own deductions about the environment in which the rocks and fossils were deposited.

What to bring:

A back pack to carry what's listed below and rock pieces you have collected; paper to separate rocks is also a good idea if you plan to collect.

- Brimmed hat (is best), sun screen, etc., loose clothing in case it gets hot, gloves (garden cloth gloves are OK),
- good foot wear (no open toed shoes) with ankle support; the beach is composed of flat slippery shale, angular boulders, muddy areas, etc. where one can bang up against hard rock, slide off wet slippery pieces, or just plain twist things because it is uneven ground,
- water or something to drink and a little something to snack on
- **be aware!** there are no amenities on the beach like a coffee shop with a toilet
- optional: camera, hands lens or magnifying glass, geology (prospectors) or mason's hammer