

Unearthing new fossils

In a steaming swamp 300 million years ago, a *Dendropeton acadianum*, (a large carnivorous amphibian) chased a tiny reptile into the hollow trunk of a lycopsid tree. From that moment on, the *Dendropeton* was forever doomed, trapped in the tree by wildfire before being buried beneath a deluge of water and sediment, where it would be entombed for eons.

In 1852 Sir Charles Lyell, the father of modern geology, with Nova Scotian geologist Sir William Dawson, found the bones of the *Dendropeton* in a fossilized tree trunk in Joggins, N.S. Joggins was then part of the swampy lowlands of the super-continent Pangea in the Carboniferous Period, or the Coal Age. The rampaging vegetation of that time was eventually transformed into huge coal deposits and detailed fossils. Today Joggins is located at the head of the Bay of Fundy, and some of the world's largest tides have carved out an expanse of cliffs along the shore, exposing what is considered to be the best look at the Carboniferous Period on the planet.

This unique view into the past inspired the community of Joggins to work toward getting the area designated a World Heritage Site by the United Nations Educational, Scientific and Cultural Organization (UNESCO). World Heritage Sites are cultural or natural properties recognized and protected because of their outstanding value to humanity. Joggins qualifies because it exemplifies a major stage of the Earth's history.

"The community has long recognized that the cliffs have attracted people from around the world and that there was a significant fossil resource there," says Jenna Boon, the senior project manager of the community-based Fossil Cliffs Project, which presents, promotes, researches, and protects the fossil cliffs. The project, which aims to establish Joggins as a sustainable tourism attraction, is made possible through the Cumberland Regional Economic Development Association. "Joggins has been studied by world-renowned scientists for over a century," says Boon. "We've had 18 prominent scientists sign off that they support the outstanding universal value of Joggins."

In 2006 Michael Rygel won Dalhousie University's Doctoral Thesis Award in the natural and medical sciences and engineering category for his research on the geology of the area. "Because Joggins is a coastal exposure, the cliffs are constantly getting eroded, and literally every year there's something new [to discover] there," says Rygel. "In other places it might be



Eroding cliffs reveal new fossils every year.

a road cut or a natural cliff exposure, but you've got one shot at it. Joggins is special because it provides new fossils every year; and it's going to continue to do so."

More than \$9 million has been committed to building the new Joggins Fossil Cliffs Centre, a state-of-the-art research-and-interpretive centre, and to improving beach access and safety at the cliffs, by the federal government through the Atlantic Canada Opportunities Agency (\$4.8 million); the provincial government; the department of Tourism, Culture and Heritage (\$2.9 million); and the Municipality of the County of Cumberland (more than \$900,000).

Boon believes that private investment will soon follow. "The World Heritage designation increases the international profile of the property and will provide great opportunities for tourism development," she says. "Strategically, we're holding off until we have our brand, our management plan, and other things in place to say, 'This is what we're all about, would you like to be a part of it?' I think there will be great opportunities for [private] types of partnerships." — **JOE FITZGERALD**