

## City-sized fossilized forest found

by Bend\_Weekly\_News\_Sources

Researchers have found a city-sized fossilized forest in an Illinois coal mine, and they say it transforms our understanding of the Earth's first rainforests. Nowhere else, scientists say, can one literally walk through such a huge swath of rainforest from the Carboniferous era. That was a time 360 million to 290 million years ago when true reptiles appeared, giant dragonflies buzzed and vast swamps spread, which later formed coal.

Detail of a pteridospore, an extinct seed-producing fern-like plant. The image shows an area about six cm (2.4 inches) in height. (Courtesy Howard Falcon-Lang)

Modern club moss. Its ancestors reached the height of trees during the Carboniferous. (Courtesy National Park Service)

A huge earthquake 300 million years ago caused the whole region around this forest to collapse below sea level, according to the scientists. Mud then buried the terrain and preserved it forever. The forest offers a bizarre medley of extinct plants. They include plentiful club mosses, or primitive moss-like plants, more than 40 metres (131 feet) high. These towered over mixes of tree ferns, shrubs and tree-sized horse-tails. The forest was found by Howard Falcon-Lang of the University of Bristol, U.K., and U.S. colleagues. The findings are published online April 23 in the research journal *Geology*. "It was an amazing experience. We drove down the mine in an armoured vehicle until we were a hundred metres or 109 yards under ground, Falcon-Lang said. The forest was rooted at the top of the coal bed, "so where the coal had been mined away the fossilized forest was visible in the ceiling of the mine," he added.

"We walked for miles and miles along pitch-black passages with the fossil forest just above our heads. We were able to make a map of the forest by the light of our miners' lamps." The largest fossil forest known, it covers an area 10 km by 10 km (six miles by six miles), he said. This would cover the city of Bristol, U.K. The fossils preserve a unique snapshot of what tropical rainforests were like 300 million years ago, he remarked. "As there is nothing like it around today, before our work we knew very little about the ecological preferences and community structure of these ancient plants," Falcon-Lang said. "This spectacular discovery allows us to track how the species make-up of the forest changed across the landscape, and how that species make-up is affected by subtle differences in the local environment." The study reconstructs a Carboniferous rainforest on the largest scale ever attempted. The fossils show that the Earth's first rainforests were highly diverse and that the types of trees changed across the ancient landscape, he said.

Courtesy ESO and World Science staff

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