

Treasure trove of fossils found in Kendall County cave

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Remnants from a cave embedded in a limestone quarry southwest of Chicago have yielded a fossil trove that may influence the known history of north central Illinois some 310 million years ago.

Initial research findings were presented April 12 by University of Illinois at Chicago earth and environmental sciences professor Roy Plotnick at a regional meeting of the Geological Society of America in Lawrence, Kan.

Plotnick's talk presents the broad strokes about what's in the cave and the research opportunities it affords. His research colleagues include Fabien Kenig, associate professor of earth and environmental sciences at UIC and Andrew Scott, professor of palaeobotany and coal geology at Royal Holloway University of London.

"What's really valuable about the cave is the level of preservation of the material," said Kenig. "We see charcoal that preserves biological features at the cellular level. Charcoal is an indication of fire burning ancient trees. The cave also beautifully preserved molecular indicators of these fires."

Plotnick and a group of students discovered the cave while on a class field trip about four years ago. It is revealed by darker color surrounded by the lighter limestone, and by the sand and mud containing fossilized material that choke the cave from bottom to top.

"Finding this was pure serendipity," said Plotnick. "We didn't go out looking for it, but after finding it we said, 'Wow, look at all of this!' The cave is basically a trap for sediment, and things get preserved that usually may not get preserved."

Findings include nearly-pristine plant spores, leaves and scorpion parts. Needles from a conifer were dated and discovered to be the oldest ever from North America. "The oldest conifers previously described are at least 2 million years

younger," said Plotnick. The specimen is now in the collection of Chicago's Field Museum.

The scientists think that a shallow sea covering today's north central Illinois during the geological Ordovician period about 450 million years ago formed the limestone. The caves were eroded in the limestone at the beginning of the Pennsylvanian period, about 315 million years ago. Within a few million years, sand, mud and organic debris from plants and animals -- some burned and turned to charcoal -- washed into the cave through surface openings, where it remained preserved but not compacted since that time.

Fossil material the scientists analyzed corroborates earlier hypotheses that a change from wet to dry conditions, along with vegetation fires, took place in this region during this geological period. Plotnick said he and his colleagues have dated much of the organic material they found to be around 310 million years old.

The cave is in Illinois's Kendall County, about 10 miles north of the town of Morris. Owned by Central Limestone Company, the scientists are permitted to conduct field trips and excavate material from the cave usually on Sundays when there is no regular mining work.

The exposed area where the scientists work is more than 900 feet long and about 30 feet high. Area geologists have found evidence that the cave may snake under the region for miles.

"We could be sampling for years to come," said Plotnick. "There's just a tremendous amount of material."

Source: University of Illinois at Chicago

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