

NEW HUBBARD BARN EXPANDS DISCOVERY AT ASHFALL

By Troy Fedderson, University Communications

It all started in Idaho, some 12 million years ago.

A volcanic blast in the southwest portion of what would become the Potato State spewed forth a blanket of ash that covered a large area – including the flat, savannah-like grasslands of Nebraska, southern South Dakota and northern Kansas.

Many of the animals around a waterhole in northeast Nebraska survived the initial ash fall. However, as they ingested the ash while grazing, their lungs began to fill with the powdered glass.

Animals with smaller lung capacities – birds and turtles – went first. As the ash covered those carcasses, smaller-hoofed animals, horses and llama-sized camels, died. Then, with six more inches of ash layering over the dead, barrel-bodied rhinos standing in ash-saturated water succumbed.

Through the whole process, scavengers feasted on the dead and dying.

Paleontologists estimate the gruesome death of a life-giving watering hole took just three to five weeks.

"It would have been a miserable, horrible scene," said Mike Voorhies, emeritus professor of geosciences.

But time converted the horror into a one-of-a-kind scientific jewel.

As part of a study into the geology and paleontology of the Verdigre valley, Voorhies made the first discovery on Melvin Cohlson's Antelope County farm in 1971. With his wife working alongside, Voorhies was routinely searching a hillside stripped of soil by recent torrential rains. He brushed away a bit of ash and uncovered a little skull.

"I started on the oversized teeth and worked my way farther back, looking for evidence that the skeleton might be there," Voorhies said. "It was just like the old song, 'The head bone connected to the neck bone, the neck bone connected to the back bone....'"

That first intact rhino led to the discovery of additional full skeletons in the hill and surrounding area.

The find has led to numerous digs on the site – including one funded and covered by National Geographic – with more than 200 fossil skeletons from 12 species of Clarendonian Age land mammal unearthed.

Today, Ashfall Fossil Beds State Historical Park – a National Natural Landmark as designated by the U.S. Department of the Interior – remains a place of scientific discovery.

A \$1.2 million donation by the Theodore F. and Claire M. Hubbard Family Foundation of Omaha is increasing the scope of discovery at Ashfall.

The funds have been used to replace a small "rhino barn" that was built to protect the exposed fossils – which researchers decided to leave in the ground to showcase the unique nature of the dig site.

"The whole point of Ashfall Park is to give the public a firsthand view of a real paleontology site, which is actively being excavated," said Voorhies. "The skeletons in the ash are so fragile that we can't uncover them out in the weather. One rainstorm would be enough to completely destroy these unique, one-of-a-kind fossils."

Built in 1991, the original rhino barn was 2,000 square feet and allowed for 11 years of dig seasons. Voorhies, other paleontologists, students and volunteers dug right to the edges of the old barn.



A full skeleton of a rhino rests unearthed in the Hubbard Rhino Barn at Ashfall Fossil Beds. Visitors can watch digs at the Royal site from June through August.

The new Hubbard Rhino Barn has expanded that dig site eight times, covering 17,500 square feet. It is temperature controlled to help preserve the fossils during the cold winter months and will allow for many decades of excavation, research and education.

The new facility was dedicated June 19.

The construction of the site itself has led to Ashfall's latest unique discovery – the first fossilized snake uncovered in the ash. Since it would have been covered by the building's footing, the snake was removed for further study.

Rick Otto, superintendent for Ashfall Fossil Beds, said additional work on the snake would take place this year.

The find was not a surprise to Voorhies.

"It's my belief that there are still plenty of surprises in the ground here," said Voorhies.

The Hubbard Rhino Barn is also helping expand education on the site.

The new barn encompasses a hill that showcases the sedimentary layers researchers removed to reach the fossils.

The hill was previously outside the actual dig site. Now that the hill is inside, Voorhies said visitors can see how the waterhole fossils were buried over time.

Voorhies also plans to dig into a portion of that hill, showcasing a more recent fossil record.

Ashfall – which Voorhies said is not the most interesting thing he found during his study of the Verdigre valley – is now Voorhies' retirement gig. The self-described "oldest living Ashfall volunteer" plans to continue leading the dig, talking with visitors and helping expand the understanding of what happened in what became a miserable waterhole 12 million years ago.

"This new building is going to allow 40 years of excavation here at Ashfall," Voorhies said. "This is the one place in the world where you can stand and see whole, three-dimensional skeletons of large animals preserved in volcanic ash. It's really something unusual to have turned up at the edge of a cornfield."

"And, I like the idea that it is going to remain right here. It's not going to be hauled off to some seaport in the east. It will be here, in Antelope County, Nebraska, forever."



The new building covers 17,500 square-feet – eight times larger than the one it replaces – and allows for the discovery and protection of many more fossils and enhances the experiences for visitors to the unique park.