

OUTDOORS



HIKE WITH A PALEONTOLOGIST

Layers of time at John Day Fossil Beds

Emily Parent Special to the Statesman Journal

How would you like to travel back in time? You might be thinking, *sounds like science fiction*. And in a way, you would be right. But I am not talking about the sort of time travel involving flux capacitors or DeLorean time machines. Rather, the sort that uses dated rocks and hard scientific evidence to unlock the secrets of the Earth. I am talking about paleontology — a science dedicated to piecing together stories of the past. • In Oregon, there is one place that stands above the rest for this sort of time travel and that is John Day Fossil Beds National Monument. With that in mind, I reached out to Nick Famoso, Paleontology Program Manager for the Monument, to see if he might be my guide into Oregon’s past. He said, “Yes!”

A monument with 40 million years of time

Nick and I met at the Blue Basin parking lot in the Sheep Rock Unit of the park. Adorned in a park ranger uniform and sunglasses, Nick possessed a Marty McFly vibe, when he introduced himself and told me about the park.

John Day Fossil Beds National Monument serves a special purpose — “to preserve and interpret the story of the geological past of the John Day region,” explained Nick.

The park represents over 40 million years of time. With the Sheep Rock Unit providing the longest geological record from about 33 million to 7 million years ago.

We decided to hike the Island in Time Trail, which takes you directly into a small section of the Sheep Rock Unit known as the Blue Basin or the Turtle Cove assemblage. Blue Basin rocks preserve a small slice of Oregon’s geological past — 30 to 29 million years ago — but offer an outstanding fossil record hidden in blue-green layers of sedimentary rocks.

Ashes to Ashes

The sun was high as we began our hike along the trail, headed toward Blue Basin’s interior. White puffy clouds floated by on a bright blue sky.

Before long something caught Nick’s eye — a bright white patch of ash hidden in the hillside.

“When you see pockets like that, that are bright white, it is most likely Mount Mazama ash,” Nick confirmed.

Mount Mazama is a Cascade volcano that erupted so explosively 7,700 years ago, it dropped several inches of ash over much of the Pacific Northwest, leaving a massive depression that would eventually become Crater Lake. The eruption now acts like a marker of time — anything above it, is younger than 7,700 years, anything below, older — as well as a record of Oregon’s volcanic past.

Fiery cloud of death from Oregon

Further into the canyon, Nick also pointed out a thick brown layer of rock that capped a section of the Blue Basin — Picture Gorge ignimbrite. Another clue to Oregon’s intense volcanic history.

Ignimbrites are made from hot pyroclastics, like ash and lava rocks of various sizes, that are ejected during a violent volcanic eruption, before consolidating or welding into solid rock. According to Nick, eruptions that form ignimbrites are massive — large enough to lead to large-scale changes in the flora and fauna.

“Imagine a fiery cloud of death,” Nick expounded, when explaining how ignimbrites form.

In the case of the Picture Gorge ignimbrite, the Crooked River Caldera — a supervolcano that once covered several square miles in central Ore-



Above: Lucy Urness, 2, inspects replica fossil bones on the Island in Time Trail at John Day Fossil Beds National Monument’s Sheep Rock Unit. ZACH URNESS / STATESMAN JOURNAL

Top: Travel through time at Blue Basin at John Day Fossil Beds National Monument. EMILY PARENT / STATESMAN JOURNAL

gon — ejected so much hot material some 28.7 million years ago that any life in the vicinity, including in the John Day region, was incinerated by the blast.

As life returned following the eruption, it came back altered. According to Nick, this is typical following ignimbrite forming eruptions.

“Forests were reduced,” said Nick, “More areas opened up, and grasslands established.”

Though some taxa persisted from before the eruption, overall fauna adapted to open habitats prevailed. Burrowing beaver and gophers were common. Running mammals, including horses and camels, as well as the

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