

Researchers discover four dinosaurs in Montana

September 21 2021, by Andrea Godinez



A team of UW students, volunteers and staff excavate the Flyby Trike in northeastern Montana. Credit: Rachel Ormiston/Burke Museum/University of Washington

A team of paleontologists from the University of Washington and its

Burke Museum of Natural History and Culture excavated four dinosaurs in northeastern Montana this summer. All fossils will be brought back to the Burke Museum where the public can watch paleontologists remove the surrounding rock in the fossil preparation laboratory.

The four [dinosaur fossils](#) are: the ilium—or [hip bones](#)—of an ostrich-sized theropod, the group of meat-eating, two-legged [dinosaurs](#) that includes Tyrannosaurus rex and raptors; the hips and legs of a duck-billed dinosaur; a pelvis, toe claw and limbs from another theropod that could be a rare ostrich-mimic Anzu, or possibly a new species; and a Triceratops specimen consisting of its skull and other fossilized bones. Three of the four dinosaurs were all found in [close proximity](#) on Bureau of Land Management land that is currently leased to a rancher.

In July 2021, a team of volunteers, paleontology staff, K-12 educators who were part of the DIG Field School program and students from UW and other universities worked together to excavate these dinosaurs. The fossils were found in the Hell Creek Formation, a [geologic formation](#) that dates from the latest portion of Cretaceous Period, 66 to 68 million years ago. Typical paleontological digs involve excavating one known fossil. However, the Hell Creek Project is an ongoing research collaboration of paleontologists from around the world studying life right before, during and after the K-Pg mass extinction event that killed off all dinosaurs except birds. The Hell Creek Project is unique in that it is sampling all plant and animal life found throughout the rock formation in an unbiased manner.



The Hell Creek geologic formation. Credit: Andrea Godinez/Burke Museum/University of Washington

"Each fossil that we collect helps us sharpen our views of the last dinosaur-dominated ecosystems and the first mammal-dominated ecosystems," said Gregory Wilson Mantilla, a UW professor of biology and curator of vertebrate paleontology at the Burke Museum. "With these, we can better understand the processes involved in the loss and origination of biodiversity and the fragility, collapse and assembly of ecosystems."

All of the dinosaurs except the Triceratops will be prepared in the Burke Museum's fossil preparation laboratory this fall and winter. The Triceratops [fossil remains](#) on the site because the dig team continued to

find more and more bones while excavating and needs an additional field season to excavate any further bones that may be connected to the surrounding rock. The team plans to finish excavation in the summer of 2022.

Called the "Flyby Trike" in honor of the rancher who first identified the dinosaur while he was flying his airplane over his ranch, the team has uncovered this dinosaur's frill, horn bones, individual rib bones, lower jaw, teeth and the occipital condyle bone—nicknamed the "trailer hitch," which is the ball on the back of the skull that connects to the neck vertebrae. The team estimates approximately 30% of this individual's skull bones have been found to date, with more potential bones to be excavated next year.



A closeup view of the Flyby Trike's occipital condyle bone—nicknamed the “trailer hitch”—the ball on the back of the skull that connects to neck vertebrae. Credit: Rachel Ormiston/Burke Museum/University of Washington

The Flyby Trike was found in hardened mud, with the bones scattered on top of each other in ways that are different from the way the bones would be laid out in a living animal. These clues indicate the dinosaur likely died on a flood plain and then got mixed together after its death by being moved around by a flood or river system, or possibly moved around by a scavenger like a T. rex, before fossilizing. In addition, the Flyby Trike is one of the last Triceratops living before the K-Pg mass extinction. Burke paleontologists estimate it lived less than 300,000 years before the event.

"Previous to this year's excavations, a portion of the Flyby Trike frill and a brow horn were collected and subsequently prepared by volunteer preparators in the fossil preparation lab. The frill was collected in many pieces and puzzled together fantastically by volunteers. Upon puzzling the frill portion together, it was discovered that the specimen is likely an older 'grandparent' triceratops," said Kelsie Abrams, the Burke Museum's paleontology preparation laboratory manager who also led this summer's field work. "The triangular bones along the frill, called 'epi occipitals,' are completely fused and almost unrecognizable on the specimen, as compared to the sharp, noticeable triangular shape seen in younger individuals. In addition, the brow horn curves downwards as opposed to upwards, and this feature has been reported to be seen in older animals as well."

Amber and seed pods were also found with the Flyby Trike. These finds allow paleobotanists to determine what plants were living alongside Triceratops, what the dinosaurs may have eaten, and what the overall

ecosystem was like in Hell Creek leading up to the [mass extinction event](#)



Kelsie Abrams, the Burke Museum's paleontology preparation laboratory manager, opens the field jacket of a theropod ilium. Credit: Timothy Kenney/Burke Museum/University of Washington

"Plant fossil remains from this time period are crucial for our understanding of the wider ecosystem. Not only can plant material tell us what these dinosaurs were perhaps eating, but plants can more broadly tell us what their environment looked like," said Paige Wilson, a UW graduate student in Earth and space sciences. "Plants are the base of the food chain and a crucial part of the fossil record. It's exciting to see this

new material found so close to vertebrate fossils!"

Museum visitors can now see paleontologists remove rock from the first of the four dinosaurs—the theropod hips—in the Burke's paleontology preparation laboratory. Additional fossils will be prepared in the upcoming weeks. All four dinosaurs will be held in trust for the public on behalf of the Bureau of Land Management and become a part of the Burke Museum's collections.

Provided by University of Washington

Citation: Researchers discover four dinosaurs in Montana (2021, September 21) retrieved 27 April 2024 from <https://phys.org/news/2021-09-dinosaurs-montana.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.