



# EXTINCTIONS EXPEDITION

2023 Final Report



This was our 29<sup>th</sup> EXTINCTIONS EXPEDITION to the badlands of Eastern Wyoming to continue excavating a triceratops skeleton. We had 25 people join us during our month-long expedition from June 2- - July 20.



# GOALS for the 2023 FIELD SEASON

- Complete the excavation of the triceratops named “KEN”
- Begin scanning and 3D printing fossils for future skeletons
- Collect fossils for Leap Lab: Ventura County Science Center
- Provide fossils and funding in support for the Eastern Wyoming Nature Center.



**CREW 1** - June 30-July 5



**CREW 2** - July 7-12

## The **CREW**

25 crewmembers joined us in Lusk, Wyoming and headed to the Petersen Ranch where our triceratops excavation site was waiting for us, and vast territory to explore for new fossils.

WE ARE GRATEFUL TO THE PETERSEN FAMILY FOR ALLOWING  
OUR EXPEDITION CREW TO ROAM THEIR RANCH SINCE 2006!



DAAN AND EDGAR, VISITING SCIENTISTS FROM THE NETHERLANDS,  
SHARE THEIR WORK WITH CREW.



WITH PLASTER AND GLUE, CREW GET THEIR HANDS DIRTY  
EXCAVATING TRICERATOPS FOSSILS.

DIGGING BY DAY IS REWARDED WITH STARRY SKIES.

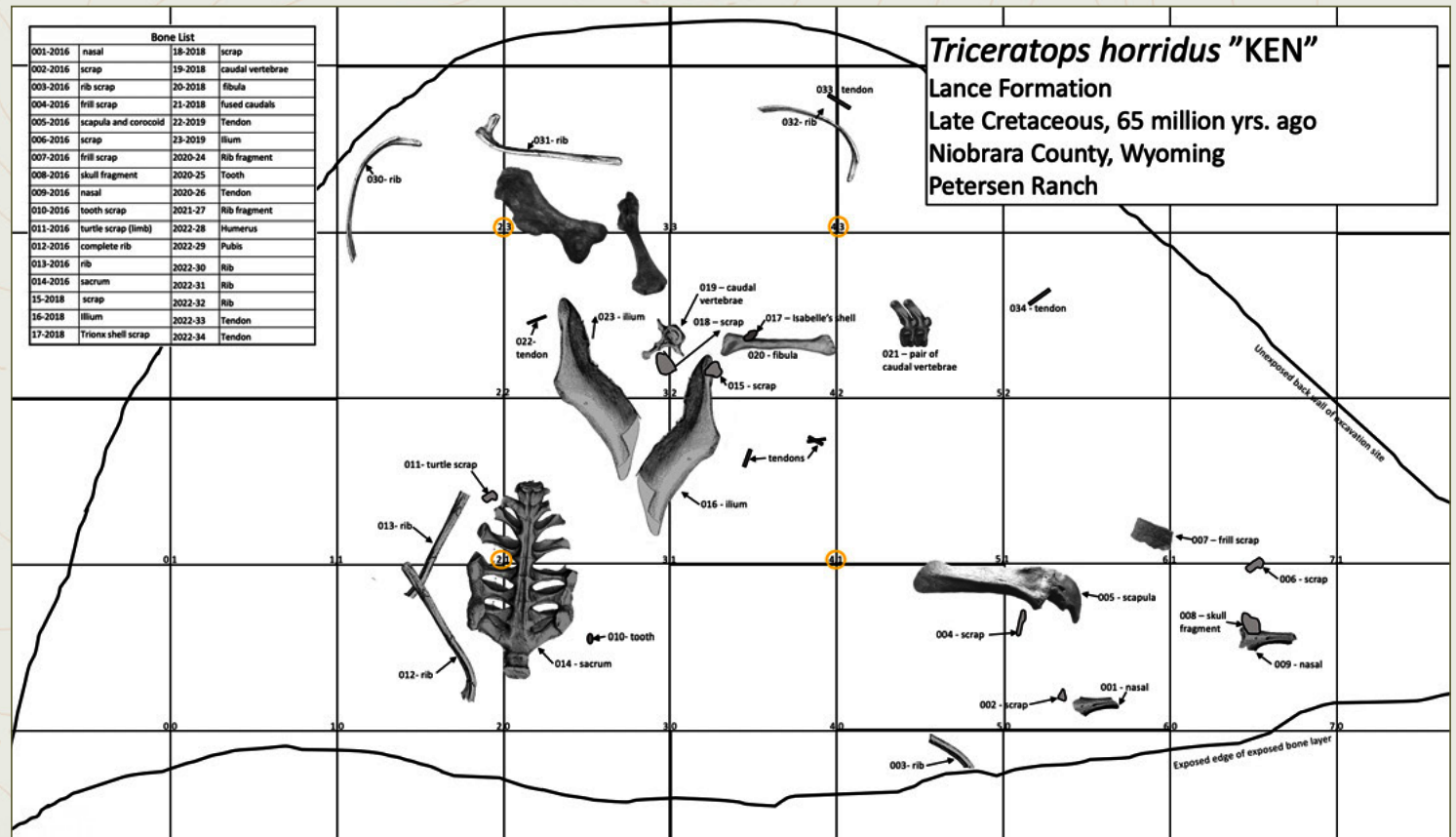


CREW DISCOVER AND LEARN ALL THAT IT TAKES TO BRING DINOSAUR BONES FROM THE EXCAVATION SITE TO A MUSEUM EXHIBIT.



# GOAL 1: CONTINUE EXCAVATING THE TRICERATOPS SITE NAMED "KEN".

This triceratops skeleton was found in 2016 with the discovery of a rib and a shoulder blade. It is roughly 25% complete, consisting of the entire pelvis, shoulder blade, humerus and fibula, and several ribs and tail vertebrae.



One interesting discovery from “KEN” came from a pair of fused tail vertebrae that show evidence of a prior injury. After careful preparation we discovered that the dinosaur survived an attack from a large predator, likely Tyrannosaurus rex.

At the top of the neural spine, a prong of bone that projects upward from the tail vertebrae, there was a deep bite mark. This is a very rare example of evidence of predator and prey relationships.



We are working in collaboration with the Naturalis Biodiversity Center in the Netherlands to study this fossil. Scientists there aim to understand how pathologies develop, specifically how bone growth strengthens an injury by exploring cores of pathologic bone.





Daan from the Netherlands will study the pathology and Trex bite.



Solaborg from Iceland excavated the last rib in the skeleton.

## GOAL 2: BEGIN SCANNING AND 3D PRINTING FOSSILS FOR FUTURE SKELETONS

We are building three triceratops skeletons, one for Leap Lab Wyoming, another for Leap Ventura, and the third will hopefully find a home in a science center in Iceland.

We aim to 3D print all the missing bones from KEN, and there are a lot of them. Since 2016 we collected 36 bones and bone scraps, of which only 17 will be mounted in the skeleton.

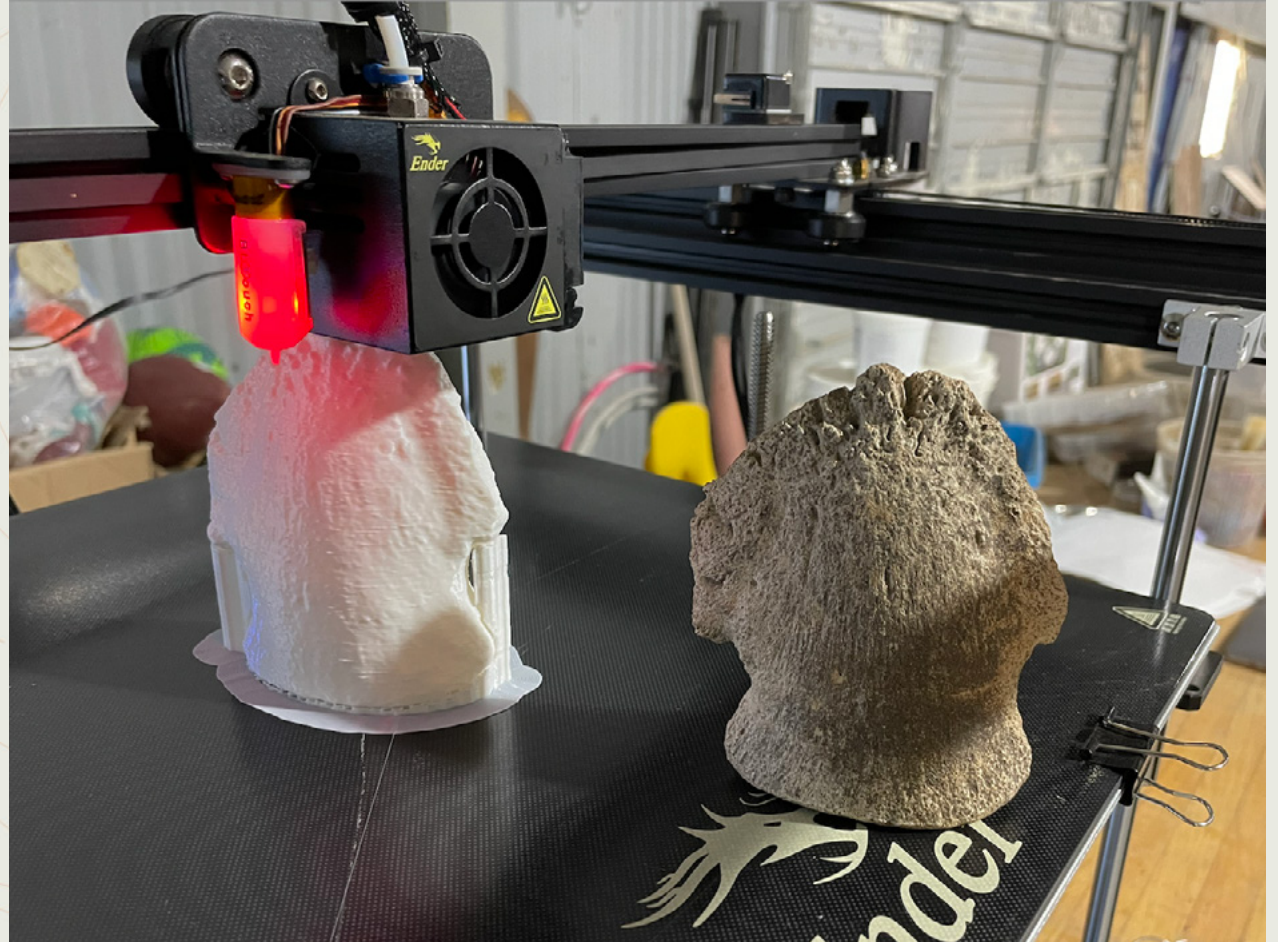
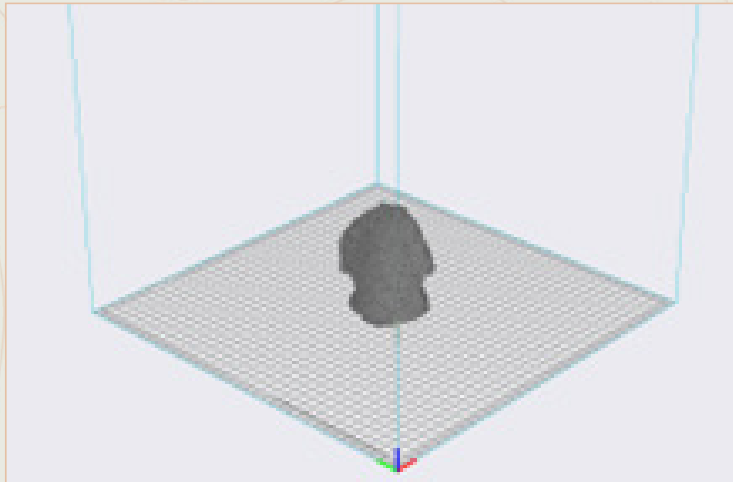
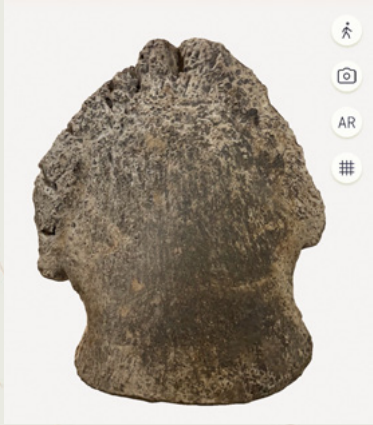


In order to reconstruct the missing bones for our future mounted triceratops skeletons, we are continuously scanning new bones to add to our library of 3D fossil files. We are building a fabrication lab and will be using several printers to print what's missing.



Scanning a skull. Ribs are next





A triceratops toe is scanned, made into a 3D file, then printed in our lab

### **GOAL 3:** COLLECT FOSSILS FOR LEAP LAB: VENTURA COUNTY SCIENCE CENTER

Half our crew were from Ventura County, including a school teacher from Ventura Charter School and two families from Santa Paula. We will be bringing back a partial triceratops femur for the science center.



Tony and his dad Seth, from Santa Paula, CA, with a triceratops femur they discovered.



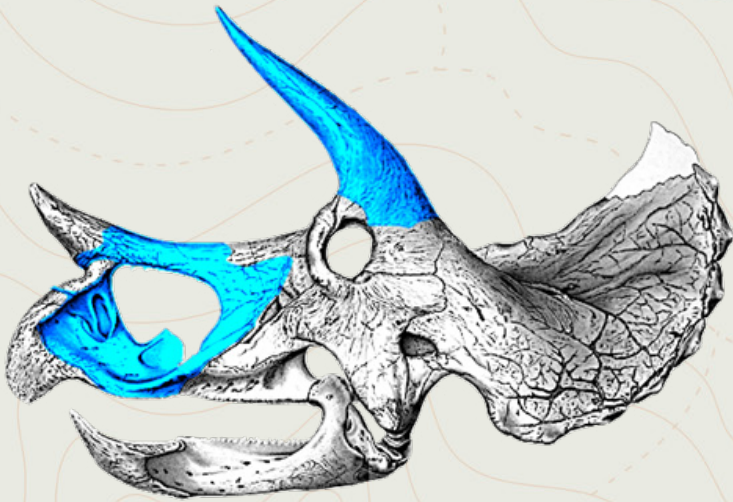
Mark and his daughter Skyla from Santa Paula, CA



Liza, a teacher from Ventura, CA

## A NEW SKULL “ATHENA” FOR SANTA PAULA!

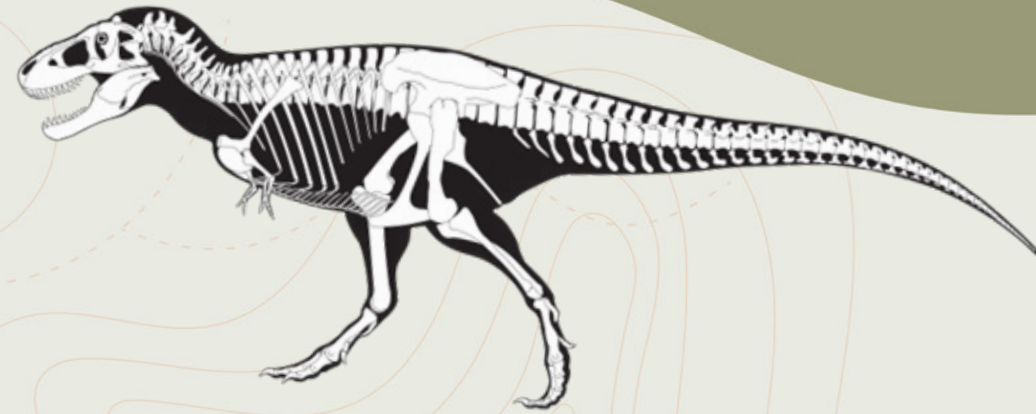
Last year, in the final days of the field season crew discovered a triceratops horn, so we covered it and returned in 2023. We opened the excavation site and found additional skull bones, including the premaxilla and fused nasals.



This year we barely scratched the surface. We collected the skull bones, but additional bones were emerging from the hillside. This will surely continue in 2024.

## **TYRANNOSAURUS REX TOOTH - TWO OF THEM!**

Our crew quickly got the hang of looking for fossils, and a few crewmembers had a search image in minds that paid off. Two T-rex teeth were found! That makes four good teeth in 29 years, so these are exciting discoveries.



John's rare find.

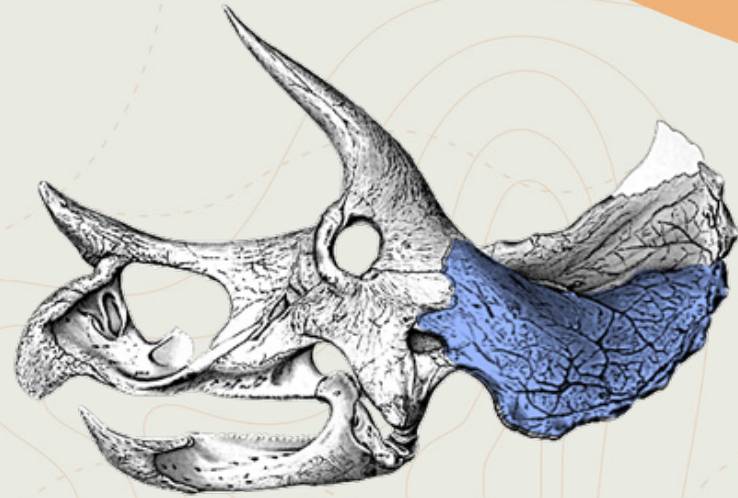


Xavier on the hunt for all the pieces of the second tooth.



## A SECOND SKULL!

Four crew from Ventura, CA set out to find something new, returning with a few bones from the frill of a triceratops skull. By the end of the season we extracted a complete squamosal. The good news is that there are more bones going into the hill. The crew named it JET. Digging deeper will be a priority in 2024!



**GOAL 4:** TO PROVIDE FOSSILS AND FUNDING IN SUPPORT OF THE EASTERN WYOMING NATURE CENTER.

In 2018 we acquired an 8000 sq. ft. building in Lusk, Wyoming with the intent to establish the Eastern Wyoming Nature Center. The mission of the organization is:

***“To discover, preserve and celebrate the natural resources of Eastern Wyoming.”***



With fossils and funding we will turn this...



...into this.



# LOOKING FORWARD TO SUMMER 2024!

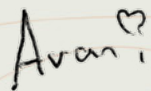
There's always more work and discoveries for next year. We have two partial triceratops skulls and miles of prospecting to search for more fossils. Everyone is welcome to join the crew. We hope you'll consider joining us next year!



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Youth Ambassador

