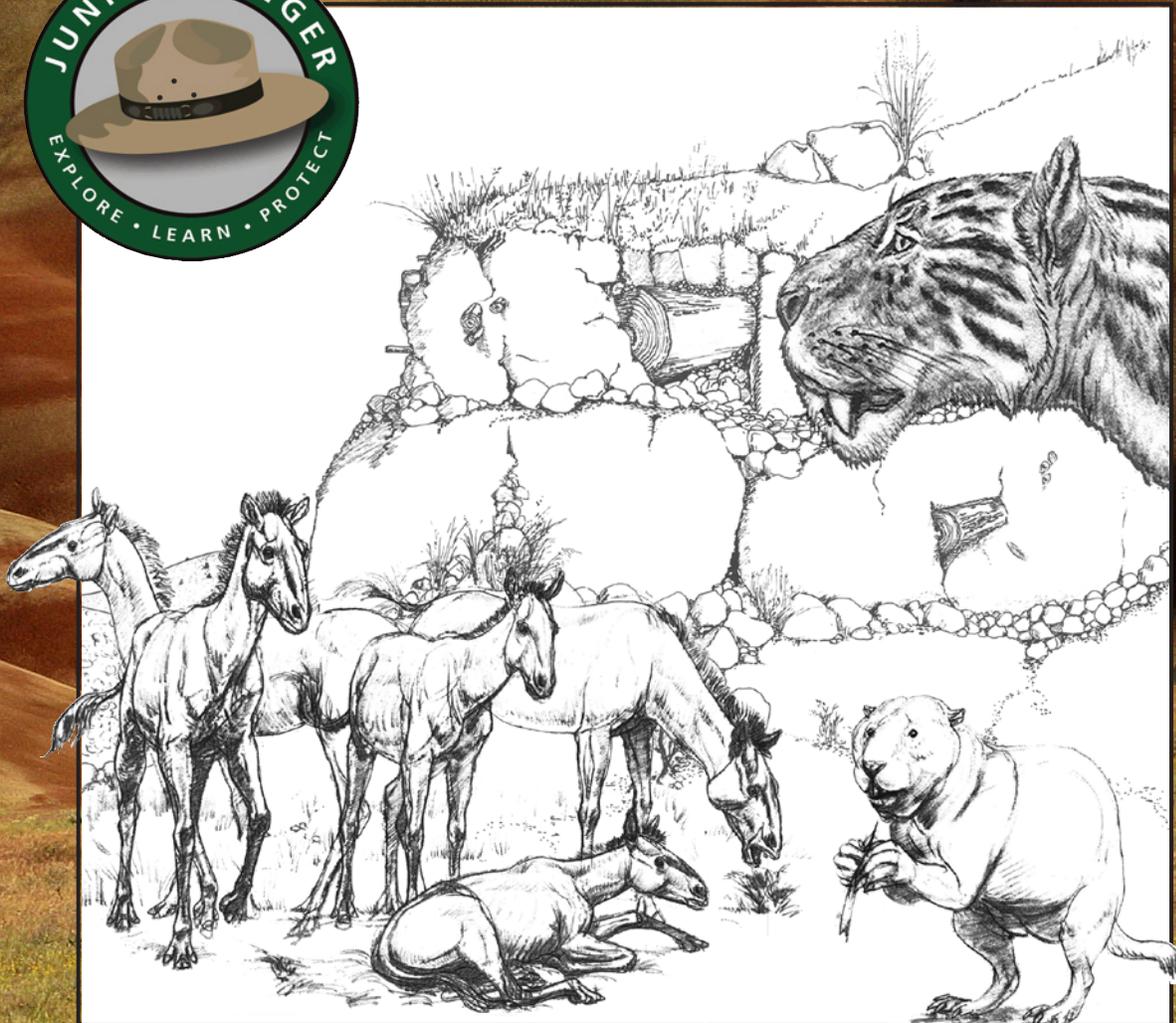


JUNIOR & SENIOR
RANGER

John Day Fossil Beds
National Monument
National Park Service
US Department of the Interior



DISCOVERING JOHN DAY FOSSIL BEDS



How to Use this Book

What does a Junior Ranger do?

DISCOVER by using your senses.

FIND CLUES to ancient habitats.

IMAGINE the plants and animals.

EXPLORE the trails, visitor center, and historic areas.

OBSERVE, REFLECT and LEARN, so you can **HELP PROTECT** this very special place.



To become a Junior Ranger you will:

- Walk a trail
- Attend a ranger led program, hike, or talk to a ranger
- Watch “A Place of Discovery” in the Paleontology Center.
- Complete as many activities from this Junior Ranger Activity book as you can.



You can work alone, with your friends, or with your family. When you are finished, show your work to a ranger at one of the visitor stations. Then you will receive your Junior Ranger badge and certificate.

Take Care of Our National Treasures!

During your stay in John Day Fossil Beds National Monument:

Please do take pictures, take away rich and lasting memories, and take your time exploring the area.

But **please**, don't take rocks, flowers, or other natural items. This will ensure that our wild animals have the things they need to survive. Also, **please** do not touch any artifacts you find.

Leaving things in place allows future visitors to enjoy the same experiences you've had.



Discovering John Day Fossil Beds

EXPLORE!

This place is a window where we can take part in a rare view into ancient Oregon. Looking through geologic and fossil records we can go back millions of years in time and find very different places than we see today.



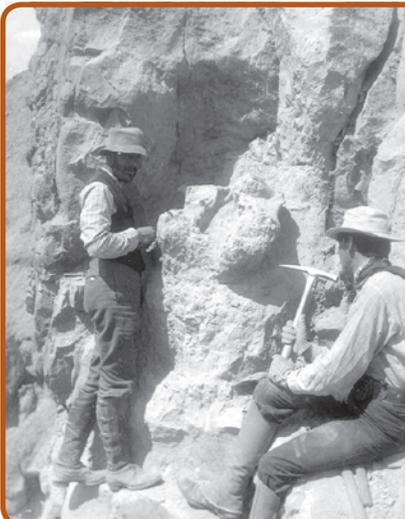
DISCOVER!

You will discover an ancient world millions of years after dinosaurs roamed the earth. An age filled with lumbering rhinos and stalking saber-tooths.



IMAGINE!

Today, scientific discoveries happen right in front of you, as paleontologists unearth fossils never before seen by human eyes.



Safety First!

Hydrate: Be sure to drink lots of water while driving and hiking around John Day Fossil Beds.

Get Comfortable: Wear good shoes, a hat, and sunscreen.

Take Care: Be careful where you put your hands and feet: snakes and spiders may be resting under rocks and in holes.

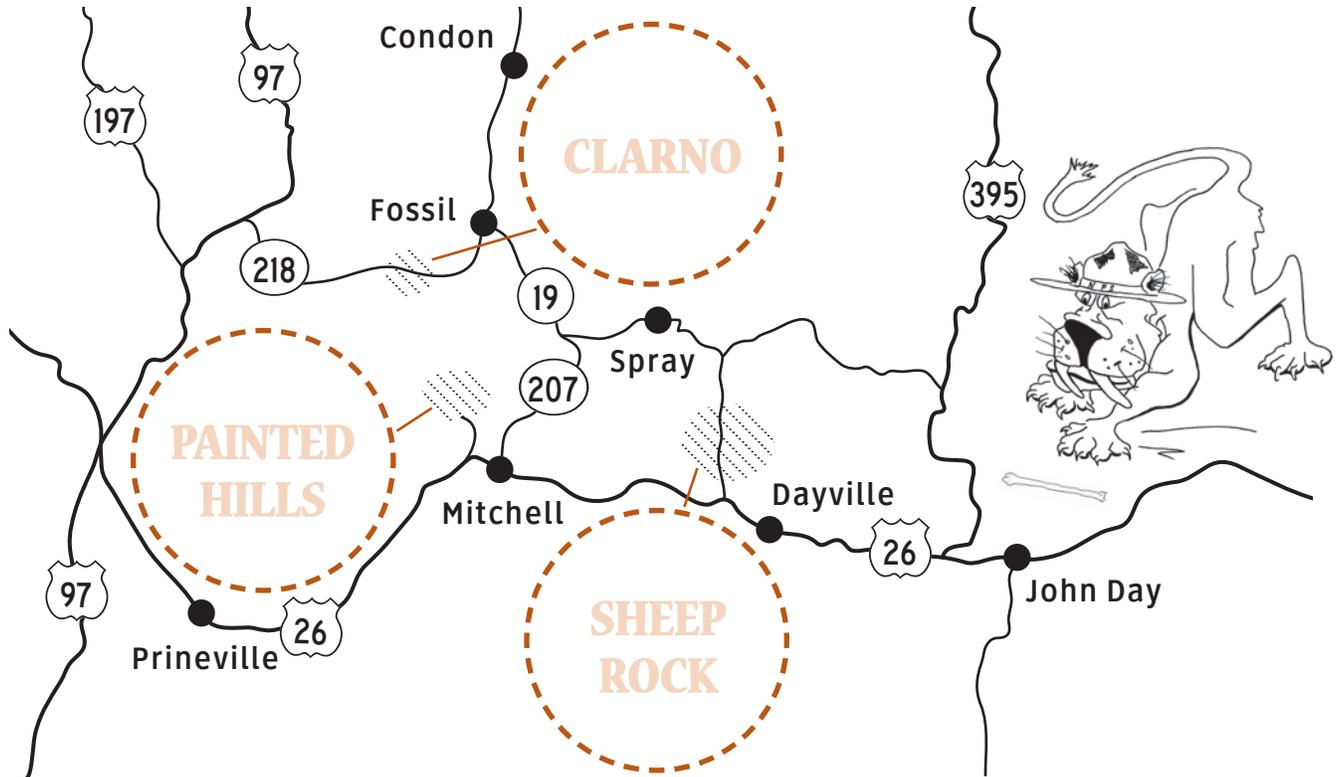
Be Good Company: Hike with other people. If you get lost, stay in one place.



Map Your Visit

Where am I in John Day Fossil Beds National Monument?

The John Day Fossil Beds are unique with one of the longest and most continuous records of evolutionary change in the world. This 14,000-acre monument includes 3 very different units: **Sheep Rock**, **Painted Hills**, and **Clarno**. Inside the dotted circles below, stamp your Jr. Ranger booklet at each unit when you stop there, or collect all 3 at the visitor center!



Where did it happen on the Geologic Timeline?

In geologic time, an epoch is a measure that's shorter than a period, which is shorter than an era. Most of the fossils found here were deposited during the Cenezoic Era. Look at the timeline on the next page. Now draw lines here connecting the epoch name to when you think it happened.

Paleocene	11,700 years ago - present day
Eocene	55.8 Ma to 33.9 Ma
Pliocene	5.33 Ma to 2.58 Ma
Miocene	23 Ma to 5.33 Ma
Oligocene	33.9 Ma to 23 Ma
Pleistocene	2.58 Ma to 11,700 years ago
Holocene	65.5 Ma to 55.8 Ma



NOTE: Ma (Megaannum) is equal to one million years! Mega comes from ancient greek and means million, the word annum comes from ancient latin and it means year. How many years do you think are in a Gigaannum (Ga)?

Different Places in Time — find out when they were!

Read the descriptions below. When you are done, go back and circle names of different eras, and epochs in the text and then draw lines connecting them to where they belong in the timeline.



CLARNO UNIT

Marching across the horizon, these 200 foot-tall pillars of ancient mud tower over the landscape. The Clarno Palisades preserve the remains of an Eocene tropical rainforest filled with crocodiles, banana trees, and brontotheres. Hiking the Clarno trails you will discover real fossils that tell a story of a place much different than the one we see in today's Holocene epoch!



PAINTED HILLS UNIT

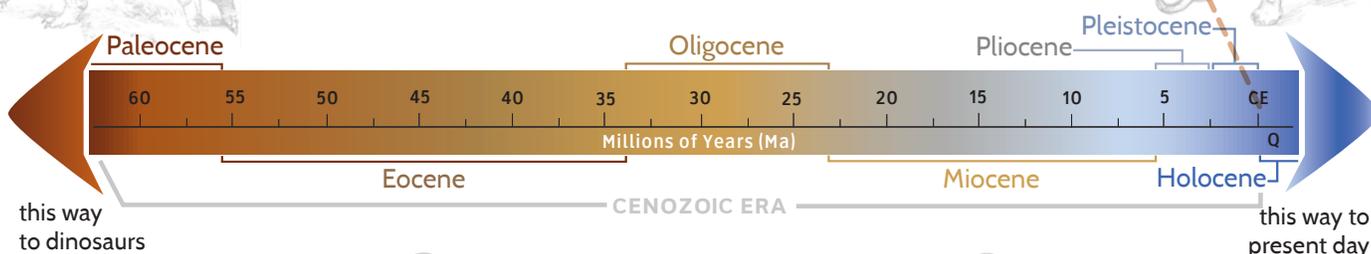
Like no other place in Oregon, a rainbow of colors splashes across these rolling hills, telling a story of the power of erosion and revealing remains from the Eocene and Oligocene epochs. The trails through the Painted Hills will take you to places like you've never seen before!



SHEEP ROCK UNIT

Places to explore! From the Blue Basin badlands to the amazing Cenozoic era fossils on display in the Thomas Condon Paleontology Center. Or from the historic James Cant Ranch ranch and orchard to the large fossil deposits spanning from the Oligocene to the Miocene epochs, Sheep Rock has something for everyone!

Geologic Timeline of the John Day Fossil Beds



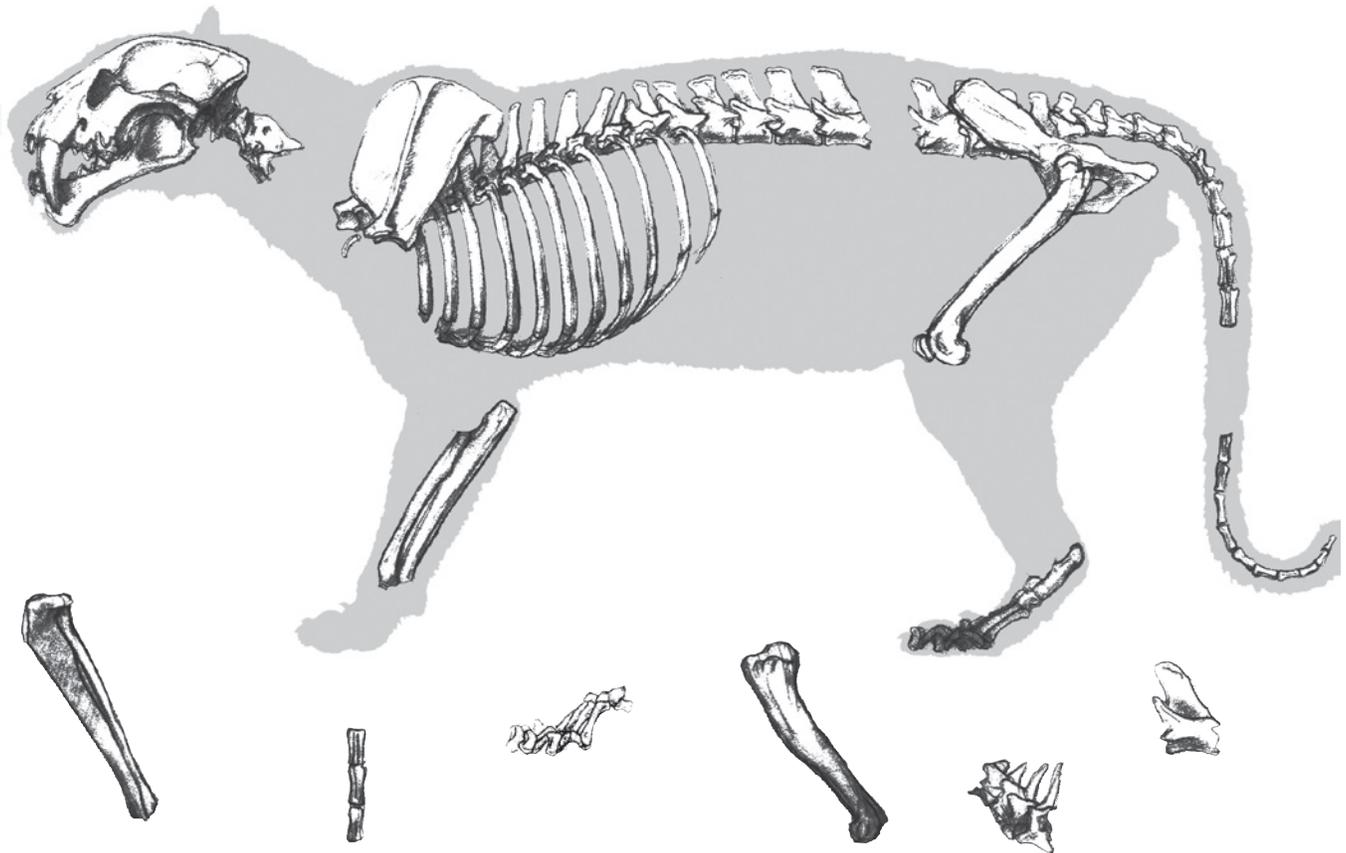
Find the Fossils!

Can you find them all? Inside this activity book there are bones scattered and hiding in different places. How many can you find? Circle the bones when you see them, when you are done write the number you found here. How many did you find? _____

Assemble a Skeleton

Help put the Pogonodon Back Together!

You can either try to draw the missing bones back in place, or draw lines pointing to where you think these bones should go.



The Past is Present... Beneath Your Feet!

Think of something that surprised you, something unexpected that you learned today. What was it?



Early Fossil Hunters

Complete this story about some of the first fossil collectors in the John Day Basin using the hints in parentheses or by referring to the word bank below.



Edward Drinker Cope and Othniel Charles Marsh were internationally known _____ who visited the region in the late 1800s. Cope, was from the University of Pennsylvania, and Marsh, came from Yale University. They were very _____, often debating each other over the many fossil discoveries each made across the country, much to the educational enjoyment of many Americans.



Thomas Condon, a Congregational Minister from _____ [a city in Oregon], was an avid naturalist when he first visited this valley in 1865 in search of _____. He was the first to recognize the importance of the _____. Condon later became Oregon's first State Geologist and the first professor of geology at the _____ in Eugene, a remarkable person in early Oregon history.

Paleontologist John C. Merriam, of the University of California, first visited the John Day Fossil Beds in 1899. It was the first of many _____ expeditions sent here between 1899 and the 1920s. These expeditions played a _____ in placing the John Day Fossil Beds in their geological, chronological, and paleoecological context.



William Berryman Scott, of Princeton University, visited here in _____, his team collecting over _____ of fossils from the Turtle Cove area, which they sent back to the university. Later, after being stored in a cellar, workmen on a project pillaged and destroyed all but a few of the specimens, a _____ to science.

Word Bank



key role

The Dalles

University of Oregon

paleontologists

fossils

competitive

John Day Fossil Beds

3,000 pounds

Berkeley

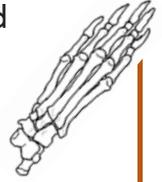
significant loss

1889

Fossil Gallery Scavenger Hunt

John Day Fossil Beds National Monument conceals a treasure in rock layers. Careful research by scientists has revealed a changing landscape and climate. See how many of these plants and animals you can find in the museum gallery.

Fill in your observations: find the fossil of each animal or plant shown below and record your observations in the column on the right.



CAN YOU FIND THIS IN THE GALLERY?

Answer a question or find and draw a matching fossil.



Early Horses

Three toes and no grass! They're no larger than a small dog - what do you think they ate?



Clarno Crocodile

A crocodile HERE?? What do you think the climate was like?



Banana

Bananas in a desert? What do you notice about the banana plant in the mural?



Turtle Cove Tortoise

Some things stay the same. Why do you think the tortoise of 28 Ma looks the same as a tortoise does today?



Bear Dogs

Not a dog. Not a bear. Then why do scientists call them Bear Dogs? Ask a Ranger where these names come from.



True Cat

Resting, hunting, or eating? Why do you think this cat is up in a tree?

**CAN YOU FIND THIS
IN THE GALLERY?**

Answer a question or find and draw a matching fossil.



Mylagaulid
These horned rodents in holes had predator proof heads? What do you think their horns were used for?



Eubrontotherium
These huge brontotheres were similar to modern rhinos. What kinds of scenes might you find them in today?



Entelodont
A "Terminator Pig"?
Find the fossil - How do you think the mysterious bony flanges on the skull were used?



Gomphothere
Imagine elephants here today!
What do you think the lower tusks were used for?

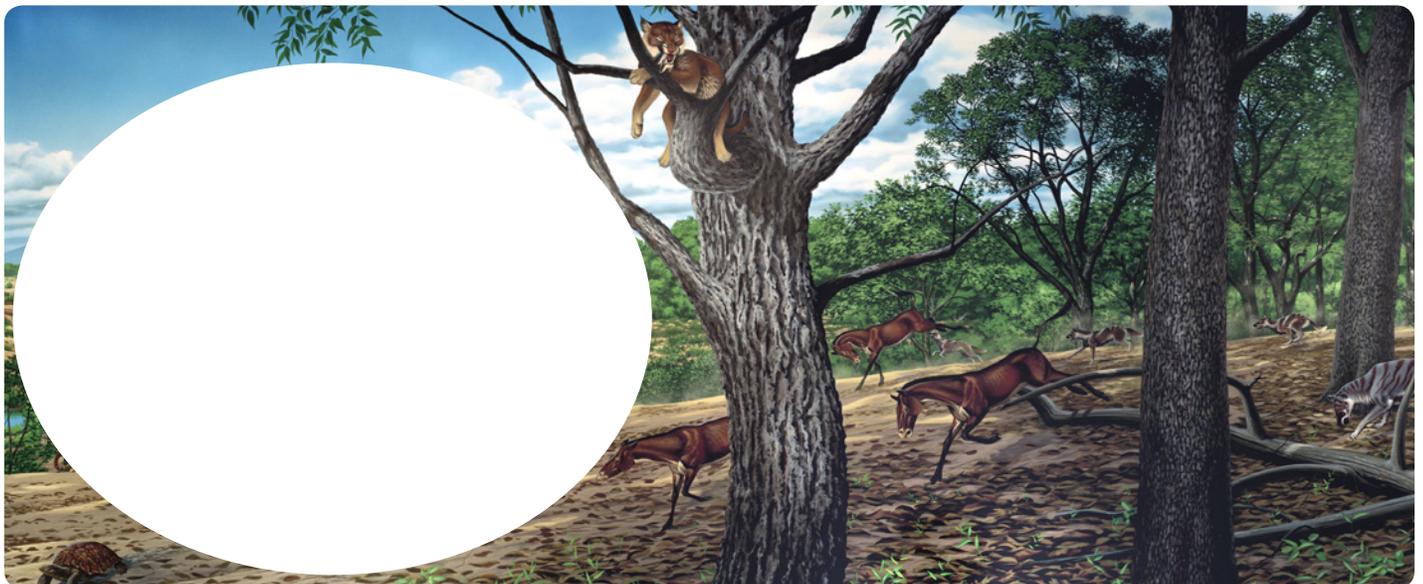


Pliohippus
A single hoof! What do you think makes this horse a "running machine"?

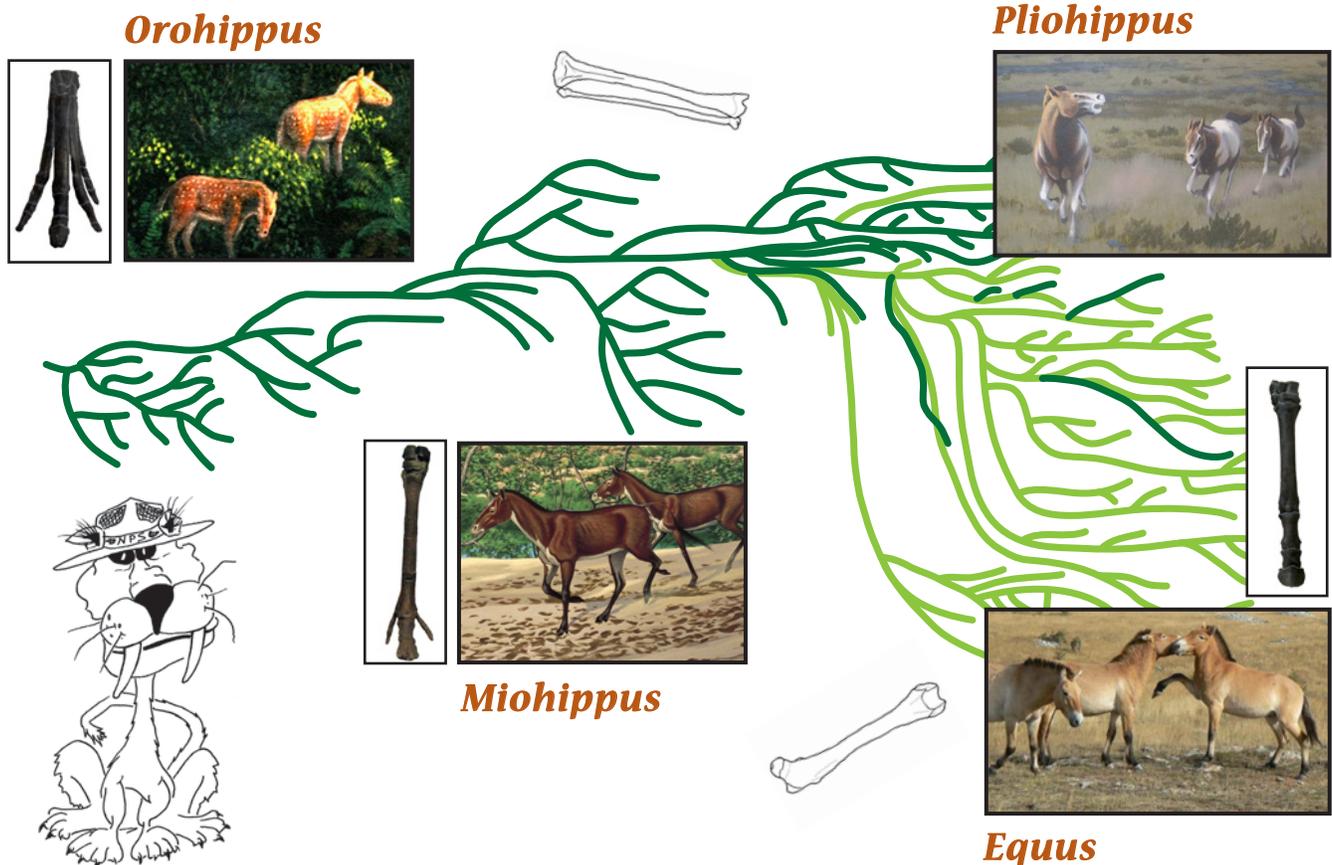


DRAW!

What kind of animal do you think could have lived in this scene? Use your imagination and draw your own!



A Horse, of Course!



What's in a Name?

Match the question to the Horse pictured above and write your answer in the blank spaces.

1.) I became extinct on the North American Continent 10,000 years ago, I'm _____

CLUE: Spanish explorers reintroduced them to the Americas in the 1530's.

2.) I ran on tip-toes for a speedy get-away from hungry predators, I am _____

CLUE: Three-toed horses and short-faced dogs co-existed in the Turtle Cove area. Longer legs and fewer toes on each foot made them faster runners through forests and meadows.

3.) I ran on the tips of only one toe-nail, I'm _____

CLUE: Find where deciduous forests changed into open steppe with predators such as running bears and big cats. Increased running speed resulted from longer legs and single hooves.

4.) I am twelve inches tall and eat no grass, I am _____

CLUE: This small horse ate only leaves, green shoots, and fruit while living in the Clarno Jungle. Four small toes on each foot spreads the weight out, helping to keep them from sinking into the mud.

Fossil Beds Pongo Bingo

Explore and help Pongo find these!

As you explore John Day Fossil Beds National Monument, look for matches to what you see below. When you find one, draw a circle around the picture in the grid. Find at least five to score a **PONGO**, if you find five in a row – across, up, down, or diagonal – you score a **PONGO BINGO!**

(If you need help identifying any of these, just ask for help!)



A Trail Through Time

Native Americans, Gold, Sheep & Cattle Ranching

Follow the directions and search for the answers to the questions while visiting the historic Cant Ranch house and grounds. Write your answers here.



1. Go to the front left room of the Cant House. Read the **People of the Plateau** exhibit. How do you imagine the arrival of the horse in the 1700s changed life for the Plateau Tribes?

2. Walk out the back porch door, turn left and follow the brick path. Walk slowly and quietly to the end of the trail. Imagine that you are walking along an ancient path left by some of the earliest people to live here. Stand quietly, look around you and listen. Write down what you hear:

3. Visit the Barn. Though standing quiet now, the barn served as the business hub of the ranch. Walk the long row of lambing pens or “jugs” as called by a shepherd. How many do you walk past?

4. Walk along the sheep shearing platform. Read the **Shearing the Sheep** sign. What is the sheared off wool called? _____ Can you think of some items that you use that are made of wool?

5. Return to the front left room of the Cant Ranch House. Read the exhibit: **The Miners**. How much money in gold was discovered in the Canyon Creek area? _____

6. Find the Parlor Room. Take time to observe how the Cant Family dressed in the family photo. Can you find other differences in this room, when compared to our modern times?

7. Walk out the front door to the Sheep Rock Overlook Trail. Find the “go-devil” and a low sign called **On the Road of History**. What is a “go-devil”? _____
How do you think early settlers traveled to this ranch before the road was built?

Senses of Wonder

Take time to explore these places with your eyes, ears, nose, and fingers. Wake up your senses to better understand what's all around you. Try these activities walking down the trail.

LISTEN

Find a place to sit down and close your eyes. Listen to the sounds around you. Write down what you hear here.



SMELL

As you travel through the park you may notice many scents. Describe some of the different smells you've encountered.



TOUCH

Gently touch nearby plants. Can you describe what they feel like?



LOOK

Try a new angle... get down low to the ground and study the area around you. What do you see now?



Hear, Here, and There

National monuments are special. That's why people work so hard to protect these places, and a very good reason to treat them with respect.

In the spaces provided, compare visiting John Day Fossil Beds National Monument with your own neighborhood using words or pictures. What makes each place special to you?



SOUNDS

Compare the kinds and levels of sounds you hear:

Home

Here

ANIMALS

Describe the most interesting animals:

Home

Here

ACTIVITIES

What kinds of activities do you like to do?

Home

Here

HISTORIC SITES

What are the oldest buildings and artifacts you've seen?

Home

Here

STEWARDSHIP

What are some things you can do to help protect these places?

Home

Here

The National Park Service

What does it mean to you?

The iconic National Park Service arrowhead emblem was created in 1949 by Aubrey Neasham. He used symbols to show us ideas and themes important to the National Parks. What do you think they are trying say? Write it in the box!

SEQUOIA TREE

ARROWHEAD



BISON (AMERICAN BUFFALO)

MOUNTAIN

THE NATIONAL PARK SERVICE CARES FOR SPECIAL PLACES SAVED BY THE AMERICAN PEOPLE SO THAT ALL MAY EXPERIENCE OUR HERITAGE.

For more paleontology and fossil fun, you can also visit these National Parks:

Agate Fossil Beds National Monument • NE

Badlands National Park • SD

Bering Land Bridge National Preserve • AK

Dinosaur National Monument • CO, UT

Florissant Fossil Beds National Monument • CO

Fossil Butte National Monument • WY

Hagerman Fossil Beds National Monument • ID

Petrified Forest National Park • AZ



Written, compiled, and directed by Paul Ollig and Michelle Ordway, and the staff at John Day Fossil Beds National Monument, Pongo the Pogonodon illustrations: Michelle Ordway, Mural Artists: Roger Witter & Larry Felder, Pen & Ink Illustrations: Mark Hallett

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