The Mini Page®
Betty Debnam, Founding Editor and Editor at Large

Discovering a Lost World

Monster Snake!

Ten years ago, scientists uncovered the remains of giants in a land that had been buried for nearly 65 million years. The biggest giant of them all was the most enormous snake to ever live on Earth. Scientists named it **Titanoboa** (tie-TAN-uh-BOE-uh).

Its name comes from "titanic," which means "gigantic," and from "boa," which is the snake's family.

At first, **paleontologists*** (pay-lee-uhn-TAHL-uh-jists) believed the giant bones found at the South American mine belonged to ancient crocodiles. They were astonished to learn that the bones belonged to a huge snake.

To learn more about this amazing reptile, The Mini Page talked with one of the paleontologists working to solve the mysteries of Titanoboa.

***Paleontologists study the fossils of plants and animals.**

art by Jason Bourque, courtesy Florida Museum of Natural History

Titanoboa ruled this ancient rain forest right after the dinosaurs left the Earth. That time is known as the Paleocene (PAY-lee-uh-seen) era.

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Titanoboa coils around a giant crocodile, crushing it so it can eat it at its leisure. Boas swallow their prey head first.

A giant among snakes

Titanoboa was 48 feet long, longer than a school bus. The largest living snake, the **anaconda** (an-uh-KAHN-duh), is less than half that size, growing to about 20 feet long.

Titanoboa was 26 inches wide. It might have been twice as wide after swallowing its prey. It weighed 2,500 pounds — 500 pounds more than a ton.

At the top of the food chain

Boa constrictors such as Titanoboa have no venom glands. They are not poisonous. They kill their prey by twisting around its body and squeezing. Each time the prey breathes out, the boa **constricts**, or tightens. The squeezing stops the prey's blood from flowing, and its heart stops.

Snakes can spread their jaws so far apart that they can swallow things much, much bigger than their heads. The Titanoboa could open its jaw about 6 feet wide, as big as a standing man.

Almost all constrictors swallow their prey whole. They basically walk their mouths over the prey, surge forward and swallow.

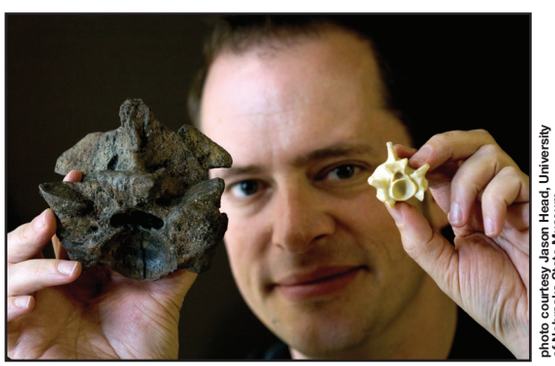


photo courtesy Jason Head, University of Nebraska State Museum

A Titanoboa vertebra, or back bone, is on the left, and a modern anaconda vertebra is on the right. Titanoboa's vertebrae were as big as those of a modern whale.

A Stupendous Snake Strikes

Lying in wait

Boas don't need to eat very often. They swallow their prey quickly, and then digest it very slowly. A huge snake such as Titanoboa may have needed to hunt and eat only once a year. It would lie quietly for a year, then it would wake up and ambush new prey when it got hungry.

Because their prey usually fights back, modern constrictors can get pretty chewed up, missing parts of their bodies. To protect themselves, they kill their prey as fast as they can. They try to capture as big a prey as possible so they don't have to do battle very often.

Experts believe there are the remains of even larger Titanoboa snakes buried in the Colombian coal mine site.

Titanoboa hid quietly until striking suddenly at its prey.

Water monster

Titanoboa probably lived in a huge freshwater river system much like the Amazon in South America today. The snake was so heavy that it probably spent most of its time in the water. Most modern boas hang down from trees to capture their prey.

Life of a giant

Titanoboa most likely gave birth to baby snakes while in the water. The father probably had nothing to do with caring for the babies. We don't know if the mother stayed to care for them or not. With some snakes, the mother does provide some protection to the babies.

We don't know how long Titanoboa lived.

art courtesy NASA/JPL-Caltech

Titanoboa and the remains of the oldest known rain forest on Earth were discovered buried in the Cerrejon (SER-uh-hone) coal mine in Colombia.

Ready Resources

The Mini Page provides ideas for websites, books or other resources that will help you learn more about this week's topics.

On the Web:

- sites.si.edu/titanoboa
- bit.ly/1s0cmpI

At the library:

- "Titanoboa: Monster Snake" DVD
- "Everything You Need to Know About Snakes" by DK Publishing
- "National Geographic Readers: Snakes!" by Melissa Stewart

Basset Brown's

Try 'n' Find

Titanoboa

P	G	A	D	I	H	E	N	E	C	O	E	L	A	P
S	R	I	M	R	O	T	C	I	R	T	S	N	O	C
W	F	E	A	B	M	D	H	S	R	C	B	L	M	O
A	O	J	Y	N	U	I	I	O	N	I	O	O	N	L
L	S	A	V	N	T	S	N	G	T	A	V	A	A	O
L	S	W	T	S	O	L	H	E	L	V	K	E	L	M
O	I	T	S	E	R	O	F	N	I	A	R	E	R	B
W	L	T	A	E	E	A	R	B	E	T	R	E	V	I
T	S	I	G	O	L	O	T	N	O	E	L	A	P	A

Words that remind us of Titanoboa are hidden in the block above. Some words are hidden backward or diagonally, and some letters are used twice. See if you can find: AMBUSH, BOA, COAL, COLOMBIA, CONSTRICTOR, DIG, EAT, FOSSIL, GIANT, HID, HOT, JAW, LOST, MINE, PALEOCENE, PALEONTOLOGIST, PREY, RAIN FOREST, RIVER, SNAKE, SWALLOW, VERTEBRAE.

Mini Spy

Mini Spy and Basset Brown are at the exhibit for Titanoboa. See if you can find:

- ❑ ice cream cone
- ❑ dragon
- ❑ paint roller
- ❑ ship
- ❑ snake
- ❑ candy cane
- ❑ ladder
- ❑ teapot
- ❑ cheese wedge
- ❑ jester hat
- ❑ sea horse
- ❑ fish
- ❑ hamburger
- ❑ bread slice
- ❑ ice pop
- ❑ banana
- ❑ pencil

Rookie Cookie's Recipe
Pizza Tortilla

You'll need:

- 1 medium-size flour tortilla
- 2 tablespoons spaghetti sauce
- 1 teaspoon Italian seasoning
- 8 turkey pepperoni slices
- 1/4 cup mozzarella cheese

What to do:

1. Spray small skillet with cooking spray.
2. Place tortilla in pan and spread spaghetti sauce evenly over the top. Sprinkle Italian seasoning over the sauce.
3. Layer pepperoni slices and cheese to make an individual pizza.
4. Cover and cook on medium heat for 1 to 2 minutes until cheese melts. (Be careful not to burn the bottom.)
5. Slice in quarters for small slices. Makes 1 serving.

You will need an adult's help with this recipe.

Meet Danny Weinkauf

photo courtesy They Might Be Giants

Danny Weinkauf is a musician and composer best known as a member of the band They Might Be Giants. His first CD on his own is "No School Today." The album includes performances by his son, Kai, daughter, Lena, and wife, Michelle. He produced the album and plays all the instruments himself.

Danny, 50, has written songs for TV, movies and commercials. His They Might Be Giants song "I Am a Paleontologist" is used in museum exhibits around the world.

He plays several instruments, including the bass, mandolin, banjo, ukulele, drums, piano and keyboards. He learned to play his first instrument, the trumpet, from a great music teacher, Mr. Mattson, in the third grade. He learned to play the guitar when he was in junior high.

Danny has college degrees in psychology and physical therapy. He lives with his family on Long Island, N.Y.

The Mini Page®
Standards Spotlight: Monster Snake!

Mini Page activities meet many state and national educational standards. Each week we identify standards that relate to The Mini Page's content and offer activities that will help your students reach them.

This week's standard:

- Students understand the characteristics and life cycles of organisms. (Science: Life Science)

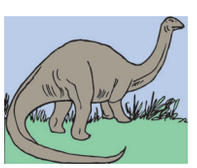
Activities:

1. Make a movie poster for a scary film about a Titanoboa.
2. In your newspaper, circle five words or pictures of items that are as long or as wide as a Titanoboa. How would a Titanoboa fit in your house?
3. In the newspaper, find five animals that you think might be able to fight a Titanoboa. Explain your choices.
4. Why were these important to the Titanoboa: (a) paleontologists, (b) rivers, (c) warm temperatures, and (d) the Smithsonian Institution?
5. Research modern members of the boa family. List the boas in order from smallest to largest. Explain where each lives.

(standards by Dr. Sherrye D. Garrett, Texas A&M University-Corpus Christi)

Mighty Funny's Mini Jokes

All the following jokes have something in common. Can you guess the common theme or category?



Dana: What does an Apatosaurus do when it sleeps?
Debbie: Dino-snores!

Dennis: What happens if you cross a large dinosaur with a chicken?
David: You get a Tyrannosaurus Pecks!

Denise: How does an Apatosaurus feel after it has worked out at the gym?
Darla: Dino-sore!

Hunting for Ancient Clues

Buried treasure

In 2002, a paleontology student found a fossilized leaf in the Cerrejon coal mine in Colombia. It was the first sign that an ancient forest had once existed there.

Over the next 10 years, teams of scientists discovered the remains of the oldest known tropical rain forest. It held the ancestors of many modern plants, including the earliest known bananas, palms, avocados, beans and **cacao** (kuh-KAY-oh), the plant that gives us chocolate.

In 2004, they also found fossils of giant turtles as big as pool tables and enormous crocodiles. The most exciting discovery was Titanoboa.

photo courtesy Carlos Jaramillo, Smithsonian Tropical Research Institute

Paleontologists dig at the Cerrejon coal mine. It is one of the largest open-pit coal mines in the world, as large as 8,000 football fields. Coal is formed from plants that lived millions of years ago. Their remains were buried under dirt and water for millions of years, and the pressure and heat changed the remains to coal. This makes coal mines good places to find fossils.

The Mini Page thanks Dr. Jason Head, assistant professor, Department of Earth and Atmospheric Sciences, University of Nebraska-Lincoln and curator of vertebrate paleontology in the University of Nebraska State Museum, for help with this issue.

Photo by James Di Loreto, courtesy Smithsonian Institution

This scientifically accurate, full-size model of Titanoboa is part of the Smithsonian traveling exhibit. It is currently on display at the University of Nebraska State Museum in Lincoln, Neb.

The exhibit is scheduled to travel to several different cities across the United States through 2017.

"Titanoboa: Monster Snake" is a partnership with the Florida Museum of Natural History, the University of Nebraska, the Smithsonian Tropical Research Institute and the Smithsonian Institution Traveling Exhibition Service.

The courage to explore

Paleontologists work under harsh conditions at Cerrejon. Huge trucks dig up the coal while paleontologists are hunting fossils. The trucks are so gigantic that the drivers can't see the paleontologists working beneath them. The scientists have to watch out for the trucks and jump out of the way. Huge cracks appear in the layers of coal, and paleontologists may have to leap across these cracks to dodge the trucks. Sometimes they miss and fall into the cracks.

It's hot and humid in this mine near the equator, and coal dust coats the scientists. The coal in the mine can suddenly burst into flame.

Next week, The Mini Page celebrates Memorial Day with a story about the U.S. Air Force.

A hot time for snakes

Snakes are cold-blooded animals. Their body temperature depends on the temperature in the environment. A huge snake such as Titanoboa could have survived only if the climate were hotter than it is now.

Based on the snake's size, experts figure the average temperatures then were between 84 and 89.6 degrees Fahrenheit. This is 5 to 8 degrees warmer than in today's rain forests. Even though our planet is heating up, it is unlikely that giant snakes would arise again.

Today, temperatures are rising so fast that wildlife can't adjust. Huge animals would not have the time to develop.

Look through your newspaper for stories about scientific discoveries.

The Mini Page Staff

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