

Glen Canyon Rainbow Bridge

National Park Service
U.S. Department of the Interior

Glen Canyon National Recreation Area
Rainbow Bridge National Monument



Therizinosaur *Nothronychus graffami*



A Vegetarian in the Family

Now on exhibit through March 2012 at the Carl Hayden Visitor Center, at the Glen Canyon Dam, is the giant sickle-claw dinosaur: *Nothronychus* (pronounced noth-ro-NIK-us) *graffami* (pronounced GRAF-fam-i). This unusual creature belongs to a group of plant-eating dinosaurs called therizinosaurs (pronounced ther-uh-ZIN-oh-SAWRS). Therizinosaurs had peg-like teeth and a muzzled beak similar to a bird. They also had feathers which made them a truly unique large dinosaur.

Therizinosaurs sported grotesquely large sickle-like claws which made them an animal to be feared. Not only were these claws an excellent tool for stripping and gathering vegetation from trees, they could also be employed as a lethal defense against the many meat eating predatory dinosaurs that lived in the same location.

Though therizinosaurs were bipedal (walked on two legs) like most other theropods (meaning beast feet) their hips were much wider than other raptors. Their hip structure was swept backward like a bird's to make room for digesting large amounts of plant matter. This gave them great big pot bellies and most likely a waddling gait. Because of its tremendous gut, the center of balance of the therizinosaur was shifted backward along its spine, allowing these creatures to squat like sumo wrestlers.

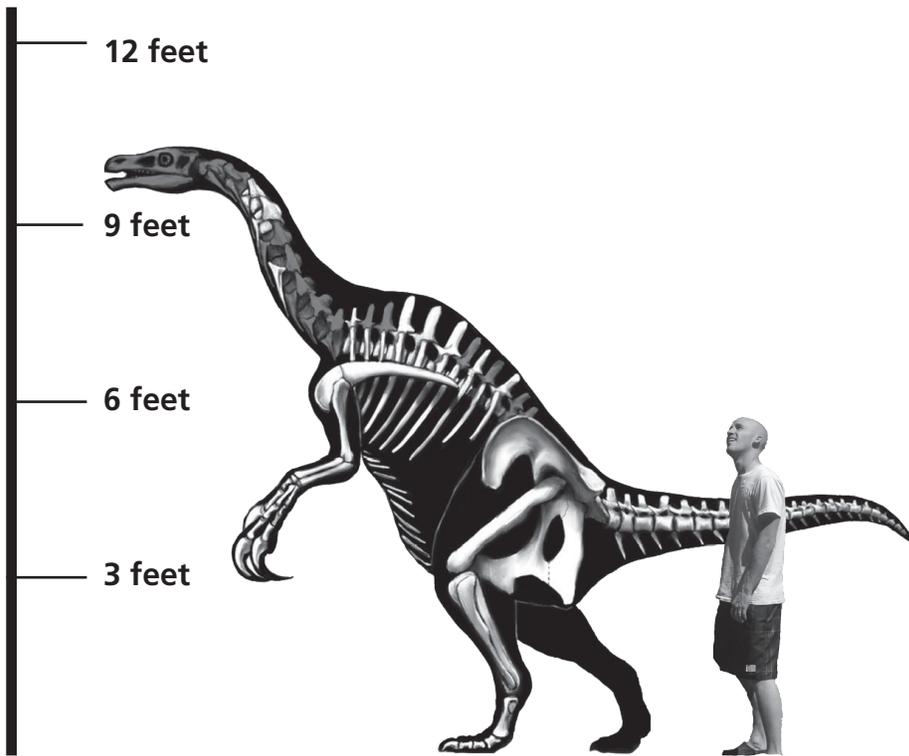
Finders, Namers



In 2000, Bureau of Land Management Park Ranger and amateur paleontologist Merle Graffam located a fossilized toe bone that was subsequently identified as belonging to the most complete therizinosaur known from the Late Cretaceous. It was later named for Graffam. Only two other therizinosaurs have been found in North America.

Graffam discovered the dinosaur during on-going fieldwork led by Museum of Northern Arizona paleontologist David Gillette. Gillette and his team were excavating a plesiosaur (ancient aquatic marine reptiles) from the Tropic Shale in nearby Glen Canyon NRA. The Tropic Shale represents sediments of an quiet inland sea that stayed in the area for about 30 million years. The discovery of this land living therizinosaur found in the midst of ocean sediments presented researchers with a mystery. Scientists have concluded that the animal must have floated east 60 miles from the shoreline, perhaps during a storm, before sinking to the bottom of the sea.

How Tall Was *Nothronychus*?



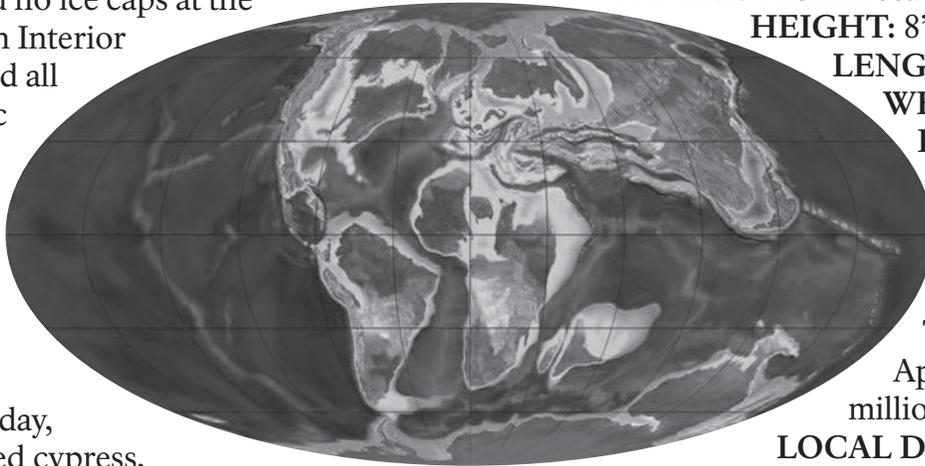
19 inches

Asian Connection

Pictured above are the inner claw bones from the hand of an Asian therizinosaur (top) and North American *Nothronychus* (middle). Although they look different, the claw similarities clearly link the Asian and North American populations, providing a strong argument for a land bridge between the two continents. The land bridge is thought to have crossed the Bering Sea, allowing the migration of advanced therizosaurs from Asia into North America just prior to the appearance of *Nothronychus* in Utah.

What Was The Earth Like 93 Million Years Ago?

The climate was much warmer, with higher ocean levels and no ice caps at the poles. The vast Western Interior Seaway (right) stretched all the way from the Arctic Ocean to the Gulf of Mexico, dividing North America. *Nothronychus* lived in swampy coastal plains alongside the seaway. Similar to the Louisiana bayous of today, these swamps supported cypress, redwoods, magnolias, palms, horsetails, and other plants.



Nothronychus Statistics

ORDER: Saurischia

SUBORDER: Segnosauria

FAMILY: Therizinosauridae

HEIGHT: 8'-10'

LENGTH: 16'-18'

WEIGHT: 1 ton

DIET: Plants
(herbivore)

LIVED DURING:
Mesozoic Era, Late
Cretaceous Period

TIME OF DEATH:
Approximately 93
million years ago

LOCAL DISTRIBUTION

OF FOSSIL: Tropic Shale, Kaiparowits Plateau

Under the Paleontological Resources Preservation Act (2009), it is illegal to dig, remove, or collect fossils without a permit. Never make molds or castings, or apply anything to fossils and trackways. Report looting or vandalism to a Ranger or call 1-800-227-7286. We appreciate your help preserving these unique resources for future generations.

Contact Information

Carl Hayden Visitor Center at Glen Canyon Dam
phone: 928-608-6404 web: www.nps.gov/glca

Other Important Resources:

National Fossil Day: <http://nature.nps.gov/geology/nationalfossilday>

Grand Staircase Escalante National Monument:

http://www.blm.gov/ut/st/en/fo/grand_staircase-escalante.html

Museum of Northern Arizona:

<http://www.musnaz.org/exhibits/therizinosaur.html>