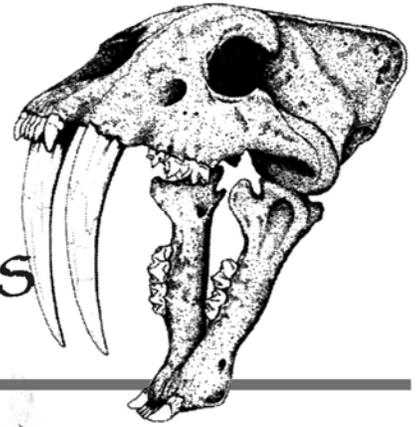


# NEWS

## Florida Fossil Hunters

Volume 19, Number 6

June 2009



### Prez Sez:

Summertime is here! The kids are out of school and looking for something to do. Now's a great time to go digging for that meg tooth or whale vertebra for next Falls' "Show & Tell." It's a great way to answer the question, "What did you do on your summer vacation?"

This past Saturday, May 30th, was "May Myths and Monsters" at Orlando Science Center, an event which explored the origins of mythical beasts and their basis in paleontology. The event was attended by over 4,500 guests...a lifetime record for Science Center attendance. A handful of Florida Fossil Hunters were on hand to enjoy the event which showed many of the club's collected fossils and materials in a different light than we usually shine. Thanks to everyone who helped make Myths and Monsters a success!

Happy Hunting!

Jimmy Waldron  
President

### Coming Events

**MEETINGS  
SATURDAY**  
at the Orlando Science Center

**June 20, 2009**  
6:00 pm Kids Blast  
7:00 pm Meeting and Auction

**July 18, 2009**  
Summer Club picnic

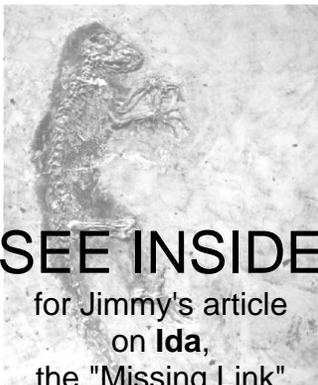
**August, tba**  
Kids Blast and Meeting tba

For more info...  
[www.floridafossilhunter.com](http://www.floridafossilhunter.com)

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**JUNE'S**  
club meeting  
will feature our  
semi-annual auction.  
Be sure to bring your  
fossil bucks to bid on  
your favorite pieces.



**SEE INSIDE**  
for Jimmy's article  
on *Ida*,  
the "Missing Link"

# Fragments

# July Picnic

### Giant Ground Sloth Drowns

That could have been the headline in Daytona Beach's newspaper if the sloths still roamed in Florida. Instead, it was the fossil sloth in the Daytona Beach Museum of Arts and Sciences that had high water to deal with. Luckily, the staff at the museum managed to get all the priceless art and artifacts out of the museum before the flood waters moved in and caused some damage.

The good news is that the kids summer program will begin on schedule and the museum itself will re-open on June 16th after repairs.

### June Fossil Auction

It's June and time for one of our fossil bucks auction. All of you that have earned bucks by volunteering for the club and attending the meetings get to bid on fossils or minerals or other items with the bucks.

So bring in your moola and join in the fun.

As we usually do, we will be having a picnic instead of a meeting in July. Dave Dunaway has once again graciously volunteered to host this event which will run from 3 pm until 9 pm on Saturday, July 18th. Please bring a salad, dessert, veggie or other family recipe to share. The club will provide hamburgers, hot dogs and the fixin's.

There is a pool so bring your bathing suit and towels. You can also tour Dave's fort, admire his fossil and mineral collections and there will be fireworks after dark.

Join us for this day of wild fossil hunting stories as well as tales of the ones that got away.

Directions: I-4 to S.R. 434. Go west on 434 to Markham Woods Rd. Turn right and go north on Markham Woods to the first traffic light. Turn right onto E.E. Williamson Rd. and then turn right onto Ferne. Dave's house is the last one on the left, at 600 Ferne Dr., Longwood. His phone number is 407-786-8844.

### Summer Days

Looking for something for the kids to do during summer break? There are camps and programs available at most museums and zoos. Day trips are a great way for parents and kids to spend some time together, too.

So check out the Brevard County Zoo, Daytona Beach Museum of Arts and Sciences, Florida Museum of Natural History in Gainesville and the Orlando Science Center.

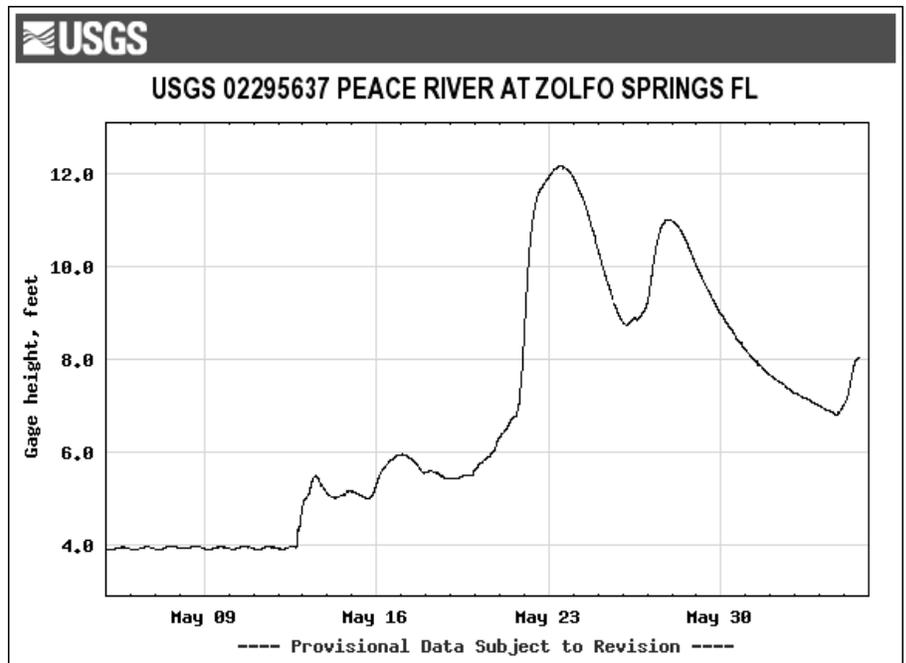
## Kids' Fossil Blast

This month's theme is Ancient Seas. See the ancient seas. They are old.

To discover the more interesting parts of this subject, join us on Saturday, **June 20th at 6 pm** at the Orlando Science Center.

### Piece on the Peace

During the week of the deluges in May, the Peace River crested over 12 ft. That gave it a good flushing and maybe even moved some fossils to places we can find them. As of the first week in June, it was still over 6 ft. and will probably be going up and down as the summer rains continue. Be sure to check the river depth before you go digging next time. You can find the link to the gage station on our website.



# Common Ancestor of Humans, Modern Primates?

Some of the biggest recent news in paleontology was brought to light in this past month and I urge you to take this news with a grain of halite. Unless you've been living under a rock lately, you've likely heard of *Darwinius masillae*, otherwise known as Ida. It has been about a week since the news first started leaking out about a fossil that some were calling a "missing link". Last week saw a dramatic unveiling at a press conference, and the arguing hasn't abated since.

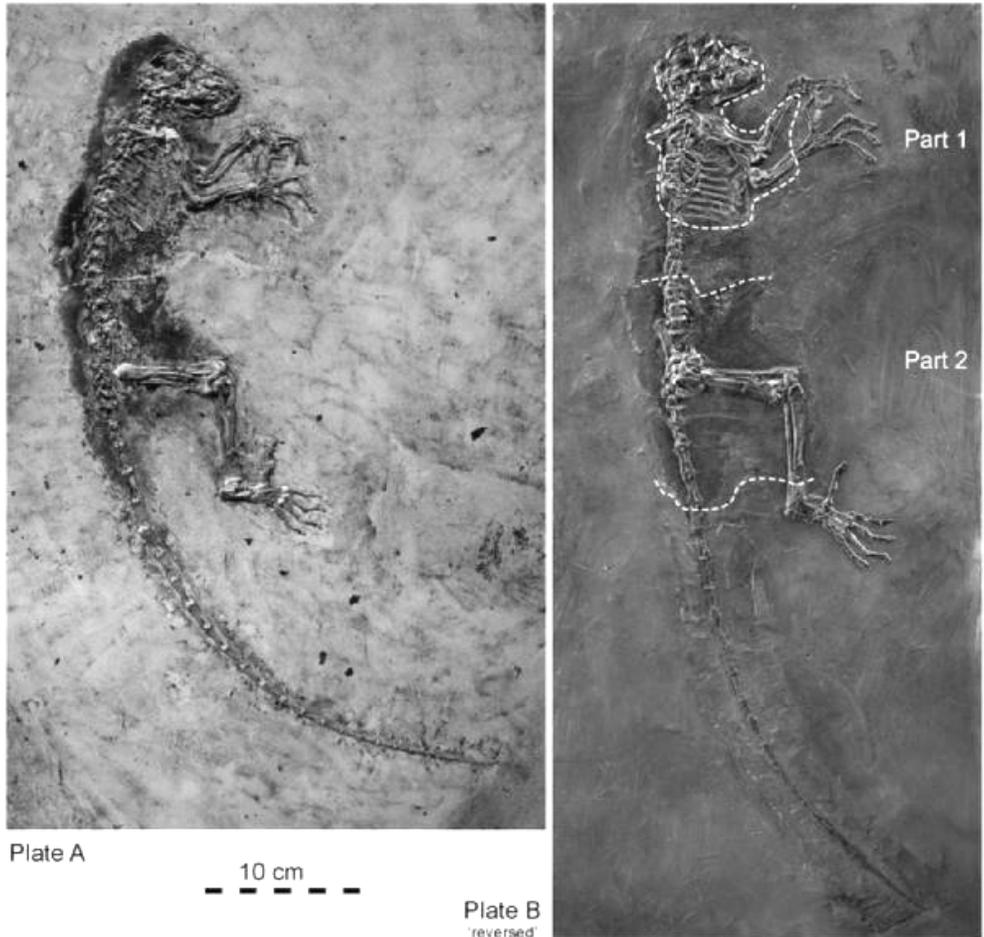
It's probably worth spending some time clarifying what *Darwinius* isn't. Some of the sponsors claim that the fossil "validates" Darwin. Darwin's proposal that organisms are related by common descent was considered validated over a century ago.

The "missing Link" language is pretty misleading as well. The phrase, in popular understanding, is typically reserved for something that had a mixture of characteristics of human and non-human primates and was ancestral to modern humans. We've already got a lot of those fossils and it's not clear that anything is "missing" there. Those fossils, as well as other evidence, suggests that that humans diverged from the rest of the primates about 6 million years ago. *Ida* dates to 47 million years ago so it's not the human/primate missing link.

So while this is exciting news for paleontologists - this discovery of an incredibly intact early Eocene primate is amazing - just keep in mind that this, like countless other specimens before it, is just one more piece of an ever growing puzzle unveiling the mysteries of life on this planet.

Which reminds me...I have to edit my OSC blog post from last Tuesday when I freaked out with everybody else.

Jimmy Waldron



*Scientists have unveiled a 47 million year old primitive prosimian (pre-primate) fossil, which is an astounding 95% complete, found in the Messel Pit in Germany. It had human-like opposable thumbs which would have been useful for climbing and grasping fruit. She had nails instead of claws and teeth similar to monkeys. Her eyes faced forward as in humans and she had short arms and legs like us.*

For the complete article go to:

[www.sciencedaily.com/  
releases/2009/05/090519104643.htm](http://www.sciencedaily.com/releases/2009/05/090519104643.htm)

# High Arctic Mammals Wintered In Darkness 53 Million Years Ago

*ScienceDaily (June 1, 2009) — Ancestors of tapirs and ancient cousins of rhinos living above the Arctic Circle 53 million years ago endured six months of darkness each year in a far milder climate than today that featured lush, swampy forests, according to a new study led by the University of Colorado at Boulder.*

CU-Boulder Assistant Professor Jaelyn Eberle said the study shows several varieties of prehistoric mammals as heavy as 1,000 pounds each lived on what is today Ellesmere Island near Greenland on a summer diet of flowering plants, deciduous leaves and aquatic vegetation. But in winter's twilight they apparently switched over to foods like twigs, leaf litter, evergreen needles and fungi, said Eberle, curator of fossil vertebrates at the University of Colorado Museum of Natural History and chief study author.

The study has implications for the dispersal of early mammals across polar land bridges into North America and for modern mammals that likely will begin moving north if Earth's climate continues to warm. A paper on the subject co-authored by Henry Fricke of Colorado College in Colorado Springs and John Humphrey of the Colorado School of Mines in Golden appears in the June issue of *Geology*.

The team used an analysis of carbon and oxygen isotopes extracted from the fossil teeth of three varieties of mammals from Ellesmere Island -- a hippo-like, semi-aquatic creature known as *Coryphodon*, a second, smaller ancestor of today's tapirs and a third rhino-like mammal known as *brontothere*. Animal teeth are among the most valuable fossils in the high Arctic because they are extremely hard and better able to survive the harsh freeze-thaw cycles that occur each year, Eberle said.

Telltale isotopic signatures of carbon from enamel layers that form sequentially during tooth eruption allowed the team to pinpoint the types of plant materials consumed by the mammals as they ate their way across the landscape through the seasons, Eberle said.

"We were able to use carbon signatures preserved in the



tooth enamel to show that these mammals did not migrate or hibernate," said Eberle. "Instead, they lived in the high Arctic all year long, munching on some unusual things during the dark winter months." The study was funded by the National Science Foundation.

An analysis of oxygen isotopes from the fossil teeth helped determine seasonal changes in surface drinking water tied to precipitation and temperature, providing additional climate information, said Eberle. The results point to warm, humid summers and mild winters in the high Arctic 53 million years ago, where temperatures probably ranged from just above freezing to near 70 degrees Fahrenheit, Eberle said.

The environment on central Ellesmere Island, located at about 80 degrees north latitude, was part of a much larger circumpolar Arctic region at the time, she said. It probably was similar to swampy cypress forests in the southeast United States today and still contains fossil tree stumps as large as washing machines, Eberle said.

On central Ellesmere Island in today's high Arctic -- a polar desert that features tundra, permafrost, ice sheets, sparse vegetation and a few small mammals -- the temperature ranges from roughly minus 37 degrees F in winter to 48 degrees F in summer and is the coldest, driest environment on Earth. There is sunlight in the high Arctic between October and February, and the midnight sun is present from mid-April through the end of August.

*Continued page 5*

**Continued from page 4**

The year-round presence of mammals such as the hippo-like *Coryphodon*, tapirs and brontotheres in the high Arctic was a "behavioral prerequisite" for their eventual dispersal across high-latitude land bridges that geologists believe linked Asia and Europe with North America, Eberle said. Their dietary chemical signatures, portly shapes and fossil evidence for babies and juveniles in the Arctic preclude the idea of long, seasonal migrations to escape the winter darkness, she said.

"In order for mammals to have covered the great distances across land bridges that once connected the continents, they would have required the ability to inhabit the High Arctic year-round in proximity to these land bridges," Eberle said.

Instead, the animals likely made their way south from the Arctic in minute increments over millions of years as the climate shifted. "This study may provide the behavioral smoking gun for how modern groups of mammals like ungulates -- ancestors of today's horses and cattle -- and true primates arrived in North America," said Eberle, also an assistant professor in CU-Boulder's geological sciences department.

The surprising menagerie of Arctic creatures during the early Eocene epoch, which lasted from roughly 50 million to 55 million years ago, first became evident in 1975 when a team led by Mary Dawson of the Carnegie Museum of Natural History in Pittsburg discovered fossil alligator jaw bones. Since then, fossils of aquatic turtles, giant tortoises, snakes and even flying lemurs -- one of the earliest forms of primates -- have been found on Ellesmere Island, said Eberle.

The new Geology study also foreshadows the impacts of continuing global warming on Arctic plants and animals, Eberle said. Temperatures in the Arctic are rising twice as fast as those at mid-latitudes as greenhouse gases build up in Earth's atmosphere from rising fossil-fuel burning, and air temperatures over Greenland have risen by more than 7 degrees F since 1991, according to climate scientists.

"We are hypothesizing that lower-latitude mammals will migrate north as the temperatures warm in the coming centuries and millennia," she said. If temperatures ever warm enough in the future to rival the Eocene, there is the possibility of new intercontinental migrations by mammals."

Because the oldest known tapir fossils are from the Arctic, there is the possibility that some prehistoric mammals could have evolved in the circumpolar Arctic and then dispersed through Asia, Europe and North America, said Eberle. "We may have to re-think the world of the early Eocene, when all of the Arctic land masses were connected in a supercontinent of sorts," she said.

*Adapted from materials provided by University of Colorado at Boulder.*

## Ancient Mammals Shifted Diets As Climate Changed *or You Aren't What You Eat*

A new University of Florida study shows mammals change their dietary niches based on climate-driven environmental changes, contradicting a common assumption that species maintain their niches despite global warming.

Led by Florida Museum of Natural History vertebrate paleontologist Larisa DeSantis, researchers examined fossil teeth from mammals at two sites representing different climates in Florida: a glacial period about 1.9 million years ago and a warmer, interglacial period about 1.3 million years ago. They found that the interglacial warming resulted in dramatic changes to the diets of animal groups at both sites.

Differences in how plants photosynthesize give them distinctive carbon isotope ratios. These ratios in turn are incorporated in the teeth of the animals that feed on the plants. This enabled the researchers to determine if and how the diets of the animals changed when the climates changed.

The results showed that browsers...those animals that fed mainly on trees and shrubs... became mixed feeders when during the interglacial period. This means that animals can change their feeding habits in response to climate changes instead of migrating or dying off.

For the entire article go to [www.sciencedaily.com/releases/2209/06/090602204255.htm](http://www.sciencedaily.com/releases/2209/06/090602204255.htm)



*This fossilized horse (Equus) tooth shows where a series of enamel samples have been drilled to help identify seasonal fluctuations in the animal's diet. This horse lived about 1.9 million years ago during a glacial period in Florida. (Credit: Mary Warrick/University of Florida)*

# GIANT Dinosaur Posture Is All Wrong: Sauropods Held Their Heads High

*ScienceDaily (May 27, 2009) — Famous depictions of the largest of all known dinosaurs, from film and television to museum skeletons, have almost certainly got it wrong, according to new research.*

Sauropods are the most iconic of prehistoric creatures. They were up to 30 metres long, weighed as much as 10 elephants, and are instantly recognisable by their very long necks and small heads. They are the centrepieces in most natural history museums worldwide.

Recent depictions such as the BBC's *Walking With Dinosaurs* show them with their long necks held horizontal and their heads near the ground. But now scientists are saying the low-necked sauropod pose is a mistake: new evidence indicates that they held their necks aloft like giraffes and all other living land vertebrates, making them up to 15 metres tall.

Dr Mike Taylor and Dr Darren Naish, of the University of Portsmouth, and Dr Matt Wedel, of Western University of Health Sciences in California, argue that while sauropods could hold their necks low, it was not their habitual posture.

They studied X-rays of members of 10 different vertebrate groups and found that while the neck is only gently inclined in salamanders, turtles, lizards and crocodylians, it is vertical in mammals and birds – the only modern groups that share the upright leg posture of dinosaurs.

Dr Taylor said: "Like the animals we have with us today, they would have spent most of their time with their necks elevated, except when drinking or browsing at low levels."

Modern vertebrates, from cats and humans to sauropods' closest living relatives, the birds, hold their necks aloft in a vertical or near-vertical position.

Dr Wedel said: "We can't just study fossil bones by themselves. Dinosaurs were living animals and to understand how they lived, we need to look at animals that are alive today. In this case, our evidence shows the present is the key to the past."

The neck vertebrae of sauropods fit together mainly by way of ball and socket joints. In addition, the top part of each vertebra has a pair of facets, two at the front and two at the back, which glide past each other when the neck bends.

Dr Taylor said: "Scientists have assumed that each pair of facets must maintain at least a 50 percent overlap at all



times; but looking at what ostriches and giraffes do, we see that their facets can slide much further, until they hardly overlap at all. This means that sauropods would have had a far greater range of neck movement than has been thought in recent times.

"Unless sauropods carried their heads and necks differently from every living vertebrate, we have to assume that the base of their neck was curved strongly upwards. In some sauropods this would have meant a graceful swan-like S-curve to the neck, and a look quite different from the recreations we are used to seeing today."

Low necked poses for sauropods have been used for countless plastic toys and have become part of mainstream culture, thanks in part to the BBC's *Walking with Dinosaurs*, and to new museum exhibits such as one at the American Museum of Natural History in New York.

Professor Mike Benton at Bristol University's Department of Earth Sciences, said: "It's hugely important to understand how sauropod dinosaurs functioned. They were so huge – ten times the size of an elephant – and yet they were successful animals. This new work provides plausible evidence that sauropods held their necks elevated, rather than horizontally, as had been assumed.

"The new work is based on studies of living animals, but the next step will be to carry out engineering studies to see whether the new or old neck positions are energetically more efficient. If you have a long neck that weighs a tonne or more you must hold it in a neutral position where stresses and strains are minimised."

*Adapted from materials provided by University of Portsmouth, via AlphaGalileo.*

# Florida Fossil Hunters

is a fun and educational group whose goal is to further our understanding of the prehistory of Florida. We encourage family participation and welcome explorers of all ages.

Membership is \$17 per year. Other household members may be included at no charge.

Meetings are held the third Wednesday of each month at 7:00pm, check the website for the location.

**Officers:**

President	Jimmy Waldron	(386) 212-5814
Vice President	Russell Brown	(352) 429-1058
Secretary	Glory Kerr	
Treasurer	Sara Morey	(407) 353-8675

**Chairs:**

Education	Melissa Cole	(407) 834-5615
Field Trips	Shelley Zimmerman	(407) 891-1260
Fossil Fair	Valerie First	(407) 699-9274
Fossil Auctions	Dave Dunaway	(407) 786-8844
Fossil Bucks	Dave Dunaway	(407) 786-8844
Fossil Lotto	Ed Metrin	(407) 321-7462
Auctioneer	Roy Singer	(407) 645-0200
Historian	Valerie First	(407) 699-9274
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Membership	Joanne Maio	(407) 375-3635
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Roy Singer	(407) 645-0200

## Membership Application

Names: \_\_\_\_\_

Associate Members: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

State: Zip: \_\_\_\_\_

e-mail: \_\_\_\_\_

\_\_\_\_ New \_\_\_\_ Renewal

Please list any interests, experience, talents or just plain enthusiasm, which you would like to offer to the club:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Membership is \$17 per year. Our membership year runs from January to December. All renewals are done in December and January.

**Please make your checks payable to:**

Florida Fossil Hunters  
 Post Office Box 540404  
 Orlando, Florida 32854-0404

*Associate members are people in the same household, included at no extra charge, 2 adult votes per household.*

## Newsletter Policy

Articles must be submitted by the first of the month to be included in that month's newsletter. These can be mailed to the above Post Office Box or e-mailed to: elise@liseydreams.com. Articles can be sent as text in the e-mail or in Microsoft Word files (\*.doc).

# Florida Fossil Hunters Mark Your Calendar

**June 20, 2009**  
6:00pm Kid's Blast  
7:00pm Meeting and Auction

**July 18, 2009**  
Club Picnic

## Newsletters Going Green

We are gearing up to *email* the newsletter each month. If you want to participate, just email Bonnie at [bjrb48@netzero.com](mailto:bjrb48@netzero.com) or sign up at the meeting. If you want to continue to receive a paper newsletter in the mail, you don't have to do anything.



Visit us online at [www.floridafossilhunters.com](http://www.floridafossilhunters.com)

Articles and comments should be sent to: [elise@liseydreams.com](mailto:elise@liseydreams.com)

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Florida Fossil Hunters News