

# The FOSSILETTER

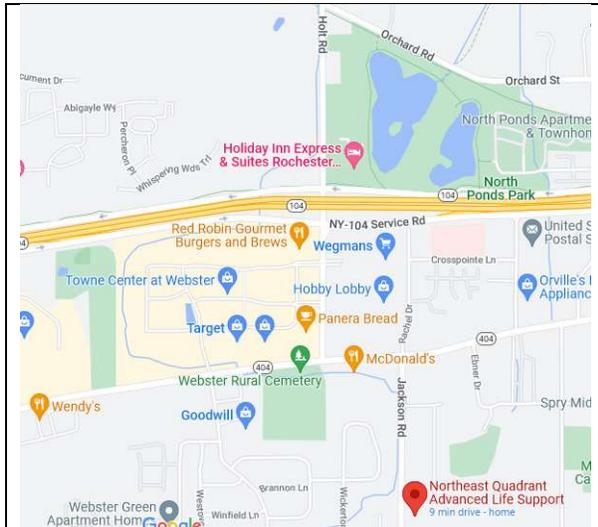
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May 2022

## May Meeting

The May section meeting is on Tuesday, May 3rd, at 7:30 PM. This meeting will again be at the new state-of-the-art Community Meeting Room at the NEQALS (North East Quadrant Advanced Life Support) building at 1030 Jackson Rd, Webster, 14580. This worked out very well for us for our April meeting. Take Holt Road exit south to end, turn left on Ridge Road, take first right at light onto Jackson Road, look for NEQALS on the left.



Our speaker will be section member Michael Grenier, who is also your editor for this newsletter. Michael will discuss the researches published over the past two years in dinosaur paleontology, while tossing in a few other topics and creatures of interest. He is a Cretaceous specialist with many summers experience in the field, and is a long-time member of the Society of Vertebrate Paleontology. This talk is entitled, *Dinosaur Research in 2020 & 2021: Eggs, Babies, Feathers, Other Amazing Finds, & the Really, Really Bad Day.*



*Michael in the field in central Montana, happy in the late Early Cretaceous Cloverly Formation*

## President's Report by Dan Krisher

The Section's April meeting was on April 5th and marked our return to in person meetings with our last in person meeting being in February of 2020 at the Brighton Town Hall. Our face-to-face restart was at the Northeast Quadrant Advanced Life Support building in Webster which is a new facility with state-of-the-art meeting rooms. After the meeting, an informal poll was taken, and the decision was made to continue to use this new facility for the foreseeable future. This meeting also marked our first hybrid meeting with both in person and remote attendees. There were a few bugs at start up but overall, it went quite well. The meeting kicked off a 7:00 with a short social gathering with refreshments followed by our speaker for the evening at 7:30. Dr. Pennilyn Higgins delivered a fascinating talk entitled "Paleontology at the End of the Rope" which dealt with her ongoing work in an 80-foot-deep sinkhole-type pit in the Big Horn Mountains of northern Wyoming. Research at this site has

yielded valuable information on North American Late Pleistocene (20000 BP) faunas.

### **April Meeting - Natural Trap Cave**

To expand on Dan's notes above, Dr. Higgins spoke on what the Natural Trap Cave is and how it was formed. Animals have been falling in for thousands of years, and once over the edge, there is no recourse. Most were likely killed instantly by the eighty-foot fall, and one sympathizes with those that were not. She reviewed the fauna known from remains, especially those now extinct. Cave paleontological excavations are challenging and this one is especially so, since the only way in and out is by rope from the surface to the bottom. Good news for those who were not at the meeting – this talk and others are recorded and listed on our calendar page at the RAS website. Go to <https://rasny.org/fossil-section-calendar> and scroll down to the first past talk.

Dan reminds you that Penn-Dixie will hold its "dig with the Experts" event on June 4 & 5 – see <https://penndixie.org/> for more info.

### **RAS Annual Spring Lecture Video On-Line**

Since many of our members are also interested in archeology, I repeat the following from the RAS May Bulletin. At our annual meeting, Dr. John O'Shea gave a lecture on "Ice, Water, and Ancient Hunters." Dr. O'Shea's team has done underwater archaeology in Lake Huron and discovered extensive remains of post-Ice Age Paleo-Indian hunting activity. This fascinating lecture is on the RAS website publications page at <https://rasny.org/publications>. Read the Bulletin for more details.

### **June Picnic Meeting with Mineral Section**

We will be holding our June 7 Picnic returning to the Marian and Max Farash Center for Observational Astronomy operated by the Astronomy Section of the RAS. This is located in Ionia, NY, just south of Mendon at 8355 County Road 14, Ionia, NY 14475. We will have a tour of the observatory, which I believe to be the largest in upstate NY. We will use the large deck and gas grill attached to the Louis Wolk Education Center

building for our picnic. This has a large classroom to which we can retreat if weather is bad as well as indoor restrooms. More details will appear in next month's issue.

### **Fossil Section Election – Need Volunteers**

It is once again time for the Fossil Section to nominate its slate of officers for the 2022-2023 year. PLEASE consider helping and nominate yourself to be President, Secretary, or Board member. We promise that it is not much work! If you might be interested in running for any of these positions but would like additional information as to the duties and time involved, please contact one of the current Officers or Board members. The finalized ballot will appear in the June newsletter. Current RAS Fossil Section Officers are listed on the last page here.

### **Fossil Section May Field Trip**

**by Dan Krisher**

Following is the May field trip for our 2022 field trip season for the Fossil Section.

**5/7 Road Cut Near Tioga, PA.** A large road cut near Tioga PA exposes Upper Devonian strata of the Frasnian Lock Haven Group. The rock is primarily siltstone and sandstone and contains a fauna of brachiopods and bivalves. This site was visited during the 2017 New York State Geological Association annual meeting in 2017 and detailed information on the site can be found in the NYSGA 2017 guidebook.

About a week or so before the trip, President of the Fossil Section and Field Trip Coordinator Dan Krisher will send an email out to all Section members concerning this field trip. All interested members should get back to Dan Krisher via email at least 2 days before the trip and he'll respond back with additional information for the field trip as soon as your email is received. Dan will then send out a final email to all attendees the night before the trip. To contact Dan Krisher call him at (585) 698-3147 or write to [DLKFossil@gmail.com](mailto:DLKFossil@gmail.com).

## Outreach Event

On Saturday June 11, the Fossil Section will be participating with other RAS sections in the 23rd Annual Adirondack Mountain Club Outdoor Expo at Mendon Ponds Park Beach Area from 9:30AM until 3:30PM. We will be set up at our outdoor tables again under our tarp. Lots to see and do, as there are 60 workshops and displays besides ours, plus refreshments and music. See [www.adk-gvc.org/expo](http://www.adk-gvc.org/expo) for more info.

If you can help out for a while, please contact Dan Krisher at [DLKFossil@gmail.com](mailto:DLKFossil@gmail.com).

## Fossil News

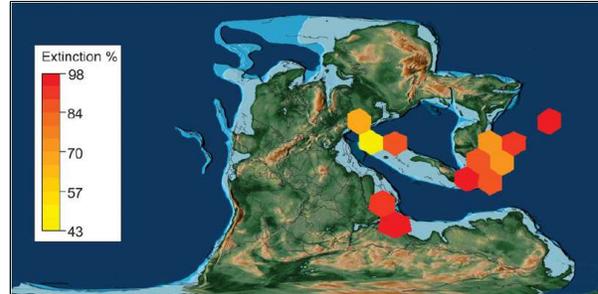
**Three Critical Factors in the end-Permian Mass Extinction.** *Original material provided by University of Hamburg.*

3 March 2022, by Stephanie Janssen

The end of the Permian 252 million years ago, a series of volcanic eruptions in Siberia led to a massive release of greenhouse gases, massive climate changes as the climate ultimately warmed by ten degrees, and the greatest mass extinction event in Earth's history. Around the globe, roughly 75% of all land-based organisms and roughly 90% of all marine organisms died out. Dr. William Foster from Universität Hamburg's Center for Earth System Research and Sustainability and colleagues have now used a new form of "machine learning" to unravel the causes of the mass extinction in the oceans.

By analyzing how the now-extinct marine organisms once lived, Dr. Foster and his team were able to directly link their extinction to the following climate changes: *declining oxygen levels in the water, rising water temperatures, and most likely also ocean acidification*. Specifically, the team analyzed more than 25,000 records on 1283 genera of fossil marine organisms like bivalves, snails, sponges, algae and crustaceans from the region of South China – all of which had mineral skeletons or shells. The team also drew on an enormous database that offers additional information on various ecological aspects of how these organisms lived.

For each genus, twelve of these criteria were analyzed. Did certain traits make a given organism more likely to survive under the conditions prevalent at the end of the Permian – or not? With the aid of "machine learning", a method from the field of Artificial Intelligence, all of these factors were analyzed jointly and simultaneously. Once this was done, the team determined what organisms were there before, during and after the mass extinction.



Foster et al. Figure 1. Proportional extinctions of marine genera during the end-Permian mass extinction event in different regions. (Note North America in center, South America & Africa in bottom center.) Each hexagon cell represents an equal area, and only cells that include both pre- and post-extinction data are included.

Their findings reveal the four factors that were most essential to whether or not organisms survived the end of the Permian: *where in the water they lived, the mineralization of their shells, species diversity within their genus, and their sensitivity to acidification*. For more details, see <https://www.cen.uni-hamburg.de/en/about-cen/news/09-news-2022/2022-03-03-mass-extinction.html>

This paper, (Foster WJ, Ayzel G, Münchmeyer J, Rettelbach T, Kitzmann N, Isson TT, Mutti M, Aberhan M (2022): Machine learning identifies ecological selectivity patterns across the end-Permian mass extinction; *Paleobiology*; DOI: 10.1017/pab.2022.1) is open access at <https://www.cambridge.org/core/journals/paleobiology/article/machine-learning-identifies-ecological-selectivity-patterns-across-the-endpermian-mass-extinction/3827AF46B77BF2BC8917437FB041DABA>

## CALENDAR OF EVENTS

### May

**Tuesday, May 3, FOSSIL MEETING 7:30 PM. LOCATION: NEQALS Community Meeting Room, 1030 Jackson Rd, Webster, 14580.** Speaker Section VP Michael Grenier on Dinosaur (and others) research results over past two years. Visitors welcome.

**Saturday, May 21, FIELD TRIP: Road Cut Near Tioga, PA**

### June

**Tuesday June 7, FOSSIL ANNUAL PICNIC 6:00 PM Location: Farash Center for Observational Astronomy, Ionia, NY.**

**Saturday, June 18, FIELD TRIP: Swamp Road and Pompey Center**

Visitors are welcome to all Fossil Section meetings! For more information and the latest updates check the RAS Website ([www.RASNY.org](http://www.RASNY.org)). You can also contact Dan Krisher at [DLKFossil@gmail.com](mailto:DLKFossil@gmail.com) or John Handley at [jhandley@rochester.rr.com](mailto:jhandley@rochester.rr.com) for further information.

### ROCHESTER ACADEMY OF SCIENCE FOSSIL SECTION

Monthly meetings are now held as hybrid meetings, live but also broadcast on Zoom. Meetings are held the first Tuesday of each month from October to December and from February to May at 7:30 pm. In person meetings are now held at the NEQALS Community Meeting Room, 1030 Jackson Rd, Webster, NY 14580 unless otherwise listed.

#### OFFICERS

President: Dan Krisher

Vice President/Program Chair: Michael Grenier

Secretary: Dan Krisher

Treasurer: John Handley

Director (three-year-term): Melanie Martin

Director (two-year-term): Fred Haynes

Director (one-year-term): *Open*

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#### APPOINTED POSITIONS

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The FossilLetter is published before each meeting month of the year. Please send submissions to [mgrenier@frontiernet.net](mailto:mgrenier@frontiernet.net) or by U.S. Postal Service mail to 692 Maple Drive, Webster, NY 14580. Deadline for submissions to the FossilLetter is the 15<sup>th</sup> of the month.

For scheduling changes and the latest updates please check the RAS Website ([www.rasny.org](http://www.rasny.org)) and click on the Fossil Section link. Last minute updates can also be found on the *General Announcements* page of the Academy Website.



Are you ready for a field trip?