

**Newsletter of the
KENTUCKY
PALEONTOLOGICAL
SOCIETY
“Paleozine”
Vol. 27, No. 12, December 2019**

Meeting Dates

December 13, Christmas Party

November Meeting

We thank Dr. Brenda Hunda for her talk on rescuing the University of Minnesota's paleontology collection. Her hard work will continue in this field as more and more universities lack funding to properly curate their collections. Under her guidance, the Cincinnati Museum Center will continue to save important university and amateur collections containing scientifically important specimens. Thanks, Brenda!

December Meeting, Christmas Party

Dec.13, Christmas Party! The Election of officers will be during the business part of the meeting. *And, give us your tired, your poor, your huddled masses of fossils, books, magazines, CDs, whatever yearning to breathe free, the forgotten items of your teeming basements, garages, closets and shelves* for the KPS silent auction. And don't forget; bring a side dish for the KPS feast! The club will provide the meat.

KPS Minutes

11/22/19

By KPS Secretary Reka Gal

The KPS 11/23 field trip to Hazard featured a variety of plant and marine fossils including ammonoids in Magoffin shale

The KPS Annual Holiday Party and Auction will be held on December 13th. The KPS asks for donations to be auctioned off for the society. Ham and utensils will be supplied by the KPS. Please bring side dishes.

The November edition of the Journal of Paleontology can be found at <https://www.cambridge.org/core/journals/journal-of-paleontology/issue/FFC89D12C3C6CECB36958EA930F766E3>

The Journal of Vertebrate Paleontology can be found at <https://www.tandfonline.com/toc/ujvp20/39/3?nav=tocList>

"We Believe in Dinosaurs" is now on-demand and will be shown on PBS on Monday, February 17th at 10 pm

The Bluegrass Gem and Mineral Club Fossil and Gem Show will be held on March 28th and 29th.

The Society of Vertebrate Paleontology is hosting its annual meeting in Cincinnati in 2020. It will be held on October 14th-17th. It will include a field trip to Big Bone Lick on October 14th.

The GSK 11/23 field trip to Northeastern Kentucky Featured a variety of plant and marine fossils including ammonoids.

December 14 Field Trip-Frankfort

On Saturday, December 14, we will meet at 10:00 AM at the McDonalds located on US 60, north of I-64. It's about 1.8 miles from the westbound exit ramp at exit 58. The lat and long for the driveway is **N 38.19745 W 84.83011**.

THINK SAFETY!

The documentary *We Believe in Dinosaurs* is now available to download for rent or purchase at the websites linked to at the bottom of the film's website:

<https://www.webelieveindinosaurs.net/>

First evidence of feathered polar dinosaurs found in Australia

Date: November 12, 2019

Uppsala University

A cache of 118 million-year-old fossilized dinosaur and bird feathers has been recovered from an ancient lake deposit that once lay beyond the southern polar circle.

Feathered dinosaur fossils are famous, but known from a handful of localities worldwide. Examples from the Southern Hemisphere are especially rare, and mainly include only isolated feathers.

An international team of scientists has analyzed a collection of 10 such fossil feathers found in Australia, which reveal an unexpected diversity of tufted hair-like 'proto-feathers' from meat-eating dinosaurs, together with downy body feathers, and wing feathers from primitive birds that would have been used for flight.

Uniquely, the fossil feathers from Australia were all entombed in fine muddy sediments that accumulated at the bottom of a shallow lake close to the South Pole during the Age of Dinosaurs.

"Dinosaur skeletons and even the fragile bones of early birds have been found at ancient high-latitudes before. Yet, to date, no directly attributable integumentary remains have been discovered to show

that dinosaurs used feathers to survive in extreme polar habitats," said Dr Benjamin Kear from Uppsala University in Sweden, a leading author on the study.

"These Australian fossil feathers are therefore highly significant because they came from dinosaurs and small birds that were living in a seasonally very cold environment with months of polar darkness every year."

The fossil feathers were discovered in the Koonwarra Fish Beds Geological Reserve, which is a heritage listed site 145 km southeast of Melbourne in Victoria, Australia.

"Fossil feathers have been known from Koonwarra since the early 1960s, and were recognized as evidence of ancient birds, but have otherwise received very little scientific attention. Our study is thus the first to comprehensively document these remains, which include new specimens that were examined using cutting-edge technologies," said Dr Thomas Rich of the Melbourne Museum in Australia, who has led numerous expeditions to the Koonwarra locality.

A suite of advanced microscopic and spectroscopic techniques was employed to determine the anatomy and preservation of the Koonwarra fossil dinosaur and bird feathers.

"The Koonwarra feathers are preserved in incredible detail," said fossil bird expert Professor Patricia Vickers-Rich of Monash University and the Swinburne University of Technology in Melbourne.

"There are even tiny filament-like structures that would have 'zipped' the feather vanes together, just as in the flight feathers of modern birds."

However, unlike the structurally complex feathers of birds today, which are characterized by interlocking branches called barbs and barbules, different kinds of small dinosaurs had coverings that comprised much simpler hair-like 'proto-feathers'.

"Dinosaur 'proto-feathers' would have been used for insulation," said Dr Martin Kundrát, of Pavol Jozef Safarik University in Slovakia, a leading author on the study.

"The discovery of 'proto-feathers' at Koonwarra therefore suggests that fluffy feather coats might have helped small dinosaurs keep warm in ancient polar habitats."

Microscopic remains of possible melanosomes, cellular structures that contain colour pigments, were also detected on several of the fossil feathers found at Koonwarra.

These traces occurred across the uniformly dark feather surfaces, as well as in distinct bands that might represent original patterning from the polar dinosaurs and birds.

Melanin residues have been reported on fossil feathers from elsewhere around the world, and are widely acknowledged as indicators of dinosaur colouration.

The densely packed fossil melanosomes occurring on the Koonwarra feathers could suggest dark colours that perhaps assisted in camouflage, visual communication, and/or heat absorbance in cold polar climates.

Possible preservation of biomolecules was also assessed, but proved to be too degraded, and were apparently lost during weathering of the rock.

The Koonwarra fossil feathers provide the first record of dinosaur integument from the ancient polar regions, and hint what was once a global distribution of feathered dinosaurs and early birds.

Some of the fossil feathers found at Koonwarra are on display in the '600 Million Years' exhibition at the Melbourne Museum in Australia.



Above: Banded Iron boulder in our Lake Vermilion campsite near the Soudan Mine in Minnesota. We will have some pieces from the mine property to put in the auction .

Left: Owl footprints in snow. Our own "Arctic dinosaur". Photo Todd Hendricks

DECEMBER MEETING ANNOUNCEMENT

WHO- The Kentucky Paleontological Society (KPS).

WHEN- Friday, December 13, 2019, 7:30 pm

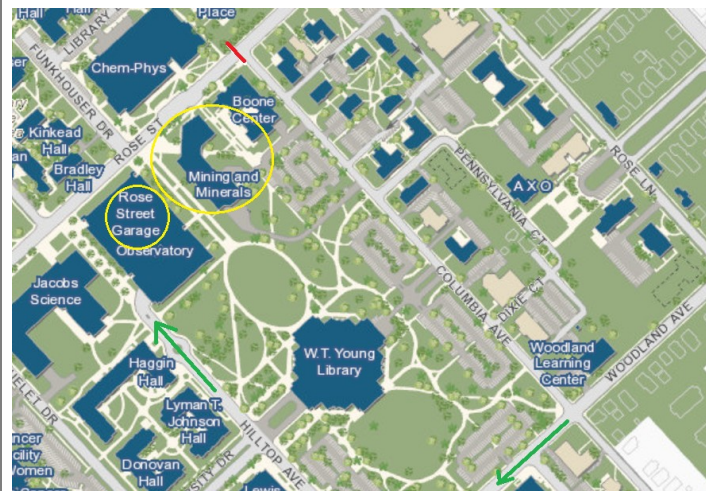
WHERE- Lexington, Kentucky, Mines and Minerals Resources Building, Room 101, Rose Street, UK Campus.

WHAT-Christmas Party!

Don't forget! Bring an auction item and a side dish to the Christmas Party!

There are two easy ways to get to the Mining and Minerals building. One way to get to the parking deck is to get on S. Limestone and take Huguelet across to University Ave. Turn left on University Ave., then left at the W. T. Young Library (Hilltop Ave). The parking deck will be on your right when you get to the end of Hilltop. The other way is to turn left on Columbia (which is now open) from Rose and take a right at Woodland (the light). Take Woodland up to Hilltop, turn right and follow it to the end (past Young library) to the *Rose Street Garage* which is free past 5:00 PM. The lat/long for the parking deck entrance is: 38.03348 -84.50395 .

Parking (small yellow circle), Kentucky Geological Survey (large yellow circle) and road blocked, red line.



MEMBERSHIP

MAIL TO: KENTUCKY PALEONTOLOGICAL SOCIETY, INC.
2004 Sawyer Ct.
Lexington, KY 40514

SOCIETY PURPOSE

The Kentucky Paleontological Society was founded in 1993 for the purpose of promoting interest in and knowledge of the science of paleontology. It is intended that the Society be a network for the exchange of data between professionals and serious amateurs in the field. A newsletter is published monthly, and several field trips are arranged annually.

Meetings of the Society are held once a month. Visitors are welcome.

- Family Membership.** For families. \$17 annually.
- Individual Membership.** \$12 annually.

NAME _____

ADDRESS _____

PHONE # _____

E-MAIL ADDRESS _____

THE NEWSLETTER COMES VIA EMAIL. **IF YOU DO NOT HAVE EMAIL** AND NEED TO RECEIVE A COPY VIA US MAIL, CALL George Weems at 502-604-1047.

I hereby promise to support the ethical standards and purposes of this society-
(Signed) _____

CODE OF ETHICS

- I. Members shall not collect specimens where prohibited by federal, state or local laws.
- II. Members shall not trespass on private property. All private property laws shall be respected by members.
- III. Members agree to protect scientifically important sites. These sites will be made known to members by the Executive Committee.
- IV. Members agree to make all specimens of scientific importance available to recognized scientific researchers or institutions for study and photography before final disposal. Sale of specimens of scientific importance should be done with respect towards their scientific value; donations to scientific institutions are encouraged.

V. Members agree not to over collect sites, thus allowing others to study and enjoy those sites.

VI. Members agree not to collect in advance of Society field trips.

The following (optional) information will be included in the society's membership directory:

OCCUPATION, INTERESTS/COMMENTS on back of form.

KENTUCKY PALEONTOLOGICAL SOCIETY, INC.

www.kyps.org



QR Code for
KPS Website

EXECUTIVE COMMITTEE

PRESIDENT- Dan Phelps edrioasteroid@msn.com

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SECRETARY- Reka Gal (859) 373-1386

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EDITOR- George Weems (502) 604-1047

SCIENTIFIC ADVISORS: Dr. Frank Ettensohn
Dr. Don Chesnut

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Contributions to our newsletter are encouraged from all interested parties. Please send material to: George Weems, Editor, 1054 Clay Burgin Road, Lawrenceburg, KY 40342 or via email: george.l.weems@gmail.com.

Photos are especially welcome! Please include in your email subject line in all caps: KPS NEWSLETTER.

KENTUCKY PALEONTOLOGICAL SOCIETY.

2004 Sawyer Ct

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Banded Iron boulder in our Lake Vermilion campsite near the Soudan Mine in Minnesota. We will have some pieces from the mine property to put in the auction though none will be a one ton boulder, cool as that would be.

Meeting December 13, Frankfort Field Trip December 14