

BULLETIN

"An organization of people interested in the Natural Sciences"



October 2026; Vol. 80, #8

President's Message

Fall Paper Session

On Saturday, November 7th, we will host the **52nd Annual RAS Fall Scientific Paper Session** at St. John Fisher University in partnership with their science departments. RAS members are encouraged to attend.

For more information and to register go to rasny.org/paper-session. We do need members as volunteers to help organize the Paper Session and to help run it on the day.

Save the Date!

Saturday, November 7th, 2026
RAS Scientific Paper Session
St. John Fisher University

We are pleased that Aurora Kuczek will be our keynote speaker for our annual Lawrence J. King Memorial Lecture. Aurora Kuczek is a noted wildlife biologist who has traveled across the Americas working with birds in remote places like Alaska and Argentina. Please join us to hear her speak on **Seabird field research in remote environments**.



Speaker Aurora Kuczek with a group of Rockhopper penguins (*Eudyptes chrysocome*). The southern rockhopper breeds on the Falkland Islands, Argentina and Chile, as well as South Africa and several Indian Ocean islands. Photo provided by Aurora Kuczek.

Do you think you could live like a puffin? Seabirds often breed in wet, cold, and rugged environments on remote islands and steep cliff sides all over the world. During non-breeding or immature periods, seabirds spend the rest of their lives in the open ocean. Overall, seabirds face harsh and dramatic climate changes. Being a seabird is unforgiving! From the Pacific to the Atlantic, Aurora will discuss key seabird species she has worked with, their life histories, and current research. She will also highlight local seabird-related conservation stories in New York.

This free Public Lecture will be the opening event at the Paper Session at 9:00 a.m. in the Cleary Family Auditorium, Kearney Hall, 3690 East Ave, Rochester, NY 14618.



One example is the Atlantic puffin (*Fratercula arctica*) which is rated as vulnerable by the International Union for Conservation of Nature due to significant declines in population. Banding done by trained biologists enables tracking which is important as they are migratory seabirds and travel thousands of kilometers out to sea. Photos provided by Aurora Kuczek.

Another is the Black-browed Albatross (*Thalassarche melanophris*), which is circumpolar in the Southern Ocean, nesting in huge colonies on remote islands like the Falklands.



Black-browed Albatross

This talk is open to the public. Bring a friend. I do hope to see you there!

* * *

Volunteers Needed

Help is needed in preparation for our annual Scientific Paper Session.

Classified Advertisement

↓ Volunteer Opportunity ↓

RAS Scientific Paper Session Reviewers

Rochester Academy of Science, Rochester, NY.

Part-time **Volunteer Reviewers** to read abstracts in your own field of interest. Process includes ensuring that abstract specifications have been met (e.g., not too long), helping group posters and talks by related disciplines and topics. Expected number of abstracts to review is 5 to 25 per volunteer. Send note of interest to mgrenier@frontiernet.net.

* * *



Michael Grenier, RAS President

Events for October, 2026

Oct. 1 Thurs: Astronomy Dark Sky Viewing.

7:00 p.m. – 9:00 p.m. White Haven Memorial Park, 210 Marsh Road. Drive pack to the Chapel area. Organized by The Bird House. For more information, contact Patti Pirz at patti@thebirdhouseeny.com or (585) 264-1550.

Oct. 2 Fri: Astronomy Member Meeting

7:30 RIT, Carlson Building, Room 1125. Dominique Segura-Cox will speak about.... Contact Craig Kaplan at President@rochesterastronomy.org for details.

Oct. 3 Sat: Anthropology Event:

11:00 a.m. - 3:00 p.m. Rochester Museum and Science Center. International Archaeology Day with the AIA Rochester Section. Family friendly. Contact Alexander Smith at lsmith@brockport.edu for details.

Oct. 6 Tues: Fossil Members Meeting

7:00 p.m. – 9:00 p.m. Pittsford Community Center, room 019, 35 Lincoln Avenue, Pittsford, NY 14534. Open to all RAS members and guests. It will also be broadcast on Zoom. Speaker: Section President Dan Krisher, noted authority on Silurian and Devonian coral, will give an overview of these creatures and how collectors can identify them. For meeting details and Zoom login info, see the *FossilLetter* or contact Michael Grenier at paleo@frontier.com or (585) 671-8738.

Oct. 7 Wed: Astronomy Board Meeting

7:00 p.m. – 9:00 p.m. Zoom only. Members welcome to attend. Contact Craig Kaplan at President@rochesterastronomy.org for details.

Oct. 9 Fri: Public Observing

7:30 – 11:00 p.m. Farash Center. For details, contact Craig Kaplan at President@rochesterastronomy.org.

Oct. 20 Tues: Astronomy on Tap

7:30 – 9:00 p.m. MicGinny's on the River, 2246 East River Road, Rochester. For more information, see <https://astronomyontap.org/locations/rochester-ny/>.

Oct. 21 Wed: RAS Board Meeting

7:00 p.m. - 9:00 p.m. Pittsford Community Center, room 204 (note room change), 35 Lincoln Ave, Pittsford. Zoom option available. For details, contact Michael Grenier at paleo@frontier.com.

Oct. 25 Sun: Astronomy Open House

12:00 – 3:00 p.m. Farash Center. Contact Craig Kaplan at President@rochesterastronomy.org for details.

Oct. 27 Tues: Mineral Members Meeting

7:00 p.m. Pittsford Community Center, Room 19. Contact: Jutta Dudley, juttasd@aol.com.

Oct. 28 Wed: Herbarium

12:00 p.m. - 3:00 p.m. The Life Sciences section will hold a workshop at the RAS Herbarium, located in the basement of the Rochester Museum and Science Center (RMSC). We will be continuing to organize plant specimens in preparation for digitizing the collection. If you plan to attend, please RSVP to rasherbarium@gmail.com. At RMSC go to the front desk to meet other participants. For more information, contact herbarium curators, Tim Tatakis and Steven Daniel, by emailing rasherbarium@gmail.com.

Oct. 28 Wed: Astronomy Forum

7:30 – 9:00 p.m. Zoom only. For details, contact Craig Kaplan at President@rochesterastronomy.org.

Oct. 31 Wed: ASRAS & Fossil Outreach at RMSC

11:00 a.m. – 3:00 p.m. Volunteers needed to staff outreach tables at Rochester Museum and Science Center at 657 East Ave, Rochester, NY 14607 for family "Tricks & Treats" science event. For details, contact David Bishop at dbishopx@gmail.com or Michael Grenier at paleo@frontier.com.

STRASENBURGH OBSERVATORY:

ASRAS will operate the telescope at the Strassenburgh Planetarium on mostly clear Saturday nights, dusk until 10:30. For more information, contact: Jim Seidewand at (585) 703-9876.

**The Worst Day Ever:
The End-Cretaceous Extinction Event
Part VII Life Recovers
By Michael Grenier**

Credit: Inverse.com

Simulation models demonstrate that the cloud circled and encompassed the Earth within 4–5 hours with pulverized solid target rock (dust), soot, and sulfate aerosols. This dispersal enabled ejecta material, including shocked minerals, to reach the furthest parts of Earth with an even distribution of the fallout³⁸, as was observed when the Shoemaker–Levy comet collided with Jupiter in 1994³⁹. One study indicates that the dust induced ten years or more of darkening and cooling⁴⁰.

Advanced climate models show a global annual mean temperature reduction between 15 °C and 26 °C just from sulfates in the second to fourth year after the impact^{41,42}, and a recovery time of between 15 and 30 years (see chart below)²¹. The winter-like conditions and the photosynthesis reducing darkness caused plant productivity both in oceans and on land to collapse²¹. Surviving plant-eating animals starved as did their predators. The acid rain from the sulfates in the air greatly stressed plants and acidified the oceans, also harming calcifying animals (shell and reef-building). Although the impact caused harm, the long, dark winter was the major killer. About 75% of all known species failed to survive as

their habitat was destroyed and ability to make or find food was eliminated. Completely extinct were non-avian dinosaurs, pterosaurs, marine reptiles such as plesiosaurs and mosasaurs, ammonites, and belemnoids. Within almost all surviving groups, most lineages were wiped out, including among mammals, birds, corals, mollusks, calcareous nannoplankton, and planktonic foraminifera. An entire order of seed plants (Bennetitales) became completely extinct and gymnosperms were devastated.

There was still food available for those that could use it. Terrestrial and marine detritus was greatly increased, good for filter-feeders, arthropods and worms, and those that fed on them.

The K-Pg boundary layer includes huge numbers of spores showing that on land, fungi prospered immediately and low-light plants recovered quickly providing nutrition for animals that could eat mushrooms or ferns. The soils held a repository of seeds and roots for those that could access them, such as birds and mammals.

Habitat made an extinction difference. Near surface oceanic species were far more devastated than those in deeper water and both fared worse than those on land or in fresh water. Terrestrial animals that had underground shelter or in water were hit less severely than those that did not. Plants with seeds that could survive for years in the ground fared better than others²¹.

Although it is noted that no tetrapods weighing more than 25 kg survived the starving time⁴³, I think it likely that only juveniles with their lower food needs lived, while the adults perished.

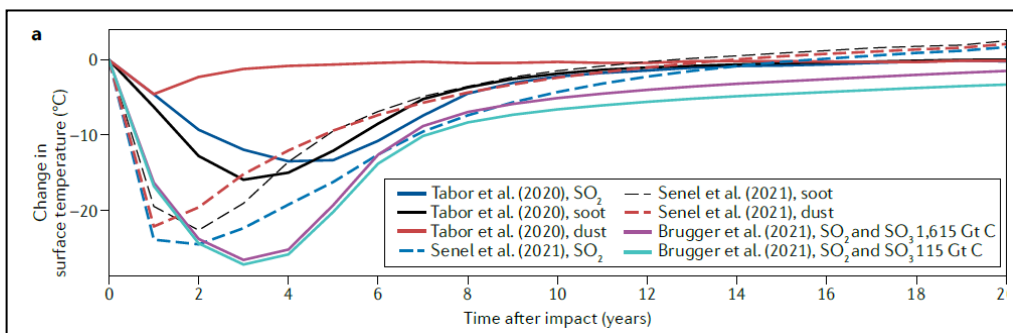
The nearly 11,000 species of modern birds today all descended from just a small handful of survivors, possibly from as few as three species³⁷. Less than 7% of mammal species lived, with all modern mammals descended from them⁴⁴. This included possibly as few as a single lineage leading to primates. Your ancestors almost did not make it through.



Purgatorius mckeeveri, a small, tree-dwelling mammal that lived a little more than 100,000 years after the K-Pg event. It is the earliest known relative of all primates, including humans. (credit: Andrey Atuchin)

REFERENCES

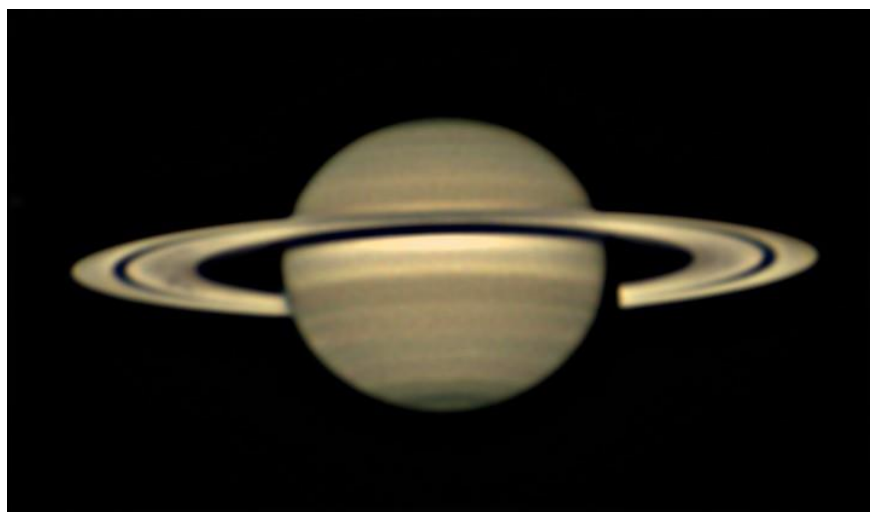
21. See May issue.
37. See September issue.
38. Artemieva, N. & Morgan, J. Global K–Pg layer deposited from a dust cloud. *Geophys. Res. Lett.* 47, 1–8 (2020).
39. McGregor, P. J., Nicholson, P. D. & Allen, M. G., CASPIR observations of the collision of comet Shoemaker–Levy 9 with Jupiter. *Icarus* 121, 361–388 (1996).
40. Senel, C. et al. Relative roles of impact-generated aerosols on photosynthetic activity following the Chicxulub asteroid impact. *GSA Connects* 53, 6 (2021);
41. Tabor, C. R., Bardeen, C. G., Otto-Bliesner, B. L., Garcia, R. R. & Toon, O. B. Causes and climatic consequences of the impact winter at the Cretaceous–Paleogene boundary. *Geophys. Res. Lett.* 47, e60121 (2020).
42. Brugger, J., Feulner, G., Hofmann, M. & Petri, S. A pronounced spike in ocean productivity triggered by the Chicxulub impact. *Geophys. Res. Lett.* 48, e2020GL092260 (2021).
43. Bakker, R. T. (1977). Tetrapod mass extinctions—a model of the regulation of speciation rates and immigration by cycles of topographic diversity. In *Developments in palaeontology and stratigraphy* (Vol. 5, pp. 439–468). Elsevier.
44. Longrich, N. R., Sclerkeras, J., & Wills, M. A. (2016). Severe extinction and rapid recovery of mammals across the Cretaceous–Palaeogene boundary, and the effects of rarity on patterns of extinction and recovery. *Journal of*



RAS Member Images



Scouting group from Fairport at the Farash Center; August 29, 2026. Photo by David Bishop.



Saturn on September 6, 2026 showing the opening rings. Photo by John Osbourne.

Rochester Research in Review.

(These are Hot Links which when clicked lead to the press release on the Science Daily and other science websites.)

[A New York cemetery was hiding 5.5 million bees underground. Cornell University; May 28, 2026.](#)

[One Mount Etna eruption took weeks. Another happened in hours. Cornell University; September 13, 2026.](#)

[Scientists turn seawater into fresh water without harmful brine. University of Rochester; September 16, 2026.](#)

[Black holes keep tearing these stars apart, but they survive. Syracuse University; August 23, 2026.](#)

[Potatoes may have given Indigenous Andeans a digestive superpower. Syracuse University collaboration; August 10, 2026.](#)

[One injection could keep osteoarthritis drugs working for weeks. University at Buffalo; August 31, 2026.](#)

[A Cooperative Approach to Reproductive Success. Syracuse University; August 4, 2026.](#)

[Study Links Sea Level to Earth's Carbon Thermostat. Syracuse University; July 10, 2026.](#)

[RNA droplets may have helped start life on Earth. A new study explains why they form. SUNY Buffalo. August 19, 2026.](#)

[Canadian wildfire smoke linked to fewer bird sightings in New York State. SUNY Buffalo; July 16, 2026.](#)



Lunar Eclipse August 27, 2026. Photo by Mike Naven.

ABOUT THE ACADEMY

The Rochester Academy of Science™, Inc. is an organization that has been promoting interest in the natural sciences since 1881, with special focus on the western New York state region. Membership is open to anyone with an interest in science. Dues are minimal for the Academy and are listed in the [membership application online](#). Each Section also sets dues to cover Section-related publications and mailings. We are recognized as a 501(c)3 organization.

For information, contact President Michael Grenier at (585) 671-8738 or by email paleo@frontier.com.

The Academy Internet website is <http://www.rasny.org> or see us on Facebook at <https://www.facebook.com/Rochester-Academy-of-Science-792700687474549>.

This "BULLETIN" is produced monthly, except January and August, by the Rochester Academy of Science™. Submissions are due by the 10th of the previous month and may be emailed to the Bulletin Editor Robert Crumrine at bob.crumrine@gmail.com.

The Academy postal address is P.O. Box 92642, Rochester NY 14692-0642.

ROCHESTER ACADEMY OF SCIENCE CONTACTS

		(585) home//cell
Michael Grenier	President	671-8738
Jeff Gutterman	Vice President	392-8299//748-2272
Helen D. Haller	Secretary	387-9570
Tim Tatakis	Treasurer	497-7038
Jutta Dudley	Past President	385-2368
Tony Golumbeck	Director '28	(315) 789-4374
Robert Crumrine	Director '28	813-4157
Karen Wolf	Director '29	670-9709
Douglas Kostyk	Director '29	943-3419
Michael Richmond	Director '27	586-7432
Dan Krisher	Director '27	698-3147
Alex Smith	Anthropology	750-3329
David Bishop	Astronomy	455-5715
Lawrence Hirsch	Life Sciences	512-5672
Tim Tatakis and Steven Daniel	Herbarium	497-7038
Dan Krisher	Fossil	698-3147
Jutta Dudley	Mineral	385-2368
Robert Crumrine	Bulletin Editor	813-4157