



President's Message

Fall Paper Session

This Fall, 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.

I thank our on-site coordinator Dr. Kye Mohd Hanafiah for leading the St. John Fisher planning team.

Present Your Own Work

RAS members may register a poster or talk or reserve a 6' display table. Although the standard abstract fee for entry is \$10, any presentation with an RAS member on the author list gets a \$5 rebate. If you are not presenting, admission to the event is FREE and the Academy provides morning beverages and snacks. Please register at our website to present or just to attend at <https://forms.gle/DaB26W9rZUAB2gnE7>

Save the Date!

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

This event provides an opportunity for local college and university science students and faculty to gather and share their research interests and results.

Our keynote speaker for our annual Lawrence J. King Memorial Lecture will be announced in October.

New! For the first time, we are inviting High School students to attend. They may present research projects or interests or come to learn about local research and to meet with faculty and students from nearby colleges. There will be other

special activities for them provided by St. John Fisher. If you have a science student in your family, please tell them about this opportunity.

The leading purpose of the Rochester Academy of Science is and always has been to promote scientific study and research. We have many citizen science opportunities to serve our members. However, our greatest contribution to the advancement of science is in nurturing young scientists and encouraging them to continue their careers in the sciences. The Annual Fall Scientific Paper Session is our flagship program in this objective. Many students make their first poster presentation or oral report on their research at this event.

Over three hundred people attended last year to see the 150 posters and oral presentations. You should come! I do hope to see you there!



Dayana Gonzalez of St. John Fisher presented last year on "Comparing audio logger data to trap capture data for frogs at vernal pools."

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Student Grants program

We have announced the 2026-2027 Academy's Student Grants program to the local area colleges. This past January, the Academy's Grants Committee awarded a total of \$6,200 for eleven research projects. Funds for these grants come primarily from the Katherine H. Jensen Memorial Research Grant Fund, the Thomas F. &

Annie A. and Grace Murray Memorial Research Grant Funds and the Student Grants Endowment Fund—which is made up of Life Membership payments.

The maximum amount of each grant is \$700 for research, plus an unrestricted \$50 to the author of our top-rated submission. This is an important program for fostering scientific research and developing the next generation of scientists.

Our endowment funds can provide money for seven or eight of these grants. Any others we make will be funded with member donations. **I invite you to join me in donating, however small, to the Academy's Student Grants program.** No part of our annual dues is used for these awards. You can add a donation to your 4th quarter membership renewal or by PayPal on our website or bank check to the Academy address on the last page. We can only make additional awards with the donations made by members.

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Volunteers Needed

Help is needed in preparation for our annual Scientific Paper Session. If you think you might like to volunteer, send a note of interest to mgrenier@frontiernet.net.

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Michael Grenier, RAS President

Events for September, 2026

NOT MEETING IN SEPTEMBER: Fossil.

Sept. 2 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.

Sept. 10 Thurs: Anthropology Member Meeting:

7:00 - 8:00 p.m. Irondequoit Public Library. Uncovering Ancient Italy: Dr. Elizabeth Colantoni (University of Rochester) will speak about recent Archeological Excavations at Trebula Mutuesca. It is free and open to the public with a recommended registration here: <https://irondequoitlibrary.libcal.com/event/16710514>.

Sept. 11 Fri: Astronomy Member Meeting

7:30 Farash Center. Sean Lindon of RIT will speak about Galaxy Mergers. Public observing after meeting if weather permits. Contact Craig Kaplan at President@rochesterastronomy.org for details.

Sept. 15 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/>.

Sept. 16 Wed: RAS Board Meeting

7:00 p.m. - 9:00 p.m. Pittsford Community Center, room 206, 35 Lincoln Ave, Pittsford. Zoom option available. For details, contact Michael Grenier at mgrenier@frontiernet.net.

Sept. 22 Tues: Mineral Lecture

7:00 p.m. Pittsford Community Center, Room 19. Hybrid meeting. This will include hands-on experiments, so please come in person! Howard Heitner, Ph.D., will discuss mineral streak and explain how it may help in identification, explain why it may not match the mineral color and can vary between samples of the same mineral. Guests welcome. Members will be sent information in mid-September. Contact: Jutta Dudley, juttasd@aol.com.

Sept. 23 Wed: Astronomy Forum

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

Sept. 27 Sun: Astronomy Open House

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

Sept. 30 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.

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.



Giant Swallowtail butterfly (left) and White Admiral butterfly nectaring on Wild Bergamont (*Monarda fistulosa*). Tim Tatakis; July, 2026; Mendon, NY.

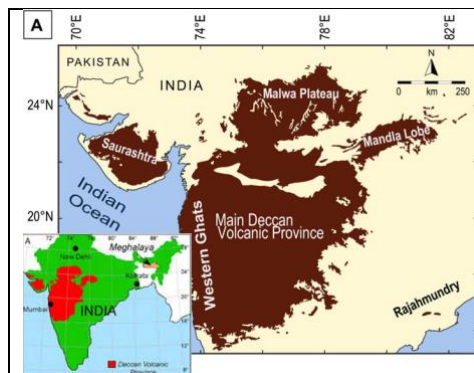


Micrathena gracilis, an orb-weaver spider commonly known as the spined micrathena or castleback orbweaver. Doug Kostyk; Ionia, NY.

**The Worst Day Ever:
The End-Cretaceous Extinction Event
Part VI Hours later the trouble
is just beginning
By Michael Grenier**

<https://news.mit.edu/2014/an-extinction-in-the-blink-of-an-eye-0210> for source.

On the opposite side of the Earth from the impact site was India, then located in what is now the south Indian ocean having recently separated from Madagascar. Within the northwest provinces of India lie the volcanic Deccan Traps, covering an area of about 500,000 km² (~200,000 mi²) with a volume of about 1 million km³ (200,000 cu mi). When created, the Deccan Traps may have been three times larger. It is one of the largest volcanic features on Earth. Eruptions there had begun 300,000 years earlier on and off and had contributed to some cooling of the Earth's climate³⁴.



Global map showing the locations (orange) where the power radiated to the ground was sufficient (12.5 kW/m² for >20 min) to ignite vegetation, even if initially wet.²⁹

Within about 20 to 30 minutes, the impact earthquake Primary Waves (P-waves) had traveled straight through Earth's interior and shook the Traps. The Surface Waves (S-waves) traveled the 13,000 km (8,000 mi) along Earth's crust and upper mantle. They arrived in about 60 to 90 minutes, converging there from every direction. When these catastrophic shockwaves hit the Traps, they violently shook the existing underground mantle plume of molten rock, allowing massive reservoirs of trapped magma to break through

Earth's crust. This created the most massive eruptive pulse in the history of the region. Over 70% of the total Deccan Traps main-stage lava poured out in the wake of the impact, burying an area the size of California under mile-deep layers of basalt. The violent shaking also forced dissolved volatile gases to rapidly bubble out of the liquid magma, caused immense underground pressure, fractured the surrounding crust, and rapidly forced the magma upward to the surface. The gases added more carbon dioxide and sulfur to the atmosphere. Other volcanic areas worldwide reacted similarly but on smaller scales³⁴.

Within 4 to 5 hours after the impact, there was a rain of tektites, micro-spherules, and rock fragments worldwide. This superhot falling debris created a heat pulse destroying life world-wide²⁵. Falling like bullets, the debris killed or injured whatever it hit. The air through which it passed was heated to blistering temperatures, killed life, and ignited dry plant material. The hot debris and heat pulse set wildfires worldwide and evidence of them has been found in India, Antarctica, and New Zealand²⁵. Although early analysis indicated that the entire biosphere burned³⁵, more recent studies estimate that only 70% of available organic material burned²⁹. Sheltered animals in caves or burrows or at the bottom of ponds and lakes could survive and buried plant material such as roots and seeds survived.

An immense amount of soot poured into the atmosphere adding to the suspended dust in the air to create global darkening³⁶.

The evidence is worldwide with over 350 sites showing the K-Pg boundary layer. Very thick throughout the Caribbean basin, it is up to 5cm thick in the further places in North America. Furthest away in places like India and New Zealand, the layer is only a few millimeters to centimeters thick, but

always with the same components. At the bottom are the tektites, rock fragments, and micro-spherules that fell in the first few hours. The rock fragments include small mineral crystals, principally quartz, that are shocked by the impact, followed by layers of iridium-rich dust-based clay and soot that settled out later.



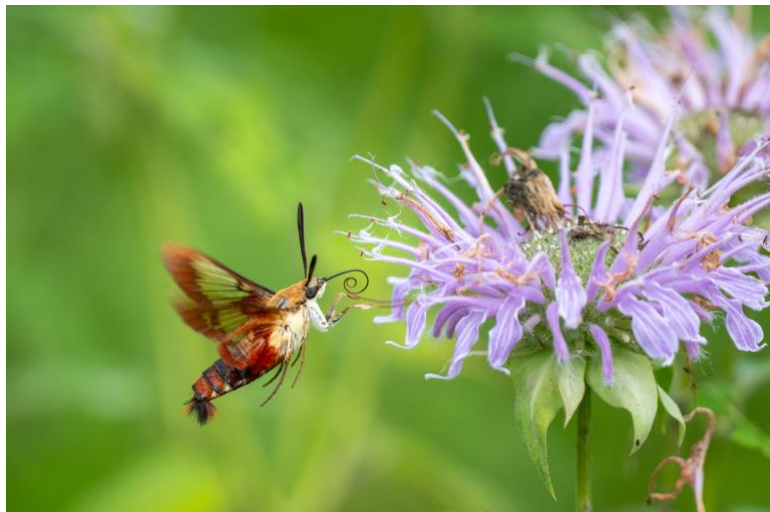
When the dinosaurs died, so did forests—and tree-dwelling birds. This shows a surviving bird lineage—small-bodied and ground-dwelling—fleeing after the asteroid strike that eliminated nonavian dinosaurs. Image credit: Philipp M. Krzeminski³⁷.

The mix of dust and gases blasted into the atmosphere in the first few minutes had two effects. Predominant were those that blocked or reflected sunlight causing immediate cooling—primarily rock dust and sulphates. Far less were greenhouse gases that promote warming such as CO₂ and water vapor.

Next issue—Life Recovers.

REFERENCES

25. See June issue.
29. See June issue.
34. See July-August issue.
35. Robertson, Douglas S., et al. "K-Pg extinction: Reevaluation of the heat-fire hypothesis." *Journal of Geophysical Research: Biogeosciences* 118.1 (2013): 329-336.
36. Lyons, Shelby L., et al. "Organic matter from the Chicxulub crater exacerbated the K-Pg impact winter." *Proceedings of the National Academy of Sciences* 117.41 (2020): 25327-25334.
37. Field, Daniel J., et al. "Early evolution of modern birds structured by global forest collapse at the end-Cretaceous mass extinction." *Current Biology* 28.11 (2018): 1825-1831.



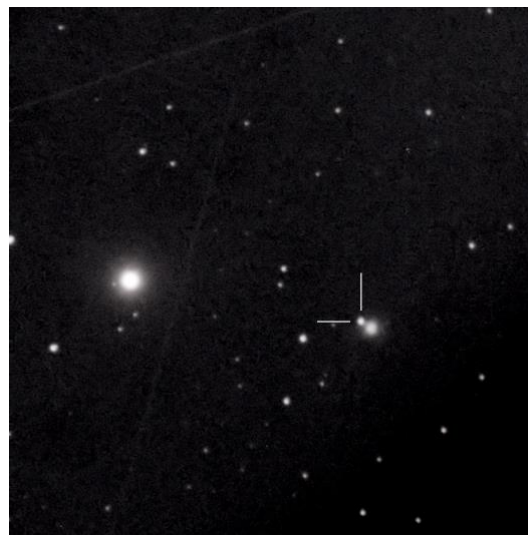
Hummingbird Clearwing moth (*Hemaris thysbe*); August, 2026. Bob Crumrine; Ganargua Creek Preserve, Macedon, NY.
When you see a Hummingbird Moth at some flowers in your garden be quiet and you can easily walk within about 6 feet of it to watch. Then, slowly pick one blossom from the type of flowers it is enjoying. Hold the flower up with the stem down between your four fingers and slowly move your hand palm up closer to the moth. Soon the moth may come to your hand for the nectar in the flower and you can feel it's fluttering wings on your palm. This is a sensational natural experience hard to forget, similar to the Chickadees in Mendon Ponds Park eating seeds from your hand. – Karen Wolf.



Pinwheel Galaxy M101; Mark Hehir



M31, M32, M110; Kevin Lyons. This is an iPhone photo taken from a SmartEye™ electronic eyepiece on a small telescope.



Supernova 2026sqf. July, 2026; Kevin Lyons, also enhanced with a SmartEye™ eyepiece.

Rochester Research in Review.

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

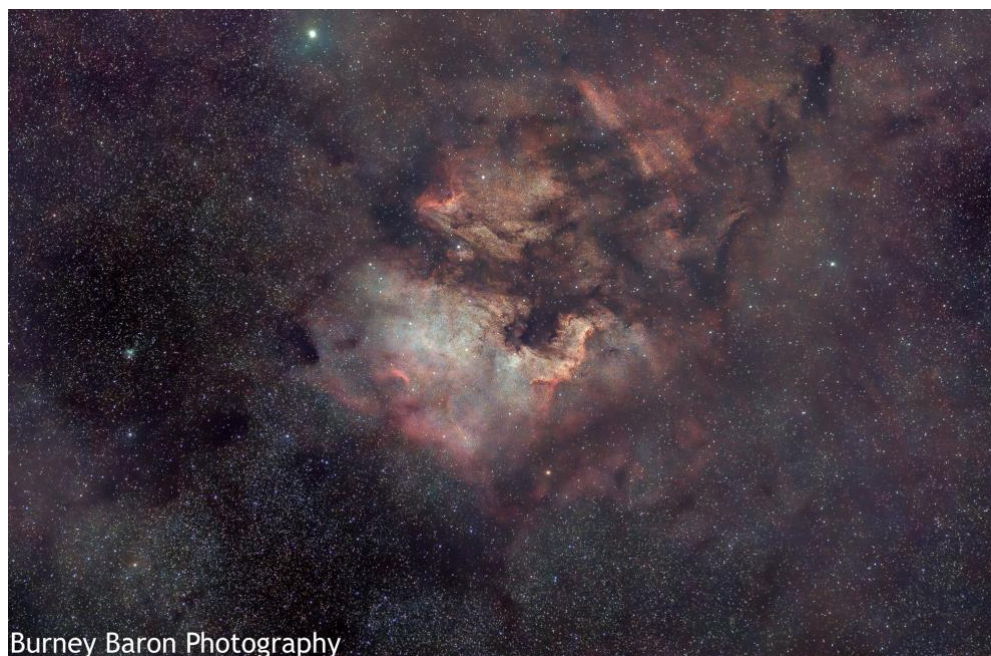
[CRISPR makes prostate cancer vulnerable to immunotherapy.](#)
[University of Rochester; July 26, 2026.](#)

[Scientists discover the brain has a fast lane and slow lane for clearing waste.](#)
[University of Rochester; August 12, 2026.](#)

[A black hole shredded a “super sun” — but something strange may have survived.](#) [Cornell University contribution; August 15, 2026.](#)

[After 70 years of excavation, ancient Sardis becomes a UNESCO World Heritage site.](#) [Cornell University; June 25, 2026.](#)

[FDA-approved drug may finally help immunotherapy defeat rare liver cancer.](#) [Cornell University; June 25, 2026.](#)



Burney Baron Photography

North American nebula (NGC7000) and Pelican Nebula; Burny Baron. 135mm F/2 camera lens, ISO3200, 80x75 second exposures.

[New imaging technique sees through deep tissue, dense fog, and other obstacles.](#)
[University of Rochester; August 17, 2026.](#)

[RIT researchers improve prosthetics with new materials, sensors, and bioprinting](#)

[breakthroughs.](#) [Rochester Institute of Technology; August 10, 2026.](#)

[Monkeys are surprisingly good at geometry.](#)
[Rochester Institute of Technology; July 22, 2026](#)

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>.

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