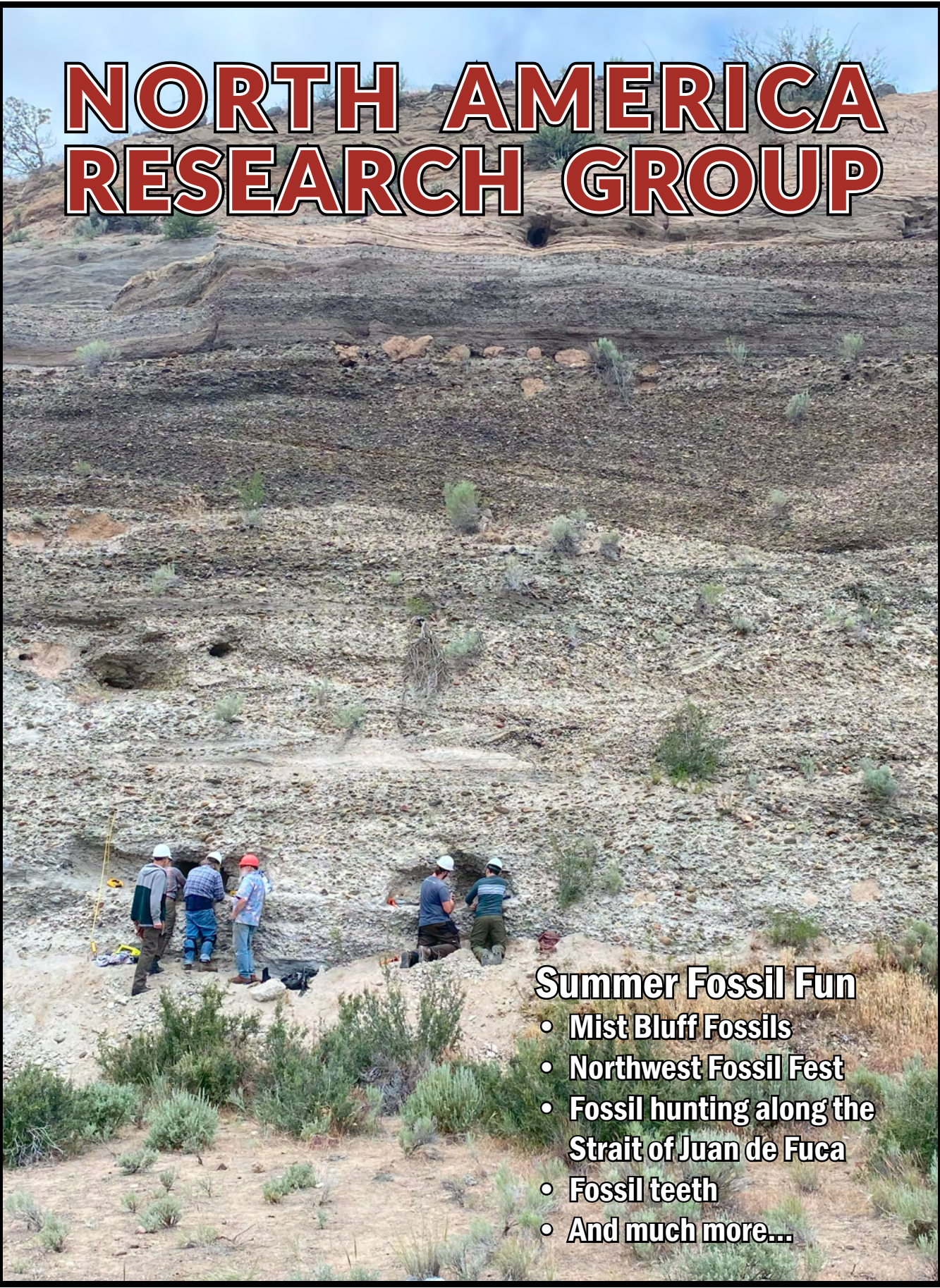


NORTH AMERICA RESEARCH GROUP



Summer Fossil Fun

- **Mist Bluff Fossils**
- **Northwest Fossil Fest**
- **Fossil hunting along the Strait of Juan de Fuca**
- **Fossil teeth**
- **And much more...**

**NORTH AMERICAN RESEARCH GROUP
SUMMER 2025
Vol 14 No 3**

TABLE OF CONTENTS

Collecting Fossil Starfish & Sea Urchins from Mist Bluff	3
Northwest Fossil Fest 2025	6
Galatheaidea "Squat Lobster" from Mist Bluff	8
Teeth: Book Reviews	10
Collecting Fossil Wood in Wyoming's Blue Forest	13
NARG Attends the 15th B.C. Paleo Symposium	14
Kent Gibson's Fossil Finds	16
Fossil Hunting the Strait of Juan de Fuca	17
Austin Heitzman's Bonsai Tree Stands	19
NARG Membership	20
NARG Library	20
NARG Calendar	21
NARG Officers and Committees	21

ON THE COVER

NARG members excavate *Oncorhynchus rastrosus* spiked-tooth salmon near Madras in summer 2022. Gateway, Jefferson County, Oregon. Photo credit: James Verheyden.

MISSION STATEMENT

To encourage responsible stewardship of earth's paleontological resources; to promote scientific research, communication and public education.

COLLECTING FOSSIL STARFISH & SEA URCHINS FROM MIST BLUFF, OREGON

By Greg Carr

The NARG group had a field trip to the Mist Bluff locality, north of Vernonia, Oregon on the Nehalem river. This locality is in the Keasey Formation, dating to the early Oligocene 34Myr. It is apparently a deep ocean deposit in fine silt, located next to land, with little currents. Methane seeps may have contributed to localized bacteria growth. See the attached articles for more information.



The fossils are located in the debris piles and bedrocks of a prominent cliff alongside the Nehalem river. This deposit has been known for a long time, with the first published article in 1953. Many specimens were 'mined out' of a

prominent bench alongside the river in the 20th century. There are other invertebrates in the deposit including starfish, sea urchins, solitary corals, clams and small crabs.

The field trip was led by Austin Heitzman and Greg Carr. There were about 15 folks present, including several families with children. It was a wonderful time to be there – the river was low but cool, it was very hot (it hit 95F in Portland), and playing in the water was as good as collecting fossils. Catching crawfish in the river was an added bonus. We parked alongside the access gravel roads and hiked to the collecting area, through the woods and down to the river. It was a bit adventuresome for some of



the families, but afterwards it was difficult to get the kids out of the river to go home!

Some of us dug through the debris piles, collecting starfish, corals and sea urchins. Others worked on the bedrock, pulling out some slabs for crinoids. Many specimens were collected.

Additional Reading

Burns, Casey & Campbell, Kathleen & Mooi, Rich. (2005). Exceptional crinoid occurrences and associated carbonates of the Keasey Formation (Early Oligocene) at Mist, Oregon, USA. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 227. 210-231. 10.1016/j.palaeo.2005.04.02

Moore, Raymond & Harold Vokes. (1953). Lower Tertiary Crinoids from Northwestern Oregon. U. S. Geological Survey Professional Paper. 233-E. 113-147.





NORTHWEST FOSSIL FEST 2025

Record Attendance and Tributes Mark an Event at the Tualatin Heritage Center

By Tara Baker

Introduction: A Notable Year for Fossil Fest

The Northwest Fossil Fest 2025 brought together fossil enthusiasts, families, and community members at the Tualatin Heritage Center on August 2, 2025. This year's event saw a significant turnout, with 673 attendees participating in various activities focused on ancient life and paleontology. The event reflected the ongoing commitment of NARG members and supporters.



Event Highlights: Volunteer Efforts and University of Oregon Participation

A group of over 20 volunteers from the North America Research Group (NARG) managed event logistics, including the setup on August 1 and coordination during the main event. Their efforts contributed to an organized and informative experience for visitors. Representatives from the University of Oregon were also present, assisting at the university table and providing information about paleontology education at the university.

Memorial Tribute: Remembering Margaret 'Peg' Johnson

This year's Fossil Fest included a memorial for the late Margaret 'Peg' Johnson who was a long-time NARG member and served as Treasurer for many years. Her family prepared a display in her honor, giving attendees an opportunity to reflect on her involvement in the community and her interest in paleontology.

Attendance and Theme: Increased Participation and Focus on Ancient Mysteries

A total of 673 visitors attended the 2025 Fossil Fest, marking the highest number to date. The theme, "Mysteries and Oddities of Ancient Paleo Worlds," was incorporated into exhibits and presentations, highlighting unusual fossils from the region and other areas.



Reaching the Community about Paleontology

Children enjoyed a range of games, hands-on activities, and free fossil giveaways, sparking curiosity about prehistoric life. Adults had the opportunity to view NARG's fossil displays, which featured a selection of notable specimens. The festival's interactive elements helped participants leave with new information and positive experiences.

Acknowledgments: Heartfelt Thanks to Volunteers and Partners

The success of Northwest Fossil Fest 2025 would not have been possible without the commitment and generosity of its volunteers. Special gratitude goes to Dan O'Loughlin, whose logistical expertise and tireless efforts made the event run smoothly from start to finish. Likewise, thanks are due to all NARG members whose combined efforts created a fun and educational experience for the entire community.



Northwest FossilFest

The mysteries
and oddities
of ancient
paleo
worlds.



presented by the
**North America
Research Group**
nargpaleo.org

Encouraging responsible stewardship of Earth's paleontological resources; and promoting scientific research, communication and public education.

Free Admission
August 2 2025
Saturday, 10:00am to 4:00pm
Tualatin Heritage Center
8700 SW Sweek Drive, Tualatin, Oregon

**Inspire
Inquire
Interact**

- Exhibits displaying exceptional specimens.
- Activities and free fossils for kids.
- Fossil identification help.
- Fossil preparation demonstrations.
- Micro and macro stacked photography demonstrations.
- Tshirts and other fun gift ideas.

facebook.com/nargpaleo

GALATHEOIDEA “SQUAT LOBSTER” FROM MIST BLUFF, OREGON

By Austin Heitzman



On September 9th, while going through the tailings from the crinoid locality at Mist, I discovered a small bit of matrix with two curious fossils on it. The larger, more obvious fossil, is what initially grabbed my attention. At first I thought it was just another incomplete crinoid arm, but examining it more closely I could see what would be the pinnules on the arms were obviously something else. They were long and straight and didn't contain the segmented appearance one would expect in crinoid pinnules. At the time I thought they may be fish bones and vertebrae, but wasn't certain. I have

a general rule when collecting, that if I have any questions about a specimen I always bring it home for further examination. Some of my best finds have been things I didn't recognize in the field, but also suspected could be something interesting. So I packed it up and brought it home.

Once I had the chance to examine the fossil more closely, I quickly noticed 5 legs that converge at a central point- a Seastar! The most likely candidate is the spined Seastar *Mistia spinosa* (though there is still debate over that id). This in its self was a great find, especially

since it was my first sea star of this variety, but there was also a smaller speck in the matrix that eluded my understanding. I reached out to several experts to attempt to ID this curious specimen, and finally it was determined to be a squat lobster, *Munida sp.*, the first known specimen from the Keasey formation and possibly a new species! I was connected with Carrie Schweitzer at Kent State, who has



to rescue this specimen so that it will have a chance to be studied. The thought of discovering a new species is many fossils hunters dream, and I can't say I am immune to that sentiment, but even if that doesn't come to pass I am extremely proud of this little find. For me the two biggest lessons from all this are there can be extreme value even in someone else's cast offs and sharing our finds can lead to discoveries we might have otherwise missed.



written several papers on Galatheoidea (squat lobsters), and after reviewing the photos she was interested in studying the specimen. She says this is the first instance of a Galatheid being preserved with an echinoderm among the West Coast specimens, which could also end up being significant.

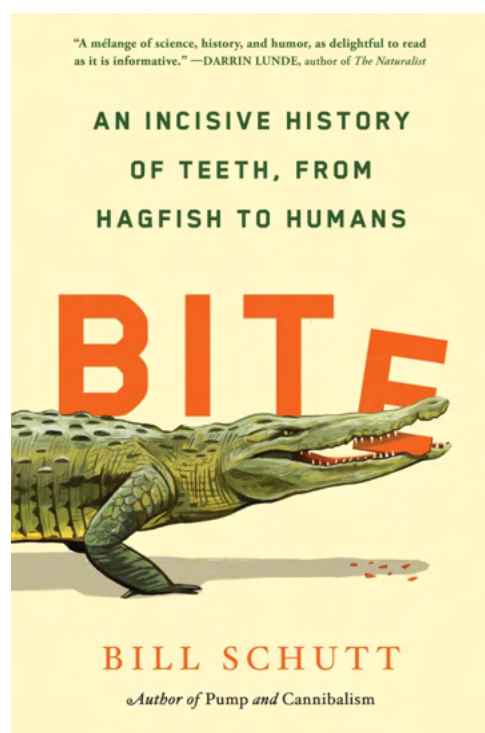
Only time will tell what this find means to science, but I am thrilled I was lucky enough

TEETH BOOK REVIEWS

By Harold Hinds, Jr.

The 18th and 19th century French paleontologist and anatomist, Baron Georges Cuvier, reportedly said “Show me your teeth and I will tell you who you are.”

Bill Schutt, a vertebrate zoologist, adds “Teeth [are] the most common vertebrate fossils by a wide margin.”



Bill Schutt, **Bite: An Incisive History of Teeth, From Hagfish to Humans** Chapel Hill, NC: Algonquin Books of Chapel Hill, 2024)

Bill Schutt, a retired vertebrate zoologist and currently a research associate at the American Museum of Natural History, assisted by the superb scientific illustrator, Patricia J. Wayne, also at the museum, has produced a lively, entertaining, and informative introduction to just about anything you might want to know

about teeth. Schutt's prose and examples are remarkably clear, concise, and devoid of scientific jargon. When he does introduce a technical term or concept, he carefully defines it. For example, when he mentions myrmecophages, in each case they are described as termite eaters.

Part 1, “The Specialists,” consists of in-depth descriptions of different sorts of bites: those associated with vampire bats; catfish (especially candirus); horses; tusked animals (narwhal, elephants); snakes; shrews; and alligators, crocodiles, and their relatives. In each case, Schutt frequently adds details, etc. not strictly related to bites or teeth, e.g., the folklore of vampire bats. And in one chapter, the focus is on venomous fish, many of whom inflict their venom via spikes, spines, and modified fins.

The balance of the volume provides detailed description, examination, and analysis of toothy subjects.

The evolution of teeth in fish: It's not a settled subject! Possibly “the front-most gill arches migrated forward into the oral cavity, taking on a new role as jaws, [and] the gill rakes they bore (or similar bony bumps) evolved into teeth” (p.134). Or “as did bony nubs (odontodes) located in the pharynx migrate forward and take on new roles as teeth” (p. 134). Or were both processes involved, and “Accordingly, teeth in vertebrates would have originated multiple times” (p. 136). Except, shark teeth evolved otherwise from scales.

Then Schutt devotes a chapter to the basic anatomical features of the human tooth and contrasts the shape and number of our teeth with those of other vertebrates. For example, some bony fish have a second set of jaws, pharyngeal jaws, that further process food before it enters the esophagus and stomach.

In Part III, “Teeth, Who Needs ‘Em?’,

Schutt explores those vertebrates whose ancestors had teeth, and then lost them, the edentates. For example, most frogs have “evolved a highly specialized projectile tongue, which weaken the importance of teeth during prey capture” (p. 154). Anteaters and pangolins, specialists in consuming ants and termites, evolved long sticky tongues in place of teeth. And turtles and birds lost their teeth and evolved beaks, which “exhibit a wide assortment of shapes and sizes” (p 164).

The final part, Part IV, “Human teeth: The Bad Days and Beyond,” perhaps of less interest to paleontologists and biologists, introduces and discusses dental experiences the reader, or their ancestors, could, or likely, have experienced, i.e. baby teeth, permanent teeth, dentures, cavities, oral bacteria, tooth worms, the tooth fairy, wisdom teeth, dentists, and jaw jewelry.

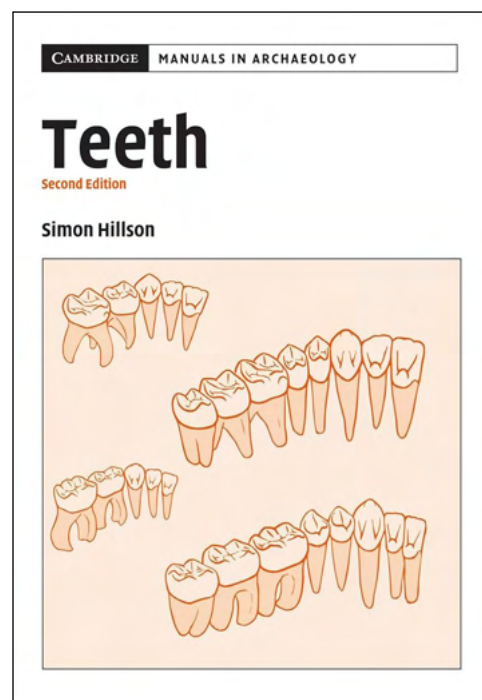
Scattered throughout the volume are fascinating and entertaining details regarding bites and teeth. Only a couple examples will have to suffice to illustrate why the book is such an engaging read.

Vampire bats are not found throughout Europe, Asia, the Indo Pacific, and Asia. “Their ranges are confined to parts of Mexico, Central and South America, and two Caribbean islands (Trinidad and Margarita)” (p. 14). Vampire bats have only a few, tiny molars. They don’t need them since they do not grind and smash their food, blood. Their premolars are used to clear “away tiny patches of their prey’s hair, feathers, or scales, in preparation for a bite” (p. 35). Then they do not suck blood from the infected bite but lap it up. The bat’s saliva contains anticoagulants, which as applied to the wound, facilitates the flow of blood. Finally, Schutt adds that “additional studies should be taken (Attention, grad students) to better determine the composition of vampire bat teeth” (p. 21).

“Only two genera of fish are believed to have a venomous bite” (p. 92). The fang blenny---its common name-- is a pint-sized reef denizen, with “a pair of enormously enlarged

fangs” (p.93). When another fish swallows a fang blenny, it bites the predator, injecting a toxin which produces a drop in blood pressure, which then produces a “violent quivering of the [predator’s] head with distension of the jaws and operculi” (p. 96). This lasts for a few seconds, allowing the fang blenny to escape, generally unharmed.

Schutt writes for the general public with some background in science.



The second volume under review is “designed for an international audience of upper-level undergraduates and graduate students, and professional archaeologists and archeological scientists in universities, museums, research laboratories, and field units.” (backcover).

Simon Hillson, **Teeth**, 2nd ed. (Cambridge: Cambridge University Press, 2005).

Despite its being designed for a more advanced student and professionals, Hillson provides a basic introduction to tooth structure, form, function, and identification.

This brief introduction is followed by an extensive section on “Tooth Form in Mammals” in the Holarctic zoogeographical region and the neighboring oceans. “The Holarctic region runs in a band around the north of the globe, including Europe, North Africa, and the non-tropical parts of Asia, North and Central America” (p. 67). Within this zone, 59 families of mammals and nine families of sea mammals are described and their dentition beautifully illustrated. For example, the Family Desmodontinae (vampire bats) are generally described, then followed by detailed drawings of upper and lower left permanent dentitions of three species.

Hillson provides a detailed description of how he created the book’s wonderful dental illustrations. “The figures in this book have taken me longer than the writing” (p. xiii). That complex technique is spelled out in the Preface, and those interested in his scientific illustrations are advised to carefully read his Preface (pp. xiii-xiv).



Archaeohippus dentary molars from the Miocene Mascall Formation. Photo by James Verheyden.

Using Hillson’s illustrations, you should be able to identify the teeth of those mammals covered; for example the teeth of opossums, hedgehogs, shrews, bats, primates, dogs, wolves, mongooses, weasels, martens, badgers, otters, skunks, hyenas, cats, seals, sea lions, walruses, whales, dolphins, porpoises, mice, rats, voles, moles, porcupines, beavers, squirrels, capybaras, rabbits, pikas, sloths, elephants, tapirs, rhinoceroses, horses, pigs, hippopotamuses, goats, sheep, camels, and cattle. These illustrations and discussions comprise approximately half the volume and will be of the most interest to vertebrate paleontologists.

Of the remaining chapters (dental tissues, teeth and age, size and shape of teeth, and dental diseases), perhaps those devoted to age, size, and the shape of teeth might be of most interest to paleontologists.

If you have collected fossil mammals, you’re most likely to have discovered teeth. And you’ll likely want to estimate the likely biological age of the deceased mammal. Hillson’s volume includes a very useful guide: see the section devoted to “Age estimation and dental development, eruption, and wear in different orders of mammals” (pp. 223-253).

“Variation in size and shape of teeth and jaws distinguishes between species,” as well as within species (p. 257). Chapter 4 tackles the complex subject. Hillson particularly focuses on approaches to measuring teeth and on non-metrical dental variants.

Personally, I found both volumes to be valuable discussions of teeth, with many an insight that can be applied to vertebrate paleontology. Both are recommended and are being donated to our library.

COLLECTING FOSSIL WOOD IN WYOMING'S "BLUE FOREST"

By James Verheyden



This summer, James Verheyden visited the Blue Forest in Wyoming to collect petrified wood. During the Early Eocene, central Wyoming was covered by Lake Gosiute, whose fluctuating water levels periodically inundated the surrounding subtropical forests. Standing trees and fallen branches were enveloped by algae and cyanobacteria, then buried by sediment, preserving them as fossil wood.

NARG MEMBERS ATTEND 15th BRITISH COLUMBIA PALEONTOLOGICAL SYMPOSIUM

Report from Courtenay, Vancouver Island: August 22–25, 2025 by Tara Baker

Seven members of the North American Research Group (NARG) traveled to Courtenay, British Columbia, Canada, to participate in the 15th B.C. Paleontological Symposium, held from August 22 to 25, 2025. The event gathered paleontologists, fossil collectors, and museum professionals from across North America for presentations, fieldwork, and discussion.

Keynote Address by Dr. Kirk Johnson

The keynote address was delivered virtually by Dr. Kirk Johnson, Director of the Smithsonian National Museum of Natural History. Although he was originally scheduled to attend in person, passport issues prevented him from traveling to Canada. Dr. Johnson's presentation focused on current developments in paleontology and cooperation among North American museums. He also included photographs and stories featuring two NARG members: Kent Gibson, who attended the symposium, and Bruce Thiel, known for his work preparing fossil crabs.

NARG Activities

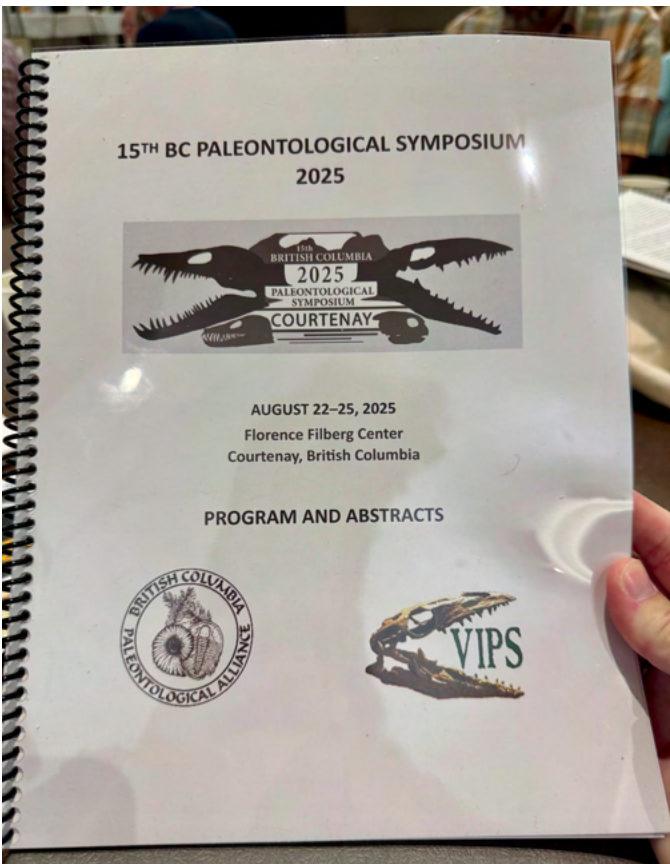
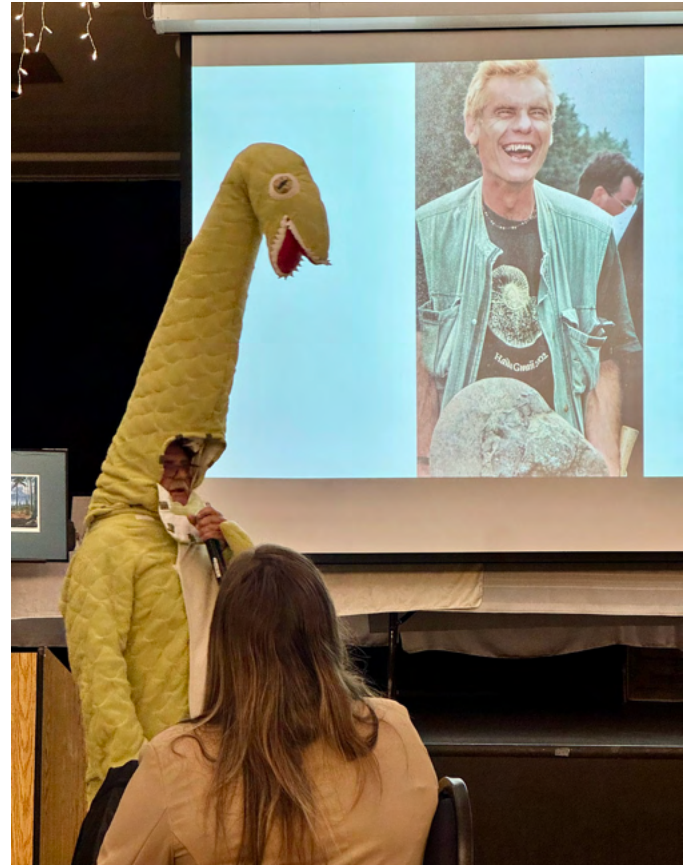
Most NARG members participated in scheduled field trips, collecting ammonites and crab concretions in the area. The group shared techniques and information with other attendees.

When a symposium speaker had to cancel unexpectedly, Greg Carr of NARG was able to substitute and gave a presentation on fossil fish from Madras, Oregon. His contribution was well received by the audience.



Symposium Overview

The symposium provided opportunities to share research, participate in fieldwork, and build connections within the paleontological community. NARG members' involvement, both in the sessions and in the field, contributed to the program and exchange of knowledge.



KENT GIBSON'S FOSSIL FINDS



Kent Gibson standing in front of some of his fossil finds for an article for the Statesman Journal.



Kent Gibson featured on the front page of the Sunday issue of Statesman Journal.



A boulder with embedded vertebrae found by Kent Gibson in Newport, OR. Photo by Kent Gibson.



After weeks of work, four vertebra from the boulder shown on the right are revealed. Photo by Kent Gibson.

FOSSIL HUNTING THE STRAIT OF JUAN DE FUCA

By Kelly Green



Calcite gastropod, likely liracassis, Pysht formation (late Oligocene to early Miocene)

I live in the Seattle area and for the last few years during a negative tide, I've traveled annually to fossil hunt in Clallam County, WA along the Strait of Juan de Fuca. In the area between Joyce and Clallam Bay I've found shrimp, vertebrate, plant, and many types of shell fossils. I particularly love gastropod (snail) steinkerns. Steinkerns are three-dimensional casts created when sediment fills the hollow interior of the shell. The shell itself dissolves, leaving the internal cast. This process may result in mineralization with calcite, chalcedony, or agate, which are my favorite to find. Here are some pictures from this year's trip in late May.



Fossil-bearing site near Twin Rivers, Pysht formation



Silicified gastropod, Pysht formation



Small gastropods found in the gravel at Murdock Beach



Fossil-bearing slide east of Clallam Bay



Steinkern gastropod near Slip Point

AUSTIN HEITZMAN BONSAI TREE STANDS



This one took top prize, set on only a slab he fabricated, so it did not have the highest impact in emphasizing his work.



Here are two other entries that featured his remarkable work.



This entry took the All American award, which consists of an American tree, pot and stand.



Here's Austin's fossil finds.

Many NARG members have interesting jobs or hobbies, in addition to their love of fossils. Austin Heitzman is an artist who makes custom designed furniture and, in particular, stands for bonsai trees. Austin just returned from the US National Bonsai Exhibition in NY where three bonsai entries featuring his stands won awards, including the top prize. Here are some of his pieces that he designs to complement the trees and their containers. Also while in NY Austin found time to do a little fossil hunting and discovered some Devonian Trilobites.

NARG MEMBERSHIP

Annual NARG membership dues are due January 1st of each year.

Membership Types

Individual	\$25
Family	\$40
Student	\$10

New Members: Please fill out and mail an [application](#) to the below address

Pay your membership dues with one of two convenient methods:

Mail a check to:

NARG (North America Research Group)
Membership
PO Box 233
Tualatin, OR 97062

Pay via credit card with PayPal:

[Family Membership](#)
[Individual Membership](#)
[Student Membership](#)

NARG LIBRARY

The NARG library has just become easier for members to use. The 430 books can be viewed by using the link below. Once you find a book you want, click on it and find its "index" number. Requests for books using the index number are made to danolough@aol.com. He will notify you if the book is already checked out. If it is not, he will bring it to the next NARG meeting. Members can check out 2 books at a time and should return them at one of the following 2 meetings.

<http://cloud.collectorz.com/danolough/books>

NEWSLETTER ARTICLE SUBMISSION

Interested in submitting an article for the newsletter? We are looking for your articles, fossil collecting reports, book reviews, photos of your recent finds, and more. Send your contribution to james@verheydengeological.com for inclusion in the NARG newsletter. Make sure to attach photos separately in the email and do not include them in your manuscript.

FOSSIL CALENDAR

October 1 NARG Monthly Meeting: LiDAR techniques to find paleo sites
 October 4-6 Portland Regional Gem & Mineral Show
 November 5 NARG Monthly Meeting: Paleo adventures in China
 November 8 NARG Holiday Party and Auction
 December 3 NARG Monthly Meeting: New Discoveries at the Keasy Fm in Mist, OR

NARG meetings typically occur on the first Wednesday of the month at the Tualatin Heritage Center at 7pm Pacific Time. Check the website nargpaleo.org and [Facebook](#) for meeting updates or meeting day variances.

For a listing of local gem and mineral shows, check out:

<https://mineralcouncil.wordpress.com/> <https://orerocon.com/>

NARG OFFICERS

President:	Aaron Currier	paleorun200@gmail.com
Vice President:	Tara Baker	tbakeror@yahoo.com
Secretary:	Greg Carr	greg.fossil.hunter@gmail.com
Treasurer:	Megan Gagner	meganmonagagner@gmail.com

Directors:

Lisa Schenk	mountaingunthunder@gmail.com
Robert Rosé	bobrosay@gmail.com
Debbie Shannon	dsbshann@gmail.com
Dan O'Loughlin	danolough@aol.com
Tami Smith	dtm.smith3@frontier.com
James Verheyden	james@verheydengeological.com

Honorary Directors:

Mackenzie Smith
 Michael Santino
 Larry Purchase

Committees:

Newsletter: James Verheyden (coordinator)
 Dan O'Loughlin, Tara Baker,
 Bruce Thiel, Robert Rosé (proof-readers)

FossilFest: Tara Baker
 Debbie Shannon

Holiday Party: Tara Baker
 Debbie Shannon

Portland Regional: Debbie Shannon
 Tara Baker
 Dan O'Loughlin