

Paleo Press

Stonerose Interpretive Center and Eocene Fossil Site Newsletter December 2019

Stonerose Happenings



Stonerose Board Looks Toward the Future

Stonerose now has a 30-plus year track record! As a scientific fossil quarry and Interpretive Center, we have hosted countless amateur fossil diggers. These Citizen Scientists provide the fossil specimens that have developed into an impressive permanent collection, studied by scientists around the world.

The Friends of Stonerose Board of Directors is actively testing an ambitious plan to move into a much larger facility on the main street of Republic, WA. A purchase and sale contract is in hand, with a closing date of May 1, 2020. If pledges from initial major donors come through, and we are confident of meeting the financial commitment, we will complete the contract. Failure is not an option, so if funding is not solid, Stonerose will remain in

the same location.

We all know how special this organization is. With lots of work and a little luck, we will secure the major gifts and be ready to start work on a state-of-the-art Interpretive Center and Education Center. The program offerings and visitor experience will be greatly enhanced and set Stonerose up for the next 30 years of service to visiting students, fossil diggers and scientists.

Contact any Stonerose Board Member or email us at stonerose@frontier.com with questions and comments!

More "Happenings" on page 5...

Local Stonerose Members Emily and Elliot Burt always have fun visiting!



Dear Stonerose Team + Board,
Elliot and I just want to say thank you so much for the excellent experience you provide at Stonerose. Each time we dig there has been a team of people that turns simple digging into a treasure hunt where we learn a little more every time. Thanks for the excellent service!
Emily + Elliot



Board Member, Tom Wolken, took time from his other duties during Members Weekend to do some fossil hunting. A proponent of continuing to educate our diggers, he helped other members with their quarrying techniques up on Boot Hill.

2019 Membership Weekend

The popular Stonerose Membership Weekend was held April 26-28 this year. Members braved a chilly wind, but that sort of thing rarely discourages our members! Of the 50 members attending, 40 traveled to Republic for the event. The "Boot Hill" site had recently been screened and readied for the season, making for great finds throughout the weekend.

Dr. Melanie DeVore spoke on Conservation Paleontology and Dr. Bruce Archibald talked about Fossil Birds of the Okanogan Highlands over the weekend.

Member Weekend is one of the benefits of being a Stonerose Member. We encourage anyone that isn't a Member to join in order to participate April 24-26! *Read more about the membership meeting on page 5*

Stonerose is Washington State's world class citizen science fossil site with the mission to connect the Public, Scientific, and local Communities through our fossil resource and education programs.

Greetings from the Director



Season's Greetings from Republic, the home of Stonerose Fossils!

December 2019

"What good is the warmth of summer, without the cold of winter to give it sweetness." John Steinbeck

It's starting to look a bit more like winter here in Republic. Our snow has fallen a little later this year, with only a dusting so far. Our trusty friends at the Old Farmer's Almanac predict slightly warmer temps for our area, which means we should get above normal snowfall in the next couple of months. That's good for our dry region, even if inconvenient for our daily doings. They go on to predict a somewhat cooler summer, which is always great for fossil hunting!

Summer Season Re-cap: We had around 7,000 visitors to Stonerose in 2019, up from 6,000 last year! Boot Hill yielded plenty of finds and diggers were very happy.



Photo by Kelley Shelton

The site underwent an excavation just prior to Member Weekend. Local contractor, Stott's Construction, donated his screen plant, excavator, and front-end loader to move loose material while keeping the larger rock. Bedrock was exposed, increasing the available area for fossil searching.

We had 1004 students from 29 schools around the region come to explore. Stonerose gives visiting students and their chaperones a reduced rate on admission and tool rental, to offset their cost of traveling here. Seasonal staff accompanies the group to help with the kids, answer questions, and to pre-identify potential fossils on the site. This expedites the ID process at the Center, as students are sometimes pressed for time depending on how far they have traveled.

2020 brings the always-fun **Membership Weekend**, and we hope to see many of our members, old and new, **April 24th-26th**. Friday evening is for informal visiting at one of our restaurants or watering holes. Saturday evening, join the Board of Directors for a social hour, the annual membership meeting, and a casual dinner, followed by a scientific presentation. Sunday brings more digging before you head home. Membership Weekend is a great benefit of being a member, with the site open exclusively for you!

2019 was our 30th anniversary! As things go, other priorities got in the way of an official celebration this year. However, the Board plans to celebrate this milestone with several events throughout 2020, including our **Annual Auction** on July 11. A **"Wes-Fest"** is in the works also with a kick-off on May 30, featuring Professor Nick Zentner and his presentation on an ancient oceanic plate! Some of you "old timers" know this, but for our new subscribers, Wes Wehr is considered the "Father of Stonerose". We will have more concrete information in our Spring Newsletter, so stay tuned!

I hope you were able to support us this year. If not, we welcome your support any time, either with a membership, a monetary donation, or by meeting one of our other needs. We are moving forward with our Strategic Plan goals, and count on donations to remain open and staffed year round.

We hope that you'll visit us during 2020! As always, contact me with your ideas!

Katherine Meade, Director

We are funded by admissions to our fossil site, retail sales, educational programing, donations, grants and agency contracts. Personal and business donations provide critical support for our operations and our education outreach.

Stonerose appreciates your help. Talk to your accounting professional about the tax advantages of planned giving and please remember us in your estate planning. We are able to accept donations of real and personal property, stocks and bonds, mutual funds, life insurance policies, and gift annuities.

Friends of Stonerose Fossils is a registered 501(c)3 non-profit organization. Our federal tax identification number is 31-1274608.

In the news...



Read about the latest in Dragonflies and Birds from Stonerose entomologist, Dr. Bruce Archibald.

First fossil species of fossil dragonflies from Washington named November 2019

Six fossil dragonfly species, dating from about 50 million years ago, are the first to be named from Washington and neighboring British Columbia.

Paleontologist Bruce Archibald from Simon Fraser University in British Columbia and dragonfly expert Robert Cannings of the Royal British Columbia Museum examined nine rare dragonfly fossils from the City of Republic in northern Washington and south-central British Columbia. These fossil beds, owned and operated by Stonerose, preserve a record of life just over a dozen million years after the extinction of the dinosaurs. The researchers published their findings in the scientific journal *The Canadian Entomologist*.

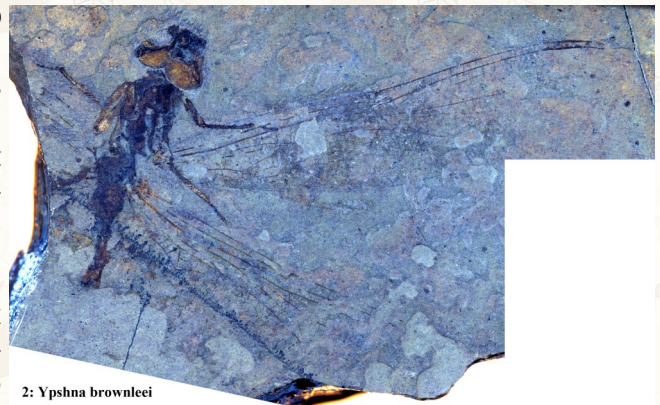
Two of the new species from Republic were named for the amateur collectors who found them. One is named *Ypshna brownleei* in honor of Don Brownlee, a professor of astronomy at the University of Washington in Seattle, who discovered the fossil for whom it is named, in October 2001. Brownlee's species appears closely related to one found in rocks of the same age in Denmark, connected by land to North America then. Another species was named *Antiquiala snyderae* in honor of Sarah Snyder of Renton, Washington, who discovered much of a beautifully preserved wing of the new species in July 2007.

Archibald and Cannings place these two species in the modern family known as darners. They say that these insects would not look out of place today flying beside a modern pond.

Cannings notes that dragonfly fossils are comparatively rare: "Not many would have become fossils," he says. "These few that did help us begin to understand the ancient history of these beautiful insects in our region."

With these new species, Archibald has now named twenty-two species of fossil insects from the Republic fossil beds. He named sixteen of these after the amateur visitors who found the fossils at the Stonerose site in Republic. They generously donated them to Stonerose, who owns the fossil site. He says: "It's a great pleasure to recognize the important contribution that these visitors to Republic have made. And there's surely a lot more to be discovered."

Katherine Meade, Director of Stonerose says: "We have over six thousand visitors each year, and many of them have made important discoveries. This is a perfect example of Citizen Science in action."



Operations Manager Travis Wellman adds: "Scientists come from all over the continent and beyond to examine these specimens; not just insects, but plants, fish and although rarely, bird remains as well."

3 new species of from Republic Sumac identified

Published in *International Journal of Plant Sciences*: Soon Flynn, ASU, Kathleen Pigg, ASU, and Melanie Devore, GCSU

Newly identified fossils attributable to *Rhus* (Anacardiaceae) from the latest early Eocene flora of Republic, Washington, are recognized. Included are a revision of *Rhus malloryi*, three new species of *Rhus* based upon leaflet and rachis morphology, and a group of *Rhus* leaves showing variation in leaflet morphology, venation, and margin, in part comparable to similar features seen in hybrid angiosperms today. Together, these fossils demonstrate that *Rhus* was already undergoing diversification in western North America during the latest early Eocene. Methodology. Compression-impression fossils preserved in a lacustrine shale were uncovered from the rock matrix and photographed with light microscopy. Specimens were compared morphologically with fossil and extant material of related plants, and resulting images were processed minimally with Adobe Photoshop. Pivotal results. Fossil *Rhus* leaves are diverse in the Eocene and demonstrate morphologies characteristic of hybrid leaves in this genus today. Conclusions. This study demonstrates greater systematic diversity than previously known within the genus *Rhus* in the Okanogan Highlands flora of Republic, Washington. These leaves also provide additional evidence for possible hybridization and other evolutionary processes at play within the sumacs by the latest early Eocene in western North America.



Mystery fossil bird discovered in Republic April 2019

A mysterious fossil bird discovered at Stonerose Eocene Fossil Site in Republic, Washington appears in an advance online release of The Canadian Journal of Earth Sciences. The article is published by a team of paleontologists led by Gerald Mayr from Senckenberg Research Institute in Frankfurt, Germany, along with Bruce Archibald and Rolf Mathewes from Simon Fraser University in Burnaby, BC, and Gary Kaiser from the Royal BC Museum in Victoria, BC.

The scientists gathered the few known fossil birds from a series of fossil beds scattered across about 600 miles from central British Columbia to Republic, Washington, the southern-most site of the series.

These birds were preserved about fifteen or so million years after the extinction of the dinosaurs—a blink of the eye to geologists.

Archibald says: “This is an interesting time, when the world is just beginning to take on its modern form. Understanding life of that time is important in understanding how we got to where we are today. The fossils of Republic are an unusually clear window into this time.”

He adds: “We find isolated feathers pretty regularly in these fossil beds, but the birds themselves are very rare, so this is a wonderful chance to begin to see just who was flying fifty million years or so ago in our part of the world”.

None of the seven fossil birds were clearly enough preserved to name new species, and all the paleontologists’ identifications are tentative. Despite this, they say that these fossils put them far ahead, as these are the first birds known of this age from north-western North America.

These birds are also remarkable in that they inhabited cooler upland forests in a hot world. In ancient coastal Seattle, the climate would have been tropical in its heat, but the temperate uplands at Republic would have been cooler, more like what the city experiences today. Other known bird fossils from this time are from hot lowlands.

The Republic bird was discovered by a visitor, the late Rebecca Stocker of Federal Way, Washington, in June of 1999, and remained safely in the drawers of the Stonerose Interpretive Center in Republic until the right team of scientists came along. “We work closely with paleontologists from around the world,” says Operations Manager Travis Wellman, “Stonerose has a long track record of attracting scientists to Republic.”

Katherine Meade, director the Stonerose Center adds: “Rebecca was one of many interested members of the public who visit Republic each year, and quite a few have made important discoveries.”

Rebecca’s bird is notable in that it’s oddly small, and it has unusual pitting of the surface of the skull—a feature that puzzles the scientists. Its feathers are preserved most unusually, across different sedimentary layers, showing a low degree of compression for this fossil, another surprise. Although they could not name this species, the scientists agree that this bird is an interesting mystery.

Archibald says: “There’s lots left to find out—we’re only now beginning to understand bird life in ancient Republic. Perhaps the next person to search through the rocks there will find the fossil that solves some of these questions. It’s an exciting time to be doing this.”

As with many of our very important fossils, this bird may not look very exciting, but is very significant!





Friends of Stonerose Fossils Annual Meeting 2019

The Annual Members meeting was held at the Ferry County Fairgrounds on April 27, 2019 at 6:00 pm. Highlights of the meeting:

- Stonerose currently has 2 Board vacancies available.
- A Strategic Plan was adopted.
- 2 Grants were applied for: Inspire! Museum Grant, a "No Child Left In-side" Grant, and an Okanogan Family Faire Grant.
- Our building agreement with the City is under negotiation.
- Board member May donated his time to build a new website.
- The Center got a facelift, thanks to donations given at the 2018 Auction.
- We attended the Great Spokane Outdoor Show, and the Big Horn Show.
- Board and Staff attended formal Board Trainings.



The 2019 Auction was in the historic Fair Barn Dance Hall, with 94 folks joining the fun. We raised \$20,000 this year! Join us on July 11, 2020 to lend your financial support at the social event of the year.

School Visits

Operations Manager Travis Wellman and Board Member Tom Wolken visited University Prep in Seattle in May to present to 50 9th graders.

In December Wellman and Staff Aide, Andy Brockett, visited the Brewster AP Science classes with a new PowerPoint designed for older students.

In January, Travis, Andy, and Katherine will be joined by Board Vice-President Mary Rourke and Volunteer, Hannah Heizer for a Coeur d'Alene School visit. We will see 900 students a 3-day marathon!

Stonerose Staff can travel to your school district! We offer an interactive program for most grade levels, and funding could be available from your PTA or STEM program. Contact us for more information and a quote.

In Memoriam: Mary Warring

It is with great sadness that we announce the peaceful passing of our friend, Mary Warring. Mary and long-time friend, Lisa Barksdale (Curator of Stonerose from 1990 until 2003) first visited Stonerose in 1987 and were hooked on Fossils in Ferry County! Mary served as Secretary of the Stonerose Board for 14 years. She wrote about Stonerose in the local paper, keeping the community informed of what was happening at Stonerose. An historian, she authored a periodical called *Leaves of History*, a joint newsletter between the Historical Society and Stonerose. In 1991, Mary organized a very successful 3-day Teacher's Workshop, "Making Fossils Live Across the Curriculum," with 10 presenters and 60 participants. Mary believed in hands-on education and enjoyed being a part of Stonerose. She will be missed by all.

The Spokane Great Outdoor Show

Stonerose will join the Ferry County Rail Trail Partners and the Republic Tourism Association again to exhibit at the **Spokane Great Outdoor Show**, February 22nd-23rd, 2020. The popular show has an attendance of over 5,000 outdoor enthusiasts. Operations/Collections Manager Wellman will demo shale splitting with some lucky participants. These one-on-one connections are a great way to show

Wellman gets help with the splitting demo from a youngster.

The Stonerose booth was crowded for most of the two day event.



Grant Activity

The Board and staff worked hard on another grant application from *Inpire! Grants for Small Museums*. The \$50,000 Collections Stewardship grant addresses upgrading our collections facilities with new archival quality cabinets; organizing the collections in a sustainable manner for ease of use and in accordance with nationally recognized standards; accessioning the backlog; and organizing and cataloging critical components digitally. If successful, work will begin in the fall of 2020.

A similar 2018 grant application addressing the collections was not successful. However, we partnered with Microsoft to obtain a Digital Microscope to begin work on the collections digitization. The grant also includes staff time to complete digitization of approximately 3,000 specimens.

View the following link for a fun story on Stonerose:

<https://www.kxly.com/news/stonerose-fossils/1082632951>



Hawk Hammer visits Stonerose, considered to be one of the best fossil dig sites in the country.



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Things to watch for next year!



We are celebrating our 30th anniversary so plan to attend at least one event in 2020!

* April 24-26, 2020 Membership Weekend

* May 30th, Nick Zentner, Geology Professor, Central Washington University

A FREE presentation, "Farallon Plate & the Pacific Northwest", Republic High School Multipurpose Room

In 2015, Nick received the prestigious James Shea Award, a national award recognizing exceptional delivery of Earth Science to the general public.

* July 11, Stonerose's **Funding Fabulous Fossils Auction**

NEW MEMBERSHIP AND ADMISSION RATES

The Board last made changes to the Memberships and Admission rates in 2014. New rates effective January 1, 2020.

Daily Admission

Age

All Day Rate

Memberships

Adult	18-61	\$15.00	Individual	\$ 45.00
Senior	62 +	\$10.00	Senior (62+)	\$ 30.00
Youth	5-17	\$ 5.00	College Student or Educator (with valid ID)	\$ 30.00
College Student w/valid ID	18 +	\$10.00	Dual	\$ 60.00
Youngsters	0-4	FREE	Dual Sr. (at least one 162+)	\$ 50.00
Family (2 Adults/2 Youth)		\$35.00	Family (2 Members and 4 Youth)	\$ 75.00
			Corporate (2 principals, 4 guests and web link)	\$ 250.00
			Sustainer (2 Members and 10 guest passes)	\$ 500.00
			Lifetime (includes up to ten guests per visit)	\$ 2,000.00
			(HURRY! get your membership at the current rate until January 31, 2020. See our website for details).	