



THE GEOLOGICAL NEWSLETTER

"NEWS OF THE GEOLOGICAL SOCIETY OF THE OREGON COUNTRY"

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MAY/JUNE 2011

The Geological Society of the Oregon Country

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www.gsoc.org

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VISITORS WELCOME AT ALL MEETINGS

CALENDAR

MAY/JUNE ACTIVITIES

Friday evening talk, May 13, 2011, at 7:30 p.m., in Room S17, Cramer Hall, 1721 SW Broadway Ave. (between Montgomery and Mill Sts.), Portland State University. Speaker Charlie Hammond, Senior Associate at Cornforth Consultants, Inc., with 23 years of engineering geology experience, will present "The Eldon Mills Dam Raise".

Hammond will discuss the engineering geology associated with the raised Eldon Mills Dam on the North Fork of the Trask River between Tillamook and Gaston, Oregon. He will include a discussion on the seismic stability of the dam.

Friday evening talk, June 10, 2011, at 7:30 p.m., in Room S17, Cramer Hall, 1721 SW Broadway Ave.

(between Montgomery and Mill Sts.), Portland State University. Speaker Dr. Scott Burns, Professor, Department of Geology, Portland State University, will present "Geology of the National Parks".

Join GSOC members at **Pizzicato Pizza, 1708 SW 6th Ave.**, at **6:00 p.m.** before the lecture for an informal dinner and conversation.

Free parking is available at Portland State University **Friday** nights after 5 p.m. and **Wednesday** nights after 7 p.m. in Parking Structure 2 on Broadway Ave. directly across from Cramer Hall and on level one of Parking Structure 1, bounded by Broadway and 6th Aves. and Harrison and Hall Streets.

Field Trip to Columbia Basin and Eastern Washington
May 20-22, 2011- GSOC member and Field Trip Chair Dave Olcott is arranging a three day trip based in **Kennewick, Washington** to study Columbia River Basalts, Ice Age Flood features, and their impact on this

area. Day 1 of the trip will include a car caravan featuring stops along the Columbia River and in the Walla Walla Valley. Kevin Lindsey, Senior Hydrogeologist at GSI Water Solutions, Inc., with the assistance from members of the Walla Walla Watershed Alliance, will address surface and groundwater issues in the above valley. Days 2 and 3 will be van-based tours guided by Terry Tolan and Steve Reidel, both Senior Hydrogeologists at GSI Water Solutions, Inc., and experts on Columbia River Basalt.

The fee for the trip is \$70 and will include the trip packet, van transportation on days 2 and 3 only, and speaker honoraria. All other expenses and arrangements will be the responsibility of the participants. There is both camping and hotel options in the area for the participants. Since the van spots will be limited, interested parties are also advised to get on the participant list as soon as possible. A registration form for the trip was included in the April edition of *The GSOC Calendar* and is also available on the GSOC website. The deadline for the registration form is May 13, 2011. If you have questions or wish to reserve a participant spot at this time email Dave at daveolcott46@yahoo.com or call (503) 695 - 5219. Participating members should also check with Dave about the possibility of hiring caterers for their bag lunches.

NOTE: You must be a GSOC member or guest of a member to attend GSOC field trips. You may join GSOC at any time, for \$25.

Field Trip to the Oregon Coast near Newport, Oregon, June 17-19, 2011 - GSOC member and Past President Janet Rasmussen is leading a three-day trip to study Oregon coastal geology and tidepools near Newport, Oregon. Trip fee of \$25 includes field trip guide, meeting hall rental, insurance and speaker honoraria. All other costs and arrangements are the responsibility of the participants, including transportation, lodging, and meals. See the flyer attached to this newsletter for the registration form and itinerary.

FUTURE ACTIVITIES

There is no Friday evening lecture planned for July 2011. Instead, GSOC is tentatively planning the GSOC Annual Picnic for July 17, 2011. Details will be announced in the June calendar and the July/August issue of *The Geological Newsletter*.

Reserve the dates for upcoming GSOC summer field trips! We have two field trips in the planning stages for August 2011. On Saturday, August 6, 2011, GSOC members Clay Kelleher and Paul Edison-Lahm are planning a walking tour of the building stone found in downtown Portland. The following weekend, August 12-15, GSOC President Rik Smoody is planning the GSOC President's Field Trip, with the theme of "Examples of Aggradation Processes as a Result of Eruptions of Mt. St. Helens and Mt. Rainier". This will be a car-caravan and camping trip which will include some stops in Mt. Rainier National Park. Stay tuned to the GSOC website and the monthly GSOC calendar for news regarding these trips.

Check the GSOC website (www.gsoc.org) for updates to the calendar.

UPCOMING ACTIVITIES FROM OTHER ORGANIZATIONS

USGS Oregon Water Science Center, Spring 2011 Seminar Series presents "Climate Impacts on Freshwaters: Interdisciplinary Perspectives"

The Spring 2011 Seminar Series is a collaboration between USGS, Portland State University (PSU), and Oregon State University (OSU), building on the long-standing Spring Hydrology Seminar Series at OSU. USGS and PSU are excited to bring this series of internationally known speakers to Portland! See the USGS-OWSC website for more information:

<http://or.water.usgs.gov/brownbag/>

The Spring Climate Seminars will be held on Thursdays, generally from noon to 1 pm on the PSU campus -- Cramer Hall, room 271, although one or two may be held at the USGS Oregon Water Science Center office. A few extra seminars are being scheduled on Tuesdays at the USGS office, and will be posted here as part of the Oregon Water Science Center (ORWSC) seminar series. Directions to the USGS office are available at <http://or.water.usgs.gov/location.html>.

- Thursday, May 5, Noon to 1 pm, 271 Cramer Hall, PSU Climate Series, "Glacier Change and the Future of Alpine Water Resources," Andrew Fountain, Professor of Geography and Geology, Portland State University, Portland, OR
- Thursday, May 12, Noon to 1 pm, 271 Cramer Hall, PSU Climate Series, "Water Economics and Climate Change: The California Experience," David Sunding, Professor, Department of Agricultural &

Resource Economics, University of California--Berkeley, Berkeley, CA

- Tuesday, May 17, Noon to 1 pm, USGS ORWSC Series "The Hebgen Lake Earthquake of August 17, 1959: An Eyewitness Account," Jack Epstein, Geologist Emeritus, U.S. Geological Survey, Reston, VA
- Thursday, May 19, Noon to 1 pm, 271 Cramer Hall, PSU Climate Series, "Water Management, Knowledge and Adaptation: Tensions, Legacies and the Next Best Thing," Maria Carmen Lemos, Associate Professor, School of Natural Resources and Environment, University of Michigan, Ann Arbor, MI
- Thursday, May 26, Noon to 1 pm, 271 Cramer Hall, PSU Climate Series, "A Superensemble of Regional Climate Model Futures," Philip Mote, Director, Oregon Climate Change Research Institute and Oregon Climate Services, College of Ocean and Atmospheric Sciences, Oregon State University, Corvallis, OR
- Thursday, June 2, Noon to 1 pm, 271 Cramer Hall, PSU Climate Series, Dooge Memorial Lecture: "How to Solve It", A Tribute to Jim Dooge, a Pioneer in Water Systems Analysis, Philip O'Kane, Professor, College of Science, Engineering and Food Science, Department of Civil and Environmental Engineering, University College Cork, Ireland
- Tuesday, June 14, Noon to 1 pm, USGS ORWSC Series "Tree-Ring Records of River Flow and Channel Dynamics, Jonathan M. Friedman," Research Hydrologist, U.S. Geological Survey, Boulder, CO

Oregon State University Department of Geosciences 2011 Spring Seminar Series, Thursdays, 4:00 pm, in 108 Wilkinson Hall (unless noted below). Refer to department website for more information:

<http://www.geo.oregonstate.edu/node/524>

- May 5, 2011, Hollis M. Dole Lecture in Environmental Geology, Gilfillan Auditorium, Paul Hoffman, Harvard University (emeritus) and University of Victoria, "The Diluvian glacial controversy at the inception of climate dynamics and geodynamics"
- May 6, 12:00 noon, Burt 193, Paul Hoffman, Harvard University (emeritus) and University of Victoria, "New records of strange oceans during and after Neoproterozoic Snowball Earth"
- May 12, Carrie Whitehall, Central Washington University, "The role of the Santa Marta-Bucaramanga fault system in the tectonic evolution

of the Maracaibo microplate, northern South America"

- May 19, Ellen Morris Bishop, Columbia Gorge Community College, "Building a stairway in the Ivory Tower: Engaging the public with science"
- May 26, Jonathan Fink, Portland State University, Life after Geology: "Simulating lava flows, cities and academic organizations"
- June 2, Steve Giovannoni, Microbiology, OSU, Marty Fisk, COAS, OSU, "Microbial life in the lithosphere"

University of Oregon Department of Geological Sciences, Winter 2011 Weekly Seminar Series, Wednesdays, 4:00 to 5:20 pm in 110 Willamette Hall. Tea and cookies are served in Cascade 200 beginning at 3:30 p.m.. Refer to department website for more information:

<http://www.uoregon.edu/~dogsci/news/about>

- May 4 - Christine May (James Madison University), "At the Crossroads of Geomorphology and Ecology: Insights into River Processes and Salmon Habitat"
- May 11 - Paul Heller (University of Wyoming), "Tectonic Significance of Cryptic Laramide Gravels in the Central Rockies, USA"
- May 18 - Andrew Calvert (Volcano Science Center, USGS Menlo Park), "A Tale of Two Sisters: Unraveling the 20,000 year eruptive episode that built Middle and South Sister"
- May 25 - Ben Crosby (Idaho State University), "Transient Landscape Adjustment"
- June 1 - Steve Day (San Diego State University), "Recent Progress in physics-based prediction of earthquake shaking"

As of this publication, the lecture schedules have not been announced for the Spring seminars. Do check the department website near the beginning of April for the upcoming lectures. Do check the times and locations also as they may have changed.

OMSI Science Pub Portland

There are now TWO Science Pubs in Portland -- one at the Bagdad Theater in Southeast, and one at Mission Theater in Northwest. Learn about cutting-edge topics in science and technology from leading researchers and scientists, all while enjoying food and drinks. Experience an informal atmosphere where you can interact with experts and where there are no silly questions. No scientific background is required; just bring your curiosity, sense of humor, and appetite for food, drinks, and knowledge!

- “The Mystique of Terror: Geology, Soils, Climate and Wines in the Northern Willamette Valley,” Monday, May 2, 2011 - 7:00pm, Portland - Bagdad Theater. Scott Burns, PhD, is a professor of geology and past Chair of the Department of Geology at Portland State University, where he has been teaching for nearly 20 years. Scott specializes in environmental and engineering geology, geomorphology, soils, and Quaternary geology.
- “Seeing Things in a New Light: Infrared Imaging,” Monday, June 6, 2011 - 7:00pm, Portland - Bagdad Theater. Join us to see the world in a “new light.” John Lester Miller (a.k.a. Dr. Strange-photon) will give an energetic presentation on the history, phenomenology, and applications of infrared imaging. John Lester Miller has 30 years of experience in the design and development of infrared systems for astronomy, commercial applications, military, and intelligence. He has worked at Mt. Wilson and Palomar Observatories, Rockwell, NASA’s Infrared Telescope Facility (on Mauna Kea), Martin Marietta, and the Research Triangle Institute and has been with FLIR Systems (headquartered in Wilsonville) for over 14 years.

Check the OMSI Science Pub website for updates to the lectures. <http://www.oms.edu/sciencepubportland>

BOARD MEETING NOTES

April 9, 2011

The meeting was called to order by President Rik Smoody at the home of Rosemary Kenney. Board and GSOC members present also included Rosemary, Jane Walpole, Paul-Edison Lahm, Richard Bartels, Bev Vogt, Dawn Juliano, Julia Lanning, Larry Purchase, Carol Hasenberg, and Dave Olcott. The minutes of the February 18, 2011 annual meeting and the minutes of the February 19, 2011 board meeting were approved.

Treasurer’s report was presented by Bart. The treasurer’s report was approved.

Report on future Friday night lectures was given by Jane Walpole. Jane still needs suggestions for speakers for October and November. She has Charlie Hammond scheduled in May to talk about the Tye Formation. Two speakers were suggested to talk about earthquakes and tsunamis. It was suggested that Scott Burns address his specialty — national parks — especially Crater Lake and Mr. Rainer, which could tie-in to the President’s Field Trip.

Lecture publicity and poster placement was discussed. Posters should highlight free parking, free admission, and that all are invited.

Annual Picnic is tentatively scheduled for Sunday, July 17th with two possible venues being checked.

Field Trips

Neogene Floods trip, May 20-22: Dave discussed the itinerary of his upcoming field trip and asked for input on trip logistics. He suggested maximizing the ability for participants to observe and listen in relaxed frame of mind by dividing the two speakers between the two vans and using a GSI person as the driver. Also for the sake of efficiency, he suggested ordering catered sandwiches in advance. Carol reminded us that the cost of trips should include both liability insurance and a contingency amount to account for no-shows. A request was made to have at least ten extra field trips guides produced in addition to the two which Rosemary archives.

Central Oregon Coast trip, June 17th-19th. Jane will email Janet to get info on how planning for this trip is progressing.

Downtown PDX field trip: Aug 6 at 10:00 a.m. was chosen as the date and time for Clay and Paul’s downtown geology field trip. Paul is interested in distributing cheap hand lenses to participants, and the use of a dome magnifier was also suggested. Trip leaders will need to use the microphone/speaker set-up in order to be heard. Bev offered to provide liability waivers. Pre-registration and a nominal fee will be required to cap attendance and defray the cost of the hand lenses. The trip registration form will be published in the July/August edition of *The Geological Newsletter*.

President’s field trip is scheduled for August 12th through 14th. Rik is looking for aggradation sites in the Mt. Rainer area and will be contacting the park service around Mt. Rainer which has been difficult to contact during the off-season.

Website/Internet committee: Rik is putting together a plan to move information to a new platform

that will accommodate a wiki. Bev will be contributing an inventory of all GSOC materials.

New business: A thank you card was received from Ken Severin, who appreciated our gift of Dr. Orr's Oregon Fossils.

Sales item: The GSOC mugs are being re-designed and re-ordered. Antonella and Tara are researching this, with Janet and Carol also consulting.

Janet's birthday was celebrated at Dawn's suggestion by calling Janet's voice mail and having all members present sing "Happy Birthday!"

Next board meeting will be at Carol Hasenberg's house on June 11 at 10:00 a.m.

Meeting adjourned.

Respectfully submitted,
Paul Edison-Lahm,, GSOC Secretary

Paleo-Noir: Bone-Hunting Adventures of a Geology Professor on an Oregon Potato Farm

Synopsis of the March 12, 2011 GSOC 76th Annual Banquet lecture by Dr. Jay Van Tassell, Professor of Geology, College of Arts and Sciences, Eastern Oregon University, LaGrande, Oregon
by Carol Hasenberg

It isn't pretty. It isn't the ideal venue for scientific research. But what does a geology professor do when he gets a call to see some Ice Age fossils that have been unearthed by a bulldozer? He's talking about bones. Big bones. Mammoth bones. The scene of an Ice Age mystery.

Dr. Jay Van Tassell began his lecture to the GSOC banquet crowd by describing the town of La Grande, Oregon, and the fossilized remains of Ice Age animals that have been found there in the past, including bones and teeth of Columbian Mammoths (a larger and less hairy cousin of the Woolly Mammoth) and the skull of a Harlan's Ground Sloth. The town is sited on an old eroded Pleistocene alluvial fan in the spectacular Grande Ronde Valley in northeastern Oregon. During the most recent Ice Age this part of the country was not under continental ice sheets. Instead there were local small ice caps in the nearby Willowa and

Elkhorn Mountains. The climate was also a bit cooler and wetter than it is today

These specimens of gigantic Ice Age mammals have surfaced a number of times in the recent past to Van Tassell's knowledge. There have been two finds on the Eastern Oregon University campus itself, in 1939 and 1979, and other finds around the alluvial fan area. Van Tassell told the crowd that after one of the fossil finds, a Columbian (not Woolly!) mammoth tooth, was sent to a laboratory for carbon dating, the lab ground up the entire tooth to do the test!

Back to our story of the bones. Van Tassell received a visit from a student in January 2010 who showed him a mammoth bone, and said, "I can't tell you where I found this." Their conversation was interrupted by a phone call, and the student told Van Tassell that they had found more bones and he couldn't give Van Tassell the sample. Intrigued but shut out of the discovery, Van Tassell heard snippets of the story from a friend of a friend, who showed him some pictures of two mammoth tusks and some vertebrae that were found on the site.

Van Tassell decided to look for the site of the discovery. His plan was to drive out in the Grand Ronde Valley and look for bulldozers. That morning the telephone rang and his neighbor asked him, "Do you want to go on an adventure?" This was from Jay's neighbor, who is the father of a contractor who was working on the site. Van Tassell grabbed his camera and went for a ride to the site, which was a potato farm in which some site leveling was underway. The farmer wanted to 'get rid of those things' and was willing to give them to the university, but they had to come out that day. With no time to do a proper excavation, atypical methods had to be employed to protect and transport the fragile tusks using materials the contractor had on hand. The contractor wrapped the tusks in plastic, coated them with wallboard plaster, and added reinforcing bars and fiberglass cloth for strength. Unfortunately due to the air temperature being 33°F., the fiberglass did not set up. The tusks were then brought in to the university on the back of a pickup, and when the fiberglass and plaster were removed, one of the tusks was pulverized except for

the tip, and about half of the other survived. Van Tassell joked that he now has a lot of samples for radiocarbon dating.

A number of other bones were also recovered from the site by the contractor. Some vertebrae were found but were clearly too small to be that of a mammoth. They were identified as being from a Short-Faced Bear, and the bear's tail bones and right femur were also found. The bone that the student had brought to Jay's lab turned out to be the right rear tibia of a mammoth – this one stood about 9-1/2 or 10 feet high at the shoulder. It was classified as a juvenile from the size and from x-rays of bones which were made by a veterinarian in La Grande. It may be from the same animal as the tusks, which came from a male mammoth about 17-20 years of age based on the girth of the tusk. Another bone proved to be the radius/ulna of a very large male Giant Ice Age Bison. The contractor also dug adjacent to where the tusks were found and, instead of a mammoth skull, found the skeleton of a ground squirrel. These tiny bones are those of a Columbian Ground Squirrel, which is not found in the valley in modern times, as it prefers wetter and colder areas around the margins of the valley and on the slopes above the valley floor.

The forensic evidence from the site revealed that these Ice Age mammals may have died in a flood and were washed into the area approximately 12,700 years ago. This makes it one of the youngest Ice Age mammoth sites found in the Pacific Northwest. This is close to the time that the earliest human artifacts have been found in Oregon. It is possible that the mammoths survived later in the Grande Ronde Valley than in other parts of Oregon because early humans took routes that led them around the Blue Mountains as they migrated down from the north. This site will likely play a part in helping to decipher this mystery and what this is telling us about the cause of Ice Age extinctions.

NEW RULES: Putting the Federal Paleontological Resources Preservation Act into Action

Synopsis of the April 8, 2011, lecture by Courtney Cloyd, recently retired, formerly Senior Geologist for Geologic Hazards and Geologic Resources, U.S. Forest Service
by Carol Hasenberg

Courtney Cloyd spoke to GSOC last month about the Paleontological Resources Preservation Act, which became law in 2009 and governs the collection of fossils on Federal lands. It is the culmination of more than 20 years of effort and advocated by professional paleontologists for the preservation of the fossil record for public benefit. The law calls for the management of federal paleontological resources to be done “using scientific principals and expertise”, and the plans to inventory, monitor and use the resources must “emphasize interagency coordination and collaborative efforts”. As the former manager of the Geology and Paleontology program for the Forest Service, Cloyd was active in the development of regulations for this law and spoke to our group about its key points, exceptions and limitations.

Basically, the law gives a definition for paleontological resources, and states that these resources may not be collected on Federal lands without a permit. A paleontological resource can be a fossilized remain, trace, or imprint of an organism, except for such materials that have specifically defined archaeological or cultural significance which are covered by ARPA (the Archaeological Resources Protection Act). The law states particular criteria for the issuance of a collection permit and requirements for its execution. And it outlines civil and criminal penalties for violations of the law, which had been lacking in some earlier laws relating to fossils. The law further states that all fossil finds collected under permit on federal lands are to remain the property of the U.S. government. This is to ensure that fossils collected from Federal lands will be available for scientific research and public education through the museums or other approved repositories storing them.

An important exception to the law is for casual collecting, which some of us GSOC'ers have done. Casual collecting is only allowed on land administered by the Bureau of Land Management, Bureau of Reclamation, or the Forest Service. It is not allowed on National Park Service lands, where the collecting or damaging of any geological feature is strictly prohibited. Casual collecting is limited to common invertebrate and plant paleontological resources, so vertebrate fossils are not covered by this exception. Under the exception, collection must be for non-commercial personal use, collected in reasonable amounts, and result in negligible disturbance of the Earth's surface. These concepts are meant to be further defined in regulations that will be developed by the Secretary of the land being administered (Secretary of the Interior for BLM land and Secretary of Agriculture for the Forest Service).

Cloyd mentioned that the specific regulations governing casual collection and other fine points of the act are in the process of being developed by the Department of Agriculture for the Forest Service; the current unofficial target date for publishing draft regulations is March 31, 2012. They will cover the definitions of some of the concepts, permitting procedures, curation of finds, and criminal and civil penalties.

Non-profit local organizations such as GSOC and NARG (North American Research Group) can play a part of the management of paleontological resources. They are allowed to do the casual collecting as long as it is for the member's personal use. They also may apply for a permit to excavate a find following the criteria and requirements of the law. Also, if members spot a vertebrate or rare invertebrate or plant fossil, they can report its existence to the administrating entity. The rule of thumb "if it's a bone leave it alone" applies here. The Forest Service and BLM welcome questions

and information from local non-profit interest groups, and hope to develop mutually beneficial working relationships with them.

The law does not prohibit anyone from writing about fossil finds. However, Cloyd pointed out that disclosing the location of important finds may increase their exposure to the risk of vandalism or theft, so this must be done with discretion and caution. In addition to the ARPA exception for archaeological materials, the law does not apply to Indian lands, nor does it cover materials governed by the general mining law, mineral and geothermal leasing law or mineral materials disposal law. The law also does not address private or state lands.

One big problem with the management system for paleontological resources is the availability of adequate facilities for their curation. Many museums cannot accept more fossils because they are full. This will be one of the challenges to administering this important law.

REFERENCES AND ADDITIONAL READING

A copy of the Paleontological Resources Preservation Act can be obtained from the BLM website (www.blm.gov) by googling the following keywords: "paleontological resources preservation subtitle D" or by clicking this really long link: http://www.blm.gov/pgdata/etc/medialib/blm/wo/Planning_and_Renewable_Resources/coop_agencies/paleontology_library/paleon_legis.Par.45651.File.d/PL-111-011-prpa.pdf

The Omnibus Public Land Management Act of 2009 contains the Paleontological Resources Preservation Act and is overviewed on the Wikipedia website:

http://en.wikipedia.org/wiki/Omnibus_Public_Land_Management_Act_of_2009

