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Limnogeology Division Newsletter

Volume 11 Number 2
May 2014

Lago Junín, Perú, drill date set for 2015, funded by NSF and ICDP (photo credit: Amy Myrbo).

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Volume 11, Number 2

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From the Editor

Michelle Goman

Rohnert Park, CA

Welcome to the Spring 2014 edition of the Limnogeology Newsletter!

This edition of the Newsletter begins with a message from our division chair, Amy Myrbo. Joop Varecamp (Vice-chair) gets us upto date on all things volcanic. This newsletter also contains a list of sessions for the upcoming 126th Annual GSA Meeting in Vancouver (deadline for abstracts is July 29th), and other informational items including:

- An article by Kerry Kelts awardee Audrey A. Blakeman
- The citation for 2013 I.C. Russell awardee Kevin Bohacs
- A list of upcoming limnogeology-related meetings, with details about the ILIC6 to be held in Reno-Tahoe in 2015

Don't forget to send me your news items!

Michelle (goman@sonoma.edu)

Message from the Chair

Amy Myrbo
Minneapolis, MN

The past two months saw the untimely passing of three prominent members of the limnogeology community – Francoise Gasse, Rick Forester, and Blair Jones. The 2014 GSA Annual Meeting will host sessions honoring doctors Forester and Jones: "The legacy of Richard Forester: Seminal contributions towards understanding Quaternary climate, continental waters and ostracodes," and "Terminal Lakes – in Honor of Blair Jones," respectively. Please consider submitting to one of these sessions. A complete list of Division-sponsored sessions can be found elsewhere in this newsletter (pages 18-19).

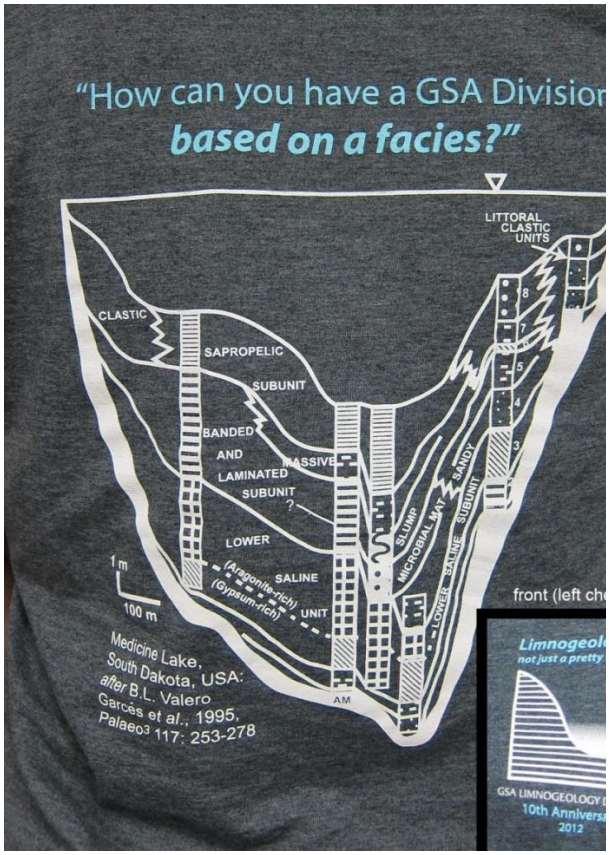
I would also like to call your attention to an exciting disciplinary meeting that will be occurring in June 2015 – the Sixth International Limnogeology Congress (ILIC6) in Reno-Tahoe, Nevada. We're working to keep this meeting as inexpensive as possible, to make it possible for many students to attend! ILIC only happens every four years, and the last time it was in the US was 2003 – so it's a great stateside opportunity for us to continue the conversations and collaborations that will no doubt be spawned at GSA in Vancouver. More information about ILIC6 from Meeting Chair Michael Rosen is elsewhere in this newsletter (pages 20-22).

I wish you all a happy and successful summer season of field work, interns, or whatever comes your way!

Amy

Selfie time for Amy with Minnesota Senator Al Franken! Amy attended a constituents' breakfast at the senator's office May 21st 2014. (Photo credit: Lisa Park Boush).

BE CHIC, BE SEEN IN A LIMNOGEOLOGY T-SHIRT !



Limnogeology Division 10th Anniversary t-shirts are available now! All proceeds go to the Kerry Kelts Fund for Student Research. Shirts will be available from the division booth at the upcoming meeting in Denver or they can be purchased on line. Shirts are $20 including shipping and can be purchased at LacCore.org (click on "T-shirts" on the left). Sizes are S-M-L-XL-2XL. If you wish to pay by check, contact Amy Myrbo (amyrbo@umn.edu).

Message from the Vice-Chair

Joop Varekamp
Wesleyan University

Some updates from the 'volcanic lakes corner'. Springer is publishing a book titled "Volcanic Lakes" that treats the general volcanic lake science in a number of chapters and case histories of several famous lakes (Nyos etc). The Geological Society of London, in collaboration with Springer, is bringing a volume out with case histories of Volcanic Lakes. Springer (yes, again) also publishes an extensive series of books on active volcanoes, and the tome on Copahue Volcano in Argentina is almost done. It has a detailed chapter on the acid volcanic lakes of that region. All three books are scheduled to appear in late 2014.

The upcoming Goldschmidt meeting (Sacramento,CA, June 8-13 2014) has a session on volcanic volatiles and volcanic lakes. The GSA annual meeting in Vancouver (fall 2014) has a Limnogeology sponsored session on "Non–Steady-State Element Dynamics in Lakes" and I am looking for a co-convener (session co-sponsored by the Geochemistry and Hydrology Divisions). And even if you do not want to help with the session organization, please submit abstracts!

I have proposed a special issue on LAKES for the Geochemical Society magazine ELEMENTS, which was well received. The editorial board likes the multi- and inter-disciplinary nature of lake science and would like to see chapters on lake deposits, both modern and ancient, water column work, climate proxy and climate archive work, biolimnology, and pollution studies. Each chapter should have a strong geochemical component; it is after all a magazine of the Geochemical Society. I am looking for a co-editor for the issue and authors for these various chapters (other lake topics are welcome as well of course). The GS Elements board will meet at the June Goldschmidt meeting (2.5 weeks from now) to decide on the volume proposals for 2015, so if accepted, it would have to be complete by early 2015. These are relatively short review/research papers, with many color images. I can co-write one on volcanic lakes, and we have already one volunteer to write on saline lakes.

I leave you with a picture of Lake Caviahue in Argentina.

Best, Joop

Lake Caviahue (Argentina, prov Neuquen) with Copahue volcano in the back and monkeypuzzle trees (*Araucaria Araucana*) up front. The pH of the water was 2.5 at the time (2006). (Photo credit Joop Varekamp).

Carbonate lake deposits in the fluvial Bridger Formation of the Greater Green River Basin, Wyoming

Audrey A. Blakeman and Elizabeth H. Gierlowski-Kordesch

(Ohio University, Athens Ohio)

2013 Kerry Kelts Award Winner

Introduction:

The Bridger Formation of Eocene age is the uppermost fluvial unit exposed in the lacustrine Greater Green River Basin (GGRB) of southwestern Wyoming (Figure 1). The distribution of facies has only recently been addressed in detail through chronology (dating of ash layers), sedimentology, and geochemistry. However, the connection of the fluvial sediments of the Bridger, interpreted as the floodplain associated with the southern margin of Lake Gosiute, with the main lake sequence in the central part of the GGRB is still unclear.

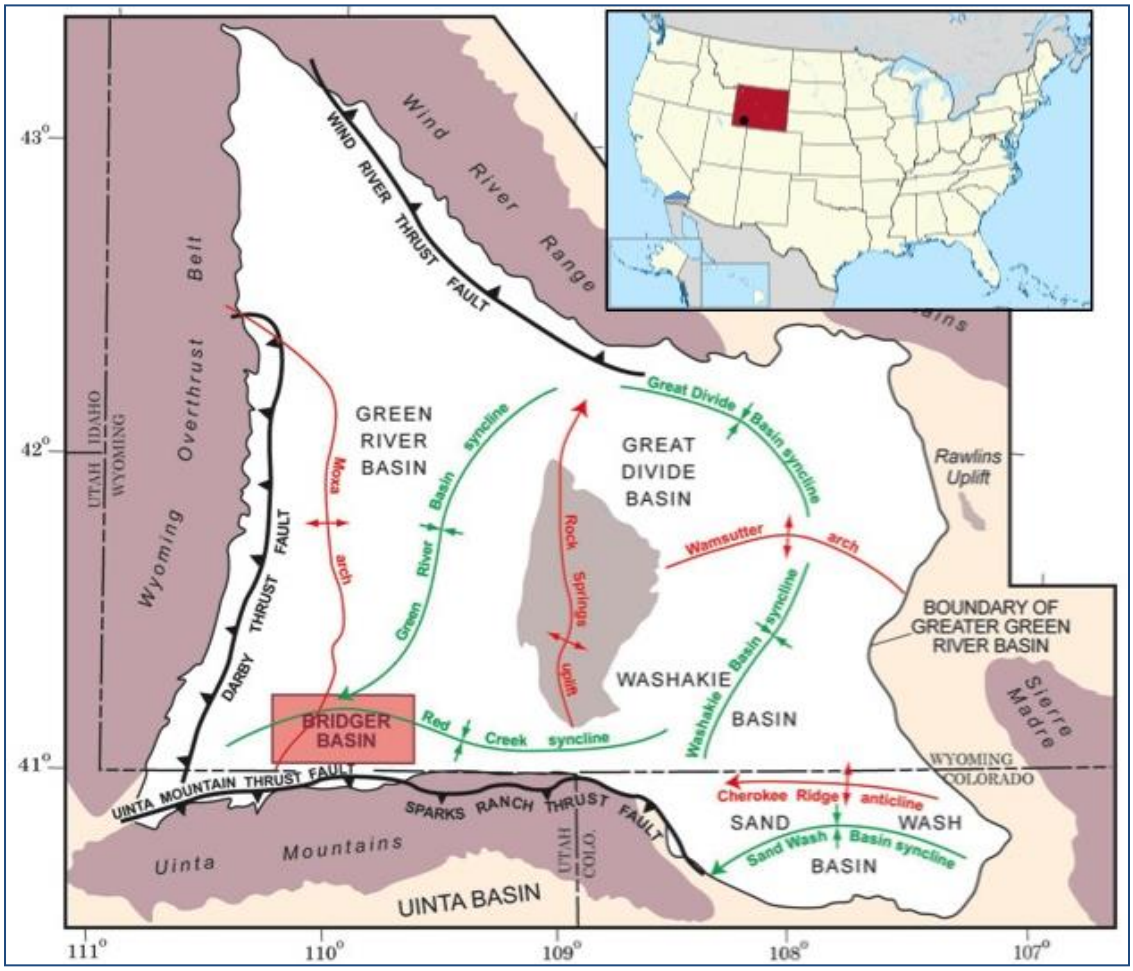


Figure 1. Generalized depiction of the Greater Green River Basin and the location of the Bridger Basin, in Sweetwater County, Wyoming. Modified after Murphey and Evanoff (2011).

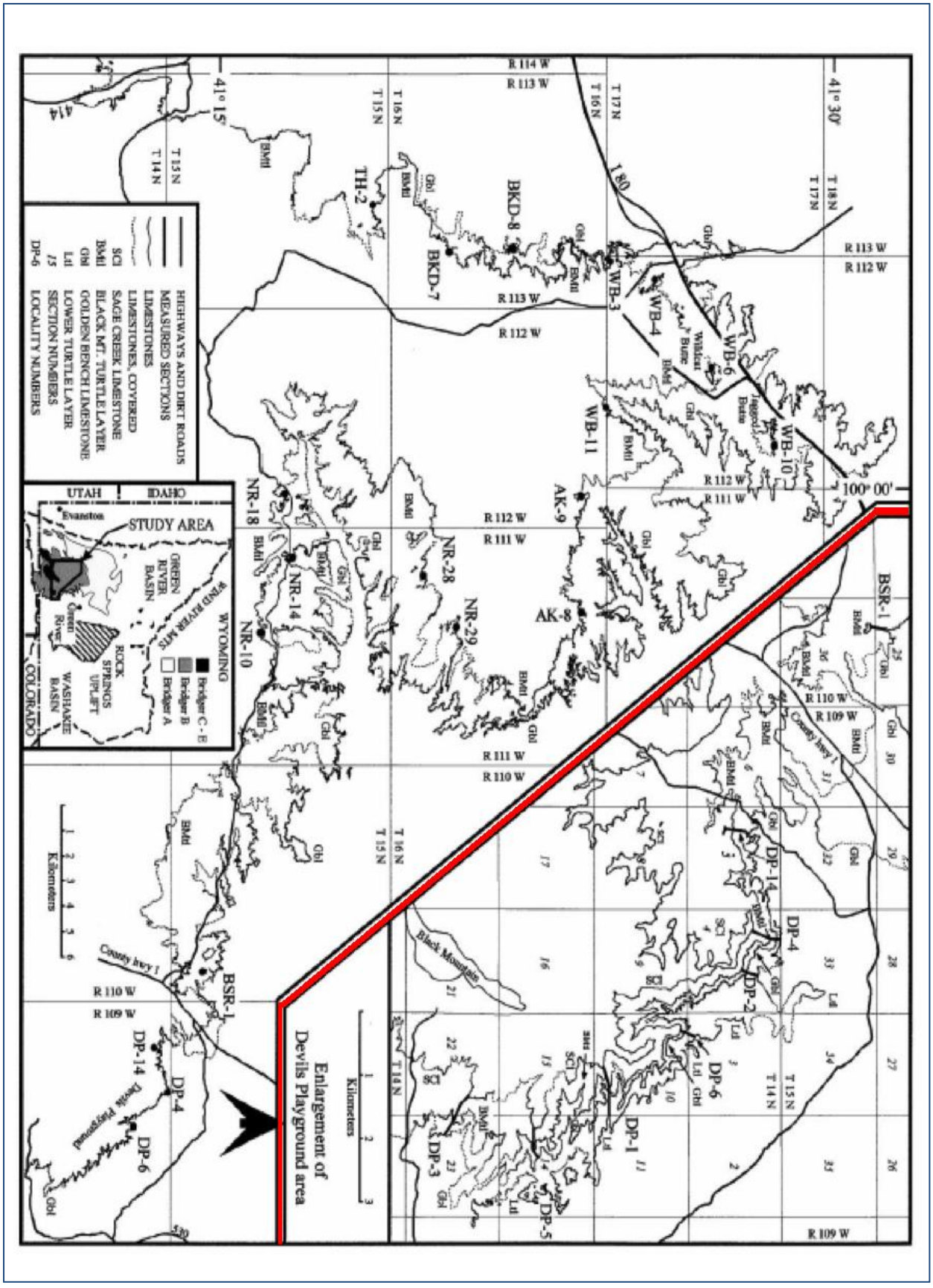


Figure 2. Distribution of the Bridger B limestones in the Devil's Playground 7.5' Quadrangle, as mapped by Buchheim et al. (2000).

Unit B of the Bridger Formation has been correlated with the lacustrine upper Laney Member of the Green River Formation to the north (Smith et al. 2008a) within the Bridger sub-basin of the GGRB; the upper Laney Member represents the final overfilled stage of Lake Gosiute (Bohacs et al., 2003). The Bridger Formation is characterized by thick sequences of siliciclastic mudstones, sandstones, and thin limestones; the source of these thick mudstones is interpreted as eroded volcanic sediments carried into the GGRB from the south, originally sourced from volcanic episodes in the Absaroka and Challis volcanic fields to the north (Buchheim et al., 2000; Murphey and Evanoff, 2011). Bridger limestones have been interpreted previously as transgressive lake deposits linked to the Laney Member (Brand, 2007; Buchheim et al., 2000).

The Problem:

Previous workers have suggested that the freshwater limestones of the Bridger Formation, located in the southwest portion of the GGRB, are laterally continuous to the north and were deposited during transgressive events of Lake Gosiute (upper Laney Member) (Brand, 2007; Buchheim et al., 2000). Buchheim et al. (2000) studied and roughly mapped a portion of the Bridger B unit, including three of the limestone layers: the unit underlying the Lower Turtle Layer, the Golden bench limestone, and the unit associated with the Black Mountain Turtle layer (Figure 2) in the Devil's Playground Quadrangle west of the Flaming Gorge along the margin of Black Mountain, Wyoming. However, there is no ground truthing to confirm the nature and extent of these limestones.

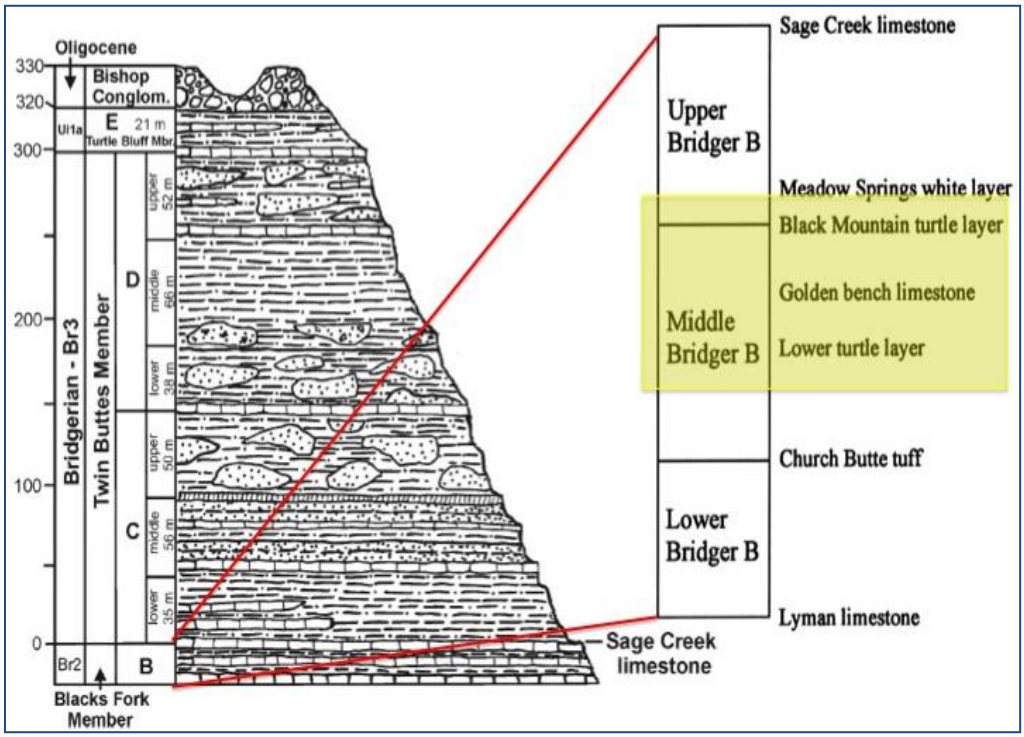


Figure 3. Stratigraphic representation of the Bridger Formation. Inset shows the units within the Bridger B, and limestones mapped by Buchheim et al. (2000). Modified after Murphey and Evanoff (2011) and Buchheim et al. (2000). The targeted interval for this study centered around the Golden Bench Limestone.

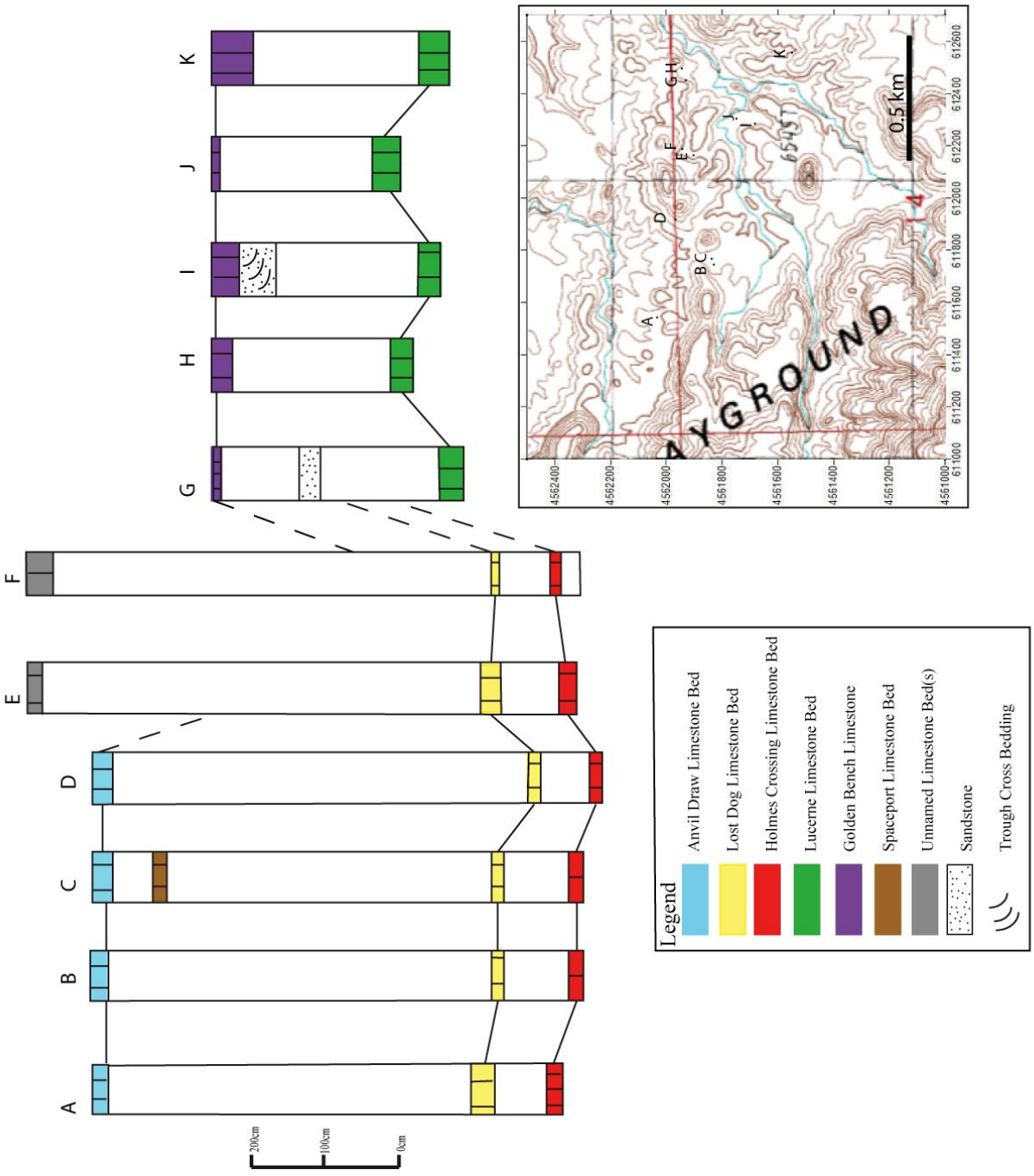


Figure 4. General sedimentologic sections depicting limestone distribution across the study area within the Devil's Playground 7.5" Quadrangle. Map courtesy of the USGS. Note the limited lateral extent of these freshwater limestone beds.

Seven thin freshwater limestones interbedded with the siliciclastic sediments of the Bridger B (Blacks Fork Member) (Buchheim et al., 2000; Brand et al., 2000) (Figure 3) were identified in the southwestern GGRB (Bridger sub-basin) within the Devil's Playground Quadrangle in an area covering approximately one square mile. The object of this research was to frame the detailed stratigraphy of these limestones to test their continuity as well as determine their depositional origin within the siliciclastic-dominated fluvial paleoenvironment of the Bridger Formation.

Results

The stratigraphic interval studied in the Bridger B included the Golden Bench Limestone and five unnamed or undocumented limestone units immediately above and below it. These limestones were named for simplicity, from oldest to youngest: Anvil Draw, Spaceport, Lost Dog, Holmes Crossing, and Lucerne (Figure 4). The observed limestone bodies exhibit no lateral continuity and vary in thickness from approximately 10 to 53 cm. They abruptly appear and pinch out over distances of less than half a mile, and commonly are replaced by new limestone bodies within two meters above or below, giving the impression of lateral continuity from aerial photographs.

Outcrop exposures and petrographic analyses separate the middle Bridger B limestones into three lithofacies types: massive micrite, marlstone, and iron-rich micrite (Figures 5 and 6). The massive micrite lithofacies (Figure 6) is composed of massive micritic limestones containing ostracodes, tubules interpreted as rhizoliths, and algal spores. This lithofacies includes the Holmes Crossing Limestone bed (Figure 5B), the Anvil Draw Limestone bed (5C), the Lost Dog Limestone bed (5D), and the Spaceport Limestone bed (5F). The Lucerne Limestone bed (Figure 5E; Figure 6) composes the marlstone lithofacies. It is a clay-rich, fissile micritic limestone that contains abundant plant impressions, preserved plant organic matter, and rare fossilized insects and arachnids. The iron-rich micrite lithofacies composes the Golden Bench Limestone (Figure 5A; Figure 6), which is a very dense, iron-rich micritic limestone that contains igneous clasts and casts and molds of vertebrate fossils. Igneous clasts are rare *in situ* and molds of these clasts appear on exposed surfaces with igneous clasts strewn on the slopes associated with these outcrops; the elevated levels of iron supplied by the embedded igneous clasts lend a "golden" appearance to the limestone beds.

Limestones of the Bridger B clearly show no lateral continuity to the north, indicating that these units were not deposited within Lake Gosiute as it transgressed. Stratigraphy and paleoenvironmental interpretation of the Bridger Formation need to be re-assessed.

Paleoenvironmental Interpretation:

The limestones of Bridger Formation B do not represent lake transgressions of the Laney Member of the Green River Formation to the north as previously suggested (Brand, 2007; Buchheim et al., 2000), as the Laney represents an overfilled lake; overfilled lakes do not experience significant fluctuations in depth or volume (Bohacs et al., 2003). Bridger limestones more precisely fit a model of carbonates deposited in floodbasin lakes on an anastomosing river floodplain. The Bridger Formation with its interbedded limestones associated with siltstones and sandstones could simply represent the fluvial input into the carbonate-rich, upper Laney lacustrine area.

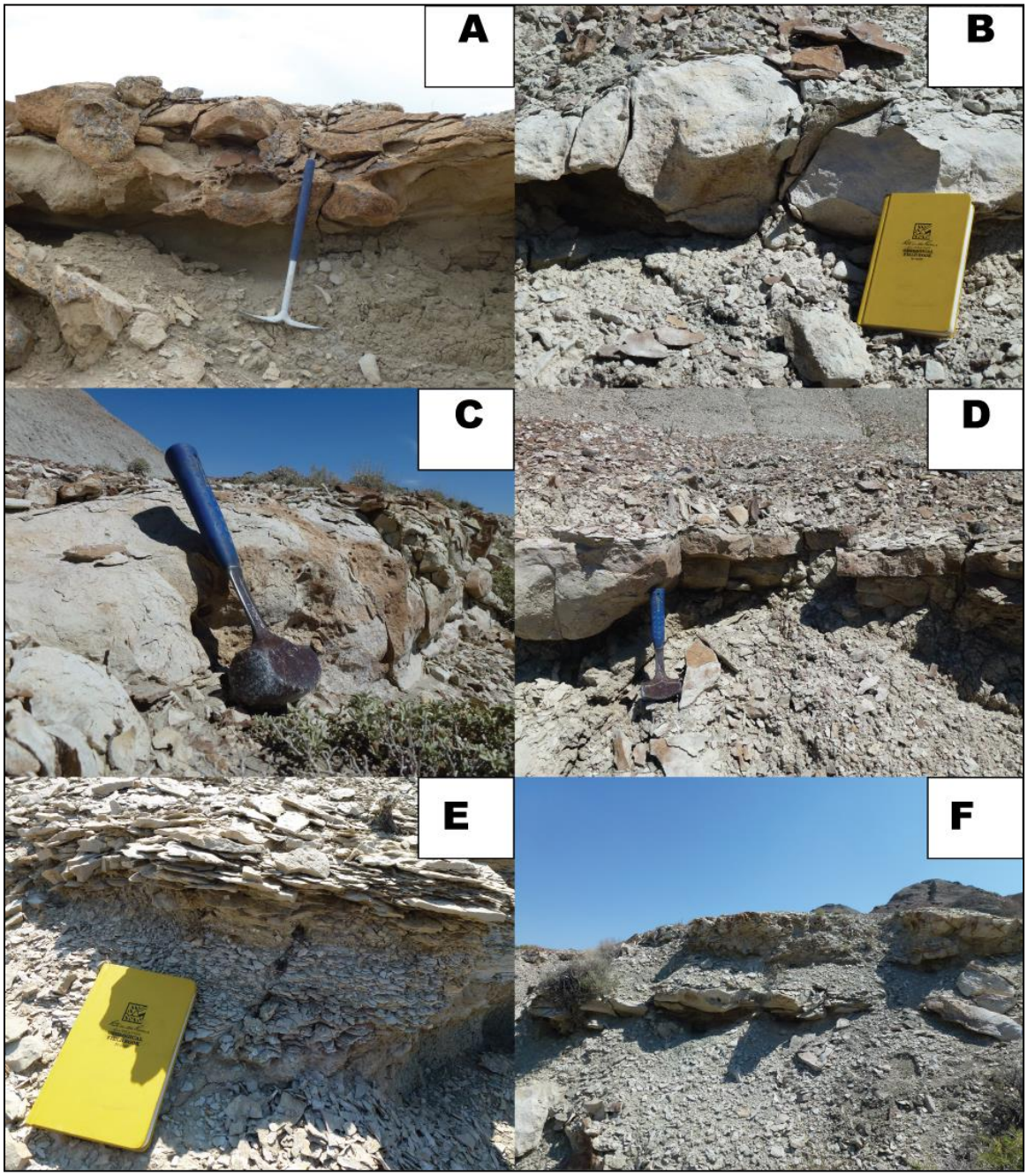


Figure 5. Outcrop photographs of each of the six Bridger B limestones from the study interval. A) Golden Bench. B) Holmes Crossing C) Anvil Draw D) Lost Dog E) Lucerne F) Spaceport. See Figure 4 for stratigraphic location of these limestones.

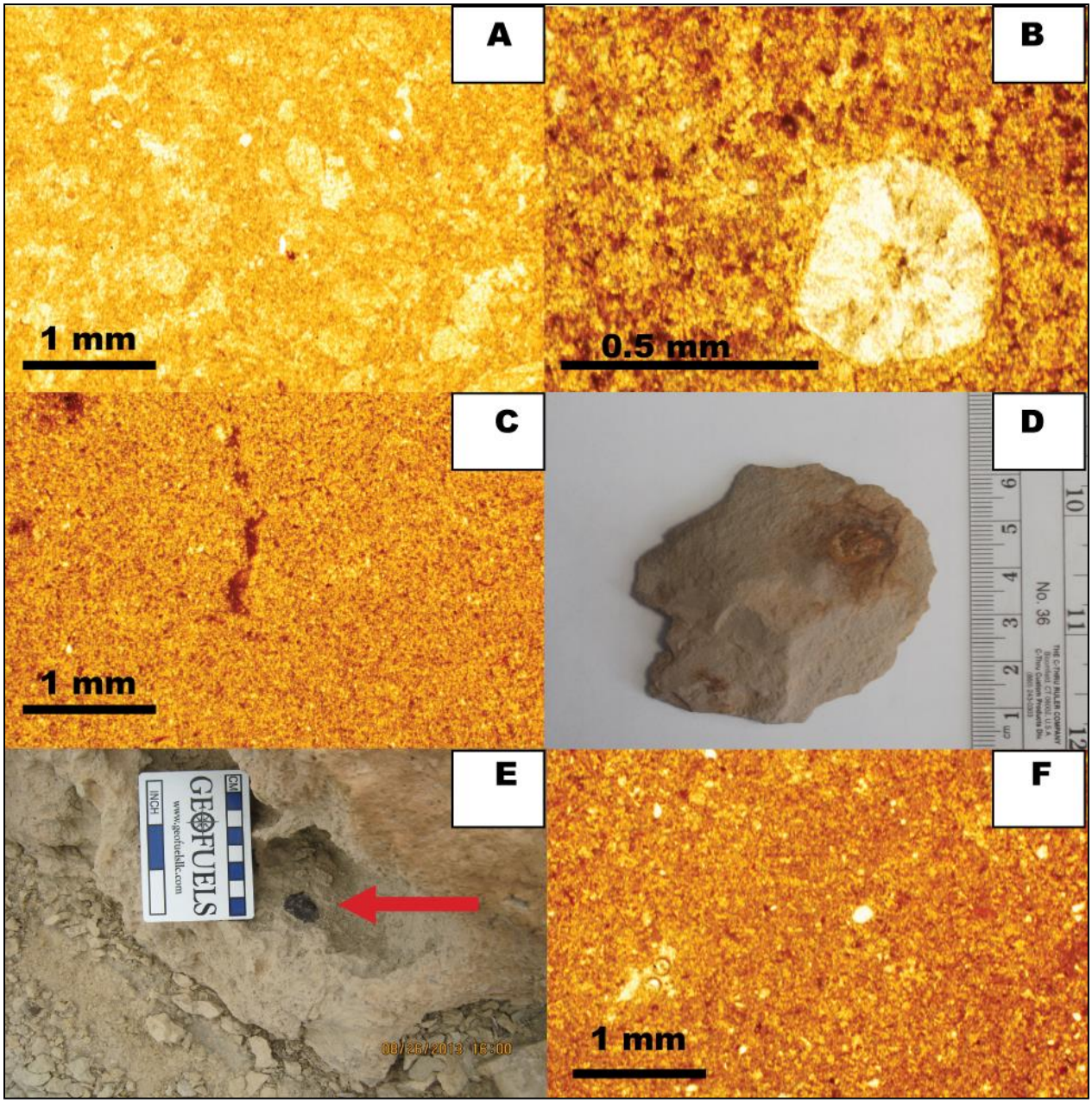


Figure 6. A and B represent the massive micrite lithofacies. A) Thin section photo of the micritic texture with rare rhizoliths filled with sparite in the Anvil Draw Limestone bed. B) Thin section photo of an algal spore in the Lost Dog Limestone bed. Photos C and D represent the marlstone lithofacies. C) Thin section photo of preserved plant organic matter in the Lucerne Limestone bed. D) Rock sample showing an arachnid fossil from the Lucerne Limestone Bed. Photos E and F represent the iron-rich micrite lithofacies. E) Outcrop photo of an igneous clast eroding from the Golden Bench Limestone. F) Thin section photo showing the micritic texture of the Golden Bench Limestone.

Carbonate deposition is possible within the flood basins which are protected from frequent bedload sedimentary input by high and stable levees; these flood basins provide ideal settings for the precipitation and settling of ultra-fine carbonate particles from suspended and dissolved load, especially within a carbonate-rich source area (Valero-Garces et al., 1997; Gierlowski-Kordesch et al., 2013). Paleozoic carbonate rocks are part of the provenance of the GGRB (Smith et al., 2008b).

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Amy Myrbo (chair Limnogeology Division) presents Audrey Blakeman with the Kerry Kelts Award. (Photo credit: Elizabeth H. Gierlowski-Kordesch).

2013 Israel C. Russell Award

The recipient of last year's Russell Award was Kevin M. Bohacs. The 2014 Israel C. Russell Award winner will be announced at the annual Division Business Meeting in Vancouver. We hope to see you there!

Citation by Elizabeth H. Gierlowski-Kordesch:

I nominate Dr. Kevin M. Bohacs for the Israel C. Russell Award for excellence in limnogeology through research, teaching, and service. Kevin has worked for ExxonMobil since receiving his PhD, and he has been a great teacher, an amazing researcher, and a tireless volunteer in service to limnogeology and society at large. He is a gentleman scientist who has contributed so much to the understanding of lakes and their basins, in addition to other geologic topics, such as the deposition of shales and mudstones, or simply mudrocks, as well as models for coal depositional patterns and sandstone reservoir exploration. If you have ever been in the field with him, you know that the force is with him as he observes and interprets the rocks. His light saber must be somewhere in his well-stocked backpack, along with his shovel, compass, camera, acid bottle, rock hammer, measuring tape, etc. His opinion is well respected by academics and industry professionals alike because he has seen SO MUCH all over the world with his 30+ years of experience.

Kevin's service to GSA involves his work with the Limnogeology Division. He was there when it all started back in 2001 and was part of the executive committee until he stepped down as past chair. With his help, three core workshops were organized for the annual GSA meetings since he knows that good geologists need to see lots of rocks. His support of all of the Division's activities, including the funding of student research over the past decade, has been exemplary. But Kevin not only has volunteered his time to GSA, he has also dedicated his efforts to activities at AAPG, SEPM, and the IAL (International Association of Limnogeology). He has done it all – serving on various committees, encouraging students, publishing books and papers, and convening meetings or sessions. His service to the field of limnogeology, and geology in general, has been extensive. Not only does he aid the geologic community in these organizations, but Kevin also offers his services to society in general as a boy scout leader and a Red Cross volunteer. Maybe he is even a superhero in disguise – Bruce Wayne step aside! The give-away is the bow tie!

Kevin spends time teaching out in the field with his industry colleagues on their many field trips. But, more importantly, Kevin runs courses teaching academics and industry colleagues about safety in the field. He even has served as a distinguished lecturer for the Petroleum Exploration Society of Australia and spent time teaching short courses to university students. And, at AAPG meetings, he is always there to give an encouraging word to students at the ExxonMobil student breakfast event every year. Dr. Bohacs has certainly spread his wisdom on geologic concepts around the world and to Mars! Most recently he has been consulting at NASA on lake formation on Mars!

And, I must say, I have learned a lot from Kevin about how lakes work as well. With his many colleagues at ExxonMobil, including fellow limnogeologist Alan Carroll, a new lake basin model using sequence stratigraphy was formulated, recognizing three major types of lake basins: underfilled, balanced-filled, and overfilled. This is as

big an event as the establishment of sequence stratigraphy itself. If you check the abstracts for the first International Limnogeology Congress held in Copenhagen Denmark back in 1995, Alan and Kevin had an abstract entitled “A stratigraphic classification of lake types and hydrocarbon source potential: balancing climatic and tectonic controls”. This is when the lake revolution was evolving. It did take a while to catch on, but it has refined our ideas on how lakes work and has explained much about the pattern of lake deposits through time. This is the model that has helped to establish limnogeology as a science and probably helped Kevin and Alan find lots of oil as well. Even biodiversity and trace fossil patterns can be explained using this lake model. The contribution by Kevin as well as Alan to the science of limnogeology is quite significant. I always look at a lake deposit nowadays and think “what lake type would Kevin and Alan classify this lake and why?”. Their model supports all old and new data so far, two decades and counting!

So, this nomination recognizes the great accomplishments and achievements of Dr. Kevin M. Bohacs in research, teaching, and service in limnogeology, geology in general, as well as in the community at large. He will certainly continue to do great stuff and I am honored to be able to give Kevin recognition for his life’s work. He is most deserving of this award.

Amy Myrbo (chair Limnogeology Division) presents Kevin Bohacs with the I.C. Russell Award. (Photo credit: Elizabeth H. Gierlowski-Kordesch).

Response by Kevin M. Bohacs

Thank you for this great honor. First, I am proud of our Division - how it has grown and prospered, awarding student research grants and professional career recognition. Second, I am thankful to all the lake people who welcomed me into the greater community. The first live sedimentary rocks that I met in outcrop were

lacustrine. (I grew up in southwestern Connecticut on sillimanite-grade rocks.) My first formal sedimentary introduction was at UConn, where Professor Randy Steinen had us describe practically every lacustrine outcrop in the Hartford basin and introduced me to the variety of lake deposits, how to look at both the coarse and fine-grained strata, and the importance of trace fossils—arguably, I started where paleo-ichnology started, on the trackways studied by Hitchcock in the 19th century.

After I joined Exxon Production Research Company, I worked with petroleum geochemists, investigating the sedimentology and stratigraphy of hydrocarbon source rocks. As part of that, I started studying the Green River Formation (GRF) with Ken Stanley and George Grabowski, Jr. During 30+ years of exploring its manifold mysteries, the GRF taught us much and launched us into lake studies around the world, through Africa, China, Azerbaijan, Germany, Madagascar, Libya, Brazil, and, of course, beautiful Rock Springs, Wyoming. Along the way, I met many great researchers and made numerous valued friends: Beth Gierlowski-Kordesch, Lisa Parks, Tim Demko, Dave Reynolds, Chris Scholz, Tom Johnson, Paul Buchheim, Kerry Kelts, Mike Talbot, Andy Cohen, Mike Smith, and Dave Finkelstein, among many others. When Alan Carroll joined Exxon and we compared our complementary worldwide experiences across the Phanerozoic, it became clear that there were some fundamental, repeated patterns which needed explaining, but gave us predictive capabilities. Further investigations and conceptualizing resulted in our publications on the Lake-Basin-Type model which has proven quite useful for a range of applications, from source-rock prediction to vertebrate evolution—and even to evaluating landing sites for the Mars Science Lab rover.

Lake strata were a natural laboratory not only for advancing our understanding of hydrocarbon systems but also for developing a wide variety of insights into the sedimentary record. Several big themes came through this work: (i) it is important to appreciate and examine modern systems through the geological filter and determine which products of which processes are preserved in the rock record, and (ii) integration of a wide range of physical, biological, and chemical attributes is essential.

I thank Exxon’s management who had the vision to support and encourage our work through many ups and downs, because we were able to translate our fundamental understanding into practical guidelines for effective, efficient, and environmentally safe exploration and extraction. Even more essential support came from my wife Susan, who enthusiastically encouraged me and tolerated my expeditionary absences.

Finally, I am greatly honored to receive this award for work that resulted from collaboration with many hardworking and smart people and that I was selected by a group of those smart people who really understand and appreciate our work.

Sessions Sponsored by Limnogeology Division at the126th GSA at Vancouver
Abstract submission is open until July 29th 2014

http://community.geosociety.org/2013AnnualMeeting/Home

T34. Modern and Ancient Continental Depositional Environments: Linking Landscape Evolution with Fluvial Systems and Lacustrine Basins through the Cenozoic

Eric C. Carson, Jeffrey T. Pietras
GSA Quaternary Geology and Geomorphology Division; GSA Limnogeology Division

The natural evolution of a landscape involves both gradual and catastrophic events. Both can be recorded within fluvial depositional environments, lacustrine basins, and geoarcheological records, providing the opportunity to bring together researchers from multiple disciplines.

T172. Terminal Lakes: In Honor of Blair Jones

Michael R. Rosen, Scott W. Starratt, Daniel M. Deocampo
GSA Limnogeology Division

Studies using multiple proxies are increasingly demonstrate the complexity of lakes. In order to understand the impact of climate change on lacustrine ecosystems it is necessary to understand the local and regional factors affecting not only an individual lake, but those that interactions that influence the entire watershed. This session invites high resolution biological, geochemical, and hydrological studies of lakes in the context of their watersheds. Potential studies may include proxies that reflect regional climate variability, seasonality, the impact of topography, vegetation cover changes, and basin lithology. The goal of the session is to provide a forum for discussion of the interaction between predicting the impact of climate change on terminal lake systems and the paleoenvironment records that provide the framework for understanding future changes.

T173. From Peak to Playa, Saline to Fresh—The Great Diversity of Lakes in Western North America

Scott W. Starratt, Katrina A. Moser
GSA Limnogeology Division

Lacustrine records from western North America represent large, deep, and fresh to small and saline lakes, providing a rich record of paleoenvironmental variability across the Cenozoic. The diversity of lakes requires a range of proxies to address the many settings in which these lakes are found. Potential studies my include

proxies that reflect regional, local, and intrabasinal variability in biotic and abiotic proxies. The goal of this session is to bring together studies utilizing single and multiple proxies across a range of altitudes, temperature ranges, lake chemistries, and precipitation regimes.

T174. Non–Steady-State Element Dynamics in Lakes

Johan C. Varekamp
GSA Limnogeology Division; GSA Hydrogeology Division; Geochemical Society

Human perturbations of element cycles in lakes can be simulated with non–steady-state mathematical models. We encourage theoretical and empirical approaches to the dynamics of nutrients and contaminants, and their isotopes in lakes.

T175. Time Critical: Age-Depth Modeling in Quaternary Continental Sedimentary Records

Amy Myrbo, Susan H. Zimmerman, Dylan Blumentritt
GSA Limnogeology Division; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division

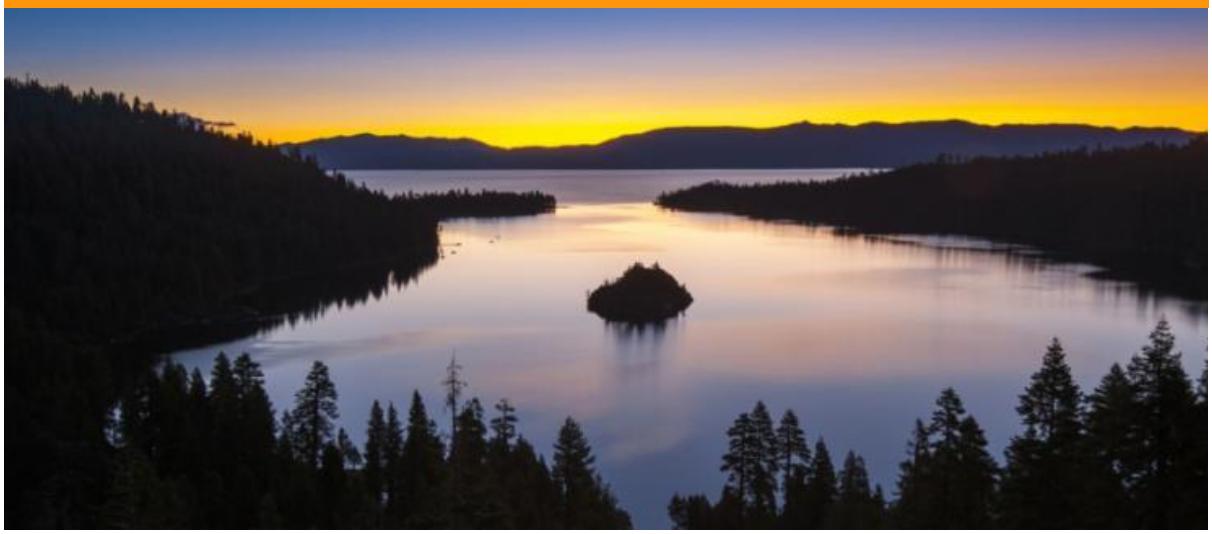
Your age model can alter what your dataset says. Discussions include all radiometric, biostratigraphic, relative methods, and more; calibration, a-d modeling software, tuning, knob-turning, pre-radiocarbon, post-bomb; databases; methods; and what to do and not do.

T247. The Legacy of Richard Forester: Seminal Contributions Towards Understanding Quaternary Climate, Continental Waters and Ostracodes

Alison J. Smith, B. Brandon Curry, Saxon E. Sharpe, Jordon Bright
GSA Limnogeology Division; GSA Quaternary Geology and Geomorphology Division

This session honors the diverse research interests and contributions of Richard M. Forester: Topics include paleohydrology, paleolimnology, Cenozoic climate change, groundwater-surface water interactions, continental ostracodes, mollusks, charophytes, and their isotopic signatures as proxies of change.

STAY CONNECTED WITH ILIC6



ILIC6

Quadrennial International Limnogeology Congress in Reno - Tahoe

June 15 - 19, 2015

Stay informed!

Through our Facebook page and our website we will keep you up to date as information becomes available about our upcoming conference, sponsorships, tours, and registration .

Or visit our website, at **www.ilic6.org**

The 6th International Limnogeology Congress (ILIC6) will be held in Reno/Tahoe between June 15 and June 19th in 2015. This is only the second time the meeting has been held in the USA, and the first time since 2003. The congress will also have a one-day age modeling workshop on Monday June 15th, with experts from the community leading the discussion.

The Congress will feature 8 Keynote speakers from North America and Europe, speaking on topics that range from extraterrestrial lake deposits, Eocene lake deposits, Holocene and Pleistocene paleoclimate, comparison of modern and ancient foreland basins, lakes and hominid evolution, and meteorite impact lakes. Keynote talks will be given by internationally acclaimed speakers including: **John Smol**, Queen's University, Canada, **Flavio Anselmetti**, Institute of Geological Sciences at the University of Bern, Switzerland, **Nathalie Cabrol**, NASA Ames Research Center, USA, **Michael McGlue**, University of Kentucky, USA, **Margarita Caballero**, National Autonomous University of Mexico, Mexico, **Michael Smith**, Sonoma State University, USA, **Martin Trauth**, University of Potsdam, Germany, and **Isla Castañeda**, University of Massachusetts, USA.

The format of the conference is designed so that keynote speakers will be interspersed between poster sessions each day. This will allow a large amount of discussion and interaction between participants in the Congress that is intended to

stimulate new ideas for research and collaboration. A mid-conference field trip is included in the registration, and this trip will go to Lake Tahoe so that participants can learn about the limnology paleolimnology and geology of the lake. A special lunchtime talk on Lake Tahoe will be given by Charles Goldman, a world renowned expert on Lake Tahoe. Pre and post meeting field trips are being arranged for Mono Basin, Pyramid Lake, Lassen and Crater Lake, Alpine lakes, southern California remote lakes, and California playa lakes (Searles, Death Valley etc) as well as Eocene Green River Formation. More details on these field trips will be available by the end of August.

More information, registration information and hotel information can be found on our webpage www.ilic6.org or by contacting Michael Rosen (mrosen@usgs.gov), Conference Committee Chair, or Tina Triplett (creativerno@charter.net), Conference Organizer. Please go to the webpage repeatedly as more information will be uploaded as it becomes available. A call for abstracts will be sent in the near future.

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Call for papers AGU San Francisco December 15-19th 2014

Tarn to Terminus -- Hydrology, Limnology, and Paleoenvironmental Records of Terminal Lake Systems

Studies using multiple proxies are increasingly demonstrate the complexity of lakes. In order to understand the impact of climate change on lacustrine ecosystems it is necessary to understand the local and regional factors affecting not only an individual lake, but those that interactions that influence the entire watershed. This session invites high resolution biological, geochemical, and hydrological studies of lakes in the context of their watersheds. Potential studies may include proxies that reflect regional climate variability, seasonality, the impact of topography, vegetation cover changes, and basin lithology. The goal of the session is to provide a forum for discussion of the interaction between predicting the impact of climate change on terminal lake systems and the paleoenvironment records that provide the framework for understanding future changes.

For more information contact: Scott Starratt (sstarrat@usgs.gov)

Upcoming Meetings

Geological Society of America (GSA) Annual Convention

2014 - Vancouver, British Columbia, Canada: 19–22 October

Abstract Deadline: July 29th

2015 - Baltimore, Maryland: 1–4 November

2015 GSA Section Meetings

Northeastern Section
23–25 March 2015
Bretton Woods, New Hampshire, USA
Abstract Deadline: TBD

Southeastern Section
19–20 April 2015
Chatanooga, Tennessee, USA
Abstract Deadline: TBD

South-Central Section
19–20 March 2015
Stillwater, Oklahoma, USA
Abstract Deadline: TBD

Cordilleran Section Meeting
11–13 May 2015
Anchorage, Alaska, USA

North-Central Section
19–20 May 2015
Madison, Wisconsin, USA
Abstract Deadline: TBD

Rocky Mountain

21–23 May 2015
Casper, Wyoming, USA

Abstract Deadline: TBD

North American Lake Management Society (NALMS)

November 12 - 14, 2014
Tampa, Florida

The **3**4th **International Symposium of the North American Lake Management Society**
The website is http://www.nalms.org/home/conferences-and-events/nalms-upcoming-symposium/nalms-symposium.cmsx

Association of American Geographers (AAG) Annual Meeting

April 21-25th 2014 Chicago, Illinois

http://www.aag.org/annualmeeting

Numerous sessions organized by the Paleoenvironmental Change Specialty Group. Limnogeologists encouraged to participate! For more information please contact Limnogeology division secretary Michelle Goman.

International Lake Environment Committee (ILEC)

September 1st – 5th, 2014

The **15th World Lakes Conference (WLC15)** will be held in Perugia, Umbria, Italy. The conference theme is *Lakes, the Mirrors of the Earth: Balancing Ecosystem Integrity and Human Wellbeing*.
The ILEC website is http://www.ilec.or.jp/en/

International Limnogeology Congress 2015 (ILIC6)

June 15th – 19th, 2015

The International Association of Limnogeology (IAL) will hold its Quadrennial International Limnogeology Congress (ILIC6), at the Peppermill Resort Hotel in Reno, Nevada.

The ILIC6 website http://ilic6.org/

International Paleolimnology Association (IPA)

Mid-August 2015

The **13th International Paleolimnology Symposium** of the International Paleolimnology Association will take place in **Lanzhou, China**. An abstract deadline has not yet been posted.

The IPA Symposium website is: http://www.paleolim.org/index.php/symposia/

American Society of Limnology and Oceanography (ASLO)

2014 ASLO Aquatic Sciences Meeting (Feb 22-27, 2015)

The Aquatic Sciences Meeting of the American Society of Limnology and Oceanography will be held in Granada, Spain, 2015.

The website for this listing and other ASLO conferences is:
http://www.aslo.org/meetings/aslomeetings.html

Pacific Climate Workshop (PACLIM)

March 8-11th 2015 Asilomar, California

The Pacific Climate Workshop (PACLIM) is a multidisciplinary workshop that broadly addresses the climatic phenomena occurring in the eastern Pacific Ocean and western North America. The purpose of the workshop is to understand climate effects in this region by bringing together specialists from diverse fields including physical, social, and biological sciences. Time scales from to the millennial-scale Pleistocene variability to current temperature and precipitation records are addressed in oral and poster presentations. For more information contact Limnogeology division secretary Michelle Goman.

Go to the Limnogeology Division website at:

http://rock.geosociety.org/limno/index.html

To get the latest information on other Limnogeology meetings and workshops…

David Warburton, Webmaster

If you don't have access to our website, please contact a Division officer for a list of meetings.

If you have any news, photos, articles, upcoming conferences and recent publications, you would like to share with the division, please submit it to Michelle Goman at goman@sonoma.edu

End Photo: Washoe lake is a shallow lake between Reno and Carson City, Nevada. It is perennial and generally fresh and has a high groundwater contribution to it. It has not been studied in detail although one core exists of the lake. (Photo credit: Michael Rosen).