

FCGS Newsletter

P.O. Box 1501 | Durango | CO 81302 | www.fourcornersgeologicalsociety.org

September 2020



Alan Kasprak's field research on how flow alteration impacts sandbars and vegetation along the Colorado River in Grand Canyon.

SPEAKER: Dr. Alan Kasprak, Fort Lewis College

TITLE: *Flow Alteration, Vegetation Growth, and the Influence of Glen Canyon Dam on Land Cover along the Colorado River in Grand Canyon*

DATE: Thursday, September 17th, 2020

TIME: Please login to meeting a little before 5:30. From 5:30 - 6:00 attendees will be randomly assigned to break out rooms for three, ten-minute sessions, 6:00-6:10 back to meeting for society business announcements and introductory remarks, 6:10-7:00 talk, 7:00-7:15 Q&A and discussion. 7:15 meeting over.

LOCATION: Your own home! This is a Zoom meeting hosted by FLC. See instructions on page 4 to join.

COST: Free but please renew your membership!

Grand Canyon from Nankoweap Granaries

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Abstract



Grand Canyon field area.

Along the Colorado River downstream of Glen Canyon Dam (completed in 1963), flow alteration for hydropower generation has led to increased daily flow magnitudes and the loss of large spring floods. This has additionally led to vegetation colonizing many channel-margin surfaces. In this presentation, I'll discuss how the operations of Glen Canyon Dam, and associated flow shifts and vegetation encroachment, have led to changes in land cover along more than 100 miles of the Colorado River in Grand Canyon. This analysis uses a fusion of many spatial datasets, including bathymetric channel bed mapping, topographic surveys of near-channel sandbars, and upland mapping from historic aerial photographs.

Our results indicate that the majority (~75%) of bare sand in Grand Canyon is inundated continuously by flows from Glen Canyon Dam, and is thus unavailable for ecological function or use by river runners as campsites. Further, the amount of bare sand is expected to continue to decline over the coming two decades in the absence of drastic shifts in the timing and magnitude of flows from Glen Canyon Dam.

Biography

Alan Kasprak joined Fort Lewis College in the fall of 2020 as an assistant professor in the



Department of Geosciences. His research focuses understanding physical and biological processes in river systems using geospatial techniques. Alan is currently using GIS and remote sensing data to examine the impacts of large dams on the geomorphology, sediment transport, and land cover of the Colorado River corridor through the Canyonlands and Grand Canyon regions of the Southwestern U.S. In

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SAVE THE DATE!

Next meeting
October 15th.
More info coming soon.

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addition, he also conducts research into the role of in-channel wood in driving changes in stream morphology and fish habitat in rivers of the Greater Yellowstone Ecosystem.

Prior to joining FLC, Alan completed a Master's degree in Earth Sciences at Dartmouth College, a Ph.D. in Watershed Sciences at Utah State University, and also held an appointment as a Mendenhall Postdoctoral Fellow with the U.S. Geological Survey's Grand Canyon Monitoring and Research Center in Flagstaff, Arizona.

Election Results

Spring elections confirmed David Schiowitz as the new President-Elect of the Society. 2019-2020 President-Elect, Jon Harvey, and President, Sabina Kraushaar rotated up to President and Past-President as per our bylaws. Jolin Cordalis and Tom Staatz returned as Secretary and Treasurer respectively as did Newsletter Editors Kim Gerhardt and Tom Ann Casey.

Two positions in the Four Corners Geological Foundation opened up by term limitations. These were filled by Ron Brogden as Treasurer, replacing Joe Hewitt, and Patti Phillips as Secretary, replacing Jim Corken. Jim Fassett and Jeff Carey remain as Directors.

Members also approved a change in Society bylaws to make the FCGS the sole voting member of the Foundation.

Meeting, scheduled for September 13th-16th in Grand Junction because of the Covid virus and related industry slump. The Society would have taken 25% of meeting profits had the meeting run. Following the cancellation announcement and closure of the books, we determined that the meeting had lost \$10,059 in non-refundable pre-payments and services. This loss is taken solely by the RMS-AAPG and will not affect the FCGS in any way.

Authors of submitted abstracts were given the option to either withdraw their papers for submission to another meeting or have them reviewed and published on AAPG's Search & Discovery / Datapages website. Those postings will go online this month.

This meeting was over two years in the planning and involved over 70 people, almost all of them volunteers. By late April however, with the state in lockdown, the price of oil going negative, and few sponsors or exhibitors, the path was obvious. After discussion by the Committee, an online alternative was also rejected. In retrospect this was wise given that the AAPG ACE, originally scheduled for June in Houston, will now be held virtually September 29th - October 1st, almost on top of our original meeting dates. Tough competition!

Please Renew Your Membership!

We now pay our membership dues by May 31st, rather than by January 1st, following the change to our bylaws approved by the Society in 2018. This was done to sync the membership year more closely to our "activity year" (summer fieldtrips, winter lecture series and officer terms). At press time **57%** **of**

RMS-AAPG 2020 Meeting Cancelled due to COVID-19

Co-Chairs Kim Gerhardt (FCGS) and Heidi Schoenstein (GJGS) regretfully cancelled the AAPG Rocky Mountain Section

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Havasu Creek

our Active and

Associate members have not

paid their 2020-2021 dues. If you did not pay your dues this spring please do so before you fall into arrears and stop receiving the newsletter. Although we are not incurring meeting expenses with our new Zoom format, the FCGS still has significant fixed costs that are underwritten in part by membership payments.

Click here:

<https://fourcornersgeologicalsociety.org/membership/> to pay through the website or print off the form on the last page of the newsletter and mail it in with your check.

PREZ SEZ

Greetings FCGS members!



Jon Harvey on 2019 hike / train fieldtrip

After an abrupt end to last year's meeting series, and a long summer with no FCGS activities, I am excited to welcome you all back to the program! I don't know about you, but I have been missing real conversations with other geologists. Getting back into the teaching groove has helped, but I still want to connect with our FCGS community while learning about cool new research! So as we round the corner into fall and the next FCGS speaker series, we are going to do our best to

make that happen despite the shadow of the pandemic. On that note, I want to thank you all for your patience and understanding as we took a "wait-and-see" approach over the summer. At this point the FCGS board does not feel comfortable trying to host in-person meetings this fall. That said, we are excited to start this FCGS year off by holding our monthly meetings in a virtual (i.e. online) format. FCGS meetings as we know them (2-3 hours in a room, socializing, buffet line, etc) are still not advisable. For one thing, they are not permitted at Fort Lewis College for the time being, so we are without our go-to venue. It is also a time where many are reluctant to travel, which

would really limit our pool of speakers. And in general, it would be very difficult or impossible to host an in-person gathering that is both inclusive and in a format that is safe for attendees. Although I'll miss the in-person interaction, I am also excited about the potential the virtual platform has for us. I hope you will find it to be a passable approximation of the real thing! Read more about it below.

Finally, thank you all for renewing your FCGS memberships, and if you haven't yet – please do so! Although this year will look different, the Society remains strong with your continued participation. Up here at the Fort we have another crop of Geology majors who I know will benefit from interacting with you all. And, like I said, I need the interaction! I spent all summer doing daddy-day-care with my toddler, and I fear my conversational abilities are now at his level. Help me get back to normal by joining us for our first meeting on Sep 17! I think you will enjoy hearing from Dr. Alan Kasprak, the newest member of the faculty in the Geosciences Dept at Fort Lewis College. He has been involved in fascinating riverine research in the southwest for several years, and he'll provide us with some perspective on how Geoscientists monitor geomorphic changes along large river systems like the Colorado using cutting-edge tools.

I look forward to seeing you all soon,

Jon

Zoom Meeting Instructions

by Jon Harvey

So, how is the virtual speaker series going to work? Here is a run-down of how it will work (for this first meeting, at least – it is a work in progress!):

- Each meeting will feature a speaker, who is speaking exclusively to our group, just like a normal FCGS speaker. However, they might be hundreds of miles away!
- We will send out a URL by e-mail, which you will be able to click on to join the meeting on Zoom.
- If you haven't used Zoom on that computer, your browser

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may take a few seconds to install it prior to your first use. It is usually a painless process.

- When you click on the link, it will bring you into a Zoom meeting where a lot of faces-in-boxes will be arrayed on the screen (Brady Bunch style).
- Once the meeting officially starts (at 5:30 PM), you will be assigned into a 'Breakout Room' with other FCGS members. These Breakout Rooms are going to be randomly filled with people who are logged in, so it will be sort of like sitting around a table with a mix of geology professionals, enthusiasts, and students like we do at our real meetings!
- Each breakout room will last for 10 minutes, at which point you will be reconfigured into a new breakout room with random members. We thought we'd try three breakout rooms from 5:30 to 6:00 PM
- You'll then be called back to the main room when the talk is about to start, at which attendee mics will be muted and you'll be able to sit back and learn something new from the comfort of your couch! Just don't get too comfortable – we don't want everyone falling asleep!

What if I don't want to have to socialize in a breakout room?

- If you don't want to do the breakout rooms thing, you are welcome to ignore the prompt and hang out in the main room until the talk starts! Or you could log in a bit later. Just make sure to join a few minutes before the talk starts so you don't miss anything.

How will we do the speaker Q&A that usually follows the talk?

- After the talk, there will be time for participants to ask questions of the speaker either using their microphone or by entering it via the chat box (participant mics will be muted during the presentation).

What is the schedule of the meeting?

- Zoom meeting opens up shortly before 5:30 PM.
- At 5:30, we start three 10-minute rounds of socializing in 'breakout rooms'.

- At 6:00, we will call folks back from the breakout rooms to start the meeting. After brief FCGS business, we will introduce the speaker who will get started.
- The talks are planned to run from ~6:10 to 7:00 PM, followed by some Q&A.
- We anticipate being wrapped up with the meeting by ~7:15 PM.

Will there be a raffle?

- Not like we normally do. We are brainstorming a way to incorporate something fun like this into the virtual format.

When will in-person FCGS meetings return?

- Not sure yet. There are a lot of variables that escape our control or prediction. So, we remain hopeful that we will return to in-person meetings soon (early 2021?), but we will continue with our wait-and-see approach and see how the COVID spread goes as cooler temps arrive and the school year gets going.

When will FCGS Field trips return?

- See above. We hope to offer some way for folks to get together safely outside, but have not converged on any plans yet. Stay tuned! And reach out to the field trip committee chair if you have any ideas!



Elves Chasm

News from the Four Corners Geological Foundation

by Mary Gillam

FCGF is a separate non-profit corporation with tax-exempt 501(c)3 status. It supports education and research in the geosciences, mainly in the Four Corners Region, while working closely with FCGS and its members. Principal activities include funding research by graduate and undergraduate students, sharing information through meetings and publications, and promoting geoscience education at all levels. When FCGF reorganized in 2019, FCGS became its sole voting member with

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responsibility for general oversight. However, the directors of FCGF guide and manage its operations, including its separate financial accounts. These changes still need to be codified in the bylaws for both organizations.

The Four Corners Geological Foundation has been active but its board hasn't met recently because of Covid-19. In May, Ron Brogdon and Patti Phillips were elected to three-year terms as Treasurer and Secretary, respectively. They join three continuing board members, President Mary Gillam, former secretary Jim Corken, and grants committee chair Jim Fassett. We're grateful to retiring board members Joe Hewitt and Jeff Cary for their long service and continuing help during this transition.

Last spring we gave \$1,000 grants to two Master's degree candidates. Natalie Tanski at Utah State University will research '*Tracking Transient Incision along the Colorado River in the Canyonlands Region using Luminescence and $^{36}\text{Cl}/^{10}\text{Be}$ Burial Dating Techniques.*' Samuel Martin at New Mexico Tech will study '*Tectonic Evolution of the Rio Grande Rift, Colorado Plateau, and Basin and Range: Clues from Fault Kinematics and Exhumed Basin Fill in Southwest New Mexico.*' Since FCGS began this program in 1991, grants have been awarded to approximately 43 students!

In May, Ron, Patti and Mary discussed the possibility of helping local science teachers with two representatives from the Durango-area school district. But after changes due to Covid-19, it seems unlikely that this idea will progress soon. If it does, and when safe, we may begin recruiting helpers from our geologic community to advise teachers or work with students. Please think about volunteering for occasional activities if conditions allow.

As always, the Foundation welcomes your donations to support its programs!

Lynda Krivanek Obituary

Lynda Krivanek, wife of Emeritus FCGS member Connie "Mack" Krivanek passed away this summer. Lynda and Connie were regular attendees of our FCGS summer picnics, including 2019. Connie provided the following obituary.

Lynda Jo (Mosley) Krivanek passed away peacefully on August 1, 2020. Lynda was born February 15, 1939 in Norman, OK. She was the middle child of Frank Kirby and Cleo Bell Mosley. Lynda is survived by her husband Connie Mack of 56 years; daughter Alecia Lyn Pittman, husband Randy and twin granddaughters Sarah and Rachael and husband Bobby of NJ; Son, Alan Frank, wife Debra, granddaughter Lily Belle, grandson Leo of Woodland, CA; Younger brother James Mosley and wife



Connie and Lynda Krivanek at 2019 FCGS Picnic.

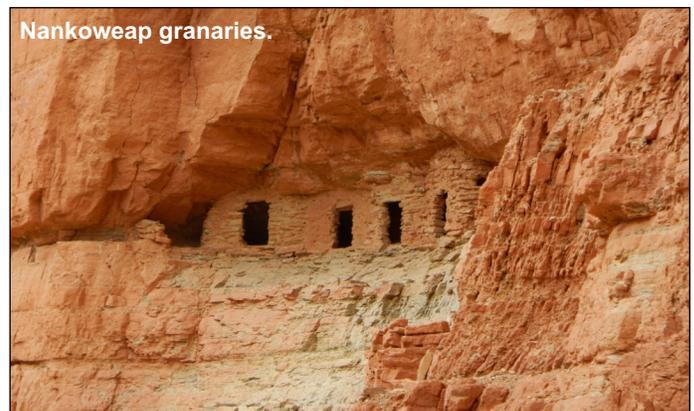
Candy of Oklahoma City. Lynda was preceded in death by older brother Phillip Mosley of Wrightwood, CA.

Lynda grew up in Norman, OK, graduated from Norman High School and the University of Oklahoma with a BS degree in Library Science with a minor in English. Lynda married Connie Mack in Anchorage, AK. In Bakersfield, CA, she was the Kern County Children's Librarian.

She traveled throughout Kern County introducing grade school and preschool children to newly published children's books. In New Orleans, LA she was a high school librarian. In Durango, CO she worked in the City Library. It was in Durango where she started her family. There was a move to Midland, TX then on to Farmington, NM. In Farmington she was a principle founder and owner of The Reprographics Center, Inc. Lynda liked the company of her dogs. She supported Best Friends, Kanab, UT and the Humane Society.

Geoheritage Workshop Webinar Series

The National Academies of Sciences, Engineering and Medicine (NSF) are sponsoring "America's Geoheritage Workshop II", a fall webinar series in eight parts covering all aspects of identifying, developing and preserving America's natural legacy. Click on this link for more information. You must register to attend. <https://www.nationalacademies.org/our-work/americas-geoheritage-ii-a-workshop>.





FOUR CORNERS GEOLOGICAL SOCIETY

P.O. Box 1501, Durango, CO 81302

MEMBERSHIP RENEWAL or APPLICATION: June 1, 2020 to May 31, 2021



*Name: _____

*Address: _____ City: _____ State: _____ Zip: _____

*Email: _____ Phone: _____

*Employer: _____

Please Identify a Membership Category:

***Please check your interests:**

- Sedimentology & stratigraphy
- Structure & tectonics
- Mineralogy, petrology, geochemistry
- Igneous geology, volcanology
- Ore geology and hard rock mining
- Other mineral extraction
- Petroleum geology
- Geophysics
- Geological engineering
- Geomorphology
- Quaternary geology
- Hydrology & water resources
- Environmental geology
- Geography / GIS
- Other interest (see box)

Active Member	\$25	Any person engaged in the practice or teaching of geology or who holds a Bachelor's Degree in geological science from a college of acceptable academic standards. Degree requirement may be waived if applicant has adequate professional experience. <i>*Highest Degree, Type and Year:</i> _____ <i>*College / University:</i> _____
Associate Member	\$25	Any person who is a graduate of a college of acceptable academic standards with major studies related to, or associated with, geology. Degree requirement may be waived if applicant has adequate professional experience. <i>*Highest Degree, Type and Year:</i> _____ <i>*College / University:</i> _____
Student Member	Free	Any undergraduate or graduate student majoring in geology at a college of acceptable academic standards. <i>*College / University:</i> _____ <i>*Year expected to graduate:</i> _____
Emeritus Member	Free	An Active Member of 65 years old or older who has been a member for 25 years including time spent in military service. <i>*Year emeritus status was awarded:</i> _____
Honorary Member	Free	An Active Member who has contributed distinguished service to the profession of geology and to the betterment of the FCGS. Determination is made by the FCGS Executive Committee. <i>*Year honorarium was awarded:</i> _____

Other Professional Interests:

** Required information for new members. Current Members, please update.*

Please either print, complete and return this form with your check for dues made payable to: "Four Corners Geological Society" and mail to the address above or go online to fourcornersgeologicalsociety.org .