

CPN Newsletter



INSIDE THIS ISSUE:

CPN is Two Years Old	1
Research Highlight	2
Practitioner Perspective	3-4
Student Section	5
New Editors/ Webinar reminder	6
Postcard from the Field	7
Invite Others & Contact Info	8

Diversity, Equity, and Inclusion Statement:

The CPN upholds a commitment to diversity, equity, and inclusion as a core value. We seek to build on this commitment by striving to create an inclusive community whose members represent diverse cultures, backgrounds, career stages, and life experiences. This commitment is critical to strengthening our relevance, credibility, and effectiveness within the field of conservation paleobiology and broader STEM community. Through these efforts, we strive to transform the field in practice, while diversifying the face of conservation paleobiology for the future.



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The CPN is Now Two Years Old!



It has now been two years since the start of the Conservation Paleobiology Network. As of July 2021, we have **559 members from 44 countries**. The community so far consists of a diverse group of paleobiologists, archaeologists, historical ecologists, geoscientists, conservation biologists and stakeholders. We are thrilled that so many of you have joined!

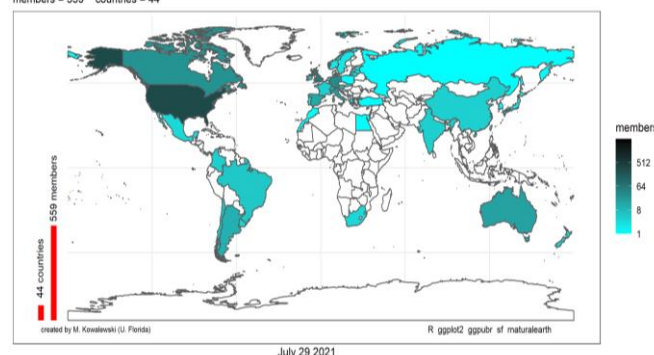
The goal of the network is to integrate and translate historical approaches to better serve the conservation and management of ecosystems and organisms through activities such as **Webinars, Field Courses, Working Groups, Student Activities, Symposia**, and more. Have an idea for how we can expand our reach? Let us know! We can be contacted by emailing conservationpaleo@floridamuseum.ufl.edu.

We look forward to continuing to engage this broad and growing community.

To learn more about our various activities, check out our website here:

<https://conservationpaleorcn.org/>

Membership Map of the Conservation Paleobiology Network
members = 559 countries = 44



Conservation Paleobiology Research Highlight

By Morteza Djamali and José Gabriel Segarra-Moragues

Paleoecology's contribution to conservation through the discovery of hidden species: Example of the liverwort *Riella*

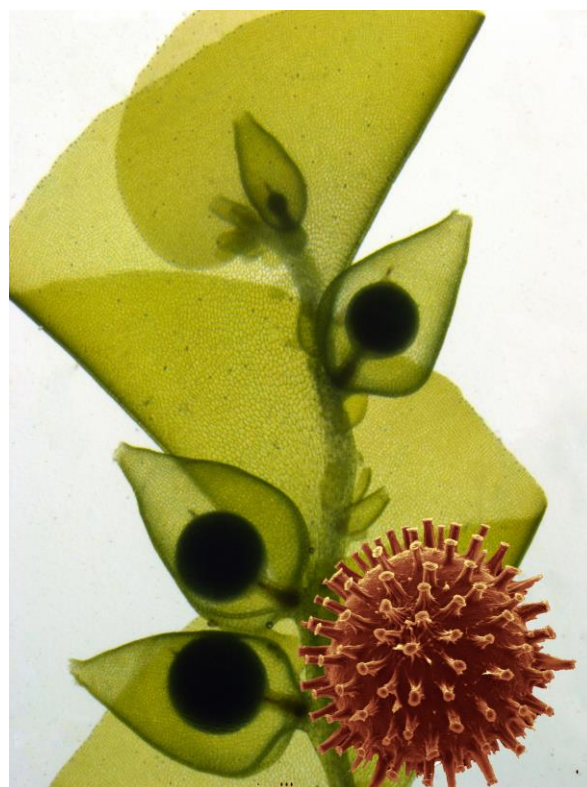
One important potential of paleoecology in biodiversity conservation is to discover new plant and animal species of high conservation value in the subrecent fossil record. This underexplored potential of paleoecology is especially important in biodiversity hotspots where a significant part of biodiversity is yet to be discovered. The basic idea is that many extant species may have not yet been discovered in a given geographical region but are still thriving there. Some of these species have left imprints in the subfossil record that can be revealed by paleoecologists.

In a recent paper, we presented the case of the liverwort *Riella* (Riellaceae) which is mostly distributed in semi-arid and Mediterranean regions of the world. This genus, which has many species of conservation concern, has never been reported alive from Southwest Asia. However, its spores are frequently encountered in many Holocene pollen records of the region with some occurrences in almost modern sediments. Such occurrences strongly suggest that the genus is still thriving in the area, but has not been yet discovered by botanists.

Riella proliferates during flooding episodes in shallow seasonal wetland environments. Its spores may remain viable in sediments for decades and are responsible for sudden population blooms after a flooding event if the ecological conditions are favorable. The plants, which are intolerant to desiccation, complete their cycle in a couple of months. Their serendipitous germination and the ephemeral habit of the plants make them visible for a short period of time, thus, only very lucky botanists have observed them in the field.

The conservation of *Riella* species is thus very dependent on the conservation of their habitats, which are seasonal shallow wetlands in semi-arid regions. Our detailed taxonomic analysis of fossil spores revealed that at least three species of *Riella* may be present in the study area. Detailed identification is essential for exploring this potential role of paleoecology in conservation biology. In the case of *Riella*, laboratory cultures of collected sediments may be helpful in discovering hidden species, and helping to better characterize the flora of a region.

Photo caption: A living *Riella helicophylla* and its spore.



For more details see article by Djamali and Segarra-Moragues (2021) in *Biodiversity and Conservation*:

<https://doi.org/10.1007/s10531-021-02218-3>

“These species have had the potential to leave their imprints in the subfossil records that can be revealed by paleoecologists”

Practitioner Perspective *Interview by Alexis Mychajliw*

Featured practitioner: Andrea Adams

Andrea Adams is an interdisciplinary conservation scientist who employs mixed methods to address amphibian declines and identify factors that support successful recovery. She is an Assistant Researcher at the University of California, Santa Barbara (UCSB) Earth Research Institute. She also earned her PhD in Ecology at UCSB. She has worked in a variety of positions with the National Park Service (NPS), US Fish & Wildlife Service (USFWS), and the California Department of Fish & Game. She is also the Human Dimensions Coordinator of the Natural History Section of the Ecological Society of America. Andrea loves engaging with visitors while doing field work in national parks, allowing her to “speak on behalf of the frogs” with people from all over the world.



Photo caption: Andrea Adams doing frog research in Sequoia-Kings Canyon National Park, July 2017. Photo courtesy Andrea Adams.

1. Your work is right at the intersection of academia and application. How does your research relate to management needs?

Basically, I find out where frogs might have been in the past, where we could get frogs from now, and where to put the frogs back in the future. When frogs are listed as endangered, federal agencies reach out to me to find out what kinds of scientific data they need collected to support effective management decisions. For reintroductions, I work to understand the factors that cause species to be extirpated in the first place, find out what is threatening their persistence now, and identify what can be done to help them recover. Much of this work is in the context of disease ecology and climate. The amphibian chytrid fungus came to California in the early 1900s and many of the populations here have already been exposed and persisted, so we can think about putting some species back to where they once were before this disease swept through.

2. How did you first get involved with federal agencies, and how has this experience shaped your scientific career?

My first job with NPS was as a ranger in Olympic National Park while I was in college. This government experience helped me later get a job with USFWS, which I continued through the first 5 years of my PhD program. After my PhD, I went back to work for NPS in the Sierra Nevada with mountain yellow-legged frog habitat restoration and reintroductions. I was the person on the ground when the frogs were released; we would help the helicopter land and open the Tupperware containers and let the frogs go. Yosemite specifically changed how I do field work because of all the park visitors. People are always excited to learn about frogs and love learning what biologists do. To many, biologists are figures you see on TV, not someone you actually get to meet, so they always ask a lot of questions, and I get to speak for the frogs.

3. I really appreciate how you saw field work as a chance for science communication. How did you hone your communication skills?

I've adapted over time and learned through practice, especially as a ranger. One great resource is [COMPASS](#) – I did an intensive program with them about how to communicate science to decision makers in Washington, DC. I also recommend the book “Escape from the Ivory Tower” by Nancy Baron.

Practitioner Perspective continued...

4. You used mixed methods in your research and have combined qualitative interviews with “traditional” quantitative datasets. How did you start on this path?

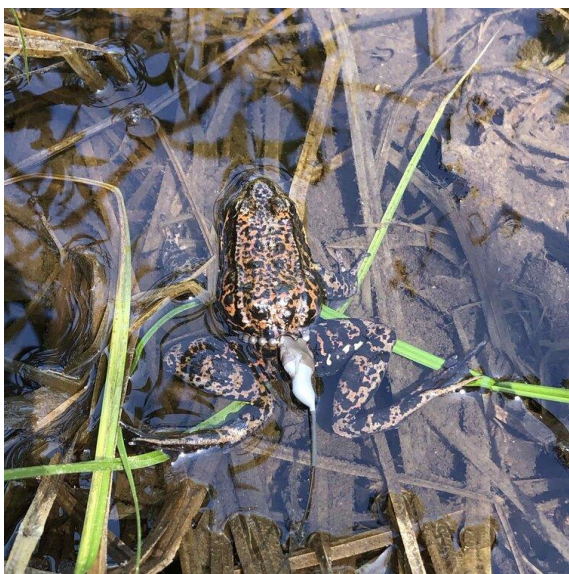
Early in my career I was surprised to learn that there was a species of frog (the foothill yellow-legged frog) in Southern California that no one talked about anymore because it was extirpated in the 1960s—a classic case of shifting baselines. I wanted to know why it disappeared and how rapidly. But no one had that information except for people who had been working in the field during the 1960s. As part of my dissertation, I interviewed these people, who told me the species disappeared in less than 10 years, despite virtually no habitat loss. I hypothesized that it could have been chytrid fungus, but the only way to test this was to look to the past. I optimized a molecular assay to detect the fungus in museum specimens, then used it to sample over 1500 amphibians in museum collections. I found the first record of the fungus in California from 1915 in Los Angeles County. Then it appears to have spread further north. At the time it reached its peak of spread, we saw the rapid decline of the frog – those two things lined up.

5. As an ecology student, did you feel prepared to include historical data in your thesis?

I definitely wasn't prepared! My ecologist colleagues and mentors weren't prepared for me to do this type of work, either. It took some convincing on my part. I said, “Look, I want to try this, and this information can't be obtained any other way!” and people responded, “well, this isn't what ecologists do and what you're proposing isn't ecology”. But I proceeded to learn from environmental historians at my school by going to their seminars, learning their methods, and reading papers and books they recommended. I also attended the Advanced Summer Institute through the Oral History Center at UC Berkeley's Bancroft Library. People generally think about oral history as human history, not frog history.

6. What advice do you have for students interested in interdisciplinary research?

Don't be afraid to ask for help outside of your department or even outside of your school—that's how you can really bring something unique to your field. Don't feel like you need to box yourself in to your discipline and your discipline's methods. That said, make sure you do have a solid foundation in your own discipline, so you have something to build off of and share with others. You still need to be an expert in your own field, even if you integrate methods from other disciplines.



*Photo caption: An endangered California red-legged frog (*Rana draytonii*) wearing a radio transmitter in Yosemite Valley, 2019. Photo courtesy Andrea Adams.*

7. Given the depth of your experience working with NPS and your interest in historical data, what are your thoughts on the new [Resist-Adapt-Direct \(RAD\)](#) framework for climate change?

It's encouraging to see such a large institution like NPS shifting to a more open-minded approach. It is the Anthropocene now and the RAD framework shows we are coming to terms with the inevitability of environmental change. Even if we are not trying to restore conditions to a particular historical baseline, historical data are important in informing where we are going and understanding how change has happened through time. For example, when the California red-legged frogs were introduced to Yosemite Valley, there were concerns that they couldn't adapt to that high elevation because they occur “historically” where there is no snow. But the park service put them there, and it turns out they hibernate just fine! Ecologists were thinking they only occur at foothill elevations based on recent memory, but if you expand your concept of time to include the last glacial maximum, of course they were hibernating there! It just takes a broader time perspective to see these frogs can be pretty resilient.

8. What is your favorite fossil? Nautilus shells bring me joy—their spirals are so beautiful.

Student Section

Check out the CPN Blog and Student Resources Database



Announcing the launch of the CPN blog

The Student Panel is thrilled to announce the launch of the CPN blog! The CPN blog is a cooperatively run portion of the CPN website where network members can submit content relating to Conservation Paleobiology and adjacent disciplines. This includes sharing news about your research, recent publications, passion projects, or even about yourself via our “Meet the Scientist” features. On the back end of the CPN blog is Student Panel member Kristin Oliver who curates, organizes, and edits your content.

The primary goals of the CPN blog are to disseminate knowledge among peers and facilitate the sharing of experiences in a low-stakes environment. This is a space for students and other early career researchers in the network to pursue diverse avenues of science communication. Blog posts can take many forms, including “Meet the Scientist” introductions, experiential posts (e.g., experiences as a Fulbright scholar), and advice or op-eds (e.g., thoughts on taking time off between undergraduate and graduate programs).

Interested in submitting a blog post or writing for the blog? You can contribute written, visual, or multimedia content by contacting Kristin Oliver (kaoliver@sfu.ca). Kristin is also open to discussing potential blog post topics if you would prefer to work through ideas with her prior to submitting a piece.

The blog is now live and can be accessed at: <https://conservationpaleorcn.org/blog/>

A repository of student resources

Also, don't forget to check out the Student Resources Database, a list of resources about all things conservation paleobiology! The database includes job openings, fellowships, grants, workshops, short courses, conferences, and open access resources. Over the last couple of months, we have been working hard to expand the database and make it more user-friendly.

Want to join the team? We are recruiting 3-4 student volunteers from different academic disciplines to help us update and maintain the database. If you have any suggestions or are interested in getting involved, please contact Carli Peters (students.cpn@gmail.com).

To view the database, please visit our resources page: <https://conservationpaleorcn.org/resources/>

To contribute resources, please fill out this form: <https://forms.gle/aMD1WDfrRkWgXUmH6>

Newsletter Editorial Team: Thanks Fernanda, Welcome Laura and Darja!

We would like to thank **Fernanda Cabrera** for her service to the CPN newsletter team. Fernanda, a student in the Department of Paleontology at Universidad de la República, Uruguay, was with the newsletter team for over a year and helped us develop the first seven issues. Thanks for all of your help Fernanda!

We are excited to welcome new CPN newsletter editors **Laura Hemmingham** and **Darja Dankina**. Laura is a student in the Department of Geography at Royal Holloway University of London. She is studying the dietary ecology of Quaternary deer species with a view to apply this in a conservation setting. Darja is a student in the Department of Geology and Mineralogy and Vilnius University, Lithuania. She is working with Paleozoic vertebrates such as Permian fishes based on Zechstein Basin.

We are excited to have them joining our newsletter team! As usual, we look forward to any recommendations you will like us to cover in the newsletter.



Fernanda Cabrera

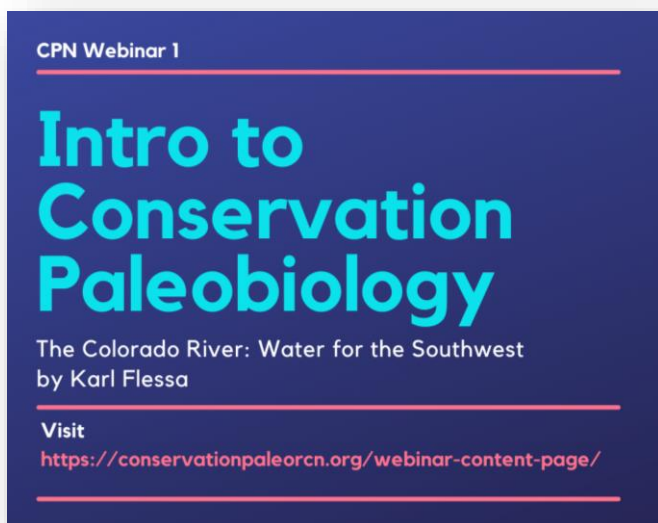


Laura Hemmingham



Darja Dankina

Don't Forget About the CPN Webinar



As the Fall 2021 semester approaches, don't forget to check out the first CPN webinar intended for students, instructors, and anyone interested in conservation paleo!

This free webinar is the first in a series focusing on Conservation Paleobiology topics.

Go to:

<https://conservationpaleorcn.org/webinar-content-page/>

Postcards from the Field

In this feature of our newsletter, we showcase members' research in the field, lab, or other setting.

Please submit your "postcards" with approximately 100 words of text to us at conservationpaleo@floridamuseum.ufl.edu.

Note that if we run out of space to fit your postcard into the upcoming newsletter, it will be included in a subsequent newsletter. Submissions might also be featured as blog and social media posts. Thank you in advance for your contributions!

Olivia Olson (BA student) Middlebury College, Vermont, USA

I'm Olivia, an undergraduate researcher working with Drs. Alexis Mychajliw (Middlebury) and Courtney Hofman (Univ. of Oklahoma) as part of a team exploring the ecological and cultural impacts of the North American fur trade. Here we are in Blue Hill, Maine, where we stopped to look for a shell midden during our recent road trip. We visited numerous middens (also known as shell heaps), which are important cultural spaces that have massive mixtures of shell and bone, and may contain artifacts. Along the way, we spoke with local naturalists, trappers, and archaeologists. My thesis is focused on the Sea Mink, the sister taxon of the American Mink that went extinct 100 years ago. This summer I'll be conducting faunal analyses for two middens from Penobscot Bay, paying particular attention to the mink specimens I find. This work will help us understand the relationships between coastal furbearing mammals and indigenous communities. Our study will identify faunal traits and human practices that lead to resilience or vulnerability, thus informing management strategies.

"This work will help us understand the relationships between coastal furbearing mammals and indigenous communities."



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Are you interested in:

- ...contributing to **Postcards from the Field?**
- ...sharing a recent publication as a **Research Highlight?**
- ...being featured in a **Practitioner's Perspective** piece?
- ...providing other content suggestions for this newsletter?

If yes, please email us at conservationpaleo@floridamuseum.ufl.edu

Invite Your Colleagues to Join our Network!

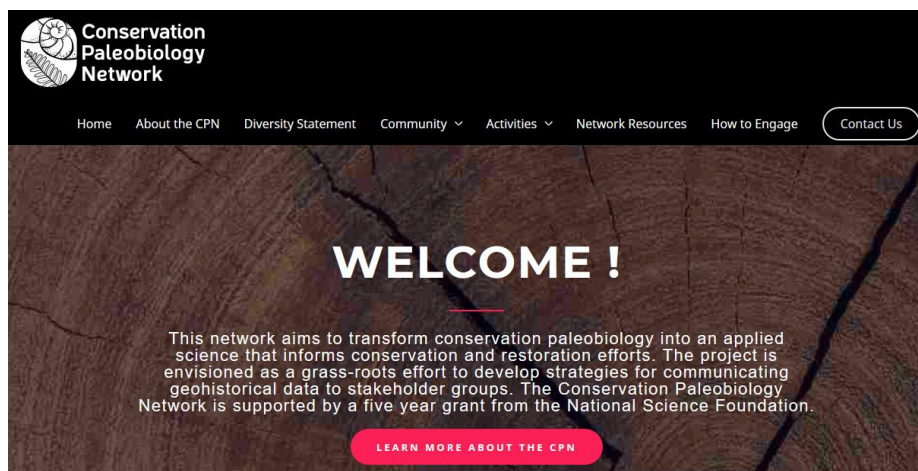
If you know people who might be interested in our network, please invite them to join. You can use the link below to extend your invitation on behalf of our network.

By joining the network, you become a member of our Community of Practice. The membership does not impose any obligations, but enables participants to engage fully in network activities. Members will be able to:

1. Participate in the CPN mailing list
2. Nominate and self-nominate for committees and panels
3. Submit announcements for publication in the CPN Newsletter
4. Apply to participate in the CPN activities such as Field Courses
5. Submit proposals for CPN field courses and CPN working groups
6. View CPN webinars and submit proposals for webinar modules

To join please go to our website and select "Join the Network".

Visit the website! <https://conservationpaleorcn.org/>



E-mail us at: conservationpaleo@floridamuseum.ufl.edu