Newsletter of the Conservation Paleobiology Network

Issue #7
May 2021

CPN Newsletter

Conservation Paleobiology Network

INSIDE THIS ISSUE:

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.

Supported by RCN-NSF Award: EAR-1922562

A word from the Diversity, Equity, Inclusion Panel: Who We Are and What We Do

By CPN Diversity, Equity, Inclusion Panel

The Diversity, Equity, and Inclusion (DEI) panel works to integrate DEI values into all the CPN's operations. This is with the vision that members will carry these values into their respective fields, conservation engagement, and interactions with each other and those within the communities they work.

In collaboration with the CPN leadership, the panel will strive to create a collegial expectation of accountability whereby members of the CPN consistently recognize the contributions of and create opportunities for underrepresented and marginalized groups in Science ,Technology, Engineering, and Mathematics (STEM); cultivate scientific practices and community values that reject colonialist or extractive historical methods; and foster an inclusive environment, where the CPN is made accessible to everyone who would like to participate.

The CPN has created a list of short-term and long-term goals that will guide the operations of this and other panels in upholding DEI as a central tenet of the CPN's aim of transforming conservation paleobiology into an applied science that informs conservation and restoration efforts.

Sincerely, your DEI Panel Members:

Mairin Balisi; La Brea Tar Pits and Museum, Natural History Museum of L.A. County
Nicole Cannarozzi (Panel Co-Chair); University of Florida
Kadane Coates; University of the West Indies at Mona
Larisa Grawe DeSantis; Vanderbilt University
Amanda Godbold; University of Southern California
Bushra Hussaini; American Museum of Natural History
Michelle LeFebvre; University of Florida
Anita Marshall (Panel Co-Chair); University of Florida
Elizabeth Sibert; Yale Institute for Biospheric Sciences
Maria Viteri; Stanford University

For more info about the DEI panel, please visit:
https://conservationpaleorcn.org/diversity-equity-inclusion-panel/

You can also find resources to support social justice and antiracism on our resources page here: https://conservationpaleorcn.org/resources/

Conservation Paleobiology Research Highlight

By Matthew Adeleye (PhD candidate, Australian National University)

A quantitative assessment of long-term drivers of vegetation change in Southern Hemisphere temperate ecosystems

Many previous fossil pollen-based paleoecological studies have been conducted in temperate Australia and these studies have mainly attributed past vegetation changes to climate, fire and human land use. However, the spatio-temporal scale of the role of these biogeographic drivers remains unclear, as the quantitative assessments of these drivers are lacking in Australia. Also, the knowledge of vegetation resilience or stability in the past is currently lacking due to a lack of empirically validated threshold to define what is vegetation change and what is not.

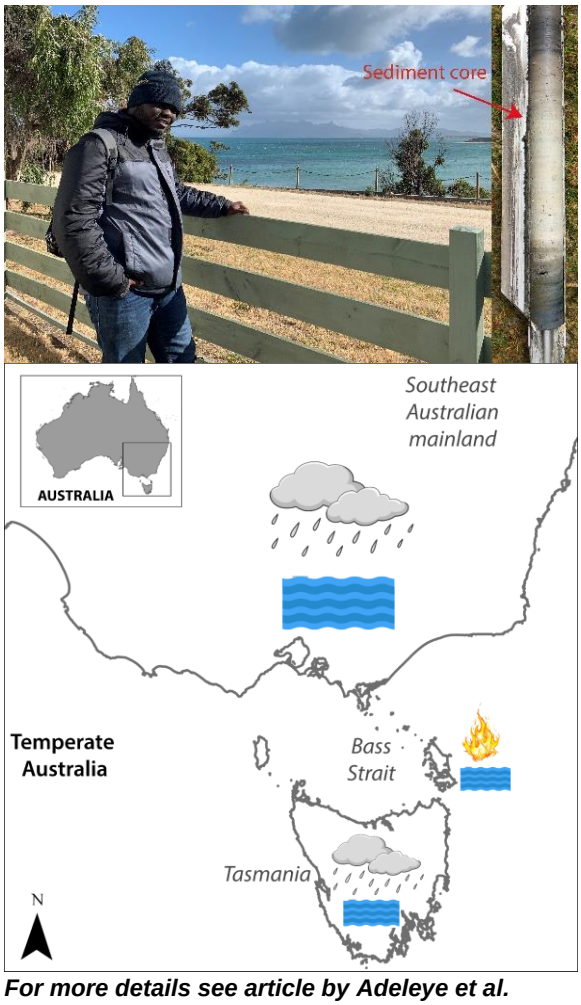
"This study involves a meta-analysis of multiple fossil pollen records across temperate Australia."

This study involves a meta-analysis of multiple fossil pollen records across temperate Australia to quantitatively estimate past regional vegetation change and diversity, as well as associated drivers for the first time in the Southern Hemisphere. A statistically validated threshold for vegetation change was also derived for the first time the Southern Hemisphere, and this threshold value is comparable to Northern Hemisphere estimates. Pollen was also statistically validated as an index for changes in vegetation and floristic diversity for the first time in the Southern Hemisphere.

The quantitative results of spatio-temporal regional vegetation change and associated drivers presented in this study provide insights into the regional dynamics and future changes in temperate ecosystems in Australia and the Southern Hemisphere at large. Changes in moisture availability and sea levels were found to be the major drivers of vegetation change across Australian temperate ecosystems in the past, while fire was mainly important in island areas (Figure b). The concept of Intermediate Disturbance Hypothesis was also tested, which is the relationship between disturbance and ecosystem diversity.

The hypothesis suggests moderate disturbance promotes high diversity in ecosystems, while too low or too high disturbance reduces diversity. In this study, it was found that moderate fires modulated by humans (Indigenous people) in the past promoted high floristic richness in Australian temperate vegetation.

Photo captions: Matthew Adeleye on one of the larger islands of the Bass Strait for sediment core collections for some of the pollen records used in this study. Photo by Feli Hopf (top). Major drivers of ecosystem change across temperate Australia regions in the past, which include change in available moisture and sea levels, while fire was mainly important only on the Bass Strait islands (bottom).



For more details see article by Adeleye et al. (2020) in Global Ecology and Biogeography: https://doi.org/10.1111/geb.13232

First published online: May 2021

Practitioner Perspective *Interview by Alexis Mychajliw*

Featured practitioner: Kent McFarland

Kent McFarland is a conservation biologist with the Vermont Center for Ecostudies, a non-profit organization which he co-founded in 2007. He holds an MS from Antioch University New England. He has been widely recognized for his work in conservation by organizations such as the American Ornithological Society and the State of Vermont Endangered Species Committee. His avian expertise is reflected in numerous publications in venues such as The Auk and The Condor, and co-authorship of book *Birds of the Dominican Republic and Haiti*. Not only a researcher, Kent is committed to inspiring natural history appreciation in others through science communication efforts such as photography, mobile field guides, and co-hosting Outdoor Radio, a monthly program on Vermont Public Radio.

Photo caption: Kent surveying birds in the field.

1. Can you tell me a little about the Vermont Center for Ecostudies (VCE)?

Our mission is to advance the conservation of wildlife across the Americas through research, monitoring, and community engagement. While a large focus of our work is on birds, we are increasingly expanding our work to collaboratively document all forms of biodiversity in the Green Mountain State through our Vermont Atlas of Life Project (run on iNaturalist, >5 million records).

We have some projects on iNaturalist but we do all kinds of work and use many different tools. We also run Vermont eBird and eButterfly too. Here's some of our crowd-sourced efforts: https://val.vtecostudies.org/crowdsource/ and then specific groups we have or are atlasing: https://val.vtecostudies.org/wildlife-atlases/. And we have little missions too: https://val.vtecostudies.org/missions/. So we have a lot going on!

2. How does the VCE work with non-academic communities?

Almost all of our projects are done with community ("citizen") science methods – it is the only way we can get it all done! We have hundreds of thousands of observations now because people are starting to hike with their smart phones. Aside from doing the science itself, we hope our iNaturalist workshops encourage people to become fascinated by the biodiversity in their own backyards.

3. What baselines does VCE use to guide its research priorities? If you could have any historical data, what would it be?

We are always questioning baselines. What date do you manage to— Pre-European? 20 years ago? When there was little forest left in VT in 1875? Paleontological and archaeological data would be amazing for some places in VT. For example, if we are trying to restore Atlantic salmon, we need to know which rivers it used to run in and where they were breeding.

Practitioner Perspective continued…

4. Can you tell us about the Vermont Atlas of Life? How does it incorporate historical data?

As part of the VT state advisory group focused on invertebrates, I've been asked to help make decisions about species listings. But it turns out that many species had little to no data available. But my experience working with birds and eBird encouraged me to develop a centralized place for observations and taxonomy, one that could also include all the historical data floating around the state. Our first initiatives, the VT Butterfly Atlas and then the Bumblebee Atlas, were hugely successful at providing information for conservation ranking and baselines for future monitoring. We just published a paper that detected bumble bee declines when comparing our new baseline to historic records in previously scattered museum collections. And our ongoing Wild Bee Survey has documented the presence of over 50 species new to VT.

5. What is the most surprising thing you've found by partnering with community scientists?

One great story is of a fly fisherman who took a photo of a dragonfly while fishing and it ended up on our project on iNaturalist. It turned out to be a tiger spiketail dragonfly, which is new for VT! Based on this iNaturalist record, we were able to find a breeding population in forested seeps nearby, and now we need to come up with best management practices for foresters to help protect this regional conservation concern species.

6. What advice would you have for students seeking to translate their research into conservation application?

There is very little science that can't be used to inform conservation in some way. Even research on a common species can be applied to rare species. My advice is to just reach out: find out who is doing what and start talking to them. Even if you think what you are working on is not relevant to conservation, I bet there is an application or a way to tweak what you are doing to make it connect.

Photo caption: A Brown-belted Bumble Bee on a Purple Coneflower, by Kent McFarland.

7. What is your favorite fossil?

I grew up in western Pennsylvania, where you can find all kinds of fossils in the shale. When I was 12 and fishing in a little stream, I found a piece of rock that had this perfect print of what looked like a trunk of a tree fern. When I think of fossils I always think back to that moment. I left it there for someone else to find and wonder too.

Student Section

Take-aways from the First CPN All-Hands Student Meeting

The Student Panel hosted the first virtual CPN All-Hands Student Meeting in mid-April, and we were thrilled at the level of engagement from the student community. Around 30 students attended the live meeting via Zoom, with 24 additional views of the recording to date. During the meeting, we presented an overview of the network, highlighted ways to get involved in student activities, introduced the Student Panel members and their working groups, and facilitated conversations through small breakout sessions that were organized around three themes (Applying paleo research to policy and conservation, Data science and visualization, and Science communication). The meeting also included a brief presentation from the CPN Principal Investigator, Dr. Michal Kowalewski, about the origins and mission of the CPN at large.

We hope that the breakout sessions, although brief, sparked some thoughtful conversations. We've created a channel for each breakout theme in the CPN Student Slack group to continue this dialogue. You can sign up for the Slack group here if you haven't done so already. Our Slack group membership has reached nearly 100 students, which is fantastic!

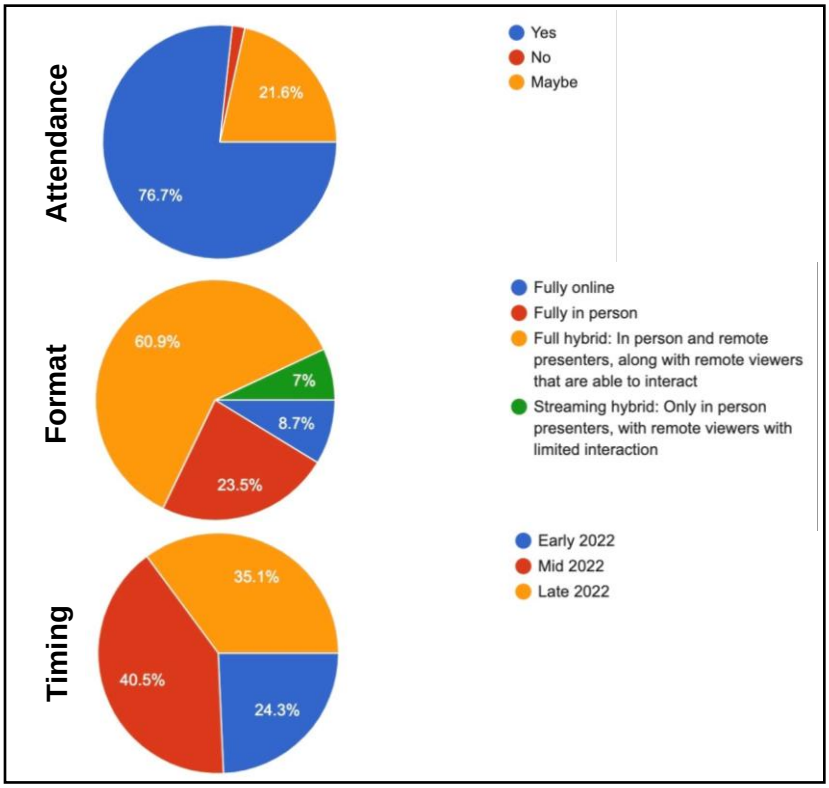
If you were unable to attend the meeting, fear not - there will be future opportunities to participate in student activities. We plan to run these events at least biannually in addition to hosting other informal virtual gatherings, during which we can dive deeper into topics of mutual interest and invite guest speakers. If you would like to watch the recording of the All-Hands Meeting, please contact sudents.cpn@gmail.com to request access.

In the meantime, we would love to hear from you about how the meeting went and what types of events you would like to see organized by the Student Panel in the future. We are soliciting anonymous feedback through this short survey, which will help shape these future events. You can submit ideas even if you were unable to attend the meeting.

Lastly, please check out the Slack group and the CPN student activities website to stay up-to-date with student announcements and resources. Thanks for your continued support and participation in the student community!

CPN Conference: Survey Results and Panel Recommendations

Thank you to everyone who filled out our survey about the CPN Symposium/Meeting/Conference! Below is a summary of survey results, and recommendations from the panel.



Meeting Format

The majority of survey respondents support a hybrid meeting. Nevertheless, there are conflicting thoughts on this, brought about principally by: (1) The uncertainty of covid restrictions, especially outside the US where vaccine roll-out is considerably slower. (2) The widespread feeling that in-person meetings bring great benefits. (3) The fact that hybrid meetings will be hard to organize and make effective and valuable for all participants. (4) The benefits of a completely online meeting for social, economic and geographic inclusivity and the reduced carbon emissions.

There was consensus amongst the panel that a hybrid meeting would only be successful if professional organizational support and expertise were in place. Such meetings are notoriously difficult to do well (we have all seen them fail) and are the most expensive option.

Having said this, many in the panel and the CPN membership clearly value the benefits of connection and interaction that can happen at in person meetings. We recognize this can be difficult to effectively develop in a hybrid or fully online meeting unless done creatively by professionals. The panel therefore recommends that if a hybrid or fully online meeting is decided, that professionals with demonstrated experience in online meetings are contracted.

Cost Structure

Although the format partially dictates the cost of the meeting, the panel strongly recommends that student attendance is subsidized or made free, and this should be extended to individuals from low-income countries. If a hybrid meeting is employed, the panel thought online attendees should pay less than in-person attendees. There could be a different cost structure depending on professional status, economic status, and whether individuals attend online or in person.

Timing of meeting

Both participants of the survey and members of the panel agreed that postponing the meeting would be appropriate if there is to be any in person component (i.e. hybrid or fully in person). This will allow for more time for the worst effects of COVID to pass, especially for those outside of countries that have slow vaccination programs. The panel agreed that late 2022 would be the most appropriate for a hybrid or fully in person format. Conflict with other meetings should be considered, but we realize that there will always be a conflict and moving ahead early to fix a date is important.

Postcards from the Field

Compiled by Fernanda Cabrera and Jaleigh Pier

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 Fernanda Cabrera, fcabrera@fcien.edu.uy, and cc 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!

Shamindri Tennakoon (PhD Candidate) Florida Museum of Natural History, Department of Biology, University of Florida

This photograph was taken at the Sea Hag Marina, Steinhatchee Florida after the members of the Kowalewski lab (Invertebrate Paleontology Division) at the Florida Museum of Natural History returned from a SCUBA sampling trip to collect sediment samples and echinoid specimens for Shamindri Tennakoon's and Fatemah Jamal's dissertation research. Shamindri is a PhD candidate in Zoology at the Department of Biology and the Florida Museum of Natural History, University of Florida. Shamindri was carrying out a project which was a comparison of dead and living mollusk assemblages at the Suwannee Regional Reef System in the Gulf of Mexico, where the goal was to determine the decadal scale responses of the local faunal communities to the establishment of the reef system.

SCUBA sampling trip to collect sediment samples and echinoid specimens. The goal was to determine the decadal scale responses of the local faunal communities to the establishment of the reef system.

Florida Museum of
Natural History
University of Florida
1659 Museum Road
Gainesville,
Florida 32611
USA

Conservation Paleobiology Network

Newsletter Editorial Team:

Fernanda Cabrera
Sahale Casebolt
Alexis Mychajliw
Jaleigh Pier

Newsletter Advisor from CPN Steering Committee:

Carlos Cintra Buenrostro

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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!

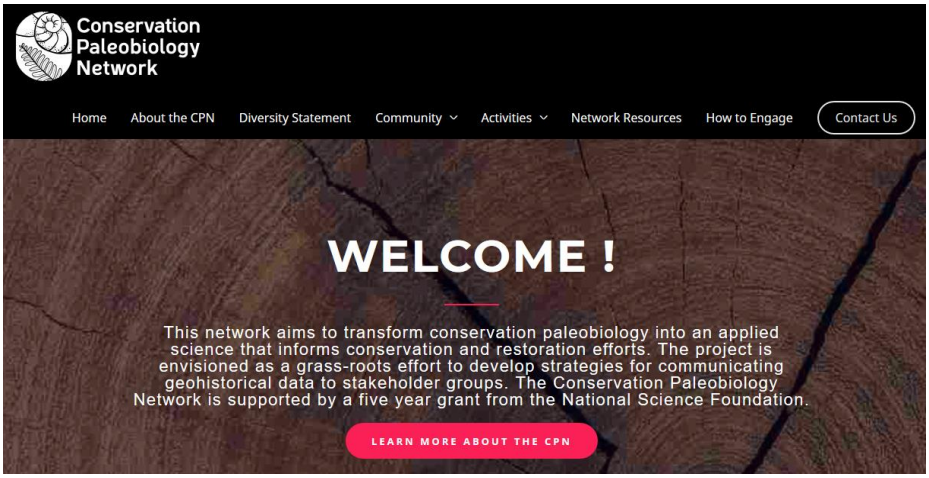
If you know people who might be interested in our network, please invite them to join. You can use the link below to extend your invitation on behalf of our network.

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

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