

CPN Newsletter



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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
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Get involved with the CPN student community!

Compiled by Jaleigh Pier

The CPN student community is now over 145 members strong, spanning more than 90 institutions across 25 countries. The Student Panel was created to facilitate networking between students and other members of the network, represent student perspectives within the CPN leadership, and organize resources, workshops, and other community-building activities to help prepare students for careers in conservation paleobiology.

We welcome all students and postdoctoral scholars to participate in activities led by the Student Panel. Here are five ways to get involved:

1. **Join the CPN Student Slack Group** - The Slack group is a platform for you to connect with other students, initiate and contribute to discussions on topics of interest, stay up-to-date with network news, and share resources and announcements. Sign up [here](#) to join the group. To learn more, check out [this tutorial](#).
2. **Participate in online peer mentoring events** - Our mentoring program aims to support students who are preparing for conferences, provide a platform for students to promote their work, and facilitate networking and professional development. The next peer mentoring event will be held alongside [vEGU21](#) in April. Please contact Niklas Hohmann (Niklas.Hohmann@fau.de) if you are interested in participating.
3. ***UPCOMING* Read and contribute to the student blog** - The CPN Blog is a place to learn from colleagues about their conservation paleobiology-oriented careers as well as share tips, tricks, and experiences in both the academy and public/private sector(s). Currently, our main feature highlights scientists from across the network. Please contact Kristin Oliver (kaoliver@sfu.ca) with the subject line [CPN Blog](#) if you are interested in getting involved.
4. ***UPCOMING* Check out the student resources page** - The resources page is a curated, filterable list of fellowships, internships, field courses, workshops, and other funding opportunities. The page will launch this spring. In the meantime, we invite you to [submit opportunities](#) to be added to the list.
5. ***UPCOMING* All-hands student meeting** - This spring, the Student Panel will host an online town hall meeting open to all students in the network. During the event, you'll hear from panel members about upcoming activities, meet other students through breakout groups, and be given time to share your ideas for future Student Panel initiatives. Stay tuned for more details about the event and how to register.

You can learn more about upcoming student opportunities by visiting the [Student Activities webpage](#). To get in contact with the Student Panel, please direct any emails to students.cpn@gmail.com.

Conservation Paleobiology Research Highlight

By Paolo G. Albano
University of Vienna

Death assemblages uncover native biodiversity collapse in the Eastern Mediterranean

The Eastern Mediterranean has long been known for the invasion by tropical species due to the opening of the Suez Canal in 1869, the so-called “Lessepsian invasion”. Hundreds of species mostly from the Red Sea, have settled, especially on the shallow shelf of Egypt, Israel, Lebanon and Turkey, and many species have started to spread westward to Greece, Italy and even Spain. Much less attention has been devoted to a co-occurring phenomenon: the disappearance of native species. Because today’s Mediterranean fauna is mostly of temperate to boreal affinity, native species have naturally been at the limits of their thermal tolerance in the warmest parts of the basin, like the Israeli shelf. As water temperature has increased due to global warming, it quickly went beyond such limits triggering the collapse of native species populations.

As is the rule for many other marine ecosystems, observational data on the Israeli shallow shelf was scarce. Some quantitative data were available from the Smithsonian Institution-Hebrew University of Jerusalem joint program in the late 1960s–early 1970s, and the best long-term data are available only for the last ~15 years. How do we assess a useful baseline to compare today’s assemblages in an area with such a long story of human modification?

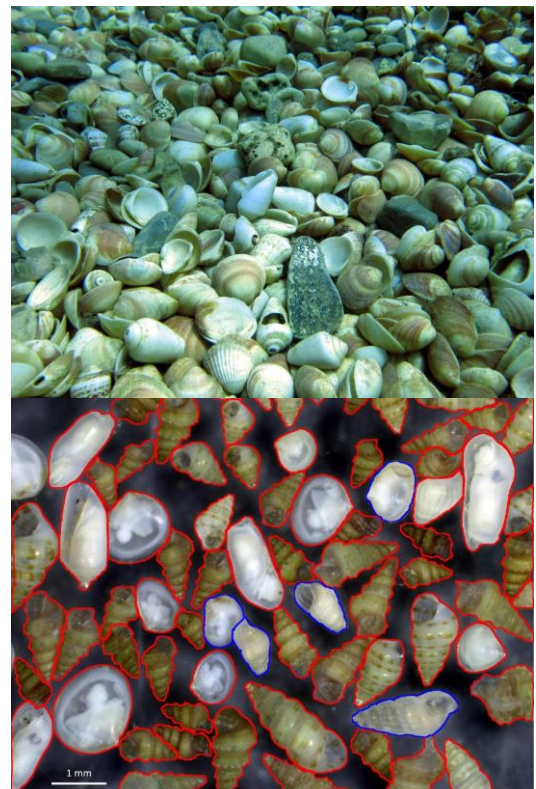
Death assemblages, the accumulations of skeletal parts on the seabed, offered the solution. Due to the high durability of molluscan shells in the sediments, our sampling focused on both molluscan living assemblages (a snapshot of today’s situation) and shelly death assemblages (to reconstruct historical species composition). We then radiocarbon dated the death assemblages to put our results into a chronological framework.

In our surveys, we recorded only 12% and 5% of historically present native species on shallow subtidal soft and hard substrates, respectively, documenting the largest regional-scale diversity loss in the oceans.

Additionally, radiocarbon dating suggested that this collapse is a relatively recent phenomenon, that has possibly accelerated in just the last couple of decades.

Integrating ecological questions and sampling designs with conservation paleobiology concepts and techniques enabled us to uncover this dramatic phenomenon. This kind of multidisciplinary approach is the way forward to quantify diversity loss in other areas and ecosystems, and to reconstruct baselines and trajectories of change to set meaningful restoration objectives.

Photo captions: Shelly death assemblages enable reconstructing species composition even of profoundly modified ecosystems (top). Molluscs of a sample from southern Israel: in red those belonging to species of Red Sea origin, in blue those of Mediterranean origin. Native species are very few whereas tropical ones are dominant, marking the transformation of the ecosystem (bottom).



For more details, please see the article by Albano et al. in the *Proceedings of the Royal Society B*: <https://royalsocietypublishing.org/doi/10.1098/rspb.2020.2469>

“This collapse is a relatively recent phenomenon, that has possibly accelerated in just the last couple of decades”

“This kind of multidisciplinary approach is the way forward to quantify diversity loss”

Practitioner Perspective Interview by Alexis Mychajliw

Featured practitioner: Sarah Truebe

Sarah Truebe is the Cave Resource Manager for Kartchner Caverns State Park and the Research and Science Coordinator for Arizona State Parks & Trails. Sarah began as an academic researcher and now works as a resource manager to conserve the very types of samples she once destructively analyzed! She received her PhD from the University of Arizona, where she studied paleoclimatology, monsoons, and isotope geochemistry. Prior to her current position, she was the Director of Community Engaged Learning in Environmental Sustainability at Stanford University, where she developed service-learning courses to connect faculty and student research with community organization needs. She is also a lifelong caver and volunteers with the Southern Arizona Rescue Association.



Photo caption: Sarah downloading cave temperature data from a HOBO data logger in an Arizona cave. Photo by Jansen Cardy.

1. Most people, when they hear “conservation”, probably think of plants and animals. What is cave conservation?

While it's true that some people think of caves as just rocks in the dark, caves are actually important ecosystems. Caves are often incredibly low nutrient environments, and this leads to a wide variety of survival strategies. Multiple trophic levels can be built off of even things like cricket poop and the fungus that grows on it! For example, we've documented ~100 species of invertebrates in Kartchner Caverns, and 16 of those are new to science.

2. And caves are also important to people too, right?

In the US, many people use caves for recreation. There are also “project cavers” who map caves by hand, go on expeditions, or set up and maintain extensive research projects on underground hydrology, ecosystems, and so forth. Understanding these different uses and values is important to scientists because not only can partnerships yield useful data (like discovering new extremophiles), but also, it means that different countries/cultures may have different restrictions regarding cave access for scientific purposes.

3. How have you applied your PhD training to your work at a state agency?

The “soft skills” I developed in graduate school, such as writing, supervising students, and project design and management, turned out to be extremely helpful. But nothing in my schooling prepared me for how to submit requisitions as a government employee! One cool part of my job is that I get to go caving for work, even if it's just about changing light bulbs or accessing an environmental monitoring station. I also helped design the proposal process for other scientists who want to do research at any Arizona State Park, taking into account my knowledge and experience of applying for permits and land access myself.

Practitioner Perspective continued...

4. Did you always plan on a non-academic career path?

No! But, during my PhD, I started to wonder if the usefulness of the data was really always worth the ethical tradeoff of destructive sampling, especially as a caver who enjoyed seeing stalagmites in caves. I realized that I was carrying out “loading dock” science, when in reality, I wanted to act as a bridge between academic and stakeholder communities and inform decisions about resource use, all while making sure we, as scientists, were even asking the right questions. When I started my “alt-ac” (careers for PhDs at traditional academic institutions) and post-ac (careers for PhDs outside of academia) career search, I looked for job ads with key phrases such as community engagement, science and society, and professor of practice.

5. What do you mean by “loading dock” science?

It is when scientists do a project that they find academically interesting and then put it on the “loading dock” (usually in the form of an academic article behind a paywall) for someone else to pick up and find an application for, making the results often unimplementable or irrelevant.

6. How did you make space to explore your interests in science and society as a PhD student?

I made it into a survey-based dissertation chapter by collaborating with a social scientist. It turns out that a majority of scientists surveyed also didn’t like destroying stalagmites but weren’t sure of the alternatives (a few creative labs were making stalagmite “casts” to put back in the caves, though!). I compiled these results into one double-sided page, with side #1 as a guide for scientists on providing value back to the cave before, during, and after sampling and side #2 as a series of questions that managers could ask scientists about their proposed sampling. My hope was to empower people on all sides to be able to think critically about cave conservation as integrated with paleoclimate science instead of in opposition to it. This 2-page framework is being used by the Bureau of Land Management for caves management across the US.



Photo caption: Sarah’s favorite fossil, *Omphalotrochus*, found in a gated cave managed by the US Forest Service. Photo by Sarah Truebe.

7. What advice would you have for students?

Identify someone who currently has the job that you might want in the future, and ask them how they got there, and what skills they had to master to be competitive for that job. This is known as an “informational interview”. Then, use the time you have as a graduate student to start honing those skills.

8. What is your favorite fossil?

Omphalotrochus, a Permian gastropod found in Colina limestone – it is everywhere in Cave of the Bells (Arizona), and you can easily see it while caving.

What a year! Looking back on 2020 milestones for the CPN

Although we have faced some unforeseen challenges due to the COVID pandemic, thanks to the active participation of the conservation paleo community around the world, the network was able to accomplish a lot in 2020! Below is a list of 2020 highlights and some things we anticipate for 2021.

2020

Winter - The initial three CPN panels are established to develop field courses, working groups, and webinars, as specified in the original National Science Foundation proposal

Spring - Website is created and the Conservation Paleobiology Network is officially launched!

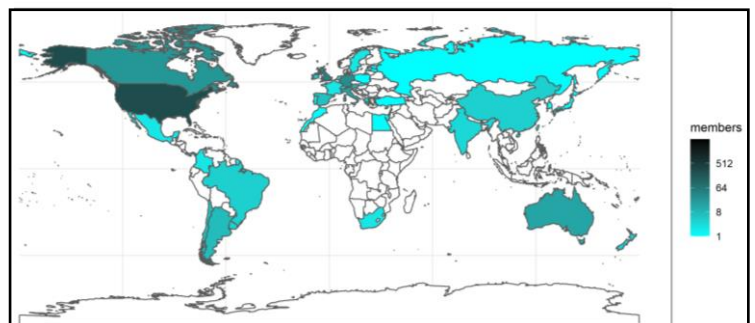
Spring – The network reaches its first 100 members

Spring – Three new panels (Student, Diversity/Equity/Inclusion, and Annual Symposium) are conceptualized and established

Spring/Summer – Newsletter editorial team, social media, and website blog are established. First issue of the bimonthly CPN newsletter is distributed

Fall – The network member base continues to expand, as new members join and panels begin to refine their respective tasks/goals.

Winter – The network reaches 500+ members, representing over 40 countries!



2021

With your help, we hope to continue to expand, evolve, and move forward with our network in the upcoming year. Below are some things we hope to accomplish in 2021:

Working Groups funded and initiated (pre-proposals already submitted, reviews ongoing), **Annual Symposium** as early as the end of 2021 (potentially virtual hybrid), first **Webinars** distributed, first **Field Course** (potentially virtual) implemented, additional **Community Building** activities (peer mentoring, etc.)... and possibly **New Initiatives** that members will think of and help develop.

We are excited to see what direction the new year takes us!

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!

Natalia A. Villavicencio (PhD) Pontificia Universidad Católica de Chile. Santiago de Chile, Chile

The former Laguna de Tagua Tagua (~34°26'S) became known in 1968 and 1994 due to the finds of late Pleistocene sites that revealed the processing and consumption of extinct megafauna by the first human settlers in Central Chile. In December 2019 we re-excavated the area with the aim of finding new sites to apply advanced scientific approaches (e.g., stable isotopes, aDNA) and get a more complete understanding of the evolution of this Mediterranean ecosystem, and the human impacts on it, from the Late Pleistocene to the present. In the picture: the team at the new site Tagua Tagua 3.



From left to right, Top: C.Meyer, S.Soto-Acuña, J.Alarcón, M.Frugone, J.Blanco, R.Labarca (PI), O.Véliz, G.Aliaga, P.Soto-Huenchuman. Bottom: E.González-Guarda (PI), C.Godoy, A.Lizama, N.Villavicencio, R.Díaz. Others: K.Burton, F.Suazo, L.Vilches.



Mariana Mondini (PhD), National University of Córdoba and University of Buenos Aires, Argentina

This is Los Viscos archaeological site in the 2018 field season. It is in El Bolsón valley, a beautiful Andean area over 2500 m a.s.l. in Catamarca, Argentina. The CIIVAC team (Colectivo Interdisciplinario e Intercultural de los Valles Altos de Catamarca) has been doing archaeological, palaeoenvironmental and ethnographic research there for 30 years now, from an interdisciplinary and intercultural perspective. As a zooarchaeologist and taphonomist, I lead a sub-team investigating human-animal interactions in the long term. By studying all kinds of faunal remains, we aim at finding out about the impact of introduced species, among other issues. Conservation is one of our issues of interest and concern, and we believe historical disciplines have a key role to play about it.

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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!

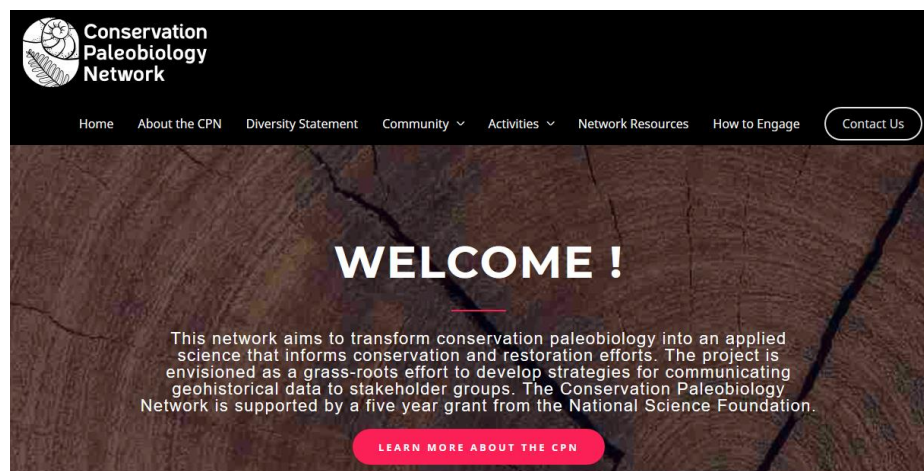
If you know people who might be interested in our network, please invite them to join. You can use the link below to extend your invitation on behalf of our network.

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 and online forum
2. Vote on future elections to CPN committees and panels
3. Nominate and self-nominate for committees and panels
4. Submit announcements for publication on the CPN website
5. Apply to participate in the CPN activities
6. Submit proposals for CPN field courses and CPN working groups
7. Submit proposals for webinar modules

To join please go to: <https://conservationpaleorcn.org/contact/>

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



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