Title:

The Neotoma Paleoecology Database - Current Infrastructure, Ongoing Challenges, and Future Directions

Abstract:

The Neotoma Paleoecology Database (www.neotomadb.org) is an open-access, community-curated, relational database that is a repository for terrestrial fossil data from the last 20 million yrs of Earth's history (the Neogene and Quaternary Periods). The database supports multiple data types, such as diatoms, testate amoebae, pollen and spores, plant macrofossils, ostracodes, insects, macroinvertebrates, and vertebrates, as well as geochronological data, organic biomarkers, stable isotopes, and specimen-level data. Given its breadth, it has emerged as a key resource supporting interdisciplinary global change research. Currently the database includes >3.8 million observations, >17,000 datasets, and >9,200 sites. Neotoma has a distributed governance structure supported by a central organizing committee, such that many people from different research communities can participate in multiple ways in the database community. Some of the key challenges ahead include: 1) funding sustainability, particularly related to supporting the geoinformaticists necessary for database maintenance and development, 2) development of easy-to-use, scalable, extendable, multi-platform input and upload tools that support data validation and quality control, 3) science-driven data-mobilization or data-rescue campaigns, and 4) reducing data friction along the pipeline from collection to final archiving.

Bio:

Dr. Jessica Blois is a paleoecologist interested in understanding the factors contributing to changes in genes, species, and communities across time and space, using small mammals and/or vegetation over the last 50,000 years in North America as study systems. Dr. Blois is particularly focused on examining the relative roles of environmental versus biotic drivers of biodiversity change, in merging data from different kinds of fossil proxies such as mammal bones and plant macrofossils, and in applying perspectives from the past to help conserve biodiversity. Her work combines field work aimed at broadening our samples of fossil and modern mammals, ancient and modern DNA to understand how genetic diversity is structured spatiotemporally, and paleobiogeographic modeling. Dr. Blois also works with the Neotoma Paleoecology Database to develop the paleoinformatic resources necessary to support this and other work.

Dr. Blois is currently an Associate Professor in Life and Environmental Sciences at UC Merced. She received her undergraduate degree in Ecology, Behavior, and Evolution from the University of California, San Diego and then worked for a few years as a biological technician for the U.S. Forest Service in Oregon and California. She then went on for graduate work, first to earn her M.A. in Biological Sciences from Humboldt State University in 2005, then her PhD in Biology from Stanford University in 2009. She worked as a postdoctoral research associate at the University of Wisconsin, Madison before starting her faculty position at UC Merced in January 2013.