THE NEOTOMA PALEOECOLOGICAL DATABASE AS A RESOURCE FOR ADDRESSING LARGE SCALE ECOLOGICAL CHANGE ISSUES

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Many ecological issues have been addressed using paleoecological approaches. Most focus on individual sites or smaller regions. Broader scale issues (e.g., climate change) can be addressed by combining paleoecological data for large geographic regions, but it is difficult to create combined datasets for this purpose. The Neotoma Paleoecology Database (www.neotomadb.org), a community-curated data resource supporting global change research, provides access to existing diatom paleoecological data for over 2000 sites. This presentation will summarize data currently available and show examples of how data can be acquired and used.

Neotoma contains diatom counts, chronology, and water chemistry data for stratigraphic cores, surface sample calibration sets and top-bottom studies from sites in North and South America. Data can be found and downloaded using the Explorer application on the Neotoma website and the Neotoma R application.

Neotoma can be used to explore and map distributions of individual or groups of taxa (e.g., complexes, ecological categories) representing current and past time intervals; it can generate stratigraphic diagrams that can be used to compare change in relative abundance of taxa at multiple sites over time and space (e.g., latitude and elevation). These tools and others can be used to address many questions, e.g., changes in cell size as a function of warming, change in wind-mixing / stratification patterns, change in nutrient concentrations, recovery from acidification and others. Another use of Neotoma is the ongoing effort to create a comprehensive dataset for the Northeast US for use by agency biologists in New England and nearby states to develop and test diatom metrics useful for lake management.