Lab 1:

Exploring Paleoecological Data with Neotoma Explorer

1. Lat: 43.4178; Long: -89.73205; Site ID: 666
2. A: Louisiana

B: New York

1. Wisconsin, Colorado, New Mexico, Iowa
2. A: 1437 sites, 1626 datasets

B: 1626 x (30 000/2) = 24,390,000 person-years; roughly 24,390 X1000person-years

1. It’s a temperate band with ideal growing conditions for wind pollinated trees, and features strings of lakes which can be assumed to undergo continuous sedimentation
2. Mastodon tend to live in places with Spruce. It may be that they thrive in similar climatic conditions. Additionally, Spruce forests may have had fewer apex predators, or simply made it more difficult to hunt large mammals.
3. *Picea* experienced a shift into latitudes farther north, as well as a greater longitudinal range. Over the past 10 000 years especially, receding glaciers have opened up an increasingly large land area to the north, which was eventually colonized by Picea. Additionally, a warming climate following the last glacial period would have exerted environmental pressure from the south. These range shifts may have been facilitated by seed dispersal by animals that were slowly migrating north to “follow” the receding glaciers.
4. A. *Picea*

B. *Quercus*

1. 13 age controls; 11 are radiocarbon dates
2. Maher 1982; Bender et al. 1980
3. Quercus
4. I decided to map out *Zea mays* (Corn!) over the past 15 thousand years. Corn, being culturally and nutritionally significant for peoples all over the continent, has been well conserved over millennia and spread through human facilitated dispersal; not to mention it’s one of the most frustratingly wind pollinated crops known. After using the advanced taxon search function to find the species, I focused the map area on what is now the contiguous United States and ran four searches focused on: 1000-0BP (Search 5), 5000-2000BP (Search 6), 10000-7000BP (Search 7), and 15000-12000BP (Search 8). Nearing the end of the Ice Age, *Z. mays* pops up only in what is now Ohio. However, over the next ~5000 years, we get samples all through the Midwest and even the Gulf Coast. Over the past 1000 years, *Z. mays* makes appearances over wide areas east of the Rockies, especially concentrated in present-day Minnesota. Arguably, for a plant like Z. mays, tracking dispersal is a relatively unreliable method because humans tend be less predictable and faster moving. Of note are the lack of sites in the western US. This may be because drier conditions and higher altitudes prevented consistent sedimentation from occurring.

