

Name:  
Lab Day and Time:

**Geo 302D: Age of Dinosaurs**  
LAB 11: Vertebrate Paleontology Laboratory

**How to get to the VPL:**

The Vertebrate Paleontology Laboratory is located on the J.J. Pickle Research Campus in north Austin at the intersection of Burnet Road and Braker Lane. The main entrance is off Burnet Lane, but in order to park on the campus you must have a UT parking pass. If you do not have a parking pass you should take the PRC shuttle from campus (Dean Keeton and Speedway); a map of the shuttle route and times can be found at: [http://www.capmetro.org/riding/schedules\\_ut.asp](http://www.capmetro.org/riding/schedules_ut.asp) . The Lab is located at the end of Read Granberry on the right side; a map of the campus can be found at: <http://www.utexas.edu/maps/prc/> .

**VPL Assignment**

Welcome to the Vertebrate Paleontology Laboratory (VPL)! The VPL was founded in 1948 by emeritus professor John A. Wilson, and with around 1 million specimens, it ranks as the 7<sup>th</sup> largest vertebrate paleontology collection in North America. Fossil specimens in the collection range in age from the Ordovician to Recent, and they represent all of the major vertebrate taxa that you learned throughout the semester. For more information, visit the VPL's website: <http://www.utexas.edu/tmm/vpl/>.

As you go through the tour, be careful and please do not touch the fossils! They are very fragile and irreplaceable.

1. Look at the two specimens of *Alamosaurus* just outside the doors to the main collection. If you remember, you discovered both of these fossils at the Dino Pit, and now here they are, in the vertebrate collections. Which synapomorphy can you see in these specimens that suggests *Alamosaurus* is a member of Dinosauria?
  
2. As you pass through the doors of the main collection, you will see a cast of *Herrerasaurus* on your left. On your right is a shelf stocked with recent zebra skulls (*Equus*). In fact, the VPL has many recent vertebrate specimens (mostly housed on the top floor). Why would a paleontology collection filled with fossil vertebrates include specimens of modern, extant taxa?

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3. Rows of large cabinets filled with fossils extend down the center of the main floor of VPL. The cabinets are organized stratigraphically (i.e., fossils from the same age, formation, and locality are grouped together). Your TA will open a drawer for you, so you can see how our vertebrate fossils are stored. What is the advantage to organizing such a collection stratigraphically?

Are there any other ways to organize these fossils? If so, what would be the benefits of those methods?

4. Along the side wall of the main floor are numerous specimens of extinct proboscideans (elephant-like mammals). You uncovered *Mammuthus* and *Mammut* specimens at the Dino Pit. What differences can you see in the teeth between *Mammuthus* and *Mammut*?

5. Behind the building is a screenwashing station that VPL shares with the Texas Archaeological Research Laboratory (TARL). Why is screenwashing important?

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6. Let's move to the basement where the majority of the large fossils are stored. Along the outer wall of the basement are fossils from the Gulf Coastal Plains of Texas. Most of these fossils are large proboscideans, rhinoceroses and other mammals. Many of these fossils suffer from a phenomenon called "gypsum sickness", and others suffer from "pyrite disease". Why should these specimens not be stored up in the main collections?

7. The fossils in the basement of VPL are also arranged stratigraphically. Near one end of the basement is a series of field jackets and wooden crates. Inside each jacket is at least one vertebrate fossil collected in the field, waiting to be prepared out of the surrounding rock (more about this process in a bit). Many of the large jackets still contain portions of the *Alamosaurus* that you saw upstairs. What concerns face a collections manager when a large sauropod like this is brought into the collection?

8. Let's go back upstairs and visit the prep lab where plaster jackets are opened and the bones are removed from the rock. In the Dino Pit, you dug through sand, but try to imagine removing the fossils from the surrounding bedrock. It would take a great deal of time and patience, but the end result is worth it. Additionally, many of the fossils are molded and cast in this area. What are some reasons why we would cast our fossils?

9. Lastly, the fossils must be assigned unique catalogue numbers, and they are then accessioned into the collection. Today this is done by using a computer, and a searchable database of the collection is available online at the website given above. What are the benefits to having your catalogue online?