

GLY4155

Karst Features—field trip on campus

One of the most prominent features of Florida's surficial geology is the presence of well-developed karst topography formed as a result of dissolution of abundant limestone. These features are also very well developed here on campus. For this lab, you will go out and look at several karst features and answer the questions below. Hang onto your answers for future reference. There is also a problem at the end dealing with a map of campus. If you are interested in learning more about karst in this part of Florida, the following publication is very helpful:

http://fl.water.usgs.gov/PDF_files/cir1182_tihansky.pdf

This publication may also be helpful in answering some of the questions below. For the map question, if you have a problem seeing features on this map, you can go to the following website that allows you to search for features and zoom in on them:

<http://campusmap.ufl.edu/nonJava.jsp>

Stop #1: Gator Pond (between Little Hall and the Architecture Building). Gator Pond is another classic-shaped sinkhole like Green Pond.

- 1) Start out at a prominent rock next to a picnic table on the Northeast side of the pond (nearest the Southwest corner of Little Hall). Although it is a little unclear whether this rock is "in place" or whether it was moved here, it is typical of the upper portions of bedrock in karst systems (called epikarst). Describe the outer surface and shape of this rock. What do you think caused this appearance?

- 2) Sinkholes are important parts of the hydrologic cycle in karst areas and serve as important wetlands. Where do you think the water table is located here? What types of organisms seem to depend on the pond for their survival?

- 3) As you walk around the pond, note (and write down) examples of pollution you observe (also note the cavity near water's edge below the picnic table of the first stop; what is going on there?). Why should this be of concern?

Stop #2: Dickinson Hall. Go down the outdoor stairs to either side of the Main Entrance (Museum Road side) to the veranda behind the building. Then go left until you are under the east side of the concrete pedestrian bridge that runs behind (and connects to) Dickinson Hall.

- 1) Look up at the underside of the bridge right where it meets the building. Off of both the North and South sides are several "speleothems" hanging down. Although not technically speleothems because they are not in a cave, features exactly like these are found in many caves. Describe the speleothems.

2) What speleothem name would you give these features?

3) Describing how they formed based on what you see.

4) Dickinson Hall was completed in 1970, which gives an estimate of the maximum age of these speleothems. Growth rates for speleothems vary widely, although many of this type grow only a mm/year or less in length. Estimate the lengths of these speleothems and calculate a minimum growth rate (assuming the age of the building). Why might they have grown so fast?

Stop #3: Green Pond (South side of Reitz Union); Overlook from patios behind Reitz Union.

1) Green Pond is a classic-shaped circular sinkhole. It is likely that most of the sinkholes on campus are cover-subsidence sinkholes, but this one may be a cover collapse sinkhole. How are these types of sinkholes different, both in terms of the processes that form them and their appearance?

- 2) Based on what you see at Green Pond, what type of sinkhole do you think it is and what is your evidence?

Last question: the two sinkholes we visited are only some of the karst features on campus. Other notable sinkholes include:

Graham pond

Dairy Pond

Lake Alice (coalescence of three sinkholes)

Hume pond

Ponds near the Entomology/Herpetology Building

Note stops 1 and 3 on the map below as well as the other sinkholes listed above. Do you see a pattern (what is it)? Remember that karst features like sinkholes most often form where water movement is accentuated (that is, in regions of higher permeability and porosity). What do you think controls the distribution of sinkholes on campus?

