

Pitt Experiences in Wyoming:

GEOL 1950: Wyoming Field
Studies in Ecology and
Paleontology

www.abroad.pitt.edu/springcreek



- Class focuses on Pitt's own Spring Creek nature preserve located 45 minutes north of Laramie, as well as the Medicine Bow and Laramie mountains, and it tours various sites in northwestern Wyoming (e.g., Yellowstone and the Tetons).

Main Focus: Spring Creek Preserve



- The Spring Creek Preserve is ~6000 acres of Wyoming mixed grass prairie set out in a broad valley.

Main Focus: Spring Creek Preserve



- What at first seems barren and inhospitable will gradually reveal its secrets.



- A personal favorite: Horned lizards! Quite tame.

⁶ This guy really likes to dig.



- While-tailed prairie dogs are abundant.



- Also features huge golden eagles, various water birds, blue grasshoppers, and pronghorns (“antelope”).

Course Description

- The class features a roughly equal mix between hands-on studies of the modern ecology and of Mesozoic and Cenozoic paleoecology (fossil ecosystems).
- It first focuses on giving you a set of hands-on skills, and it culminates with week-long research projects that you design (in consultation with the instructors)
- In the ecology portions of the class you will learn how to:
 - Perform botanical surveys to, e.g., assess the impact of elevation and rainfall on plant communities and to see how grazing affects the biodiversity.
 - Set night cameras to survey the hidden diversity of Wyoming ecosystems and to, e.g., assess theories of predation on nighthawk nests.
 - And you will also learn to (next slides):

Stream Ecology



- Assess impacts of land disturbances on stream ecology by measuring the chemistry, flow velocity, and grain sizes of the stream, and identifying various indicator organisms.

Stream Ecology



- You never know what sorts of organisms you will find. Every day, in fact, is like a search for Easter eggs!

Small Mammal Ecology



- You will learn to set live traps to see what mammals are out when people are away.
- Helps to complete our understanding of total diversity of the property.

Bird Banding



- You will go bird banding. You will see how to use mist nets to trap birds without hurting them, and how to handle birds without harming them.

Bird Banding



- It is an amazing opportunity to be able to check out wild birds up close!
- And there is amazing diversity of birds out in Wyoming!

Not Just Digging!



- Similar exercises are performed in the crystal clear lakes and lodgepole pine forests of the Medicine Bow Mountains.

Not Just Digging!



- When the prairie gets too hot, the mountains are GREAT!

Archeology



- Two days of intensive archeology: Varies from year to year, but you will learn to identify and map artifacts at the surface.
- These are at first hard to spot, but they reveal fascinating details about how native peoples lived in this landscape.

Archeology



Left: A teepee ring: Rocks held down a teepee in the Wyoming winds.

- The Spring Creek property artifacts indicate that Native Americans lived in this landscape for some 9000 years!
- How did they do it? How did they affect the ecology of the region?
- Everyone does a class project, and you could do archeology.

Archeology



- Learn to use an atlatl to hurl a spear towards innocent bystanders wandering the University of Wyoming campus!

Archeology



- Or shoot arrows at them instead! Would Pitt allow this???

Paleoecology

- The paleoecology studies focus on the Mesozoic sedimentary rocks that feature both marine invertebrates and terrestrial vertebrates.
- Terrestrial vertebrates include dinosaurs from the famous Morrison Formation (Middle Jurassic), which has yielded some of the most famous dinosaurs in the Carnegie Museum (including *Diplodocus carnegii* a.k.a. 'Dippy')
- Thus, this class features actual dinosaur bone excavations.
- We also survey the overall geology of the Spring Creek property, the Medicine Bow Mountains, and elsewhere both because geology is cool and interesting in and of itself and in order to better see how geology can affect ecology.

22 Main Focus: Spring Creek Preserve The Paleocology Section



- This is famous Morrison Formation on Pitt's property.

23 Main Focus: Spring Creek Preserve



- Sauropod tail bones exposed at the surface.

24 Main Focus: Spring Creek Preserve



- Another dinosaur bone exposed at the surface.



- Here, various dinosaur bones are exposed in the main quarry ('Doc Stewart Quarry). Here a large limb bone and perhaps a rib are being exposed.

Geology off the Spring Creek Preserve



Measuring and describing a section



Sauropod trail (& swimming)

- There are a number of geology field trips off the property to collect fossils and to see the spectacular geology exposed in the mountains and valleys of SE Wyoming.

Geology off the Spring Creek Preserve



Stromatolites in the Medicine Bow Mountains

Geology off the Spring Creek Preserve



Two Vertical Folds, Side-by-Side, in the Medicine Bow Mountains



- On days off, the class can go to Laramie (a great college town), or the instructors know many great places to relax.

Wyoming: A Terrible Place



The class stays in the cabins of the Tyler Sims Outfitters set tight against the Medicine Bow Mountains.



Surrounded by elk,
cranes, and other
wildlife.



Not Just Digging!



- Camping on the Spring Creek property can be challenging.

Home Sweet Home



- So we have accommodations for protection from bad weather. Containers have windows, doors, bunkbeds, and a kitchen.

Not Just Digging!



- The stars are amazing at night on the property!

Not Just Digging!



- Last 10 days features a drive across Wyoming to see fossil sites, hot springs, badlands, a dinosaur museum, and the spectacular sites of Yellowstone and Tetons national parks.



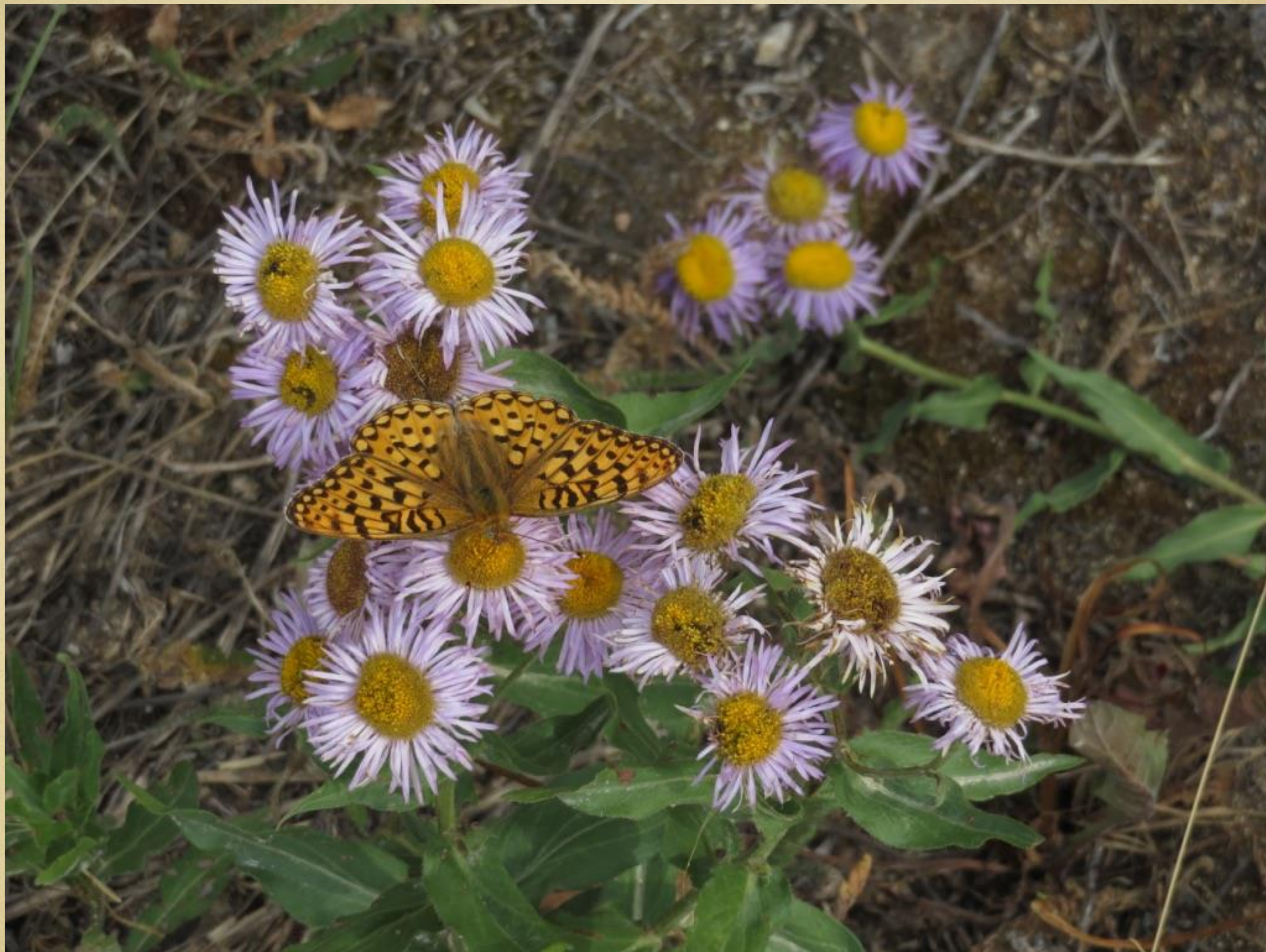
The Trip Around the State

The trip includes everything from fossil plant collecting to hiking and camping to various field exercises to a sampling of rural Wyoming and its many small towns.

But mostly, it features a never-ending array of amazing places to see and cool wildlife:



A shy snake



Diverse arrays of wild flowers are abundant in all of the higher elevation areas we visit.



A kiss from a golden mantled ground squirrel



The path unexpectedly became challenging. Water is COLD.



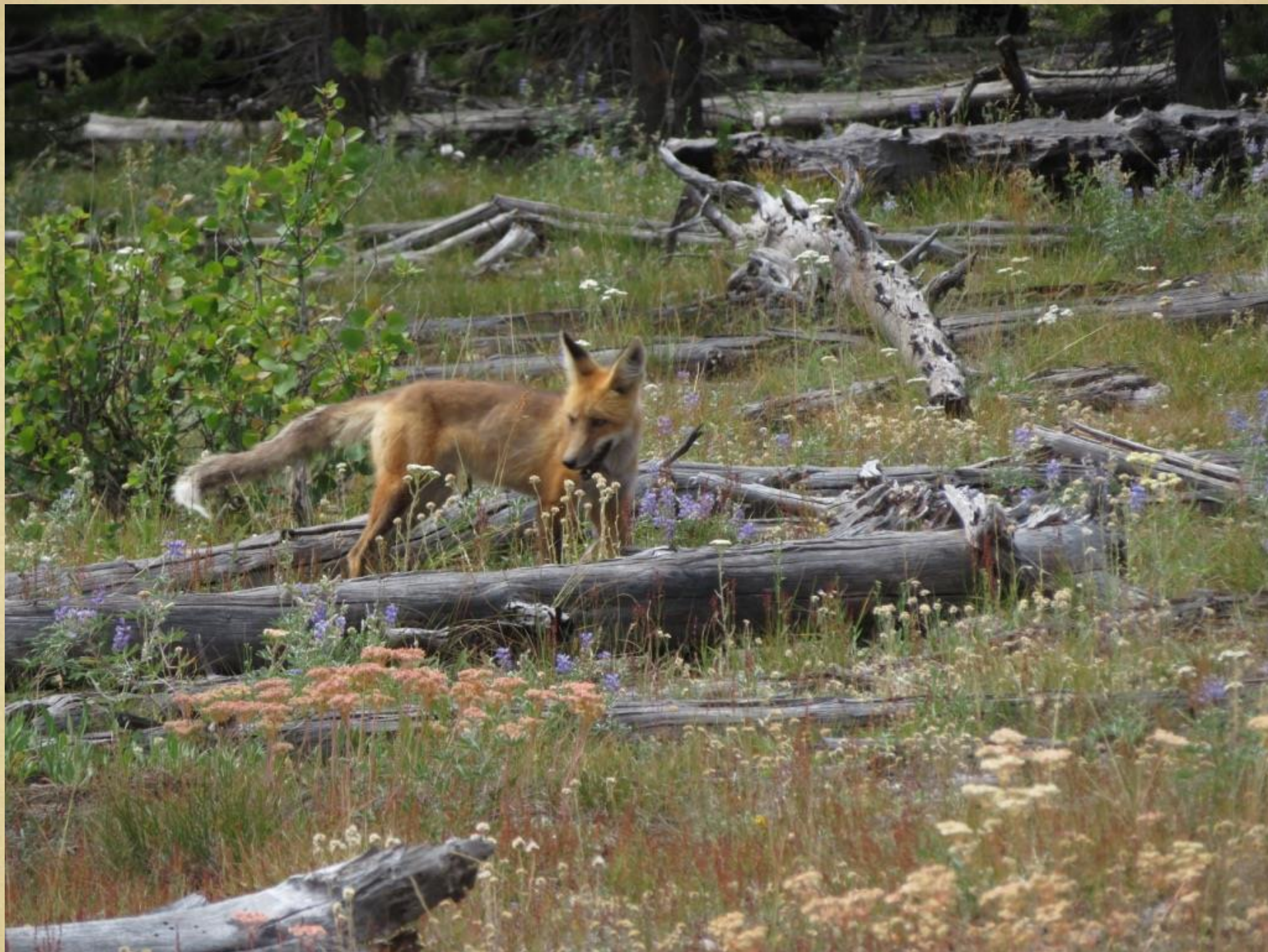
Beartooth Mountains, Montana



Grand Canyon of Yellowstone



Bison (obviously)



Fox on the hunt. Summer coat makes the foxes look unwell, alas.



Old Faithful and Trumpeter Swans



Mamma Moose in a lake near the Tetons



Young black bear in the Tetons



Baby ducks in Jenny Lake, Tetons

Wyoming: A Terrible Place



Least ground squirrel on moose skull/antlers, Tetons

Wyoming: A Terrible Place



Rock pika, Tetons

For more information:

- **Environmental Studies:** Counts for field class requirement.
- **Environmental Science:** Counts as required capstone class.
- **Geology:** 6 electives credits for the major (NOT field camp).
- **Biology:** 3 credits toward the major; counts as the field requirement. Remaining three credits count as general University electives.
- 6-credit course costs \$5900. Costs ~\$1000 more than 6 credits on campus, but \$1000 pays for *6 weeks of all room, board, and transportation around Wyoming!* (You pay to fly to Denver, ~1.5 hrs from Laramie, and take care of most everything else!)
- 2019 dates: June 23 to August 4th.
- To sign up, apply through the Study Away program located within the Study Abroad office: 802 William Pitt Union.

www.abroad.pitt.edu/springcreek

GEOL 1930 Yellowstone Field Class vs. GEOL 1950 Wyoming Field Studies

- Both classes feature a LOT of time spent out in nature. Both provide many opportunities to observe a diverse array of birds, mammals, and reptiles in the wild, as well a host of plants in varied ecosystems.
- The Wyoming Field Studies class is longer, and you live both in the prairie and near a mountain stream/woods, so I think you develop a more intimate connection with the landscapes of Wyoming in the Wyoming Field Studies class.
- The Yellowstone Field Class has more of a humanities/public policy focus, whereas the Wyoming Field Studies class has more of a science focus and develops a range of hands-on field skills.
- Neither has pre-requisites, so you should be able to excel at either one!

Wyoming: A Terrible Place

