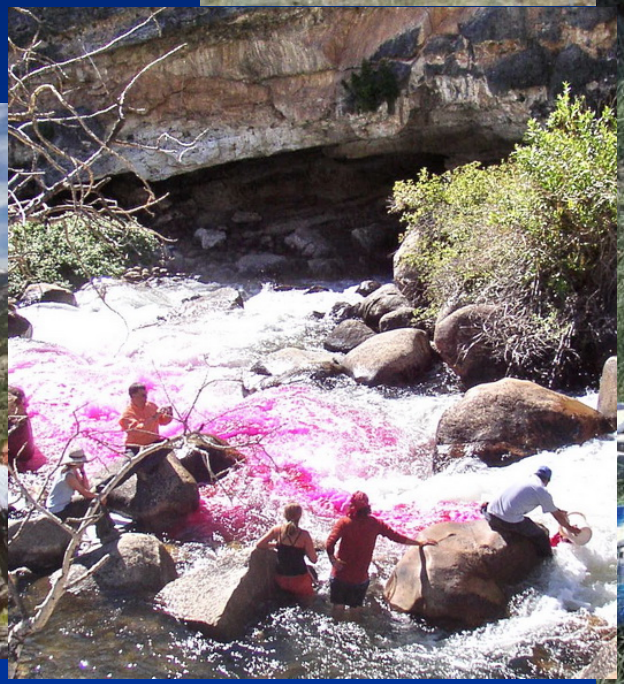
Geology & Teaching Geology in the Lander – Sinks Canyon Area

A Historical Perspective from the University of Missouri's Branson Field Laboratory

- Bob Bauer -

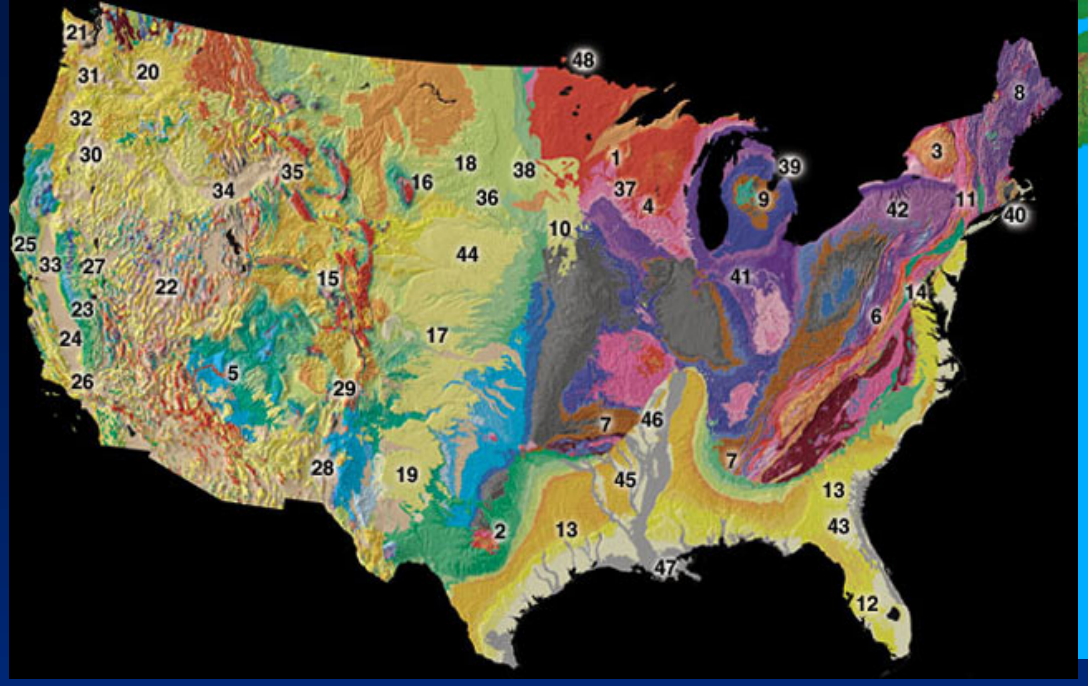
This Evening's Presentation

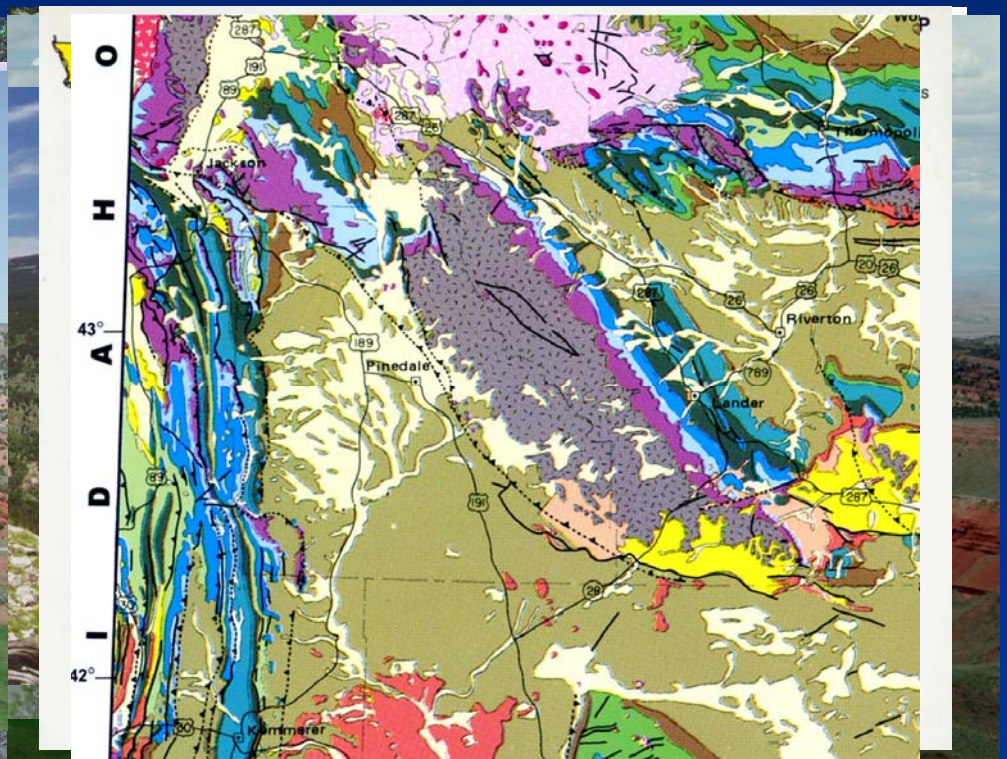
- Why does MU come here?
- What is the history of our course and the camp?
- What do we study & why?
- What's so great about the geology here?



Why are we here?

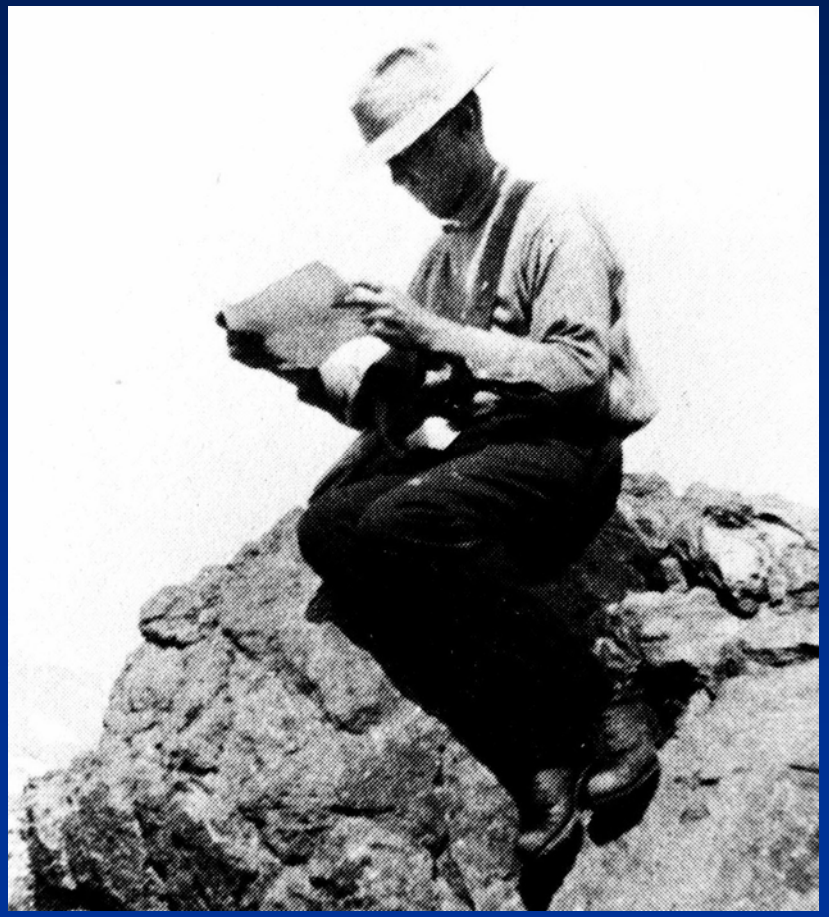
- Exposure – you can see the rocks
- Diversity of geology
- Spectacular geology
- A great teaching setting





Edwin Bayer Branson - MU Professor & Early Pioneer of Field Geology Teaching

- 1911 – Branson first brought students from Missouri to Sinks Canyon to learn about the diverse geology in Wyoming



- *In the early camp years, tents dotted the various canyons on the northeast slope of the Wind River Mountains.*
- *Soon the Middle Fork Popo Agie River became the favorite camp site of the students and instructors*

Mrs. Branson generally accompanied the group

- Cynthia Wilkes and Branson's wife, Grace Muriel Branson, are reportedly the first women to climb Wind River Peak on Aug. 4, 1913 (accompanied by a student identified only as Adams)

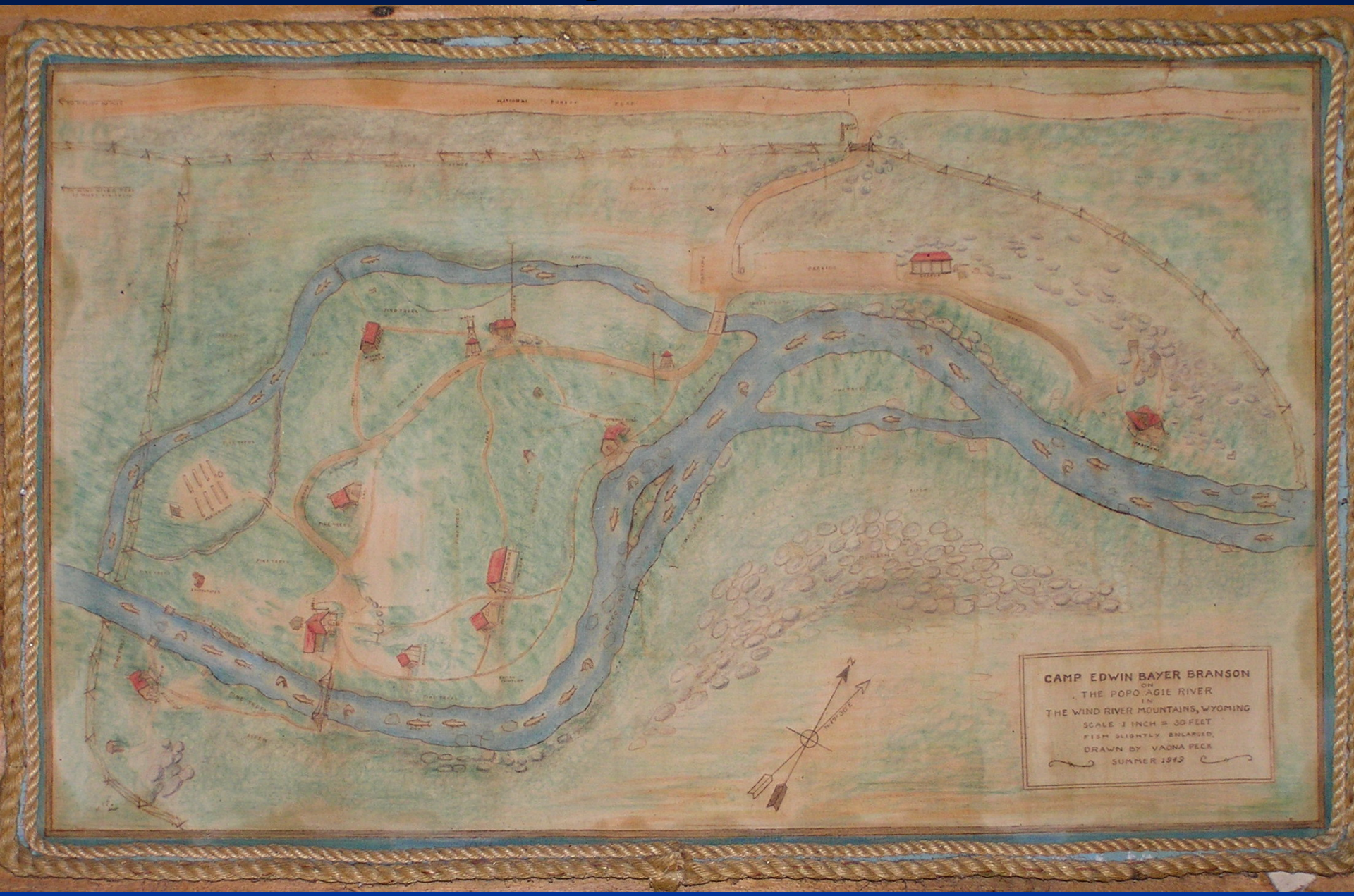
In the 1920's & 30's

- More MU faculty joined Branson, and geology students from many mid-western and eastern universities also attended our course

- In the mid 1920's, the University obtained a long-term educational permit in Sinks Canyon from the U.S. Forest Service

Construction of cabins began on the site of the current camp in the mid to late 1920's

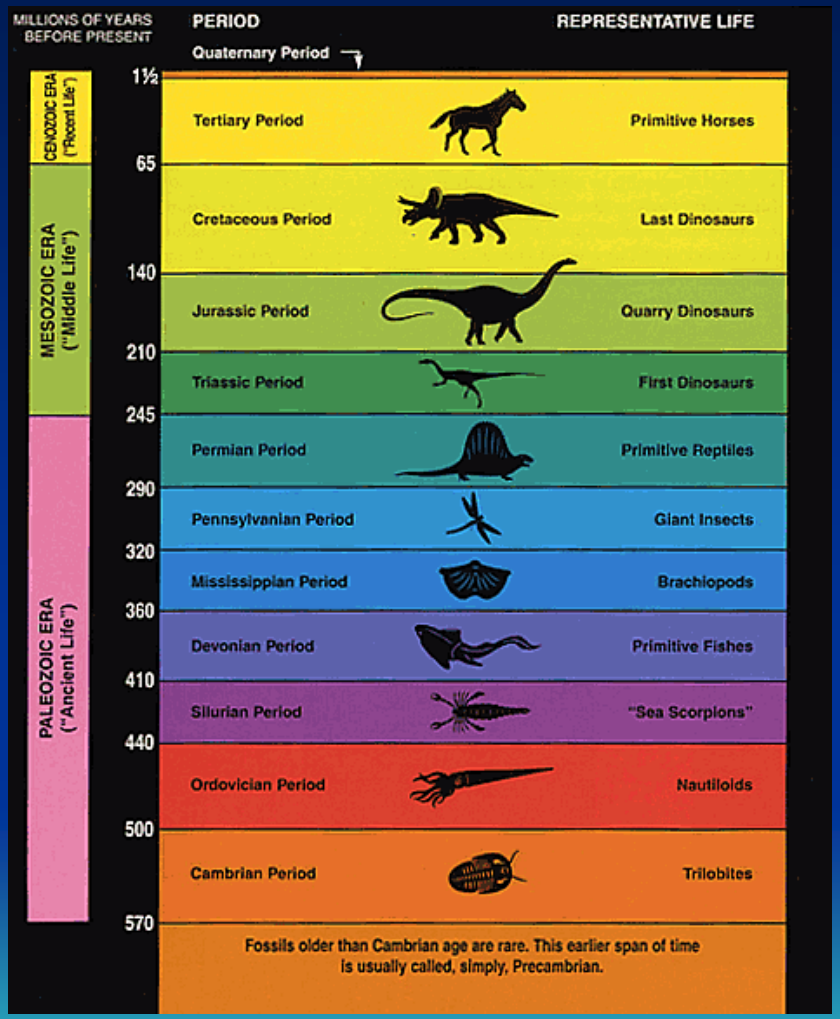
By 1949


CAMP EDWIN BAYER BRANSON
ON
THE POPO AGIE RIVER
IN
THE WIND RIVER MOUNTAINS, WYOMING
SCALE 1 INCH = 30 FEET
FISH SLIGHTLY ENLARGED
DRAWN BY VADNA PECK
SUMMER 1949

The Camp Today…

What do we teach?

- In the broadest sense, we teach students how to apply classroom studies to practical problems of geologic history and processes in a “real-world” field setting

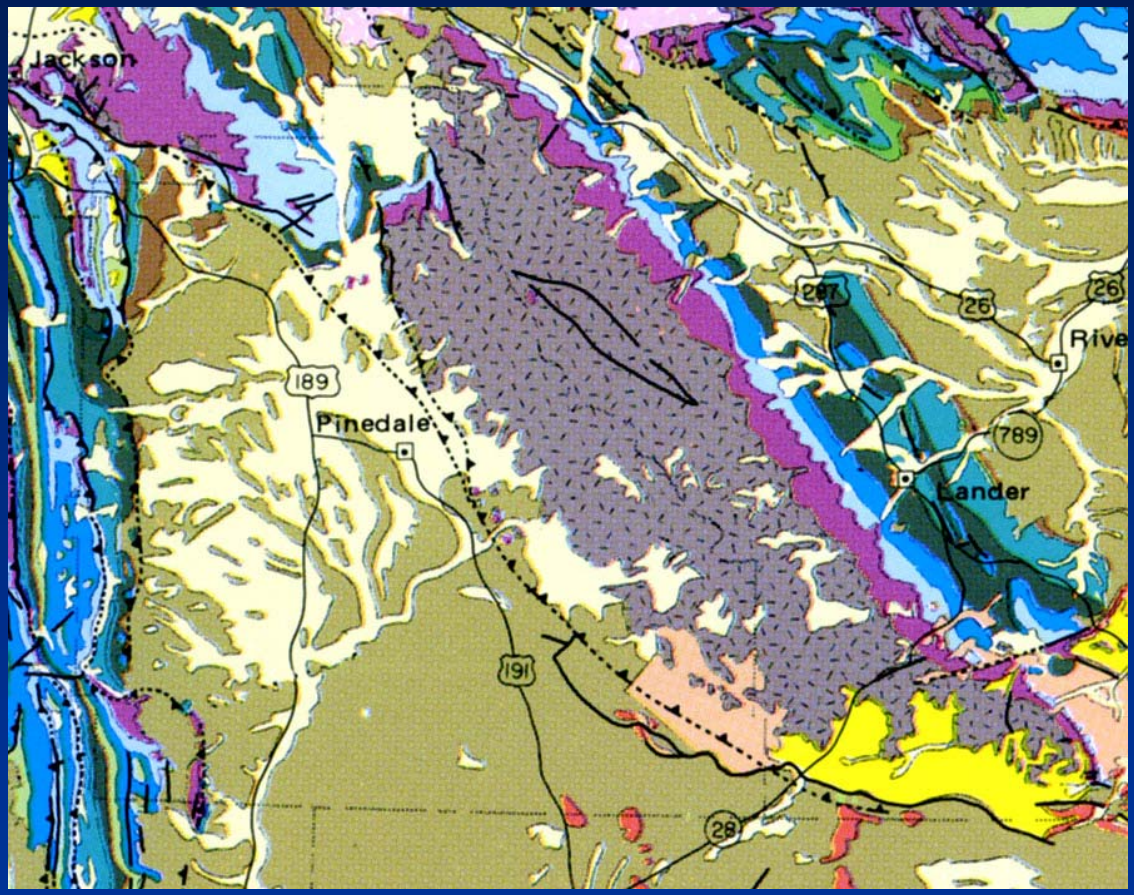


What do we study & why? We teach students…

- How to recognize features in rocks that help us understand how they were formed:
  - Their history of formation
  - The process that produced the rocks
  - Processes that may have altered the rocks

We teach students to map geology

- By rock type, by unit name, by age
- Provides information on geologic history
- Provides information for industry & environmental monitoring
- Students learn to think in 4D – (3D+time)



We teach students to measure & analyze the orientation of rocks & rock features

- The Brunton compass
- Rock hammer
- Hand lens

- The GPS receiver

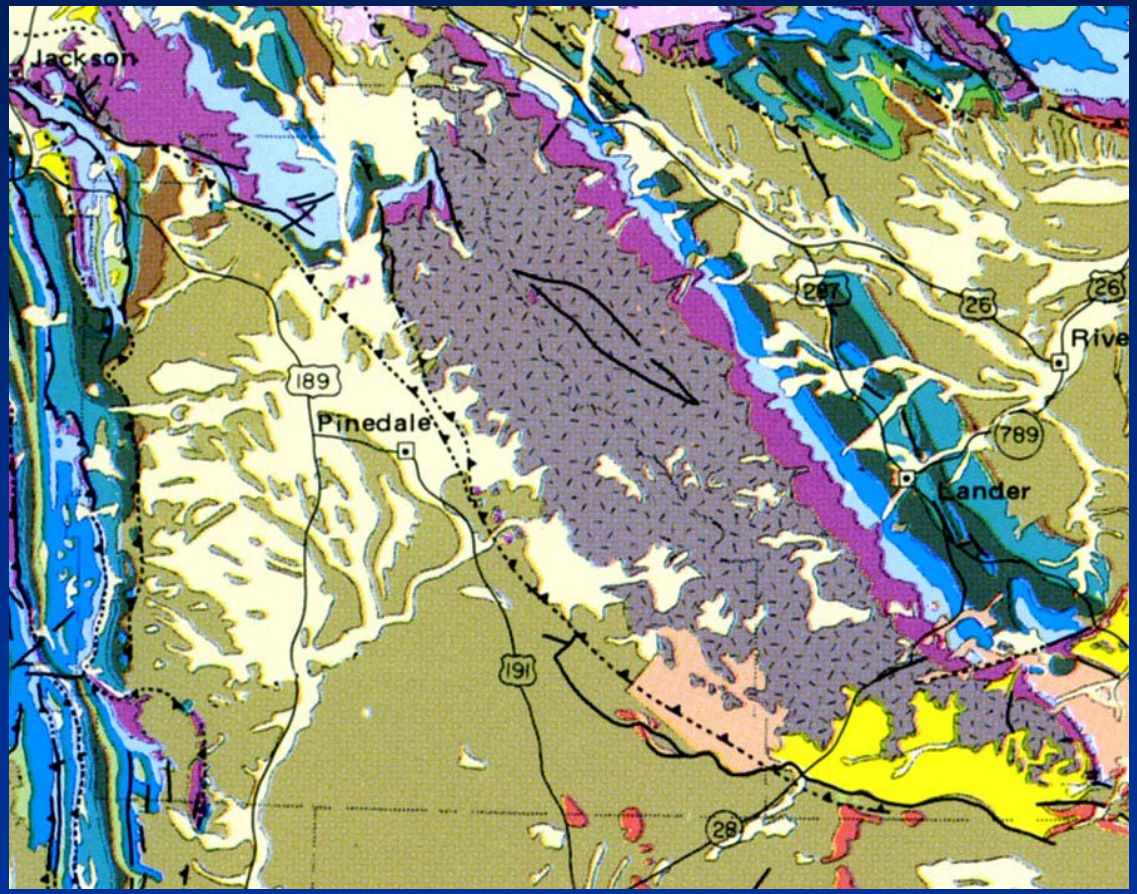
- Topographic maps
- How do mountains form?

We teach students how to understand and analyze on-going earth environmental processes

- Chemical analyses
- Shallow well drilling
- Core analysis
- Stream measurements
- Remote sensing using geophysical techniques

Why is this area such a great place to study geology?

- NW Wyoming is one of the most diverse geologic settings in the world
  - Very long geologic history recorded
  - Many stages of mountain building
  - Many stages of volcanic activity

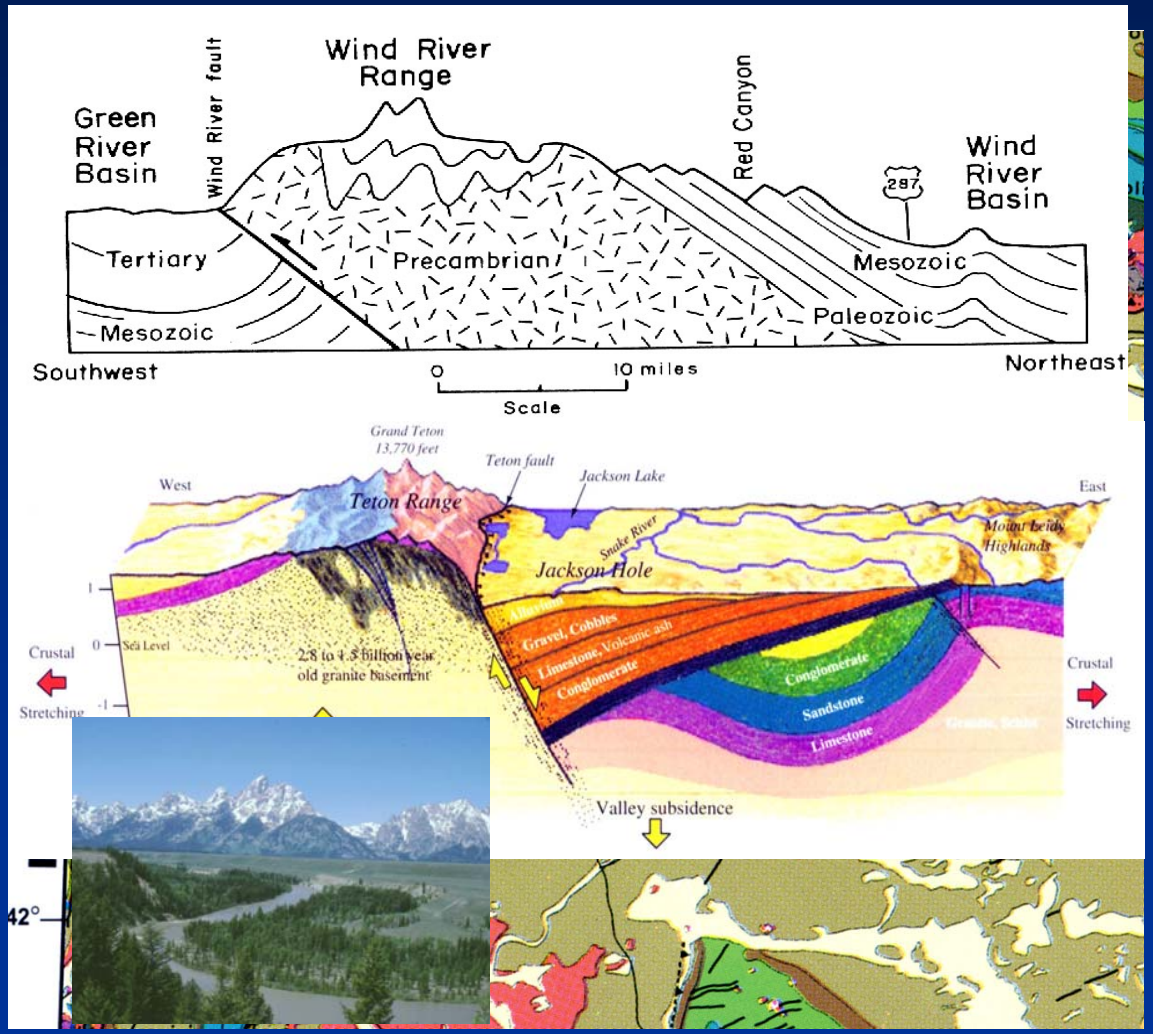


The long rock record

- Rocks as olds as 3 billion years old (2.65 billion rocks on Granite Knob)
- A long rock record from the head of sinks canyon into the basin

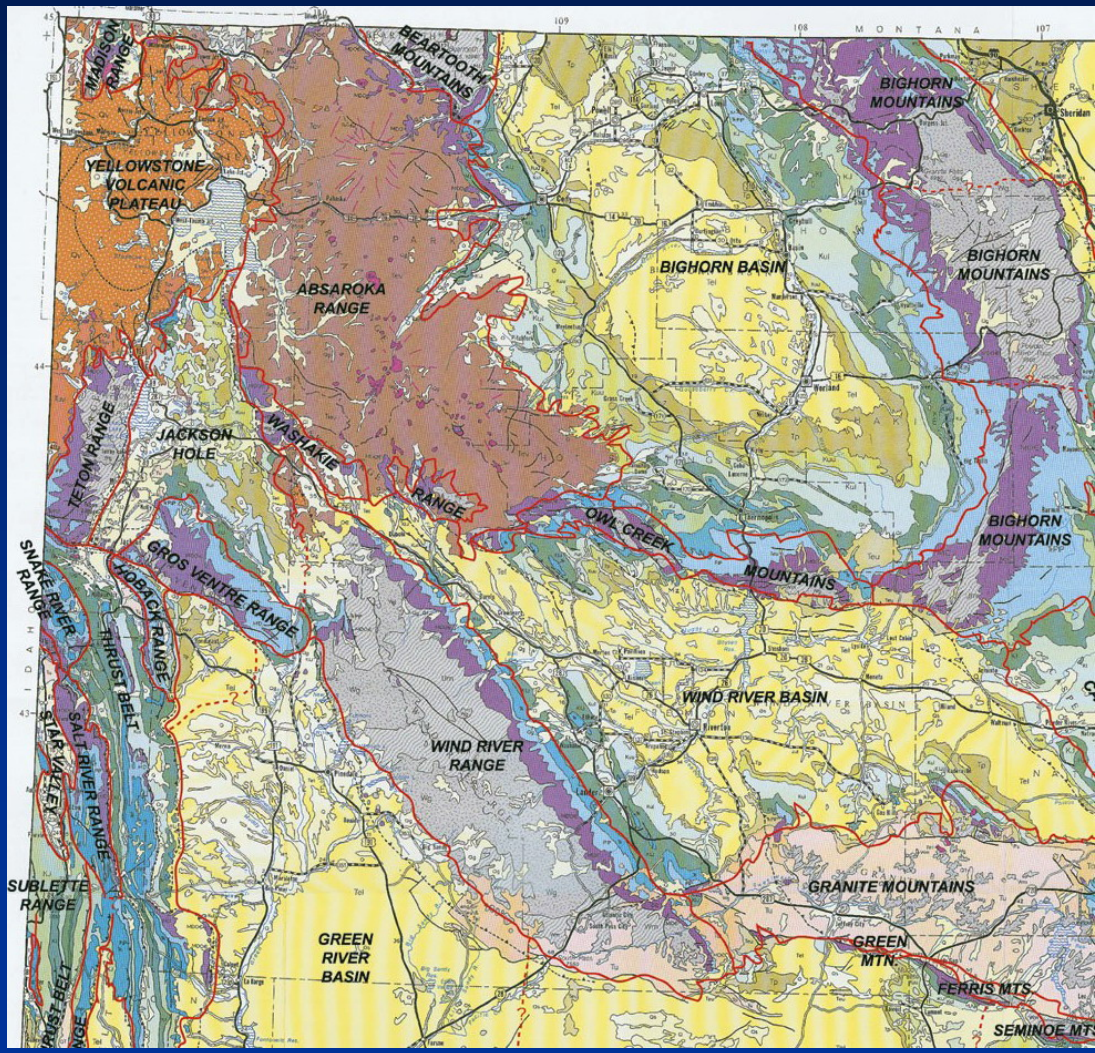
Many stages of diverse mountain building

- Sevier event
  - ~ 125-85 m.y. ago
- Laramide event
  - ~ 80-40 m.y. ago
- Block faulting
  - Grand Tetons



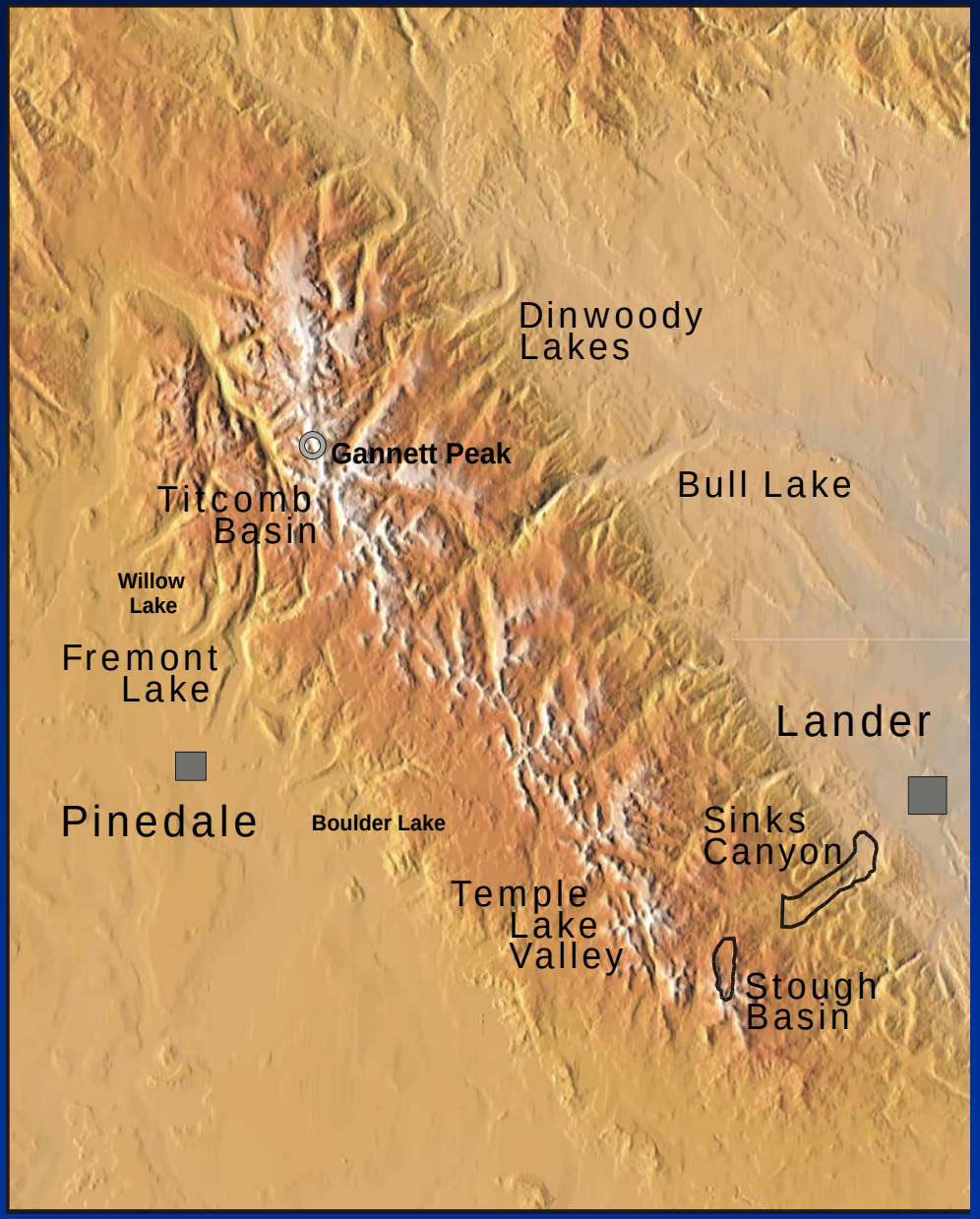
Multiple Stages of Volcanism

- Absaroka volcanism
  - 62-38 million years ago
- Yellowstone volcanism
  - 2 million
  - ~1.2 million
  - 600,000 events



Alpine Glaciation

- Glaciers that formed in high mountain settings during ice-age (Pleistocene) continental glaciation (~20,000 years ago)



Sinks Canyon formed during glaciation

We hope you enjoy your great geologic setting

…we certainly do

http://fieldcamp.missouri.edu/