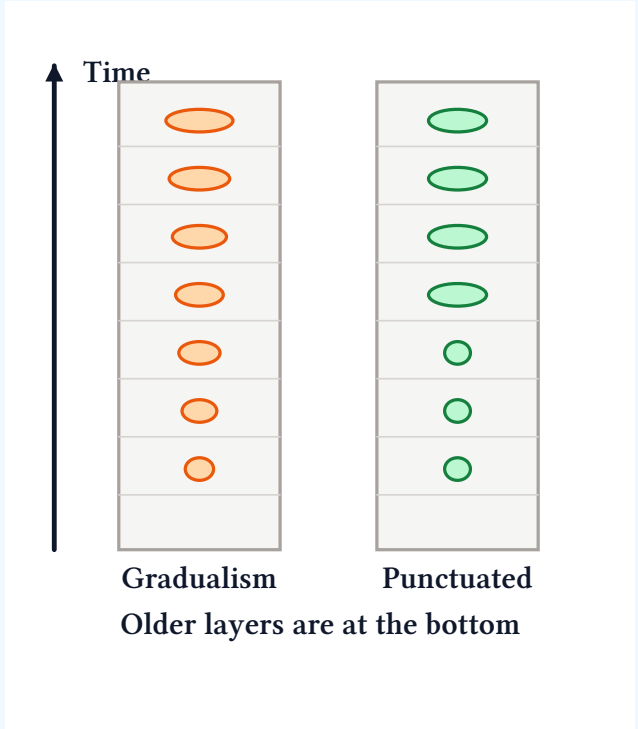
Biology 20

Unit B: Ecosystems and population change

Gradualism and punctuated equilibrium

Gradual change and long stable stretches

- One sketch rises smoothly from older layers to younger layers.
- The other stays flat, jumps, and stays flat again.



Fossil layers show the tempo of change

- Gradualism means steady change through the layers.
- Punctuated equilibrium means long stability and shorter bursts.
- A mass extinction clears many species and opens space for later bursts.

Key terms

punctuated equilibrium

A pattern of long stable stretches in the fossil record with shorter bursts of change.

gradualism

A pattern of steady change in form across the fossil record.

fossil record

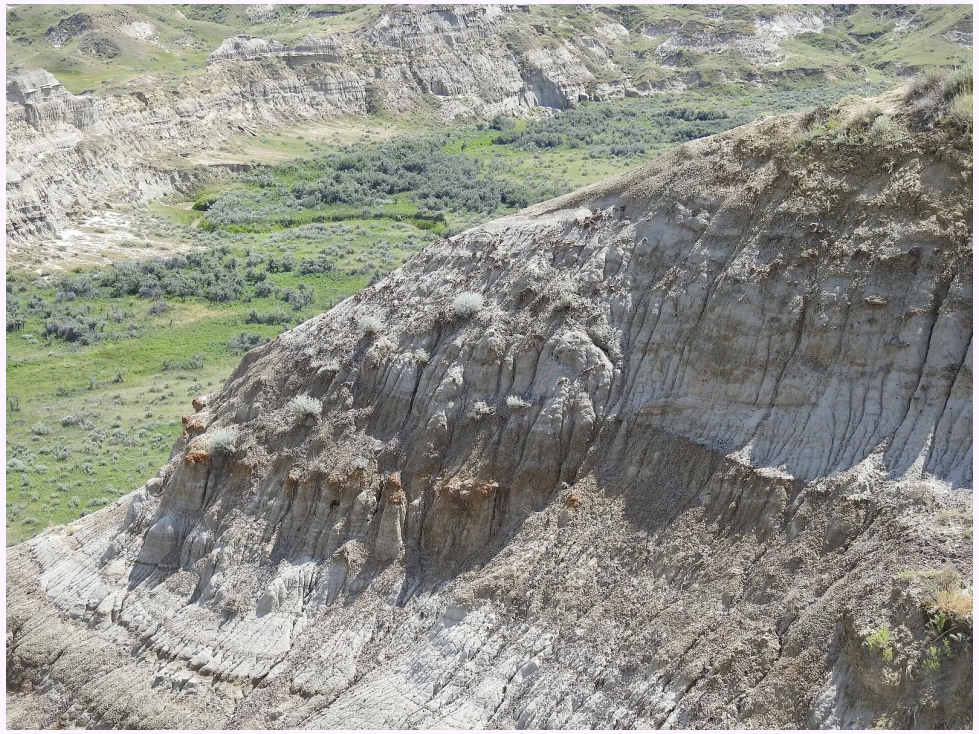
The ordered remains of past life that show when forms lived.

mass extinction

A time when many species disappear from the fossil record together.

Sketches and claims

- A steady series of intermediate fossils supports gradualism.
- Long stretches of the same form, then a new form, support punctuated equilibrium.
- Say when the rock layers are too incomplete to choose.



Plotting a small series

- The axis needs a unit and even spacing.
- The sentence you choose has to match the shape you plotted.

Evidence that changes a conclusion

- A new intermediate fossil can turn a jump into a slope.
- A long stable stack can turn a slope hypothesis into a staircase.

Two tempos

- Describe gradualism and punctuated equilibrium from the sketches.
- Say how a fossil gap can affect the choice.

Producers store the energy

- Unit C: Photosynthesis and cellular respiration opens the chloroplast and asks how light becomes sugar.
- The species in this unit depend on that stored energy.

Image credits

Hirgax, Badlands in Dinosaur Provincial Park, Alberta, CC BY-SA 4.0