

## Week 7 Diversification Processes

**Learning Goal: Understand how phylogenies can be used to differentiate between various processes of biological diversification.**

After completing the pre-class assignments and videos, students will be able to...

- Define adaptive radiation
- Explain the role of mass extinctions to diversification after the extinction event.
- Identify the role of fossil evidence and phylogenies to our understanding of evolutionary patterns.
- Determine the age of a fossil based on  $^{14}\text{C}$  dating.

After this week's class meeting students will be able to...

- Evaluate data sets, or phylogenetic patterns, and indicate how they are used to test hypotheses about historic and current patterns of biodiversity.
- Describe the process of adaptive radiation
- Evaluate phylogenetic patterns to recognize adaptive radiations within an evolutionary lineage.
- Relate evidence from the fossil record to macroevolutionary changes in major lineages of organisms.
- Explain how the process of adaptive radiation increases biodiversity.
- Explain the relationship between mass extinctions and subsequent diversification.