



# Changes in Ecosystems: Ecological Succession



# Definition:

- Natural, gradual changes in the types of species that live in an area; can be primary or secondary
- The gradual replacement of one plant community by another through natural processes over time



# Primary Succession

- Begins in a place without any soil
  - Sides of volcanoes
  - Landslides
  - Flooding
- Starts with the arrival of living things such as lichens that do not need soil to survive
- Called **PIONEER SPECIES**





<http://botit.botany.wisc.edu>



<http://www.saguaro-juniper.com/>



# Primary Succession

- Soil starts to form as lichens and the forces of weather and erosion help break down rocks into smaller pieces
- When lichens die, they decompose, adding small amounts of organic matter to the rock to make soil





<http://www.life.uiuc.edu>



# Primary Succession

- Simple plants like mosses and ferns can grow in the new soil



<http://www.uncw.edu>



<http://uisstc.georgetown.edu>



# Primary Succession

- The simple plants die, adding more organic material
- The soil layer thickens, and grasses, wildflowers, and other plants begin to take over



<http://www.cwrl.utexas.edu>



# Primary Succession

- These plants die, and they add more nutrients to the soil
- Shrubs and trees can survive now



<http://www.rowan.edu>



# Primary Succession

- Insects, small birds, and mammals have begun to move in
- What was once bare rock now supports a variety of life



<http://p2-raw.greenpeace.org>



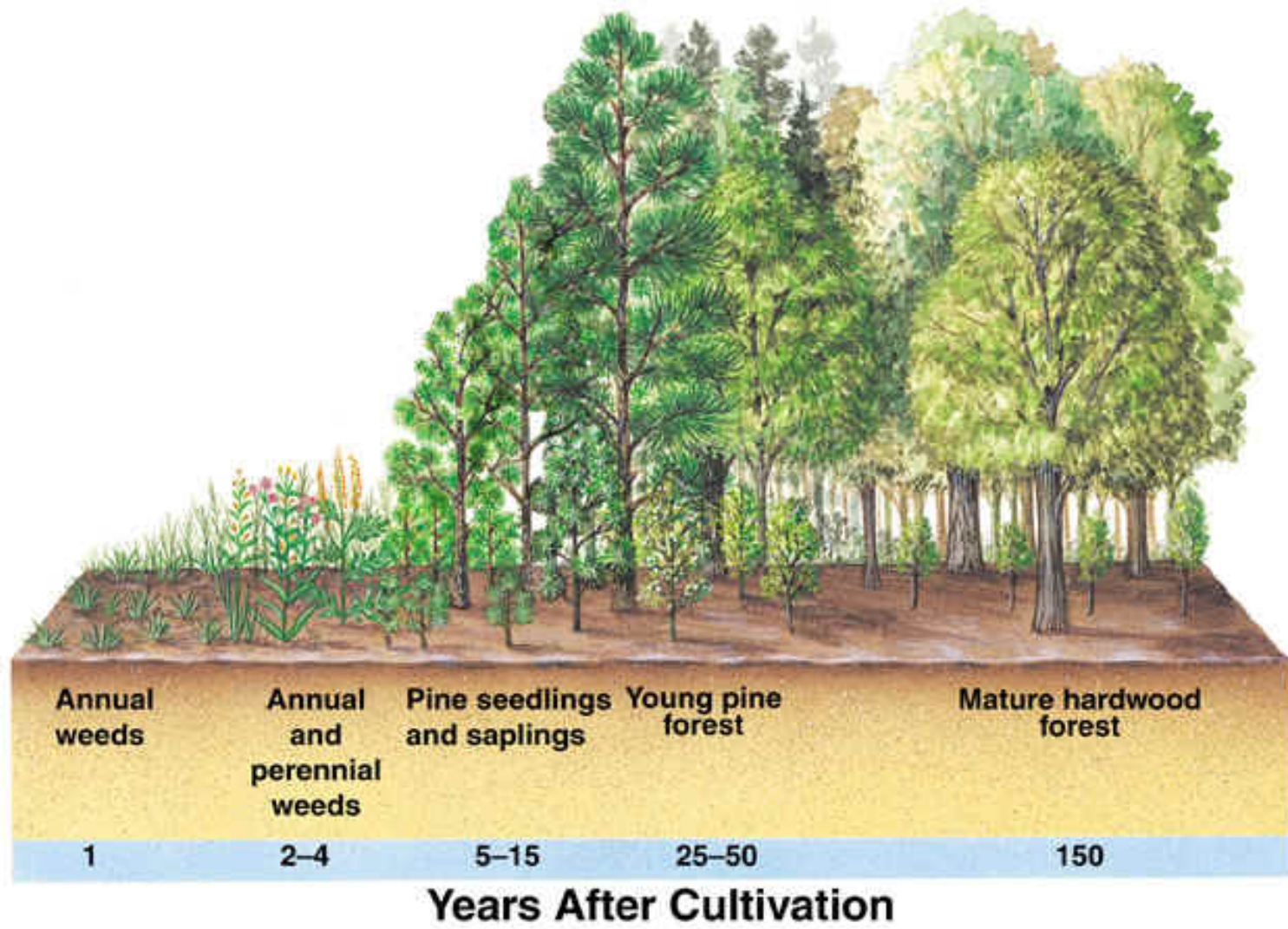
# Secondary Succession

- Begins in a place that already has soil and was once the home of living organisms
- Occurs faster and has different pioneer species than primary succession
- Example: after forest fires











Beech-maple  
forest

Oak woods

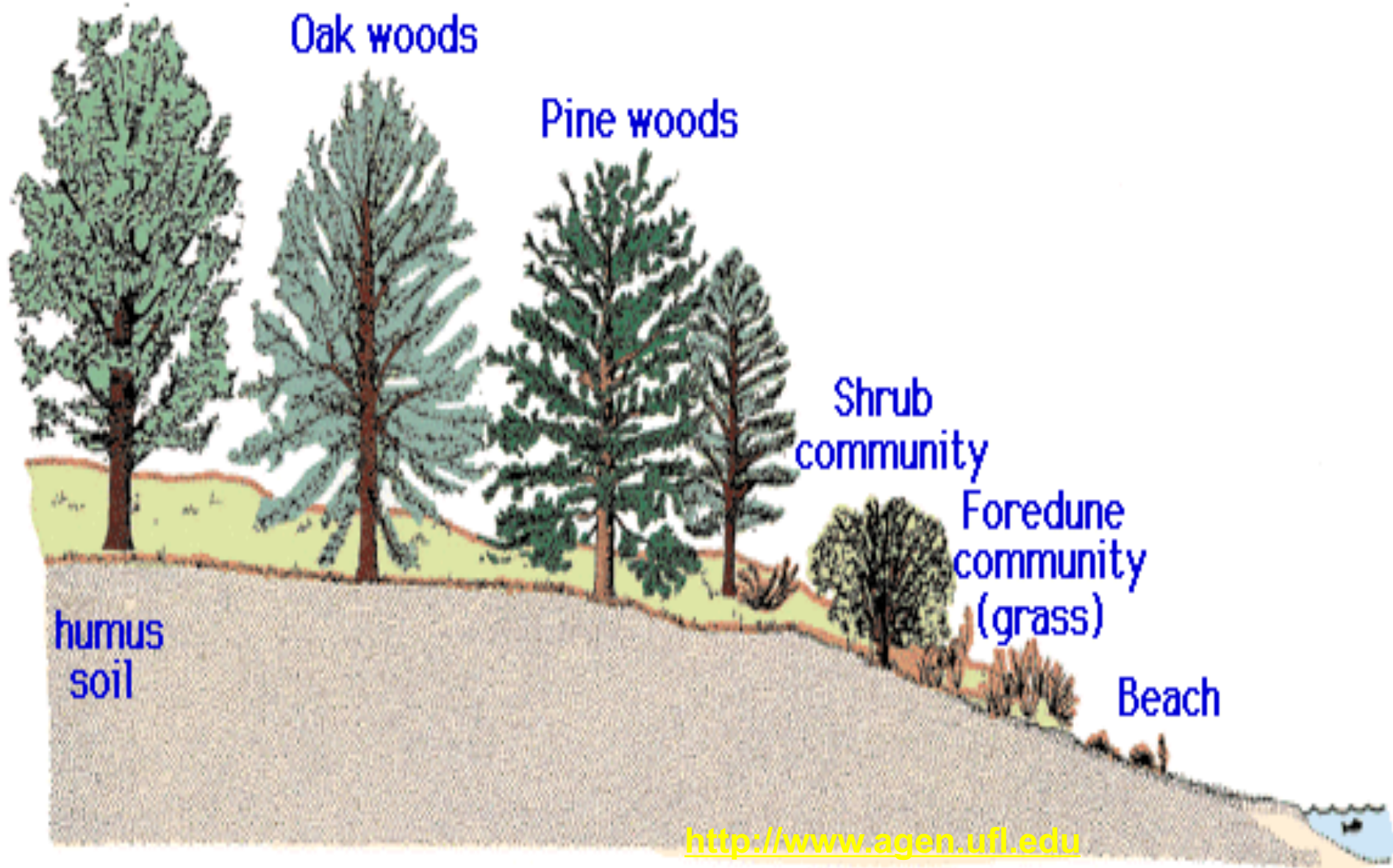
Pine woods

Shrub  
community

Foredune  
community  
(grass)

Beach

humus  
soil





# Climax Community

- A stable group of plants and animals that is the end result of the succession process
- Does not always mean big trees
  - Grasses in prairies
  - Cacti in deserts