

Ecological Succession Poster Project (Due by Wednesday, October 11, 2017!)

GROUP MEMBERS' NAMES:

- 1) _____
- 2) _____
- 3) _____

Objective: Students will learn that environments change naturally, and will examine how natural processes such as succession restore habitats and ecosystems.

Materials: Biology books, science magazines, Internet, ecological succession pictures, poster, student notebooks, scissors, markers, glue, & other art supplies.

Purpose: Student groups will create one poster representing terrestrial (land) successional stages from pioneer community to climax community (PRIMARY SUCCESSION). Then, each group will choose a catastrophic event (flood, forest fire, volcanic eruption, etc.) that will destroy your climax community. Now you must show how secondary succession will recreate the ecosystem step by step (seral stages).



What to Include:

1. Descriptive Title
2. Graphical representation of at least 5 seral stages
3. Dominant flora (plant) & fauna (animal) found in each seral stage of succession
4. Define Primary OR Secondary Ecological Succession (depending on which type your poster represents)
5. List 2 characteristics of both pioneer and climax species/communities
6. As a group, decide on 5 informational facts related to succession to include on poster

GRADING RUBRIC – Lab Grade (Worth 1100 points)

Include:	Points Worth	Points Received
Descriptive Title	50	
Graphical representation of 5 seral stages	300	

Dominant flora/fauna of each seral stage	100	
Colorful	50	
Definition of primary & secondary eco. succession	50	
2 characteristics of pioneer species/community	50	
2 characteristics of climax species/community	50	
Illustration of catastrophic event	100	
Fact #1	50	
Fact #2	50	
Fact #3	50	
Fact #4	50	
Fact #5	50	
Neatness, organization, creativity, & accuracy	100	
	1100	

Ecological Succession Background Information:

Changes and Adaptations (CA)

I. Environmental Changes

- A. Variation and change occur in all ecological systems.
- B. Succession is an orderly, gradual, and continuous replacement of one natural community of life by another.
 1. Succession influences what kinds of plants and animals live in an area.
 - a. New communities arise when ecosystems change through succession.
 - b. Newer communities may have less diversity.
 - c. Species present in new communities will have traits that allow them to survive in the new environment.
 - d. Over time, species diversity may increase in a new community.
 2. Natural events and human activities affect the rate and direction of succession.
- C. All forms of life are affected by changes in the quality, quantity, and distribution of their habitats.

Biome - a major biotic community having well-recognized life forms and a typical climax species

The terrestrial world is characterized by distinctive assemblages of plant species. Examples are the temperate forest around Marietta, the tropical rain forests of South America and Africa, the tundra of northern Canada, the taiga of Siberia. We use plant species to distinguish biomes because they are immobile and long-lived (at least the trees). If you used, say geese, to characterize the taiga, what would you do when they flew south in the winter? The characteristic plants which define each of the biomes constitute part of what is known as the **climax community**. The types of plants that characterize each biome have evolved to the unique climatic conditions in that part of the world. If such a community is

destroyed (by fire, logging, plowing, etc.) - and then left alone - the biome will regenerate itself over a period of time. It will go through a number of intermediate stages until it reached the climax stage again. This process is called succession.

Succession

- orderly succession of communities to a climax community (biome)
- sequence of communities --> sere
- each transitory community --> seral stage

For instance, in Ohio, a simple description of a sere that would develop on an abandoned field might be:
grass -> shrubs -> trees -> oak-hickory forest

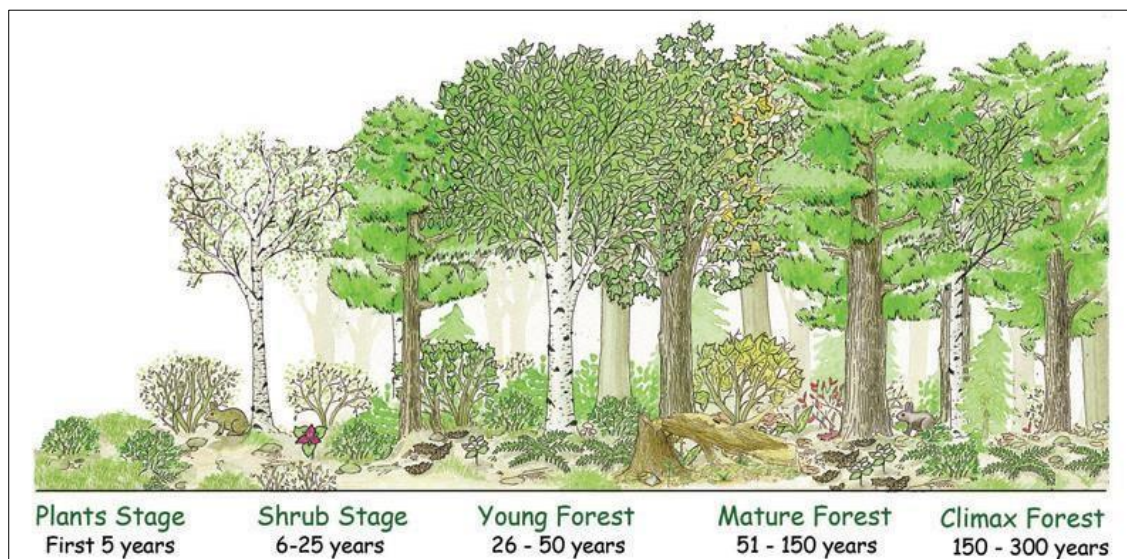
In this sere, the grass is the **pioneer community** and the oak-hickory forest is the **climax community**. Each step in the sere (grass, shrubs, trees, oak-hickory forest) is individually known as a **seral stage**. There are two main types of succession:

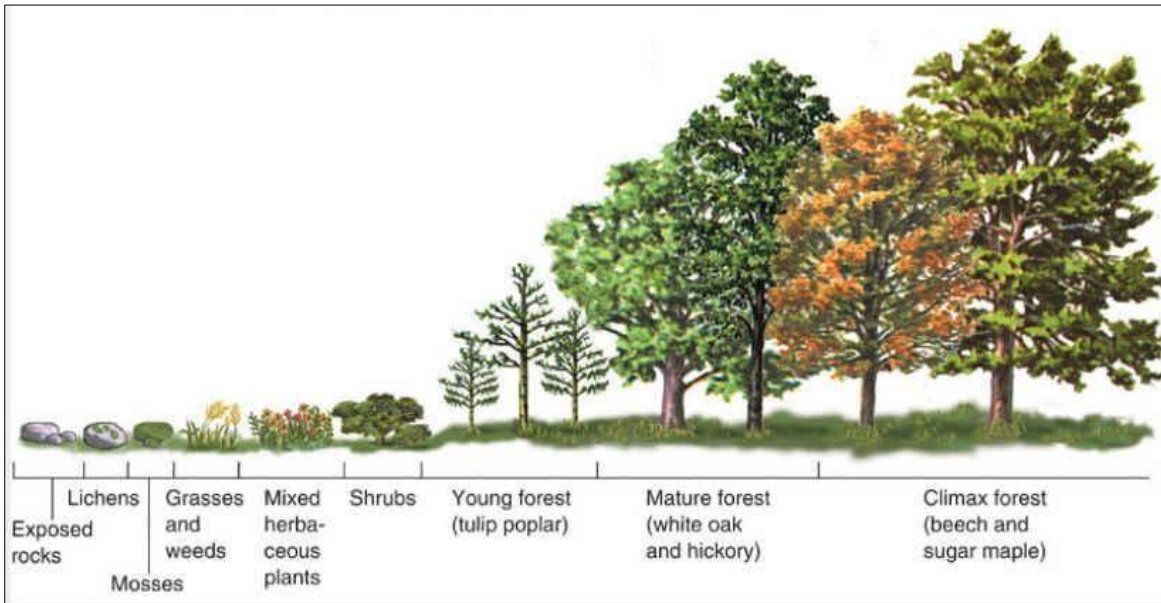
1. Primary succession

- begins with bare rock exposed by geologic activity
- example sere: rock -> lichen -> moss -> grass -> shrub -> trees -> oak hickory forest

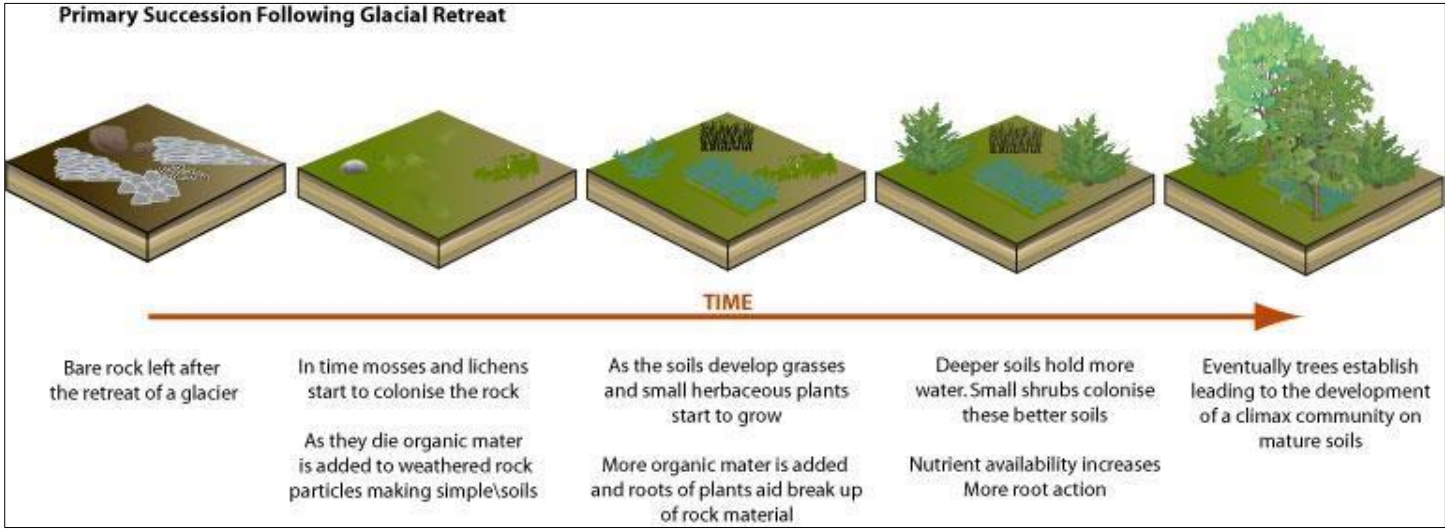
2. Secondary succession

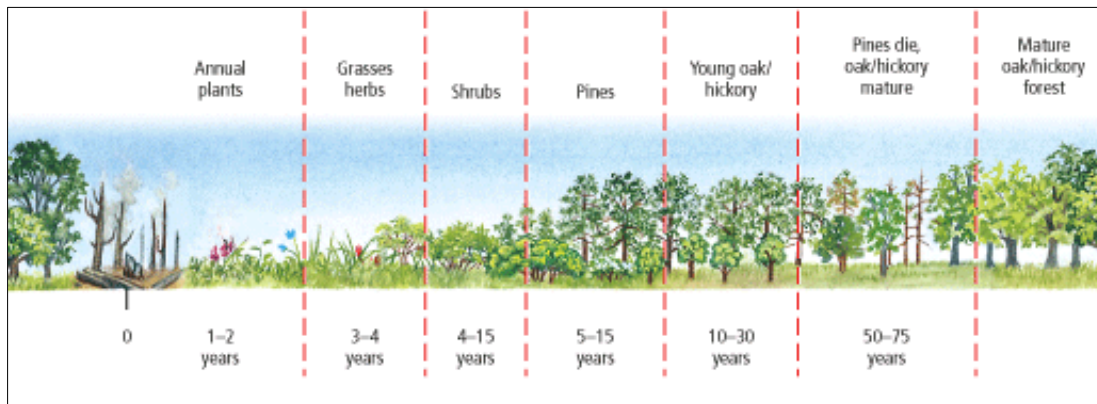
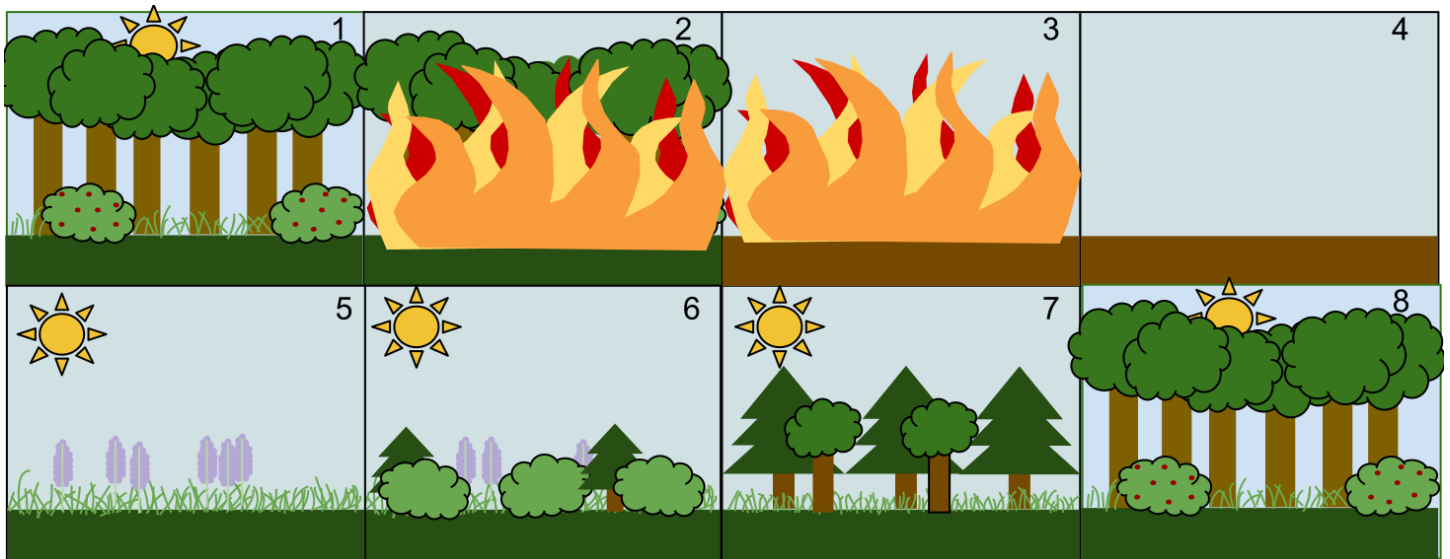
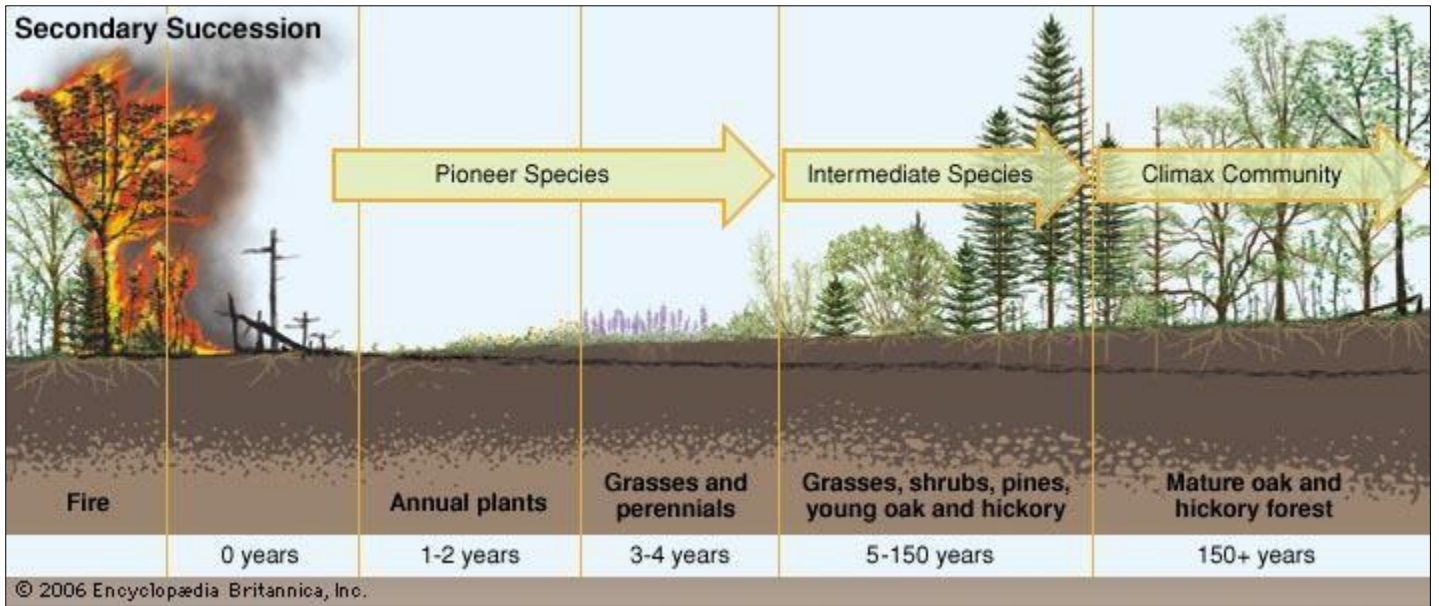
- begins on soil from which previous community has been removed (by fire, agriculture, etc.) ☒
old field succession
- example sere: grass -> shrub -> trees -> oak hickory forest
- secondary succession can proceed much faster because the soil has been prepared by the previous community

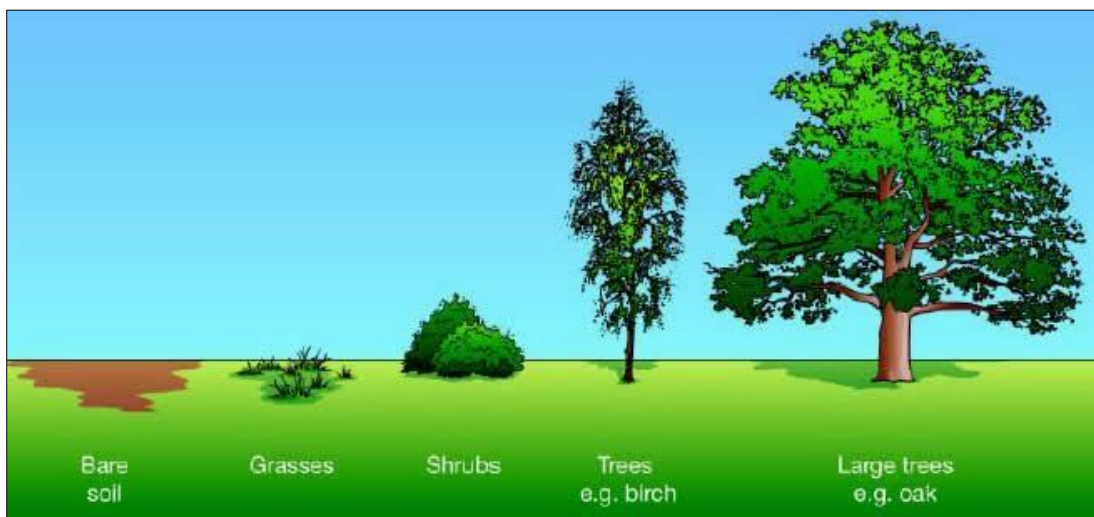
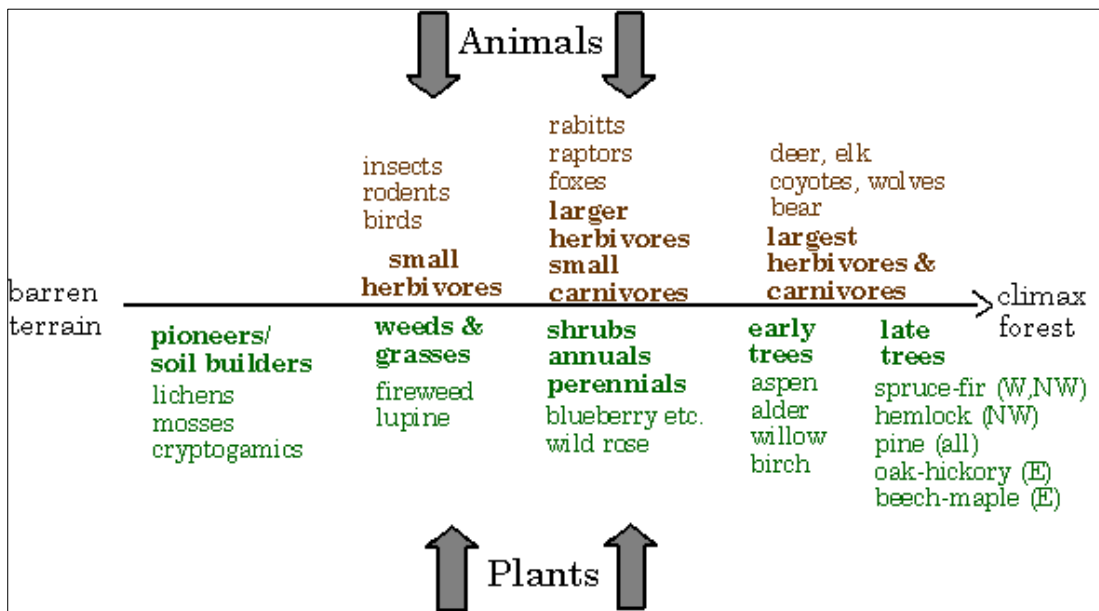
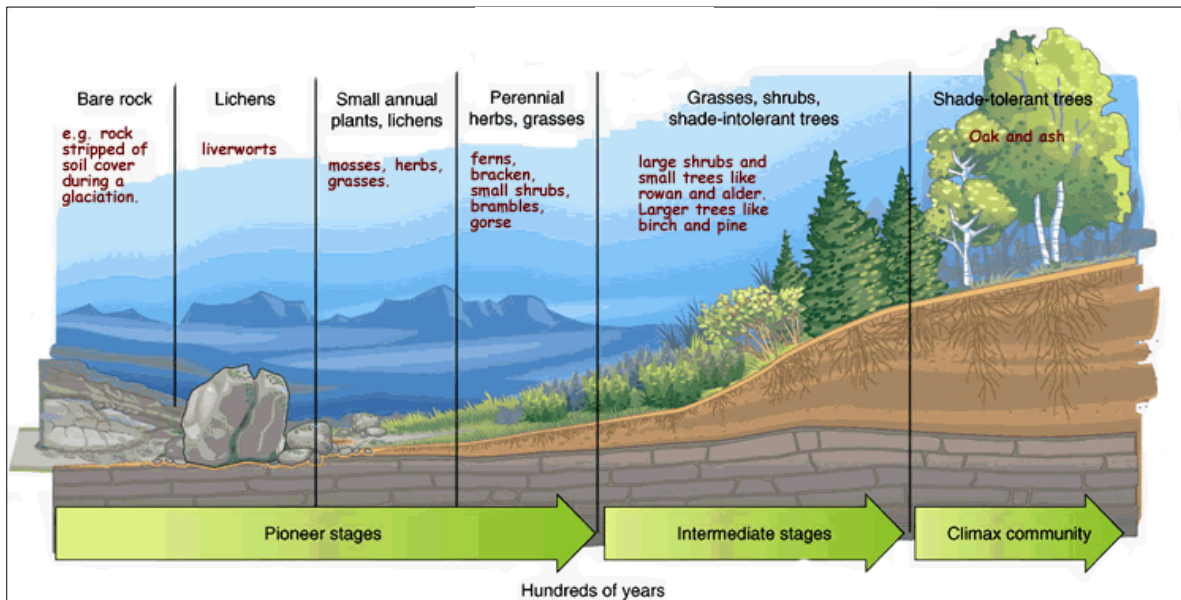




Primary Succession Following Glacial Retreat







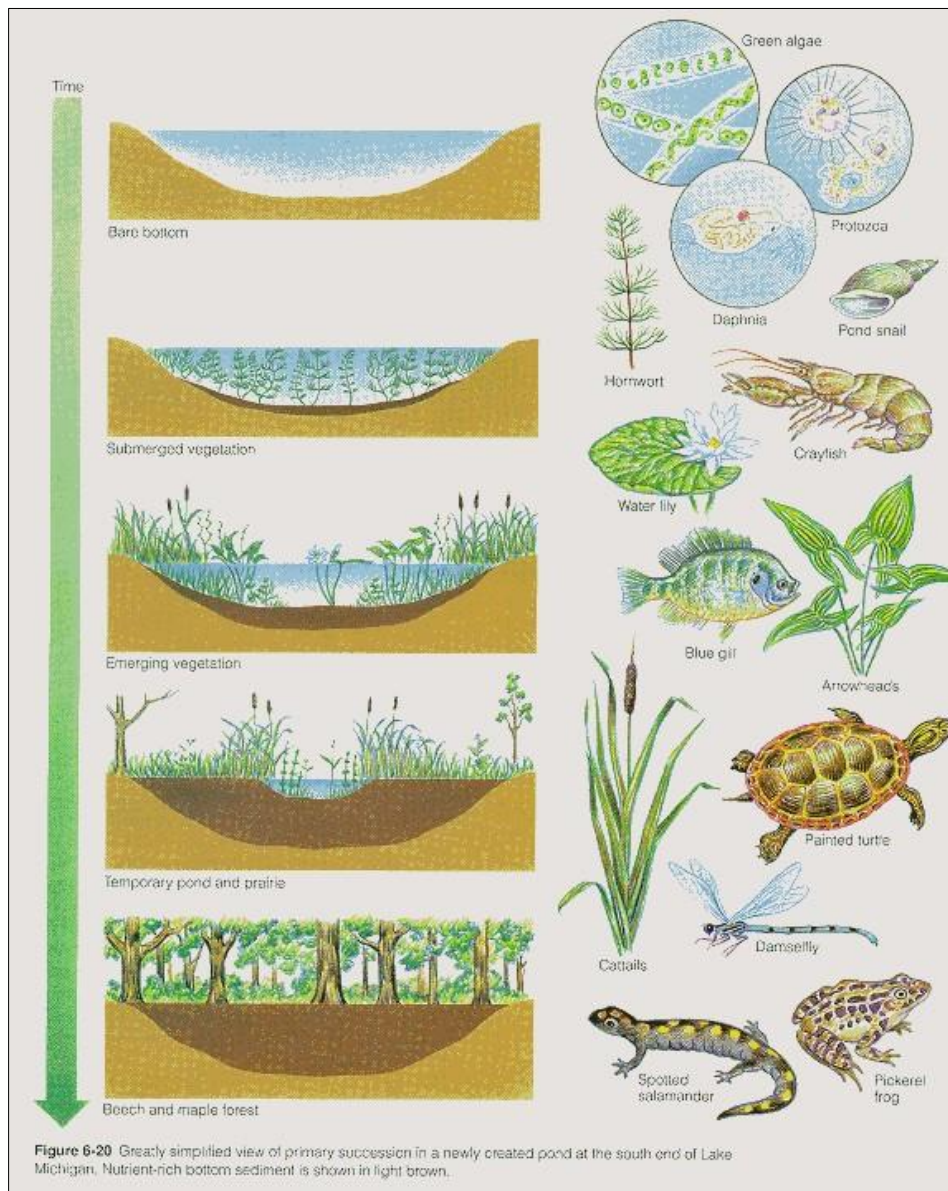
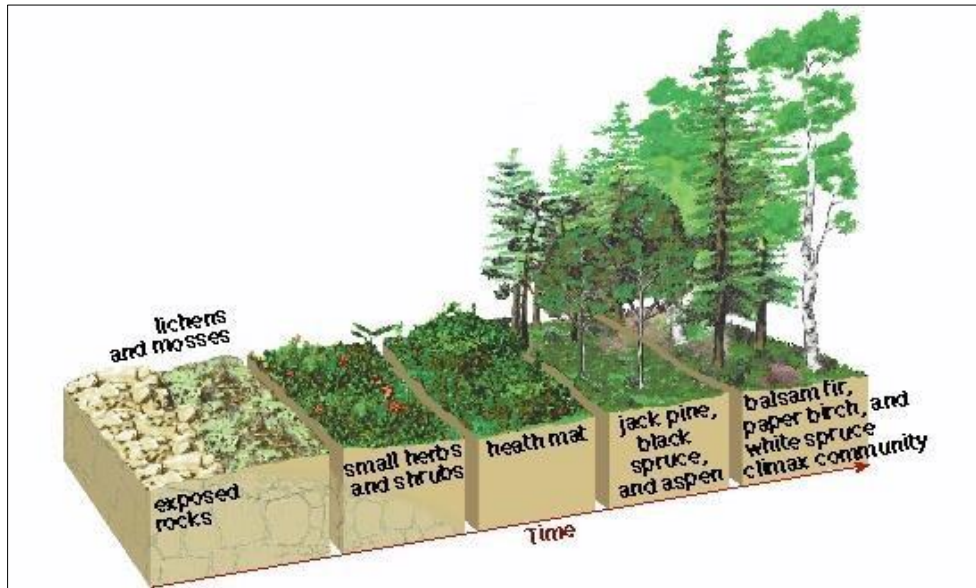


Figure 6-20 Greatly simplified view of primary succession in a newly created pond at the south end of Lake Michigan. Nutrient-rich bottom sediment is shown in light brown.