

# Forest Age & Plant Species

Ecoplexity Data Explorations



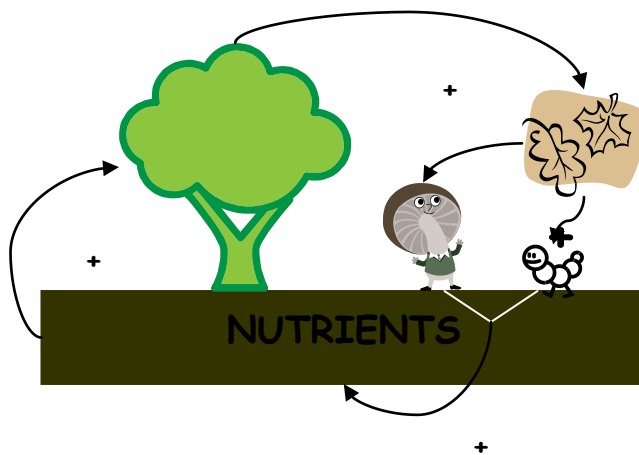
**Author:** Ecology Explorers Team, adapted from Ecoplexity data (<http://ecoplexity.org>)

**Time:** 15-30 minutes

**Grade Level:** 9-12

## Background:

Forest age, in this case old- versus young-growth, is an important consideration in terms of the type of ecological interactions predicted because age can be (though not always) associated with changes in numbers and types of organisms. For example, old-growth forests may have greater or fewer numbers of plants than a young-growth forest, contributing to an increased organic layer build-up in the soil. This could lead to increased complexity of the detritivore community feeding on the organic matter. In turn this could lead to increased nutrient availability to both plant and soil community members leading to increased plant productivity and resources to herbivores and omnivores.



## Objective:

Students will analyze patterns in plant distribution and forest age.

## Standards:

### Science

## Advanced Preparation:

Students should have been introduced to basic information about population and community ecology.

## Materials:

Student Worksheets

Pictures of old growth and young growth forests would help students unfamiliar with these ecosystems

## Evaluation:

Observation during the activity and participation in discussion.

Student responses to reflection questions.

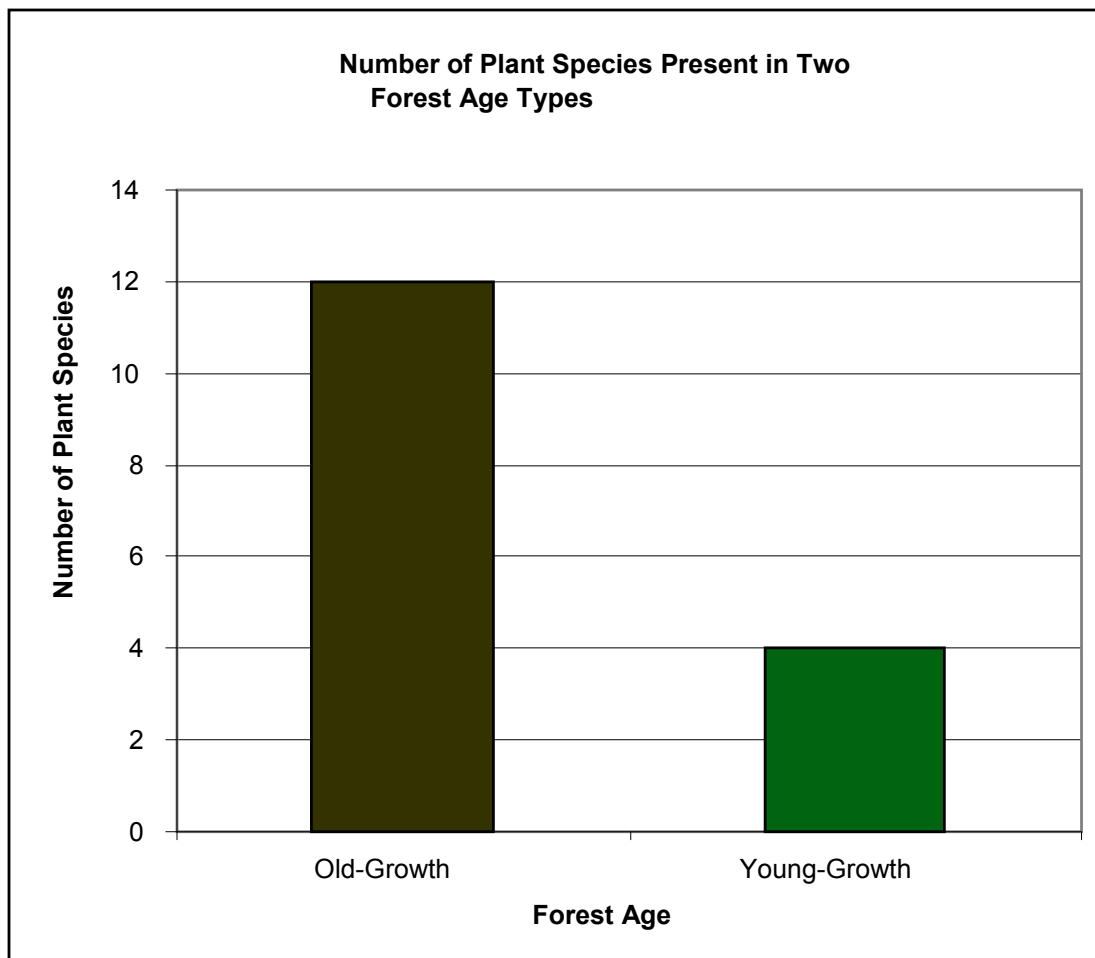
## Extensions:

Have students view models of ecosystems and design experiments based on protocols at <http://ecoplexity.org>



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### Graph 1

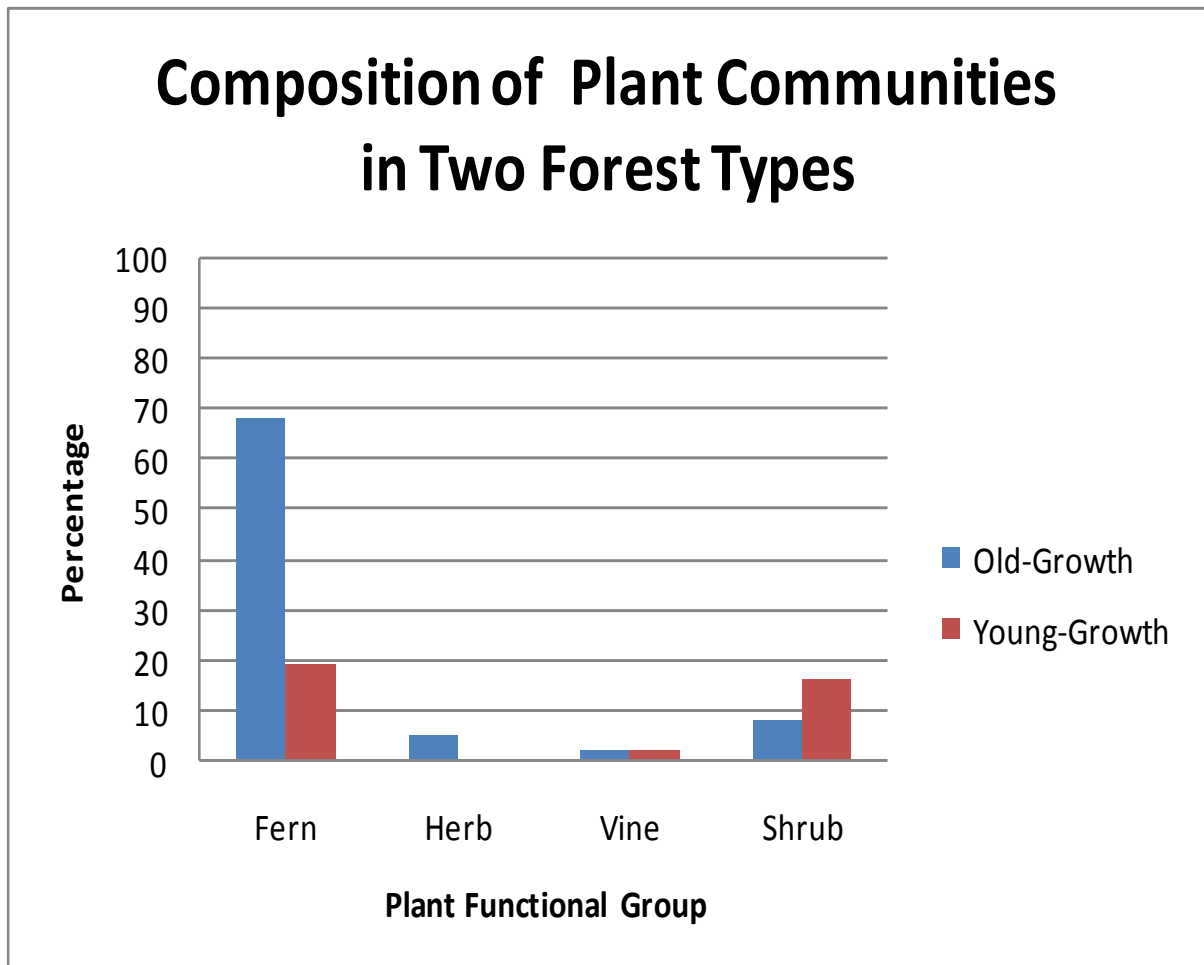




Plant functional groups are based on what is called the plant's *habit*, meaning how it grows. So plants are classified in this lesson as:

- 1) Ferns
- 2) Herbs (not having woody tissues, may be perennial or annual, typically low to ground)
- 3) Vine (typically elongate in structure, may produce wood-like tissues that support the plant or may rely on other plants or walls for support, doesn't produce true wood)
- 4) Shrub (may produce wood, doesn't reach canopy height, has more spreading (horizontal rather than vertical) growth pattern)

### Graph 2



# Student Worksheet

## Forest Plants



1. Which forest type has the most plant species (Graph 1)?
2. What is the most common type of plant in Old-Growth Forests (Graph 2)?
3. What is the most common type of plant in Young-Growth Forests (Graph 2)?
4. Why do you think that old-growth forests have more types of ferns and herbs as compared to new-growth forests?
5. Why might a scientist hypothesize that there will be a greater variety of insects in an old-growth forest vs. a new-growth forest based on this information about plants?