

COMMUNITY ECOLOGY

1. What is a community (in terms of the study of ecology)?

2. Identify each of the following as true of **predation**, **competition**, **commensalism**, or **mutualism**.

Description/Example	Type of Interaction
+/- interaction	
-/- interaction	
+/0 interaction	
+/+ interaction	
Interaction is beneficial to one species and detrimental to the other	
Interaction is detrimental to both species	
One species benefits from the interaction but the other is unaffected	
Interaction is beneficial to both species	
Lion eating a zebra	
Animals eating plants	
Parasitism	
Insect that lays its eggs on a living host	
Tapeworm living inside the intestine of an animal	
When populations of two or more species in a community rely on similar limiting resources	
Cow birds and cattle egrets feed on insects flushed out of the grass by grazing bison, cattle, horses, and other herbivores	
Nitrogen fixation of by bacteria in the root nodules of legumes	

Description/Example	Type of Interaction
Digestion of cellulose by microorganisms in the digestive systems of termites and ruminant mammals	
Photosynthesis by unicellular protists in the tissues of corals	
Certain acacia trees provide food and housing for ants while the ants kill any insects or fungi found on the tree	
Lichens	

3. Define coevolution and provide an example.

Definition: _____

Example: _____

4. Match the definition with the correct term.

A. Herbivory

C. Parasitoidism

B. Parasitism

D. Predation

_____ When one animal kills and eats another

_____ When animals eat plants

_____ When one organism lives on or inside another living organism

_____ When one animal lays eggs on another living organism

5. Over time plants have evolved several defense mechanisms against herbivores. List two and provide an example of a plant that uses each defense mechanism.

Defense mechanism	Example

6. Match the definition, description, or example with the correct term.

- A. Aposematic coloration
- B. Batesian mimicry
- C. Camouflage
- D. Mimicry
- E. Müllerian mimicry

- _____ Cryptic coloration
- _____ Any color, pattern, shape, or behavior that enables an animal to blend in with its surroundings
- _____ The larvae of certain moths are colored so that they look like bird droppings
- _____ The fur of the snowshoe hare is white during the winter allowing it to blend into its snowy environment
- _____ Some plants escape predation because they have the shape and coloration of the surrounding rocks
- _____ Deceptive markings such as large, fake eyes or false heads
- _____ Warning coloration
- _____ Conspicuous pattern or coloration of animals that warns predators that they sting, bit, taste bad, or are to be avoided
- _____ Many toxic or unpalatable animals are conspicuously colored
- _____ Red or orange frogs
- _____ When two or more species resemble one another in appearance
- _____ When several animals, all with some special defense mechanism, share the same coloration.
- _____ Effective because a single pattern, shared among several animals, is more easily learned by a predator
- _____ Yellow and black markings on bees, yellow jackets, and wasps
- _____ When an animal without any special defense mechanism mimics the coloration of an animal that does possess a defense
- _____ Some defenseless flies have yellow and black markings
- _____ Effective only if model out numbers mimic
- _____ The larva of the hawkmoth puffs up its head and thorax when disturbed, looking like the head of a small poisonous snake

7. Coloration is only one defense mechanism that has evolved in animals. Name two others.

8. How are ectoparasites different from endoparasites?

9. Match the definition/description with the correct term.

- | | |
|------------------------------------|--------------------------|
| A. Character displacement | D. Fundamental niche |
| B. Competitive exclusion principle | E. Realized niche |
| C. Ecological niche | F. Resource partitioning |

_____ Gause's principle

_____ When two species compete for exactly the same resources (or occupy the same niche), one is likely to be more successful. One species outcompetes the other and eventually the second species is eliminated

_____ Some species coexist in spite of apparent competition for the same resources. Closer study reveals that they occupy slightly different niches; dividing up the resources by pursuing slightly different resources or securing resources in slightly different ways.

_____ Five species of warblers coexist in spruce trees by feeding on insects in different regions of the tree and by using differing feeding behaviors to obtain the insects

_____ Niche shift

_____ As a result of resource partitioning, certain characteristics may enable individuals to obtain resources in their partitions more successfully. Selection of these characteristics (or characters) reduces competition with individual in other partitions and leads to a divergence of features.

_____ Two species of finches that live on two different islands have similar beaks, both suited for using the same food supply (seeds). On a third island, they coexist, but due to evolution, the beak of each bird species is different. This minimizes competition by enabling each finch to feed on seeds of a different size.

_____ The resources a population uses in the absence of competitors or under ideal circumstances

- _____ The sum total of the organism's use of the biotic and abiotic resources in its environment
- _____ The resources a population actually uses

10. Define ecological succession. _____

11. Identify each of the following as true of primary (**P**) or secondary (**S**) succession.

- _____ Begins in a virtually lifeless area where soil has not yet formed
- _____ Succession that occurs on volcanic islands, on lava flows, and on rocks left by retreating glaciers
- _____ Usually begins with the establishment of lichens
- _____ Begins in habitats where communities were entirely or partially destroyed
- _____ Succession on abandoned cropland
- _____ Succession in lakes and ponds