

1. Disturbances

A-Definition: a disturbance is an event that damages an ecosystem, possibly killing organisms or change the availability of food and water.

Example Think of disturbances that can occur ...

a) In a Quebec winter

Severe snowstorms cover dormant plants and seeds that could be a food supply.
Ice storms kill trees, which are also habitats for birds and animals

b) In the spring in Quebec

Flash floods could erode lakeshores, cause runoff and drown small animals. Other animals move to higher ground

c) In the spring in Texas

Violent winds of tornados damage or kill trees and animals.

d) In the fall in Florida and elsewhere on the North Atlantic coast.

Hurricanes can also kill trees and animals and also erode beaches needed for nesting of turtles and birds. See <http://www.hurricanescience.org/society/impacts/environmentalimpacts/>

B- Types of Disturbances

1. Natural Disasters

Examples:

All of the above and earthquakes, cyclones, volcanic eruptions, tsunamis, meteor impacts and bollides([meteors that explode in the atmosphere](#))

2. Human Disturbances

Examples:

Acid rain, runoff, global warming, toxic wastes, nuclear accidents

C- Ecological succession

Definition: a series of changes in an ecosystem that occur following a disturbance

Example 1 If a volcano erupts and turns an entire landscape to lava rock, life can re-establish itself in gradual stages.

From http://en.wikipedia.org/wiki/Primary_succession

For example spores of lichen or fungus, being the pioneer species, are spread onto a land of rocks. Then, the rocks are broken down into smaller pieces and organic matter gradually accumulates, favouring the growth of larger plants like grasses, ferns and herbs. These plants further improve the habitat and help the adaptation of larger vascular plants like shrubs, or even medium- or large-sized trees. More animals are then attracted to the place and finally a climax community is reached.

Exercises

1. Using the internet find an example of a recent natural disaster.

Using the internet does not mean copy it from here!

2. Using the internet find an example of a recent human disturbance.
3. Describe the impact of a volcanic eruption on ecosystems. See <http://volcano.oregonstate.edu/how-do-volcanoes-affect-plants-and-animals>
4. Describe the impact of strip mining on a mountain top. What do you think will happen when sediment from the mountains ends up in valley streams? What will happen to biodiversity if large parts of forests are cut?

The streams will become shallower. Biodiversity on the mountains will suffer and there will be more runoff, soil erosion and then less primary productivity.

5. Find an example of ecological succession associated with
 - a) a natural disaster such as a fire. See http://en.wikipedia.org/wiki/File:Secondary_Succession.png (if the above does not work see big picture in the Wikipedia article on ecological succession)
 - b) The cutting down of part of a forest to make a shopping mall.

