

# Habitat Fragmentation

by Sophia



## WHAT'S COVERED

In this lesson, we will cover the topic of habitat fragmentation. We will discuss what happens to habitats as a result of land development, including the creation of subpopulations, such as source and sink populations. We will explore efforts to mitigate habitat fragmentation, such as corridors and nature preserves, the work of a scientific discipline known as restoration ecology. Specifically, this lesson will cover the following:

## 1. Habitat Fragmentation

As humans develop land for various uses, there is significant habitat loss and environmental degradation. The result is that habitat is broken up into smaller and smaller isolated patches, which can have severe impacts on biodiversity.



Land development also increases the amount of edge habitat, which is different from interior habitat. This leads to differences in the types of species that live in the interior versus those that live on the edges of habitats.

The effects of habitat fragmentation on individual species include the following:

- Species that were formerly connected may become isolated
- Species that require large areas to feed and mate may not survive
- Species successful in edge habitats will increase in population, while those that are successful in interior habitats will decline

---

## 2. Sink and Source Populations

Habitat fragmentation tends to create subpopulations. Two notable types are sink and source populations.

- Sink populations are those that are too small to be able to survive without outside immigrants providing a gene pool that is large enough. Because of this, the likelihood of sink populations going extinct is high.
- Source populations are those that tend to expand and populate areas like sink populations because they are large enough.

The relationship between subpopulations, particularly source and sink populations, is important for the survival of all species. If too many populations become sink populations, then an entire species might go extinct.

---

## 3. Corridors and Nature Preserves

Attempts to mitigate habitat fragmentation are often in the form of corridors. Corridors are strips of habitat that connect patches of fragmented habitats. Movement corridors are those narrow strips that allow species movement between patches. While corridors can result unintentionally from human development, some have also been artificially created with the intent of preserving biodiversity.



Nature preserves are areas of land that have been identified as having high ecological value. They are designated to be protected and have little human disturbance. They tend to have high biodiversity and provide large areas of unfragmented habitats in order to facilitate the success of many animals that need large areas to hunt and thrive.

---

## 4. Restoration Ecology

Restoration ecology is the study of the distribution and abundance of organisms and their interaction with the environment. It is the scientific discipline that helps us create areas like corridors and nature preserves. The intention is to determine ways to restore damaged or destroyed ecosystems.

➞ **EXAMPLE** Tropical forests and their high biodiversity are being degraded and destroyed. Restoration ecologists are trying to help identify causes of destruction and determine which native species of plants can be planted to help tropical forests restore themselves to their natural state.



### SUMMARY

In this lesson, we learned about **habitat fragmentation**, which is a result of significant habitat loss, and environmental degradation, which is caused by human land development. We learned about two types of subpopulations: **sink and source populations**. These subpopulations are created as a result of habitat fragmentation. Lastly, we learned about the creation of **corridors and nature preserves**, the scientific discipline of **restoration ecology**, and the efforts to restore damaged or destroyed ecosystems.

Source: THIS TUTORIAL WAS AUTHORED BY JENSEN MORGAN FOR SOPHIA LEARNING. PLEASE SEE OUR [TERMS OF USE](#).



## ATTRIBUTIONS

- [Logging road](#) | **Author:** T. R. Shankar Raman | **License:** Creative Commons Attribution-Share Alike 4.0 International
- [Corridor](#) | **Author:** Coalición Pro CEN | **License:** Creative Commons Attribution-Share Alike 3.0 Unported