Biodiversity Loss Due to Urbanization and Habitat Fragmentation

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What is Habitat Fragmentation?

Habitat fragmentation is the loss of habitat by creating small isolated patches of wilderness between developed areas.

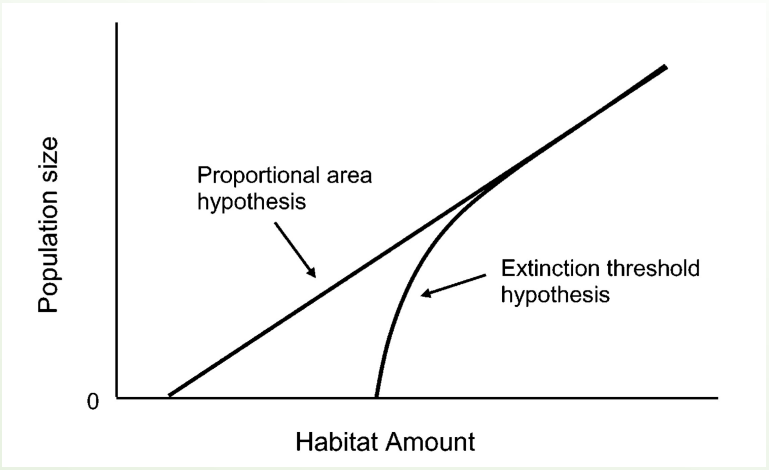

Figure 1. Graph of Extinction Threshold Hypothesis

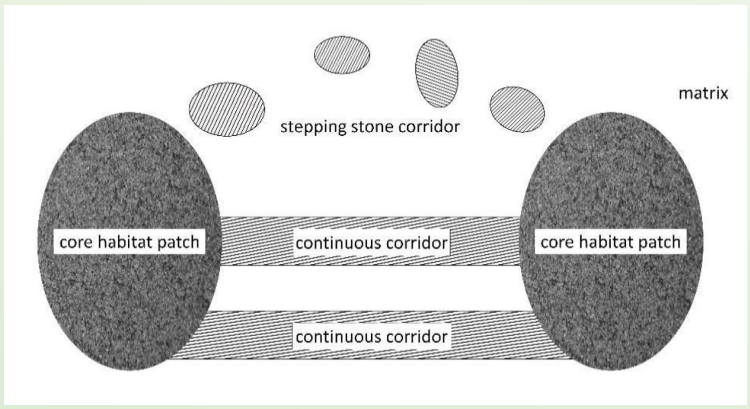

Figure 2. Graphic demonstrating different corridor types

Negative impacts of Habitat Fragmentation on Humans

Animals will need to cross urban areas in order to get from one patch to the next. This could lead to car accidents and for negative encounters with wildlife in urban areas. Interactions between wildlife and humans could lead to the desensitization of wildlife to humans and could lead to violent encounters with wildlife.

There are a variety of diseases that can be transferred from animals to humans, called zoonotic diseases. Most of the time they are not transferred from animals to humans. The reason behind this is that ecosystems are generally biodiverse enough to make sure that diseases do not transfer to humans. Decreasing biodiversity means fewer animal hosts and an increase in the chances that the disease infects humans.

What causes fragmentation?

Fragmentation can be caused by a variety of human influences. One of the most common is urbanization. Construction of neighborhoods and highways can break apart ecosystems and cause them to turn into patches. Ski mountains and the glades they cause are a common example of habitat fragmentation.

Why is this important?

The creation of patches and decrease in patch size can cause a habitat to be too small to support a population. Habitats do have a carrying capacity and if they exceed that carrying capacity species will either start to die or must leave the habitat. According to the Theory of Island Biogeography, small islands (or patches in this instance) will suffer higher rates of extinction compared to larger patches.

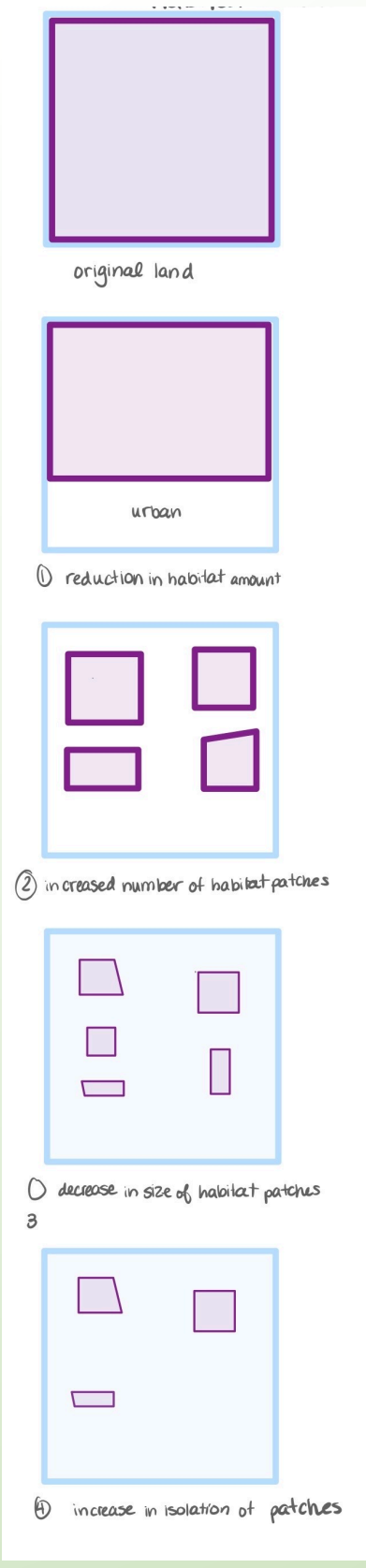

Figure 3. Graphic outlining the 4 steps to habitat fragmentation.

1. Reduction in habitat amount
2. increased number of patches
3. decrease in the size of patches
4. increase in the isolation of patches.

One example of these habitat corridors in action is the Wildlife Overpasses and Underpasses that are found in Banff National Park in Alberta. These overpasses connect two large forests in the park that would be broken up due to the highway passing through.

Solution: Creation of Habitat Corridors

The creation of corridors would help to link different fragmented pieces of ecosystems. Creating corridors would make bridges between two patches which would make sure that animals stay within their habitat and reduces the overall isolation of patches. It also increases the surface area of the patches, therefore allowing for more niches for animals increasing the biodiversity.

There are two corridor types: continuous corridors and steppingstone corridors. Continuous corridors link two patches directly and steppingstone corridors are smaller patches that are close enough to each other that they can bridge two patches.

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