

Are the Everglades Forever?

by ReadWorks



"Snakes," Indiana Jones hisses through his teeth as he looks into a giant underground cavern. The floor of the pit is moving-thousands of snakes wriggling and writhing over one another. "Why did it have to be snakes?"

It's a famous scene from the movie "Raiders of the Lost Ark," in which the main character is confronted by his worst fear. It's just a movie, but the nightmarish slithering mass is becoming something of a reality in the Florida Everglades. The Everglades, a famous region in Southern Florida, are a wetland ecosystem home to tropical and marshland plant and animal species. The Everglades are a protected national park, but that doesn't mean that they're immune to harm. And guess what is one of the most recent and

dangerous threats to the ecosystem? Indiana Jones, beware-it is snakes, and they're big ones.

Reports from just over a year ago say that thousands of pythons have been making their homes in the Everglades at the expense of the native (natural to the area) species. Pythons and anacondas aren't normal inhabitants of the Florida ecosystem; the ones that have taken over the Everglades are ex-pets and their offspring. While it may seem cool that an exotic pet can survive on its own in an unfamiliar environment, these animals are unwelcome visitors. They've managed to upset the natural food chain so drastically that the Everglades are starting to seem a little bit like Indiana Jones's dreaded snake pit. Besides being creepy, an ecosystem overrun by pythons is unhealthy.

There's a lot to consider when talking about the health of an ecosystem and to better understand how scientists measure that, it's helpful to know what some of the buzzwords are. For starters, an ecosystem is defined as a community, characterized by the types of things (plants and animals) that live there; the type of environment around them; and the ways in which they all interact. There are ocean ecosystems, mountain ecosystems, rainforest ecosystems, desert ecosystems and even city ecosystems.

Within those systems, one of the main ways in which animals interact is in the constant search for food. The common term is "food chain," and it's a simple way to see how different species rely on one another. An example of a food chain is this: a rabbit eats grass, a snake comes along and eats the rabbit, and a hawk dives down to eat the snake. Food chains can get much longer and more complicated, though, resembling webs more than linear chains. The word commonly used to describe the relative number of different species in an ecosystem is "biodiversity," and the more biodiversity within the ecosystem, the more complex the food web.

Biodiversity is a good thing. Having many different kinds of plants and animals means that species have different choices for survival. If the simple food chain mentioned above was the only possible choice for the animals involved-if, for instance, snakes could only eat rabbits, and hawks could only eat snakes-then both snakes and hawks would die out, should the rabbit population drop because of an outside factor, like disease. Biodiversity strengthens an ecosystem by ensuring lots of options for hungry animals, from hawks on down to rabbits.

A healthy ecosystem is one in which its plants and animals work in harmony. There are no drastic spikes in the populations of any one species, or drops in another. A large number of different species (a great

biodiversity) is one indicator of an ecosystem's health. Remarkably, biodiversity is not necessarily dependent upon the size of the ecosystem; some of the richest ecosystems in the world exist within narrow boundaries (sections of the Amazon rainforest, for example, and the Galapagos Islands). These ecosystems might be relatively small, but besides threat from destructive human behavior, they're strong because of their biodiversity; each species is connected to the other in some way.

If a healthy ecosystem is one that is home to many different species, mostly native to the area and all interdependent upon one another, what's an example of an unhealthy ecosystem? Flashback to Florida; let's take a closer look at the Everglades. The invasive (not original to a specific environment) pythons and anacondas mentioned earlier are a huge problem-literally. These reptiles can reach lengths of up to 20 feet, which is longer than three adult men lying head-to-toe. At such a size, they have few natural predators, so their numbers grow with little to keep them under control. The snakes compete with alligators for food, even making a meal of a gator once in a while. They've crippled the Everglades' populations of opossums, rabbits, bobcats and foxes, thus dominating the food web to such a degree that there's not much of a web anymore.

Invasive pythons aren't the only non-native species that threaten the Everglades ecosystem. There are invasive plants too, hurting the balance of the Everglades, not only choking out native species (some vine-like plants actually grow over original trees and plants), but growing so thick that they block water flow and movement of animals.

Why should humans worry about the Everglades? The loss of the area's biodiversity doesn't just hurt the plants and animals that originally made their homes there. Humans have benefited from the Everglades in many ways, from the creation of park and tourism jobs to the water supply that keeps the cities and agriculture of Southern Florida running. If the wetlands suffer, so do humans.

A damaged ecosystem is not hopeless, however. Living things, both as individuals and as systems, have resilience (the ability to recover from harm), and can bounce back from damaging situations, especially if they have some help cleaning up the mess. In the case of the Everglades, people are already beginning to work on stopping and reversing the problems that threaten the life of the ecosystem with hopes for a healthier future. For example, people are spreading the word against disposing unwanted pets, such as pythons, in the wild. They warn others about the consequences of releasing these animals in the wild. These consequences include the threat posed to the survival of native species in the Everglades.

Additionally, scientists and members of the government have initiated a plan to restore the Everglades to a healthier state of being, called the Comprehensive Everglades Restoration Plan (CERP). Every year, the Everglades lose some of their water to the coast simply by draining from the wetlands to the sea. The water loss is more than the ecosystem can keep up with; urban and agricultural systems suffer from water shortages, too. The CERP will restore a lot of the water by opening up unused dams and filling in old canals to help redirect water flow back to the wetlands.

So, between focused efforts by scientists and the public alike to help stop invasive species from taking over and efforts like the CERP to improve the Everglades' landscape, improvement is possible. As the Everglades become a more livable environment, it will be easier for species to recover along with the land. And, as the ecosystem finds a balance, humans will be able to keep using the land's resources, both for work and play.

Wetlands and Habitat Loss

by Elaine Mao



What image comes to mind when you think of a swamp? How about a marsh or a bog? Chances are you had a similar image in your mind for all of these. That's because these are, in fact, very similar environments. In everyday use, it is common to use these terms interchangeably, and while there are minute differences among the three land areas, they all belong to the same general category: wetlands.

A wetland is an area of land that is filled or covered with water for at least part of the year. Wetlands are neither completely dry nor completely underwater. They are known as "transition zones" because they are the link between water and land, and they have a unique combination of the characteristics of both. The special characteristics of these "transition zones" enable them to support plant and animal life not found anywhere else. A common nickname for wetlands is "nurseries of life."

Chances are, however, when you envisioned a swamp (or a marsh or a bog), you conjured up an image of a rather unpleasant place: creepy and shadowy, muddy, overrun with snakes and insects. Would it ever occur to you that this could be the kind of place we would want to save and preserve? Probably not.

Wetlands have historically been regarded as wastelands and centers of disease and insect infestation, and humans have sought to avoid or eliminate them when possible. Since the 18th century, more than half of the original wetlands in the United States have been degraded or destroyed. In the 19th century, there was a massive push to drain the wetlands, which harbored malaria-bearing mosquitoes, after a series of yellow fever epidemics. Since then, further destruction has occurred as a result of human activities, such as agriculture, industrialization and development. Wetlands have been drained and converted to farmland, filled in to provide more opportunities for residential and industrial development, or used as dumping grounds for waste. Other human activities, such as pollution, while not directly targeted at eliminating wetlands, have also played a role in the process.

However, in recent decades, attitudes about wetlands have changed. People have begun to realize that wetlands are valuable and productive ecosystems that fulfill an essential function for both humans and wildlife. Due to their unique characteristics, wetlands can support a wide diversity of plants, mammals, reptiles, birds and fish. They also control floodwaters and protect us from storms and hurricanes. Wetlands also improve water quality by filtering, cleaning and storing water. Lastly, many people rely on wetlands for

their livelihood, as they are important centers for hunting, fishing and recreation.

The state of Louisiana, in the United States, relies heavily on wetlands, and is one of the regions of the country that has been most adversely affected by wetlands destruction. Southern Louisiana has some of the most extensive wetlands in the United States, containing approximately 40 percent of the country's total wetlands area. This is because Louisiana is located at the drainage gateway where the Mississippi River meets the Gulf of Mexico. Much of the region's economy and culture is built around the wetlands. However, Louisiana's wetlands are quickly disappearing. Although the state has only 40 percent of the country's wetlands, it also bears 80 percent of the country's wetland losses. Every 38 minutes, the equivalent of a football field is lost. This has serious implications for the region's wildlife and economy, as well as the ability of the region to withstand natural disasters.

The Louisiana wetlands are home to a variety of animals, including alligators, snakes, turtles, coyotes, muskrats, armadillos, pelicans and egrets, among others. The wetlands are a crucial resource for many endangered species. In fact, more than one-third of the United States' threatened and endangered species live only in wetlands, and more than one-half use the wetlands at some point in their lives for breeding, nesting or raising their young. Many species of migratory birds depend on the wetlands and would go extinct if the wetlands were destroyed.

The wetlands are also essential to the state's fishing industry, providing a habitat for fish, shrimp, oysters and crabs. As of 2013, Louisiana's commercial fishing industry is responsible for 25 percent of all seafood produced in the United States, with the highest production of shrimp, oysters and freshwater fish in the nation. Approximately one in every 70 jobs in the state is related to the fishing industry. The destruction of the wetlands would have disastrous consequences for the economy of the area and the livelihoods of many of Louisiana's residents.

In addition to endangering the wildlife and economic prosperity of an area, the loss of wetlands also puts humans at risk. Wetlands serve as a natural buffer zone against storms and hurricanes, slowing down the storms and reducing their force before they move inland. However, as the wetlands disappear, some cities are becoming more exposed.

The city of New Orleans, Louisiana, has already suffered the consequences of this gradual depletion of wetland buffer zones. In 2005, Hurricane Katrina, one of the deadliest and most destructive hurricanes in the entire history of the United States, hit the Gulf Coast. There were more than 1,800 casualties, with the greatest number of them concentrated in New Orleans. Eighty percent of the city was flooded, and there were more than 700 dead. Many blamed the destruction of New Orleans on the failure of the levees, which are manmade barriers that prevent water from flooding into a city. However, scientists and researchers believe that the hurricane would have done far less damage to the city if the surrounding wetlands had been intact. Since the storm, there has been a greater national focus on preserving and restoring the wetlands on the Gulf Coast. Preserving our wetlands and maintaining a buffer zone against storms will only become more crucial in the future, as climate change may increase both the frequency and the severity of extreme weather events such as hurricanes.

In recent decades, since the importance of wetlands became apparent, there has been a push toward better education and regulation. The U.S. Environmental Protection Agency (E.P.A.) has declared the month of May to be American Wetlands Month, which is dedicated to celebrating the ways in which wetlands enrich our lives and the environment.

Regulation has also been an important tool in the fight against wetlands loss. Since 1998, the United States has maintained a "no net loss" wetlands policy. This means that the total area of wetlands in the country must either remain constant or increase. If wetlands are destroyed for agriculture, development, or any other reason, the effect must be balanced out by restoring or reclaiming wetlands elsewhere. The policy has had a dramatic effect in slowing the rate of wetlands loss.

Name: _____ Date: _____

Use the article "Are the Everglades Forever?" to answer questions 1 to 2.

1. What is a recent, dangerous threat to the Everglades ecosystem?

2. The population of pythons in the Everglades is growing out of control. What is an effect of the rising python population on the ecosystem?

Use the article "Wetlands and Habitat Loss" to answer questions 3 to 4.

3. Why have wetlands been destroyed in the past? Cite two reasons from the article.

4. Read the paragraph that begins, "The city of New Orleans, Louisiana..." Based on the information in this paragraph, what caused people to focus more on preserving and restoring the wetlands on the Gulf Coast?

Use the articles "Wetlands and Habitat Loss" and "Are the Everglades Forever?" to answer questions 5 to 6.

5. Compare the threats faced by the Everglades and the Louisiana wetlands. Use details from both texts to support your comparison.

6. How can understanding cause-and-effect relationships help someone to understand the danger of a threat to an ecosystem? Use evidence from both articles to support your answer.