

Name _____ Period _____ Date _____

INTEGRATED SCIENCE B

NTI DAY 8

Are the Everglades Forever?

“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.

1. **A problem explained in the passage about the Everglades is that water is lost along the coast due to draining. What is a possible solution to this problem?**
 - A. Creating more parks and tourism jobs for humans.
 - B. Release more pythons in the Everglades
 - C. Start the Comprehensive Everglades Restoration Plan.
 - D. Introduce invasive plants in the Everglades' ecosystem.

2. **“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.” Based on the evidence, how might humans suffer when wetlands suffer?**
 - A. They may stop creating national parks in Florida to protect the wetlands.
 - B. They may be disappointed when they can no longer see pythons in the wild.
 - C. They may lose access to good jobs and safe water supplies for drinking and farming

