

The florida
everglades  a
wetlands ecosystem



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The Florida Everglades — A Wetlands Ecosystem The Everglades, a vast wetlands ecosystem made up of marshes and swamps, begins at Lake Okeechobee, a large lake in the center of Florida, and ends in the Gulf of Mexico and Florida Bay. It is nearly 50 miles across and 110 miles long (Hinrichsen), and when viewed from the air, appears to be miles and miles of shallow water flowing through thick mats of grass. This perception has earned it the name " River of Grass". Although it does flow like a river, the flow is so incredibly slow that, from a distance, it doesn't seem to move at all. All of the wildlife in the Everglades is totally dependent on the cycling of water. One example of this dependence is the feeding relationship between the snail kite (an endangered bird species), and the apple snail (a freshwater mollusk the size of a golf ball) (Talley). The apple snails reproduce during the rainy season. When water levels are at their highest, they lay thousands of tiny pink eggs on the stalks of marsh grasses. As the water recedes, the snail kites fly all over the Everglades looking for them. Once they find them, they swoop down and use their specialized beaks to pluck the tender snails from their shells. The water cycle and the lives of apple snails and snail kites are intertwined. Snail kites depend on the successful reproduction of apple snails, which is, in turn, affected by the amount of rainfall. Only recently have scientists been able to observe how close this relationship is. When humans drained large areas of the Everglades and converted them to agricultural lands, the population of apple snails decreased sharply. This had a dramatic effect on the snail kite population. In 2003, only 1600 snail kites remained in Florida, the bird's only U. S. habitat (Smith). The relationship among humans, snail kites, and apple snails illustrates the delicate balance of nature in an ecosystem. When humans alter the water cycle, they directly

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affect the food chain. Alligators are animals that often come to mind when people think of the Everglades. The American alligator, once a highly endangered reptile, plays a critical role in the Everglades ecosystem, especially during the dry season (Alligator Holes). As winter approaches, water levels begin to drop. Alligators, which need an ample supply of water to survive, sense the changing of the season and begin to prepare for the dry months ahead. Using their powerful snouts, tails, and legs, they make comfortable dens for themselves by slashing small plants, and muck out of the marsh. As it thrashes its body from side to side, it creates a small hole filled with water. Plant matter and mud piled up around the edges of the hole create dry ground on which other plants eventually grow. After many years, grass, trees, and other plants surround these "gator holes" like fences. Gator holes are important to other species as well. As the water becomes scarce during the dry season, many animals search for food and remaining pockets of water. The gator holes attract crayfish, frogs, turtles, fish, and other aquatic species, all seeking refuge in the deeper waters of the gator holes. Muskrats, otters, deer, and raccoons, as well as a wide variety of beautiful birds, such as ibises, egrets, and herons, visit these sanctuaries to feed on the small animals that can be found there. Because alligators and the watery hollows they make play such an important role in the Everglades ecosystem, they are considered to be a keystone species since many other species depend upon them for their survival. This has earned them the nickname "keepers of the glades." Due to constantly changing water levels, ecosystems like the Everglades can be very unpredictable places. Since the 1800s, people have tried to control the Everglades to prevent flooding (Blake). Large canals were built to send the water into the ocean and away

from the Everglades. The land along the canals dried up and became more useful to people. Before so much of the Everglades was drained, most of its water came from Lake Okeechobee, which sometimes overflowed along its southern edge. With an annual rainfall of nearly 60 inches (Everglades) and the overflow from the lake, a large area of the Everglades used to be wet for most of the year. But the lake was a source of major flooding to towns, especially during the rainy season. In the 1920s, other flood control projects were started, including the construction of a dike along Lake Okeechobee's southern rim. Because the water no longer overflowed from the lake; farmers and ranchers now had more dry land on which to live and work. More projects followed in the 1940s and 1950s. Today, about half of the original Everglades has been drained to create dry land for towns and farms and much of the region is crisscrossed by an elaborate system of canals, dikes, and levees. (Blake) Water control efforts have benefited the residents of south Florida, but now nature no longer controls the flow of water into the Everglades; as a result, the natural balance of the ecosystem has been damaged. The draining of the Everglades has harmed many animals that depend on water for reproduction, such as snails, fish, and frogs. Because these creatures are at the bottom of many Everglades food chains, their diminishing numbers have had a rippling effect throughout the entire community. Like the snail kite, other bird species — such as the ibis, heron, and the endangered wood stork — have suffered. In fact, scientists have estimated that some bird populations have dropped about 90 percent (Birds) over the past fifty years because of the low water levels. Now scientists are encouraging us to realize that a great number of plants and animals must survive to help maintain this delicate environment. Because the canals and

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dikes have helped to dry up the land, part of the original Everglades has become a rich agricultural area. Yet, productivity within this marsh has had a negative effect on its wildlife. In the 1950s and 1960s, bald eagles and pelicans in the Everglades were among the many birds threatened with extinction by the chemical DDT. (Scott) Farmers sprayed DDT on their crops to control insects. They didn't realize that from heavy rains was washing the poisonous chemical into the Everglades. Scientists discovered that DDT caused the shells of birds' eggs to thin, resulting in the death of many young birds before hatching. The U. S. government finally banned the use of DDT in 1972. Agricultural runoff disrupts the Everglades ecosystem in other ways too. Fertilizers, which contain plant nutrients, are washed from the sugarcane plantations a few miles north. These fertilizers cause an excessive growth of algae. The algae can form large mats called algal blooms, which float on the surface of the water and results in eutrophication. The effects of eutrophication can be seen as far south as Florida Bay. As the algae die and decompose, they use up large amounts of oxygen in the water, which causes fish, crabs, shrimp, insects, and other aquatic species to suffocate in the oxygen-depleted water. With the drier conditions created by flood-control, brush fires began to sweep through the Everglades in the 1930s and 1940s. These devastating blazes led environmentalists to pressure the government to establish the Everglades National Park. (Park Establishment) Today, visitors can experience Florida's diverse, rare, and beautiful wildlife in the Everglades National Park. Located in the southwestern portion of the marsh, this is one of the largest national parks in the United States. Each year, millions of tourists come to see the huge array of tropical wildlife, which includes nearly six hundred different types of animals, such as alligators,

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crocodiles, pelicans, snakes, and a multitude of insect species. The Everglades is the largest freshwater wetlands in the continental United States and one of the world's great biological treasures. It is home to many species of endangered plants and animals. But it is also an ecosystem in trouble. Over the past century, about half of the original Everglades has been drained, filled, and converted for farmland and other development. Much of the nutrient-filled water that once flowed naturally through the Everglades has been artificially diverted to sugarcane plantations. As a result, the entire ecosystem has suffered. Damaged wetlands cannot provide suitable habitat for the plants and animals that depend on it for survival. In 1983, the state of Florida, along with several environmental groups, launched the Save Our Everglades campaign to start looking at ways to preserve the troubled wetlands. The project had one clear goal: to make the Everglades look and function more like it did in 1900 than it did in 1983. Throughout the 1980s, scientists worked on this plan. In 1994, the Florida state legislature passed the Everglades Forever Act (Langton), which authorized the Everglades Construction Project — the largest effort ever attempted to restore an ecosystem. One of the projects in the Everglades restoration effort is the construction of 40, 000 acres of artificial marshes (Tibbetts). These marshes will serve as a protective barrier between the sugarcane plantations and the rest of the Everglades ecosystem. The artificial wetlands are essentially huge ponds surrounded by dirt and filled with lots of nutrient-loving plants. Scientists hope that the plants will clean the water by catching and filtering out pesticides, fertilizers, and other farm runoff before it reaches the Everglades. The clean water will then be redirected back into the marsh. Another project is to restore the Kissimmee

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River (Restoring a River). Before people began tinkering with the Everglades, the Kissimmee was a 102-mile meandering river that supplies most of the water to Lake Okeechobee. In 1961, engineers straightened the Kissimmee River to control flooding around Lake Okeechobee and to make room for farms. Most of the water in the river was then diverted into a 55-mile straight channel, officially named the C-38 canal. Scientists expect that once the river is returned to its original path, the habitat for more than three hundred fish and wildlife species, including the endangered wood stork and snail kite, will be restored. A total of 24 endangered or threatened plant and animal species live in the Everglades ecosystem (Threatened & Endangered Species) and most of these species face extinction due to habitat loss. One large Everglades mammal that faces extinction due to habitat loss is the Florida panther, a type of cougar. Two hundred years ago, cougars roamed freely from Alaska to South America; but today, due to habitat loss, the only cougar population east of the Mississippi River is the Florida panther. Despite widespread efforts to save the panther, fewer than fifty remain in the wild (Florida Panther). This makes it one of the most endangered animals in North America. If habitat loss can be halted, biologists hope that the panther population will increase. The Everglades is not yet out of danger. But because some important first steps have been taken, there is good reason to hope that this unique wetland and the fantastic variety of wildlife within it have a future.

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