

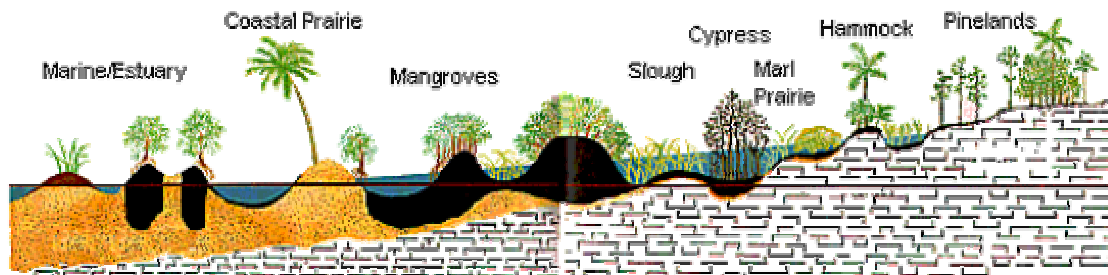
Geography essay 2004

The aim of this essay is to explain the importance of the ecosystem to a named river ecosystem and to discuss how humans are impacting on it. For my named river ecosystem I have chosen the everglades national park, Florida. Its location is shown below. I will split the essay task into two parts to answer them as best I can in an informative and clear way. The first will be on the importance of the ecosystem and the second will be on how humans are affecting it.

An ecosystem is a self regulating biological community in which living things interact with the environment. They can range greatly in size from the inside of a tree trunk to an entire rainforest.



The Florida everglades is a low, flat plain shaped by water and weather action. In the summer wet season it is a wide, grassy river. In the dry, winter season the edge of the slough is dry grassland. Though Everglades National Park is often characterized as a water marsh, there are several very distinct habitats that exist within its boundaries. These are shown in the picture below.



Marine/Estuarine

Florida Bay, the largest body of water within Everglades National Park, contains over 800 square miles of marine bottom, much of which is covered by sea grass. The sea grass shelters fish and shellfish and sustains the food chain that supports all higher vertebrates in the bay. This is a very important part of the everglades ecosystem as a whole because it is the base of the food chain that supports the rest of the ecosystem. Should any links be broken or changed (as is likely in human environments) near the beginning of the chain then the whole system will fail.

Coastal Prairie

This is found between the tidal mud flats of Florida Bay and dry land, the coastal prairie is an arid region of salt-tolerant vegetation periodically flooded by hurricane waves and buffeted by heavy winds. It is characterized by low-growing desert plants that can withstand the harsh conditions. This shows how ecosystems adapt themselves to survive in challenging conditions.

Mangroves

Mangrove forests are found in the coastal channels and winding rivers around the tip of South Florida. Red mangroves and the black and white mangroves thrive in tidal waters, where freshwater from the Everglades mixes with saltwater. This estuary system is an important nursery for shrimp and fish. During the dry months, wading birds congregate here to feed. Many bird species nest in the mangrove trees. This area is important because it is a mix of water types and so will contain a greater variety of life. The link it forms is valuable mainly because it is a feeding area for the waders which rely on the supply of fish and shrimps. It also provides nests for birds in the winter months. If this section of the everglades were to be removed or damaged it would greatly affect the birds and in turn any predators further up the chain or prey further down the chain.

Freshwater Slough

The slough is the deeper and faster-flowing center of a broad marshy river. This "fast" flow moves at a pace of 100 feet per day. Dotted with tree-islands called hammocks or heads, this landscape channels waters from north to south that are important for sustaining life. Everglades National Park contains two distinct sloughs: Shark River Slough, the "river of grass;" and Taylor Slough, a narrow, eastern branch of the "river." There are no surface connections between the two.

Cypress

The cypress tree is a deciduous conifer that can survive in standing water. These trees often form dense clusters called cypress domes in natural water-filled depressions. The trees in the deep soil at the center grow taller than those on the outside. Stunted cypress trees, called dwarf cypress, grow thinly-distributed in poor soil on drier land.

Hardwood Hammocks

Hammocks are dense stands of hardwood trees that grow on natural rises of only a few inches in the land. They appear as teardrop-shaped islands shaped by the flow of water in the middle of the slough. Many tropical species such as mahogany, gumbo limbo, and coco plum grow alongside the more familiar temperate species of live oak, red maple, and hackberry. Because of their slight elevation, hammocks rarely flood. Acids from decaying plants dissolve the limestone around each tree island, creating a natural moat that protects the hammock plants from fire. Shaded from the sun by the tall trees, ferns and air plants thrive in the moisture-laden air inside the hammock. This is a good example of a smaller, mini ecosystem where the ferns and air plants rely on the wet air to survive. Should this be refused them then this unique ecosystem will collapse.

Pinelands

The slash pine is the dominant plant in this dry, rugged terrain that sits on top of a limestone ridge. The pines root in any crack or crevice where soil collects in the jagged bedrock. [Fire](#) is an essential condition for survival of the pine community, clearing out the faster-growing hardwoods that would block light to the pine seedlings. Pine bark is multi-layered, so only the outer bark is scorched during fires. The pinelands are the most diverse habitat in the Everglades, consisting of slash pine forest, saw palmettos, and over 200 varieties of tropical plants. In this case fire is essential for this mini ecosystem to remain, if the balance of natural fires is changed and more artificial ones created then other systems that are vulnerable to fire will suffer.

This shows the basic sections of the everglades and some of the mini ecosystems that exist in them. This is a delicate balance and any disruption to it could be disastrous. A good example of this is that Everglades's plants and animals are adapted to alternating wet and dry seasons. Any water cycle disruptions ruin crucial feeding and nesting conditions which will in turn affect other ecosystems. The wet and dry systems work like so:

During the dry season (December to April), water levels gradually drop. Fish migrate to deeper pools. At this point, birds, alligators, and other predators concentrate around the pools to feed on the abundant and varied fish, amphibians, and reptiles. This abundant food source is vital to many wading birds that are nesting during the dry season.

In May, spring thunderstorms signal the beginning of the wet season. A winter landscape dotted with pools of water gives way to a summer landscape almost completely covered with water. Wildlife disperses throughout the park. Insects, fish, and alligators repopulate the Everglades and by doing so replenish the food chain. By December, the rains stop and the dry cycle begins again.

Due to the fact that everything in the Everglades relies on constant factors that need to stay more or less the same all year round, any human activity in the area is usually detrimental to the park as a whole. There are many things that humans do to affect this area or have done in the past and I shall now go over them.

Tourism – tourism has had a marked effect on the area. Visitors come to visit the area and take tours in motor boats around the channels, this alone causes pollution in the water and if it is enough to kill a certain type of fish or reptile in the area then the effect on the food chain would be disastrous. It would have a knock on effect, increasing the numbers of certain species and decreasing the numbers of others. If the effect is extreme and for example, all the fish in one area are killed then come feeding season, predatory birds will starve unless they find another food source and the smaller insects that fish feed on will thrive, creating unbalance.

Introduction of non native species – Any new species of animal let into the everglades will have an effect, again on the food chain. Well meaning animal owners let their no longer wanted pets such as boa constrictors and pythons into the parks, unaware that the burrowing of these animals will disrupt the vegetation and other archaeological sites. The arrival of non native fish is also a problem as this leads to predatory unbalances and competition for nesting spaces.

The huge increase in the population of Florida is also a culprit in endangering the Everglades, as 200,000 gallons more water are needed to supply the 900 people who move into Florida everyday. As more people move into the area, it becomes more urbanized. Whilst this is still some distance from the parks themselves, the increased amounts of concrete prevent infiltration into underground sources which could otherwise supply the everglades.

Also linked to water supplies are the key factors in water management that will affect the area. The first is water quality. The water runoff from nearby farms brings excess nitrates and phosphates into the park. Excess nutrients reduce the number of beneficial algae and promote unnatural growth of marsh vegetation. The second factor is water distribution. When too little water enters the area, large parts of the park cannot produce the small aquatic organisms that support the food web. For 100 years the area of everglades inundated has been drastically reduced. The third and fourth factors go together: Quantity and timing. Many animals are specifically adapted to the alternating wet and dry seasons. When human manipulations of the water supply are badly timed with natural patterns, disasters can result. An example of this is Alligators, who build their nests at the high-water level. If more water is released into the park, their nests are flooded and eggs destroyed. Another case is that Wading birds cannot find concentrated food sources for feeding their young.

These reasons continue to threaten the Everglades and for many of the problems, no obvious answer is available. The situation will only get worse until someone can think of some effective solutions to these ever increasing problems. Until then, it is a case of hoping not much more of this unique area will be lost through our own doing.

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