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# The Everglades: Paradise Almost Lost

The Everglades in the southernmost part of Florida is a vast expanse of predominantly sawgrass wetlands dotted with small islands of trees. At one time 80 kilometers (50 miles) wide, 160 kilometers (100 miles) long, and 15 centimeters to 0.9 meter (6 inches to 3 feet) deep, the "river of grass" drifted south in a slow-moving sheet of water from Lake Okeechobee to Florida Bay. The Everglades is a haven for wildlife, including alligators, snakes, otters, raccoons, and thousands of wading birds and birds of prey - great blue herons, snowy egrets, great white herons, roseate spoonbills, and osprey, to name just a few. The region's natural wonders were popularized in an environmental classic, *The Everglades: River of Grass*, written by Marjory Stoneman Douglas in 1947.

South of the Everglades is Florida Bay, a shallow estuary dotted with many tiny islands, or keys. Florida Bay and the Florida Keys are greatly affected by the water leaving the Everglades. Both Florida Bay and the Everglades are important nurseries for commercially important fishes, shrimp, lobster, and stone crab- With all the wildlife and recreational opportunities in the Everglades and Florida Bay, it is not surprising that the local economy relies heavily on tourism and commercial fishing. The Everglades today is about half its original size of 1.6 million hectares (4 million acres), and it has many serious environmental problems. Most water bird populations are down by 90 percent *in* recent decades, and the area is now home to 50 endangered or threatened species.

Let us examine a brief history of the Everglades as an illustration of how misguided human activities can cause more harm than good. Basically, two problems override all others in the Everglades today - it receives too little water, and the water it receives is polluted with nutrients.

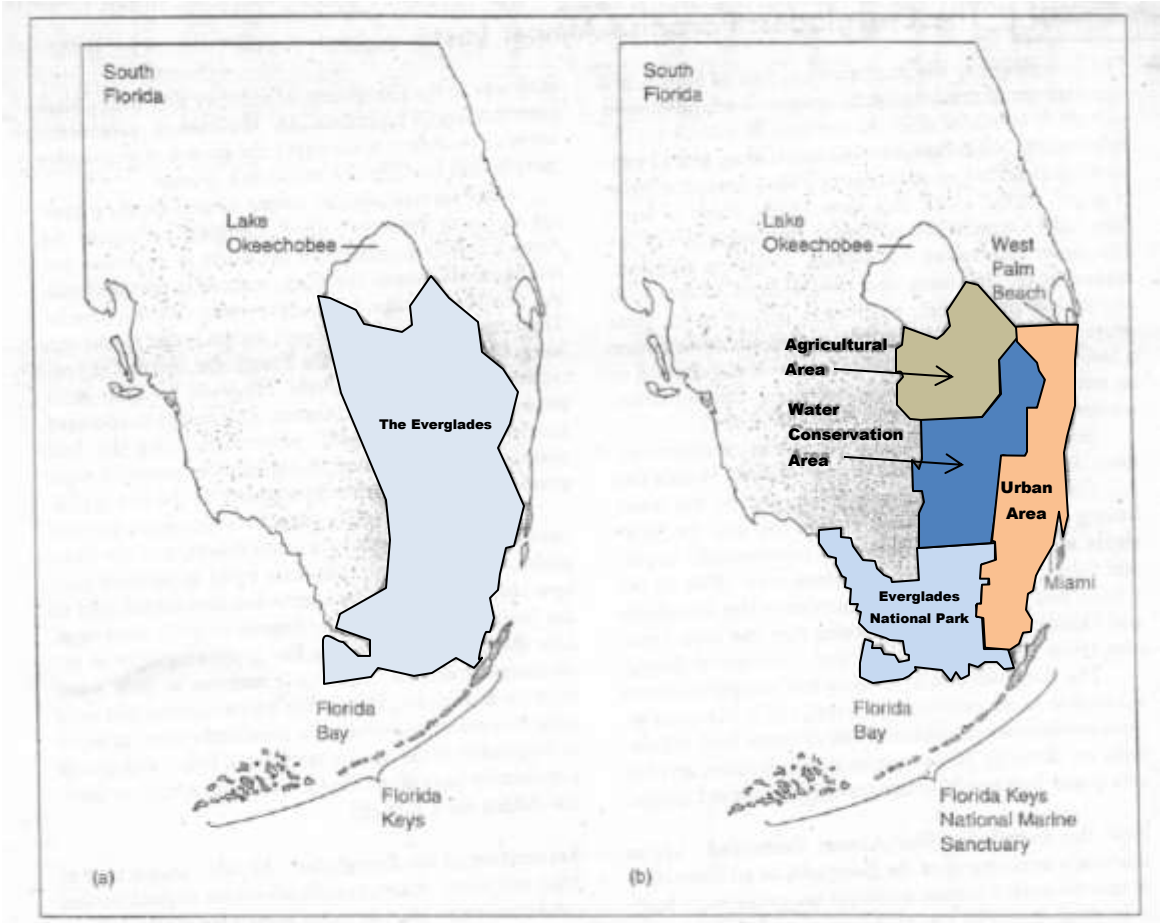
During heavy rains Lake Okeechobee historically flooded its banks, creating wetlands that provided biological habitat and helped to recharge the Everglades. However, when a hurricane hit the lake in 1928 and more than 1800 people died, the Army Corps of Engineers built the 12.2-meter- (40-foot) high Hoover Dike along the eastern 240 kilometers (150 miles) of the lake. The Hoover Dike, which was completed in 1932, stopped the flooding, but it also prevented the water in Lake Okeechobee from recharging the Everglades. Four canals built by the Everglades Drainage District effectively drained 214,000 hectares (530,000 acres) of land south of Lake Okeechobee, which was converted to farmland. The fertilizers and pesticides used in this area eventually make their way to the Everglades, where they alter native plant communities. Phosphorus in fertilizer is particularly harmful because it encourages the growth of non-native cattails that overrun the native saw grasses.

After several tropical storms caused flooding damage in South Florida in 1947, Congress authorized the Army Corps of Engineers to construct an extensive system of canals, levees, and pump stations to prevent flooding, provide drainage, and supply water to South Florida. These structures, which divert excess water to the Atlantic Ocean rather than the Everglades, stopped the periodic floods in South Florida. However, the drier lands produced by the levees, canals, and pumps encouraged accelerated urban growth, particularly along the East coast, and the expansion of agriculture, primarily sugar growing, into the southernmost parts of the Everglades.

Thus, more than 60 years of engineering projects have reduced the quantity of water flowing into the Everglades, and the water that does enter is polluted from agricultural runoff. Urbanization has also contributed to the Everglades problems by fragmenting the ecosystem. Like the Everglades, Florida Bay is showing signs of environmental decline. Because it receives so little water from the Everglades, Florida Bay's water has become more salty. Blooms of cyanobacteria sometimes cover as much as 40 percent of the bay. Its sea grasses, fishes, and sponge populations have all declined, and tourism and commercial fishing have suffered.

Restoration of the Everglades Florida's unique river of grass will never return completely to its original natural condition, there are too many sugar plantations and too many cities in the region. The Everglades can be partially restored, however, and in 1996 Florida and the U.S. government began a massive restoration project to undo decades of human interference. The plan has three parts. (1) Farmers will be forced to clean up their runoff so that the amount of phosphorus entering the Everglades will be reduced. (2) At least 16,180 hectares (40,000 acres) of agricultural land located at the southern end of the Everglades Agricultural Area below Lake Okeechobee will be bought. This land will be converted to marshes that will filter and further clean the agricultural runoff of the remaining 267,000 hectares (660,000 acres) of farmland before it reaches the Everglades. (3) The Army Corps of Engineers will undertake a massive project to re-engineer the area's entire system of canals, levees, and pumps so that a more natural flow of water will be restored to the Everglades. A great deal of scientific research must be done before the restoration can be completed. Many questions remain about how best to restore a more natural water flow, repel invasions of foreign species, and reestablish the natural biological diversity.

Restoration plans have not come without bitter debates that have pitted the state's tourism, fishing, and environmental interests against the region's urban developers and sugar farmers, who are prosperous and politically powerful. One reason the sugar industry is so prosperous is that the federal government provides it with price supports that prevent U.S. consumers from purchasing less expensive imported sugar. After an expensive and often acrimonious battle, a Florida referendum that would have taxed sugar growers a penny for every pound of sugar the produce was defeated in 1996. The tax, along with additional money already provided by both state and federal taxpayers, would have helped finance the restoration of the Everglades.




Past and present extent of the Florida Everglades. (a) The original Everglades. (b) The Everglades today.

# The Everglades: Paradise Almost Lost Article
# Key Questions

1. What type of aquatic ecosystem is the Everglades of Florida?

2. List the chain of events that led to the Army of Engineers construction project.

3. What problems were associated with the water diversion in the Everglades region?

4. What steps were taken to restore the Everglades?