Environmental Case Study
The World’s Biggest Restoration Project

The Florida Everglades have been celebrated as a life-giving river of grass and maligned as an impenetrable, mosquito-infested and alligator-ridden swamp. They have been drained for farming and urban development, yet Floridians depend on their steady flow of water for drinking, fishing, and irrigation. In 2000, the Everglades also became the subject of what may be the world’s largest-ever restoration project, involving at least $8 billion worth of engineering, pumps and channels, modeling, and water management.

Everglades National Park receives over a million visitors each year. People come to see the alligators, the fabulous flocks of egrets, ibises, and herons, and sometimes the placid manatees that graze in the warm, brackish water of the coastal mangroves and lagoons. The ecosystem survives on a steady sheet-flow of water that spills over from Lake Okeechobee to the north. Slowly moving water provides breeding and feeding grounds for fish, invertebrates, birds, alligators, even the rare Florida panther.

Today’s Everglades is a shadow of its former glory, though. The wetlands are diminished, and 90 percent of the birds have disappeared, mainly because of habitat loss. The reason for the ecosystem’s gradual collapse is channelization and drainage. Since the park was established, the U.S. Army Corps of Engineers has built 1,600 km of canals, 1,000 km of levees, and 200 water control structures to drain farmlands, prevent flooding, and stop the natural sheet-flow of water through the region. Much of this work was done to benefit a growing sugar industry, built largely by Cuban sugar magnates who fled the communist takeover in Cuba. But other agriculturists have benefited, too, as have residents of nearby Miami, one of the country’s fastest-growing metropolitan areas.

Today, straightened rivers and a network of canals send much of the region’s water out to the ocean. Growing cities demand more and more land—and more water. Meanwhile, agricultural chemicals from the sugar fields upstream contaminate surface water, groundwater, and soils in the area. The national park is vulnerable to all these changes because it occupies—and controls—only the downstream end of the much larger Everglades ecosystem.

To resolve these complex problems, Florida and the Army Corps of Engineers have proposed the Comprehensive Everglades Restoration Plan (CERP). The plan aims to reengineer the water systems, returning some water to the Everglades, yet retaining control and preventing flooding. The Corps will remove nearly 400 km of levees and canals. New reservoirs will store water currently lost to the ocean, and 500 million liters of water per day will be pumped into underground aquifers for later release. New canals and control structures will restore some of the original sheet-flow. Rivers will be de-channelized. Agricultural wastewater will be cleaned by special treatment plants and 14,000 ha of new filtration wetlands.

All these steps are, of course, controversial. Sugar interests have delayed and reduced water cleanup measures. Groundwater storage may contaminate aquifers. Ecologists doubt that the ecosystem will fully recover without restoration of seasonal flooding. And growing urban and suburban demands for water are likely to crowd out the urgent needs of the wetlands.

Although announced with great fanfare in 2000, the restoration project, so far, is behind schedule, over budget, and at serious risk of losing congressional support. A blunt internal memo written by a top manager in the Corps of Engineers was leaked to the press in 2005. It said, “We haven’t built a single project during the first five years, and we’ve missed almost every milestone.” The memo echoed concerns of environmentalists, the Miccosukee tribe, and others who have been complaining about the lack of progress for years. The state of Florida, which was supposed to share the costs of restoration, has put up more than $1 billion, nearly five times more than federal agencies to date.
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Despite the controversy, delay, and debate, the Comprehensive Everglades Restoration Plan is remarkable because it represents a huge commitment on the part of Congress, and the state of Florida, to preserving this suffering ecosystem. Pragmatic concerns for human livelihoods (fishing, tourism, clean water sources) help justify this commitment. But the restoration project is also driven by a widespread concern for the loss of a remarkable and beautiful ecological area. Park managers are excited about the possibility of seeing the park reconnected to the larger Everglades ecosystem.

This case study illustrates some of the difficulty preserving natural environments. Why do we do it? How do we do it? What works, and what doesn’t? By now, you are well aware of the damage humans can do to their environment, but the steps we’re beginning to take toward preservation and restoration are also promising—and they can make an important difference in preserving biodiversity and environmental health.