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Climate Change and the Current Trajectory of the Everglades – Will they last forever?

Introduction

Before the 1900s, the Everglades, located in Southern Florida, was relatively untouched by humans. The Kissimmee-Okeechobee-Everglades watershed was around 9,000 square miles in area, and the diverse habitats that make up the ecosystem, such as the sawgrass plain, cypress swamps, marshes, and mangrove forests were over 18,000 square miles in area (FotE: Size and Interconnectedness 2011). The Everglades bulk water area was once 4,000 square miles, but due to industrial activity, it is now less than half of its original size (Florida Museum of Natural History 2016). During the early 1900s, the Governor of Florida, Napoleon Bonaparte Broward, started the process of externally controlling the Everglades through a drainage project. This decision was to increase the economic viability of Southern Florida; it created agricultural and residential areas (Florida Department of Environmental Protection 2009). These drainage areas severely impacted hydrological features and biological interactions within the ecosystem. With the Everglades in desperate need of restoration assistance, the U.S. Department of the Interior created the Everglades National Park (ENP) (Everglades National Park Expansion). The ENP comprises 2,357 square miles of the Everglades' ecosystem, and it contributes significantly to its protection. The IUCN would officially designate the ENP a protected area, according to its own definition: an area of land and/or sea especially dedicated to the protection and maintenance of

biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means. (IUCN 2011).

In 2000, continued concerns over the health of the Everglades prompted the creation of the Comprehensive Everglades Restoration Plan (CERP), authorized under the Water Resource Development Act of 2000, and implemented jointly by the U.S. Army Corps of Engineers and the South Florida Water Management District (About CERP; Gunderson and Light 2006). This management plan is heavily critiqued because the effects of levees, canals, and water control devices on the health of the Everglades are supposedly going to be mitigated through additional management techniques also focused on control - a paradoxical relationship (Gunderson and Light 2006). The increasing intensity of climate change is compounding the external controls implemented in the Everglades ecosystem. The current management plan of the Florida Everglades, the Comprehensive Everglades Restoration Plan (CERP), is not adequately designed to protect the ecosystem against climate change. But, the very recently made 2015 General Management Plan/East Everglades Wilderness Study/Environmental Impact Statement for the Everglades National Park (GMP) is designed to combat climate change effects. The plan incorporates adaptive management techniques; increases vertical political involvement; describes goals with precise and direct language; utilizes scientific tools like experiments, monitoring, and measuring; and involves a wide array of stakeholders (NPS and USDOJ 2015). The GMP will greatly increase the probability that the Everglades National Park will cope and adapt to climate change effects. The GNP is a holistic plan that incorporates all ecosystem management and restoration techniques while utilizing the expertise of both governmental and non-governmental stakeholders, giving the ENP a leg up over the rest of the Everglades' ecosystem.

Influence of Climate Change on the Everglades

The Everglades ecosystem was created over millions of years of unique events. Around 150 million years ago, the land of South Florida was the sea floor. This allowed limestone to accumulate over millions of years, which created the base of the Everglades. A large porous layer of limestone was deposited around 110,000 years ago. This porous layer holds water, which created the Biscayne Aquifer that lies under the Everglades today. The well-known Floridian climate was created around 5,000 years ago. This sub-tropical climate allowed for the unique water table in the Everglades to be created, and allowed for the wetland ecosystem to thrive. The climate is characterized by dry winters and hot, wet, summers. These summers produce around 50-60 inches of rain per season. Water is the most important abiotic factor for the Everglades with precipitation being the highest contributor (FotE: Early Formation of the Everglades Ecosystem 2011). Other water inputs include seawater, the Biscayne Aquifer, Lake Okeechobee, and storm surges. Besides being a wetland, the Everglades is also characterized as a peatland. This peat was created over millions of years of compacted detritus, and it influences the water holding capacity and hydrology of the Everglades to a massive extent. Peat dries easily, which means that a high input of water is needed for the ecosystem to combat evapotranspiration losses (The Florida Oceans and Coastal Council 2010).

Up until the 1850s, the climate of Florida had been relatively stable. This keeps the Everglades habitable for diverse wildlife such as alligators, crocodiles, pythons, flamingos, and other waterfowl. Over millennia, highly specialized mutualistic relationships formed between abiotic factors, flora, and fauna seen in marshes, mangroves, and intertidal oyster reefs. These inter-ecosystem relationships are tightly bound but are relatively weak when faced with external factors and stressors, such as climate change (The Florida Oceans and Coastal Council 2010). Historically, the Everglades received most of its water from precipitation, but in the coming

years, this could switch to seawater due to sea-level rise. With more than 1,200 miles of coastline, 4,500 square miles of estuaries and bays (including the well-known Florida Bay), and 6,700 square miles of additional coastal waters, South Florida is highly susceptible to the negative consequences of sea-level rise (The Florida Oceans and Coastal Council 2010). According to the United Nations' Intergovernmental Panel on Climate Change, sea-level rise is already happening and is heavily influenced by human-induced climate change. By the year 2100, oceans could rise between 0.5 meters and a meter, enough to drown South Florida (The Florida Oceans and Coastal Council 2010). With a 2° Celsius warming, a large portion of the Everglades National Park will be under water; the southern tip of Florida to slightly above Route 27 will be affected. With a 4° Celsius warming, inundation will reach above Fort Myers and in some areas close to Lake Istokpoga (Surging Seas Mapping Choices 2015). South Florida is just above sea level with most areas below an elevation of 5 feet, so even a small fluctuation in sea level will affect the Everglades and the Everglades National Park (Bloetscher 2011). Scientists have postulated that sea-level rise could be even greater than one meter by 2100. If high-altitude glaciers and ice reservoirs start to melt, we could be facing two-meter sea-level rise. This would mean water would reach even further inland, potentially drowning the entire Everglades National Park, Everglades ecosystem, the state of Florida, and beyond (The Florida Oceans and Coastal Council 2010).

Sea-level rise is not the only effect of climate change on the Everglades. More frequent and severe flooding, droughts, and storm surges are on the horizon with the current trajectory of greenhouse gas emissions. Greenhouse gasses like carbon dioxide, methane, nitrous oxide, and tropospheric ozone started dramatically increasing with the industrial revolution due to fossil fuel combustion, stationary and mobile source pollution, agricultural production, and waste

generation. High-global warming potential (high-GWP) greenhouse gasses like hydrofluorocarbons (HFCs) and sulfur hexafluoride (SF₆) were heavily released before the Clean Air Act of 1970 (NPS Environmental Leadership Program). Minute concentrations of high-GWP gasses have disastrous consequences, and all GHGs influence global temperature averages. Before 1750, there was around 280 parts per million (ppm) of carbon dioxide, 722 parts per billion (ppb) of methane, 270 ppb of nitrous oxide, and 237 ppb of tropospheric ozone. In pre-industrial times, there were no chlorofluorocarbons (CFCs) in the atmosphere. The most current measurements of GHG atmospheric concentration show 399.5 ppm of carbon dioxide, 1834 ppb of methane, 328 ppb of nitrous oxide, and 337 ppb of tropospheric ozone. Now, CFCs concentrations range from 8.6 parts per trillion (ppt) to 516 ppt. This is a statistically huge difference from the pre-industrial level of zero (Blasing 2016). With increased GHG emissions come increased temperature, and this higher temperature alters climates and seasonal patterns. Wet seasons are much wetter and dry seasons are much dryer. This leads to more frequent and severe floods and droughts.

Both increased and decreased yearly precipitation rates will alter the salinity balance of the Everglades and destroy important ecosystem interactions. Droughts will increase salt levels dramatically, and floods will lower salt levels to dangerous levels for marine life. The Everglades is a mix of fresh and saltwater, so balanced salinity is crucial to the stability of the ecosystem. (Nungesser et al. 2015). The evapotranspiration rate will change, and seawater infiltration will increase, which will cause higher concentrations of salt in the Everglades. Droughts also add to increased salinity; evapotranspiration still takes place, but salt deposits are left behind in the lower amount of water. Freshwater species will be the most severely affected by increased salinity, but saltwater species will be affected as well because they are specialized to the

historical salinity level. Currently, South Florida receives between 132 and 152 centimeters of rain per year, and South Florida loses between 124 and 132 centimeters of water through evapotranspiration per year (Nungesser et al. 2015). There is a net positive balance of water into the ecosystem under the current climate. With climate change, however, years of drought could change the balance of water in the Everglades from positive to negative, thus an affective adaptive management plan, like the GMP, is needed to protect the Everglades' ecosystem and the Everglades National Park.

Currently, the Everglades National Park has completed an analysis of its GHG emissions and its impact on climate change. It was the first National Park to use the newly designed Climate Leadership in Parks (CLP) tool to complete its analysis (NPS Environmental Leadership Program 2005). This is an important breakthrough because park managers and staff can easily see how different actions taken around the park can affect its GHG emissions. CLIP is a great example of ecosystem stewardship. Park staff and visitors can put climate change decisions in their own hands. Based on the 2005 National Park Service and EPA Climate Friendly Parks' workshop, the ENP is taking steps to combat climate change (NPS Environmental Leadership Program 2005). Workshops represent passive adaptive techniques and allow for increased learning in the ecosystem management process. It is a positive socio-economic step to preserve and conserve the Everglades' ecosystem and to mitigate climate change. The Climate Friendly Parks – Everglades National Park Action Plan discusses three strategies the park will utilize to respond to climate change.

The first strategy is to “reduce fuel use and GHG emissions from transportation” (NPS Environmental Leadership Program 2005). Based on the GHG emission analysis, mobile combustion is one of the biggest contributors to the park's GHG emissions. Park managers are

looking into ways to reduce both the amount of water and the number of land transportation vehicles that park managers and staff use. Strategy 2 is to “reduce GHGs Through Buildings and Facilities Management” (NPS Environmental Leadership Program 2005). This will be done through sustainable facilities development, elimination of hazardous waste, utilization of better waste management practices, mitigation of fuel for non-transportation purposes, and through the use of green and recycled products throughout the park. This is a measurable strategy that can monitor the efficacy of the park’s plan to reduce its footprint. Strategy 3 is incredibly important because it is the best representation so far of the park’s commitment to ecosystem stewardship. Strategy 3 is to “increase climate change outreach and education (NPS Environmental Leadership Program 2005). Staff will be involved in education programs as learners and as teachers. Park programs will involve information about climate change issues, and this will reach even further into statewide education programs (NPS Environmental Leadership Program 2005). This is an example of communicating the risks of climate change, one of the important aspects of environmental law and policy. The Everglades National Park Action Plan assures that the park is addressing climate, which is more than can be said about the CERP management plan, which plays an even bigger role in ENP ecosystem management (NPS Environmental Leadership Program 2005).

Everglades National Park and Everglades’ Ecosystem Legal Protections

The CERP and GMP are present implications of the large public and political interest in environmental protection that took place in the 1970s. Public outcry over environmental issues influenced politicians, and the Nixon Administration implemented Reorganization Act #3, which was the Executive Order that created the Environmental Protection Agency in 1970 (Reorganization Plan No. 3 1970). This agency became one of the head authorities of

environmental issues along with the U.S. Army Corps of Engineers. More environmental legislation was passed in 1970 with the National Environmental Policy Act (NEPA) and the Clean Air Act (CAA). In 1972, the Clean Water Act (CWA) was passed. In 1974, the Safe Drinking Water Act (SDWA) was passed. These all influenced the regulations and requirements of the 2000 Comprehensive Everglades Restoration Plan (CERP), which was authorized under the Water Resource Development Act of 2000 (About CERP). It is a federal/state collaborative effort; the USACE and the South Florida Water Management District (SFWMD) act as the federal and state entities respectively, and these are the entities that implement CERP (Gunderson and Light 2016). CERP is the main ecosystem management plan for Everglades' restoration, while the GMP is the recently approved management plan for the Everglades National Park. It should be noted that CERP influences the ENP as well.

30 Stat. 535, 16 U.S.C. 1-4 is the act "An Act to establish a National Park Service, and for other purposes," also known as the Act to Establish a National Park Service of 1916 (Organic Act 1916). This created the National Park Service (NPS) in the Department of the Interior. The Secretary of the DOI appoints a director and other employees of the NPS. The NPS director supervises all National Parks, which includes the Everglades National Park. The Organic Act's effectiveness has been drastically altered over the past century because of increased rates of population growth, urban development, agricultural development, economic development, higher energy needs to satisfy technological advances and population sizes, and competition for limited resources (Jamieson 1988). All these factors have directly or indirectly influenced climate change, and climate change effects are encroaching on the ENP area. One of the major problems with legislative language is that if acts are written vaguely, there is a lot of room for external influence to halt its efforts. The reason the Organic Act legal provision does not hold as much

weight as it should is that language chosen for the legal document is based in contradiction.

Under the Organic Act, National Parks are supposed to conserve and protect the natural environment within the park area while also providing recreational opportunities to visitors and citizens (Jamieson 1988).

This socio-ecological relationship is easy to plan for in theory, but difficult to realize in actuality. Strategies that positively impact ecological conservation usually negatively impact recreational wants and needs. New ecosystem management techniques value human-ecosystem interaction, but designing management plans that maximize ecosystem conservation while maximizing human utility is challenging. Plus, including recreational opportunities for the public in the requirements of the act allows for non-environmental interests to gain a foothold in litigation. The public recognized the flimsiness of the requirements of the Organic Act, and filed lawsuits because of it. The Organic Act was amended to give the Secretary more authority in regulating conservation efforts. This came about due to lawsuits like, the *Southern Utah Wilderness Alliance v. National Park Service*, *Bicycle Trails Council of Marin v. Babbitt*, and most importantly from *Sierra Club v. Department of Interior*. Even with the amendment, environmental interest groups found that the language still did not provide the ENP with enough protection from external factors, such as climate change. The amendment did not protect against natural resource “taking”. Neither did it establish appropriate protective measures for ecosystems to bounce back from stressors, nor did it provide accurate “resource valuation” to ecosystems threatened by climate change (Jamieson 1988). The fact that climate change was never mentioned in the amendment, especially since this amendment occurred after the advent of the environmental movement, shows that modern legal provisions are “threatened” by climate change’s potential power in limiting the control of non-environmental interests.

The Everglades National Park was created by “An Act to Provide for the Establishment of the Everglades National Park in the State of Florida and for Other Purposes” in 1934. The ENP was made because of public concern over the alteration of the watershed due to water control structures and development. The Secretary of the Interior presented a study to Congress in 1930 to explain why the Everglades area (now within park boundaries) should be protected from external factors (human imposed water controls) while preserving the definition of “park” (Everglades National Park Expansion). This Act was much more explicit about preservation than other Acts creating National Parks. One of the most important provisions included:

The said area or areas shall be permanently reserved as a wilderness and no development of the project or plan for the entertainment of visitors shall be undertaken which will interfere with the preservation intact of the unique flora and fauna and the essential primitive natural conditions now prevailing in this area (Everglades National Park Expansion).

The Secretary of the Interior has a clear statutory directive to follow. But the current projects implemented under CERP that effect the Everglades National Park show that sometimes this is not followed as closely as it should be, but once the GMP is implemented, this should be fixed.

The federal Flood Control Act of 1948 authorized the Central and Southern Florida Project for Flood Control and Other Purposes. This Act included the designation of the Everglades Agricultural Area, the creation of central Everglades’ water conservation areas, and construction of an eastern levee. This project is now managed and sponsored by the Southern Florida Water Management District (SFWMD), created in 1977 (formerly known as the Central and Southern Florida Flood Control District). The SFWMD manages water resources for 8.1 million Floridian residents in South Florida. Its main duties are improving flood control through

around 4,100 miles of canals, levees, and berms; water supply through 71 pump stations; improving water quality through around 3,500 hydrological monitoring stations; and improving natural systems like the Upper Chain of Lakes, Lake Okeechobee, Caloosahatchee River and estuary, Everglades Water Conservation Areas, and Everglades National Park/Florida Bay. SFWMD remove large amounts of nutrients before they enter the Everglades through engineered wetlands (South Florida Water Management District). The SFWMD is responding to climate change. Flood control is a necessity to Florida's urban, agricultural, and conservation infrastructure, especially with higher rates of severe floods because of climate change. Locational changes of nutrient deposits and changes in the amount of nutrients found in the Everglades' water supply could be affected by sea-level rise. This local entity (SFWMD) is preparing for climate change through adaptive management techniques, although these in some cases, privilege human protection over ecological protection.

In the federal register, 16 U.S. Code Section 410r-5, the Everglades National Park Protection and Expansion Act of 1989, was written by Congress on December 13, 1989 to increase the protection of the ENP already dictated in the "An Act to Provide for the Establishment of the Everglades National Park in the State of Florida and for Other Purposes". Sections 410r-5 to 410r-8 increase the overall protection of the Everglades by formally adding the Shark River Slough and the East Everglades to the ENP. This added an additional 107,600 square acres to the park. Not only were acres added under 16 U.S. Code Section 410r-5, but Congress dictated that the park must be, "managed in order to maintain the natural abundance, diversity, and ecological integrity of native plants and animals, as well as the behavior of native animals, as a part of their ecosystem" (Cornell University Law School). Maintaining the ecological integrity, behaviors, and interactions of the ecosystem's flora and fauna is an indirect

hint that climate change is influencing policy. But, because of its controversial nature, the term “climate change” is conspicuously missing from many of the Acts designed to protect the Everglades. The Act includes more local involvement through decentralization and cooperative federalism; the Secretary of the Interior is the administrator of the Act, but can delegate tasks to state government actors (Everglades National Park Expansion). This is an important technique for protecting natural areas. State and local governments generally have a better idea of what is necessary to protect an ecosystem than the federal government does, and they are more aware of the impacts of climate change on the local area. Thus, mitigation strategies are more likely to be passed at the local and state levels. While this Act is supposed to mitigate additional habitat destruction and degradation within the Everglades, there are no clear directions or requirements as how to do so.

Public Law 106-541 is the Water Resources Development Act of 2000. Title VI of this law authorized the Comprehensive Everglades Restoration Plan, the management plan currently in place for Everglades’ restoration and Everglades National Park. There are ten initial projects for CERP management with a total cost of \$1.1 billion. Each project needs a project implementation report, a submission of report, and approval by the Committee on Transportation and Infrastructure of the House of Representatives. As written by Congress, CERP is designed to restore, preserve, and protect the South Florida Ecosystem, including the Everglades’ ecosystem and Everglades National Park, while serving the water needs of the general public. This includes water for drinking, cleaning, and other purposes, plus flood protection. If any of the regulations listed in Title VI are violated, plaintiffs may bring a civil action to the U.S. district court (with exceptions) against the federal government of the United States, the State Department of Florida,

an official federal officer, an official state officer, or any combination thereof (Water Resources Development Act of 2000).

CERP requires a public comment period for the general population to express concerns and opinions about proposed projects and new regulations. New projects should have project implementation reports, project cooperation agreements, operating manuals, and public comment opportunities for each new modification to a project or regulation. The Secretary and the Secretary of the Interior in consultation with federal agencies and the State of Florida must issue Reports to Congress that share the plan, design, and progress of projects implemented or in the process of being implemented. The term “climate change” is never mentioned in Title VI. In fact, the entire document never mentions climate change. The older term “global warming” is also never mentioned in the 140-page public law document (Water Resources Development Act of 2000). This document was written in 2000, a time when climate change was a well-known concept. This is a perfect example of indirect, weak statutory language. Although many of the regulations and requirements mentioned in the CERP are helpful towards mitigating climate change effects, it refuses to acknowledge the phenomenon. Statutes, laws, regulations, and policies are consciously and carefully written. There are reasons why certain words are chosen, certain words are left out, certain verbs are used, and certain entities are mentioned. Sometimes, deliberate wiggle room is left in policies to allow for some stakeholders to gain a foothold while others end up on a slippery slope.

Implications for new ENP Plan – Climate Change Mitigation Potential

In 2015, the USDOJ published the General Management Plan/East Everglades Wilderness Study/Environmental Impact Statement Record of Decision for the Everglades National Park. This management plan is a shining example of the guidelines written by IUCN for

protected area legislation. This document explains the new management technique to be employed in the ENP - an adaptive management technique. This report is additional regulation on top of CERP. Even though it is a relatively new document and thus is only in the planning phases, it goes above and beyond CERP. The General Management Plan will be flexible, adaptive, responsive to resilience in the Everglades' ecosystem, and responsive to transformability and variability within the ecosystem. It will use experimental techniques (active management technique), measure the efficacy of trial management techniques (active management technique), and rely on the foundation that ecological, socio-ecological, and institutional factors should all play an equal role in ecosystem management (NPS and USDOJ 2015). The USDOJ, NPS, US Fish and Wildlife Service, National Marine Fisheries Service, Florida Department of Environmental Protection, State Historic Preservation Office, American Indian Tribes, and the public were consulted and involved in making this plan. Indigenous groups are sometimes forgotten or given little priority in management plans that directly affect their way of life. In 2007, the UN officially recognized the importance of indigenous peoples' rights and input in natural area protection, and released the UN Declaration on the Rights of Indigenous Peoples document (IUCN 2011).

ENP managers, NPS and USDOJ will implement the General Management Plan. Stakeholders are a top priority of the GMP. An Everglades National Park Committee will be created so that managers will have input on possible adaptive management techniques that will be implemented. Environmental groups, business groups, agricultural corporations, water companies, residents, urban areas, and scientists are stakeholders, and with this plan, their views will be accounted for much more effectively than the CERP. The objectives of the GMP are to learn while implementing climate change mitigation practices and ecosystem restoration and

conservation practices. This plan uses the term “climate change.” This shows accountability, as it recognizes that hurricanes, storm surges, increased flooding, increased droughts, sea-level rise, variations in precipitation, and water table fluctuations are effects of climate change. New construction, structures, and buildings need to be able to stand up to these factors. One of the options for buildings is an elevated/hardened/relocatable structure. Construction plans now consider flood risk, sea-level rise, wave intensity, and structural integrity (NPS and USDOJ 2015). Along with the CERP water control projects (not an adaptive management plan), the park should be somewhat prepared for climate change impacts. The emphasis on monitoring and measuring of wildlife, wetlands, vegetation, water resources, and special wildlife protection zones, will provide information about management techniques that work, do not work, are successful, or unsuccessful. Even unsuccessful management strategies are useful because they provides a basis of knowledge for potential problems in the future.

The CERP management plan, on the other hand, is pathologically resilient. Ecosystems fluctuate and evolve based on internal and external factors. Adaptive and flexible management plans that can work with these fluxes are crucial for the ecological health of managed areas. The CERP management plan is resistant to change and is overly resilient because of it, which acts as a paradox. The management plan is unable to conserve and preserve the Everglades’ ecosystem effectively - which it is designed to do - because of the design itself (Gunderson and Light 2006). The GMP is a much better representation of what the CERP should have been in the first place. CERP has low adaptive capacity, low transformability, incredibly high resilience, and it puts the ecosystem in a vulnerable state because it relies on man-made controls to thrive. Stakeholders have a hard time influencing strategies within the plan because of its highly institutional design. CERP relies on human imposed external controls like levees, canals, dams, and water control

structures Institutional and policy changes focus on these controls, and, in turn, make them resilient and difficult to remove from the system. The economy then becomes dependent on the system created by these controls, which makes it nearly impossible to change the status quo created by the plan (Chapin et al. 2009). Furthermore, the CERP management plan lacks community input and involvement, something very important in Natural Areas Protection. Political leaders have moved away from the project overtime. This negatively affects the plan's ability to make any positive impact. The National Research Council even filed a report to Congress because of the lack of urgency surrounding Everglades' restoration. But, with the GMP plan, it looks like things are starting to turn around.

The IUCN Guidelines for Protected Areas Legislation is an important tool for managers to utilize when creating management plans for National Parks and other Natural Areas. The Everglades National Park falls under the IUCN Category II protected area category, National Park. The GNP is an example of co-management. Federal agencies, state agencies, organizations, foundations, citizens, and other stakeholders are involved in the implementation of the GNP plan. Since the ENP was designated a World Heritage Site in 1979, it has to follow strict guidelines created during the Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention). These included stakeholder knowledge of the entire ENP property; an adaptive management systems approach (something just now implemented with the GMP); active participation by partners and stakeholders, allocation of resources; and an explicit description that emphasizes accountability of management decisions (IUCN 2011).

Only legislation in the past six months has been proven worthy of the status "adaptive management" for the Everglades' ecosystem. With that term comes implications that the

management plan will be flexible, moldable, and willing to bend with the effects of climate change. Since the Everglades and the ENP are situated on land close to sea level, this has huge implications for the protection of the ecosystem as a whole.

Conclusion

A good management plan is difficult to design and even more difficult to implement, but with the risk of climate change becoming ever more apparent, it is necessary for the health and protection of an ecosystem, especially the Everglades. Legislative history surrounding the Everglades shows error after error, with some slight improvement in 2000 with the CERP management plan, although even this lacked IUCN preferred management guidelines and techniques. With the recent publication of the General Management Plan/East Everglades Wilderness Study/Environmental Impact Statement Record of Decision for the Everglades National Park, there is a much bigger chance the ENP will be able to adapt to climate change and hopefully reduce its footprint as well. The Everglades National Park Action Plan will ameliorate the park's existing influence on global climate change while also building adaptation strategies for climate change's incoming wave of effects. At this point in history, climate change will affect National Parks and natural areas even with mitigation techniques. However, without them, the situation will get much worse much faster. That is why it is important for natural areas' protection management to reduce impacts while preparing to adapt to climate change effects. With global, international, national, state, and local policies influenced by various stakeholders, and representing different interests, natural areas have a much higher chance of surviving the brute force of climate change.

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