

SCIENTISTS IN PARKS

PROJECT DESCRIPTION SUMMER 2021

NPS UNIT: SOUTH FLORIDA/CARIBBEAN INVENTORY & MONITORING NETWORK	PD #: 2021045
<p>Project Title: Documenting 31 years of Vegetation Change on the South Florida Landscape. (1) Primary natural resource discipline: Biological Sciences Project keywords: GIS, Climate Change, Disturbance, Vegetation map, Geospatial Analysis Location: Miami, Florida</p>	
<p>COVID-19 NOTICE</p>	
<p>As the COVID-19 pandemic continues to change and evolve, project timelines and structure remain flexible and it may be necessary to postpone start dates, begin work remotely, or reformulate the project's description. Should any development in the COVID-19 outbreak impair a project's timeline or results, the SIP Team will work with the park and project mentors to assess the situation and determine the best course of action at that time.</p>	
<p>PROJECT DESCRIPTION AND WORK PRODUCTS</p>	
<p>Position Description: Climate change is happening; the sea is rising; flood events are becoming more common and Hurricanes are coming ashore more and more each season. Where are these events occurring on a regular basis? In South Florida, specifically in Everglades National Park along Florida Bay. In this challenging setting, NPS resource management needs to understand what changes have occurred so they can comprehend the effects of modified water deliveries, sea level rise, and changes in fire patterns. We are uniquely situated to jump-start this understanding of recent vegetation changes by geospatially investigating shifts that have occurred at the landscape level.</p> <p>The South Florida/Caribbean Inventory and Monitoring Network (SFCN) created the current vegetation map for Everglades National Park. The current vegetation map was developed from aerial photography (acquired in 2009) using a 50 X 50-meter grid across the area and was annotated by network staff. This vegetation map product is highly accurate (88.6%). Additionally, the SFCN has recently digitized the historical Flamingo to Joe Bay vegetation map. This map was also originally developed by NPS staff and was based on 1978 aerial photography. We propose to have the intern geospatially analyze these two map products and summarize the changes. The geospatial product would be able to indicate what kind of vegetation communities have changed and where these changes have occurred over this 31-year period. Are these changes in the vegetation communities related to factors such as: fire patterns, nutrient inputs, salinity, hurricane impacts, or storm surge? We propose to have the intern explore how these factors may have affected the vegetation communities and suggest vegetation types and spatial locations for further exploration.</p> <p>The goal of this internship is to geospatially explore the vegetation change that has occurred in the Flamingo to Joe Bay area of Florida Bay in Everglades National Park. We are proposing two specific tasks for the intern regarding this exploration.</p> <p>Task 1: The first task is to convert the historic vegetation map to a similar grid-based product like the current map, so it is directly comparable. Additionally, the vegetation community names and definitions on the two map products will need to be aligned to a similar classification structure.</p>	

Task 2: The second task is to geospatially compare the products and determine which vegetation communities are changing and what they are changing into (open water, mangroves, graminoid marsh, etc.), along with where these changes are occurring.

The long-term goal of the investigation is to link the changes in vegetation communities at specific locations to other environmental factors and guide further exploration at the landscape level. Using this data, we can understand the impacts to vegetation and predict potential outcomes by looking at the end results based on 31 years of change.

Knowing the conditions and trends of natural resources within the parks is fundamental to the National Park Service's mission to manage park resources "unimpaired for the enjoyment of future generations" (Organic Act 1916). The National Park Service South Florida/Caribbean Inventory and Monitoring Network (SFCN) mission is to provide useful and timely information to park resource management staff. The information reported from this monitoring effort will have a direct impact on park management actions. For example, should hurricane impacted mangrove areas be replanted? Or should the local hydrology be manipulated to allow more tidal flushing to impacted mangroves to prevent mangrove community collapse? Have rare vegetation communities contracted in size? Should the NPS explore relocation of rare vegetation species? In general terms, the metrics reported here will indicate the health and general trends in vegetation communities and how they are being managed.

The intern's project will directly assist in exploring and determining associations between the current vegetation community and the community it may change to, impacts from Hurricanes, and impacts from local sea level rise.

This position is offered through the National Park Service's Scientists in Parks (SIP) Program in partnership with Stewards Individual Placement Program (Stewards) and The Geological Society of America (GSA).

Work Products: The deliverables for the intern project are: 1) Updating the historic vegetation map to a grid based map. 2) The alignment of the vegetation communities on the two map products. 3) Geospatial change analysis to compare the two map products 4) all of the above documented in report, with emphasis on the steps followed for processing the data. 5) Story map project. 6) Power point presentation of the results from the project. These 6 goals are achievable during the internship time interval because we are building upon existing vegetation mapping work from the network and a number of the steps can be accomplished simultaneously.

In the past, we have had the intern make a presentation to the entire SFCN staff. Then following critiques of the presentation, a second presentation will be given at the weekly South Florida Natural Resources Center (SFNRC) Seminar Series. Historically, these presentations have been open to the wider public via a web presentation to the local ecological research community. It is not uncommon to have over 50 people in attendance, over half being non-NPS staff.

QUALIFICATIONS

The intern should have an education in: biology, wildlife biology, ecology, environmental science, or GIS, and an interest in vegetation, disturbance and/or climate change. The intern should have basic computer proficiency skills, examples include being familiar with word, excel, power point, or similar programs. Proficient writing ability is required. It would be good if the intern had knowledge and experience with basic GIS, however this could be developed during the internship. There is limited opportunity for fieldwork, and as such, the intern should be able to swim. Intern should be able to work well with a team and be able to complete tasks in a timely and professional manner. Due to COVID the intern should be flexible. A happy person is desirable.

The applicant must be a U.S. citizen or U.S. permanent legal resident (“green-card-holder”) between the ages of 18 and 30 years old, inclusive, or veterans up to age 35. Prior to starting this position, a government security background clearance will be required.

VEHICLE AND DRIVER LICENSE REQUIREMENTS

Applicant must have a valid drivers license and a good driving record.

A personal vehicle is REQUIRED for this position.

If the SIP is required to drive a park vehicle for their position, Stewards will perform a driving records search, and the SIP’s ability to drive a park vehicle during work hours will be contingent upon the results. SIPs will have to have had their license for 3 years or be over the age of 21 to be insured as drivers under Stewards insurance policy. Examples of things that will preclude a SIP from driving a park vehicle include: SIP under the age of 21 years old that has been licensed less than three years, DUIs, multiple moving vehicle violations, suspended or revoked license, or three or more accidents (regardless of fault) in the last 3 years. If the driver’s search is favorable, Stewards will provide driver’s liability insurance while the intern is driving a NPS vehicle for their SIP position. If the SIP is denied coverage by Stewards, they will not be permitted to drive during work hours.

HOUSING

Park housing is available and will be provided at no cost to the participant. Park housing is available at Pine Island in Everglades National Park; this is a substantial distance from the SFCN office (26 miles away - 40 min drive time - a personal vehicle is necessary). There is a shared kitchen. Interns will need to provide their own food and linens. Cleaning is the responsibility of everyone, and it is expected that shared living spaces and personnel spaces will be kept in a clean and orderly manner. There is park housing but due to COVID and based on past experience we will request permission to recruit locally from local university. There are numerous potential interns that represent numerous minority groups.

NATURAL AND PHYSICAL WORK ENVIRONMENT

The majority of the work is in an office setting or remotely depending on Covid restrictions. However, there is potential for some minor amount of field work as the project progresses (Covid dependent). The field work is done from a small boat. Interns must be able to swim. Florida is hot and buggy in the summer months and there are frequent thunderstorms. Keen appreciation of the weather and working in hot and humid environment is a must. Frost is not an issue but exposure to torrential downpours can and will chill one to the bone.

Hurricanes are always a possibility in South Florida (from late May – November 30th). The park housing is over 10 miles from the nearest town, Homestead Florida, which is a small city and agriculture dominated. However, South Florida and the nearby Florida Keys are amazing during the summer months and many folks enjoy the water resources during this time of year.

INTERNSHIP DATES

Start Date: 5/24/2021

Number of Weeks: 12 Weeks

Flexible Start Date: Yes

LIVING ALLOWANCE

12 Weeks (\$400/week = \$4800)

RELOCATION ALLOWANCE

\$350

AMERICORPS PROGRAM



AmeriCorps is a program that engages individuals in intensive community service work with the goal of “helping others and meeting critical needs in the community”. The SIP Program is supported through AmeriCorps by providing a Segal Education Award in addition to the SIP’s living stipend and relocation allowance.

Upon successful completion of the SIP position, the SIPs (AmeriCorps members) are eligible for a \$1,638 - \$6,195 pre-tax education award that can be used for paying back student loans or for continuing their education. The amount of the education award is based on the length of the position.

AmeriCorps limits the number of terms an individual can serve to 4 terms. If an applicant has previously completed 4 SIP or other AmeriCorps positions, they will not be eligible to apply for an additional SIP position.

SUPERVISORS/MENTORS

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