2022 COOPERATIVE SUMMER FELLOWSHIP PROGRAM – PROJECT PROPOSAL

APPLICANT TYPE: GIS;

PROJECT TITLE: DEVELOPING VISITOR IMPACT METRICS FOR GREAT LAKES COASTAL DUNE LANDSCAPES

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Discipline: Field Mapping;Ecology;Modeling;

PROJECT DESCRIPTION

BACKGROUND

The National Park Service (NPS) at Indiana Dunes National Park and Pictured Rocks and Sleeping Bear Dunes National Lakeshores seeks to understand the history of social trail development and the recent impacts of visitor use increases on trail proliferation in the coastal sand dune ecosystems in their parks. The coastal dunes of the Great Lakes, encompassing narrow foredunes to blowouts to large, perched dune landscapes, are a focus of recreational pressure that impacts the grass dominated vegetation. The objectives are to develop 1) a trail proliferation history for specific sites at each park, 2) summarize that history, 3) develop trail change metrics, 4) develop a trail monitoring tool with the most recent sets of satellite imagery, and 5) demonstrate the application of the tool using recent satellite imagery from each park. We have analyzed historic trail development for specific sites at the three parks.

INTERN TASKS

The intern will use ArcGIS, ERDAS Imagine and various statistical tools to create summaries of coastal dune trail history for each park using the best imagery available. The intern will assist in developing landscape trail metrics for use in detecting trail changes in the recent five years that can be applied into the future. The intern will use vegetation mapping protocols plus help develop trail change metrics to create a GIS-based trail proliferation tool that national park managers can use to assess visitor impacts on their parks' vegetation and habitats.

BENEFITS TO INTERN

The intern will have the opportunity to interact with NPS staff at the three national parks. The intern will apply GIS skills to real world issues in plant conservation. They will benefit from working in a rigorous research environment that interfaces between the USGS and the National Park Service.

MENTORING PLAN

Of course, I will use the mentoring resources the program provides to help guide me in mentoring the intern. I will meet with the intern once a week or as necessary to review work progress but also to ensure they have opportunities to grow beyond just the work such as educate them about USGS organization and research goals and programs. The intern will have the opportunity to interact in the field and by phone with NPS managers from the three Great Lakes National parks. Limited field work will allow the intern to meet other NPS summer interns and work with them directly. I will encourage the intern to attend the Professional Development Series and utilize the intern resource page.

ADDITIONAL DETAILS

STUDENT SKILLS AND INTERESTS

We seek someone who has ArcGIS skills with experience with imagery analysis, habitat/landcover classification and use of the program R. Candidates should have an interest in conservation of landscapes in general.

LOCATION: Chesterton, Indiana

ACTIVITY LEVEL:

Level 8-2: The work requires some physical exertion such as long periods of standing, walking over rough, uneven, or rocky surfaces; recurring bending, crouching, stooping, stretching, reaching, or similar activities; or recurring lifting of moderately heavy items. The work may require specific, but common, physical characteristics and abilities such as above-average agility and dexterity.

FIELD WORK	0-25%	VIRTUAL?	Yes
LAB WORK	0-25%		
OFFICE WORK	75-100%		
OTHER	None		

PROJECTED START DATE	5/23/2022
EXPECTED DURATION	12 weeks