



USGS NSF Internship Opportunity

Point of Contact Name:	Toni Lyn Morelli
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USGS Center:	Northeast Climate Science Center
Project Title:	Incorporating Citizen Science to improve Biodiversity Knowledge
Summary:	We are inviting you to participate in an exciting project that brings together citizen science data from iNaturalist and other online platforms to improve currently static biodiversity databases. This project will ultimately identify invasive species, taxonomy changes, and potential climate migrants that will aid conservation efforts on public lands.
Project Hypothesis or Objectives:	As patterns of land use and climate continue to change in North America, countless species of plants and animals respond by moving into new ranges, elevations, or habitat types. These shifts can have major consequences for the conservation and stewardship of biodiversity, but detecting shifts in real time is an enormous challenge for resource management agencies. Often, a species is already under stress or at risk by the time its range shift becomes apparent. With a combination of new technology and citizen science, USGS scientists are partnering with the National Park Service to better document these changes. Recently, National Parks hosted “BioBlitz” surveys in which visitors used the iNaturalist app on mobile devices to document species they observed in parks. The resulting datasets are spatially accurate due to global positioning systems (GPS) and biologically accurate after checks by specialists, representing an unprecedented resource for assessments of biodiversity. With further processing, integration, and analysis, these data could be translated into knowledge that prompts action. Results will permit early detection of species’ range shifts in response to changes in climate and land use as well as new invasive species and recent taxonomy changes.
Duration:	Up to 12 months
Internship Location:	Amherst, MA

 Field(s) of Study:	Life Science
 Applicable NSF Division:	EAR Earth Sciences, DBI Biological Infrastructure, IOS Integrative Organismal Systems, DEB Environmental Biology
 Intern Type Preference:	Any Type of Intern
 Keywords:	biodiversity, citizen science, climate change, invasive species, survey
 Expected Outcome:	Short-term outcomes from the project will include a peer-reviewed journal article and other communication products designed for individual management partners. You will get an opportunity to develop not only quantitative, climate science, and coding skills but also skills in knowledge coproduction, working with stakeholders, and building contacts in the research and management community.
 Special skills/training Required:	You will be asked to review the literature on citizen science monitoring of biodiversity and generate ideas for evaluating public engagement in conservation and monitoring efforts. You will use this knowledge to develop outreach to individual national parks related to project results. You will use R and GIS, as relevant to your skillset, to assist quantitative ecologists in data analysis. Finally, you will assist in developing a peer-reviewed publication describing the study's objectives, methods, and results for submission to a peer-reviewed journal. Overall, you will gain experience in all of the key areas of development for a scientist: relationship building, data collection, data analysis, and communication of results.
 Duties/Responsibilities:	You will be based on the University of Massachusetts Amherst campus with the DOI Northeast Climate Science Center's USGS Research Ecologist Toni Lyn Morelli, with frequent interactions with coPI USGS Western Ecological Research Center Research Ecologist Erin Boydston. The internship will begin with an orientation of the mission and activities of the USGS.

Internal Information - Not to be posted:

Center Director Name: Olivia LeDee

USGS Responsibilities: Facilities, Mentoring, On-boarding, Volunteer Agreement Management

Preliminary Approval: This opportunity has my Center's approval

I already have a student in mind:

Comments:
