



National Park Service
U.S. Department of the Interior

Climate Change Response Program
George Melendez Wright Youth Initiative

2011 George Melendez Wright Climate Change Youth Initiative

The 2011 awards supported 14 interns and 11 fellows. A short summary of all project descriptions and park units participating is provided below.

INTERNSHIPS

Apostle Islands National Lakeshore - Bayfield, WI - Project aims to increase public's awareness of climate change impacts on Great Lakes resources using science-based and cultural investigations by looking at traditional Ojibwe lifeways to understand the interrelationship between climate, people, and Great Lakes resources. Intern will assist with climate change literacy projects, particularly those that integrate how climate change will affect the natural resources of the Great Lakes and subsequently impact traditional lifeways of the Ojibwe people.

Cape Cod National Seashore - Wellfleet, MA - Project involves collaboration with scientists in the park to develop interpretive materials for a public information campaign on climate change. Intern will develop a climate change exhibit, children's activities and exhibits, interpreter's toolkit, and media plan.

Center for Urban Ecology - Washington, DC - Intern will assist regional and park staff in the development and implementation of a citizen science, volunteer-based, vegetation phenology monitoring program along the Civil War Defenses of Washington and in adjacent lands.

Cuyahoga Valley NP - Brecksville, OH - Intern will help develop communication tools to engage school groups and the general public with climate change topics. Intern will create educational and interpretive products that tie to local school district curricula, and interpretive web content and wayside exhibits.

Death Valley National Park - Death Valley, CA - Intern will work with park staff, local school district representatives, and partner non-profit organizations to write and present climate change lesson plans for local rural and urban students. The students will select and implement a public lands project to promote greater scientific understanding of, or improved resource protection in response to climate change under the guidance of the intern.

Glacier National Park - West Glacier, MT - Intern will work with Crown of the Continent RLC and park in gathering research data on mountain goats and pikas, providing Glacier National Park's resource managers with needed baseline information about the status of these two climate sensitive species, and communicate climate change through park's Green Team and the 2011 Climate Change Teacher Workshop.

Great Northern Landscape Conservartion Cooperative (GNLCC), MT- The intern will assist in the early stages of development of the LCC including conducting basic research; developing a synthesis of on-going conservation inventory and monitoring efforts within the LCC; developing communications products (fact sheet, newsletter, and webpage); assisting with the Vulnerability Analysis and Decision Support System Demonstration Project, EAGLE/TOPS workshop, Strategic Planning Proposal, Funding Strategy Development, and Developing Eco-Regional Forums.

Jean Lafitte NHP&P - New Orleans, LA - Intern will assess the effects of canal removal on community, ecosystem and landscape properties most important for understanding the direct impacts of rising sea level.

John Day Fossil Beds National Monument - Kimberly, OR - Intern will research, develop, produce, and present interpretive products that incorporate a climate change message pertaining to the paleontological resources of the Monument. Specifically contrasting the rates of climatic changes observed in the fossil record during the Cenozoic Era with rates of climatic change being observed today and the possible implications of these differences.

Lewis and Clark National Historic Trail - Omaha, NE - Assist with the early stages of a trail-wide phenology monitoring program by inputting data into the USA-NPN data structure, identifying species to monitor, summarizing current monitoring efforts, and field testing phenology training methods.

North Cascades National Park - Sedro-Woolley, WA - Intern will provide technical support / assistance in meeting sustainability goals and environmental requirements associated with park operations as well as documenting and communicating those efforts to diverse audiences through multimedia projects.

Office of Public Health - Washington, DC - Intern will assist with field-based ecological studies with statistical modeling to predict when and where humans are most at risk of exposure to tick vectors and tick-borne pathogens, and then use these models to anticipate future disease trends.

Rocky Mountain National Park - Estes Park, CO - Alpine Tundra focused internship will concentrate on the measurement of nitrogen and CO₂ flux in tundra soils; assistance with other climate-related research, sustainability, and resource management activities; and the development of climate change information products.

Santa Monica Mountains NRA - Thousand Oaks, CA - Intern will develop climate change lessons for a field education program for elementary and/or middle school students and other youth from community organizations, a collaborative effort between the Santa Monica Mountains National Recreation Area (SAMO) and the Ventura Office of the US Fish and Wildlife Service.

FELLOWSHIPS

Acadia National Park - Phenology refers to the timing of life cycle events of a species, such as when leaves appear in the spring or flowers open in the summer. Change in the timing of such events is an

indicator of how species respond to environmental change, and how their responses may affect the biological community as a whole. This study will find and use historical records to document plant community phenology at Acadia over the past century. The results will form a baseline for monitoring and managing plant communities now and in the future.

Channel Islands National Park - Acidification of the ocean, caused by CO₂ dissolving in water, inhibits growth and shell formation of many species. This project will monitor ocean acidity in the Channel Islands and test the effects of acidity on different populations of sea urchin that are key components of the local marine food web. The results will enable the park to monitor ocean chemistry and focus conservation efforts on populations that most need protection.

Everglades National Park- Plant communities in South Florida will soon be affected by both sea level rise and increased freshwater flow through the Everglades. Understanding how plant communities respond to these changes is essential for protecting rare species. This study will provide essential baseline data on salt-tolerant and intolerant plant species so park managers can predict how they may fare under different scenarios of hydrological change.

Glacier Bay, Yellowstone, and Yosemite National Parks- Phenotypic and genetic variation among individuals shapes whether and how populations adapt to climate change. This study will measure and map such variation in lodgepole pine in order to understand the evolutionary dynamics of this species as it responds to climate change across its range.

Glacier Bay National Park - Yellow cedar is a major component of coastal forests in Alaska and British Columbia, and has been dying as a result of reduced snowpack. This project will examine yellow cedar stands that have died at various times since 1900 in an effort to understand how forest structure and dynamics are changing. The results will inform park managers' approach to adaptive management of forests in the face of ongoing climate change.

Glacier National Park - Alpine lakes fed by glacial runoff are biologically and physically different from those fed by snowmelt. As glaciers retreat and disappear, lakes and the biological communities within them are likely to change. This study will analyze microalgae from sediment cores in order to understand how aquatic communities responded to glacier loss in the past. The results will help park managers predict what will happen to biological resources as glaciers continue to recede, and ultimately disappear, in the future.

Mesa Verde National Park -Forest fires have been increasing in frequency and magnitude in the western United States, and are predicted to increase even more in the future. Because fires alter soil chemistry, they can increase the movement of mercury into aquatic habitats and thus contribute to mercury accumulation in fish. This study will examine the role of fire in mercury transport, and will elucidate how fire management practices in a hotter and drier future may affect aquatic resources.

Olympic National Park - Toxic algal blooms in coastal waters can have major effects on food webs, wildlife, and shellfish harvests. In the past decade, several blooms at Olympic have closed tribal and recreational harvests, but it is not clear whether or why such blooms have increased in frequency. This

project will use sediment cores to help identify the causes of past blooms and enable managers to predict how future blooms may affect park resources.

Rocky Mountain National Park - Willows are critical components of Rocky Mountain riparian ecosystems, and have declined over the past two decades. This project will examine the interactive effects of drought, thermal stress, and fungal infections on willow performance. The results will inform park managers about how to design riparian recovery and restoration efforts.

Several Hawaiian National Parks - Increased CO₂ in the atmosphere makes the ocean warmer and more acidic. Many coral species are sensitive to both heat and acidity, but there may be populations that resist such stresses or that recover from them quickly. This study will identify populations that are resistant or resilient to heat and acidity, and that therefore should be the focus of conservation efforts within Hawaii's parks.

Sleeping Bear Dunes National Lakeshore - In sand dunes near the Great Lakes, there is a grass species that harbors a symbiotic fungus inside its tissues. How this mutualistic pair responds to climate change is important to understand because the grass plays a key role in stabilizing the dunes and making them habitable for a community found nowhere else in the world. This project will examine how the grass, the fungus, and precipitation patterns interact to affect a unique biotic community and in the process will initiate a restoration program in this fragile habitat.