



SCIENCE • ADAPTATION • MITIGATION • COMMUNICATION

Interpreting Climate Change Pilot Course A Success!

For four days in May, a group of NPS interpreters and instructors gathered at the Mather Training Center in Harpers Ferry, WV to participate in an intensive pilot course focused on interpreting climate change in our national parks, monuments and protected areas. This workshop brought together a diverse group of interpretive professionals from NPS natural and cultural sites, as well as the lead interpreter for the BLM to learn about impacts of climate change on our public lands, understand the diversity of audience perspectives on this controversial issue, and discuss and practice standard and advanced techniques for presenting this topic to the public. Course content covered the science of climate change as well as tools for engaging with the public in collaborative dialogue about the meaning of this issue and how it affects us all.

Highlights of the workshop were presentations by NPS climate change scientist Patrick Gonzales and Yale University's Tony Leiserowitz, who shared results of their research on the ways climate change affects national parks and what Americans think about this critical issue, respectively. This provided a unique opportunity for participants to engage with leading experts in the fields of climate science and communication.

Development of this workshop began in January 2010, when the National Education Council charged interpretive leaders from the Climate Change Response Program, the NRSS Office of

Education and Outreach, and the Mather Training Center to determine how to prepare and empower NPS personnel to engage with the public on this important issue in a more effective way. This collaboration led to the creation of a subject-matter-expert group, which convened at Mather in August 2010, to begin identifying and defining the knowledge, skills, abilities and behaviors necessary for front-line interpreters to effectively communicate about climate change. Interpretive leaders, training specialists and scientists gathered to discuss the critical components of a new competency. Last month's workshop provided an opportunity for this group to field-test the new curriculum, receive in-depth feedback from participants to help refine and strengthen the curriculum, and begin to develop a plan for future classroom, web-based, distance-learning, and other training materials on this topic.

Successfully interpreting climate change and engaging with park visitors about this issue is a critical component of the NPS Climate Change Response Strategy. To date, parks and individual interpreters tackled this difficult task on their own, without guidance of a competency description or curriculum to provide a benchmark for consistent and effective techniques and strategies. This workshop was the first of many opportunities NPS interpreters will have in the coming months and years to participate in an agency-wide effort to raise awareness and engage on this issue. Contact: Angie_Richman@nps.gov

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Above: Due to heavy rains, participants were at Harpers Ferry during high water on the Potomac and Shenandoah Rivers; Photo courtesy of Patrick Gonzalez.

Monthly Climate Change Webinar Series

2nd Thursday of every month
2:00 pm - 3:30 pm EST

June's presentation featured Doug Austen, FWS National LCC Coordinator, Tom Olliff of the Great Northern LCC, and Deanna Spooner of the Pacific Islands LCC who presented an overview of the Landscape Conservation Cooperative (LCC) network.

A recording of this webinar and presentation materials can be found on our sharepoint site at: <http://nrpcsharepoint/climatechange/communication/Web%20Seminars/Forms/AllItems.aspx>

Upcoming Webinars

July 14, 2011

Kathy Jacobs with USGCRP will provide an overview of the Climate Change National Assessment, an inter-agency effort to synthesize scientific information about climate change impacts to the United States.

Follow this link to register for July's webinar:

<https://www1.gotomeeting.com/register/429016017>

August 11, 2011

Maria Honeycutt with NOAA and the NPS will discuss the impacts of sea level rise along our coastlines, and how parks are dealing with this issue.

Follow this link to register for August's webinar:

<https://www1.gotomeeting.com/register/119235096>

CCRP Featured Staff



Stanton Enomoto

We are pleased to announce Stanton Enomoto as the Climate Change Cultural Resources Adaptation Coordinator serving the Pacific Islands Landscape Conservation Cooperative within the Pacific West Region's Cultural Resources Program. In collaboration with the Climate Change Adaptation Coordinator for Cultural Resources in the Washington Office, Stanton will also work across disciplines and program areas within the NPS to develop and coordinate adaptation strategies and guidance for climate-sensitive cultural resources. He brings a wealth of experience to this new position. Previously, Stanton worked as the Chief Operating Officer for the State of Hawai'i's Office of Hawaiian Affairs. He has over 20 years of state government and private sector experience in cultural affairs, land use planning, environmental protection and resource management in Hawai'i. Stanton received his BA in Geology and Environmental Studies from Macalester College. He is Native Hawaiian and was raised on Maui where he developed a long-standing interest in indigenous knowledge and cultural applications to resource management, landscape planning and historic preservation.

Adaptation Planning Workshop

Bridging Boundaries: Adaptation Planning for Grasslands & Forests in the Black Hills and Plains was held in Rapid City, SD on April 20-21, 2011. This workshop brought together a diverse group of land managers, tribes, university partners, and local land-owners to share information and implement adaptation strategies for climate change across jurisdictions in western South Dakota and eastern Wyoming. Participants identified and prioritized numerous adaptation actions for vegetation, wildlife, water, people, cultural resources, and caves and made connections with their partners to pursue future collaboration in climate change adaptation. The workshop, funded through the NPS Cooperative Ecosystems Studies Units (CESU) national network and facilitated by

Lilies were just beginning to bloom at Kenilworth Park and Aquatic Garden Park when the NSF team made their site visit in May.

Colorado State University, was the last of three workshops designed to guide stakeholders in identifying adaptation actions across multiple jurisdictions. The first two workshops focused on the Crown of the Continent (2008) and the Rocky Mountain region (2010). A workshop report will be available in June 2011.

Contact Melanie_Wood@nps.gov

Climate Change Education

The NSF-funded Climate Change Education Partnership team was in Washington D.C. during the week of May 22nd to host the third in a series of visits to protected areas throughout the country considered at high risk for impacts from climate change. The team spent the first part of the week conducting site visits at the project's pilot parks, Harpers Ferry NHP, National Capital Parks East, and Prince William Forest Park. The goal for the site visits was to learn how staff at these parks currently communicate about climate change and how this project can enhance these efforts. Visitor surveys were also conducted to better understand their perspectives about this issue.

The week-long trip culminated in a one-day workshop which brought together 65 participants from parks, refuges, and partners from the metropolitan D.C. area. By bringing people together to collaborate and inspire each other, the team hopes to gather their knowledge and insight to develop an innovative education strategy that builds on current efforts. A workshop summary will be produced and will be available on the partnership website. Future workshops and site visits will be held in the Kenai Peninsula in Alaska, the Prairie Pothole bioregion in North Dakota, and the Olympic Peninsula in northern Washington.

This project is one of 15 funded through the National Science Foundation Climate Change Education Partnership program, whose goal is to connect climate scientists and communication professionals to develop strategies and techniques for communicating the complexities of this topic with a larger audience, as well as prepare the next generation of scientists and educators.

For more information: <http://www.sites.google.com/site/ccedpartner/>

Or contact: Angie_Richman@nps.gov



Climate Change Vulnerability Assessment Training

An enthusiastic group of 45 participants contributed to the inaugural course on climate change vulnerability assessments for natural resources at the National Conservation Training Center (NCTC) from May 10th-12th 2011. Climate change vulnerability assessments identify which conservation targets are likely to be most strongly affected by climate change, and determine why these targets will be affected. A diverse group of participants from NPS, USFWS, DOD, BLM, USFS, USGS, NGOs, states, and universities learned about the role of vulnerability assessments in climate change adaptation, the elements of assessments, and how to design and communicate these assessments for different purposes.

The course was based on the recently published vulnerability assessment guide, *Scanning the Conservation Horizon*. Participants heard from internationally recognized experts, most of whom were also authors of the guide, engaged in exercises that exposed real-world challenges in designing, conducting, and evaluating assessments, and learned how to address these challenges. Case studies emphasized on-going projects, ensuring the materials presented cutting-edge science and

methods. Instructors presented tools used to conduct assessments which were further described in a 'tools café' session that facilitated interactions among participants and instructors. In the last major exercise, groups of participants spent several hours on an integrative exercise to design a vulnerability assessment, based on student-provided information on assessments recently initiated or planned for the near future.

Participants uniformly rated the course as very informative. The course went extremely well for a pilot offering, and comments will be used to refine the presentations and exercises prior to the first full 'public' offering August 16-18, 2011 (sign up on DOI Learn: <http://www.doi.gov/doilearn>). NCTC has established a web site to support the vulnerability assessment courses and provide current information about ongoing assessments and new methods. Additional courses are in the planning stages, and we expect future offerings to be conducted at regional locations.

For more information: <http://training.fws.gov/CSP/Resources/vulnerability/index.html>
Or contact: John_Gross@nps.gov

2011 George Melendez Wright Internship Program

The Climate Change Response Program is proud to announce 14 selections for the 2011 George Melendez Wright Climate Change Internship Program. Our partner, the National Council for Science and the Environment (NCSE), recruited a number of skilled students to work on the following climate change related issues in parks this year.

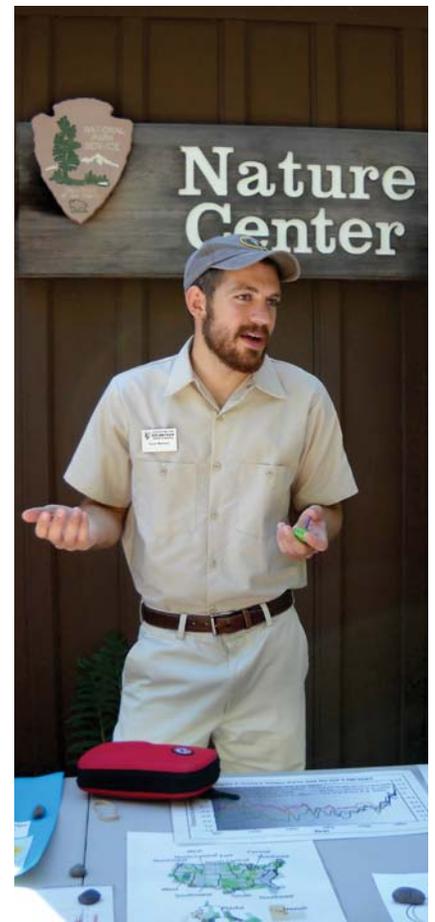
- **Apostle Islands NL** – increase awareness of climate change impacts on Great Lakes resources using science-based and cultural investigations by looking at traditional Ojibwe lifeways
- **Cape Cod NS** – collaborate with park scientists to develop climate change interpretive materials
- **Center for Urban Ecology** – implement a citizen science phenology monitoring program along the Civil War Defenses of Washington DC
- **Cuyahoga Valley NP** – create educational products that tie to local school curricula
- **Death Valley NP** – write and present climate change lesson plans for local rural and urban students
- **Glacier NP** – gather baseline data on two climate sensitive species, mountain goats and pikas, and communicate climate change through park green team
- **Great Northern LCC** – assist in early stages of LCC development, including research, monitoring, and communication products

- **Jean Lafitte NHP&P** – assess effects of canal removal on community, ecosystem and landscape properties to understand impacts of sea level rise
- **John Day Fossil Beds NM** – develop and present interpretive products that contrast the rate of climatic change in the fossil record with the rate of climate change today
- **Lewis and Clark NHT** – assist with a trail-wide phenology monitoring program, including field testing training methods
- **North Cascades NP** – provide technical support to meet sustainability goals associated with park operations
- **Office of Public Health** – assist with field-based ecological studies 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 NP** – measure nitrogen and CO₂ flux in tundra soils to monitor water and biodiversity health
- **Santa Monica Mountains NRA** – develop climate change lesson plans for field programs targeting elementary and middle school students

For more detailed information on each internship project, go to: <http://www.nature.nps.gov/climatechange/internshipsresearch.cfm>

Detail Opportunity

The Climate Change Response Program is immediately seeking an experienced individual to serve in a detail of up to 120 days to assist with service-wide climate change training initiatives. This individual will undertake a comprehensive effort to identify and frame climate change training needs and opportunities, identify options and costs to address these needs, recommend the priority actions for moving forward, and begin to develop training materials relevant to all programs and levels of the NPS. For more information, contact: Angie_Richman@nps.gov





Mark Your Calendars

June 19-25, 2011

Climate change Education Summer Course, held at Ohio State University's Stone Laboratory is an introduction to climate change specific to the Great Lakes and lessons for teaching this topic for grades 5-12. Students will assist with curriculum development contributing to regional learning opportunities <http://stonelab.osu.edu/courses/educator/93/>

June 21, 2011

Climate change in Alaska: From Weather to Whether, presented as part of the Alaska Center for Climate Assessment and Policy webinar series. This presentation, given by NOAA's Alaska Regional Climate Services Director James Partain, will highlight the impacts from climate change on Alaska's weather.

<http://ine.uaf.edu/accap/teleconference.htm#register>

July 18-22, 2011

Resource Management Implications of Global Climate Change, will be held at NCTC in Shephardstown, WV. This workshop is for anyone looking to increase intermediate level knowledge and skills to address climate change - including biologists, communication staff and decision makers from USFWS, partner agencies and nongovernmental organizations.

http://training.fws.gov/CSP/Resources/climate_change/training.html

August 16-18, 2011

Climate Change Vulnerability Assessments, training will be held at NCTC in Shephardstown, WV. See article on page 3 for more information. http://training.fws.gov/CSP/Resources/climate_change/training.html

National Capital – Climate Change and the Urban Forest

Washington, D.C. is known not only for its monuments, but also for its trees. The city's urban forest provides a wide variety of services, including removing air pollution, lowering energy costs, and improving human health. Trees also help mitigate climate change by reducing the city's carbon footprint. The National Park Service helps protect and maintain the urban forest in Washington, where trees outnumber human residents by four to one. Results of two comprehensive tree inventories for Washington, D.C. completed by Casey Trees and the National Park Service (2004 and 2009) were analyzed using the USDA Urban Forest Effects Model (UFORE) to calculate the value and

benefits we receive from the city's trees and how they help us cope with climate change. A video produced by a group of interns working with the National Capital Region's Research Learning Center (Urban Ecology Research Learning Alliance) highlights results of this analysis and delivers a message of opportunities for climate change mitigation in urban parks. This video, a podcast, and regional briefs produced by interns from the Climate Change Communication Internship program are available at the new Center for Urban Ecology's climate change webpage: <http://www.nps.gov/cue/climate/response.htm>
Contact: Giselle_Mora-Bourgeois@nps.gov

Intermountain – Climate Friendly Parks Workshop

On April 5th-7th 2011, Flagstaff Area National Monuments - Sunset Crater, Wupatki, and Walnut Canyon hosted a Climate Friendly Parks workshop at Northern Arizona University's Applied Research and Development building, a Platinum awarded LEED certified building. The three day workshop brought together NPS staff, community members, partners, and researchers to discuss sustainability challenges for the Flagstaff monuments and develop a roadmap to guide the monuments in the direction of sustainability.

The Flagstaff monuments already use several facility-related sustainability measures including the addition of hybrid vehicles to their fleet; waterless urinals, low-flow toilets, and energy efficient hand dryers in restrooms; the installation of solar panels; and an intensive recycling program. The interpretation program has a *living within your climate* school program that shares the history of indigenous people living within the monuments. The workshop built on these existing efforts throughout the 3 days.

Presentations on the first day of the workshop provided information about key sustainability challenges at Flagstaff Monuments and within the region, such as the cultural and natural effects of climate change, energy and water conserva-

tion, resource management needs, greenhouse gas emissions, the role indigenous cultures play in sustainability, and other sustainability issues. On the second day of the workshop, break-out groups addressed topics of Education & Outreach, Energy Management, Water Management, Climate Change impacts to Natural and Cultural Resources, Behavioral Change, and Waste Management, Green Procurement, & Hazardous Materials. The final day of the workshop focused on consolidating the action items generated by the break-out groups, past park accomplishments and previously developed action items, and then incorporating them into an interdisciplinary Environmental Management System (EMS).

Becoming truly sustainable is a daily challenge, but Flagstaff Area National Monument staff is dedicated to sustainability efforts that reduce our ecological footprint, communicate sustainability, and build resilient natural and cultural systems. Accomplishing more than just generating interest surrounding sustainability, this workshop also provided the Flagstaff Monuments with information needed to identify and address their sustainability priority areas.

Contact: Margaret_McRoberts@nps.gov
Or: Tim_McKinley@nps.gov



REGIONAL AND PARK HIGHLIGHTS

Alaska Region Climate Change Initiatives

Alaska Region Climate Change Response Strategy Update

The five-year climate change response strategy (2010-2014) established the context for climate change planning in the Alaska Region and identified a suite of goals, objectives, and recommended actions. The strategy also identified five steps and about a dozen sequenced actions for early implementation, most of which are completed or underway. During 2009, representatives of six regional advisory groups and Inventory & Monitoring also developed a comprehensive list of prioritized recommended actions under the strategy's four goals: Science, Adaptation, Sustainability, and Communication. A quick review of this list reveals ongoing activities under all four goals and in more than a third of the 45 highest-ranked action items. A progress review and summary are planned for late 2011. The full strategy and a summary version are available at:

<http://www.nps.gov/akso/climatechange.html>

Alaska Climate Change Scenario Planning Update

The Alaska Region held the third in a series of six Alaska-focused climate change scenario planning workshops in April, 2011. This fast-paced workshop focused on Northwest Coastal Alaska and followed the workshop for Southwest Alaska. Both workshops expanded upon a process that began last August during an NPS Climate Change Response Program-sponsored training workshop led by the Global Business Network. Workshops are currently led by a core team of University of Alaska and NPS employees from Alaska region, park and national offices.

In the coming months, our scenario planning team will develop workshop reports and a series of informational products for a variety of audiences. In 2012 we'll hold three additional scenario planning workshops.

Contact: Robert_Winfree@nps.gov

Carbon-free in the Painted Hills

A brand new electric vehicle can be seen scooting quietly across the grounds in the shadow of the Painted Hills, a remote unit of John Day Fossil Beds NM (JODA). A Polaris EV LSV, on loan to the park for a year, is the latest addition to a green energy revolution occurring in this remote site.

The goal, to make JODA's Painted Hills Unit carbon-neutral and energy self-sufficient in housing, administration and transportation, was close to being realized with the completion of a new residence for the unit ranger. This house, built at a cost comparable to standard construction, not only eliminates utility costs to the ranger in residence, it exposed local contractors and the public to a building method far more energy efficient than anything they are familiar with. The house is so efficient, in fact, that it generates far more energy than it uses, all of which is carbon-free.

But the house was only the beginning. To establish a carbon-neutral operation, the transportation requirements also needed to be factored in. Polaris stepped up to address this need and loaned the monument an electric vehicle.

JODA's management team took the challenge posed by NPS leadership to set a high standard for carbon neutrality very seriously. "I think we have a shot at being one of the very first park units with moderately high visitation to be carbon neutral and energy self-sufficient," said Jim Hammett, JODA's superintendent. Hammett was thrilled when Polaris offered its electric vehicle, which is ideally suited for the Painted Hills operation. "We'll be able to plug it in at the house and use the surplus solar-based energy it generates to charge it," he said.

Hammett hopes the residence and vehicle at the Painted Hills will become a prototype for future housing and sustainable operations practices in the NPS. At the very least it demonstrates unequivocally to park visitors the NPS commitment to energy sustainability, green building practices, and reducing our carbon footprint.

Contact: Paul_Ollig@nps.gov



Climate Change Resources

Climate Change and Federal Land Management is a report independently produced by the Defenders of Wildlife that compares the goals and objectives in the climate change strategies of the Fish and Wildlife Service, the US Forest Service and the National Park Service. This was produced in an effort to offer guidance to other land management organizations and to foster collaboration between agencies. http://www.defenders.org/resources/publications/programs_and_policy/gw/climate_change_and_federal_land_management.pdf



The National Research Council released the final report of *America's Climate Choices*. The report finds that the significant risks climate change poses to human society and the environment provide a strong motivation to move ahead with substantial response efforts. Current local efforts are important but do not yield results that could be achieved with strong federal policies. The report makes many recommendations for how to aggressively move forward. <http://dels.nas.edu/Report/Americas-Climate-Choices/12781>

On Earth Day 2011, the Fish and Wildlife Service launched a



series of 50 stories for 50 consecutive weekdays to explore the many ways climate change is impacting or may impact fish and wildlife across America. The stories are published on the Service's news blog, so you can add your comments and participate in an ongoing conversation about climate change impacts and collaborative solutions. <http://www.fws.gov/>

Harvard Climate Fellow Arrives at Lakeshore

Pictured Rocks NL Chief of Heritage Education announces that Luis Mena, of the Puntarenas region of Costa Rica, has joined the park staff as a Harvard University Climate Fellow. The one-month fellowship is facilitated by the Latin American Scholar Programs with American Universities (LASPAU) Academic Professional Programs for the Americas. LASPAU provides access to global educational opportunities, stimulates knowledge generation and transfer, and promotes intercultural understanding throughout the Americas.

Mena manages five protected areas in the Nicoya Peninsula of Costa Rica, as well as working with the Karen Mogensen Reserve, a non-governmental organization. At an altitude between 100 and 700 meters, the 760-hectare Reserve forms part of Costa Rica's biological corridor. Over the years, Mena has directed a reforestation program in the dry tropical forest, which is now in transition to a humid forest boasting a spectacular array of flora and fauna, many of which are in danger of extinction. This Nicoya Peninsula protected zone hosts large areas of primary forest with giant trees, lushly adorned with mosses, vines, and many orchids. Over 100 species of bats, 800 species of birds, and 130 species of snakes inhabit the

region. Rare animals like ocelots, jaguars, pumas, and otters make the forest their home, and countless birds and butterflies can be seen.

The purpose of the Climate Fellowship is to expose Mr. Mena to the impacts of climate change in the United States, and in particular with respect to national parks. He is particularly interested in learning outreach techniques and developing curricula to take back to Costa Rica so young people and adults will learn how climate change is affecting, and will affect, the ecosystems of his country. At Asapaleco, Mena manages an ecotourism lodge that hosts 20 people a week. He hopes to expand the range of programming to include more local school students to raise awareness about climate change.

Mr. Mena has been working with Dave Kronk, Lakeshore outreach Park Ranger, to learn about teaching methods, curricula, and learning games to use when he returns to Costa Rica. While at the park, Mena plans to develop an outreach program for local youth that involves service learning activities as well as present illustrated programs for the public.

Contact: Gregg_Bruff@nps.gov

More Information

This newsletter is a bimonthly forum to share the latest news relating to NPS efforts to manage our parks in a changing climate.

Dr. Leigh Welling - Manager
Climate Change Response
Program

Leigh_Welling@nps.gov

Comments, Submissions:
Angie_Richman@nps.gov

The Climate Change Response Program can be found on the web at: <http://www.nps.gov/climatechange>

Animal Distribution in Yosemite Over the Past Century

From 2003 to 2005, a historic vertebrate survey from the early 20th century originally completed by biologist Joseph Grinnell was repeated in Yosemite NP. This survey was a collaborative effort among the UC Berkeley Museum of Vertebrate Zoology, the National Park Service, and the USGS Yosemite Field Station. While many species ranges have remained stable, this report presents evidence that numerous birds and small mammals have experienced range shifts. Some lower-elevation animals have shown expansion into higher elevations, while some upper-elevation animals have experienced range contractions, meaning that the lower boundaries of their

ranges have shifted upward. These developments may be related to environmental changes such as climate change and altered fire regimes, and more research is needed to identify specific causes. This survey is a part of the Sierra Nevada Network (SIEN) Inventory and Monitoring Program's biological inventories that focus on Devils Postpile NM, Sequoia and Kings Canyon NP, and Yosemite NP. Results of the Yosemite vertebrate survey can be accessed at: http://science.nature.nps.gov/im/units/sien/Inventories/Reports/animals/YOSEVertebrateInventoryRept_moritz_20110317_FINAL.pdf

Contact: Linda_Mutch@nps.gov

Job Opportunities

Aleutians and Bering Sea Islands Landscape Conservation Cooperative Science Coordinator GS-13/14 stationed in Anchorage AK, applications due **June 27th, 2011**.

Job Announcement Number: **R7-11-486003-MA**

Gulf Coast Prairie Landscape Conservation Cooperative Science Coordinator GS-13/14 stationed in Austin TX or Lafayette LA, applications due **June 29th, 2011**.

Job Announcement Number: **R2-11-484826-MS-MP**

These positions are listed at: <http://www.usajobs.com>

