Climate Change Response Program *News*
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National Park Service
U.S. Department of the Interior

Climate Change Response Program

SCIENCE • ADAPTATION • MITIGATION • COMMUNICATION

Building on Our Success in 2010

As 2010 comes to an end, I would like to take the opportunity to reflect on the progress our bureau has made in responding to climate change and the work accomplished by the Climate Change Response team this year. We have achieved much in a short amount of time and I would like to share some of this year's highlights.

The National Park Service leadership showed their commitment to addressing climate change by funding the Climate Change Response Program (CCRP) in 2010. As the program has developed, it is one that reaches into divisions and directorates to involve all levels of the organization. A great deal of effort and careful consideration went into building a staff of diverse individuals from a range of backgrounds and experience. We now have a small core team with expertise in climate change science, communication, resource management, wildlife, monitoring, planning, coastal hazards, cultural anthropology, and energy efficiency. The CCRP team is supporting initiatives at park, regional, and national levels to further understand and respond to climate change and its impacts.

In September, Director Jarvis signed and released the servicewide Climate Change Response Strategy. The development of this document was lead by the Climate Change Steering Committee which involved employees at all levels of the organization. The goals and objectives outlined in the strategy are comprehensive and will serve as a framework for NPS parks and programs for navigating a changing future and leading carbon footprint reduction. The Director was very clear on the purpose of this strategy in the opening paragraph of the document, "I believe climate change is fundamentally the greatest threat to the integrity of our national parks that we have ever experienced. The current science confirms the planet is warming and the effects are here and now. This is a high-priority issue for the current Administration, including the Department of the Interior and its individual bureaus."

Enabled by our first year of funding, we have leveraged our existing capabilities and begun to implement the elements of the strategy. Early efforts have focused on working with our partners to identify and develop methodologies for assessing resource vulnerability and monitoring change in some of the most vulnerable areas. Networks throughout the Atlantic coast, Rocky Mountains, Hawaiian islands and Alaska are working together to identify new indicators and develop protocols for enhanced monitoring. Through the Servicewide Comprehensive Call, the CCRP was able to fund over $2.5 million in park climate change projects in 2010, many of which are helping parks understand resource vulnerability. These projects are of the utmost importance as we begin to increase our understanding of the climate change impacts within the national parks and how we must adapt to protect resources and facilities.

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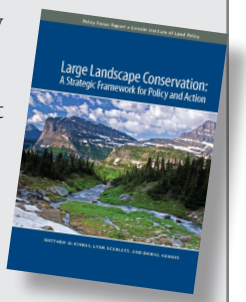
Above: Best wishes for a relaxing and peaceful holiday season. Alaskan sea otter; photo courtesy of Bob Winfree.

Useful Resources Related to Climate Change



Former Deputy Secretary Lynn Scarlet has a 2010 report out titled, *Large Landscape Conservation: A strategic Framework for Policy and Action*. This report addresses the importance of managing for climate change based on the large landscapes, including land use patterns, sustainable water management, biodiversity protection, and adaptation to climate change. It can be found on Scarlet's website at: **http://www.lynnscarlett.com/reports.html**

The Grist's *16 Tips for Avoiding Climate Burnout* is a great informal article if you are feeling overwhelmed by climate change. It provides encouragement on how to stay upbeat and not get too depressed when engaging in this topic. It can be found at: **http://www.grist.org/article/2010-05-12-coming-out-of-the-closet-my-climate-trauma-and-yours**

An article from msnbc.com entitled, *Age Unkind to Glacier National Park*, is a compelling article on the melting of Glaciers as it relates to the visitor experience at Glacier National Park. Many experts consider Glacier NP a harbinger of Earth's future, a laboratory where changes in the environment will likely show up first. It can be found at: **http://www.msnbc.msn.com/id/37099446/ns/travel-destinations/**

Building on Our Success *Cont'd*

We selected projects that looked at the dynamics of carbon cycling in western forests, changes in flow regimes to floodplains and riparian areas, impacts of climate change on pollinators and species such as the Shenandoah salamander, Karner blue butterfly, American pika, or desert Bighorn Sheep.

The NPS continues to be a leader in greenhouse gas reduction and energy efficiency. More than 70 parks are now participating in the Climate Friendly Parks Program, implementing changes to reduce their carbon footprint and communicate the consequences of climate change through interpretive programs and materials.

The CCRP has also embraced the renewed emphasis on reaching youth and providing career opportunities through the creation of the George Melendez Wright internship and fellowship programs. These two programs placed 13 interns and 22 fellows in parks and offices across the country. In 2010 students participated in park-based research, resource management, energy efficiency and climate change communication projects. The work these next generation stewards accomplished was an inspiration that will help inform management decisions and future actions. We plan to continue this initiative in 2011 and look forward to what these students have to teach us in the coming year.

We continued to find effective ways to share the climate change story throughout our parks and with the public. We launched our public website on Earth Day and entered into two new partnerships that will increase our capacity for climate change outreach in coming years. The first of which is a partnership with Interpretation and Education, the Mather Training Center, and the National Education Council to develop a training module and program for front-line interpreters and educators on climate change and science literacy. This training will be available in spring of 2011.

As the year comes to a close, these are just a few highlights of the outstanding work that has been done that give us much to be proud of. As we look to the new year, we still see a good deal of work ahead of us; however with a new range of partners, an invigorated workforce, new tools for management, and the continued progress of climate science, we can meet this challenge and craft a future that preserves our nations beauty and heritage.

Happy Holidays,

Leigh Welling

Leigh Welling
Climate Change Response Program Manager

Climate Change Youth Initiative 2011

George Melendez Wright Climate Change Fellowship Program –The Climate Change Response Program (CCRP) is pleased to announce Dr. Lisa Graumlich, Dean College of the Environment at the University of Washington (previously at the University of Arizona) will continue as the Principal Investigator for the fellowship program. The Call for Student Research Proposals for FY 2011 will be announced on December 15, 2010 by UW and will be distributed through the university, CESU networks, and the NPS. The deadline for this year's research proposals is February 4, 2011.
Contact: **Lisa_Norby@nps.gov**
Or Adrienne Karpov, Administrator, UW at: **karpov@u.washington.edu**

George Melendez Wright Climate Change Internship Program– On December 2nd, the CCRP issued the call for proposals for internship projects for FY 2011. The deadline to submit proposals is January 7, 2011. All proposals will be ranked and projects will be selected in January. Parks will be notified of the selections on February 1, 2011. The National Council for Science and the Environment will continue to partner with the NPS on this exciting program.
Contact: **Lisa_Norby@nps.gov**
Or Paul Dion, NCSE at: **pdion@ncseonline.org**

Geologic Resources Division Staff Complete Climate Change Theses

Two NPS Geologic Resources Division (GRD) employees recently received their master's degrees studying climate change on a geologic time scale (tens of millions of years). Understanding past climate change is essential for predicting future climate change. The most significant climatic event of the Cenozoic Era was the Eocene-Oligocene transition from a "greenhouse" to more modern "icehouse" conditions about 33 million years ago. Long term global cooling set the stage for the great ice advances of the ice ages beginning about 2 million years ago.

Rebecca Port (GRD Guest Scientist) studied fossil mollusks for evidence of Arctic cooling during this important time period. Isotopically derived paleotemperatures indicate the Arctic Ocean had cooled significantly by the late Oligocene (~25 million years ago). Late Oligocene Arctic Ocean surface water conditions would have been similar to those found today between 40 and 45° N latitude and only slightly warmer than modern Beaufort Sea conditions. The fossil molluscs bear a striking resemblance to modern Arctic molluscs, further supporting the notion of a relatively cold Arctic Ocean marine climate in the late Oligocene.
For more information on this program, contact: **Rebecca_Port@contractor.nps.gov**

Excavating fossils from mudstone of the Nuwok Member, Sagavanirktok Formation, Arctic National Wildlife Refuge, Alaska. Photo courtesy of A. Oleinik.

Thesis is available online, *Paleoclimate of the Late Oligocene Arctic Ocean: Molluscan Isotopic and Biotic Evidence*: **http://www.nature.nps.gov/geology/publications/Port_2008_paleoclimate_FAU.pdf**

Jason Kenworthy (GRD Geologist) produced a training manual for interpreters at six NPS sites. The paleoecosystems preserved in the Cenozoic fossil parks collectively illustrate the transition from "greenhouse" to "icehouse." Horse fossils, preserved in each of the parks, span this transition and provide one interpretive thread. In addition to providing science-based content, the thesis includes interpretive suggestions to place the global climatic and ecosystem changes told by the Cenozoic fossil parks in the context of modern, rapid, anthropogenic climate change. For more information on this program, contact: **Jason_Kenworthy@nps.gov**

Thesis is available online: *Changing Landscape, Climate, and Life During the Age of Mammals: Interpreting Paleontology, Evolving Ecosystems, and Climate Change in the Cenozoic Fossil Parks*: **http://ir.library.oregonstate.edu/jspui/handle/1957/15933**

Opportunity to Provide Your Opinion on Climate Change Education

Please join your colleagues in completing a brief survey of staff, volunteers and friends groups on the topic of communicating about climate change throughout the units of the National Park Service. The survey takes only **ten minutes**, and it will remain open through **December 31st, 2010**. We know there are many opinions on this issue, but we haven't yet heard from you! And in return for your time know that we will be developing new tools and resources that align with the needs you identify.

This survey is being conducted by Colorado State University in conjunction with the consulting firm of Bernuth & Williamson as part of a new Climate Change Education Partnership (CCEP), which includes the National Park Service, the U.S. Fish and Wildlife Service and the National Parks Conservation Association. Funding for this project is provided through a grant from the National Science Foundation.

We very much value your candid feedback, and with that in mind, please note that you will be completing this survey anonymously. Find the survey by following this link: **http://www.surveymonkey.com/s/CSU-CCEP**

Monthly Climate Change Webinar Series

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

December's presentation featured Jason Kenworthy, a geologist with the NPS Geologic Resources Division in Colorado.

His presentation titled, *"Interpreting paleontology and climate change using the fossil record of the national parks"* will be based on Jason's thesis work from Oregon State University– to develop a paleontology interpretation training manual for six Cenozoic fossil parks: Agate Fossil Beds NM, Badlands NP, Florissant Fossil Beds NM, Fossil Butte NM, Hagerman Fossil Beds NM, and John Day Fossil Beds NM.

Taken together the fossils of these six parks span much of the past 65 million years, the Age of Mammals. They record one of Earth's great climatic transitions from the swampy, steamy world of the dinosaurs to a world so cold, ice sheets advanced and retreated across the landscape.

This webinar explores the fossils of these parks, how their stories are interwoven using fossil horses as one example, and how fossil parks provide excellent opportunities to interpret modern climate change.

A recording of this webinar can be found at: **http://nrpcsharepoint/climatechange/communication/Web%20Seminars/Forms/AllItems.aspx**

More Information

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

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Angie_Richman@nps.gov

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

We are also on InsideNPS at: **http://inside.nps.gov/waso/waso.cfm?prg=125&lv=2**

Job Opportunity

Urban Landscape Climate Change Coordinator GS-13/14 stationed in Washington DC, applications due **Dec 13th, 2010.**
Job Announcement Number: **NPS-NCR-406766-CUE-SR**

This position is listed at: **http://www.usajobs.com**

Point Reyes NS Lighting Retrofit Project

Point Reyes National Seashore has begun a new lighting retrofit project through a partnership with Smart Lights, an East Bay Area, CA non-profit organization designed to help businesses become more energy-efficient. An energy audit conducted by Smart Lights provided Point Reyes recommendations for replacing light fixtures and locating appropriate sensor switches. The lighting retrofit program includes retrofitting all T-12 light fixtures with higher energy efficient T-8's. In addition, all magnetic ballasts, which have a tendency to cause fluorescent lamps to flicker and "hum" when operated, will be replaced with more energy efficient electronic ballasts. The completion of this project will result in an annual savings of $8,797 in operating expenses and reduce emissions of carbon dioxide by 25 metric tons per year.
Contact: **Sara_Hammond@nps.gov**

Saguaro NP Symposium on Climate Change

On October 2nd, over 150 scientists, educators, and citizens gathered at the Arizona Sonora Desert Museum for an all-day symposium on the effects of climate change on Saguaro National Park, Keynote Speakers were Nobel laureate Jonathan Overpeck and Travis Huxman of the University of Arizona, who spoke respectively on the worldwide and regional prospects for Climate Change. Discussion topics included Saguaro population trends, erosion of lizard diversity, NPS monitoring efforts, and the influence of climate change on the spread of the invasive buffelgrass. Participants were urged to join the Park for the next NPS / National Geographic BioBlitz event, to be held at Saguaro in October 2011.
Contact: **Jeff_Wallner@nps.gov**

Alaska Region Climate Change Strategy Released

Climate change will challenge how we manage NPS resources, assets and services in Alaska. We know that Alaska's landscapes and waters have been changing for a long time, but the rates of change have accelerated recently. Scientists are reporting increased air and ground temperatures, declining sea ice and glaciers, unusual flooding, coastal erosion, changing tundra and forest vegetation and wildland fire conditions. Better information, coordination, and cooperation will be important to protect and preserve America's natural and cultural heritage for current and future generations. The National Park Service's new *Alaska Region Climate Change Response Strategy* describes known and expected impacts of climate change on the National Parks in Alaska and explains why climate change matters to park managers. This strategy identifies major goals and objectives, outlines a set of initial actions, and suggests priorities for possible future actions. Although the strategy focuses primarily on the NPS units in Alaska, it also draws heavily on relevant information from cooperative planning efforts, especially U.S. Department of the Interior and NPS national efforts, and from several interagency coordinating committees in Alaska. A summary of the strategy's major points is available online at: **http://www.nps.gov/akso/docs/AKCCRS-summary.pdf**
A copy of the full strategy is available at: **http://www.nps.gov/akso/docs/AKCCRS.pdf**