



Education Plan

Craters of the Moon National Monument and Preserve



“this area contains many curious and unusual phenomena of great educational value.”
Proclamation 1694, May 2, 1924

ON THE COVER

Students climbing Inferno Cone

photo by Enrique Becali (Teacher-Ranger 2013)

Education Plan

Craters of the Moon National Monument and Preserve

National Park Service
Craters of the Moon National Monument and Preserve
P.O. Box 29
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2014

U.S. Department of the Interior
National Park Service

Contents

	Page
Introduction	1
Background Information	3
Existing Conditions	7
Desired Experiences	11
Recommendations and Outcomes	13
Five-Year Action Plan	16
Appendix	18
Literature Cited	24

Introduction

The intent of the Craters of the Moon National Monument and Preserve (CRMO) Education Plan is to guide the actions of park staff, volunteers and area educators in the development of a research-based, comprehensive Education Program which serves local K-12 educators, students and the park. The purpose of the Education Program is to provide K-12 students engaging, place-based learning opportunities that are an extension of their classroom.

The Benefit/Value of Education

In this document, capitalized “Education” refers to curriculum-based instruction that is tied to content standards and developed for kindergarten through 12th grade students and their teachers. Where it is not capitalized it refers to overall education and/or interpretive programs. “Plan” refers to this Education Plan and “Program” refers to the overall Education Program.

A Call to Action (2013) has reinforced the importance of Education in the NPS with the following mission/goals:

Advancing the NPS Education Mission: A SECOND-CENTURY NATIONAL PARK SERVICE will actively engage diverse communities and strengthen partnerships to develop innovative communication and education strategies. We will embrace a larger education role, building an understanding of our country’s shared heritage and preparing American citizens for the duties and responsibilities of citizenship.

GOALS:

- *TO ADVANCE THE NPS EDUCATION MISSION IN THE NEXT CENTURY, THE NPS must*
- *STRENGTHEN the Service as an education institution and parks as places of learning that develop American values, civic engagement, and citizen stewardship.*
- *USE leading-edge technologies and social media to effectively communicate with and capture the interest of the public.*
- *COLLABORATE with partners and education institutions to expand NPS education programs and the use of parks as places of learning. (A Call to Action: Preparing for a Second Century of Stewardship and Engagement, 2013).*

The goals put forward in the *Call to Action* have been further refined and focused in *Achieving Relevance in our Second Century* (2014). This document identifies major *Outcomes/Goals/park-based Actions* for Education in the NPS including:

Outcome 2: EDUCATIONAL LEADERSHIP

The National Park Service is a valued and significant educator. We accept and fully embrace our role as a critical contributor to America’s educational ecosystem, ensuring that parks are places for formal education and free-choice lifelong learning that promotes personal and societal growth.

Goal 2A - Establish the NPS as an educational institution and strengthen parks as places of learning that teach about our American heritage and develop civic engagement, scientific and

historical literacy, and citizen stewardship.

Goal 2B - Collaborate with partners and other educational institutions to expand NPS education programs and the use of parks as places of learning.

Action 2B-9: Develop, offer, and/or host professional development opportunities for teachers that are based on national park experiences and resources, such as presenting virtual programs, hosting teacher workshops, and participating in teacher in-service trainings. Partner with universities to offer continuing education credits.

Action 2B-10: Partner with universities to offer classroom or distance education programs in courses required for teaching certification in order to reach future teachers.

Goal 2C - Develop and nurture lifelong connections between the public and parks – especially for young people – through a continuum of engaging recreational, educational, volunteer, service, and work experiences.

Action 2C-7: Develop an education plan to consciously decide which audiences will or will not be targeted, the best forms or methods to conduct the outreach, etc.

Action 2C-8: Partner and align with universities, especially tribal colleges. Integrate classroom or distance education programs into various college courses and/or host university courses onsite in parks. Courses could range from art and science to history and geography.

Action 2C-9: Conduct BioBlitz and other citizen science events and programs, including the goal to create a generation of citizen scientists and future stewards by conducting fun, engaging, and educational biodiversity discovery activities in at least 100 national parks.

Action 2C-10: Partner with gym and health class teachers, hospitals, and active lifestyle organizations to increase the use of parks and green spaces and to improve public health.

Action 2C-11: Use partners and programs, such as public land corps organizations, Youth Conservation Corps, and the Youth Partnership Program, to incorporate interns into park projects.

Action 2C-12: Develop active, technology-based activities to promote physical recreation and meaningful learning opportunities in parks.

CRMO's Five-Year Strategic Plan includes the following goal specific to Education:

Children, students and teachers are provided opportunities to make their own connections with the significance of CRMO so they may care about and care for this special place. Educational programs and products also facilitate the group's learning objectives. (Division of Interpretation and Education, Goal II)

The CRMO 2007 Long-Range Interpretive Plan for the park recommended establishing an education specialist position and developing an Education Plan:

With an education specialist position established, one of the first projects should be the development of an education plan. Developed in partnership with area educators and partnering agencies, this plan would articulate the education mission, assess current programs, describe initiatives for future program development, identify the roles of partners, analyze the most pressing issues, and present program proposals. (Long-Range Interpretive Plan, 2007, p. 24).

It is important to CRMO to engage teachers and other partnering agencies in developing K-12 curriculum-based, experiential Education programming. This Education Plan articulates the

mission and vision, assesses current programs, describes initiatives for future program development, identifies the roles of partners, analyzes the most pressing issues, and presents program proposals. The development of the Plan involved assessment and revision of existing programs, activities, and teacher guides. Teachers are invaluable to the Plan in helping to connect all activities with current state curriculum standards.

Education programs that are place-based integrate the classroom with the park experience thus providing a richer and more fulfilling experience. The Program will provide both on-site and classroom-based interdisciplinary and subject-specific programming that is inquiry-based, appeals to multiple learning styles, utilizes technology when appropriate, and encourages critical thinking skills. At the same time, the Education Plan will incorporate current state curriculum standards into all lesson plans and activities. Programs such as these connect schools with their local communities through authentic learning. Through these experiences the Program will create resource-literate citizens prepared for a lifetime of learning and responsible environmental stewardship.

CRMO has the potential to become an integral part of the education community of Southern Idaho. Therefore, it is our responsibility to work with the education community to develop and implement an Education Program that meets the needs of teachers, students, and the park. The implementation of curriculum-based programming encourages educators and students to explore the natural and cultural history of their community and state, thus creating stewards of CRMO's natural and historical resources.

The following Plan will include background information on the park and education in Idaho. It will also cover the existing Education programming at CRMO, the desired experiences, recommendations and outcomes. A five-year action plan is presented at the end of the document.

Background Information

Park Background

Park Establishment

Craters of the Moon National Monument, the first national monument in Idaho, was established on May 2, 1924 for the purpose of protecting some of the unusual landscape of the Craters of the Moon Lava Field. This "lunar" landscape was thought to resemble that of the moon and was described in the Proclamation as "a weird and scenic landscape peculiar to itself (Proclamation 1694, May 2, 1924)." In this proclamation education was one of the primary drivers: "this area contains many curious and unusual phenomena of great educational value." The emphasis on education was reconfirmed by the 2007 Monument Management Plan, which stated that the purpose of the now expanded monument was to "Provide scientific, educational, and interpretive opportunities for the public to foster an understanding and appreciation of the volcanic geology and associated natural phenomena" (Craters of the Moon National Monument and Preserve Management Plan, 2007, p. 6). In the 2013 Foundation Plan document "Opportunities for Scientific Research and Education" were identified as one of the Fundamental Resources and Values of the park.

Since 1924, the Monument boundary has been adjusted and expanded several times, the latest occurring on November 9, 2000. On this date Presidential Proclamation 7373 expanded Craters of the Moon National Monument from roughly 53,400 acres to approximately 752,500 acres, including 737,700 acres of federal land. This proclamation ensures the protection of the Great Rift Volcanic Rift Zone and its associated features. It also placed the lands under the administration of both the National Park Service (NPS) and the Bureau of Land Management (BLM), with each agency having primary management authority over separate portions. In addition, on August 21, 2002, Public Law (PL) 107-213, 116 Statute [Stat.] 1052 designated the NPS portion of the expanded Monument as a National Preserve (Long-Range Interpretive Plan, 2007, p. 1).

The cooperative NPS/BLM management of CRMO makes the site one of the first in the nation where the mandates and legal authorities of two separate federal agencies were brought together to better serve the public and manage the resources (Monument Management Plan, 2007, p. 10).

Purpose (why the park was added to the National Park System)

Craters of the Moon National Monument and Preserve protects a vast “weird and scenic landscape” with remarkable and diverse volcanic features, sagebrush steppe ecosystems, and wilderness that provides opportunities to explore, understand and value the rugged and remote high desert landscape of the Great Rift region (Foundation Document, 2013).

Park Significance Statements (why the park is important and what makes it special):

- 1. Active as recently as 2,000 years ago, the Craters of the Moon lava field is the largest young basaltic lava field in the lower 48 states: the lava field contains a remarkable and unusual diversity of exquisitely preserved basaltic volcanic features.*
- 2. The Great Rift is the deepest known land-based open volcanic rift on the planet, and is nearly all contained within the Monument and Preserve. It is also one of the longest volcanic rifts in the continental United States.*
- 3. The Monument and Preserve contains more than 500 kipukas, isolated vegetation communities surrounded by lava, largely undisturbed by human activity. These communities are key benchmarks for scientific study of long-term ecological change in sagebrush steppe ecosystems.*
- 4. The combination of harsh, young volcanic terrain and extremes of a high desert climate have produced a diversity of habitats where plant succession is easily observed and where wildlife display remarkable adaptations that allow them to survive.*
- 5. The first designated wilderness in the National Park System, Craters of the Moon National Monument and Preserve contains the largest remaining area within the Snake River Plain still retaining wilderness character. The National Monument and Preserve combined with the BLM-managed monument encompasses over one-half million acres of undeveloped federal lands.*
- 6. Clean air offers visitors expansive scenic views from the high desert to the surrounding mountains that change dramatically with the seasons and from day to the naturally-dark night skies.*

7. *For thousands of years, people have explored, endured, and pondered this vast “weird and scenic” landscape. The Shoshone-Bannock Tribes’ relationship with the area, as well as the Goodale’s Cutoff on the Oregon Trail, are examples of enduring human connections to the landscape. Craters of the Moon National Monument and Preserve continues to inspire these connections (Foundation Document, 2013).*

Mission of the Division of Interpretation and Education (I & E)

The I & E division seeks to preserve the natural and cultural resources of Craters of the Moon National Monument and Preserve by providing opportunities for visitors, and other constituents, to make their own connections with the significance of the Monument so they may care about and care for this special place. The work of the I & E division reflects professional excellence and is accomplished through initiatives, integrity, open community and synergism with co-workers and partner organizations. The lava inspires preservation of the past, protection of the present, and preparation for great things in the future.

Interpretive Themes

The following theme statements provide the basis for interpretation and education at CRMO:

1. *Volcanology: CRMO provides opportunities for people to experience a remarkably well preserved volcanic landscape.*
2. *Great Rift: The Great Rift and its associated features are only the most recent reminders of an awesome series of geologic events that began to shape the eastern Snake River Plain 16 million years ago.*
3. *Kipukas: Searing lava flows that initially destroyed everything in their path today protect some of the last islands of intact sagebrush steppe communities on the Snake River Plain.*
4. *Ecosystem: The geology of CRMO has created unique and unexpected habitats that provide for the survival of a surprising diversity of plant and animal species.*
5. *Wilderness: CRMO contains vast areas managed to preserve their wilderness characteristics.*
6. *Scenic Landscape: Clean air and natural darkness enhance opportunities for visitors to experience the immensity of the landscape in every season and the star-filled skies at night.*
7. *History: For thousands of years people have avoided, endured, and pondered this “weird and scenic” landscape (Long-Range Interpretive Plan, 2007, p. 4-5).*

Education Planning Process

In 2012, CRMO received funding to develop a formal Education Plan. Shortly thereafter CRMO entered a partnership with Idaho State University (ISU) to analyze the current Education Program and to write the Education Plan. Through the partnership with ISU CRMO selected a team of local teachers from the counties surrounding the park. The Education Advisory Team participated in an ISU college course that examined CRMO’s current Educational programming and its individual components in order to determine how the park serves the education community. Furthermore, the team examined types of programs and themes as well as the effectiveness of the programs and materials. At the same time, the park’s interpretive staff gave

input regarding the park's main topics, themes, priorities for development and minimum level of service.

As a result of this evaluation and discussion period, the Education Advisory Team formulated a series of recommendations that takes into account comments by park staff and local educators. These may be found in the Desired Experiences section of the Plan. Suggestions for implementation are in the Recommendations and Outcomes section. Meeting notes are located in the Appendix.

The education environment in the schools served by the park

The mission statement for the Idaho State Department of Education calls for the success of all Idaho students. Recent legislative actions have focused on increasing use of technology in the classrooms while at the same time cutting school funding. As a result, many schools served by the park have wifi, iPads, and access to online interactive learning experiences. However, many schools served by the park struggle to find funding for field trips and textbooks. In the 2013-2014 school year all schools will implement the Idaho Core State Standards, and students will be tested on these standards in the 2014-15 school year. These standards cover Mathematics and English Language Arts/Literacy (including Literacy in Social Studies, Science, and Technical Subjects). Idaho continues to have separate state content standards for other subjects including Science. The Next Generation Science Standards have been released, but have not been adopted by Idaho and likely will not be considered until 2016.

Rationale for a partner-based education plan and description of partners

NPS has long struggled with institutionalizing curriculum-based formal Education within its organization. Questions of Education, partnering, and outreach have continually resurfaced. However, in recent decades several planning documents and reports have justified Education Plans and partner-based Education in the NPS. The 1990 NPS Education Task Force recommended that NPS should channel resources into site-specific Education programs that work with area schools instead of focusing on service-wide curriculum. The Vail Agenda, the 1991 Education Committee Report, reinforced previous work and highlighted the Parks As Classrooms programs for providing the NPS with successful opportunities to partner with schools. The 2013 *Call to Action* and the 2014 *Achieving Relevance* documents continue to place a strong emphasis on collaboration with partners (see page 1-2 for additional details).

With funding from the National Park Foundation, the CRMO Education Specialist initiated two important Education programs involving partnerships beginning in 2012:

- Parks as Resources for Knowledge (PARK) Teachers - New inquiry-based educational experiences are being developed in collaboration with staff from the College of Southern Idaho and pre-service and in-service teachers from the greater Twin Falls region.
- Ticket to Ride - This program provides transportation funds for field trips and created a 3-touch Education program involving a pre-visit to the schools by the Education Specialist, a field trip and a follow-up poster developed by students.

This Education Plan is also an example of a new partnership with a local educational partners, it was developed in collaboration with Idaho State University and with an Education Advisory Team made up of local teachers.

Existing Conditions

Summary

CRMO has considerable information about available education programs on its website, including teacher guides, lesson plans, and professional development opportunities. In addition, the CRMO website links to the larger, fully searchable national website that has system wide NPS content. On-site programs are available to elementary through high school groups. School visits are scheduled in the spring and fall. Snow School programs (which combine winter ecology and snowshoeing) are offered in the winter. In addition, park staff make periodic visits to area schools.

Bureau of Land Management staff also provide some off-site programs on volcanology and backcountry ethics to various schools near the Shoshone Field Office.

Most of the teacher guides, lesson plans, and activity guides can be downloaded from the Internet. In addition, two-day teacher workshops are offered 3-4 times per year.

Park staff have prepared almost all of the education programs, with little or no direct involvement of area educators, or field testing in schools. Although many of the programs probably connect with local and state curriculum standards, the programs were not developed with that in mind, and they were only recently advertised as addressing these standards. Pre- and post-visit activities are also not easily identified by teachers.

Currently, a maximum of 150 students are scheduled per day. An interpreter provides a 15 to 20 minute orientation talk and description of the NPS mission to each group. The talks are generally given outdoors in front of the visitor center. The multi-purpose room is used during bad weather. Due to high fuel prices, some schools, as a cost saving measure, are sending larger numbers of students at one time.

Park staff want to expand the Education Program. There also is a desire to increase the involvement of area educators in the curriculum development process (Long-Range Interpretive Plan, 2007, p.14-15). Pilot testing of a new experiential and inquiry based educational offering began in 2012. The new PARK Teachers program appears to have excellent potential to provide a deeper experience for students and to more fully engage area teachers and other education professionals in the park education program. The new program also addresses Idaho Core Standards, the Idaho State Science Standards, and the Next Generation Science Standards.

Education Programs and Materials

School Field trips

School visits occur year around but most students visit during the April-May and September-October time periods. Grades K-12 visit Craters of the Moon for school field trips. Costs associated with field trips are often a barrier for schools wanting to visit. CRMO currently offers field trip grants to cover the transportation costs for schools through the National Park Foundation sponsored Ticket to Ride program and other funding sources. Program reservations and communication with the schools are handled by the I & E division. An interpretive ranger gives a brief lesson about the park and goes over safety rules with arriving school groups. The

classroom teacher guides the school group once they are in the park. Field trip guides including suggested itineraries are available on the park website. On rare occasions due to staffing limitations, an interpretive ranger has accompanied school groups from nearby communities into the park. The ranger would hike the trails with the students and give interpretive talks along the route.

Most school field trips come from the Idaho Falls and Twin Falls areas. Very few field trips come from the “Gateway Communities” of Arco and Carey. Analysis of field trip reservation forms (for the years 2008 – 2012) reveals the following information about schools visiting CRMO:

- A majority of field trips come from grades K-5 (76 reservations). There were 59 reservations for middle school grades 6-8 and 26 for high school grades 9-12.
- A majority of field trips come from public schools (99 reservations). There were 38 reservations from private schools.

PARK Teachers

With the support of the National Park Foundation and through collaboration with the College of Southern Idaho, the park initiated the PARK Teachers program in 2012. K-12 students, pre-service teachers and certificated teachers engage in experiential and inquiry based learning that requires a commitment of 3-4 hours spent with park staff in the field. Students utilize park-provided scientific instruments for gathering real data, formulating and testing hypotheses, and practicing observation skills all of which involve STEM (Science, Technology, Engineering, and Math) skills. Language and graphic arts skills are also utilized by students to present their findings.

SnowSchool

SnowSchool is offered Tuesday through Friday in January and February. During the 2014 winter season 1100 school children participated in SnowSchool. Teachers bring classes to Craters of the Moon for a winter ecology lesson including a one mile ranger led snowshoe trek near the Visitor Center. The park has enough snowshoes for about 30 students and the walks are suitable for fourth grade and up; however, some younger groups have also participated. Snowshoes are provided free of charge for student use through a donation from the Winter Wildlands Alliance.

Teacher's Workshops

Teacher’s Workshops are 1-2 day workshops that provide educators with a variety of educational tools that can be used with students in the classroom and in the field to introduce natural science concepts and/or to prepare for a field trip to the park. The Education Specialist develops the workshops, handles the reservations, and presents the workshops. Professional Development credit to be used toward teacher recertification is available through affiliated university programs in southern Idaho. The following are some of the workshops offered on an annual basis:

- Craters of the Moon Educator's Natural History Workshop
- Nature Photography
- Geology Seminar
- Winter Ecology

Park staff have also hosted workshops provided by other organizations at the park including:

- Spaceward Bound: NASA. Field investigations of sites in southern Idaho that serve as planetary analogs.
- Virtual Field Experiences: Museum of the Earth. Participants created virtual field trips to be posted on the internet.
- Wilderness Investigations: National Wilderness Training Center. Participants learned how to incorporate wilderness education into the classroom.

School Visits

Rangers visit schools to present lessons on various topics. Rangers typically visit schools in Butte and Blaine counties—counties that are adjacent to CRMO. Typically upper elementary classes receive these on-site visits; however, grades as young as kindergarten have participated. Presentations through the Environmental Resource Center in Wood River Valley and Enrichment program at Arco Elementary School are the only current regular off-site ranger visits. Classroom visits are limited by logistics and staffing but otherwise available on request.

Teacher-Ranger-Teacher

The Teacher-Ranger-Teacher (TRT) program has been a highly effective professional development opportunity for educators and a valuable opportunity for parks to develop relationships with educators. Educators from K-12 schools work in the national parks during the summer months developing and presenting educational materials and programs. The selected candidate receives a \$3000 stipend for a 5 week term of service. Following their experiences working in parks, the teachers then return to the classroom and implement the knowledge and skills they learned during their Teacher-Ranger-Teacher tenure. Carey social studies teacher and coach, Lane Kirkland served as CRMO's first Teacher-Ranger-Teacher during the summer of 2012. Lane provided valuable input on the Education Program. Since 2012 the park has hosted TRT's from Lincoln and Butte counties. The long term goal is to recruit a teacher from each of the counties that border the Monument (Butte, Blaine, Lincoln, Minidoka and Power) and then to expand to other Idaho counties.

A Class Act

Help students develop a deep understanding of park resources and the relevance of parks in their lives through a series of park education programs. To do so we will adopt a class of 2016 graduates (grade school, middle school, or high school) at every national park and develop a series of fun, educational, and engaging activities culminating in the NPS Centennial in 2016 (A Call to Action: Preparing for a Second Century of Stewardship and Engagement, 2013).

All parks have been tasked with developing a relationship with a local school district culminating with the NPS centennial in 2016. One of the tangible results of the TRT program is the initiation of such a program with a local teacher and 4th/5th grade students at Arco Elementary. Through integrated classroom lessons and place-based activities at the park, the 4th/5th Arco Elementary class of 2016 will publish some of their investigative experiences to share with the communities of Butte County and Craters of the Moon by January 1, 2016.

Materials Available on the Web

A new web education portal was launched service-wide in 2013 that provides access to educational resources across the NPS. It also has some special interactive features including feedback on lesson plans and an online reservation system. The available lesson plans provide depth in a variety of subjects, and many of the plans can be completed in the classroom without a visit to the monument. In addition to lesson plans there are field trip guides with activities for the Caves Trail and Broken Top Loop. Finally, *Visiting the Moon* is an online activity that provides pre- or post-visit exercises in observation, inference, and critical thinking. All the following educational materials are currently available through the CRMO website.

Program Management, Logistics and Organization

Staffing

An Education Specialist, who splits time between the Interpretive Division and Resource Management, manages the program. There are two other full-time interpretive rangers, including the Chief of I&E, who oversees and assists with all aspects of the program. These staff members schedule field trips, conduct Snow School, visit local schools, develop curriculum materials, and conduct teacher workshops. Seasonal staff, volunteers, TRTs and BLM staff have also provided assistance with the overall program.

Reservations/ Statistics

Reservations are handled by the interpretive rangers. Reservation forms are saved; however, data from the forms has not been compiled. The new Education Portal has an online reservation capability; staff will be evaluating this new feature in coming years.

Statistics on the number of visiting students per day is captured in a database for annual reporting. School field trip reservation forms are saved; however, no organized system has been established to collect or analyze the data at this time.

Facilities

There is a visitor center with an auditorium at CRMO. Snow School groups usually gather in the auditorium for a lesson. For School Field trips groups usually gather at the benches in front of the visitor center for an orientation talk from an interpretive ranger. Very large groups are sometimes divided up with one group meeting at the benches and the other at the picnic area on the opposite side of the building.

Desired Experiences

The Education Advisory Team with input from CRMO I & E staff created the following Vision, Mission Statement, Guiding Principles, and Program Goals with the intent to define the desired experiences for teachers and students.

Vision

The Craters of the Moon Education Program provides students engaging resource-based learning opportunities that are an extension of their classroom.

Mission Statement

The Craters of the Moon Education Program provides access for students and educators to standards-based, experiential, environmental education programming. The Program will provide both on-site and classroom-based interdisciplinary and subject-specific programming that is inquiry-based, appeals to multiple learning styles, utilizes technology when appropriate, and encourages critical thinking skills. Through these experiences the Program will create resource-literate citizens prepared for a lifetime of learning and responsible environmental stewardship.

Guiding Principles

1. Students and teachers are provided opportunities to make their own connections with the significance of CRMO so they may care about and care for this special place.
2. Educational programs and products facilitate the group's learning objectives. Curriculum meets Idaho Core State Standards and/or current Idaho standards for the relevant subject matter.
3. Establish an educational program that is adaptable enough to meet future as yet unforeseen education needs.
4. Educators and students are involved in program planning and development. Create programming that is student-centered and highly participatory.
5. Incorporate the expertise and assets of park staff and partners to integrate learning with real-world issues.
6. Develop programming that is a viable education resource for teachers in the following topics: geology, biology, ecology, botany, climate change, Idaho history, Idaho culture, and astronomy.

Program Goals

1. Expand the park's ability to serve students and educators throughout southern Idaho and beyond with the development of virtual learning opportunities and by obtaining funding sources to support field trips.
2. Offer professional development opportunities that incorporate hands-on experience and utilize lesson plans.
3. Offer a sequence of project-based learning opportunities that enhance the learner's educational experience with Craters of the Moon's staff and resources.

4. Pursue funding to support an expanded education program including a full-time Education Specialist to manage the program.

Recommendations and Outcomes

This section of the Plan elaborates on the four goals identified in the Desired Experiences section. The recommendations for each goal were developed by the Education Advisory Team. CRMO I & E staff identified strategies to achieve these goals.

Goal 1

Expand the park's ability to serve students and educators throughout southern Idaho and beyond by obtaining funding sources to support field trips and with the development of virtual learning opportunities.

Recommendations

Updating park-related videos or making short interactive videos could be the start of a "virtual" education trunk to get park information into classrooms. General consensus of the Education Advisory Team is to incorporate more technology into curriculum offerings. Skype or other distance-learning technologies could make more in-classroom interaction feasible. Seek to establish better bandwidth capability. Work with IT specialists to overcome barriers that currently prevent the use of some of these tools on the federal system. Having the on-site PowerPoint programs available on the website as prep material for teachers would be helpful. Create assessment(s) of learning outcomes where appropriate. Pilot a distance learning capability with a school.

Money is a barrier to most schools taking field trips. The Natural History Association (NHA) could be an avenue to raise funds for travel assistance in years where Ticket-to-Ride funds are not available.

Strategies

- Investigate distance-learning technologies (ie, Skype, Webex, etc.) and pilot an interactive "Ask a ranger" session with an area school. Possibly work with DOE & BLM to create an interactive "Ask a Scientist" program quarterly.
- Work with IT staff or partners to expand broadband capability.
- Develop a Distance Learning Program. Using a videoconferencing connection, the interpretive rangers will spend an hour teaching a registered class about CRMO's amazing natural resources using interactive lessons and activities. The Distance Learning Program would have three parts: pre-conference activities, Skype conference, and post-activity. (See Denali's website for more information: <http://www.nps.gov/dena/forteachers/learning/sled-dogs.htm>.)
- Work with partners to raise funds to help support transportation costs for school visits to CRMO (Fun Run or other events).
- Continue improvement of the Educators Portal.

Goal 2

Offer professional development opportunities that provide hands-on experience and use of lesson plans.

Recommendations

More outreach is needed to increase awareness and help first-time teachers plan logistics and understand the resource. Teacher workshops that teach lessons to teachers could help them prepare for a trip. Develop a teacher workshop focused on successful field trip planning. Have teacher bring cameras and other relevant tools to test activities for a field trip. Mini teacher workshops (for example a Saturday morning lesson) to train teachers on field trip curriculum materials may be useful. Some districts may be amenable to a ranger presentation on CRMO curriculum at schools on professional development days. A series of “canned,” grade-specific teaching kits that first-time teacher could use would also be helpful when planning a trip.

Strategies

- Visit local schools during in-service days and provide short presentations/training on CRMO educational offerings including this plan.
- Offer professional development workshops to give teachers hands-on experience with using available lesson plans/field trip guides so that they can implement the lessons in their classrooms and successfully lead field trips to the park.
- Develop online “first-time field trip” recommendations for various grade levels.
- Develop a short online orientation video for first-timers that provides an overview of available curriculum and field trip procedures.
- Continue TRT program recruiting teachers from adjacent counties and then expanding program to more populous counties elsewhere.
- Institute *Class Act* program with students from Arco Elementary.

Goal 3

Offer a sequence of project-based learning opportunities that enhance the learner’s educational experience with Craters of the Moon's staff and resources.

Recommendations

Provide pre-visit and post-visit activities in all lesson plans. Additional online recommendations could be developed to emphasize different resources for different grade levels, thus encouraging repeat trips. Integrating literacy-related lessons with field trip materials might attract more teachers and address new Idaho Core State Standards. Perhaps adding a culminating activity for some of the lessons that include a strong writing component—even of only a few paragraphs—may address the literacy need. Realign relevant activities to Idaho Core State Standards. Differentiate for multiple age groups, developmental levels, and ability levels. Integrate multiple modes of learning. Create assessment(s) of learning outcomes where appropriate.

Incorporate multimedia, technology, and multiple platforms where appropriate. Current lesson plans on the web could be updated with new technology. Apps like the Wildflower App would be useful to incorporate with the existing lesson plans. Develop activities that students can do while on the trail (i.e. word search, take photos, etc.) as a way to make the information more usable/relevant. Develop questions for different grade levels. On-site activity could utilize water content of snow samples or examine different layers of a snow column. Beacons and probe poles are available and could be more fully incorporated. Invest in technology tools (i.e. thermometers, GPS units, etc.) that students can use while on-site or possibly check out for the pre-activities as

well. A STEM-related option could include GPS mapping of a trail. Incorporate night sky resource as a STEM curriculum opportunity to develop. It could include solar viewing as a daytime activity.

Strategies

- Identify pre-visit materials that provide background information and suggest activities that prepare students for a park experience.
- Identify post-visit materials that extend learning beyond the park experience.
- Finalize and fully institute new Winter Ecology field trip curriculum. Utilize technology as appropriate.
- Develop additional online recommendations to emphasize different resources for different grade levels.
- Revise old High School curriculum guide or develop a Citizen Science booklet for schools to use on their field trips. Give schools access to the accumulated data to study in the classroom.

Goal 4

Pursue funding to support an expanded Education Program including a full-time Education Specialist.

Recommendations

Additional funds are necessary to realize many of the ideas in this plan to expand our educational offerings. In addition, a full-time Education Specialist is necessary to manage the program. Even though there are limited funds, there are a number of options for accomplishing this.

Strategies:

- Seek additional NPS funding through a base increase and/or additional funding from partners.
- Submit a 3-year project funding request to utilize Recreation Fee funds to develop STEM-related experiential curriculum activities.

Five-Year Action Plan

Goal 1

Expand the park's ability to serve students and educators throughout southern Idaho and beyond with the development of virtual learning opportunities and by obtaining funding sources to support field trips.

Task	Year
Continue improvement of Educator's Portal.	Annually
Work with IT staff or partners to expand broadband capability.	Annually
Work with partners to raise funds to help support transportation costs for school visits to CRMO (Fun Run or other events).	Annually
Investigate distance-learning technologies (ie, Skype, Webex, etc.) and pilot an interactive "Ask a Scientist" and "Ask a Ranger" session with an area school.	1
Develop a Distance Learning Program. Using a videoconferencing connection, the rangers will spend an hour teaching a registered class about CRMO's amazing natural resources using interactive lessons and activities.	3

Goal 2

Offer professional development opportunities that provide hands-on experience and use of lesson plans.

Task	Year
Visit local schools during in-service days and provide short presentations/training on CRMO educational offerings including this plan.	Annually
Offer professional development workshops to give teachers hands-on experience with using available lesson plans/field trip guides so that they can implement the lessons in their classrooms and successfully lead field trips to the park.	Annually
Continue Teacher-Ranger-Teacher program recruiting teachers from adjacent counties and then expanding program to more populous counties elsewhere.	Annually
Develop online "first-time field trip" recommendations for various grade levels.	1
Develop a short online orientation video for first-timers that provides an overview of available curriculum and field trip procedures.	2
Develop a training program for pre-service teachers at local colleges.	3

Goal 3

Offer a sequence of project-based learning opportunities that enhance the learner's educational experience with Craters of the Moon's staff and resources.

Task	Year
Clearly identify classroom and field trip activities on the website.	1
Finalize and fully institute new Winter Ecology field trip curriculum. Utilize technology as appropriate.	1
Develop additional online recommendations to emphasize different resources for different grade levels.	2
Revise old High School curriculum guide or develop a Citizen Science booklet for schools to use on their field trip. Give schools access to the accumulated data to study in the classroom. Utilize wildflower app and other appropriate technology in program.	4

Goal 4

Pursue funding to support an expanded Education Program including a full-time Education Specialist.

Task	Year
Seek additional NPS funding through a base increase and/or additional funding from partners to support Education program.	Annually
Submit a 3-year project funding request to utilize Recreation Fee funds to develop STEM-related experiential curriculum activities.	2-4

Appendix

A. Education Advisory Team Meeting at CRMO on April 20, 2013

Attendees

Wendy Ruchti, Ted Stout, Doug Owen, Diane Butler, Enrique Becali, Tim Gunderson, Steve Poklemba, Jim Oloff, John Derr, Lennie Ramacher

Goals for Today

K-12 students are the key demographic audience for this education plan. Identifying goals and objectives for the education component of the interpretive plan is the key outcome desired from this process.

- Where should the program go in the next five years?
- What barriers still inhibit use of the park by teachers?

Current Status of the Education Program

Current education program components and professional development opportunities were reviewed.

- SnowSchool – Pre- and on-site activities; 860 kids attended in 2013 school year.
- Partnerships – CSI, National Park Foundation, Spaceward Bound, Museum of the Earth are ongoing. CSI Partnership revamping classes for pre-service teachers, developing science modules with inquiry-based learning components. Tim suggested Sean Wilsey as a potential resource to involve in the program.
- Classroom visits – Limited by logistics and staffing but otherwise available on request.

Current offerings focus on: (1) place-based outdoor classroom; (2) inquiry-based and experiential learning; (3) interconnection of life with the environment; (4) dynamic ecosystem.

The forthcoming web education portal to be launched service-wide in late summer 2013 will allow for an online reservation system to be implemented in fall 2013. Enrique suggested including a typical weather component for the reservation system. Dates open for reservations will be those optimum for visits. Other website-related suggestions included:

- A community blog or listserv could be developed for educators to share teacher-generated materials, lesson plans and resources on the park. NSTA’s bulletin board is an option, or a social media blog site such as Tumblr. Due to gov’t restrictions on some social media sites, a venue outside the NPS firewall may be needed.
- Add a link for teachers to the “Plan your Visit” section of website for the general public that would redirect them to the “For Teachers” page.
- Identify state and Common Core standards on the field trip tab on our website.
- General suggestions related to Common Core Standards and pedagogy:

- Common Core standards for English Language Arts and Math will supplant current Idaho standards while Idaho standards for science, health, social studies will remain.
- New Common Core Standards focus on writing and students will need to cite evidence in forming answers. Tim suggested adding a culminating activity for some of these lessons that includes a strong writing component, even if only a few paragraphs.
- Do teachers ask students to use reasoning to support conclusions during field trips? Wendy mentioned OWL (Observation, Why, Learn) as something that could be incorporated into pre-visit, on-site, or post-visit activities.
- Next Generation Science Standards (NGSS) should be adopted in Idaho in 2016.

Ted reviewed the Teacher-Ranger-Teacher program and welcomed interested parties to apply for work as a TRT at CRMO. An upcoming NASA partnership slated for 2015 will revise the “Visiting the Moon” website activity and make it more interactive. Enrique suggested asking NASA to keep a remote sampler on-site that kids could control remotely to experience interplanetary research.

Field Trips

On-site Orientation Talks

- Concern over the variability in ranger preparation for some orientation talks.
- Steve suggested shorter talks may be better for more prepared teachers.
- Temporary benches for the picnic area (when large groups are split into smaller groups) may keep kids calmer than when standing.

Travel Assistance Grants

- Diane & Jim felt money is a barrier to some Idaho Falls schools taking field trips. NHA could be an avenue to raise funds for travel assistance in years where Ticket-to-Ride funds are not available.
- Tim said that a field trip from Burley would cost approximately \$400 to finance, though a couple hundred might persuade a district to cover the balance.

Other Barriers

- More outreach to help first-time field trip teachers plan logistics and understand the resource, perhaps teacher workshops that teach lessons to teachers so they are prepared for a trip.
- Integrating literacy-related lessons with field trip materials might draw teachers.
- Institute an informal mentoring program that pairs new teachers with seasoned teachers for organizing a field trip.
- Develop a series of “canned,” grade-specific teaching kits that first-time teachers could use for field trips. Additional field trip kits that emphasize different resources could be used at different grade levels, encouraging repeat trips.

Off-site School Visits

Presentations through the Environmental Resource Center in Wood River Valley and Enrichment program at Arco Elementary School are the only current regular off-site ranger visits.

- Technology capability can vary widely from school to school. Richfield has difficulty with web-based programs; Wood River Middle School has wifi campus-wide.
- Updating park-related videos or making short videos in-house in which rangers present material and ask questions students could answer could be the start of a “virtual” education trunk to get park information into classrooms.
- General consensus of the group is to incorporate more technology into curriculum offerings. Skype or other distance-learning technologies could make more interaction feasible.

Teacher Workshops

- “Mini” teacher workshops (e.g., a Saturday morning lesson) to train teachers on field trip curriculum materials.
- Some districts may be amenable to ranger presentation on CRMO curriculum at schools on professional development days.
- Park staff could learn a lot from teachers about how materials might be used by having teachers complete lessons and offer feedback.
- Attending regional professional development trainings (e.g., ISTA, IDEEA conferences) could get the word out about the park and offerings.

Assessment of Current Curriculum Materials

All Materials – Make a printable PDF version of each lesson available on the website.

Broken Top Loop Guide

- The comprehensive nature is helpful to reaching different students’ interests.
- Apps like the Wildflower App would be useful to incorporate with the existing guide. Develop additional apps on geology to supplement, as well.
- Addition of Broken Top Brain Teasers adds a student activity to the guide.
- Incorporating literacy-related components, or identifying those already in the material.
- More prep work that is performance skills-based before a field trip will meet Common Core standards.
- Develop activities that students can do while on the trail (i.e., word search, take photos, etc.) as a way to make the information more usable/relevant. Develop questions for different grade levels.
- Some of the geology terms may benefit from more explanation.
- PARK teacher classes may offer ideas on potential pre- and post-visit activities.

Caves Trail & Indian Tunnel Guide

- Accessible and descriptive for elementary teachers.
- Could incorporate activities for a variety of learning styles, including games and songs.
- The K-5 age group is very wide; consider developing a section specific to K-2.
- Develop a STEM pre-visit activity from the map in the Indian Tunnel guide (i.e., use a ruler to measure distance and calculate time for the walk).
- ESL students could translate materials and lessons into Spanish or other languages. (Options exist in the park network as well.)
- Developing questions for different grade levels could complement current trail guides.

Teachers Guide

- Rename Activity 4C “Adapting to an Extreme Environment.”
- Create a checklist of Teachers Guide activities to complete before a field trip to provide context depending on the curriculum focus (i.e., geology, ecology, etc.).
- Lesson content is solid, but incorporating technology would update the lessons appropriately.
- Lessons could be departmentalized to make them more accessible to teachers.
- Add graphics on some of the curriculum materials (e.g., journaling activity).

SnowSchool

- The inquiry-based pre-activity was good and a similarly-styled post-activity is desired. Track Mystery with inquiry-based activity is in the works.
- Consider developing an assessment for each activity. Some felt this could be left to each teacher’s discretion.
- Having the on-site PowerPoint programs available on the website as prep material for teachers would be helpful.
- On-site activity could utilize water content of snow samples or examine different layers of a snow column. Ted said that beacons and probe poles are available and could be more fully incorporated.
- Steve inquired about the potential for a SnowSchool program that is teacher-led instead of ranger-led. Ideally the teacher would have visited CRMO previously with field trips.

Visiting the Moon

- Changes in website logistics upset how it was accessed, though some images have been updated, too.
- New images don’t always work for the questions to be answered adequately as specific lighting conditions are needed to supply the proper evidence for basing decisions.
- Google Earth & Google Mars might allow better images and interactivity.
- Activity could be used beyond K-12 to college students as well.

Next Five Years

- Invest in technology tools (i.e. thermometers, GPS units, etc.) that students can use while on site or possibly check out for pre-activities as well. Ted mentioned a STEM-related option could include GPS mapping of trail, for instance.
- Tim asked that Common Core standards be listed on activities right now.
- Wendy suggested alignment with Next Generation Science Standards could begin now. No consensus and Enrique suggested waiting for now.
- Standardize current lessons to include pre- and post-visit activities.
- Travel assistance grants should continue to facilitate field trips.
- Outreach to school boards on the educational value of field trips may help increase funding for field trips.
- Develop a teacher workshop focused on successful field trip planning. Have teachers bring cameras and such to test activities for a field trip.
- Pilot a distance learning capability with a school.
- Steve suggested a goal of establishing better bandwidth capability within the next 5 years.

- Develop a park docent program with Idaho Master Naturalists that can visit schools.
- Pursue reestablishment of a Sawtooth Science Institute-type program with classes in creative writing, birding, etc. Satisfy hour requirements for college credits with independent-study hours spent on developing activities.
- Incorporate night sky resource as a STEM curriculum opportunity to develop. Could include solar-viewing as a daytime activity.
- Promote CRMO as a venue for other organizations to offer educational activities (i.e. Sun Valley Center for the Arts).

B. Standards Connections for Existing CRMO Lesson Plans

Lesson plans have been aligned to the Common Core State Standards (CCSS) English Language Arts (ELA) Writing and Speaking/Listening College and Career Readiness Anchor (CCRA) Standards. None of the lessons have strong, significant alignment to the CCSS ELA Reading Standards or the CCSS Mathematics Practice Standards. Additionally, the lessons have been aligned to the Next Generation Science Standards (NGSS) Science and Engineering Practices (SEP). A key to abbreviations used below:

CCSS= Common Core State Standards

ELA= English Language Arts

CCRA= College and Career Readiness Anchor Standard

W= Writing

SL= Speaking and Listening

NGSS= Next Generation Science Standards

SEP=Science and Engineering Practices

Lesson Plan	Standards
Life in the Extreme	CCRA.W.1, CCRA.W.10 NGSS.SEP.1-8
Winter Track Mystery	NGSS.SEP.2, NGSS.SEP.4, NGSS.SEP.6, NGSS.SEP.7, NGSS.SEP.8
Prepare for Cold Air	CCRA.W.1 NGSS.SEP.2, NGSS.SEP.4, NGSS.SEP.5, NGSS.SEP.6, NGSS.SEP.8
Walking on the Moon	NGSS.SEP.1-8
Journaling	CCRA.W.3 NGSS.SEP.8
Adapting to an Extreme Environment	NGSS.SEP.1, NGSS.SEP.2, NGSS.SEP.4, NGSS.SEP.6, NGSS.SEP.8
Craters Ecosystem	CCRA.SL.1, CCRA.SL.6 NGSS.SEP.2, NGSS.SEP.4
Life Time Line	NGSS.SEP.2, NGSS.SEP.4, NGSS.SEP.8
The Write Stuff	CCRA.W.2, CCRA.W.4, CCRA.W.5, CCRA.W.6, CCRA.W.7 NGSS.SEP.8
Food for Thought	Extension: CCRA.W.2, CCRA.W.3
Stuff, Then and Now	CCRA.W.10
The People's Time Line	NGSS.SEP.2
Liquid Rock	NGSS.SEP.2, NGSS.SEP.6
Hot Spot	NGSS.SEP.2, NGSS.SEP.6
From Core to Crust	CCRA.SL.1 NGSS.SEP.2
Deep Time and You	NGSS.SEP. 2, NGSS.SEP.8

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The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

NPS-CRMO, October2014

**National Park Service
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