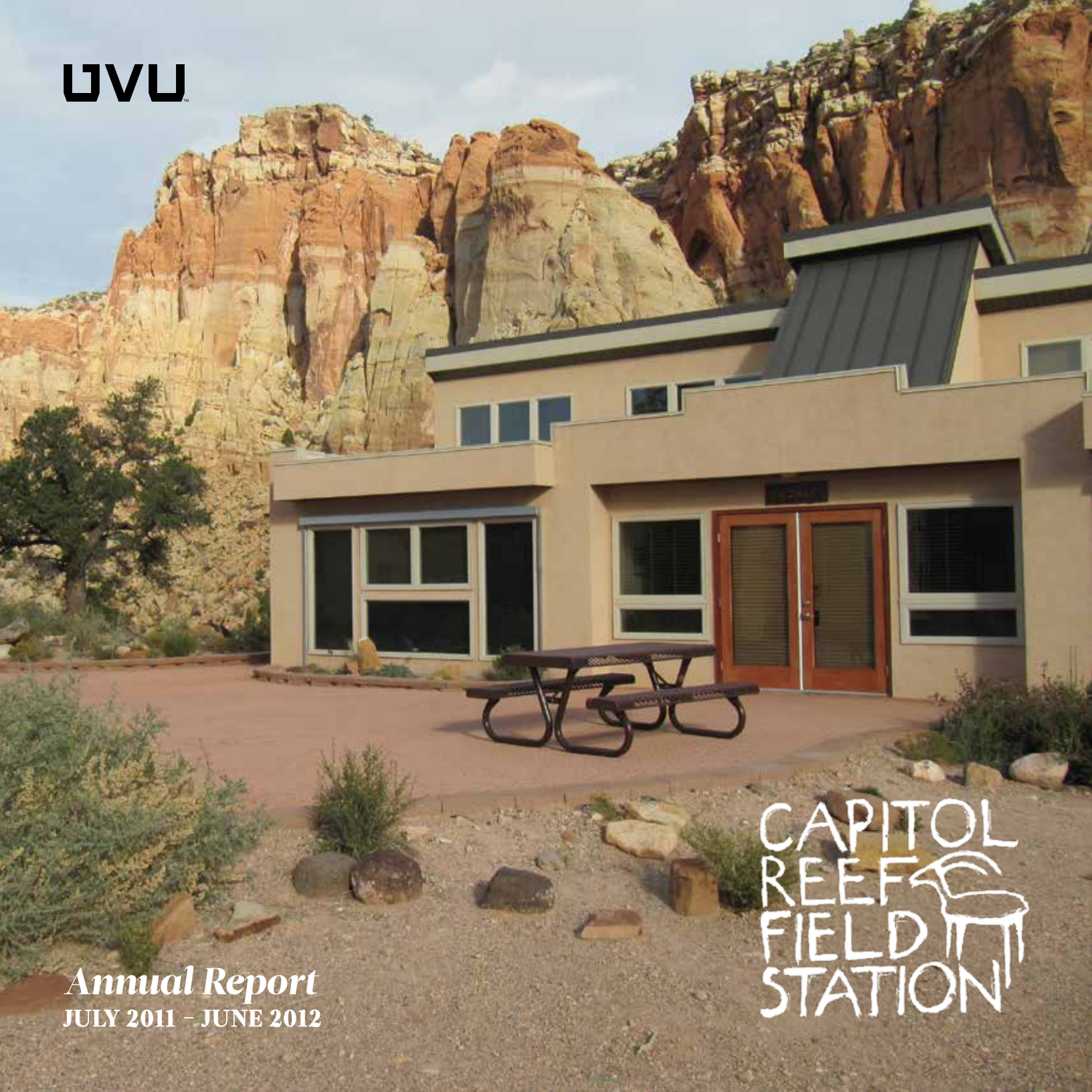


**UVU**



*Annual Report*  
JULY 2011 - JUNE 2012

CAPITOL  
REEF  
FIELD  
STATION 

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# CRFS Staff & Advisory Committee

## Staff

**Director** (2012-present):

**Michael T. Stevens**

Associate Professor of Biology

**Director** (2008-2012):

**Renée Van Buren**

Professor of Biology

**Associate Director** (2012-present):

**Keith White**

Associate Professor of Developmental Math

**Associate Director** (2011):

**Ally Searle**

Botany Lab Manager

**Site Manager** (2011-present):

**Jane Dell**

**Administrative Support** (2012-present):

**Lissa Camacho**

**Administrative Support** (2011-2012):

**Renee Kalaniuvalu**

**Custodial & Maintenance Support** (2011-present):

**Lesa Dean**

## Special Thanks To:

Paul Fenske and Ethan Clark for report layout and design and to Travis Lovell's photography students for providing many of the report's images.

## Advisory Committee

(Members are UVU faculty and staff who serve for ~3 years on a rotating schedule)

**Karl Haisch**

Professor of Physics

**Danny Horns**

Associate Dean, College of Science and Health

**Travis Lovell**

Assistant Professor of Art and Visual Communication

**Heath Ogden**

Assistant Professor of Biology

**Linda Shelton**

Instructor of English & Literature

**Catherine Stephen**

Associate Professor of Biology

**Dan Stephen**

Associate Professor of Earth Sciences

**Scott Williams**

Assistant Professor of Exercise Science & Outdoor Rec.

**Letty Workman**

Associate Professor of Marketing



## Director's Introduction

**In October,** the cottonwoods below the Field Station form a bow of yellow that stretches in an arc up and down Pleasant Creek between the sandstone cliffs on either side. The cottonwood leaves catch even the smallest breeze and begin to rustle. The combined movement of so many leaves is audible, but subtle. The acoustics are different at the base of a vertical cliff of Wingate sandstone. Listening at this place, the sounds of the cottonwood leaves are amplified and unexpectedly loud. The amplified sounds catch your attention and cause you to reevaluate your assumptions and perceptions.

In a similar fashion, the experience of being at Capitol Reef Field Station amplifies the effects of the engaged learning, field-based research, and conservation ethics that take place here. At the Field Station, teachers and students interact with the environment and with each other in significant ways that can't happen within the confines of a traditional classroom. For example, and as a preview to things you'll read about in our annual report: service learning students have a spontaneous lunch with the Utah Conservation Corps, international students learn new geology vocabulary through firsthand experience, entomology students see a honey ant invasion, photography students use early and late





light and print photographs at the station in the middle of the day, student and professor researchers work side-by-side to monitor changes in plant communities, to catalog insect diversity, and to identify lichens. All the while, water is conserved, waste is reduced, and computers and lights are powered by the sun.

In our annual report, notice the diverse and interdisciplinary ways in which our Field Station has been utilized. We hope that these ideas will spark your curiosity and get you thinking about how you could become a part of the Field Station community. We invite you to visit us, bring your class on a field

trip, start a research project, give a seminar, or donate to our internship program. We invite you to find a place at our Field Station, at the base of a sandstone cliff, where your ideas can be amplified.

**- Michael T. Stevens**  
Director, CRFS





## About CRFS

### *Our Mission*

The Capitol Reef Field Station (CRFS) promotes and supports engaged learning, field-based scientific research, and exceptional environmental ethics through the exploration of the Colorado Plateau ecosystem.

### *Our Vision*

Our vision is for every Field Station visitor to connect with the Capitol Reef landscape on a personal level. We hope an elevated appreciation of place will lead our visitors to invest in the long-term preservation of Capitol Reef and in the environment in general. To accomplish our vision we have focused on bridging the distance between our guests and the natural world through experiential learning, research, and the practice of conservation.

### *Our Partnership*

Vital to the success of our mission is the partnership between Utah Valley University (UVU) and Capitol Reef National Park. This unique partnership allows CRFS to provide its visitors with educational experiences that are as remarkable as the landscape in which they occur. We are grateful for the opportunities afforded our guests through this partnership. CRFS operates under the direction of UVU and the Park in accordance with agreement number G135009001. This agreement has been in effect since May 2009 and defines the conditions of the lease to UVU. The Field Station is property of the National Park Service.

## *Our Place*

From our mesa-top location overlooking Pleasant Creek, you can see the Henry Mountains to the east and Boulder Mountain to the southwest. The Field Station is two miles past the end of the scenic drive in Capitol Reef National Park. Our location provides an amazing opportunity for place-based learning. Only 3.5 hours from the UVU campus and the Wasatch Front, CRFS welcomes students and faculty from institutions of higher education from Utah and beyond to our part of the Colorado Plateau.

## *Our History*

The land around CRFS has a long history of human settlement. Over millennia, it was used by late Paleo-Indian, Desert Archaic, Fremont and Numic-speaking (Ute and Paiute) peoples. Modern settlement began with Ephraim Hanks, a Mormon pioneer, in 1882. Hanks established a ranch and diverted water from the nearby Pleasant Creek to irrigate pasture and orchards.

Lurt and Margaret Knee purchased the Hanks' ranch in 1940 and converted it to Sleeping Rainbow Ranch, a tourist spot that was frequented regularly by writers, artists and photographers. In 1978, Lurt and his second wife, Alice, deeded the Ranch to the National Park in a deal that included life tenancy for them. In 1995, Lurt passed away, and Alice relinquished her remaining property rights.

The property remained unoccupied for several years before UVU approached the Park with the idea of a field station. It was decided that a field station supported the missions of both organizations well, and after years of close collaboration on the project, the idea became a reality. CRFS opened for operation in 2008.



# Engaged Learning at CRFS

Capitol Reef Field Station (CRFS) is a place for experiencing hands-on learning, performing research, examining conservation practices, and exploring the surrounding environment. Groups that visit CRFS come from a number of institutions and from an even broader reach across disciplines, with each group making the most of this place in a different, creative method. Here is a brief look at how some of our visitors utilized the Field Station.

## **Service Learning – UVU – Laura Christopherson (March 12-15, 2012)**

Students got to experience nature first-hand by volunteering at Capitol Reef National Park over spring break. Not only did they learn about the local environs, but also about other conservation-oriented service organizations. In fact, one student so enjoyed his conversation with the Utah Conservation Corps (UCC), that he applied and was awarded a summer internship at the Park. UVU's Laura Christopherson discusses their trip:

*“Our service to the Park included two eight-hour days of digging, lopping, and rebuilding irrigation ditches that had been washed out in a storm at the end of last season. During this trip, we also hiked to petroglyphs and Hickman Bridge, participated in stargazing, and learned A LOT about the geology of the land. This place has an incredible history and we have all enjoyed learning about it! Many students were interested in other service opportunities in the Park, so we had lunch with the UCC and had a great discussion about other service opportunities in Park services. One student said that this spontaneous lunch and the hike to the petroglyphs were his favorite parts of the trip.”*

## **Conservation Biology – UVU – Renée Van Buren (March 23-24, 2012)**

Teaching about the interconnectedness of the Colorado Plateau ecosystem, UVU's Renée Van Buren details the experience of her class while visiting the Field Station:

*“We arrived at CRFS in the late afternoon and were greeted by Jane Dell. She gave us an orientation about the Field Station, the geology and conservation, and then continued to instruct us as we walked down to the panel near Pleasant Creek where we learned specifically about the cultural history of the area. We also learned about some of the more common shrubs and trees, cryptobiotic soils, and saw a few birds on our hike. As soon as it was dark, we got the telescope out, saw wonderful looks of the night sky...favorite was Sirius, wow! We then headed down the road and hiked to Cassidy Arch where we reviewed the geology and biology as we hiked. We had a great time. Students had an opportunity to get to know each other better and to have some extended time with faculty and staff. What a great place the Field Station is. UVU is lucky to have this facility where students and faculty can interact with each other and with the wonders of the desert. Can't wait to come back!”*



***Outdoor Recreation –***  
**BYU – Phil Kelly**  
**(March 29-30, 2012)**

Brigham Young University faculty member Phil Kelly truly makes the most of CRFS as an outdoor classroom. His outdoor recreation students visited the Field Station to get a more profound understanding of what they had been learning back on campus. Phil shares:

*“Our class focus for this trip, as well as the other activities we participated in during this semester, were the Leave No Trace principles. My hope for my students is that they not only process the information, but that they find a way to incorporate these principles into their lives. I feel that we really did make a good effort during the two days we were in Capitol Reef and hope that each of us can continue to respect the stewardship we have each been given for this amazing earth that we have been blessed with. I am so grateful that the Park Service and UVU had the vision and foresight to create the Capitol Reef Field Station. It is a wonderful place to learn and to experience new adventures.”*



Service Learning - UVU



Outdoor Recreation - BYU



# Engaged Learning at CRFS

## **English as Second Language, Level IV – UVU – Kevin Eyraud (April 9-11, 2012)**

UVU's Kevin Eyraud exemplifies the concept of engaged learning by using the language of geology to prepare international students for collegiate success. Scientific terminology may be difficult for some students to fully grasp from a textbook alone. However, these terms become more meaningful and better understood when they are witnessed first hand. As Kevin writes,

*“Our trip to the Capitol Reef Field Station was full of natural beauty and pedagogically powerful as always. The information that we covered in class at UVU over the course of the semester was wonderful to employ in the contextualized environment of the CRFS and Capitol Reef. The students engaged with the academic vocabulary and were able to reinforce their meanings and uses in multiple ways.”*

## **Entomology – WSU – John Mull (May 21-22, 2012)**

Weber State University Professor John Mull brought his students to the Field Station to get a closer look at the insects of the Colorado Plateau.

*“During the day that our group spent at the Field Station, we made observations of insects in the vicinity of the Field Station. Highlights of these observations were the honey ants that invaded the kitchen area and the many pollinators working the flowers on both the landscaped*

*and naturally-occurring vegetation near the Field Station. Another highlight of our visit was the evening walk Jane led us on to share some local natural history and view petroglyphs on nearby rocks.”*

## **Landscape Photography – UVU – Travis Lovell (June 4-9, 2012)**

With the incredible backdrop of sheer red cliffs and colorful bands of geologic formations, it is no surprise that Travis Lovell from UVU's Art Department brings his students to photograph CRFS and its surroundings. Not only are students able to fine-tune their craft, but they also gain professional exposure from pictures taken during their stay. Student photographs appear throughout this annual report, on the walls at CRFS, and even across the UVU campus. As Travis details:

*“This trip consisted of two photography classes: landscape photography and historic photographic processes. The Field Station provides a wonderful resource to give students a concentrated, hands-on experience doing what is discussed in class. We have set up the class to utilize the station as a client and provide the students with lists of subjects that the station can in turn use both in educational and decorative settings. We would take advantage of early and late light while photographing and then would return to the station to make prints using photographic processes prominent during the mid- to late-1800s. These prints are made on hand-coated and sensitized papers and then exposed using the sun. We thought the combination of classes would provide a very interesting educational opportunity in an area so beautiful and so rich in history.”*



## Student Projects

Under the direction of UVU faculty member Deepa Pillai, four students from MKTG 3670, Advertising and Promotion, completed a marketing plan for CRFS. This was a service learning project that provided CRFS with a detailed marketing plan and a number of specific initiatives we can implement to increase awareness of and visitation to CRFS.

An additional service learning project was completed by four different students under the direction of UVU faculty member Peter Robinson for MGMT 494R, New Venture Consulting. For this project, students completed a business plan for CRFS which incorporated recommendations about many aspects of field station operation including financial matters, employee training, and website marketing and navigation.

We also engaged four students from the Digital Media Department as part of their final senior project to craft a series of professionally produced promotional videos about the Field Station. Over the course of three site visits, these students filmed the stunning scenery, captured the sounds of the surrounding natural areas, and conducted interviews of fellow students studying at CRFS.



ESL - UVU



Entomology - WSU



Landscape Photography - UVU



## Research at CRFS

From its location in the heart of Capitol Reef National Park, Capitol Reef Field Station (CRFS) provides faculty and student researchers with direct access to the flora and fauna of the Colorado Plateau. With just a few steps outside the buildings at CRFS, they are already in the heart of the plateau. This access allows for countless opportunities to study and do research.

Field-based research is one of the key aspects of the CRFS mission, and Utah Valley University (UVU) faculty again led students on research projects to explore and catalog the region's biodiversity, explore our impact on the region, and better understand the plateau itself. All research at the Field Station is conducted in a careful, thorough way, which creates scientific knowledge while simultaneously preserving the unique environment in Capitol Reef. All research must be approved by the Park through its permitting process before commencing.

Over the last year, more than 20 UVU students, four faculty members, and one staff member were involved in research at the Field Station. This research involved six visits to the Field Station and led to four presentations at national conferences involving students.

### ***Plant Community Analysis***

A research project involving UVU biology professor Renée Van Buren, UVU botany lab manager Ally Searle, and UVU students, Megan Covert, Nicholas Alvarado, and Jennifer Summers monitors changes in plant communities near the Field Station that may be impacted by visitation to the station. Eight permanent transects were established in 2011 in four communities including pinyon/juniper, riparian, sagebrush/grass, and grassland communities. Annual data collected from these transects will help establish a baseline and then monitor changes in species composition, frequency, percent cover, and disturbance. This will allow researchers to determine if introduced plant species increase or decrease over time, soils are disturbed by humans or domestic animals, and if species composition changes within the sampled areas. This information will allow us to make evidence-based management recommendations to the Field Station and to the Park.

### ***Insect Studies***

The three main purposes of research directed by UVU biology professor Heath Ogden are to 1) provide students with excellent field and laboratory research opportunities, 2) catalog the insects of Capitol Reef (especially around the Field Station) via collections, identification, and curation of material, and 3) create an insect field guide (pamphlet) for Capitol Reef which will serve as reference material for the community visiting the Park and CRFS. The participants of this research, including UVU student Matthew Ethington, became proficient in the insect natural history of the Park and helped to create the first insect field guide for the region. In fact, Matthew will be going to graduate school to further his studies of entomology after he graduates from UVU in April 2013.



## *Lichen Experts*

Two graduating students from UVU's biology program, Israel Garcia and Richard Russell, and Paul Nibley (UVU adjunct faculty in digital media) were trained as lichen experts by UVU biology professor Emily Holt and Brigham Young University (BYU) biology professor Larry St. Clair. The research team stayed at CRFS and collected lichens from nearby Bureau of Land Management land and the Fish Lake National Forest with proper permits. They learned about desert lichen flora occurring on woody substrates to prepare them for a research project at Dinosaur National Monument later that summer. The recent increase in oil and gas extraction and processing in the Uinta Basin has prompted their research of pollutant levels within that airshed. They plan to re-visit 18 reference sites in Dinosaur National Monument in the future to quantify compositional shifts in lichen communities, which are demonstrated to be good bio-indicators of atmospheric pollution. Additionally, they are contrasting two well-established lichen collection protocols used to assess air quality using lichens.

## *Presentations of CRFS Research*

**Alvarado N\*** and **Van Buren R** (2012) Capitol Reef Field Station vegetation research project. National Conference on Undergraduate Research, Weber State University, Ogden, UT.

**Ethington M\*** and **Ogden TH** (2011) Insects of Capitol Reef National Park. Entomological Society of America, Reno, NV.

**Ethington M\*** and **Ogden TH** (2012) Insects of Capitol Reef National Park. National Conference on Undergraduate Research, Weber State University, Ogden, UT.

**Summers J\*** and **Van Buren R** (2012) Capitol Reef Field Station vegetation research project. National Conference on Undergraduate Research, Weber State University, Ogden, UT.

\* Denotes an undergraduate researcher



Plant Community Analysis



Insect Studies



Lichen Experts



# *Environmental Ethics at CRFS*

When visitors come to the Field Station we want them to gain an appreciation for the Capitol Reef landscape and develop a sense of personal responsibility for it. To this end, we teach arriving groups about the diverse and unique features of the Capitol Reef landscape, taking care to describe how human behavior impacts the balance of this delicate environment. Then comes the exciting part—teaching them how to practice conservation.

As an interdisciplinary learning center we host students from a broad range of academic backgrounds. For many of them a field trip to CRFS is their first foray into the realm of environmental science. Often, it is the first time students have practiced water conservation, tried to reduce their impact on the environment, lodged in a solar-powered facility, or even heard of noise and light pollution. Visitors are receptive to this instruction and frequently comment that learning about conservation was a trip highlight.

Here are some of the things that were done this year to accomplish our mission to promote and practice environmental ethics:

## ***Provided instruction and hands-on practice of conservation to our visitors***

All CRFS visitors are formally instructed on conservation practices. Faculty members have the option of asking for specialized instruction that is relevant to their curriculum objectives.

## ***Minimized waste***

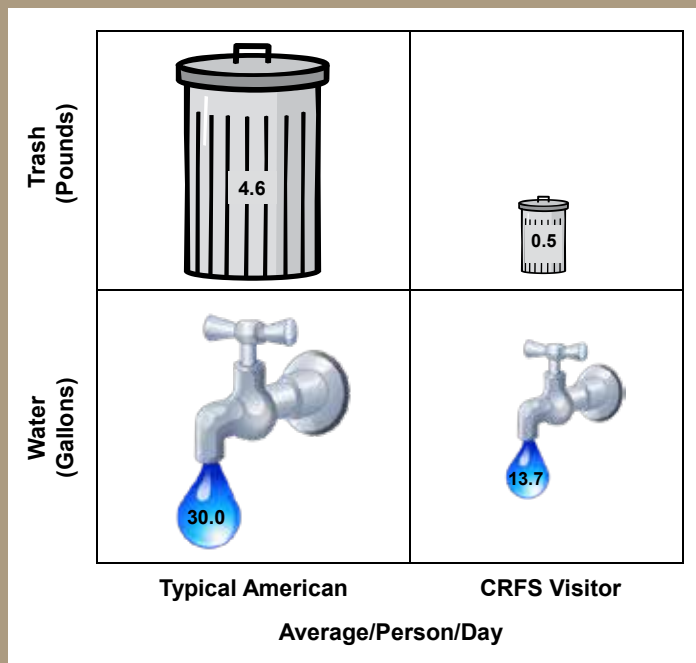
The U.S. Environmental Protection Agency states that the average American produces 4.6 pounds of trash per day. Our groups average a fraction of that amount, producing just 0.5 pounds of trash per person per day. This is accomplished through reducing packaging, minimizing food waste, and recycling (Fig. 1).



## Conserved water

As CRFS operates in a desert climate, every drop of water is vital, not only to our operation but more importantly, to the surrounding environment. We provide every visitor with an education in water-saving techniques and encourage them to help us minimize our environmental impact. Tracking water consumption with meters, we provide an added educational benefit by giving guests immediate feedback on their water usage during their stay.

According to the American Water Works Association, the average American uses 45.2 gallons of water per day. Because this average includes laundry and landscaping, usages which do not occur at CRFS, we use an adjusted daily average of 30 gallons per person for more accurate comparison. CRFS is pleased to report that on average, visiting groups consume less than half that amount—roughly 13.7 gallons per person per day (Fig. 1).



**Fig. 1** On average, visitors at CRFS produce 89% less trash and use 54% less water than do typical Americans.



## Outreach at CRFS

Fully immersing oneself into a topic and experiencing hands-on learning at CRFS is not just limited to university students. Over the past year we have had the pleasure of witnessing further outreach into the community through a diversity of activities.

### ***The Koosharem Band of Paiutes Reconnect Ancestral Ties to Capitol Reef National Park***

On August 6-7, 2011, in an inaugural weekend field trip, members of the Koosharem Band of Paiutes, headquartered in Richfield, Utah, visited Capitol Reef National Park. For some, it was their first visit to this land to which they have strong ancestral ties. The visit was one of the products of a Colorado Plateau Cooperative Ecosystem Studies Unit project designed to allow the Band to better understand its own cultural ties to this landscape. In turn, Park staff can better understand the significance of the resources that are important to the Band. According to the Paiute guests, this visit was not the project finale, but just the beginning. At the weekend farewell, Paiute Band members suggested, "This field trip should be an annual event!" The experiences and communication shared over the weekend fueled the hope that this project might kindle an open, on-going dialogue between the Paiute Tribe of Utah and Park staff.

As a pair of golden eagles soared overhead, Band members participated in a variety of cultural

activities at CRFS. NPS staff invited the Paiute guests to review and comment on American Indian interpretive demonstrations and exhibits that Park staff present to the general public. Given the goal of better tribal understanding of its ties to this landscape and the desire of Park staff to better understand Band interests in resources found in the Park, these activities helped foster a better understanding of Paiute perspectives and the wisdom they hold. This project provides for the collection of traditional ecological and cultural knowledge by interviewing Band elders, reviewing the most relevant academic literature and by creating maps of traditional Paiute natural and cultural resources in the Capitol Reef National Park area.

The *Paiutes of Capitol Reef* project was undertaken in partnership with the Paiute Indian Tribe of Utah, Capitol Reef National Park, Round River Conservation Studies, and Utah State University. Funding was provided by the Colorado Plateau Cooperative Ecosystem Studies Unit.

*Written by Dava Davy McGahee, Capitol Reef National Park—Cultural Resources Program Manager*

### ***Discussing Park Management: From Serbia to the United States***

UVU's Office of International Affairs hosted a group of professionals from Serbia in May. These individuals came to Utah to learn more about



park management in the United States. While visiting the Capitol Reef Field Station (CRFS), the delegation had the opportunity to interact with National Park Service (NPS) personnel, including presentations and question/answer sessions with Park Superintendent Al Hendricks and Cultural Resources Manager Dava McGahee. During their visit they also gained a deeper understanding of the special relationship that CRFS has with the NPS and saw how sustainable the Field Station is. As part of the Open World Program, the Serbian Delegation was funded by the federal government and provides an opportunity for elected and emerging political and civic leaders from Serbia, Russia, Ukraine, and other countries in Eurasia to observe the American political system and effective, responsive government at the federal, state, county, and municipal levels. Principles of accountability, transparency, and citizen involvement are emphasized.

### ***Presidential Happenings***

UVU President Matthew Holland and his entire cabinet visited CRFS. During their time at the Field Station they held planning meetings, toured the facilities, experienced the unrivaled night sky, and gained a deeper appreciation for the learning environment that CRFS provides. They were able to meet with key Park officials and left with more insight into the unique partnership between UVU and Capitol Reef National Park.





# Internships at CRFS

Capitol Reef Field Station (CRFS) and Capitol Reef National Park partner to support and train three UVU student interns each summer.

## ***Bethany Rennaker— The Cordell Roy Intern***

The Cordell Roy internship is funded by a generous private endowment from Kevin Jones who wished to honor the accomplishments of Cordell Roy, a long-time employee of the National Park Service. The Cordell Roy intern works directly with staff at Capitol Reef National Park during the summer season. The intern lives in residential housing with other Park staff and has primary responsibility for the Ripple Rock Nature Center—an informational hub frequented by Park visitors.

*“I love to share my love for nature and help the kids create their own relationship with the outdoors.”*

Bethany has always held a deep love for the outdoors. As the Cordell Roy Intern, she found many ways to share this love with others. While at the Ripple Rock Nature Center she interacted with many young visitors. Using an interactive approach, she taught them about the natural and cultural history of the Capitol Reef area. During an evening program, Bethany was asked to present about a topic very close to her heart: “Leave No Trace.” She taught the visitors techniques on how to enjoy the outdoors while minimizing their impact on the environment. When she saw that visitation to the Ripple Rock

Nature Center was low, she took the initiative to work on an advertising campaign. She created handouts about the Nature Center and its emphasis on educational activities for children. Then she found ways to disburse these handouts to campers and other Park visitors.

The knowledge, skills, and experiences Bethany gained during her internship were instrumental in her recent acquisition of a full-time job in Hawaii where she will be once again sharing her love for the outdoors by working as a nature guide.

## ***Brandon Davis***

*“I can say with confidence that [my internship at CRFS] has helped to shape not only what I plan to pursue in the future but also who I am as a person.”*

Living and working at CRFS for the summer, Brandon was able to indulge his passion for environmental ethics, conservation, and hydrology. The highlight of his time at CRFS was to work with the site manager on the water treatment of the station. Brandon decided he wanted to help guests understand the importance of water conservation in the Park and in their communities. Not only did Brandon assist CRFS visitors with the practice of water conservation in their daily endeavors, he also created educational materials that included facts about water conservation that he posted near water sources.



Ever since he was a young boy, Brandon has wanted to be a park ranger. While at CFRS, he got the opportunity to work and interact with numerous park rangers and see first hand the nature of their work.

### ***David Rogers***

*“Attending school at [Utah Valley University] has enabled me the pleasure of using nature as a classroom for many years.”*

As an intern at CRFS, David not only got to use nature as a classroom, but he also helped others have a great learning experience during their own visit. David used photos of Capitol Reef taken by a Utah Valley University photography class, added informative captions and hung the pictures throughout the dormitories and common spaces. The overall theme of the display complements the orientation that visitors receive and includes the topics of botany, astronomy, entomology, mammalogy, cultural history, and geology.

David also spent numerous hours working with the Park’s Cultural Resources Program to catalog and document archaeological sites throughout the Park, as well as perform research on petroglyphs related to the movement of the sun. Through this opportunity, David was able to get hands-on experience and pursue his passion for archaeoastronomy.



***Bethany Rennaker***



***Brandon Davis***



***David Rogers***



# Species Spotlight

## **Bushy-Tailed Packrat (*Neotoma cinerea*)**

With enormous eyes for seeing in the dark and huge ears for detecting predators, the bushy-tailed packrat (*Neotoma cinerea*) is a frequent nocturnal visitor to the surroundings of CRFS. Subsisting on a diet of succulent vegetation like prickly-pear cactus (*Opuntia* spp.), the packrat commonly builds elaborate den sites under the shelter of an overhanging rock. Getting its name from its behavior of collecting nearby materials, the packrat constructs a den comprised of a plethora of building materials such as small stones and bones, twigs, grass blades, cactus palms and other nearby vegetation. These materials are arranged in a large, insulating pile that is further broken into nesting, food storage, and toilet sites.

The urine of the packrat has special chemical properties that crystallize and bind to the den materials it comes in contact with, creating an amber-like substance that is referred to as a midden. As subsequent generations of packrats inhabit these same dens and urinate in the same location, the midden grows larger as it hardens, encapsulates, and preserves more den materials over time. Using techniques such as radiocarbon dating, researchers have discovered middens to be several thousand years in age. By identifying the preserved vegetative remains inside, packrat middens have become an important tool in studying the paleoclimate, climate change, and the historic vegetation record.



Photo by Jane Dell

Not commonly seen during daylight hours, this bushy-tailed packrat tries to hide from an overly excited photographer.



Photo by Jane Dell

A fossilized packrat midden seen alongside the Cohab Canyon Trail in Capitol Reef National Park



# Facilities Report

## *The State of the Station*

The operation and maintenance of an environmentally-sustainable facility like CRFS presented a unique set of challenges to overcome in the beginning. With the dedicated efforts of a number of individuals we were finally able to get over the last of these hurdles in this fiscal year. In November 2011, after much anticipation, the Utah Division of Drinking Water issued CRFS a final operating permit for all components of our drinking water system. We greatly appreciate the work of all those involved in helping us reach official status. So come on in from the heat, grab a cup, and enjoy a refreshing glass of water!



Photo by Jane Dell

Moving from left to right in the photo above, the raw water pulled from the well is treated through several stages of filtration to get to the final clean, safe, drinkable product. The treatment of water at CRFS is performed by trained and certified water operators.





# Financial Report

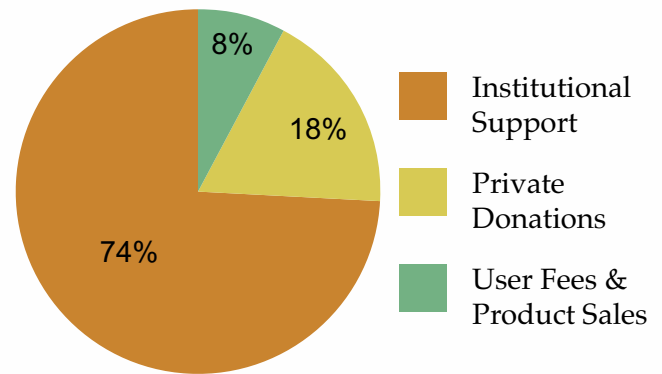
Capitol Reef Field Station (CRFS) is supported financially by three main sources: (1) institutional support from Utah Valley University, (2) private donations from the Pope Family Endowment and “Friends of the Capitol Reef Field Station,” and (3) funds generated by user fees and product sales (Fig. 2). This funding supports the salaries and benefits of the staff, operating and maintenance costs, student internships, marketing and outreach, and research (Fig. 3).

The University budget covers personnel and operating costs but only in part. Private donations make up the difference in addition to supporting the programs, internships, and grants for research. Please consider becoming a Friend of the Capitol Reef Field Station by making a donation at:

[www.donate.supportuvu.org/crfs](http://www.donate.supportuvu.org/crfs)

## Budget Summaries Revenue

Category	Amount	Percent
Institutional Support	\$132,404.37	74%
Private Donations	\$33,053.42	18%
User Fees & Product Sales	\$14,834.85	8%
<b>Total</b>	<b>\$180,292.64</b>	



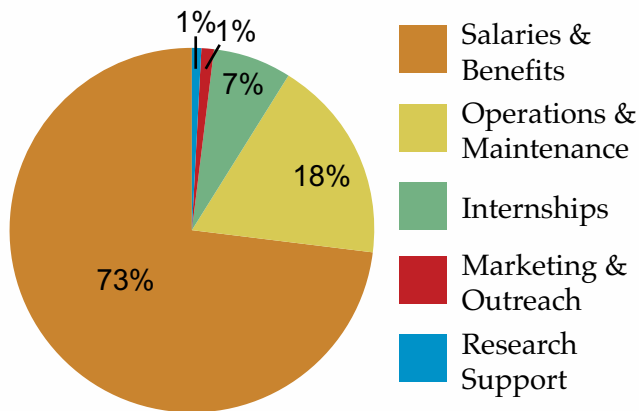
**Fig. 2** CRFS is supported financially by three main sources: (1) institutional support, (2) private donations, and (3) funds generated by user fees and product sales.





## Expenses

Category	Expenditure	Percent
Salaries & Benefits	\$141,021.69	73%
Operations & Maintenance	\$34,312.28	18%
Internships	\$12,986.59	7%
Marketing & Outreach	\$3,091.19	1%
Research Support	\$1,831.53	1%
<b>Total</b>	<b>\$193,243.28</b>	



**Fig. 3** Funding for CRFS supports the salaries and benefits of the staff, operating and maintenance costs, student internships, marketing and outreach, and research.

## Projected Additional Budget Needs for 2013

CRFS is actively seeking funding for additional support staff to keep up with the growing demand for our facility.

### Additional Support Staff

Part-time Assistant Site Manager	\$8,295
Increased hours for Administrative Ass't.	\$18,600





# Visitation Summary

Visitation to Capitol Reef Field Station (CRFS) has steadily increased since it first opened in 2008 and this year was no exception. User days, calculated by multiplying the number of visitors by the number of days they spent at the station, totaled 1,427 (Fig. 4). This represents a 31% increase over the previous fiscal year.

During the 2011-2012 fiscal year, 473 people visited CRFS in 42 groups. The average group size was 11 and the average overnight stay per group was 2 nights. In terms of gender, 52% of our visitors were male and 48% were female. The vast majority of visitors to CRFS are associated with Utah Valley University. Weber State University and Brigham Young University are other primary sources of visitors (Fig. 5).

## UVU classes who visited CRFS

Department	Course	Title
Art	ART 300R	Landscape Photography
Biology	BIOL 3800	Conservation Biology
	BOT 2100	Flora of Utah
	BOT 4300	Woody Plants of Utah
Developmental Mathematics	MAT 1010	Intermediate Algebra
Digital Media	DGM 4410	Digital Media Senior Projects
English & Literature	ENGL 1010	Introduction To Writing
	ENGL 2010	Intermediate Writing
	ENGL 2250	Creative Process and Imaginative Writing
	ENGL 3020	Modern English Grammars
English as a Second Language	ESL 2110	Advanced Listening/Speaking
	ESL 2120	Advanced Reading/Vocabulary
	ESL 2130	Advanced Composition
	ESL 2140	Advanced Grammar
Exercise Science & Outdoor Recreation	REC 3700	Natural Resource Interpretation
	REC 4400	Natural Resource and Protected Area Management
	REC 4500	Wildland Recreation Behavior
Honors	HONR 100R	Honors Colloquium
Integrated Studies	IS 350R	Science and Nature

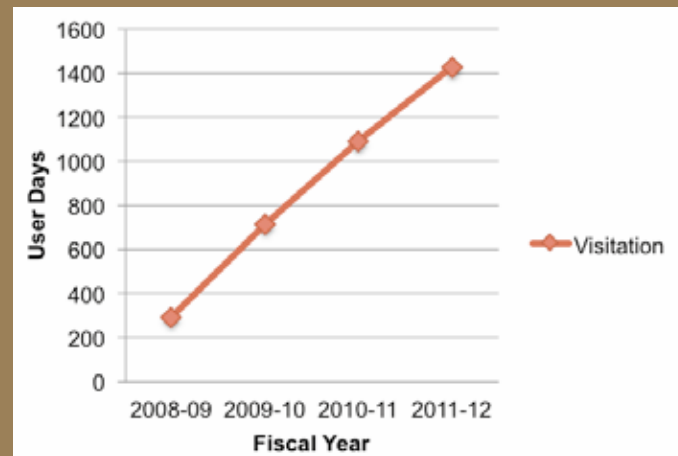


### UVU affiliated groups who visited CRFS

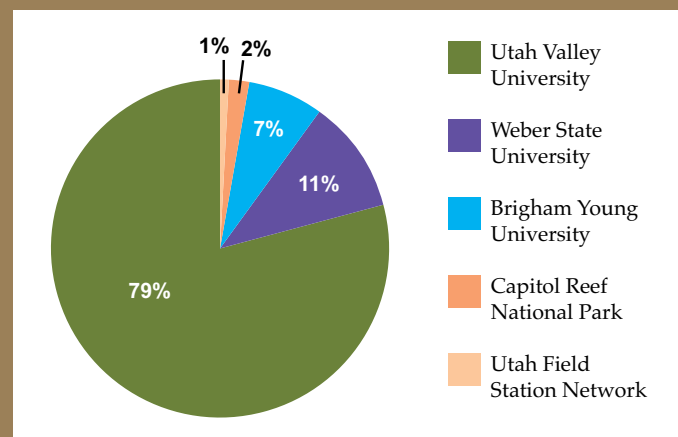
Sponsoring Organization	Group
Community Education	Photography
English & Literature	Student Publishing Staff Orientation Workshop Grassroots Shakespeare
Office of International Affairs and Diplomacy	Serbian Delegation
Outdoor Adventure Center	Adventure Trip Leader Training
Student Alumni Board	Summer Excursion
UVU Service Council	Spring Service Expedition

### Classes from other universities who visited CRFS

University	Department	Class
Brigham Young University	English; Recreational Management and Youth Leadership	Wilderness Writing
	Recreational Management and Youth Leadership	National Park Experience
		Outdoor Recreation
Weber State University	Visual Art	Drawing on the Land
	Zoology	Entomology



**Fig. 4** User days at CRFS have steadily increased since it opened in 2008. Visitation for 2011 – 2012 increased by 31% compared to the previous fiscal year.



**Fig. 5** The majority of visitors to CRFS are associated with Utah Valley University.



## Where CRFS is Headed

In operation since 2008, CRFS is maturing as a facility and expanding its reach. During the coming year we plan to continue on this trajectory to become a premier destination for engaged learning, field-based research, and environmental ethics promotion through study of the Colorado Plateau. Our goals for the coming year include:

**Increased Marketing Efforts:** Within the physical constraints of our location and facility, it is our goal to make it a destination for more students and faculty. We will utilize the marketing plans created by UVU students last year and expand our efforts to increase visitation.

**CRFS Sponsored Courses:** CRFS will be the campus for two courses offered by UVU this summer. We plan to host Botany 4300—Woody Plants of Utah, and a course for secondary education teachers across the state seeking endorsement credit.

**Staff Increase:** We will seek funding from the University via the Planning, Budget, and Accountability process for increased staff needs for CRFS. We propose funding for a part-time Assistant Site Manager and increased hours for our Administrative Assistant.

**Facilities Improvements:** CRFS is already a model of green, sustainable building practices, and we are working on projects to further improve the efficiency of our facilities. Additionally, we plan to improve the technology infrastructure at CRFS to increase communication at the site as well as the ability to deliver educational programming. Finally, we will continue to investigate the possibility of retrofitting an existing building on-site for use as an observatory for students and faculty.







## Support CRFS

*Capitol Reef Field Station  
makes a difference—so can you!*

Capitol Reef Field Station could not succeed without donor support. Donor contributions were instrumental in affording visitors the chance to explore the scientific, historic, and cultural significance of the Capitol Reef region, to engage in research and interdisciplinary learning, to acquire job skills, to learn sustainable living practices, and to appreciate and enjoy the unique beauty of the desert.

*We would like to acknowledge the  
generosity of our supporters:*

### Major Donors

Bill and Margaret Pope, whose vision and generosity made the idea of a Field Station in Capitol Reef become a reality. The Pope Family Endowment is the primary private funding source for CRFS.

Corporate Sponsors US Synthetics

### Private Donors

Anonymous  
Kevin Jones  
Sharon Richardson

Your financial support is needed. Please visit [www.donate.supportuvu.org/crfs](http://www.donate.supportuvu.org/crfs) to contribute.





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