



ANNUAL REPORT JULY 2012-JUNE 2013

**CAPITOL
REEF
FIELD
STATION**

UTAH VALLEY UNIVERSITY

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At last year's Organization of Biological Field Stations meeting, I met a woman from Massachusetts who was confused by my name tag that said both Capitol Reef and Utah. She said, "I think I know where Utah is, and there aren't any reefs there."

The name Capitol Reef is a double simile. "Capitol" because its white Navajo sandstone domes look like the rounded tops of many capitol buildings across the nation. "Reef" because its sheer cliffs presented a barrier to early travel through the area, like the shoals in a sea.

From a distance, the vertical walls at Capitol Reef National Park look impenetrable, but up close, you realize there are ways through and around them—even if the path is not easy.

All of us have come up against a seemingly unsolvable problem, impossible task, or frustrating rut—a virtual reef. A change of perspective can offer a different approach and new ideas—another way of looking at things that can lead to progress and innovation.

Capitol Reef Field Station (CRFS) offers just such an opportunity to explore and experience the world in a new way. Leaving the classroom behind for the smell of sagebrush, a view of sandstone cliffs, and moments of near silence, will give you and your students a chance to engage, research, create, and conserve in a place that is truly inspiring. Yes, there's a reef in Utah (with a field station in it), and if you haven't been there yet, it's time for a visit.

A handwritten signature in black ink, reading "Michael Stevens".

Michael T. Stevens, Ph.D.
Director, CRFS





OUR MISSION

CRFS, in partnership with Capitol Reef National Park, promotes and supports engaged learning; research, creative, and scholarly activities; and environmental ethics through the exploration of the Colorado Plateau.

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. CRFS operates under the direction of UVU and the Park in accordance with our General Agreement that has been in effect since May 2009. The Field Station is property of the National Park Service.

OUR PLACE

Our mesa-top location offers unobstructed views of picturesque scenery. Scanning east one sees the last mountain range in the continental United States to be mapped, the Henry Mountains; to the west lies Boulder Mountain, which supported small glaciers during the last ice age. The calming sounds of Pleasant Creek, multicolored sheer cliffs, and historic pastures characterize the immediate scene around the station. Located two miles past the end of the aptly named Scenic Drive in the heart of Capitol Reef National Park, our location provides an amazing opportunity for place-based learning. Only 3.5 hours from UVU and the Wasatch Front, CRFS welcomes students and faculty from institutions of higher learning seeking to experience the natural and cultural legacies of the Colorado Plateau.

OUR VISITORS

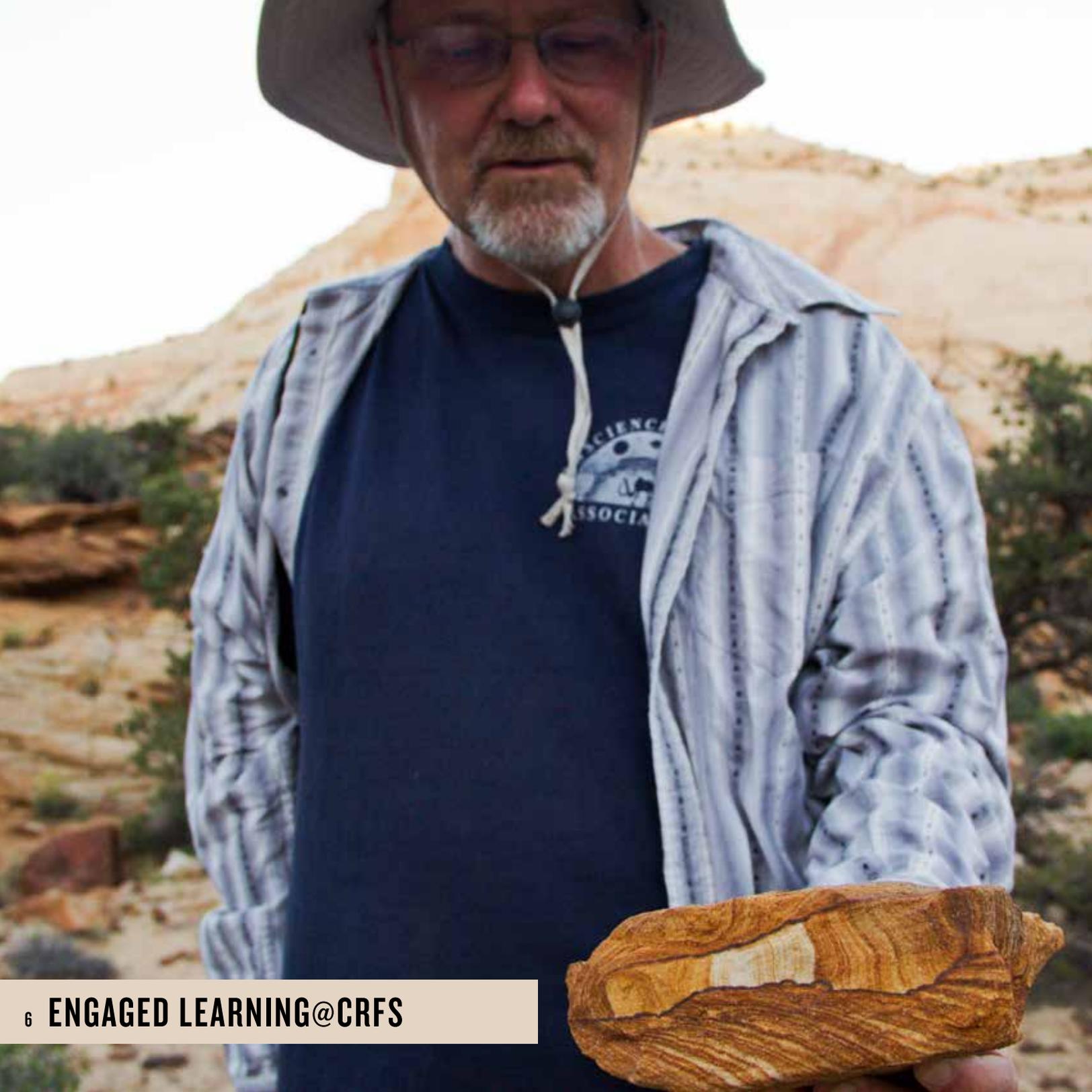
Our vision is for every Field Station visitor to connect with Capitol Reef's landscapes, biological diversity, and cultural history. Through their investigation of the Capitol Reef area, we hope visitors will develop a "sense of place" that fosters lasting stewardship of the region and of the environment in general. To accomplish this, we provide opportunities for visitors to immerse themselves in the area through experiential learning, research, and the practice of conservation.

OUR HISTORY

Capitol Reef preserves hundreds of millions of years of Earth history. Stories of landscapes as varied as shallow seas, tidal flats, swamps, and sand dunes are told in the rocks surrounding CRFS. In more recent time, Pleasant Creek has carved its way through the canyon walls creating an oasis that has attracted life for millennia including the late Paleo-Indian, Desert Archaic, Fremont, and Numic-speaking (Ute and Paiute) peoples.

The modern record of settlement begins with the inscription, "J.L. Ivie 1876," on a nearby canyon wall. Over the next few years various pioneers and surveyors left their mark just below the mesa that houses CRFS. In 1882, the first ranch was established by Ephraim Hanks, a Mormon pioneer. Hanks diverted water from Pleasant Creek to irrigate pasture and fruit orchards. The ranch changed hands several times over the years. By 1940, the last owners, Lurt and Margaret Knee purchased the property and converted it to Sleeping Rainbow Ranch, a tourist destination. In 1978, Lurt and his second wife, Alice, deeded the ranch to Capitol Reef National Park in a deal that included life tenancy. In 1995, Lurt passed away and Alice relinquished her remaining property rights.

The site of Sleeping Rainbow Ranch 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 and after years of close collaboration on the project, the idea became a reality.



Engaged learning is a major focus of UVU and of the Field Station. Engaged learning activities lie at the heart of the Field Station's mission, and represent a significant portion of our visitation. At the Field Station, the natural world becomes your classroom. This presents our visitors with enhanced learning experiences (Fig. 1) that are difficult to replicate in a traditional classroom setting (Fig. 2). Please read about how some of our visitors utilized the station this year.

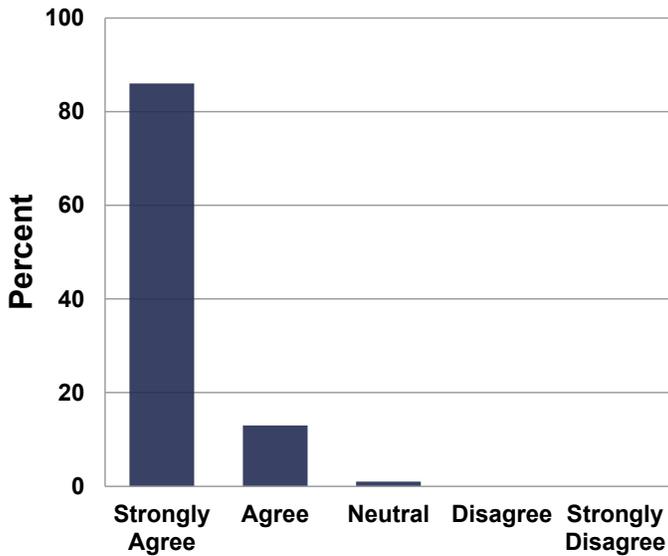


FIG. 1 Nearly all (86%) of CRFS visitors strongly agreed that their educational/learning experience was enhanced by their visit to the station (n = 253).

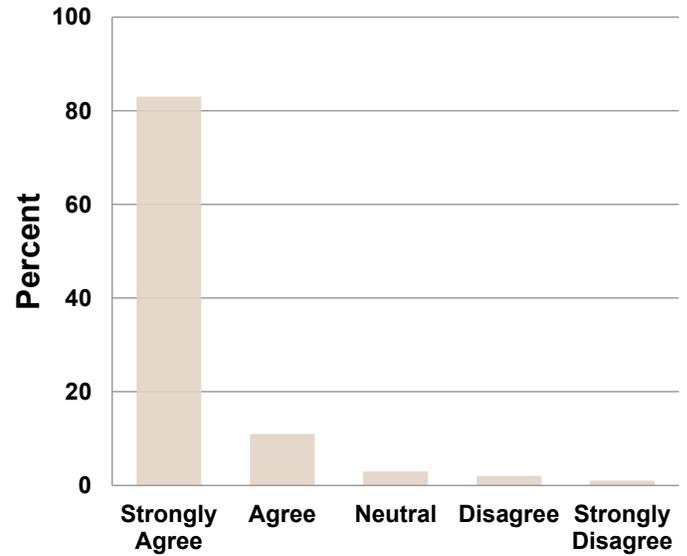


FIG. 2 The vast majority (83%) of CRFS visitors strongly agreed that the engaged learning activities and environment at the Field Station are difficult to replicate on a university campus (n = 252).



HONORS PROGRAM, UVU

(October 25 – 28, 2012)

The Honors Program at UVU conducted an Honors Colloquium at the Field Station, bringing 21 students and three trip leaders for an immersive experience in the Colorado Plateau. During the trip they were able to explore not only the natural wonders of the Park, but also various academic disciplines. In Honors Program Coordinator Allen Hill's words:

"In the end, the Honors Program students have always enjoyed their time at CRFS. We've had a broad swath of majors visit the facility with us and will typically do our best to incorporate learning sessions on all sorts of academic disciplines while there. These have included astronomy/physics, literature, philosophy, geology, botany, dance, biology, hydrology, ethics, history, creative writing, fine arts, and more. The Park itself is a treasure and CRFS has allowed Honors students to explore much more than I think they ever had bargained for."

RESEARCH-BASED WRITING, UVU

(September 28 – 30, 2012 & March 7 – 9, 2013)

UVU English and Literature faculty member Linda Shelton took a group to the Field Station for an intensive research and writing experience in both the Fall and Spring semesters. She shares:

"Students often view research writing as drudgery with little connection to their real world. A trip to Capitol Reef gives them an opportunity to personally experience their research subject. Students choose a topic related to the Capitol Reef area such as the geology, wildlife, plants, history, water and land use issues, sustainable energy sources, environmental studies, etc. After writing preliminary findings on their topic, students take a field trip to CRFS and compare those findings with an up close and personal experience. The students teach each other about the many research topics associated with Capitol Reef. They also learn about sustainability and stewardship of the landscape. For some of the students, hiking through the canyons is a new experience and they find a strength they didn't know they had."





NATURAL RESOURCE INTERPRETATION AND MANAGEMENT, UVU

(November 8-11, 2012)

UVU Assistant Professor Scott Williams took his Recreation Management class for an action-packed, 4-day trip to the Field Station. A highlight of their trip was a meeting with Park personnel during which they were able to learn more about Capitol Reef and the National Park Service. They also spent time hiking and exploring the region, discussing Edward Abbey's *Desert Solitaire*, viewing the spectacular night skies, and considering the value of public lands. Prior to departing, they discussed how to apply the lessons of CRFS at home. Scott summarized his trip as follows:

"The CRFS trip is one we do each fall with my REC 4400 class. I find it incredibly educational for my students, as we are exposed to the conservation practices of the Field Station and are able to truly engage with the Park on an intimate level. Thanks to all who make this possible."

WILDERNESS WRITING, BYU

(February 23 – 25, 2013)

BYU faculty Dr. John Bennion and Dr. Stacy Taniguchi brought 16 students to the Field Station to explore the region on foot, and then to write about their experiences. Dr. John Bennion described the trip in the following words:

"Last winter Stacy Taniguchi and I took our Wilderness Writing class to CRFS. The class, which focuses on natural history writing, environmentalism, and personal essay writing, is a writing class joined to a recreation class. We backpack and hike and then write about our experiences. While at CRFS we held class in the main building discussing two published essays (Sue Hubbell's "Winter" and Rachel Carson's "The Human Price"). We also conducted a workshop on two student essays. We had many activities outdoors: talking about efficient energy and water use, using the telescope to look at stars, doing a place-based writing exercise, hiking to Cassidy Arch, hiking to the Tanks, and hiking in Cohab Canyon. In all these activities, the resident manager, Jane, was very helpful. It's convenient for us in the winter to be able to go to a facility that enables us to hike and be outside, but to return inside to write and discuss. It's ideal for us. Several of the students wrote essays that grew out of the CRFS experience, and several others used photographs taken at CRFS for their non-verbal essay presented at the end of the semester."



CONSERVATION BIOLOGY, UVU

(March 22 – 24, 2013)

The Field Station afforded UVU Biology faculty member Dr. Catherine Stephen the opportunity to provide an immersive experience for students. She describes:

"In the spring of 2013, eleven UVU students in the Conservation Biology class visited CRFS for the weekend. We took the opportunity to focus primarily on learning about public lands; the various uses and management schemes for different types of public lands and the importance of preservation of open spaces. One of the highlights of our visit was the opportunity to hear Gary Lehnert speak about his several decades of experience working within the Park system. He graciously allowed a long Q&A following his presentation.

Additionally, our class took hikes during the day and learned about desert ecosystem dynamics, experienced the lack of mechanized sound, and viewed the awe-inspiring results of many millions of years of geologic processes. In the evenings, we had lively whiteboard discussions about major U.S. conservation policies, including the Endangered Species Act. In summary, we used every precious minute that we had at the Field Station to learn, explore, and experience all that it had to offer."

ENVIRONMENTAL WRITING, U of U

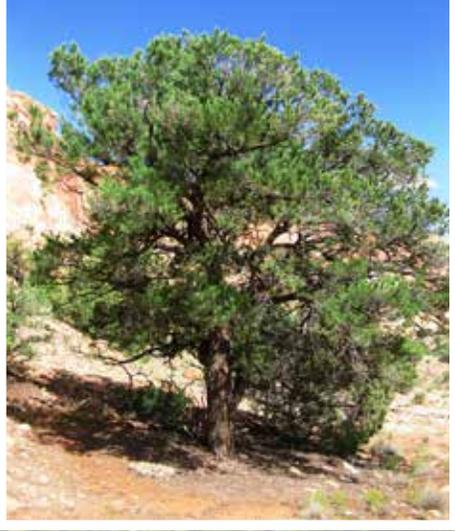
(June 1 – 15, 2013)

Maximilian Werner from the University of Utah was able to spend two weeks at the station this summer with ten of his students. He shares:

"As someone who has taught in a traditional classroom setting for almost twenty years, I was both delighted and amazed by how much more meaningful and intense is the in situ approach to teaching and learning the subject of environmental writing. By entering the Capitol Reef environment and spending a prolonged period of time there, students were able to see for themselves the different issues confronting the Park and all its inhabitants. They understood that when we talk about the environment, we are not just talking about words and rhetoric, however important both may be to informing people of the various issues and persuading them to behave more responsibly with respect to the natural world. Instead, students were able to connect their words and ideas with the physical world, which is something that rarely happens in a traditional classroom setting. In fact, their time in the Park made their words possible."



Environmental Writing, U of U



PINYON PINE (*PINUS EDULIS*)

Slickrock dominates the landscape of Capitol Reef, creating a palette of beautiful colors to accent the magnificent geology of the area. In this desert environment, peppered among the sandstone formations, one finds the comforting tint of green and welcomed shade of pinyon pine (*Pinus edulis*). Pinyon pine along with Utah juniper (*Juniperus osteosperma*) form the pinyon-juniper woodland community found throughout the Colorado Plateau. In Utah, pinyons grow at elevations between 5,000 and 8,400 feet (1,520-2,560 meters) and are identifiable by their rounded crowns and irregular shapes. A slow-growing, long-lived pinyon generally ranges from 26 to 56 feet (8-17 meters) in height and may live for 1,000 years.

The species name "*edulis*," meaning edible, refers to the nuts of the pinyon pine. Long a staple of Southwest culture diets, pine nuts are not for the calorie-conscious. Still harvested and consumed today, pine nuts contain over 3,000 calories per pound. Multiple species utilize pine nuts as a source of food including: elk, deer, small mammals, and many bird species. Interestingly, pinyon trees do not produce the same number of seeds each year; instead, bumper crops occur every three to seven years. This irregular pattern of seed production is a natural defense against seed predation. Another use of the tree involves the pitch, which can act as a sealant in basketry and clayware, as an adhesive, and as a medicinal resource. The next time you enjoy the shade of a pinyon pine on a hot summer day, remember its value as a source of food and shelter and as a cornerstone species, supporting and connecting the natural community of Capitol Reef.



This has been an exciting and productive year for research at CRFS. In addition to on-going projects involving Capitol Reef's plants and insects, work began on a new research project that capitalizes on the area's stunningly dark night skies. CRFS encourages research, creative, and scholarly activities linked to the Colorado Plateau through our competitive grants program, funded by the Pope Family Endowment.



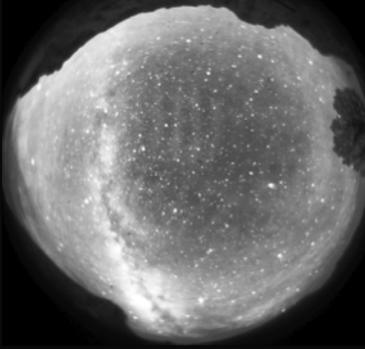
VEGETATION RESEARCH

Under the direction of Dr. Renée Van Buren, Megan Curtis Covert and other UVU students have established and monitored transects in four vegetative communities surrounding the Field Station. Their research provides a baseline for environmental changes that may occur over time. Those changes may include increased or decreased soil disturbance caused by humans or cattle, the presence or absence of introduced plant species, and changes in plant species composition. Their research will help Capitol Reef National Park protect the natural landscape surrounding the station. To date, their work has resulted in defining several ecological characteristics of four major plant communities in the region: pinyon-juniper, sagebrush, riparian, and grassland communities. Megan and Dr. Van Buren are collaborating with another UVU faculty member, Dr. Emily Holt, to prepare their research results for publication. They plan to revisit their sites every five years for long-term monitoring.

ENTOMOLOGY RESEARCH

Dr. Heath Ogden and ten UVU students were involved in collecting insects in Capitol Reef National Park and photographing them in order to create an insect field guide pamphlet. The pamphlet will serve as reference material for the community visiting the Park and the Field Station, and will increase our understanding of the region's insect diversity. The UVU students involved in the project gained valuable field and laboratory research experience and became "stewards of place" as they explored and described the natural history of insects in the Capitol Reef area. Collections were made near Pleasant Creek, near the Park campground, and in several other locations in the southern portion of the Park. During the three-year project more than 1,800 specimens were collected. Species counts include: 65 Lepidopteran species, 43 Coleopteran species, 29 Hemipteran species, 36 Hymenopteran species, 25 Dipteran species, and 18 Orthopteran species.





OPTICS RESEARCH

A newly formed optics group in the Department of Physics at UVU including Dr. Kim Nielsen is taking advantage of the Field Station's location beneath some of the darkest and clearest night skies in North America. The group is studying sub-visual emissions originating high in the Earth's atmosphere. These emissions are called airglow and are produced by atoms and molecules 60 miles high in the atmosphere, where sunlight causes them to glow during the day (dayglow), and chemical reactions cause them to glow during the night (nightglow). The dayglow is extremely difficult to observe due to the bright sunlight, whereas the fainter nightglow has no competing emissions. Although too faint for the human eye to discern, scientists have constructed low-light-sensitive cameras to detect these emissions. The optics group has tested several optical instruments at the Field Station capable of measuring upper atmospheric dynamics (including airglow), waves, and meteor entries. Preliminary work was recently presented at a world-leading conference, where CRFS drew attention from several groups with similar interests. Dr. Nielsen is hoping to build strong and rigorous collaborations with other physicists interested in using the Field Station.

PRESENTATIONS OF CRFS RESEARCH

Ethington M*, Ogden TH (2013) Insects of Capitol Reef National Park. Utah Conference on Undergraduate Research, Logan, UT.

Ogden TH (2012) Evolution, education, entomology: evolution's importance in the classroom and research. UVU Biology Department Seminar, Orem, UT.

Johnson K*, Buzbee M*, Forsythe V*, Nielsen K (2013) A new opportunity for passive optical measurements inside U.S. national parks in Utah, CEDAR Workshop, Boulder, CO.

*Denotes an undergraduate researcher



The Field Station experience helps visitors become more environmentally-conscious both as individuals and as members of a broader community. At CRFS, visitors become more aware of their personal impact on the environment (Fig. 3) and over three-quarters (78%) report learning new methods to reduce their environmental impact at home and in their local community. Additionally, our visitors report an increase in the value they place on protected public lands (Fig. 4), such as Capitol Reef National Park.

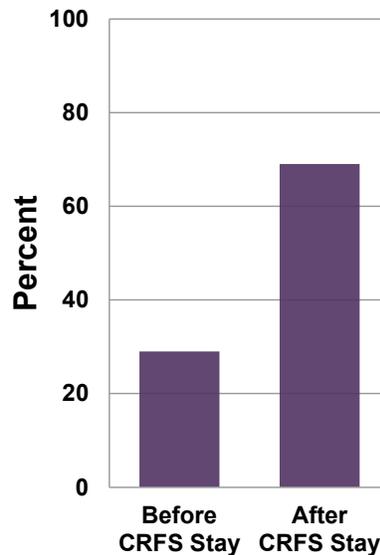


FIG. 3 After staying at CRFS, visitors were more than twice as likely to report being “very aware” of their personal impact on the environment (n = 240).

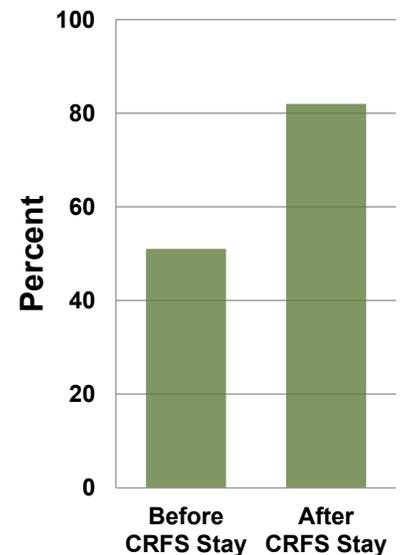


FIG. 4 After staying at CRFS, visitors were much more likely to report placing a “very high” value on protected public lands (n = 243).



In addition to serving students and faculty from UVU and other nearby universities, CRFS played host to visitors from around the country and across the world. We also hosted a group of current science teachers.

MAPPING MEANING CONFERENCE

(July 30-Aug. 4, 2012)

University of Utah faculty member Sylvia Torti reserved the Field Station for the second Mapping Meaning conference. Attendee Krista Caballero from the University of Maryland describes the event:

"Mapping Meaning is an ongoing project bringing together artists, scientists, and scholars. Inspired by a photograph from 1918 depicting an all-female survey crew, the second Mapping Meaning conference brought together 15 women from around the United States and Canada. Through collaborative action and mapping, experimental performance, presentations on topics such as the nuclear West as well as site specific art, participants engaged in cross-discipline dialogue creating a pioneering forum for challenging assumptions and theoretical frameworks that come from specialized education and training. The focus of this year's conference was "ecotone." Defined as a transitional zone between two adjacent communities, ecotone speaks to ecologies in tension. Mapping Meaning utilized this theme as a metaphor for considering transitions currently taking place with regard to ecology, technology, and culture. Particular emphasis was given to "ecotone as a site of opportunity," "ecotone as a site of experimentation," "ecotone as a place of creativity," and "ecotone as a place of emergency."





CLEVELAND MUSEUM OF NATURAL HISTORY

(August 12-15, 2012)

Members of the Cleveland Museum of Natural History ventured across the country to participate in a class taught at the Field Station entitled, "Capitol Reef—Astronomy, Nature, and Culture." Trip organizer Nathan Taxel shares:

"Braving the mid-August heat, 14 Cleveland Museum of Natural History members and friends ventured into the high desert of Capitol Reef National Park to spend four days at CRFS, exploring all that this hidden gem in central Utah has to offer. The group made the trip to take advantage of extremely dark night skies and desert conditions to view the Perseids Meteor shower at its peak. Even though the weather did not cooperate, over 100 meteors were spotted. Astronomy was not the only activity though. Guests also had the opportunity to hike to a natural sandstone bridge created over millions of years by wind and water, pick fruit at the historic Fruita orchards, and learn the geology of the "Waterpocket Fold." The Field Station provided an idyllic setting for the trip with all the comforts of home, including wireless internet, while being located in a very remote corner of the Park. Participants enjoyed good company and good food while soaking up breathtaking views of the desert and mountains from the patio. Everyone who came along had a great time and many new friends were made. This trip was such a success that the Museum is already planning a follow up for next year."

OPEN WORLD TAJIKISTAN DELEGATION

(October 1-2, 2012)

The Open World Program enables Russian and Eurasian elected officials and emerging civic leaders to observe the American democratic system firsthand. The Open World Leadership Center believes that principles of accountability, governance, and the role of citizenry in government are most effectively illustrated through direct interaction between participants and their U.S. professional counterparts and through hosted community and cultural activities. Delegates from Tajikistan participated in a program focused on ecotourism. Working with the UVU Office of International Affairs, they were able to visit CRFS for two days to learn more about the partnership that UVU has with Capitol Reef National Park. From their host narrative report to Open World:

"Clearly, the most impressive feature was the unique relationship between a university, UVU, and a national park, Capitol Reef. The Tajik delegates all saw the Field Station as a potential model for ecotourism inside a remote wilderness area, fully self-sustained, with modern 3-star accommodations. To this end, a great deal of information was shared by both the University and the Park personnel as to how the Field Station was created and how it operates as a shared venture. The delegates met with senior Park and University personnel and others to not only discuss the operations and history, but also to hike into some of the most scenic parts and stay at the Field Station deep inside the Park. These two days were the 'show stopper' for the delegation's visit."





UTAH STATE OFFICE OF EDUCATION TEACHER IN-SERVICE GEOLOGY COURSE

(June 16-21, 2013)

The Utah State Office of Education sponsored a week-long professional development course for current science teachers interested in honing their skills in geology. Al Hrynshyn, one of the instructors and a teacher at Lakeridge Junior High in Orem, Utah, shares:

"The use of the Field Station exceeded my expectations. Honestly, I was a little concerned as we had never taken the class on the road for a full week before. Would there be adequate teaching facilities? Would there be enough of a variety in field trips to teach the concepts? Would I forget to bring the right supplies? Would the students like the housing? Well, turns out my fears were unfounded. Everyone had a great time. We all thought the setting was spectacular. Every concept we covered in a physical geology course was observable not only from the station, but in the great field trips we took. All that was missing was regional metamorphism. We saw great examples of sedimentary and igneous geology, faulting, folding, tectonics, and erosion. The facility was superb. Living arrangements were nicer than we were all expecting, and the teaching area handled the class size well. I would say the highlights were the field trips into Cathedral Valley and up the Burr Trail. The students also enjoyed the short hikes we took up Capitol Gorge and along Pleasant Creek. Another unforeseen benefit was the relationships that were built among the students. Instead of being able to go home every night, the students were living together and bonding for the week. The level of student engagement was the highest I have seen from teaching this class, and I saw how the students were experiencing geology from sunrise to bedtime, and were making friends and connections that will last throughout their teaching careers."



WILLIAM BATES—THE CORDELL ROY INTERN

The Cordell Roy internship is funded in part by a generous private endowment from G. Kevin Jones who wished to honor the accomplishments of Cordell Roy, a long-time employee of the National Park Service. Kevin is an attorney in the Office of the Solicitor, United States Department of the Interior, representing the Utah units of the National Park Service. Cordell Roy also supports this internship financially. William said the following about his internship:

"It was a great summer and one I will never forget because of the people I met and the things I learned."

It did not take long for William to receive compliments from parents whose children paid attention to his presentations at the Ripple Rock Nature Center longer than anything else. At the Visitor Center, William offered information to a wide range of visitors and worked on an image-cataloging project for the Park. William assigned keywords to almost 17,000 photographs to make a searchable database. Cataloging the photos has given the Park immediate access to images needed for their programs. William also earned his CPR and AED Heartsaver certifications. Overall, the program provided an excellent opportunity for William and offered valuable assistance to the Park.

DEVIN HOWARD

"I cherish the experience of not only staying at the Field Station but getting to know how it works. It dramatically increased the standard of sustainability that I thought was possible."

This internship gave Devin the opportunity to gain valuable skills and experience as he pursues his degree in Environmental Science and Management at UVU. The encounters Devin had with visitors allowed him to answer a wide variety of questions and improve their overall experience visiting Capitol Reef National Park. He especially enjoyed watching the enthusiasm the children had while learning about the Park. As one of his independent projects, Devin created a sustainability guide for future CRFS visitors. The guide showcases the sustainable features and practices of the Field Station and provides information on how each practice can be implemented when visitors return home.





An overwhelming majority (96%) of our visitors strongly agreed that our facilities (dormitories, kitchen, equipment, etc.) were sufficient for their group's needs. The same high percentage of visitors strongly agreed that our staff was helpful, competent, and professional.

Given the station's remote location, many who visit CRFS are impressed with the comforts and amenities offered. The following are some of the sustainable features the station utilizes and practices that minimize our footprint on the surrounding landscape.



PASSIVE HEATING & COOLING

The building design at CRFS makes use of simple physics to help warm and cool the buildings. We have trombe walls, which are south-facing walls that are painted black with a pane of one-way glass 4-6 inches in front of them. In the winter, heat is captured from the sun throughout the day, allowing it to radiate into the building from the wall at night. For the summer months the wall is left uncovered at night to promote cooling, then covered during the day to prevent heat absorption.

The building design also includes solar chimneys or "cooling towers." Solar chimneys apply the principle of convection. As warmer air moves up and out of the tower, cooler air moves from the floor through the building, creating a natural current of cool air. Surprisingly, without the aid of air conditioning, the buildings remain a comfortable temperature throughout the summer. This level of comfort is also made possible by proper insulation, caulking around windows and doors, and a white roof that reflects sunlight.

RECYCLING

Even though we're far from a recycling center, you can still practice recycling here! Our recycling program is an extension of Capitol Reef National Park's wherein we recycle paper, cardboard, tin, aluminum, and type 1 and 2 plastics. The Park takes our recyclables to a recycling center in Salt Lake City, Utah.

NATURAL LIGHTING

The buildings at the Field Station all have south-facing windows placed high on the walls, near the ceiling. These let in pleasant, even lighting throughout the day. Artificial lighting at CRFS is generally only needed when the sun is down. Once lights are needed, we save energy by using energy efficient light bulbs.





PERMEABLE PAVEMENT

Interlocking permeable pavers have been placed around the buildings allowing precipitation to percolate into the soil. This helps prevent erosion and allows for normal ground water recharge. Also useful in urban parking lots, the pavers allow the topsoil to capture contaminants left by vehicles before the water returns to the environment.

WATER CONSERVATION

Reduced-flow showerheads are installed in all the bathrooms. The flow rate of these showerheads is 1.5 gal/min vs. 2.5 gal/min for a typical showerhead. During a 10-minute shower, 10 gallons of water are saved. With over 1,500 user days at the station this year, our showerheads could save as much as 15,000 gallons of water/year. Additionally, these showerheads have a button valve so you can easily switch off the water flow when you are applying shampoo, conditioner, soap, or taking time to shave.

In the kitchen, we conserve water while washing dishes by using three separate bins for washing, rinsing, and sanitizing. This allows washing to be done without constantly running the water.

MINIMIZATION OF LIGHT POLLUTION & THE DARK-SKY RESOURCE

In addition to environmentally-sensitive building design and practices at the station, CRFS boasts a location in the Colorado Plateau with some of the darkest skies in the lower 48 states. In fact, as the National Park Service prepares for its 100th anniversary, it has prepared a Call to Action that contains a series of initiatives that will advance the mission of the Park Service in its second century of operation. Preserving America's special places is a key element of this Call to Action, and dark skies, particularly in the Colorado Plateau, have been identified as a target for preservation.

CRFS supports this goal. The facilities at CRFS were designed to minimize light pollution. All exterior lights point downward and all windows are equipped with blinds that are closed at night to minimize impacts on nocturnal species and maintain optimal viewing of the night sky. Additionally we have a 12-inch telescope that gives station visitors an excellent opportunity to view celestial objects and gain a greater appreciation of this precious, dark-sky resource. The stars are so bright at CRFS in fact, that one visually-impaired student who visited this past year saw stars for the very first time in her life! Several stars were bright enough for the student to pick out unaided!





CRFS is supported financially by three main sources: (1) institutional support from Utah Valley University, (2) funds generated by user fees and product sales, and (3) private donations from the Pope Family Endowment and “Friends of the Capitol Reef Field Station” (Fig. 5). This funding supports the salaries and benefits of the staff, student internships, operating and maintenance costs, marketing and outreach, and research (Fig. 6).

While UVU generously supports the station, CRFS relies on private donations to fund important programs such as student internships and research. Please consider becoming a Friend of the Capitol Reef Field Station by making a donation at: www.donate.supportuvu.org/crfs.

CRFS is actively seeking funding for additional support staff to keep up with the growing demand for our facility. We are seeking funding for a Part-time Assistant Site Manager (\$4,778) and increased hours for our Administrative Assistant (\$8,972).

REVENUE:

Category	Amount	Percent
Institutional Support	\$159,988.85	86%
User Fees & Product Sales	\$ 14,441.48	8%
Private Donations	\$ 11,292.92	6%
TOTAL	\$185,723.25	

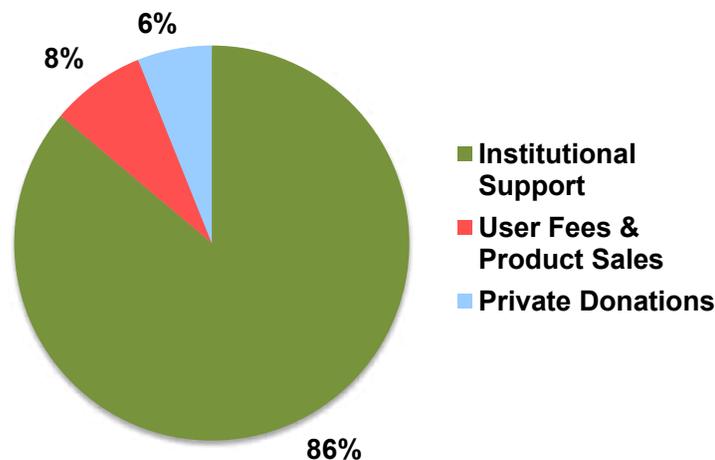


FIG. 5 Funding for CRFS by source.

EXPENSES:

Category	Expenditure	Percent
Salaries & Benefits	\$147,957.46	83%
Internships	\$ 15,365.62	9%
Operations & Maintenance	\$ 11,168.20	6%
Marketing & Outreach	\$ 2,466.07	1%
Research Support	\$ 2,064.59	1%
TOTAL	\$179,021.94	

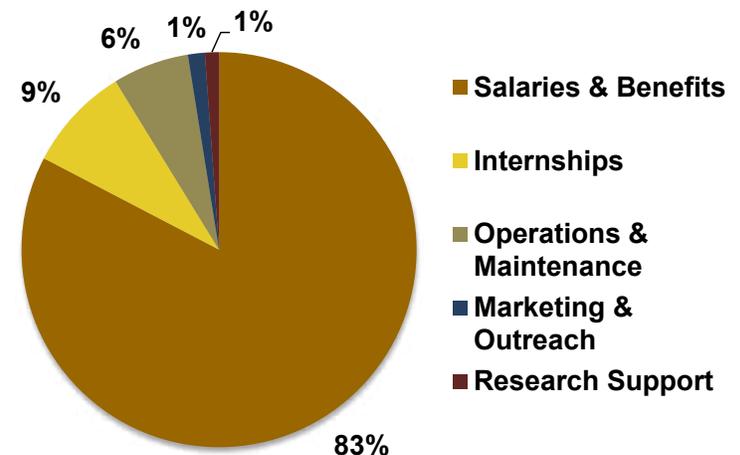


FIG. 6 CRFS outlays by category.



Visitation to CRFS has steadily increased since opening 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 1,502 (Fig. 7). This represents a 5% increase over the previous fiscal year.

Two-thirds of CRFS user days came from UVU. The University of Utah and the Utah State Office of Education were other major sources of visitation (Fig. 8). User days from UVU courses represented a variety of colleges, programs, and schools. Just over one-third of our UVU course visitation came from the College of Science & Health, while the College of Humanities & Social Sciences and the University College were other major sources of visitation (Fig. 9).

During the 2012 – 2013 fiscal year, 435 people visited CRFS in 32 groups. The average group size was 14 and the average overnight stay per group was 3 nights. In terms of gender, 52% of our visitors were male and 48% were female.

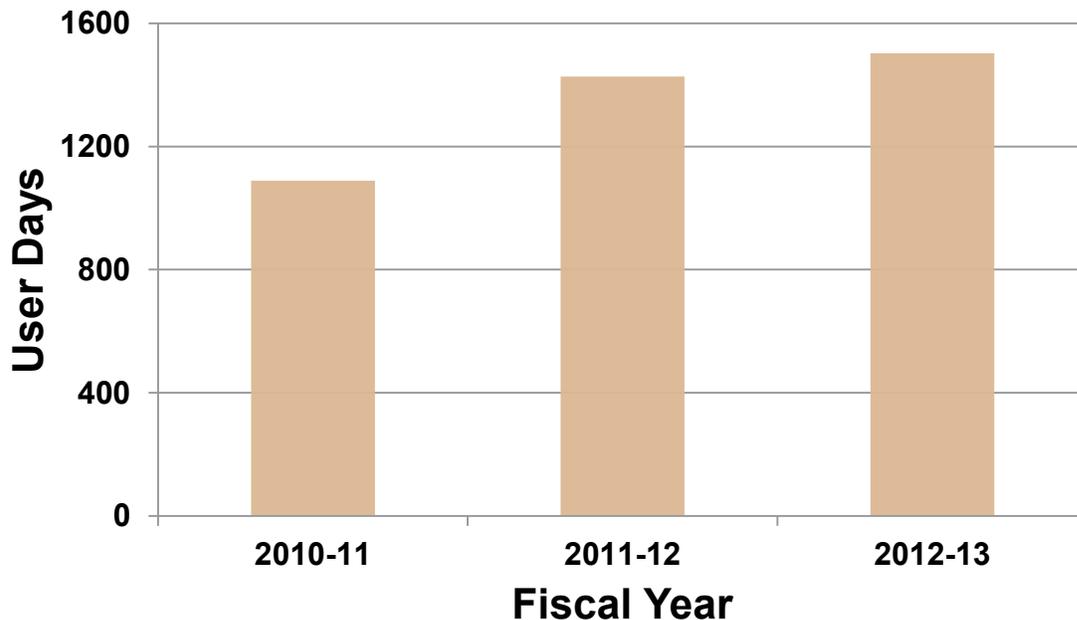


FIG. 7 User days at CRFS have consistently increased in recent years. Visitation for 2012-13 increased by 5% compared to the previous fiscal year.

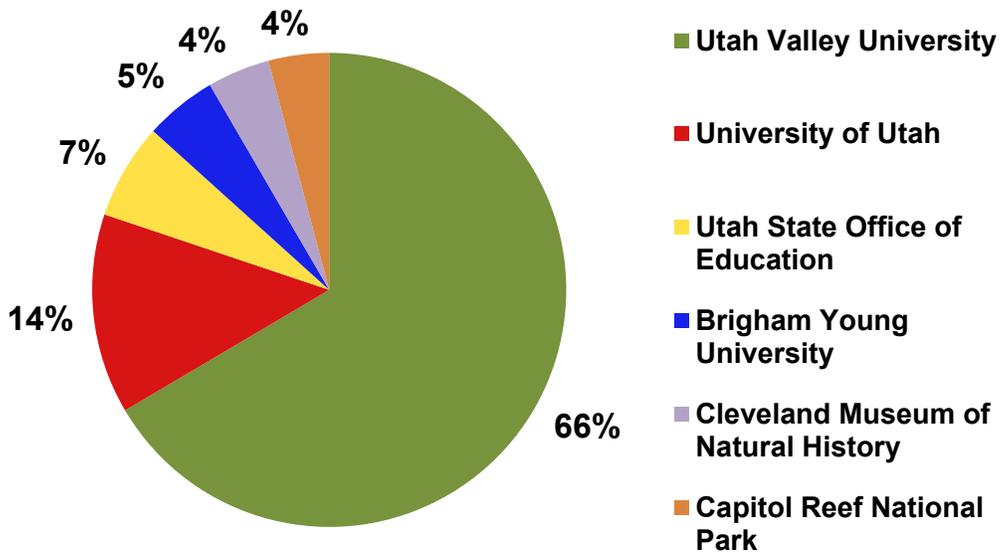


FIG. 8 Percentages of CRFS user days from various institutions and organizations.

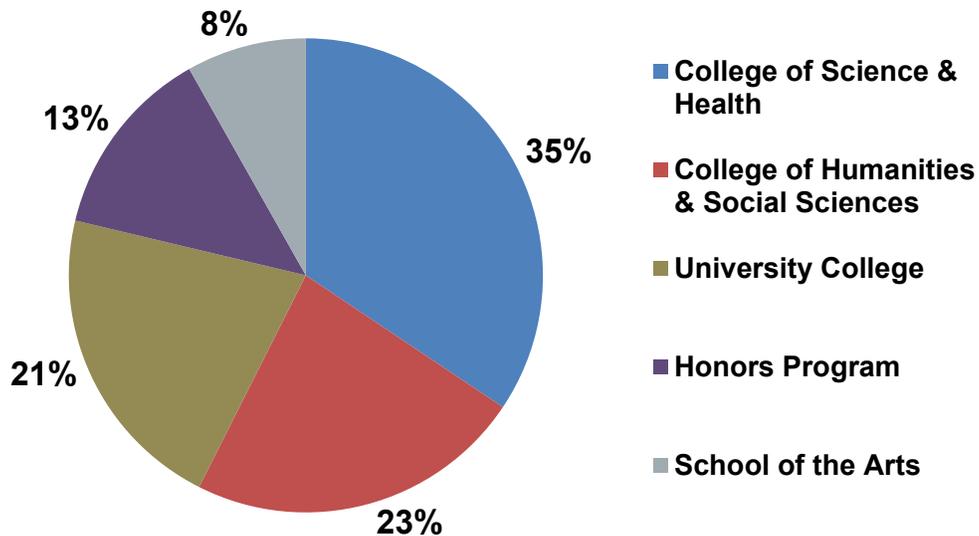


FIG. 9 Percentages of CRFS user days from UVU courses by college, program, or school.

UVU CLASSES WHO VISITED CRFS

DEPARTMENT	COURSE	TITLE
Art	ART 265	Watermedia II
Biology	BIOL 3800	Conservation Biology
	BOT 3700	Plant Ecology
	BOT 4300	Woody Plants of Utah
Developmental Mathematics	MAT 1010	Intermediate Algebra
English and Literature	ENG 2010	Intermediate Writing
	ENG 3020	Modern English Grammars
	ENG 486R	Topics in Literature Nature Writing
English as a Second Language	ESL 2110	Advanced Listening/Speaking
	ESL 2120	Advanced Reading/Vocabulary
	ESL 2130	Advanced Composition
Exercise Science and Outdoor Recreation	REC 3700	Natural Resource Interpretation
	REC 4400	Natural Resource and Protected Area Management
Honors	HONR 100B	Spring Honors Colloquium

UVU RESEARCH GROUPS WHO VISITED CRFS

PROJECT	PRINCIPAL INVESTIGATOR
Imaging and Wave Experimental Team	Kim Nielsen
Plant Community Analysis	Renée Van Buren

UVU AFFILIATED GROUPS WHO VISITED CRFS

SPONSORING ORGANIZATION	GROUP
Community Education	Photography
International Student Council	Leadership Training
Office of International Affairs	Tajikistan Open World Delegation

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	Introduction to Outdoor Recreation Activities
University of Utah	University Writing Program	Environmental Writing

OTHER EDUCATIONAL GROUPS WHO VISITED CRFS

HOST	EVENT
Utah State Office of Education	Professional Development for Teachers—Geology
University of Utah	Mapping Meaning Conference
Cleveland Museum of Natural History	Perseids Meteor Shower



2012-2013 was the fifth year of operation for CRFS. Over the past five years, the Field Station has served numerous faculty and students and provided them with an irreplaceable experience in the heart of the Colorado Plateau. We want to build on this growing legacy and continue to evolve and mature as a facility and destination. Our goals for next year are focused on the following:

RENEWAL OF THE 5-YEAR GENERAL AGREEMENT

UVU operates the Field Station in close cooperation with Capitol Reef National Park on a 5-year lease agreement. The lease is up for renewal in the coming year, and CRFS will work with the Park to ensure the new lease agreement continues to meet the needs of all constituents.

INCREASED AWARENESS

While visitation has steadily increased, there is still room for additional growth within the constraints of the facility and its location. Our goal is to make the Field Station a destination for more students and faculty from UVU, and across the state and nation. We plan to hold an open house, continue marketing, and update the website to improve the user experience and encourage more visitors.

REVISED SCHEDULING POLICIES

We plan to introduce a new scheduling system for 2014. In the past, the facility has been available on a first-come, first-served basis, but this has become more difficult to administer as scheduling requests have increased. In order to ensure that groups whose objectives best match our mission are given scheduling preference, we will introduce a semester-by-semester scheduling system so that all interested groups can be considered at the same time.

STAFF FUNDING

We will seek funding from UVU for our Assistant Site Manager and increased hours for our Administrative Assistant. An Assistant Site Manager would be invaluable during our very busy fall and spring seasons. For example, during the spring last year, we were reserved for 60 days straight. An Assistant Site Manager could give our hardworking Site Manager some more flexibility in their schedule and a day off now and again. Our current Administrative Assistant is funded by UVU to work for 12 hours/week. This was sufficient in 2008, but in 2013 we have five times as many visitors. Additional time is needed to effectively administer our growing program.

FACILITIES IMPROVEMENTS

We will pursue a number of projects next year to expand our capabilities and improve the visitor experience. These include enhancements to the technology and communication infrastructure, conversion of an existing on-site shed to an observatory housing a telescope, and revisions to the ADA ramp.



CAPITOL REEF FIELD STATION MAKES A DIFFERENCE —SO CAN YOU!

CRFS 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.

ADDITIONAL DONORS

Anonymous
G. Kevin Jones
Cordell Roy

SPECIAL THANKS

To Annette Harrington, Jason Kudulis, and Paul Fenske for their assistance preparing this report. Photographs were taken by CRFS staff or provided by group leaders, unless otherwise noted.



Your financial support is needed.
Please visit www.donate.supportuvu.org/crfs to contribute.

