

The Field Press

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CNAP Update and Welcome to Our New Coordinator

2013 was an exciting year for the Colorado Natural Areas Program full of new challenges and changes. CNAP welcomes Bob Broscheid as CPW's new Director and looks forward to continuing the agency's mission under his leadership. Following the merger CNAP is located in Colorado Parks and Wildlife's, Species Conservation Section. This unit works to conserve Colorado's threatened and endangered species and is a great fit for the program. CNAP's current program supervisor is Francie Pusateri who brings many years of service protecting Colorado's natural resources. Finally, CNAP is very excited to welcome Raquel Wertsbaugh as the new CNAP coordinator.

Raquel has been the CPW area wildlife conservation biologist in Salida for the past 7 years. In that position her work focused on threatened, endangered, and at-risk species conservation and habitat work. Prior to her position with CPW, Raquel worked as a private lands wildlife biologist in a joint

position between the Natural Resources Conservation Service, CPW, and the Colorado Watershed Network in southeastern Colorado. Raquel attended Colorado State University where she received a degree in wildlife biology and a minor in rangeland ecology. Raquel is excited to begin her position as the CNAP coordinator and looks forward to working with the many partners and volunteers involved in the program. Raquel begins the position on March 1st and will be located out of the CPW headquarters office at 6060 Broadway in Denver. Feel free to contact her at raquel.wertsbaugh@state.co.us.

Recently, the Colorado Natural Areas Council was up for a sunset review and the Department of Regulatory Agencies recommended continuing the council to the legislature. This is good news for CNAP since we rely on the expertise of the council members to advise the Parks and Wildlife Commission to achieve the goals of the program.

CNAP is fortunate to have such a vast talented network of volunteers and partners to help keep the program running smoothly during this time of transition. CNAP would not be the successful program it is without all of your help. We look forward to an exciting and productive 2014 field season.

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Colorado Natural Areas preserve some of the finest examples of Colorado's original and unique landscapes for the benefit of present and future generations. Sites qualify as Colorado Natural Areas when they contain at least one unique or high quality feature of statewide significance:

- Native plant communities
- Geologic formations and processes
- Paleontological localities
- Habitat for rare plants and animals

A Fond Farewell

I am honored to be able to write a thank you and farewell to the Colorado Natural Areas community. As many of you may know, I am now in a different position in Colorado Parks and Wildlife, so my role with CNAP is now mainly one of fond admirer. The volunteers, partners and friends of CNAP have become a second family for me over the past eight years, and it is very difficult to move on from such an impactful and admirable program.

While exploring the state's Natural Areas and working with devoted partners on conservation efforts, there have been a myriad of inspirational events that I've had the pleasure of experiencing. Here are a few that I'd like to share:

- Rapelling down cliffs in Deep Creek with volunteer Andy Herb to find new occurrences of a cliff-dwelling *Sullivantia*.
- Forming friendships with ranchers in Montrose and Yuma County while working toward common conservation goals.
- Taking my 3-month old daughter camping at Irish Canyon in Moffat County, where I first learned the realities of diapers and dust-storms.
- Watching the Colorado Rare Plant Conservation Initiative 'blossom' into a valuable conservation partnership under the leadership of devoted conservationists and good friends.
- Waking up to prairie chickens in Baca County, where I first realized the stark and addictive power of the shortgrass prairie.

CNAP, and its many partners, volunteers and friends, has been inter-twined with my professional and personal development over the past decade, and so I smile when I think of all that I have gained from all of you. I can only hope that the little bit of work that I've done with CNAP and our partners has left Colorado's best places better than I found them and has prepared CNAP to face future challenges.

The Natural Areas Program has a fantastically unique and effective model for working with land owners and concerned citizens to make sure that Colorado's best places are conserved. The work that CNAP does to protect Colorado's biodiversity and Natural Areas is an important, but often overlooked, contribution to the conservation of Colorado's natural heritage. Going forward, I encourage all of you to do three things that I will also be asking of myself: First, reflect on how amazing the state of Colorado is, with its diverse flora, breath-taking geology and abundant wildlife. Next, continue your commitment to monitoring and protecting these special, irreplaceable places. Lastly, find new ways to contribute to the conservation of Colorado's special places, whether by inspiring your friends and neighbors or being active with CNAP or other conservation partners. I've been able to observe first-hand how much power a devoted group of people can have in the effort to protect Colorado's natural treasures. I want to thank you all for your efforts and for allowing me to be a part of your admirable community.

As I take on a new role working on policy and planning endeavors for CPW, I will always carry with me the lessons I learned while with CNAP: Take inspiration from the people and places you work with; Colorado's natural wonders deserve the utmost effort, and; Don't walk in Mancos shale mud after a rainstorm. I encourage you to also take these lessons to heart and I wish you all the best.

Sincerely,

Brian P. Kurzel



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Brian Kurzel and super-volunteer Loraine Yeatts at Gateway Palisade Natural Area.

CNAP leads the way in research and management of *Mimulus gemmiparus*, a rare and particularly vulnerable plant that is endemic to Colorado

By Mark Beardsley, EcoMetrics

The Budding Monkeyflower, *Mimulus gemmiparus*, is an unusual plant. It is a small and inconspicuous annual that grows for just a few months of the year, and it only rarely flowers. With a mode of reproduction that is unique among terrestrial flora, the Budding Monkeyflower produces miniature vegetative plantlets, or bulbils, on its leaves, which become covered by a protective coating and shed in autumn to survive the winter and propagate the population to the next season.

The species is endemic to Colorado, and only nine populations are known, all within the montane zone of Front Range mountains. Two of the nine populations are found within Staunton State Park. Each population consists of one or more patches of plants that are rooted into shelves or crevices on granite cliffs or boulders, usually tucked under overhangs with water seeps. The patches are tiny, typically less than one square meter. In fact, the total area occupied by this species is only a few hundred square meters, or less than the footprint of a large house.

This makes the species particularly vulnerable to even the most minor disturbance. For instance, trampling by one wayward hiker or a localized flash flood or forest fire could easily wipe out a patch of the Budding Monkeyflower, or



David Steingraeber of CSU examines *Mimulus gemmiparus*

even kill off an entire population. With its limited range and dependence on ephemeral seeps in granite cliffs, the impacts of an extended regional drought could potentially wipe out the entire species. The USFWS is currently reviewing the species for listing under the Endangered Species Act.

This is where CNAP comes in. CNAP has taken a leading role in protecting this unusual rare and endangered plant by sponsoring surveys and studies and by taking direct management actions. In addition to monitoring the known populations of the species and surveying additional likely areas for undiscovered occurrences, CNAP along with Mark Beardsley of EcoMetrics and Dr. David Steingraeber of CSU is leading an exciting project to test the feasibility of actively establishing new populations of the species at Staunton State Park.

The experiment is essentially the equivalent of “captive breeding” and reintroduction of a rare species for plants. In 2011, Beardsley and Steingraeber collected bulbils from the two existing populations in Staunton SP and propagated them over the winter in the lab at CSU. This produced a stock of “captive-bred” bulbils that was taken to the field in the summer of 2012 to “seed” new experimental populations within the Park at pre-selected sites with good habitat for the species.



Mimulus gemmiparus

continues on page 4

One hope is that we can reduce the risk of extinction by creating additional self-sustaining populations in the wild. At the same time, we are working on developing the techniques for establishing new populations of the plant from propagules grown in the lab or greenhouse. Developing these techniques is important as an emergency plan that could potentially be used to re-establish the species in nature should something catastrophic happen to wipe out one or more populations.

Results are promising so far. In 2012, 20 new patches were established with growing adult plants and 12 of these rated as assessed to have good potential for becoming self-sustainable. Ten of these established patches survived through 2013 and several were flourishing. The number of plants in each of these experimental populations increased dramatically from 2012 to 2013 which was especially encouraging.

Beyond simply proving the potential for establishing new populations of the species in nature, we also used



Mark Beardsley and David Steingraeber

the experiment as an opportunity to better understand the habitat preferences and genetics of the species. We are monitoring several environmental parameters at the experimental populations such as moisture, temperature, light intensity, and soil characteristics to begin honing in on the specific habitat requirements necessary for survival of the species. The study also provided us with the opportunity to test hypotheses about the extent and sources of genetic variability in the plant. As a vegetative annual, we suspect that there must be some special mechanism such as accelerated somatic mutation rates by which genetic diversity is maintained in the species. Genetic analyses are being performed at California Polytechnic University in Pomona by Dr. Paul Beardsley.

The budding Monkeyflower is truly a unique plant and a fascinating element of Colorado's natural history. As a leader in research and management, CNAP is helping to better understand and protect this rare and vulnerable species.



Mimulus gemmiparus in flower



Mimulus gemmiparus



Stanton State Park

Garden Park Fossil Locality

This article was taken from *Colorado State Parks & Natural Areas*, Frank Weston's book which is the first-ever printed guide to our state's Natural Areas as well as the most spectacular State Parks.

“Today, dinosaurs are part of our culture. If you don't believe that, just ask a six year old. Dinosaurs were made a part of American culture in the late 1800's by two well-known paleontologists, Edward D. Cope and Othneil C. Marsh. These scientists were the soap-opera stars of their day. Both highly educated paleontologists, they began competing to see who could unearth the most, the biggest, the newest, the most unusual, or the best fossils in the world. Their competition would turn into a Hatfield-and-McCoy feud. Things really got warmed up when mining professor Arthur Lakes (for whom the Arthur Lakes library at the Colorado School of Mines in Golden is named) contacted Marsh about some fossils he had found near Morrison, at what is now the Dakota Hogback Natural Area (see p. 76). About the same time, O.W. Lucas contacted Cope about fossils near Cañon City, at what is now the Garden Park Fossil Locality (see p. 132). Both paleontologists came up with bones from the same species of dinosaur. Cope named it *Camarasaurus*, Marsh named it *Titanosaurus*, and the feud was off and running.”

“But the fossils, which have been buried for over 135 million years, paid little notice of man's feuds and foibles. They are still there, and although the furor of Cope and Marsh's day has died down, paleontologists continue to make new discoveries at Garden Park. In 1992, a fully articulated *Stegosaurus* skeleton was discovered with the tail spines still attached---something that had never been seen before. In 1993, one of the oldest dinosaur egg sites in North America was unearthed there.



Over shadowed by the specter of dinosaurs is the fact that Garden Park is also home to significant populations of two of Colorado's rarest plants---Golden blazing star and Brandegee's buckwheat. These imperiled plants are found in only a couple of counties in Colorado, and nowhere else in the world.”

Taken from pages 132-135 from 'Colorado State Parks & Natural Areas'

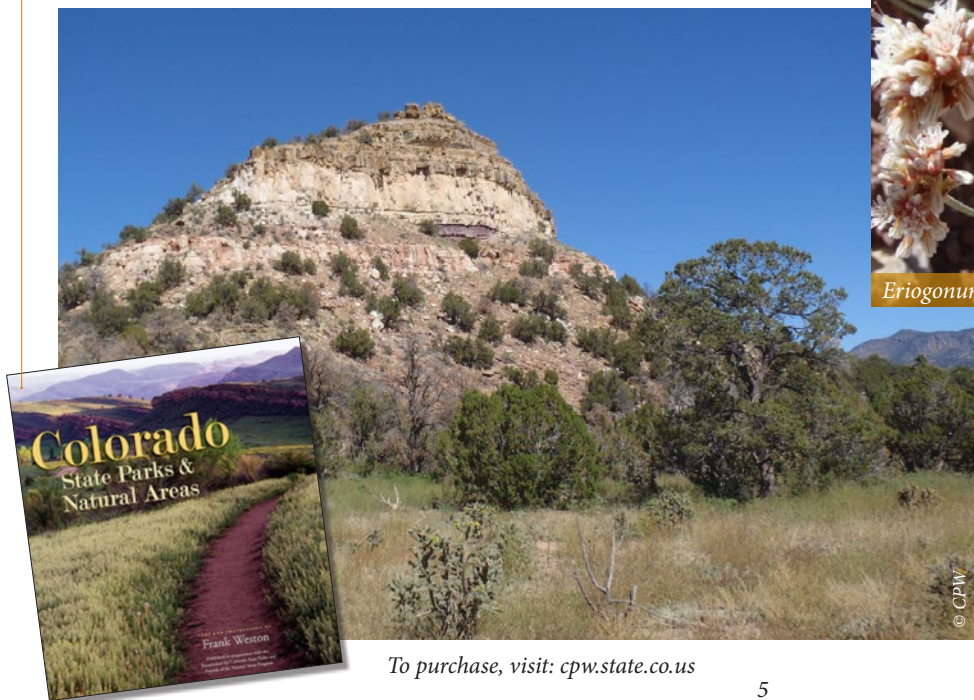
Additional information on facilities, restrictions and contacts are available in the publication.



Eriogonum brandegeei

Driving Directions:

From downtown Cañon City, drive east on US 50 (W. Royal Gorge Blvd.). Turn left (North) on Greydene Ave. Turn right (east) on Fremont Dr. (frontage road). After 0.1 mil, turn left (north) on Field Ave. Continue for 3 miles; Field Ave. turns into CR 9. Continue on CR 9 for 3 miles to the Cleveland Quarry rest area.



To purchase, visit: cpw.state.co.us

CNAP Volunteer Survey

In the summer of 2013 CNAP sent out a survey to all of our current volunteers. We wanted to hear from you how we could better serve our volunteers. We also wanted to get a better sense of what keeps our volunteers motivated to do such hard work. Here are some of the results from that survey.

Q: What is most challenging about being a volunteer steward?

“There is never enough time to do all the things that I would like to do in my natural areas.”

“Making sure I examine the entire site to ensure that I do not miss any significant changes.”

Q: What is most satisfying about being a volunteer steward?

“Developing a personal connection to the site. Really getting to know it and care about it.”

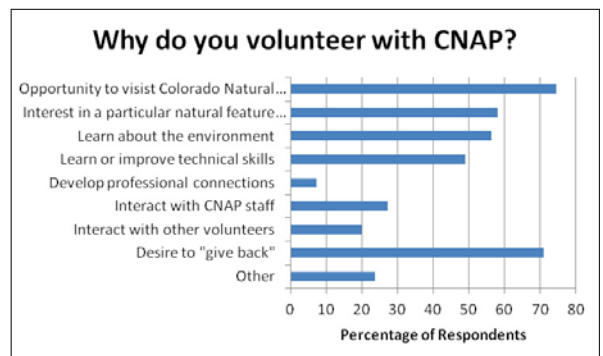
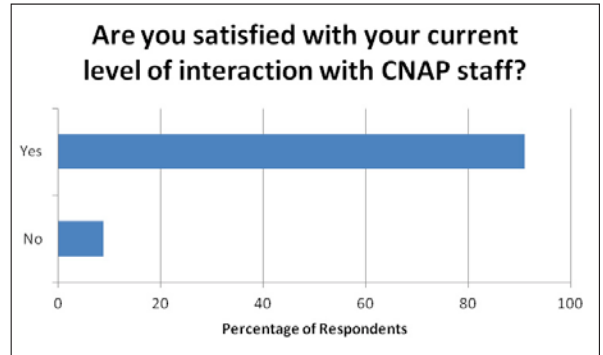
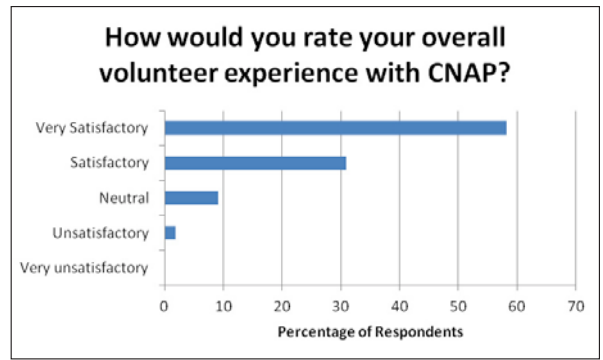
“Being involved in meaningful stewardship of Colorado’s incredible resources, as well as being exposed to lifelong learning opportunities.”

Welcome To New Stewards

Between 2012 and 2013 the following eighteen stewards have signed up to help be part of the effort to monitor and protect the best places in Colorado!

Welcome to: Lisa and Sean Kluesner for Dakota Hogback, David Hicks for Trinidad K-T Boundary Natural Area, JeanMarie Harahush for Escalante Canyon, Ellen Shuman and Dana Daldos for Wheeler Geologic Natural Area, Tyler Morrison for Rajadero Canyon, Mike and Gerri Gassert for Indian Springs Trace Fossil Locality, Joe Ehrenberger for Two Buttes, Peggy Lyon for Miramonte Reservoir, Matt Lohrentz for Elephant Rocks, Karin McShea at Cross Mountain Canyon, Andrea and Steve Storrs for Mount Emmons Iron Bog, Michael Freehling at Mishak Lakes, and Dennis Buechler for Kremmling Cretaceous Ammonite Locality.

Remember: If you donate 48 or more hours to the Colorado Natural Areas Program and State Parks, you receive a year-long Parks Pass, good at all 42 of the State Parks.



Marian and Peter Rohman at McElmo



Megan Bowes and Lindsey Brandt at Paradise Park



Loraine and Dick Yeatts and Denise Wilson at Gateay Palasade

Meet Our Volunteers

Larry Allison

CNAP Volunteer Steward since 2009

Larry has been exploring the natural world since he was a child in Boulder, Colorado. At age 5 he asked his parents if he and a friend could go on a camping trip (without them) in the foothills, and he is “still upset they said no”. After college at CSU, Larry spent 4 years in the Navy and then 15 years working in the horticulture industry. When an accident forced him to take a break from horticulture, he began to teach middle school. He taught for 15 years and helped kids get involved conducting real science through the hands-on River Watch program. He got his start as a CNAP volunteer when Nic Korte asked him to help out with plant identification at Badger Wash. As he says, “I just got hooked.”

Outdoors, Larry’s activities include hiking and backpacking. He usually takes two or three backpacking trips a year to the Grand Canyon. This coming year, his grandson will be joining him for the first time. Indoors, Larry’s activities include taking a mycology class and visiting the Herbarium at Colorado Mesa University. Larry’s favorite sightings on his natural areas include the approachable Long-nosed leopard lizard, *Astragalus musiniensis* and *Allium nevadense*. As he says, “There is nothing better than being on site through the different seasons observing the changes of the plants, listening to the natural sounds and seeing something new and unexpected.”

What advice would you give to a new CNAP volunteer?

“Keep reading *The Ecology of Place** and do not hesitate to seek assistance or share information with the CNAP staff and other volunteers.”

Suggested reading: **The Ecology of Place: Contributions of Place-Based Research to Ecological Understanding*, Edited by Ian Billick and Mary Price



- Badger Wash Natural Area in Mesa County
- Raven’s Ridge Natural Area in Rio Blanco County
- 264 volunteer hours since beginning

I find great value in the philosophy of working with land owners/managers to preserve the best of Colorado for the future. I have been enriched by the people I have met and learned so much.



Become a Volunteer Steward and help protect Colorado's best natural features!

CNAP is currently looking for volunteers to monitor some of the most spectacular and sensitive areas in the state! The Natural Areas Program needs volunteers to get out and visit these sites regularly to ensure these sites are being preserved for future generations. If you are interested in any of these opportunities, please contact Raquel Wertsbaugh, *Natural Areas Program Coordinator*, 303-291-7267 or raquel.wertsbaugh@state.co.us

SITE NAME	COUNTY	OWNER	ACRES	HIKING	ATTRIBUTES	SKILLS
Bonny Prairie	Yuma	CPW	50	Easy	Bonny Prairie consists of four fragments of little bluestem loess (wind-deposited glacial silt) prairie. Fewer than 30 fragments persist in North America of this grassland type that once covered tens of thousands of acres in the central Great Plains. A small colony of the state-rare moonwort <i>Botrychium campestre</i> occurs in one of the fragments.	Botany
Deer Gulch	Rio Blanco	BLM	1809	Difficult	Two plant species endemic to Green River shales; Good quality remnants of Great Basin grassland, mixed mountain shrubland and lower montane Douglas-fir forest communities.	Botany; Hiking
Gunnison Gravels	Mesa	BLM	40	Moderate	Gunnison Gravels contains a unique fluvial gravel deposit which is the key to tracing the recent geological history of Unaweep Canyon. Several hypotheses suggest an ancestral stream drainage to the southwest along Dominguez Canyon to Cactus Park and through Unaweep Canyon to the Dolores River.	General
Lower Greasewood	Rio Blanco	BLM	205	Moderate	Relatively undisturbed pinyon-juniper woodland with significant populations of a Green River Shale endemic plant.	Botany
Mexican Cut	Gunnison	TNC	420	Moderate	Mexican Cut is a hanging valley located high in the Elk Mountains. Alternating layers of limestone and quartzite have been tilted on end & worn differentially by glacial action. The resulting topography is a series of shelves of increasing altitude. Interconnected ponds lie on each shelf. Each pond has a distinct flora and fauna. The reproductive behavior of populations of salamanders, <i>Ambystoma tigrinum</i> , varies between ponds.	General
Narraguinnep	Dolores	USFS	1928	Moderate	Virgin stands of ponderosa pine and pinyon-juniper are interspersed with oak thickets and a rich diversity of other shrublands. Recently burned in large crown fire.	General
Rabbit Valley	Mesa	BLM	208	Moderate	The site contains large specimens of several dinosaurs including <i>Camarasaurus</i> , <i>Allosaurus</i> , and <i>Camptosaurus</i> . BLM and the Museum of Western Colorado have developed the site for interpretive use and the Museum of Western Colorado directs ongoing fossil digs. The recent discovery of an iguanodon skull marks the earliest known record of this species. High quality pinyon-juniper woodlands occur on the site north of the fossil locality.	General
Shell Rock	Baca	SLB	640	Easy	Shell Rock Natural Area contains one of the largest known Colorado populations of Colorado green gentian. This site also contains a wonderful example of shortgrass prairie in good condition.	Botany
Tamarack Ranch	Logan	CPW	470	Easy	This natural area is in two pieces. One includes excellent examples of plains cottonwood riparian forest. The other is high-quality sandhill prairie, which provides critical habitat for greater prairie chicken.	Birding

BLM = Bureau of Land Management; DOW = Division of Wildlife; DPOR = Department of Reclamation SLB = State Land Board; TNC = The Nature Conservancy; USFS = U.S. Forest Service