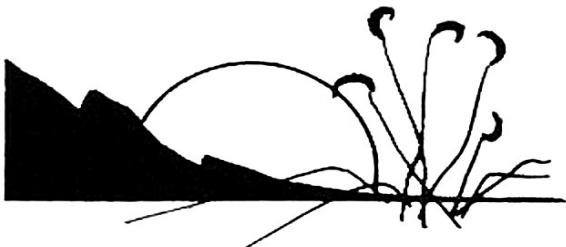


Boulder County Nature Association



"Our mission: To educate, inform, and inspire for the purpose of conserving and promoting resilient natural ecosystems in our region."

Volume 35, Number 2
Spring 2017

Ecosymposium Report: Finding the Science in Citizen Science

Sandra Laursen and Claudia Van Wie



BCNA held its annual Ecosymposium on Saturday, March 18, to a good turnout despite the outdoor temptations of a sunny spring day. Speakers, panelists, lightning talks, and posters addressed the topic, *Finding the Science in Citizen Science*, with a focus on environmental studies in the Front Range. The program explored the questions: Where is the science in citizen science? What is its value? How and what can we learn from the data collected? How do we make it rewarding for the scientist and the participant?

Waleed Abdalati, director of the Cooperative Institute for Environmental Sciences (CIRES) at CU Boulder and host of *The Crowd & the Cloud* on public television, shared a sneak peek at the four-part series that will air in April. For Waleed, citizen science provides an “up close” view of Earth that complements his own scientific experience in satellite remote sensing studies of our planet’s icy regions. Clips from the show featured citizens monitoring Appalachian streams, counting migrating monarch butterflies, and checking urban water quality, and two examples with local tie-ins: CoCoRAHS, the Community Collaborative Rain, Hail and Snow Network, based at CSU, and the Audubon Christmas Bird Count. The TV series seeks to enhance the visibility and credibility of citizen science, and to foster participation. For more info, see crowdandcloud.org. Complete episodes can be viewed online after they air.

Chris Wood from the Cornell Lab of Ornithology described the use of eBird data to support conservation of birds and their habitat. Conservation begins with understanding bird numbers, distributions, and movements, and skilled birders can detect, count and classify birds in a way that no machine can replicate—thus eBird’s goal is to gather this information in a manner that is fun, feasible, and scientifically useful. What distinguishes eBird’s approach is the complete checklist: by submitting a complete checklist, birders are documenting what they did *not* see as well as what they did – therefore revealing what is absent or commonplace as well as what is rare and attention-catching. Sophisticated spatial-temporal models then allow the eBird team to interpolate data from places or seasons where checklists are scarce and to gain insights from linking bird observations to other geographic data. For example, maps show how indigo buntings avoid urban areas, but chimney swifts thrive where the chimneys are. Chris contrasted traditional hypothesis-driven approaches to science with eBird’s transformative approach, where researchers can explore a vast data set to answer their own questions, and land managers can examine birds’ use of the local landscape to make decisions about what, how and when to act.

BCNA leaders Steve Jones and Sue Cass presented highlights from BCNA’s many citizen science efforts since 1981, including studies of cliff-nesting and wintering raptors, small owls, butterflies, and specific habitats such as Boulder Reservoir and the Indian Peaks. These studies have documented the presence of species such as flammulated and boreal owls, and identified local population trends: for example, raptor populations are generally increasing or steady, but butterflies are declining. Four-season bird counts in the Indian Peaks have shown how boom-or-bust cone crops affect irruptive seed eaters such as crossbills, which in turn influence pygmy owls and other predators. These data help to inform local agencies about how conservation efforts are working or where different tactics are needed. Steve noted that Boulder County has extensive public lands and a well-educated public, therefore citizen science here offers a best-case scenario on how we might deploy ecological data to protect or rehabilitate open space.

(continued on page 3)

Welcome our New Board Members!

Vicki Braunagel



I moved to Boulder in the early '70's and immediately fell in love with the natural beauty of the area. So, after graduating from CU law school I simply refused to leave. After 20 years of practicing law and 10 years managing the Denver airport system, I retired ready for a "new chapter". Volunteering as a naturalist for Boulder County Parks and Open Space since 2010 has been a perfect way to

combine my love of the outdoors with a desire to share that love of nature with others. Since I had started birding after retirement and enjoy learning what birds teach us about nature, I have made that my area of study and program emphasis. The other passion I have developed is photography, particularly of birds. I seem to spend large amounts of time carrying large camera equipment pursuing small flying creatures.

Reading, hiking, traveling, camping in a small motorhome with my husband (who is a BOCO volunteer as well) and enjoying the friends I have made as a volunteer naturalist make up the remainder of my activities.

A Message from our Incoming President

Letter from the President!

Sue Cass

A year has passed since I left the BCNA Board of Directors in a term-limited state and, boy, what a year it has been! It has occurred to me during this turbulent time that we in Boulder County live in a protective, progressive bubble that supports and soothes our collective environmental souls and, if we choose, we could cut ourselves off from the calamity that reigns supreme on the outside. That's if we choose, which I am confident we will not! BCNA's creed, its mission "to educate, inform and inspire for the purpose of conserving and promoting resilient natural ecosystems in our region" is a catechism to which we now, more than ever, must adhere and perhaps even extend beyond the comfort zone of Boulder County and the Front Range. At the very least, vigilance en masse in service to the environment appears to be the order of the day which, for us, is just another humdrum day in the Boulder Valley.

Those of us who serve BCNA in an administrative capacity are looking forward to a year of renewal and re-invigoration for this great organization and we seek your input and wise counsel as we proceed. It was noted, with considerable humor and some consternation, at the annual meeting in February that the room was literally and figuratively reflective due to the presence of our "silver-haired" membership. Goal #1 is to attract younger members who can move BCNA forward to a bright future. Enhancing our ability to advocate for the environment through the development of sound, science based policy is also high on the list. The BCNA Board of Directors has scheduled a retreat at the Rock Creek Farm Goodhue Farmhouse on May 12th and 13th to address these important concerns and others you would like to share. Don't be shy! We strongly encourage your active and vigorous engagement with our great committees and the Board and eagerly anticipate your patronage. Our "mission" more readily bears its intended fruit when we work together!

Welcome our New Board Members

Viki Lawrence

I grew up in the mountains west of Boulder with 'free range' parents and spent most of my childhood running free outdoors. My family camped, canoed, backpacked, skied and traveled. I received a bachelor's degree in Earth Sciences and Biology from the University of Northern Colorado and began working with the US Geological Survey as a field geologist. There my mentor was an avid birder and along with geologic mapping I was expected to learn the birds of the Sonoran Desert where we were working. Eventually, I went to CU to get a MS in Geology, but soon after graduating I had children and gave up my geology job. I have been volunteering for BCPOS in various wildlife positions since 2010 beginning with work on the Abert's squirrel project then moving to raptor nests. My volunteering has included Bluebird box routes, Burrowing Owls, Osprey, and both Bald and Golden Eagle nest monitoring. In 2014, after I retired from BVSD where I worked in special education (while raising my children) I became a Volunteer Naturalist for BCPOS. I have also volunteered with Rocky Mountain Wild on the ongoing Pika project (which has received grants from BCNA) and have been driving the South County raptor survey for BCNA for 4 or 5 years. I continue to spend a lot of time outside, with a special passion for backpacking away from the noisy, high-tech world. In these tumultuous times, I hope to be a strong advocate for nature.



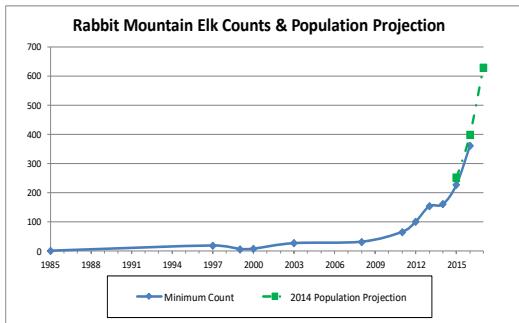
Elk at Rabbit Mountain

Boulder County Parks and Open Space's (BCPOS) current management plan for Rabbit Mountain was created in 1985. Interestingly, it barely mentions elk. Granted, the property complex has grown significantly since then due to multiple acquisitions, but elk were really not part of the Rabbit Mountain landscape 30 years ago. Contrast that with a fall count from 2016 of 360 animals and the story has changed. The elk population has grown ten-fold in the past several years, buoyed by enhanced survivorship of more and more elk. The current nature of the use and travel patterns of this elk herd are beginning to cause issues across the northern part of the county around Rabbit Mountain.

These elk may have come from Larimer County or from the North Boulder elk herd that uses Heil Valley Ranch, but in either case their history was one of a hunted population. This herd has chosen to use areas on Rabbit Mountain that are far from concentrated human use (subdivisions or trails) in areas that still provide those things that all wildlife need: food, cover, water, and space. Primarily, this means the forested area south of the Eagle Wind Trail. The mixture of grassy meadows and shrubs, with some pockets of Ponderosa pine forest was good habitat for the small, fledgling elk herd in the early 2000's. There were a handful of natural springs for water, as well as the Supply Ditch, traversing the southern and eastern flanks of the mountain. The real issue here is that the herd has chosen not to migrate, contributing to heavy use throughout the year, and expanding outward from this core area.

BCPOS has been meeting with Colorado Parks and Wildlife (CPW) for a couple years now on this issue. Our primary goal was to manage for a sustainable elk population on the landscape by monitoring for Objectives in four areas of concern: Natural Vegetation – reducing and repairing negative impacts; Migration and Movements – reestablishing a pattern of migration; Elk Population numbers – reducing the population back down to 30-70 animals, and Human Conflicts – reducing the damage and conflicts to agricultural producers, neighbors, and area users.

(continued page 7)



(Symposium, continued from page 1)

A dozen speakers from Front Range organizations gave 3-minute "lightning talks" to describe their citizen science projects. This format requires excellent planning and a good sense of humor! Many also staffed a table at lunchtime to talk with potential volunteers individually. We will collect their information and make it available on the BCNA website—stay tuned.

Greg Newman from Colorado State's Natural Resources Ecology Lab described citsci.org, an online platform for organizing citizen science projects, managing participants, gathering and visualizing data. He highlighted different outcomes that citizen science offers to varied stakeholders from science, conservation, policy, and the public.

Panelists Michelle Durant, Liz Goehring, Megan Mueller and Tim Seastedt shared perspectives informed by science, education, agency participation, and study coordination. The discussion illuminated a range of ways to involve citizens, whether serving as a "sensor" during data collection, taking part in interpreting and making sense of data, or co-creating with scientists the study questions, design and findings. In these ways, citizen science efforts can empower citizens, give them a voice, and emphasize the use of evidence to support decision-making in a democratic society.

Thanks to everyone who attended, and to the corps of volunteers who helped with planning, publicizing, hosting, setting up, and feeding us a delicious lunch. And thanks to all our cosponsors: Boulder County Nature Association; Boulder County Audubon Society; Boulder County Parks and Open Space; City of Boulder Open Space and Mountain Parks; and the Albert A. Bartlett Science Communication Center, the Department of Ecology and Evolutionary Biology, and the Environmental Studies Program, all at CU Boulder.

Special Thanks to our Ecosymposium Committee

We want to express our special thanks to the members of our Ecosymposium Committee who do such a stellar job of organizing BCNA's annual Ecosymposium. Kudos to the Chair, Claudia Van Wie and her team. Sandra Laursen, Timothy Seastedt, Deborah Price, Sue Cass, Cindy Maynard, Viki Lawrence, Michelle Durant, Kerrie Bryan Peter Kleinman

The symposium is an enormous undertaking and an important contribution to the understanding of local conservation challenges and prospects, both within BCNA's membership and the larger Boulder County community. Many thanks for all the volunteer hours it takes to pull together this impressive event, year after year. We honor your commitment and your achievement!

Demystifying Gulls
A recent BCNA class - Mary Stuber



Many birds are easy to recognize. However, beginning bird watchers soon realize that some, like sparrows, flycatchers, female ducks, and gulls, are much more difficult. These are the ones often relegated to "unidentified" or "sp." on our lists.

Books like "*Identify Yourself: 50 Most Common Birding Identification Challenges*" by Bill Thompson and "*Field Guide to Advanced Birding: Understanding What You See and Hear*" by Kenn Kaufmann are good. Unlike field guides which must be small enough to carry and are limited to bits of information and major field marks, these books have the kind of detail needed to tackle more difficult identification problems.

Ring-billed gull, California gull, Western gull

Another fun way to make progress is to go into the field with someone who has already "cracked the code" on your subject. They'll share their experience, techniques, and tricks to help jump-start your own break-through. That's what Bill Schmoker gave everyone who signed up for his recent class, *Demystifying Gulls: Beginning and Intermediate Gull Identification*.

His evening presentation broke down just what to look for. Gulls are often in groups, so look for one that is distinctly different. A good thing to start with is **size**. Small gulls include the "hooded" gulls. We might see Bonaparte's and Franklin's gulls during spring and fall. But some don't always have a hood. Bonaparte's gulls sport only a small black dot behind the eyes, as juveniles and non-breeding adults. Next are the familiar "white-headed gulls." Our most common gulls are medium-sized Ring-billed gulls. But don't ignore them because they're familiar. Their year-round presence makes them easy to observe all through the year. The ability to recognize rare gulls is the pay-off for studying more common ones.



*Great Black-backed gulls, Her-
ring gulls, Bonapart's gulls*

Larger gulls in photo on left include California gulls, Lesser Black-backed gulls, pink-legged Herring gulls, and Great Black-backed gulls. This gull preys on almost anything smaller than itself, including other gulls, ducks, birds, fish, and other gulls' eggs and young. The one we spotted at Pueblo Reservoir stood out among the other gulls. At 30" long, and with a 5' wingspan (compared to the Ring-bill's 20" length and 44" wingspan), there's no question who rules the roost!



Franklin's gull

In addition to **size**, you can use differences in the **shade** of gray on the bird's back to identify them. Black-backed gulls are much darker, while Ring-bills are light gray. Be aware, though, that lighting can be deceptive. Learning plumage and body part terms help us key in on what to notice. They describe the **structure** of a gull, like the length that folded wings project beyond the tail when a bird stands. **Subtleties** such as coloration of legs, bills, iris color, and plumage can be helpful. Always consider **status**, or what species to expect in a location, and when. Use resources like eBird's bar charts and recent sightings to determine this. It's a very helpful step before going into the field to look for anything.

Finally, there's **sequence** - determining the age of a gull. Juveniles start out brown and end up gray or black and white as adults. There's a bewildering variety of plumages related to age. Field guides often don't show each variation. But don't despair. Gulls can be sorted into categories that make age identification easier.

Juvenile plumage is the first set of feathers to grow in after the down. It's held only briefly, from about July to October. It's brown and usually highly patterned with dark bars and checkering.

Throughout life, gulls go through spring and fall molts, bringing them into summer ("alternate") and winter ("basic") plumage, respectively. Fall molt (except for the first fall) is a complete molt of all feathers. The spring molt includes just body feathers, not wings or tail. They take several weeks, and many individuals are in transition between two plumages. Some adults have both non-breeding and breeding plumages. Heads of some white-headed winter gulls have darker shading. In addition to molting, soft-part (legs and bill) coloration changes gradually to that of the adult.

The categories include "two-," "three-," and "four-year gulls." These describe how long it takes to reach full adult plumage. Two-year gulls are usually the smallest. They look different from adults during their first cycle. After they molt they look like adults. Most three-year gulls are medium-sized (ex: Ring-bill, Mew, and Lesser Black-backed gulls). First-year birds have lots of brown. Second-year birds look more like adults, but usually have a few brown feathers on the back and wings. Adults are gray and black above and white below. Young birds of the large "four-year gulls," (ex: Herring, California, Glaucous, and Great Black-backed gulls), are mostly brown in their first year. Second years are brown with a little gray or black. Thirds are mostly grayish black and white with a little brown. Fourth years look like adults. Knowing the age of the bird can make identification much easier. The changes follow a logical sequence. Other identifying factors can vary among individuals. Learning to sequence gulls will make you a legend!

Demystifying Gulls (continued from page 1)

Start in winter - especially early to mid-winter. That's when most gulls are in their freshest plumage, and when age distinctions are most apparent. Young birds' plumage may be worn or faded by early to mid-summer. Patterns are complicated by molt during summer and fall. When gulls rest in large groups on ice or jetties, differences in size and shade are easier to see, and leg color may be visible. Think of gulls as an opportunity rather than a hopeless task. You like solving puzzles, don't you?

Wildlands Restoration Volunteers reminds you to "Purge Your Spurge" this spring!

To stay informed of current Myrtle Spurge happenings, volunteer events and news visit us at www.facebook.com/PurgeYourSpurge
If you want to help rid our state of Myrtle Spurge:

Volunteer for WRV on one of our Myrtle Spurge projects! Projects are scheduled for April 11th & April 22nd

Pull and bag your Myrtle Spurge and bring it to one of the schedule "Purge Your Spurge" exchange events below

When Purging Spurge, it's important to remember to follow these safety precautions!

Remember that Myrtle Spurge is highly toxic and the sap from the plant can seriously harm you.

Always wear eye protection, rubber or latex gloves and long sleeves when pulling the plant.

Bag any plants you pull and dispose of them in the trash. **Do not compost Myrtle Spurge.**

Myrtle Spurge is a perennial be sure to pull up the entire taproot to prevent regrowth.

Pull Myrtle Spurge every spring! Myrtle Spurge seeds can be viable for up to 9 years, so remember to check every year for any new growth.

To sign up for volunteer pulling events go to www.wrv.org or call Morgan Crowley, Weed Campaign & Restoration Project Coordinator for WRV at (303) 543-1411 X 3#.

"Purge Your Spurge" Exchange Events

Bring in your bagged Myrtle Spurge to any of these events and receive free native plants in exchange!

Sat, April 15

Longmont, CO - 9am-Noon @ The Boulder County Fairgrounds in the southeast lot off Cattail Rd. next to the Humane Society

Sat, May 6

Boulder, CO - 9am-Noon @ ReSource, 6400 Arapahoe Rd.

Saturday, May 20

Denver, CO - 9am-Noon @ CSU Extension Denver on 888 East Iliff Avenue Denver, CO. The Denver Natural Area's Program will be hosting their Purge The Spurge in conjunction with the "Plant-a-Palooza" sale.

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--**Avian Species of Special Concern**
Dave Hallock, Coordinator dheldora@rmi.net
Steve Jones, Coordinator curlewsj@comcast.net
--**Burrowing Owls Survey**
Sue Cass, Coordinator 720-684-6922
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Jan Chu, Coordinator 2chuhouse2@gmail.com
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Steve Jones, Coordinator 303-494-2468
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--**Wintering Raptor Survey**
Sue Cass, Coordinator 720-684-6922

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Terry Escamilla
--**Nature Net Moderator**
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Cindy Maynard (layout) cmaynardre@gmail.com
--**Website and Support for Newsletter**
Claudia Van Wie 303-494-2250, webmaster@bcna.org

Wintering Raptor Survey Documents Dramatic Changes in Local Birds of Prey Populations

Steve Jones

Once again, more than 70 volunteers participated in the 2016-17 Boulder County Nature Association wintering raptor survey, one of the longest-running biological inventories in Colorado. We initiated this survey along four survey routes mapped throughout eastern Boulder County in 1983, after we saw large numbers of ferruginous hawks and bald eagles congregating around prairie dog colonies around Haystack Mountain and in the Coal Creek Valley near present-day Superior.

One of our goals was to document wintering raptor aggregation areas, including bald eagle roosts, so these areas could be studied and protected. We expanded the number of survey routes, which vary in length from 20-30 km, to 6 in 1990.

During the first 10 years of our survey, numbers of ferruginous hawks roughly equaled numbers of red-tailed hawks. During 2010-17, we observed about 20 times as many red-tailed hawks as ferruginous hawks. This change reflects a more than 95% decline in numbers of wintering ferruginous hawks in Boulder County since we initiated surveys. Much of this decline has been driven by fragmentation of large prairie dog colonies by expanding subdivisions and by reductions in numbers of prairie dog by plague, which became very active in the county after about 1990. In addition, many of our wintering ferruginous hawks come from the northwestern plains, where breeding numbers have declined.

We've also observed a greater than 90% decline in numbers of wintering rough-legged hawks. These large open-country hawks, which nest in the Arctic, have relatively small talons and feed predominantly on smaller prey, including mice and voles. While loss of expanses of grasslands in Boulder County probably has contributed to their decline, experts point out that historically, rough-legged hawks migrated only as far south as necessary to avoid areas of permanent winter snow cover. With global warming, those areas have shifted a couple of hundred miles north, so many of "our" rough-legged hawks are probably now wintering in Wyoming and the Dakotas.

Our surveys have also documented striking annual fluctuations in numbers of wintering northern harriers. Since harriers feed predominantly on highly cyclical vole populations, we believe these fluctuations reflect those population cycles. Surprisingly, numbers of wintering bald eagles appear to have declined by nearly 50% in Boulder County since the early 1990s. Though eagles began nesting here around 1998 and about a dozen pairs now nest within the county, it's possible that these resident adults are somewhat intolerant of juvenile eagles and chase them away. The decline in numbers of prairie dogs may also have discouraged bald eagles from congregating in some areas.

Over the years, at least 200 volunteers have participated in the wintering raptor study. We thank all of you for your enthusiasm and dedication. Results of this study have been cited by local agencies to recommend protection of several large areas of open space around Boulder Reservoir, along Lefthand Creek, and west of Broomfield. We hope to keep the surveys going for another 35 years, at least!

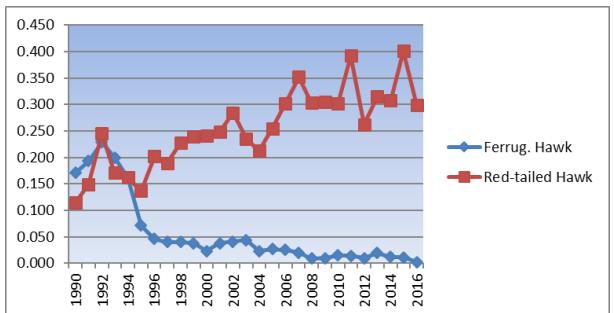
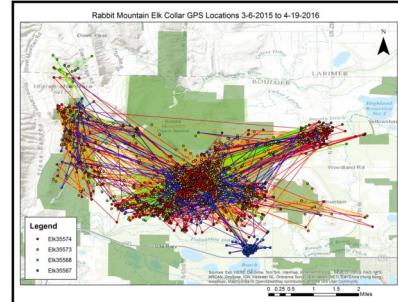


Figure 1. Mean numbers of ferruginous hawks and red-tailed hawks observed on Boulder County Nature Association wintering raptor surveys, 1990-2016.

(Elk continued from page 3)

These elk may have come from Larimer County or from the North Boulder elk herd that uses Heil Valley Ranch, but in either case their history was one of a hunted population. This herd has chosen to use areas on Rabbit Mountain that are far from concentrated human use (subdivisions or trails) in areas that still provide those things that all wildlife need: food, cover, water, and space. Primarily, this means the forested area south of the Eagle Wind Trail. The mixture of grassy meadows and shrubs, with some pockets of Ponderosa pine forest was good habitat for the small, fledgling elk herd in the early 2000's. There were a handful of natural springs for water, as well as the Supply Ditch, traversing the southern and eastern flanks of the mountain. The real issue here is that the herd has chosen not to migrate, contributing to heavy use throughout the year, and expanding outward from this core area.



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One of the first things we did was to put (4) radiocollars on elk to see their distribution and movement patterns. We have just completed putting 7 new radiocollars on in 2017 to replace the old ones and learn more about the expanded use areas. CPW has tried a couple measures to enhance hunting opportunities on private lands surrounding Rabbit Mountain, including creating a special liberalized hunt unit. But the wily elk herd has largely frustrated their efforts. The elk are often nocturnal in their outings to private lands, returning to the safety of open space during the day. The accumulating conflicts and resource damage is concerning to both agencies.

BCPOS began collecting vegetation data specific to elk use in late 2015 to document levels and locations of heavy elk use. Wildlife staff and Plant Ecology staff have established vegetation monitoring to measure impacts to species composition and shrub use. Monitoring has shown some substantial localized impacts to shrub stands in the core area. The species composition and weedy character of some areas cannot all be attributed to elk due to previous livestock and prairie dog use. The transects may be able to show changes over time with action or inaction relative to reducing elk population numbers.



The herd has grown rapidly in the last few years, adding over 100 calves to the population in 2016. The increased herd size has been accompanied by expanded use of neighboring private lands, and onto private lands some distance from Rabbit Mountain. The lure of these private lands are irrigated fields of hay, alfalfa, and corn. These movements have increased damage to livestock and residential fences, residential landscaping, crop damage, and even vehicle accidents. CPW has paid over \$56,000 in crop damage claims due to this herd in the last four years; over \$100,000 over a longer period. The expanded movements have brought concerns from new parties, including potential damage to organic farms. Some of these newer parties are BCPOS Agricultural tenants.

After careful consideration of many options and techniques, our working group has concluded that the most appropriate method to achieve our Goal is to propose a limited public harvest, incorporating BCPOS lands into the existing Rabbit Mountain subunit. This additional harvest (and harvest pressure) is hoped to address the first two Objectives: to restore a migratory pattern to the herd and to reverse the trend of the growing population back down to 30-70 animals. The removals from the public harvest will be combined with other efforts that address the resource and private land damage concerns. These may include limited fencing, hazing, possible alternative crops, and/or remediative efforts to restore damaged habitats. We do not propose such actions lightly, such that only a safe, effective program of harvest balanced with the existing uses in and around Rabbit Mountain would even be proposed.

Our plan is available for review and comment at this link: www.BoulderCountyOpenSpace.org/elkmanagement Additionally, we will be hosting an Open House on the issue at POS Headquarters in Longmont on April 6, 5:30-8:30pm.

BCNA Memberships renew January 1, 2017!
The strength in BCNA
lies in active membership support!
If you forgot renew now at BCNA.org

We invite you to report your sightings
to
www.coloradofrontrangebutterflies.com

Support the Boulder County Nature Association

Name _____

Address _____

Phone and/or E-mail (optional) _____

Type of Membership:

<input type="checkbox"/>	Student/Senior (65 or over)	\$15
<input type="checkbox"/>	General Member	\$20
<input type="checkbox"/>	Family or Household	\$30
<input type="checkbox"/>	Supporter	\$40
<input type="checkbox"/>	Founder	\$100
<input type="checkbox"/>	Life Member	\$300
<input type="checkbox"/>	Corporate	\$500

- Donation to General Research Grants
 Donation to Evenson Big Cat Research Grants
 Donation to General Research Fund

The membership year is January 1 to December 31. Those who join after October 1 are considered members in good standing through the following year. All members receive this quarterly newsletter. Supporter-level members and higher are entitled to receive a complimentary copy of each BCNA publication. Contact the membership chair.

Please make checks payable to "Boulder County Nature Association" or "BCNA" and mail to:
P.O. Box 493, Boulder, CO 80306.

THE BEST WAY TO PAY IS ON LINE:

<http://www.bcna.org/>

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