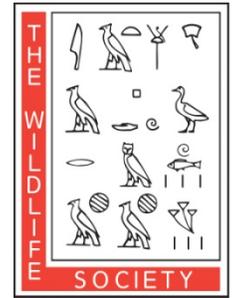


NEVADA CHAPTER OF THE WILDLIFE SOCIETY



Spring/Summer 2017

2017

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MESSAGE FROM PRESIDENT JOHN TULL

For many of us 2017 is shaping up to be a year of interesting shifts. The historic drought that has defined our region for years has finally ended with record-breaking winter precipitation –the greatest snowpack in 22 years at the time of publication. This climatic shift, though likely temporary, provides a welcome relief for a variety of species and landscapes after the prolonged drought. Yet ample winter precipitation can lead to an abundance of vegetation across our arid landscape which in turn can lead to an increase in fuel loads and consequently a greater threat of wildfire. We will all be watching carefully to see how the upcoming fire season unfolds.

Over the past several years our region has benefited from an influx of unprecedented resources to combat the pressing challenges unique to the Great Basin. People from many backgrounds worked together to improve Great Basin ecosystems, a push that stemmed from the threat of listing the greater sage-grouse as a threatened or endangered species. During this effort, wildlife professionals worked alongside rangeland scientists, ranchers, land managers, policy makers, and many others because all parties recognized that Great Basin landscapes have changed considerably. Over the past several decades sagebrush dominated ecosystems have shifted to cheatgrass and other invasive weeds, which is a conservation concern further exacerbated by an increased periodicity of large scale wildfires across the Great Basin. All stakeholders want to see healthy western landscapes that are resistant to invasives, resilient to wildland fires, and productive for wildlife while also being suitable for wise, multiple uses.

In the near future, we will likely face constrained budgets and a general shift in attention away from the unifying goal of

ecosystem health. As wildlife professionals, we cannot allow our conservation focus to shift. We need to lead by building common successes alongside our many partners by focusing on science, facts and communication that are the tenants of our profession.

Over the course of my tenure as President of the Nevada Chapter of The Wildlife Society, I will strive to support our students and young professionals. Like the collaborative success I described above, this goal is one that all of us can work together to achieve. I look forward to doing so with each of you just as I look forward to serving the Chapter and the wildlife profession in my capacity as your President.

- John

	<p>TREASURER'S REPORT <i>As of 3/29/2017</i></p> <p>Chapter Membership: 60 Available Funds: \$6,274.12</p>	
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MESSAGE FROM PAST PRESIDENT KELLEY STEWART

As the outgoing President of the Nevada Chapter, I want to thank the outgoing board for all of their contributions last year. I especially want to thank **Mackenzie Jeffress** for all of her efforts to make the Nevada Chapter a success over the last few years. Mackenzie maintained the Facebook page, produced the newsletter, and was our NV Chapter Representative to the Western Section. I really appreciated Mackenzie's efforts to keep everything running smoothly. I also want to thank the other outgoing board members Past President: **Chris Nicolai**, Conservation Affairs Committee Chair: **Cody Schroeder**, Professional Development Committee Chair: **Zachary Ormsby**, and UNR Student Chapter Rep: **Esmeralda Aguilar**. Thank you also to **Derek Hall** who is remaining the Secretary/Treasurer and to **John Tull** the current President. I will continue to serve the Nevada Chapter as the Western Section Representative.

UNR STUDENT CHAPTER UPDATE

By Halie Goeman and Esmeralda Aguilar

This spring UNR student chapter of TWS hosted the Western Section Student Conclave. The generous donations of the Nevada Chapter, San Joaquin Valley Chapter, Central Coast Chapter, Sac-Shasta Chapter, Western Section, and The Wildlife Society allowed participating student chapters to visit Yosemite National Park. Participating student chapters included Cal Poly, UC Davis, Humboldt State University, and Oklahoma State University.

Activities began on March 30th and students participated on a restoration project in the Yosemite Valley meadows. Conservation crew leaders led participants in the removal of cedar and pine trees. After completing the restoration work, the students headed for a scavenger hunt hike up to the base of El Capitan.

The following day involved several activities including a hike to the Wawona waterfalls. Afterward, several park biologists, including a herpetologist, bear biologist, and park conservationist presented their work at the Wawona Field Station. The night concluded with a Quiz Bowl competition that had a twist—instead of student chapters competing against each other, teams would be composed of individuals from each student chapter. This new approach resulted in a lot more discussion and interaction among the students in different chapters. Also 4 chapters received awards for being part of the winning team.



Wildlife students at the Western Section Conclave at Yosemite National Park.

The last day, students practiced telemetry skills with Dr. Kelley Stewart. The Stewart Lab and the Nevada Department of Wildlife generously provided radio collars and telemetry equipment. The students worked in groups to search for hidden collars. Following the telemetry exercise the students spent several hours looking for *Ensatina* salamanders. The remainder of the day was spent in group-building activities and exploring Yosemite Valley. The following day, students departed the field station and traveled back home.

The UNR Student Chapter recently elected a new board for Fall 2017/Spring 2018:

President: Jason Wurtz

Vice-president: Kristen McCarty

Secretary: Ellen Wilson

Treasurer: Tiffany May

Western Section Representative: Halie Goeman

Social Media Liaison: Rachel Redding

General Board: Esmeralda Aguilar, Crystal Munguia, Lauren Perdue, and Lydia Johnston

RESEARCH, MONITORING, & MANAGEMENT

GENETICS & WILDLIFE MANAGEMENT: THE STORY OF BIGHORN SHEEP IN NEVADA

Dr. Joshua P. Jahner, Postdoctoral Research Associate
Biology Department, University of Nevada, Reno

The desert bighorn sheep is Nevada's official state animal, holding a special place in our hearts and on our driver's licenses. This subspecies of bighorn sheep was once one of the most abundant mammals in the state and was found throughout much of Nevada's more rugged habitats. However, bighorn sheep populations rapidly declined throughout the early 1900's in response to a number of external threats, and by the 1960's was only found in the state's far southern reaches.

Over the past 40 years, the Nevada Department of Wildlife (NDOW) has successfully moved (translocated) desert bighorn sheep from southern Nevada to much of the historic range south of Interstate 80. NDOW has also brought California bighorn sheep to northwestern Nevada and Rocky Mountain bighorn sheep to northeastern Nevada. While the three subspecies are physically distinct, recent genetic analyses show that where their ranges meet, the subspecies can hybridize with one another.

In collaboration with NDOW wildlife biologists, Drs. Jason Malaney, Marjorie Matocq, and Chris Feldman from the University of Nevada, Reno (UNR) examined the genetic differences among 347 bighorn sheep across the state. In a study published in the journal *Diversity and Distributions* in 2015, they reported that the three subspecies of bighorn sheep found in Nevada (Desert, Rocky Mountain, and California) were genetically distinct from one another. Furthermore, the genetic analysis showed that some individual bighorn sheep in Nevada are hybrids, suggesting that rams are occasionally visiting ranges occupied by other subspecies and mating with the local ewes.



Bighorn sheep on Mt. Grant. Photo by Lindsey Smith

This movement and hybridization of bighorn sheep subspecies is particularly noteworthy in light of the newest threat: pneumonia. Throughout the western United States, bighorn sheep populations have been decimated by a form of pneumonia that specifically affects sheep and goats, at times resulting in a mortality rate over 90% of individuals from an infected population. This deadly disease is caused by a bacterium that can be transmitted between sheep when they come into contact with new populations. To effectively manage bighorn sheep populations and prevent the spread of pneumonia, NDOW is collaborating with researchers at UNR to better understand bighorn sheep movement using newly available genomic tools for studying wildlife populations.

We live in a world where we can look for genetic differences among individuals across entire genomes, allowing us to screen for genetic markers associated with diseases and to gain insights into family trees by looking for previously unknown relatives. These tools were once applicable only to the human genome and agriculturally important organisms, but we can now use these tools to help manage wildlife species as well. At UNR, Drs. Josh Jahner, Marjorie Matocq, and Tom Parchman are currently using these new tools to look for genetic differences across the genomes of more than 1,100 individual bighorn sheep. These valuable genetic samples were generously contributed by Nevada's sportsmen and women and NDOW biologists. The research has been supported by grants from the Nevada Experiment Station, NDOW, Nevada's Wildlife Heritage Trust, and Nevada Bighorns Unlimited.

Results from these genetic analyses will build upon UNR's previous work and will reveal detailed information about bighorn sheep dispersal and hybridization across Nevada. Additionally, the results will reveal which herds are genetically differentiated from one another, providing NDOW with valuable information to inform future translocation decisions. Ultimately, this research will help NDOW manage bighorn sheep against disease and protect its iconic status in the hearts of Nevadans well into the future.

SPATIAL MEMORY AND SURVIVAL IN MOUNTAIN CHICKADEES

Carrie Branch, Ph.D. Candidate
Dr. Maria Tello-Ramos, Postdoctoral Scholar
Angela Pitera, Ph.D. Student
Dovid Kozlovsky, Ph.D. Candidate
Dr. Vladimir Pravosudov, Professor

Biology Department and Program in Ecology Evolution & Conservation Biology, University of Nevada, Reno

About 10 miles north of Truckee, California, there's a small bird that endures the worst of the winter months in the Sierra Nevada – the 11g mountain chickadee (*Poecile gambeli*). Mountain chickadees



Mountain chickadee. Photo by Vladimir Pravosudov

are year-round residents of the western montane forests of North America. These birds cache (store) food in the fall when food is abundant to use later in the winter when food is scarce. Birds inhabiting higher elevations (for us about 2400 m/8000 ft) experience harsher winter conditions than the individuals inhabiting lower elevations (for us about 1900 m/6200 ft), including greater snow cover for a longer period of time as well as lower ambient temperatures. Interestingly, these birds use spatial memory to relocate their caches and our work has shown that when brought into the laboratory, birds taken from high elevations cache more seeds, retrieve caches more accurately (in other words they have better spatial memory), and have

a larger hippocampus, the brain region associated with memory and navigation, with more neurons, than their low elevation counterparts. We hypothesize that there is a much higher cost for having poor

memory at high elevations, than at low elevations, because winter conditions are typically so much harsher. Waking up first thing in the morning, a faulty memory for the location of your cache could result in mortality.

Much of the work on cognition in wild animals has taken place in the laboratory, and often there is an assumption that enhanced cognition incurs a fitness advantage, however, this has rarely been tested in the wild. In collaboration with Dr. Eli Bridge at the University of Oklahoma, we have developed a spatial array bird feeder system that uses Radio Frequency Identification (RFID) technology with Passive Integrative Transponder tags (PIT tags; identical to the microchips in your favorite Fluffy or Boots!) to test spatial memory in the wild. We can then relate survival and reproduction to spatial memory ability, both within and between our elevation sites.



One of 8 feeder spatial arrays in the field. Photo by Vladimir Pravosudov

With the RFID technology we can assign individual birds (that have an individually identifiable PIT tag number) to one of the eight feeders and assess how many attempts it takes the bird to learn which one feeder in the array will provide them with food. We have placed two array feeder systems at our high elevation site and two at our low elevation site. After two years of testing we have found that, (1) birds do use spatial memory to solve the task, (2) high elevation birds learn their feeder position faster than low elevation birds, and (3) when an individual's feeder is changed (e.g. reversal task used to assess cognitive flexibility), high elevation birds persist on their originally assigned feeder longer than low elevation birds, suggesting there are benefits to being more flexible at low elevations compared to high elevations.

Mountain chickadees are secondary cavity nesters, so we have placed 300+ nest boxes throughout our study area at both elevations. We have been collecting breeding data for four years. The ultimate goal of this study is to understand how individual spatial memory ability relates to the birds' survival and the number of offspring they produce. This will give us insight into how spatial memory ability, which has been hypothesized to be critical for survival in these birds, affects fitness. In addition, by tagging nestlings we can potentially assess their spatial memory and obtain heritability estimates of spatial memory in mountain chickadees. These pieces are paramount to understanding if the differences we see in spatial memory and brain morphology represent local adaptations to varying climatic conditions. Our



Nestlings in a nest box. Photo by Carrie Branch

research is funded by the National Science Foundation.

CREATING A LONG-TERM BUTTERFLY MONITORING NETWORK IN NEVADA

Dr. Kevin Burls, Co-founder and Executive Director
Nevada Bugs & Butterflies

Interest in insect conservation has increased rapidly over the last several years due in part to insects' status as superior indicators of ecosystem health as well as their central role in important ecosystem services (e.g. pollination). The listing of the rusty patched bumble bee (*Bombus affinis*) under the Endangered Species Act and review of the monarch butterfly (*Danaus plexippus*) for a similar listing are just two examples. As with many species of conservation concern, efforts are in part guided by information from long-term monitoring efforts that involve researchers returning to the same locations year after year to measure species presence, absence and abundance.

Butterflies are particularly good subjects for long-term monitoring efforts due to their conspicuous nature and ease of identification compared to other insects (at least most, anyways!). The best example of a long-term butterfly monitoring program, other than overwintering monarch dataset, is the result of a 35+ year transect study in California initiated by Dr. Arthur Shapiro of UC Davis. Dr. Shapiro's efforts include over 10,000 individual records including 159 species (see <http://butterfly.ucdavis.edu/> for some of the amazing data). Perhaps the most important finding from Dr. Shapiro's work is the widespread decline and local extirpation of many butterfly species on the California landscape. Unfortunately, no such dataset yet exists for Nevada butterflies even though many of the issues that precipitated the decline in California butterflies likely also affect Nevada butterfly populations.



Milbert's tortoiseshell (Aglais milberti), raised from a caterpillar found in Big Creek Canyon, south of Austin, Nevada. Photo by Kevin Burls

Nevada Bugs and Butterflies, a Reno-based science education nonprofit, has set out to change that by creating the Nevada Butterfly Monitoring Network (NBMN). The NBMN trains citizen scientists in butterfly identification and assigns field sites that are conveniently located and hold cultural and/or biological value. Our citizen scientists then visit the same site at least 6 times during the summer where they record species diversity and abundance and enter their data into an online database. 2016 was the first year for the NBMN and resulted in 6 volunteers monitoring 5 sites in the Reno-Verdi area and 4 sites in the Fallon area. As you might expect with this type of program, species identification is challenging at first, with volunteers improving their skills as they gain experience. Last summer, volunteers positively identified 24 species; as a comparison, previous thesis work by Lara Enders found 36 species in canyons around Reno. However, there may be as many as 130 species in Washoe County alone and roughly 215 species in the state!



NBMN volunteer with a western tiger swallowtail (Papilio rutulus) at Washoe Lake during a field training. Photo by Kevin Burls

This year will be the second year for the NBMN and we have several goals, including refining the expertise of our current citizen scientists, ensuring site continuity and increasing the number and

geographic range of our sites. If you have a favorite rural Nevada site, we would love for you to join our team! We are always looking for new volunteers and this is a great chance to broaden your taxonomic expertise, monitor Nevada's beautiful landscapes, and contribute to a valuable dataset. Free training sessions will be **April 30 and May 6** this year. Please email Kevin Burls (kevin@nevadabugs.org) for more information and visit the butterfly house this summer (<http://nevadabugs.org/>).

LICHEN BIOBLITZ AT GREAT BASIN NATIONAL PARK

Gretchen Baker, Ecologist
Great Basin National Park

Great Basin National Park will be hosting a Lichen BioBlitz - a short-term biodiversity event in the park – **July 17-19, 2017**. The event kicks off on Monday, July 17 at ten a.m. with talks about lichens and a potluck lunch. That will be followed by afternoon hikes to various locations in the park with different substrates to see what lichens live on them. Many of the participants will camp in the Wheeler Peak campground.



Interesting lichen from Bald Mountain. Photo by Gretchen Baker

Tuesday will be a day for a variety of hikes, some of them all day long and at high elevation to find lichens adapted to those conditions. That evening, the park's Dark Rangers will hold one of their tri-weekly Night Sky Programs. On Wednesday morning, short hikes to a few more areas will be offered. The BioBlitz will close with a lunch and talk about the preliminary results by Dr. Brad Kropp of Utah State University. Western National Park Association will sponsor prizes for the event. Lichen experts Dr. Steve Leavitt and Dr. Larry St. Clair from Brigham Young University will also

be attending. Other lichen experts are welcome, as well as lichen aficionados and those who don't know anything about lichens but would like to learn more.

The Lichen BioBlitz is an opportunity to learn about lichens, an interesting organism that is often overlooked. Lichens grow in many different areas, and some are thousands of years old. This citizen-science project will help the park refine its list of lichens (already 50 species are known to occur in the park) and develop a better understanding of their distribution. Plus it's a great opportunity to get outside and see the park in new ways.

For more information visit: <https://www.nps.gov/grba/learn/nature/great-basin-bioblitz.htm>.

UPCOMING EVENTS & MEETINGS

Northern Nevada March for Science

Virginia St. & Liberty St.

Reno, NV

10:00 am April 22, 2017

Las Vegas March for Science

The Arts District

Las Vegas, NV

10:00 am April 22, 2017

Day at the Museum

University of Nevada, Reno

10:00 am April 22, 2017

Nevada Butterfly Identification Training

Nevada Bugs & Butterflies

April 30 & May 6, 2017

Basic Camera Trapping Workshop

Shasta South Camp

July 14-17, 2017

Lichen BioBlitz

Great Basin National Park

July 17-19, 2017

Bat Ecology & Management Workshop

Yosemite National Park

September 8-11, 2017

24th Annual Conference of The Wildlife Society

Albuquerque, NM

September 23-27, 2017

2018 Western Section Annual Meeting

Santa Rosa, CA

February 6-9, 2018

25th Annual Conference of The Wildlife Society

Cleveland, Ohio

October 7-11, 2018

2019 Western Section Annual Meeting

Tenaya Lodge at Yosemite, Fish Camp, CA

February 4-8, 2019

26th Annual Conference of The Wildlife Society

Reno, Nevada

September 29-October 3, 2019

COMMUNICATION

Visit our website: <http://wildlife.org/nevada-chapter/>

And “like” our Facebook page: <https://www.facebook.com/pages/Nevada-Chapter-of-The-Wildlife-Society/795814143873233>

WE WANT TO KNOW!

We are always seeking contributions to our biannual newsletter. The 2017 fall/winter newsletter will be published in October. Please send ideas for articles about local projects, events, volunteer opportunities and member accomplishments and milestones to the editor, Amanda Van Dellen: amandawvandellen@gmail.com

If you'd like to become a member, please use the form below.

NEVADA CHAPTER OF THE WILDLIFE SOCIETY

Membership Application

Name: _____ Phone: _____

Email Address*: _____

* Chapter's communication is via email.

Address: _____

City, State, and Zip Code: _____

Dues: January 1, 2017 - December 31, 2017 = \$10.00

Please Check: _____ New _____ Renewal

Make check(s) payable to: “Nevada Chapter, TWS”

Return to: Derek Hall, Treasurer
6816 Beach Nest Ave.
Las Vegas, NV 89130

You may also join online at
<http://wildlife.org/membership/join>