Bleats and Blats

Official Newsletter of the
Desert Bighorn Council
April 2020

Inside:

Hello DBC members and friends,

I hope this Newsletter finds you well. Having material to print is an important part of creating a Newsletter, so please, share. If you have highlights or status updates send them to me for the next Newsletter. For more information about the Desert Bighorn Council or to download a membership form, please visit our website at www.desertbighorncouncil.com.

All the best to you,
Erin Butler (DBC Secretary)

Regional Terrestrial Wildlife Program Manager
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Wild and Wool Documentary

Submitted by Mike Cox

The new documentary *Wild & Wool* just debuted at the International Wildlife Film Festival in Missoula, April 18-25, 2020. The festival was virtual this year due to the Covid-19 lockdown. The film was going to be shown April 21 at the Northern Wild Sheep and Goat Council Symposium in Canmore, Alberta, but it's being rescheduled in November 2020. *Wild & Wool* was a masterful collaboration of the Wild Sheep Foundation and talented young film producers. Their vision and talent allowed the challenge that many of us face in wild sheep conservation to be put it into a format that all can view and learn from. Thanks to all behind and on the screen for contributing. Please share the link far and wide to others!

WILD & WOOL link: https://vimeo.com/407324346
Password: M.OVI

Desert Bighorn Council Meeting – 2021

Submitted by Froylan Hernandez

Tentative Plans
Mark Your Calendars for April 7-10, 2021
Marfa, TX

Desert Bighorn Council Meeting 2019 – Mesquite, NV

It's hard to believe it's already been a year since our meeting in Mesquite, NV. The 55th meeting of the Desert Bighorn Council on April 17-19, 2019, was an outstanding meeting. It was attended by 111 desert bighorn sheep biologists and enthusiasts from the United States and Mexico. Steven Kimble and Mike Cox, both from the Nevada Department of Wildlife, co-chaired the meeting. Participants were given DBC Yeti bottles (mailed out after the meeting) sponsored by Nevada Bighorns Unlimited. The meeting's theme; "Beyond Borders: Collaborative Management Recognizing Connectivity, Disease and Genetics" and our plenary session moderated by Mike Cox and Peregrine Wolff on "Balancing Risk" were extremely informative. A field tour of Valley of Fire State Park in the Muddy Mountains west of Lake Mead followed the meeting. The landscape was breathtaking, the flowers were in full bloom and the bighorn sheep even came out for us to observe.

Recipients of the Ram Awards were:

- Ross Haley for his contributions to bighorn sheep management in wilderness area and National Parks. Ross went to the University of Nevada Reno and has worked for both private and government sectors, namely Nevada Department of Wildlife and National Park Service. His efforts have contributed widely to the conservation of bighorn sheep on lands managed by a variety of land management agencies and the restoration of bighorn sheep to those lands. He assisted with the development of the wildlife crossing structures constructed both in Arizona and Nevada. He has been directly involved with feral burro management for most of his professional career and can be credited with assistance on the Burro Management Plan for Lake Mead National Recreation Area and capture/translocation of feral horses and burros. Ross retired recently from the National Park Service.

- Ben Gonzales for his contributions to wildlife research and management, namely for bighorn sheep as a veterinarian for the California Department of Fish and Game. Ben received degrees from University of California Irvine and University of California Davis and has worked as a wildlife veterinarian most of his professional career. He was instrumental in the development of the safety standards and training for aerial work within California after a fatal helicopter crash occurred in 2010. Additionally, he took on the helicopter scheduling, the capture planning and served as lead veterinarian for captures. His vigorous support of university collaborations enhanced the science and best management practices used by bighorn sheep biologists. His list of publications is substantial and will increase understanding of bighorn sheep ecology, physiology and disease. Ben organized numerous workshops and council meetings. Ben retired recently from the California Department of Fish and Game.

Mineral Mountains, UT Update

Submitted by Jace Taylor

In October 2019, the Nevada Department of Wildlife and Utah Division of Wildlife Resources translocated 51 desert bighorn sheep from the Stillwater Mountain Range in central Nevada to the Mineral Mountain Range in southern Utah. This translocation brings desert bighorns back to the Mineral Mountains for the first time in decades. Extensive efforts were taken over multiple years to collaborate with a variety of statewide and local entities to make this translocation successful. Equal effort will continue to ensure that bighorns are on this mountain range for Utahn's to appreciate for decades to come.

Santa Catalina Mountains, AZ Update

Submitted by Rana Tucker

In 2013, the Arizona Game and Fish Department, under the guidance of the Catalina Bighorn Sheep Advisory Committee, and with the assistance of the Arizona Desert Bighorn Sheep Society, embarked on the monumental task of reestablishing desert bighorn sheep (*Ovis canadensis mexicana*) in the Santa Catalina Mountains bordering Tucson, AZ. This update summarizes the last translocation which took place in November 2016, the most recent survey completed in 2019, and the final results of the project.

The original plans for this project called for three translocations of 30 bighorn sheep in 2013, 2014 and 2015. Those translocations were completed, but because the population assessment in late 2015 revealed lower than expected numbers, a fourth translocation of 20 desert bighorns from the Plomosa Mountains in southwest AZ (which was also used as a source for translocated bighorn sheep in 2014 and 2015) was completed on November 21, 2016. Fifteen ewes and five rams were translocated that year including five ewes and one ram fitted with GPS-tracking collars. One of the collared ewes died the following spring, three of the collared ewes died in spring 2018, and the last collared ewe died in July 2019 after returning from a full year spent alone in an adjacent mountain range. The collared ram is known to be alive, but the collar is no longer reporting locations (transmits a VHF signal only).

In full, 110 desert bighorn sheep were translocated to this mountain range, with 92 wearing GPS-tracking collars. Sixty-three of the collared bighorn sheep have been confirmed dead, including 29 killed by mountain lions, 22 from natural causes or undetermined reasons, five of suspected pneumonia, two from falls, two hit by vehicles, one of possible EHD or bluetongue, one by an unknown felid (likely bobcat) and one that died of capture myopathy. The rest of the collars have either dropped off or are no longer functioning (at least two bighorn sheep were observed during the 2019 survey with a non-functioning collar that failed to drop off), with the exception of the ram from the 2016 release described above.

This herd has been surveyed annually via helicopter in the fall when rams are likely to be located with ewes. In September 2019, 41 bighorn sheep, including 20 ewes, 17 rams, 2 yearlings, and 2 lambs, were located over the course of 6.5 hours. This represents the highest number of bighorn seen on survey in the Catalina Mountains since the project began. Of those observed, nine had ear tags or collars, indicating translocated bighorn sheep (four from 2013, two from 2014, one from 2015, and two from 2016); the other 32 were unmarked, and therefore born into the herd. Using the 56% observation rate established during the 2016 surveys, this brings the current population estimate to 73 bighorn sheep.

Photograph of desert bighorn sheep in the Catalina Mountains, October 2019.

Are Helicopters Landing in Arizona Wilderness Yet?

Submitted by Dustin Darveau

Looking back through the project file, I came across an update for this project written for the Bleats and Blats in July 2015 – yes, 2015! As many reading this are aware from past project updates given at Wild Sheep Working Group and Desert Bighorn Council meetings, as well as lots of correspondence between peers and professionals, working through the federal process to get approval for this project has taken over five years. Thank you for your continued interest and support. But with great persistence, comes great rewards.

On November 21, 2019, the Tonto National Forest Supervisor signed the Decision Notice for the Bighorn Sheep Population Management Project to authorize the Arizona Game and Fish Department to use and land helicopters

within five of the wilderness areas on the Tonto National Forest. This authorization naturally came with several guidelines and requirements, one of which states that no more than a total of 30 landings would occur collectively within the five wilderness areas in any given year – and only if management objectives cannot be met outside of the wilderness areas.

Those specific objectives to gather the necessary information to be able to make informed management decisions for the bighorn population(s) inhabiting the Tonto National Forest included:

- Research of bighorn sheep to understand the distribution, demographics, herd dynamics, and habitat use of bighorn sheep and the effect that disease threatens the sustainability and conservation of the species.
- Evaluate the potential for bighorn sheep interaction with domestic and feral ungulates including areas within and adjacent to the Heber-Reno Domestic Sheep Driveway, and to detect outbreaks of epizootic, respiratory and other diseases.
- Population monitoring of bighorn sheep to determine if mortalities or other significant population changes occur that may affect the status of bighorn sheep.
- Response to disease or mortality events to identify and respond to potentially fatal pathogens that could affect the status, management, and restoration of bighorn sheep.

On January 1, 2020, the New Year began bright and early with a Eurocopter A-Star helicopter fully loaded with Department net gunners, muggers, and wildlife health staff, along with boxes full of biological sampling kits and GPS radio-telemetry collars started on a 5-day excursion to implement this long awaited bighorn sheep management project. Thirty-two (32) individual animal captures were completed, placing 29 GPS/VHS radio-telemetry collars on 16 Rocky Mountain bighorn sheep (7 rams, 9 ewes) and 13 desert bighorn sheep (8 rams, 5 ewes) in areas adjacent and within 4 wilderness areas including the Mazatzal, Hellsgate, Four Peaks, and Superstition wildernesses.

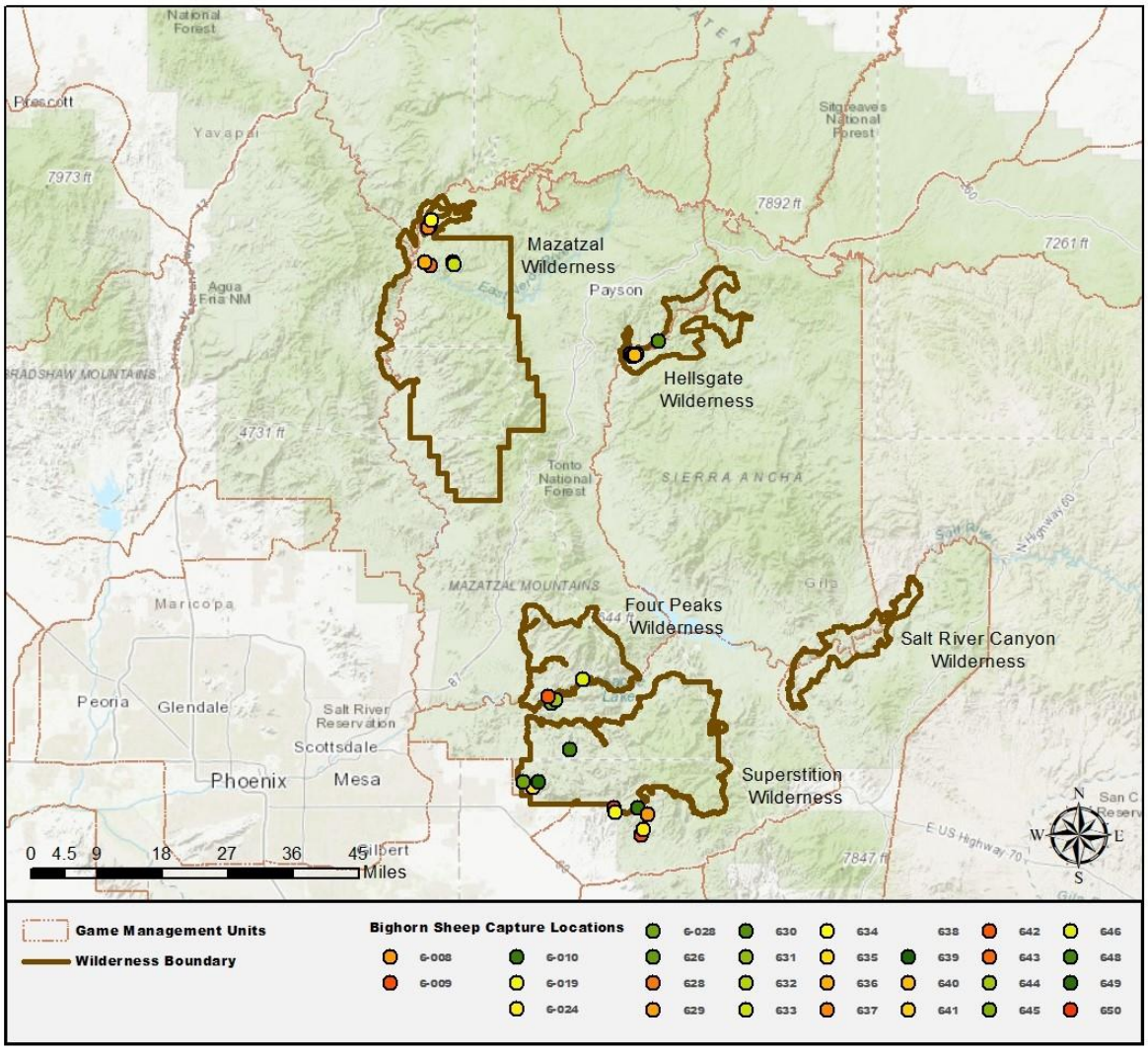
Proving the need for the authorization from the Forest Service, and almost mirroring the percentages of population survey data of bighorn sheep in respective occupied habitat within wilderness area, 22 of the 32 captures required working within the following select wilderness areas in order to reach objectives:

- 7 of 9 Rocky Mountain bighorn sheep were captured within the Mazatzal Wilderness Area
- 6 of 7 Rocky Mountain bighorn sheep were captured within the Hellsgate Wilderness Area
- 4 of 4 desert bighorn sheep were captured within the Four Peaks Wilderness Area
- 4 of 12 desert bighorn sheep were captured within the Superstition Wilderness Area

Additional captures within wilderness, specifically the Superstition Wilderness area, are still necessary. Mostly in response to the Woodbury Fire that burned an estimated 123,875 acres during June/July 2019, and occurred in large portions of bighorn sheep habitat; monitoring the effects of the fire on bighorn sheep and the habitat could be crucial to the sustainability of that meta-population. Due to the timing of the capture, in January 2020, efforts in the Four Peaks and Superstition Mountain herd groups were hindered by the number of ewe groups with lambs or who appeared to be near lambing. No pursuit or capture effort was initiated on these groups.

Remote monitoring efforts are underway and will be closely watched over the next several years, thanks to the great technology of the GPS collars. The amount of data that will be gathered and analyzed over this project is exciting and has not occurred in most of these herd groups since they were re-introduced into their native range. One may ask what has this multi-year project taught us in working through this federal process, or has it simply given us a not-so-gentle reminder that doing the right thing for wildlife is not always quick, not always easy, and not always inexpensive, but is absolutely necessary to *Conserve and Protect* our wildlife resources for current and future generations to enjoy. So enjoy!

Bighorn Sheep Research and Monitoring
Capture Locations in the Tonto National Forest
January 2020



Mycoplasma Ovipneumoniae Strain Virulence Committee

Submitted by Mike Cox

The *Mycoplasma ovipneumoniae (M. ovi)* strain virulence subcommittee was organized following the July 2019 Wild Sheep Working Group (WSWG) call, in part to aggregate data and assess whether strain type explains variation in *M. ovi* virulence in bighorn sheep herds across the western United States and Canada. This project is a first step toward understanding what role *M. ovi* strain types play in determining herd outcomes.

Longer-term questions to address:

1. Whether and how frequently novel *M. ovi* strain introductions pose major threats to previously infected herds.
2. Current distribution of *M. ovi* strain types and demographic responses (initially, estimated die-off size, and lamb:ewe ratio in the five years following a die-off) for bighorn herds west-wide.
3. What part of the variance in demographic outcomes can be explained by the virulence of the infecting *M. ovi* strains.

Current support and work:

The Wild Sheep Foundation provided funding for a tech and some analysis time. The tech's two tasks:

1. Work with jurisdictions to update and improve west-wide disease data.
2. Aggregate strain type, ELISA, and qPCR data for individual animals from focal herds.

Immediate-term goals:

- Map *M. ovi* strains by herd
- Compare demographic responses for well-studied herds to describe the relationship between strain type and:
  - Die-off size
  - Post-die-off population growth
  - Prevalence?
- Build documents that describes current knowledge/knowledge gaps around *M. ovi* virulence

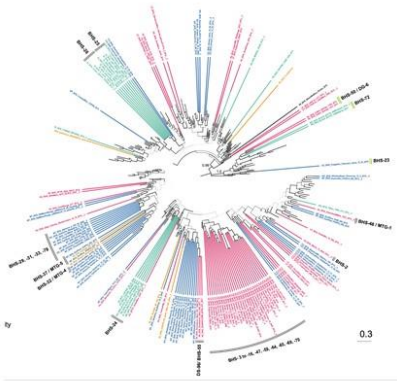
For Working Group Members:

Logistical support

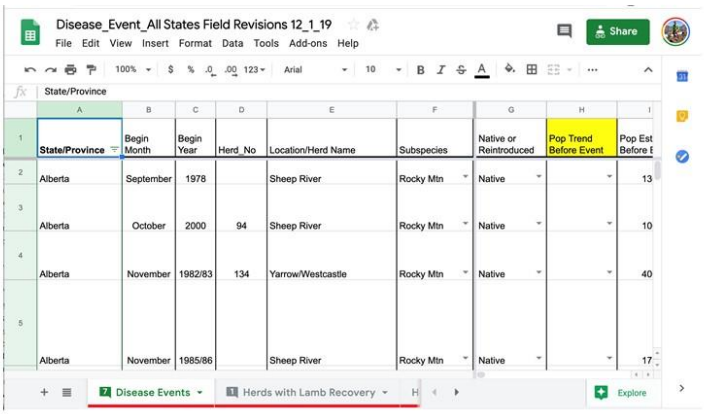
- If you need help populating/updating the die-off datasheet, this person could help
- If you've got a good person who could fill the technician role, please contact Kezia
- Happy to set up data sharing agreements with any jurisdictions that need them
- How we're thinking about things
- If you have ideas about how to appropriately measure "virulence" on the ground, please let us know

Point person: Kezia Manlove, Utah State University (**kezia.manlove@usu.edu**)
Subcommittee members: Mike Cox (NV), Peri Wolff (NV), Emily Almberg (MT), Frances Cassirer (ID), Annette Roug (UT), Brandon Munk (CA), Anne Justice-Allen (AZ), Pauline Kamath (University of Maine), Paul Cross (USGS)

Approach



"Virulence" measurements ~ **Strain's location in *M. ovi* tree** + **Everything else we can fit in**



State/Province	Begin Month	Begin Year	Herd_No	Location/Herd Name	Subspecies	Native or Reintroduced	Pop Trend Before Event	Pop Est Before E
Alberta	September	1978		Sheep River	Rocky Mtn	Native		13
Alberta	October	2000	94	Sheep River	Rocky Mtn	Native		10
Alberta	November	1982/83	134	Yarrow/Westcastle	Rocky Mtn	Native		40
Alberta	November	1985/86		Sheep River	Rocky Mtn	Native		17

- Subspecies
- Heterozygosity/other
- Translocation history Other pathogens
- Sinus tumors —little data
- Drought/other environment

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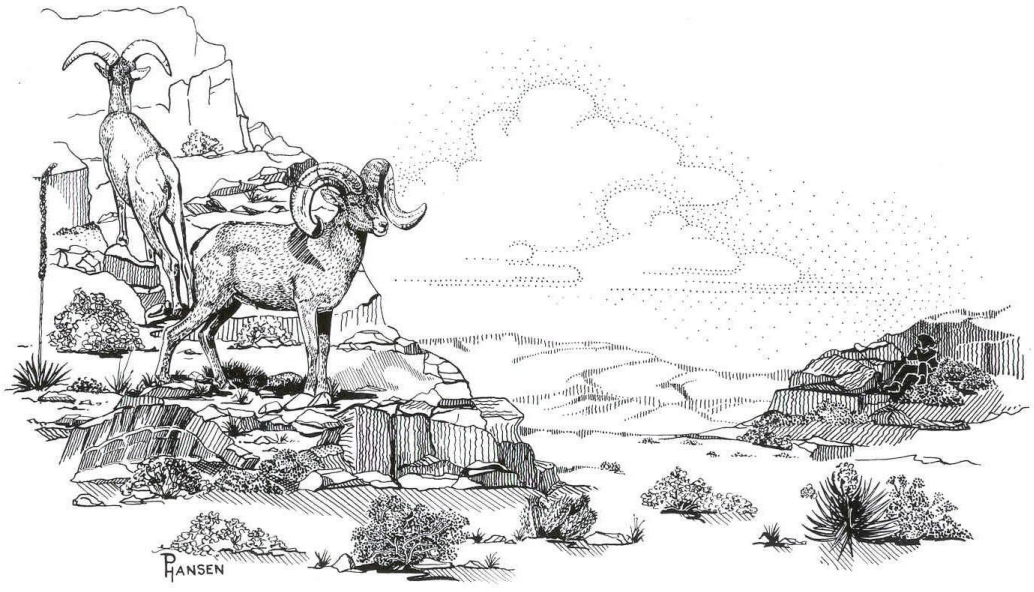
Slide from Kezia Manlove's Presentation to WSWG, January 2020



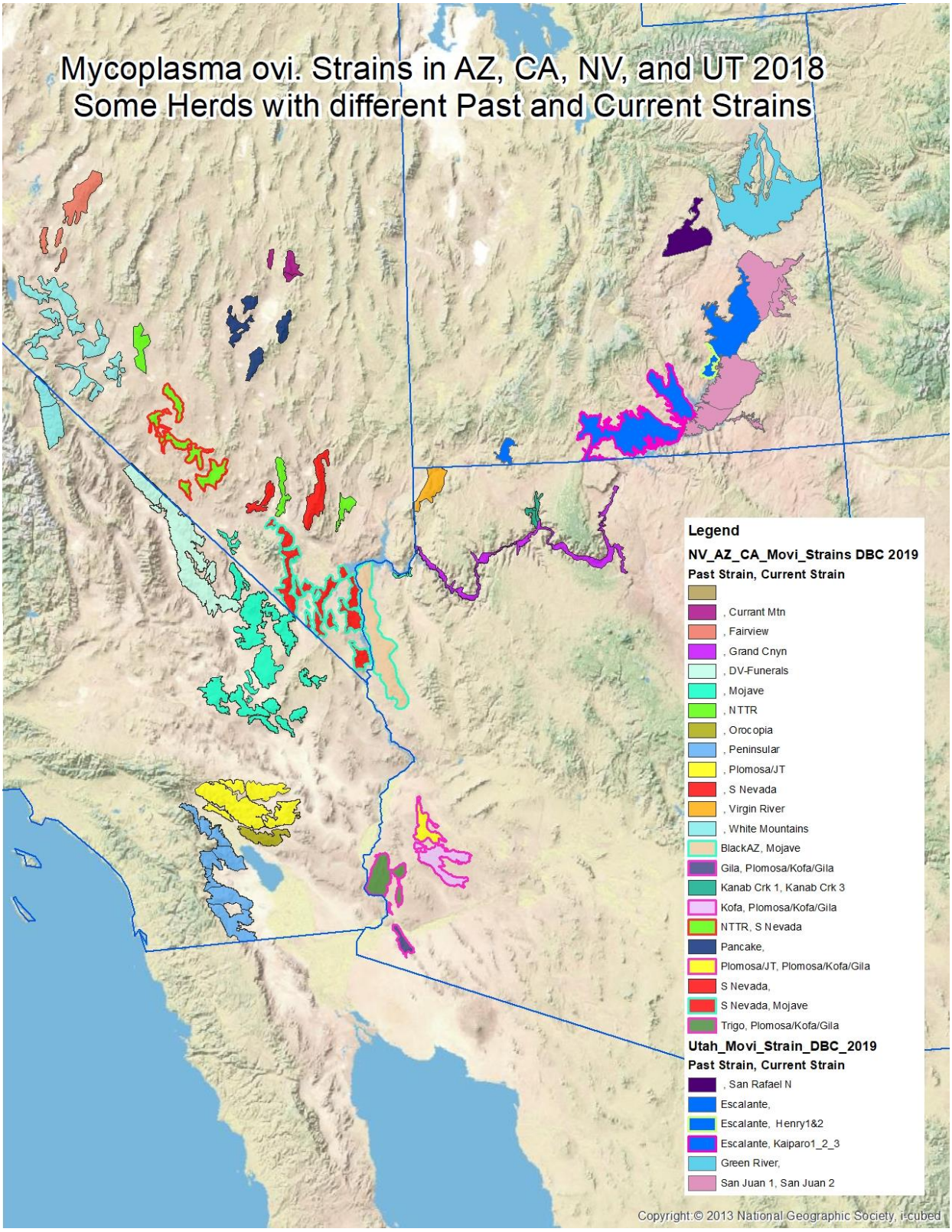


Figure: 2018 of different Mycoplasma ovipneumoniae strain typing of desert bighorn sheep populations in the Southwest. *Take home message: lots of different strains depending on source, our herds are connected more than we may think, there is definitely a temporal aspect to strains and you never know if the next one will be less or more virulent.*

DBC Officers and Technical Staff Members

The Council officers and Technical Staff members are as follows:

Council Chair:	Froylan Hernandez
Vice-chair:	
Secretary:	Erin Butler
Treasurer:	Kathy Longshore
Transactions Editor:	James Cain
Tech Staff Chair:	Clay Brewer
Tech Staff:	Bruce Garlinger, Mark Jorgensen, Brian Wakeling, Amber Munig, Froylan Hernandez and Patrick Cummings

For more information about the Desert Bighorn Council, or to download a membership form, please visit our website at www.desertbighorncouncil.com.

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