Bleats and Blats

Official Newsletter of the Desert Bighorn Council

DECEMBER 2005

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Hello DBC members and friends,

I hope that 2005 has been a great year for you and that you're planning some holiday fun! This newsletter includes updates related to bighorn sheep meetings, research and management, as well as a request for information related to bighorn sheep management. Remember, this newsletter can be a way for you to communicate with fellow DBC members, so feel free to submit information or requests for information to be shared with others. The newsletter comes out 4 times a year. Our next newsletter is scheduled for March 2006, so if you have material to submit, please send it to me by Feb. 15, 2006.

*And, as always, additional information about the Desert Bighorn Council can be found on our website (*http://www.desertbighorncouncil.org*).*

Esther Rubin
DBC Secretary (Please note new email address: esrubin@consbio.org)

MEETINGS OF INTEREST – AND CALL FOR PAPERS

Northern Wild Sheep and Goat Council: The biennial symposium of the Northern Wild Sheep and Goat Council will be held April 2-6, 2006, at Delta Lodge in Kananaskis, Alberta. A Second Call for Papers has been announced and the **deadline for abstract submission is January 15, 2006**. Abstracts should follow Journal of Wildlife Management format and should be sent electronically to Beth MacCallum, Program Chair, at ovis@telusplanet.net, (780-865-3390). More information will soon be found on the NWSGC website at www.nwsgc.org.

Foundation for North American Wild Sheep: Plan to attend the 29th Annual Convention of the Foundation for North American Wild Sheep! The Convention will be held February 1-4, 2006 at the Reno Hilton in Reno, Nevada. More information can be found on the FNAWS website at www.fnaws.org.

Desert Bighorn Council: Our next biennial meeting will be held in Las Vegas, Nevada, in April 2007. Ross Haley is the Chair, and can be contacted at Ross_Haley@NPS.gov. We hope you'll join us! Detailed information will be posted on our website (http://www.desertbighorncouncil.org) at a later date.

WILDLIFE PROFESSIONALS TO MEET AT FNAWS CONVENTION

From the Northern Wild Sheep and Goat Council E-news (info@nwsgc.org):

TO: Northern Wild Sheep and Goat Council (NWSGC) and Desert Bighorn Council (DBC), FNAWS network, and other interested parties: At the 2005 FNAWS Convention in San Antonio last March, Eric Rominger (New Mexico Department of Game and Fish, eric.rominger@state.nm.us) and Kevin Hurley (Wyoming Game and Fish Department, kevin.hurley@wgf.state.wy.us) agreed to organize the "Wildlife Professionals" meeting at the 2006 FNAWS convention in Reno, NV. We are sending this announcement out now to let those biologists and others who plan on attending the FNAWS convention to mark their calendars, as to time and place. This year's biologist's meeting will be held from 2:00 - 4:00 PM on Wednesday February 1, 2006, in the Nevada Room #6 of the Reno Hilton. We have identified the following topic as the main issue for discussion at this meeting:

What are the management implications of an increasing presence of domestic goats in wild sheep habitat? What management strategies should be in place to prevent and/or minimize opportunities for contact?

Across the western U.S. and Canada, domestic goats are being raised for meat production, public land grazing allotments are being considered for conversion (or are being converted) to domestic goat grazing, domestic goats are being evaluated as an option for noxious weed control, and there appears to be an upward trend in use of domestic goats as pack animals in remote settings, including wild sheep habitat. While much attention and discussion has been focused on interaction between wild and domestic sheep, there has not been as much focus on co-mingling between wild sheep and domestic goats. Catastrophic events like the Silver Bell Mountains situation in AZ 2 years ago have elevated the need for this type of discussion. It is our hope to fairly and openly discuss this issue, and develop specific recommendations or "Best Management Practices" that can be forwarded to public and private land managers for consideration.

If you might attend, or definitely plan on attending, please let Eric or Kevin know by January 20th, so they can estimate attendance (for any handouts, etc.). If you have a different topic you would like to suggest for

discussion at this biologist's meeting, please send that to Eric and Kevin by January 6th; they will evaluate which topics can, and will, be addressed in this 2-hour session. Contact either Eric or Kevin if you need any additional information. Thanks in advance, and see you in Reno!

DBC TREASURER'S REPORT

Submitted by Stacey Ostermann-Kelm, DBC Treasurer

General Operations account balance:	$ 4,339.12
Hansen-Wells Fund account balance:	$ 66,738.73

Breakdown of Hansen-Wells Fund:

5 year CD	$ 35,937.73
18 mo. CD	$ 21,192.73
18 mo. CD	$ 8,248.37
Checking acct.	$ 1,359.90

REQUEST FOR INFORMATION

This newsletter and the DBC website are a great way to share information and to get input from others working with bighorn sheep. The following requests relate to the health of bighorn sheep. It would be great if you could provide suggestions or ideas to the following:

Bighorn Sheep and Pollution

Don Armentrout (Bureau of Land Management) submitted the following request:

I am looking for any information or research which has been documented concerning the impacts of air pollution on bighorn sheep. A coal-fired power plant is proposed for construction north of Gerlach, NV. Sempra, the company proposing the plant, has admitted they chose Gerlach because the air pollution impacts will not be so great in that area. What they are really saying is there is more latitude for a greater amount of air pollution than there would be near highly populated areas. There is a population of bighorn sheep in the Granite Mountains down wind from the plant. Does anyone know of research concerning air pollution and bighorn sheep?

Please submit your response directly to:
Donald J. Armentrout, Ecologist
Eagle Lake Field Office
Bureau of Land Management
2950 Riverside Drive
Susanville, CA 96130
darmentr@ca.blm.gov

Bighorn sheep and Pasteurella

Todd Nordeen (Nebraska Game and Parks Commission) submitted the following request:

Pasteurella trehalosi was diagnosed in our Cedar Canyon Bighorn sheep herd. First, here is a brief background on the herd: We introduced 22 bighorns (12 ewes, 6 lambs, 4 rams) to Cedar Canyon WMA in

March of 2001. All 12 ewes were radio-collared and all sheep were given shots of Ivermectin and LA200. The source herd is from Pikes Peak near Colorado Springs. Since 2001, we have lost 6 ewes to EHD and the BT virus. We may have lost some rams but cannot confirm. We have also had 4 lambs develop the hoof deformity each year since 2001. Lamb success and survival has been very high. The last population estimate was around 64 animals total. During the summer of 2005, a yearling ram was observed coughing. By early fall, several ewes, lambs and rams were observed coughing. In late October, we were able to dart a yearling ewe which tested positive for *Pasteurella trehalosi*. It also tested positive for EHD but otherwise seemed healthy in appearance. We have had one mortality case (an adult ram) but we were unable to confirm the cause of death. There have been no other mortalities yet that we know of. Lungworm has been found in some of these bighorns but in very small amounts. Seven larvae/gram is the most we have found in any one bighorn. The ewe that tested positive for *Pasteurella trehalosi* tested negative for lungworm.

In 2004, we were able to dart and trap 9 bighorns for sample collection and to add more radio-collars. These bighorns are somewhat accustomed to baiting from Colorado, however the mild winters in Nebraska have made it more difficult for us to consistently bait with success. We have actually had more success darting due to our continued monitoring and the bighorns becoming acclimated to our presence.

We have a few small herds of domestic sheep within 5-10 miles. We have larger domestic sheep herds approximately 20-40 miles away and larger herds are brought in to graze crop fields during the winter. We would like opinions and comment on *Pasteurella trehalosi*. What experiences has anyone had with dealing with this type of *Pasteurella*? Given our herd size, weather conditions, etc...should we attempt to treat or not? If so, what are the best methods for treating: baiting, trapping, biobullets, etc...? Any thoughts or comments would be greatly appreciated. We have been working closely with Dr. Steve Kerr of Torrington with this issue and he will continue to work with us on administering any type of treatment.

*Update (12-12-05): W*e recently darted 2 more (3.5 yr old ram & 5.5 yr. old ewe) bighorns from this herd which tested positive for *Mannheimia haemolytica* and *Arcanobacterium pyogenes*. We are still waiting for additional information from Colorado State University about this but would certainly appreciate any additional input from anyone. Test results for lungworm were positive in both but we did not get an amount. However, most of our lungworm tests have come back with very low amounts. EHD/BT tests were negative and all trace mineral/heavy metal levels appeared normal. Currently, this herd seems to be doing fine with some occasional coughing. We have not observed any bighorns with declining health conditions at this time. So far, we have been able to account for approximately 50 of the 64 based on the most recent population estimate.

Please submit your response directly to:
Todd Nordeen - Wildlife Biologist
NE Game and Parks Commission
PO Box 725
Alliance, NE 69301
Todd.Nordeen@ngpc.ne.gov

NEW DIRECTOR OF UTAH DIVISION OF WILDLIFE RESOURCES

Congratulations to Jim Karpowitz!!! Jim has recently become the new Director of the Utah Division of Wildlife Resources. Jim has been a long-time friend and member of the DBC, was a past Chair of the DBC, and has developed a nationally recognized restoration and management plan for bighorn sheep in Utah. In his new role he will continue to further the science of wildlife management.

DBC TRANSACTIONS OFFERED

John Augsburger, Wildlife Biologist for the Bureau of Land Management in the Idaho State Office, has DBC transactions dating 1957 through 1995. He will donate them to an institution for the price of shipping, or will sell them (negotiated price), plus shipping, to an interested individual.

John can be reached at:
10640 West Columbia Road
Boise, ID 83709
Phone: 208-362-2769

RECENT LITERATURE RELATED TO DESERT BIGHORN SHEEP

Foster, C. L., L. Pielstick, and J. Ross. 2005. **Comparison of ultrasound and serology for determining pregnancy in California bighorn sheep**. Special Issue: 2005 Annual Meetings of the Society for Northwestern Vertebrate Biology and the Oregon Chapter of the Wildlife Society held jointly at Corvallis, Oregon, February 22-25, 2005. Northwestern Naturalist 86(2):95.

Abstract:
Between January 2001 and December 2004 we captured 178 adult California bighorn ewes from seven Oregon herd ranges and two Nevada herd ranges and compared two techniques for determining pregnancy. Blood serum was used to run Pregnancy Specific Protein B analysis. Ultrasound analysis was completed at capture using trans-dermal or rectal transducers. Results will be reported.

Hedrick, M. J., C. Foster, and L. Pielstick. 2005. **Evaluation of reproduction and *Pasteurella* in the Coglan butte California bighorn sheep herd**. Special Issue: 2005 Annual Meetings of the Society for Northwestern Vertebrate Biology and the Oregon Chapter of the Wildlife Society held jointly at Corvallis, Oregon, February 22-25, 2005. Northwestern Naturalist 86(2):98.

Abstract:
In 2003, we caught 20 California bighorn sheep for transplant. All appeared to be in excellent health. Only five ewes were pregnant (33%). All non-pregnant ewes tested positive for beta-haemolytic Pasteurella biovariant one, the organism suspected in all age-class die offs. March 2003 census measured 16 lambs/100 ewes, so it appeared the low pregnancy rate was consistent throughout the herd. In 2004, we captured and marked seven ewes and four rams to continue monitoring disease exposure and lambing success. Findings to date are presented.

Goldstein, E. J., J. J. Millspaugh, B. E. Washburn, G. C. Brundige, and K. J. Raedeke. 2005. **Relationships among fecal lungworm loads, fecal glucocorticoid metabolites, and lamb recruitment in free-ranging Rocky Mountain bighorn sheep**. Journal of Wildlife Diseases 41(2): 416-425.

Abstract:
Most wild Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*) in northern latitudes are infected with lungworms. Indirect effects of lungworms on bighorn sheep are unknown, but high pulmonary burdens might increase stress (i.e., elevated glucocorticoid levels), and chronic stress could in turn decrease fitness. We hypothesized that high lungworm burdens in Rocky Mountain bighorn ewes increase stress, thereby increasing lamb mortality. To test our hypothesis, one subberd of bighorn sheep in Custer State Park, South Dakota was provided a free-choice loose mineral mix containing the anthelmintic fenbendazole every six weeks from March 1999 to August 2000 to eliminate lungworms; another subherd served as the control. Daily, individually marked ewes were located telemetrically from the ground and uniquely marked animals were observed until they defecated. After the herd moved from the area, fecal

samples were collected and stored at -23 C. A consistent number of samples per season per herd (x = 16.56 +/- 3.99 samples) were collected. Fecal larval lungworrn levels (LPG) in the treatment subherd were lower than levels in the control subherd; however, there was no difference in fecal glucocorticoid metabolite (FGM) levels between the two subherds. Fecal glucocorticoid metabolite levels varied by season in both subherds, with levels in winter lower than during the other three seasons. Lamb:ewe ratios were not different between the control and treatment subherds at the end of summer 1999. In contrast, the treatment group had a lower lamb:ewe ratio at the end of summer 2000 despite having lower LPG. However, this result was attributed to lower ewe production, not lower lamb survival. The LPG levels were not correlated with FGM concentrations; instead, FGM levels might reflect normal seasonal patterns. Other factors, including contagious ecthyma, were more important for determining lamb mortality than LPG and FGM levels during our study. We suggest further experimental work over a longer duration to address these relationships.

Pelletier, F. 2005. **Foraging time of rutting bighorn rams varies with individual behavior, not mating tactic**. Behavioral Ecology 16(1): 280-285.

Abstract:
Mate guarding is the primary mating tactic used by dominant males of many species of ungulates. Guarding males are thought to forage less during the rut than do nonguarding males, possibly leading to greater fitness costs. I observed bighorn rams foraging during the pre-rut and the rut. I compared how coursing (an alternative mating tactic) and tending (a form of mate guarding) affected the foraging behavior of bighorn rams over the rut, to test whether foraging was more constrained by mate guarding than by coursing. All adult males spent less time feeding during the rut compared with the pre-rut. The decrease in time spent feeding, however, was independent of mating tactic. Contrary to expectation, individual rams observed both coursing and tending spent less time foraging when coursing than when tending. For young rams, the time spent in rutting activities was correlated with individual pre-rut mass, indicating that males either modify their behavior according to available metabolic reserves or adjust the energy devoted to rutting activities to the level of expected benefits. Mate guarding does not appear to constrain foraging more than coursing. The costs of male reproductive behavior may depend more upon individual effort than on the particular tactic adopted.

Blanchard, P., M. Festa-Bianchet, J-M.Gaillard, and J. T. Jorgenson. 2005. **Maternal condition and offspring sex ratio in polygynous ungulates: a case study of bighorn sheep**. Behavioral Ecology 16(1): 274-279.

Abstract:
The Trivers and Willard model (TWM) predicts that for sexually dimorphic polygynous mammals, mothers able to provide a high level of care should bias offspring sex ratio in favor of sons. Contradictory results of empirical studies, however, suggest that selective pressures for adaptive offspring sex ratio vary with species and environmental conditions. We report the results of a 29-year study of marked bighorn sheep (*Ovis canadensis*) in a population that underwent wide changes in density and where most females were weighed each year. Lamb sex ratio was independent of absolute ewe mass and yearly deviations from individual or population average mass, but there was a nonsignificant trend towards fewer males being born at high population density. Bighorn sheep satisfy all the assumptions of the TWM but not its prediction: lamb sex ratio is independent of maternal ability to provide care. Recent hypotheses to explain the lack of relationship between maternal condition and offspring sex in ungulates are unlikely to apply to bighorn sheep. We suggest that the TWM may only apply when social rank strongly affects the ability to provide maternal care. Those circumstances are likely to occur for only a few species and within a narrow range of environmental conditions.

Happy Holidays to you!