Bleats and Blats

Official Newsletter of the Desert Bighorn Council

December 2004

Inside:

Hello everyone,

As we approach the end of the year, many of us are busy with holiday plans and various end-of-the-year deadlines. This newsletter includes reminders for important dates related to our upcoming meeting, scholarship applications, and awards. Remember, April is just around the corner, so it is time to start planning your trip to the DBC meeting, to send in your registration, and to submit your talk or poster abstract. We hope to receive registration forms and abstracts from many of you in the near future!

The next newsletter will be out in late February so if you'd like to submit something for the newsletter, please send me material by February 15th.

Hope to hear from you!

Esther Rubin
DBC Secretary (erubin@sandiegozoo.org)

MEETING UPDATE

****Call for Papers****

48th Biennial Meeting of the Desert Bighorn Council
April 6-9, 2005 in Alpine, Texas

The state of Texas is pleased to be hosting the 2005 Desert Bighorn Council meeting in Alpine, Texas, April 6-9, 2005. The meeting will be held at Sul Ross State University (SRSU). We would like to thank the Texas Bighorn Society, the Texas Wildlife Association, and the Texas Parks and Wildlife Department Foundation for helping to fund this meeting.

Preliminary Schedule:

April 6 – Wed	Kokernot Lodge, SRSU	Arrive - Registration - Reception -Technical Staff Meeting
April 7 – Thur	University Center, SRSU Kokernot Lodge-SRSU	Registration - State Status Reports - Technical Papers Banquet (Evening – Chuckwagon Dinner)
April 8 – Fri	University Center, SRSU Elephant Mountain WMA	Tech. Papers - Business Meeting Evening Steak Dinner
April 9 – Sat	Elephant Mountain WMA	Field Trip

Transportation:

El Paso (218 miles): West on I-10 to Van Horn (115 miles), South on Hwy-90 to Alpine (103 miles)

Midland/Odessa (160 miles): West on I-20 to Monahans, south on State Hwy 18 to Ft. Stockton, west on I-10 (10 miles), south on Hwy-67 to Alpine (56 miles).

Hotel: **MAKE RESERVATIONS EARLY!!!!!!!!!!!!!!!!!!**

BestWestern-Alpine Classic (**35 rooms blocked**) 800-528-1234 or (432) 837-1530

- All rooms- $70 (**Mention "Desert Bighorn Council meeting" when making Reservations!**)

Ramada Inn (432) 837-1100 (First come-first serve - hotel would not block rooms)

- Single - $72
- Double - $68

Registration:

You are strongly encouraged to register via mail before the meeting, as this will assist us in planning the conference. Registration forms can be downloaded from our website. Please send completed form and payment to Esther Rubin, at the address indicated on the form, by **March 1, 2005**. If you have trouble downloading the form or need a paper copy please contact E. Rubin.

Cost: $70 ($90 if paid after March 1, 2005) - Does not include membership dues ($20) or transactions ($15).

Fee includes:

Reception (Wednesday evening)
Breaks (Thursday and Friday during presentations)
Lunches (Thursday and Friday),
Banquet (Thursday evening)
Evening Meal (Friday evening)

Call For Papers: Individuals involved in desert bighorn management and research are strongly encouraged to present a technical paper at the meeting. Alternatively, posters may also be presented at this meeting. If you would like to present a paper or poster, please send an abstract (electronic version – MS Word format preferred) and contact

information to Billy Tarrant (Vice Chairman) at btarrant@overland.net or P.O. Box 2083 Fort Davis, Texas 79734 **by March 1, 2005**. Status reports are requested for all states and Mexico. Individuals presenting status reports should also notify Billy Tarrant by **March 1, 2005**. Please forward this call for papers to others who may be interested in presenting or attending the workshop

Questions: Please contact Clay Brewer at (432)426-3770 or cbrewer@overland.net if you have questions or need additional information.

CALL FOR SILENT AUCTION ITEMS

We are planning to have a silent auction at the Texas meeting, to raise funds for the Hansen-Welles Scholarship. If you have items related to bighorn sheep (or other wildlife) that you would like to donate, please contact Esther Rubin at erubin@sandiegozoo.org. Items to consider are books, artwork, jewelry, clothes, field equipment, etc.

HANSEN-WELLES SCHOLARSHIP: IMPORTANT REMINDER!!

Are you a student doing your research on bighorn sheep? Do you need money??? Remember that the Hansen-Welles Scholarship may be able to help you cover some of those expenses. Applications are due by December 31, 2004 and grants will be awarded at the DBC meeting in April 2005. Visit our website (www.desertbighorncouncil.org) for more information and guidelines for submitting your application.

AWARDS

Do you have anyone in mind for Council awards--The Ram Award or Award of Merit? Or a Certificate of Appreciation? If so, please contact Dick Weaver, DBC Awards Chair, at HC61 (Route 10) Box 590, Glenwood New Mexico 88039 (phone: 505-539-2378, fax: 505-539-2722), or you can contact Rick Brigham, 1617A Stafford Court, Clarkston Washington 99403-1514 (phone: 509-751-0310, email: rick-ceil@syringa.net).

Nominations are needed by NO later than February 15, 2005. Thanks!

A TRIBUTE TO CARL MAHON

Submitted by Lanny Wilson

In May of 1965, the first formal research of the desert bighorn sheep in southeast Utah was undertaken. But the first research of the desert bighorn in southeastern Utah began prior to May 1965, by Carl Mahon. He repeatedly sighted wild sheep while working for the Bureau of Land Management and from trips he made on his own time and funds on weekends and holidays. During these times he searched the nooks and crevices of the canyon lands of southern Utah to determine desert bighorn distributions and gather other data.

After recording numerous sightings and other information on the Utah desert bighorn, Carl was successful in enlisting the support of the local sportsmen club to petition State Legislators and the Director of the Division of Wildlife Resources to study the desert bighorn in the area. Carl knew that once formal studies of the Utah desert bighorn were undertaken, intensive management and protection would follow.

When formal research was initiated, interviews of many local residents who worked in the canyonlands country revealed few had not seen any desert bighorn but many recalled seeing "those little red goats" (desert bighorn ewes and lambs.) Sightings of mature rams were rare during this period. Carl never commented on the razzing he took when trying to gain support for formal studies of the desert bighorn. I am sure many local residents, including some personnel of the Utah Division of Wildlife Resources, made comments something to the effect of: "Sure is bad when an old cowboy cannot tell the difference between 'little red goats' and wild sheep.

Carl knew what he was studying and never gave up the cause to have formal wild sheep studies. Beginning in May of 1965 and for each formal bighorn study to follow, Carl took the new (graduate students) researchers under his wing and guided them as an advisor to successful studies.

Carl's persistence and untiring dedication to the desert bighorn never faltered for those years before 1965 and until his death on November 11, 2004. Over the years he became a nationally recognized desert bighorn expert. He published several papers in the Desert Bighorn Council Transactions and received an Achievement Award from the Desert Bighorn Council. He was the recipient of the Conservation Award given by the Foundation for North American Wild Sheep (FNAWS) and received Utah's highest award from the Utah Chapter of FNAWS.

Carl's easy-going manner and wit endeared him to all who knew him. He was also extremely knowledgeable on the archeology of the Indians that historically inhabited the canyon lands country.

After most of the formal bighorn studies were completed, Carl continued to monitor the sheep herds and support the management of the Utah desert bighorn. He guided many a desert bighorn hunter between 1967 and 2001. On many of these hunting trips, Carl donated his services and no doubt related the desert bighorn life history.

The desert bighorn and wild sheep communities have lost a true champion in Carl Mahon, but his legacy will live on. In the late 1960's, in the heart of Utah desert bighorn habitat, Mahon Canyon was named after Carl. It will forever appear on all U.S.G.S. maps.

TREASURER'S REPORT

Submitted by Stacey Ostermann, DBC Treasurer

Hello everyone,
I hope you plan to attend the 2005 DBC meeting in Texas, because it sounds like it will be the best meeting yet! Clay Brewer is doing an outstanding job fundraising for the meeting and organizing a first-class event. He has already raised $6,350 to sponsor the meeting (included in the checking account balance listed below).

Current account balances are as follows:

Checking account	$6,721.15
CD at US Bank (1.01% matures 5/05)	6,040.40
Hansen-Wells Fund CD#1 (1.29% matures 9/05)	20,738.72
Hansen-Wells Fund CD#2 (2.13% matures 1/06)	8,248.37
Hansen-Wells Fund CD#3 (5.13% matures 4/07)	34,042.79
TOTAL	$75,791.43

WEBSITE NEWS

During the past two years, Susan Kennedy of the University of Nevada, Las Vegas, has volunteered her time to be our webmaster. Through her work she has helped us more effectively communicate with all of you and to share information about the DBC with a larger audience. We all greatly appreciate the valuable time Susan has dedicated to

the DBC. Recently, Susan has decided to hand this responsibility to someone else. Fortunately we have someone who is ready to take on the task. Karsten Kelm, a student at the University of Applied Sciences in Dresden, Germany, who is doing his research here in California, will be volunteering as our new webmaster. During the coming months, you will see a new look to our website. As always, if you'd like to submit material for the website, or if you have ideas or comments about the website, don't hesitate to let us know. Welcome Karsten!

SIERRA BIGHORN SHEEP NEWS

A report describing the current status of recovery efforts on behalf of bighorn sheep in the Sierra Nevada recently has become available. Interested parties can request a copy of the full color, 14 page publication from the Project Leader, Dr. Vern Bleich, California Department of Fish and Game, 407 W. Line St., Bishop, CA 93514 (e-mail: vbleich@dfg.ca.gov).

RECENT LITERATURE RELATED TO BIGHORN SHEEP

(citations and abstracts)

Bernatas, S. and L. Nelson. 2004. **Sightability model for California bighorn sheep in canyonlands using forward-looking infrared (FLIR)**. Wildlife Society Bulletin 32(3):638-647.

Abstract
The estimation of large-ungulate population size involves a systematic search of occupied habitat and visual observation of individuals. In this study we determined the probability that forward-looking infrared radiometer (FLIR) mounted in a fixed-wing airplane would detect and verify California bighorn sheep (Ovis canadensis californiana). The study area included the highly dissected rhyolite canyons of southwestern Idaho. All age and sex classes could be detected with the FLIR. Flying at 600 m above ground level (AGL), FLIR could distinguish bighorn sheep from other ungulates and large mammals (i.e., pronghorn [Antilocapra Americana], mule deer [Odocoileus hemionus], livestock, and mountain lion [Felis concolor]). Image clarity and the ability to circle the animal without disturbance allowed determination of male age classes for use in setting harvest of available rams. Bighorn sheep could be detected in all habitats used within the study area. Data were collected over 3 years, with probability of detection of 89%. A set search pattern allowed consistent detection rates between sensor operators, airplane type, or among years. This study identified variables that influence sighting probability using FLIR. The use of a FLIR mounted on an airplane flying at 600 m AGL has advantages over surveys using visual observations from airplanes or helicopters; those advantages include reduced stress to the animals, reduced violations of assumptions of sightability models, and reduced hazard to observers.

Chernyavsky, F. B. 2004**. On taxonomy and history of bighorn sheep (Pachyceros subgenus, Artiodactyla) [Russian]**. Zoologichesky Zhurnal. 83(8):1059-1070.

Abstract
The analysis of the basic diagnostic features in bighorn sheep (Pachyceros subgenus) of the Yakutian, Okhotsk, Koryak, and Kamchatka populations and comparison with those in Alaska sheep populations confirmed the specific level of differences between the Palearctic and Nearctic populations (Ovis nivicola - O. dalli) on the subspecific level of differences between the East-Siberian populations (O. n. lydekkeri - O. n. koriakorum - O. n. nivicola). The history of settlement of bighorn sheep over Beringia is discussed. The bighorn branch is suggested to separate from the ancestor form in the Mid- or Late Pliocene. It is not directly related to argali ancestors. The hypothesis that American bighorns have Siberian ancestors entering through the Beringian land bridge as a result of the single eastern migration in the Late - Early Pliocene is confirmed. The chromosome polymorphism found in Asian O. nivicola populations

might have Paleartctic origin but not be a consequence of return migration of bighorns from North America to Asia.

Dwyer, C. M. 2004. **How has the risk of predation shaped the behavioural responses of sheep to fear and distress?** Animal Welfare. 13(3):269-281.

Abstract
To use behaviours as indicators of stress it is important to understand their underlying causation. For a prey animal in the wild, such as a sheep, behavioural responses have evolved to evade detection and capture by predators. The behavioural responses of the wild ancestors of domestic sheep to the threat of predation are characterized predominantly by vigilance, flocking, flight to cover and behavioural inhibition once refuge has been reached. Some limited defensive behaviours are seen, mainly in females with young against small predators. Vigilance and flight distance are affected by the animal's assessment of risk and are influenced by the environment social group size, age, sex and reproductive condition, as well as by previous experience with potential predators. Under conditions of stress, domestic sheep show similar behavioural reactions to wild sheep, although the threshold at which they are elicited may be elevated. This is particularly evident when comparing less selected hill breeds with more highly selected lowland breeds, and suggests that a continuum of responsiveness exists between wild and feral sheep, through hill breeds to the lowland sheep breeds. However, this may be confounded by the previous experience of the breeds, particularly their familiarity with humans. Behavioural and neurobiological evidence suggests that although the behavioural response to predators (vigilance, flight) is innate, the stimuli that elicit this behavioural pattern may have a learned component. Since vigilance and flight distances are affected by the animal's perception of threat, they may be useful indices of stress in sheep and, as graded responses, give some indication of the level of threat experienced by the sheep. Thus they may indicate the amount of fear or distress experienced by the sheep and hence have the potential to be used in the assessment of welfare states.

Maudet, C., A. Beja-Pereira, E. Zeyl, H. Nagash, A. Kence, D. Ozut, M. P. Biju-Duval, S. Boolormaa, D. W. Coltman, P. Taberlet, and G. Luikart. 2004. **A standard set of polymorphic microsatellites for threatened mountain ungulates (Caprini, Artiodactyla)**. Molecular Ecology Notes 4(1):49-55.

Abstract
Nearly 70% of the world's mountain ungulate taxa are endangered. The availability of a standard set of DNA markers for forensic and molecular ecology studies would help to establish conservation programs and detect poaching activities of these endangered taxa. We tested 60 published microsatellite primer pairs from bovids (cattle, sheep and goat) on 49 individuals from 11 taxa including six wild goat-like species (Capra spp.), three divergent wild sheep (Ovis spp.), and two chamois (Rupicapra spp.) species. Approximately 30 microsatellites amplified a microsatellite-like PCR product in all three genera, and with the exception of ILST097, nearly all the loci were polymorphic within most of the 11 species.

Pelletier, F. and M. Festa-Bianchet. 2004. **Effects of body mass, age, dominance and parasite load on foraging time of bighorn rams, Ovis canadensis**. Behavioral Ecology & Sociobiology. 56(6):546-551.

Abstract
In sexually dimorphic ungulates, males generally spend less time foraging than females, possibly because of difference in body mass or because of the energetic requirements of lactation. The relationship between body size and foraging time has received little attention at the intra-specific level, because few studies have documented activity budgets for individuals of known size. Bighorn rams are a good model to explore how body mass affects foraging time, because they range in mass from 55 to 140 kg. We examined how the foraging time of bighorn rams varied according to individual characteristics. We observed rams in a marked population and constructed time budgets during the 3 months preceding the rut. We determined ram social rank based on agonistic encounters and collected fecal samples to count lungworm larvae. Time spent foraging was negatively correlated with body mass. After accounting for age differences, larger rams spent less time foraging and more time lying than smaller rams. Among rams aged 6-12 years, dominants spent less time feeding than subordinates, while fecal output of lungworm larvae was negatively correlated with

foraging time for rams of all ages. Body mass accounts for much of the individual variation in foraging time, suggesting that sexual dimorphism is important in explaining differences in feeding time between males and females.

Wehausen, J. D., R. R. Ramey, and C. W. Epps. 2004. **Experiments in DNA extraction and PCR amplification from bighorn sheep feces: the importance of DNA extraction method**.
Journal of Heredity. 95(6):503-509.

Abstract
Reliability of genotyping is an issue for studies using non-invasive sources of DNA. We emphasize the importance of refining DNA extraction methods to maximize reliability and efficiency of genotyping for such DNA sources. We present a simple and general method to quantitatively compare genotyping reliability of various DNA extraction techniques and sample materials used. For bighorn sheep (Ovis canadensis) fecal samples we compare different fecal pellet materials, different amounts of fecal pellet material, and the effects of eliminating two DNA extraction steps for four microsatellite loci and four samples heterozygous at each locus. We evaluated 192 PCR outcomes for each treatment using indices of PCR success and peak height (signal strength) developed from analysis output of sequencer chromatograms. Outermost pellet material produced PCR results almost equivalent to DNA extracted from blood. Where any inner pellet material was used for DNA extraction, PCR results were poorer and inconsistent among samples. PCR success was not sensitive to amount of pellet material used until it was decreased to 15 mg from 60 mg. Our PCR index provides considerably more information relative to potential genotyping errors than simply comparing genotypes derived from paired fecal and blood or tissue samples. Our DNA extraction method probably has wide applicability to herbivores that produce pelleted feces where samples dry rapidly after deposition.

(pdf file available on the White Mountain Research Station's website: www.wmrs.edu)

California Chapter of FNAWS - News

The California Chapter of the Foundation for North American Wild Sheep will be holding their Third Annual California FNAWS banquet, exhibits, and auction on February 5, 2005. The event will be held at the Hyatt Regency Hotel in Sacramento. For more information, visit their website at: www.cafnaws.org.

Happy Holidays and a Happy New Year!