



# International Bear News

*Quarterly Newsletter of the  
International Association for Bear Research and Management (IBA)  
and IUCN/SSC Bear Specialist Group*

February 2008 Vol. 17 no. 1



© NPS, Terry D. DeBruyn

Trouble in the Middle East for bears as well as humans?  
See how bears are faring in Iran and Pakistan on pages 28 and 29.

*IBA websites: [www.bearbiology.org](http://www.bearbiology.org) [www.bearbiology.com](http://www.bearbiology.com)  
Ursus website: [www.ursusjournal.com](http://www.ursusjournal.com)*

# Table of Contents

## COUNCIL NEWS

- 3 From the President
- 3 Research and Conservation Grants Program 2007-08

## 18TH IBA CONFERENCE

- 5 18th IBA Conference Mexico – Great Papers, Great Food, and No Stolen Kidneys
- 14 Global Warming/Climate Change and Its Effects on World Bear Species

## BEAR SPECIALIST GROUP

- 17 Bear Specialist Group Meeting in Mexico
- 23 News and Views from the Trade in Bear Parts Expert Team
- 24 Bear Specialist Group

## EURASIA

- 25 Greece: Bears Have Sensitive Ear To Highway Construction Noise
- 26 Brown Bears in Yakutia
- 28 Brown Bears in Iran
- 29 News from Pakistan: Bears Facing Serious Problems Again

## AMERICAS

- 30 Polar Bears International: In-Field Lecture Program
- 31 Fragmentation of the Forest Habitat of the Spectacled Bear (*Tremarctos ornatos*) in the High Basin of the

River Bucaral in the Portuguesa Mountain Range, Lara State, Venezuela

## STUDENT FORUM

- 32 Student Forum
- 33 Student List Serve

## BEARS IN CULTURE

- 34 Archaeobiological Assessment of a Grizzly Claw Necklace Attributed to the Lewis & Clark Expedition (1804-1806)

## PUBLICATIONS

- 36 February 2008 Recent Bear Literature

## COMMUNICATIONS

- 36 International Bear Cub Newsletter is out!
- 36 Hair Loss Among Bears – North American Zoo Survey
- 37 Seeking Input and Information to Document Bear Trap Design
- 37 BEARTREK Campaign and Film Underway – an update

## EVENTS

- 38 10th Western Black Bear Workshop

## IBA

- 39 IBA Membership Application
- 41 IBA Publications Order Form
- 43 IBA Officers and Council
- 44 IBA Mission Statement

Cover photo of an Alaskan brown bear courtesy of Terry D. DeBruyn, National Park Service.

*International Bear News*, ISSN #1064-1564, quarterly newsletter of the International Association for Bear Research and Management (IBA)  
Editors: Matt Durnin (Managing), Jordan Schaul (Correspondence), Janissa Balcomb (Layout), Jim Tomlin (Production/Distribution), Tanya Rosen (Translation)  
PO Box 462, Brookeville MD 20833 USA, Phone: +1 415-321-8369, Fax: +1 415-321-8637  
Email: [ibanews@bearbiology.com](mailto:ibanews@bearbiology.com), Websites: [www.bearbiology.com](http://www.bearbiology.com) [www.bearbiology.org](http://www.bearbiology.org)  
Back issues are available at [www.bearbiology.com](http://www.bearbiology.com)

### Editorial Policy

*International Bear News* welcomes articles about biology, conservation, and management of the world's eight bear species. Submissions of about 750 words are preferred, and photos, drawings, and charts are appreciated. Submissions to [ibanews@bearbiology.com](mailto:ibanews@bearbiology.com) are preferred; otherwise, mail or fax to the address above. IBA reserves the right to accept, reject, and edit submissions.

**Deadline for the May 2008 issue is April 5, 2008**

Thank you to everyone who contributed to this issue. Artwork is copyrighted – do not reproduce without permission.

### Membership

**Use the form on page 39 to order or renew memberships, make donations, and/or update member information.**

## From the President

Frank van Manen  
USGS Southern Appalachian  
Field Laboratory  
University of Tennessee  
274 Ellington Hall  
Knoxville TN 37996, USA  
Phone: +1 865-974-0200  
Email: vanmanen@utk.edu

The year 2008 is still very young as I'm writing this column. Our former President, Harry Reynolds, always provided a short note on the weather conditions in Fairbanks, Alaska, which were arguably more exciting than what I can offer you from the relatively mild conditions in the Great Smoky Mountains of east Tennessee. However, we just had the first light dusting of snow this season, which probably sent people scrambling for the grocery stores to stock up on bread and milk! As always, the black bears take it all in stride and have dened up, waiting for March or April before they start wandering about.

In the previous newsletter, Harry discussed many important IBA accomplishments during the past 6 years. Decisions by IBA councils played an important role in those accomplishments. Many of those decisions were very difficult but they were ultimately effective; I want to recognize the previous Councils that helped establish a solid membership, increase the stature and readership of our technical journal *Ursus*, and expand IBA's Research and Conservation grants program.

IBA Council has undergone quite a few changes, with the IBA membership electing 4 new officers (President, Vice-President for Americas, Secretary, and Treasurer) and 3 new council members in November. Council also appointed one additional member. We probably have better international and geographical representation on Council than ever before, an important step towards IBA growing into a truly international organization.

Although the new Council already has many things to tackle, a couple of issues will be on the forefront for a while. One is that the greatest conservation challenges facing bears are in portions of the world from where we have relatively few members. We will be focusing much attention in the coming years on expanding our membership outside of North America and playing a more prominent role in areas where the need for science-based conservation is high. Ultimately, we hope such actions build local capacity and support to sustain conservation in the long term. Further strengthening of the partnerships between IBA and the Bear Specialist Group (BSG) and Polar Bear Specialist Group will also be an important goal. The BSG held a meeting at the end of the conference in Monterrey, Mexico, which was very well attended and resulted in valuable exchange of information and ideas regarding bear populations in all portions of the world. Together with the specialist groups we will be exploring ways to further encourage that type of informal exchange at future conferences.

Collectively, you, as members of IBA, represent the largest body of knowledge regarding all 8 bear species. Our conferences, our journal *Ursus*, and this newsletter have provided great ways to share that knowledge. Yet, I believe we can do more to profile ourselves better so that governments, NGOs, and the general public know that IBA is the organization to turn to for reliable information regarding bear conservation. That leads to another important item we will focus on over the next year, the IBA website. The website has already undergone an incredible transformation and our plan is to further expand its capabilities. Our goal here is to make the website more informative and interactive as well as the central place to renew memberships, register for conferences, make donations, order back issues of *Ursus*, etc.

I am honored to represent IBA as President and I look forward to the op-

portunity to continue IBA's mission by fostering good management and conservation of all 8 bear species through science and education. We have an enthusiastic Council with many fresh ideas in support of that mission. Take some time to familiarize yourself with the Council members (see second to last page of this newsletter or visit our website). Please feel free to share your ideas and concerns with me or anyone else on Council, we want to hear from you! 🍄

## Research and Conservation Grants Program 2007-08

Frederick C. Dean (Chair)  
810 Ballaine Road  
Fairbanks AK 99709-6606, USA  
Phone: +1 907-479-6607  
Email: deansfs@alaska.net

The following information is a brief summary of the proposals received by the Research and Conservation Grants Committee (RCGC) by the submission deadline of December 31, 2007.

Total number of proposals active at the deadline = 19.

Total number of dollars requested from IBA = US\$126,000.

The RCGC has been working on several statements regarding committee policy and guidelines. These will be announced in the *International Bear Newsletter (IBN)* as the final versions are approved; they will also be posted on the IBA Website as appropriate. Unfortunately, none had been finally cleared by all members of the committee in time to make the last issue of the *IBN*. The first of the statements concerns grants for proposals to fund "bear aware" programs or purchase of bear-resistant garbage containers. This has been agreed to and is included below.

Species	Country - region	Requested from IBA (USD)
<i>H. malayanus</i>	Captive	\$5,000.00
<i>H. malayanus</i> & <i>U. maritimus</i>	Captive	\$5,666.00
<i>M. ursinus</i>	India	\$6,900.00
<i>T. ornatus</i>	Peru	\$10,000.00
<i>T. ornatus</i>	Columbia	\$10,000.00
<i>T. ornatus</i>	Ecuador	\$5,000.00
<i>U. americanus</i>	USA - Arizona	\$4,000.00
<i>U. americanus</i>	USA - New Hampshire	\$4,500.00
<i>U. arctos</i>	Iran	\$8,100.00
<i>U. arctos</i>	Nepal	\$7,180.00
<i>U. arctos</i>	Canada - Alberta	\$5,225.00
<i>U. arctos</i>	USA - Idaho	\$10,000.00
<i>U. arctos</i>	Albania & FYROM	\$3,000.00
<i>U. arctos</i>	Russia	\$10,000.00
<i>U. arctos</i>	Mongolia	\$7,000.00
<i>U. arctos</i>	Georgia	\$4,500.00
<i>U. arctos</i>	Canada - Alberta	\$7,500.00
<i>U. thibetanus</i>	Japan	\$4,730.00
<i>U. thibetanus</i>	Nepal	\$7,635.00

## Bear-proof Garbage Containers and Related Information/Education Programs

(Guidelines for the IBA Research & Conservation Grant Committee)

*NOTE: These guidelines would only apply to the IBA Research and Conservation Grants Program. The need for having and publicizing a set of clear guidelines on the use of grant funds is evidenced by the fact that the Research and Conservation Grants Committee (RCGC) has received an increasing number of proposals for grants that would finance or subsidize the purchase of bear-proof garbage containers. We have also received several proposals for programs that are centered on proper conduct for people living in bear country, particularly with respect to the handling of garbage.*

*We feel that many, if not most, such programs should be financed by the local people and their governmental organizations.*

The RCGC recognizes the importance of good practices in handling food wastes and their implications for bear conservation. There is no debate about that bear-proofing and good practices in general are very significant, both with respect to human safety and also the number of bears killed.

We want to applaud those who have worked hard to create sound practices and safer interfaces between humans and bears. However, funds for making grants are definitely limited, especially in relation to the total requests the RCGC receives. We do not believe that IBA should be funding routine, normal procedures and methods of

maintaining people in the interface between "human country" and "bear country." IBA's role should be to assist the development of policies and procedures in areas where these may be new and where there is true financial need as well as a need from the perspective of bear conservation.

The RCGC is establishing the following general guidelines with regard to funding grants for bear-proofing and related education. However, in view of the difficulty of anticipating all possible circumstances, the RCGC reserves the right to exercise its judgment and some flexibility with respect to these guidelines.

1. In general, the RCGC will not allocate IBA grant funds for purchasing or subsidizing the purchase of bear-resistant and bear-proof garbage containers, either those designed for homeowner use or dumpsters. We recognize that there may be legitimate circumstances that justify such grants and wish to leave final decisions up to the Committee after review of any such proposal that is submitted.
2. RCG funds may be awarded to programs that clearly show potential for developing new and more effective or less costly methods or equipment for stopping bear access to garbage and other human waste attractants.
3. Use of RCG funds for the purchase of bear-proof food and/or garbage containers or lockers may be legitimate if certain criteria are met.
  - a. The applicant is not simply a single governmental agency that should be able to budget funds for such purchases, at least to acquire such equipment gradually;
  - b. That, preferably, the applicant represents a coalition of concerned and interested parties - perhaps local, regional, and national agencies as well as local or regional NGOs;

- c. That the project budget shows that significant funds from non-IBA sources have either been spent on similar purchases in previous years or have been firmly committed, if not received, for the current or future years, i.e. we would be adding to an existing program;
  - d. That the RCG funds would usually be limited to an endorsement of the program rather than a solution. (We have had some requests that would have required most of a given year's grant budget.);
  - e. That the project would receive higher priority among similar proposals if the bear population concerned was at risk (this could include situations such as very small, expanding population composed of critical individuals or it might be a population facing an unexpected new threat resulting from garbage);
  - f. This sort of project support should be available world-wide and perhaps with slightly less stringent requirements where government resources are less available.
4. Support of "Bear Wise" and similar education programs with RCG funds will follow somewhat similar guidelines. These programs can be important in the conservation of bears, especially where they are focused on the interface between human food and garbage or domestic livestock and bears. However, it seems to the Committee that in most instances in the wealthier countries costs of these programs should be born by the various levels of government and the appropriate agencies. ❁

## 18<sup>th</sup> IBA Conference

### 18<sup>th</sup> IBA Conference Mexico – Great Papers, Great Food, and No Stolen Kidneys

Diana Doan-Crider  
PO Box 775  
Kingsville TX 78364-0775, USA  
Phone: +1 361-595-4292  
Email: diana.crider@gmail.com

#### Conference Overview

Recently, the 18th International Conference on Bear Research & Management was held in Monterrey, Mexico, on November 4-10, 2007. Based on everyone's comments, participants were very content with the conference's outcome. The Mexican government was equivocally happy that over 300 foreigners from 26 different countries came to visit Mexico, and left with an exceedingly good impression of Monterrey and its people. I was extremely happy that 1) I survived, 2) a black-market for American kidneys really doesn't exist in Mexico, and 3) the conference really did turn out great despite my innumerable mini-nervous breakdowns over transportation failures and the

Mexican way of doing things. Mexican wildlife management agencies and universities were excited over the opportunities that this conference provided for their staff and students. I really do believe that this conference was a landmark event for establishing international collaboration within North & South America, served as a launching pad for bear management in Mexico, and successfully followed the example of our many other IBA conferences to unify all of those interested in conserving bears worldwide. For those of you who missed this great fiesta, I encourage you to visit the IBA Mexico page under Conferences on the IBA website and download the conference program and watch the slide show. DVD

recordings of the conference should be available soon.

The conference was held in one of Mexico's premier conference centers, the CINTERMEX facility. While this increased the budget significantly, we felt it was worth every penny because of the location, the well-equipped



CINTERMEX facility: site of 18th IBA Conference

facility, nearby restaurants, and of course, the UNESCO Forum on Cultures that was hosted in the adjacent eco-park. Participants were spoiled with shopping for crafts brought in

# 18<sup>th</sup> IBA Conference

from every Mexican state, beautiful and rare archeological exhibits, and the amazing Santa Lucia River walk. Special events were sponsored by our many Mexican friends (see Sponsors below), such as the opening icebreaker at the Obispado Museum on Sunday evening. Guests got to experience the wonderful scenic vista of the city at night atop the Obispado hill, enjoy great Mexican food and wine, and dance to regional folkloric music inside of one of Monterrey's oldest and most historic buildings. Field trips were hosted at several key bear areas, including the Picachos Ranch, where

bus driver cleverly played music and distracted his cargo from the long 1-hour drive to, what everyone would agree, was one of the highlights of the conference. The historic Hacienda San Pedro rests at the base of the Picacho mountains, and was beautifully lit up in the night



Hacienda San Pedro



© Ximena Velez

Mexican black bear at Picachos Ranch

a total of 6 black bears were observed in the Mexican oak forest; and Chipinque National Park, where biologists wandered in the mists of the Sierra Madre peaks. A field trip to Mina Archeological site was accompanied by some of Monterrey's top archeologists, where guests visited key rock painting areas in the low Chihuahuan desert and learned to throw the atlatl. Thank God nobody was hurt, despite poor aim. Our conference banquet was generously sponsored by FEMSA, or better known as the Cuahutemoc Moctezuma Brewery. Participants were surprised by a real Mexican transportation experience, where over 250 guests were packed into only 3 buses due to a "failure in communication." Honestly, you can't successfully boast of a Mexican experience without being packed into a bus like a sardine, so we simply convinced our guests that this was part of the package. The

as the buses found their way in the dark through the Mexican brush. Guests experienced a wonderful banquet, a fantastic folkloric dance show by the Universidad Autonoma de Nuevo Leon, and amazing Latin American music from El Grupo Tigre. IBA'ers danced the night away. We wrapped up the night with an "honorary" piñata bashing by Harry Reynolds, who beat the tar out of an effigy of a Mexican bear. One Russian guest quizzically asked the reason for this "pointless flogging," which further highlighted the amusing diversity of our wonderful IBA. Everyone had so much fun that we hardly



Harry Reynolds: Bear Bashing

heard a complaint when we began cramming guests back onto the buses for their long, but festive, ride back to the hotels.

## Sponsorship

The conference was filled with great events that were sponsored by numerous corporations, agencies, individuals, organizations, and universities. While sponsorship totaled approximately \$70,000 USD, many donations in time, logistics, supplies, and food were also received. Our sponsors were the Caesar Kleberg Wildlife Research Institute, CEMEX, Comisión Nacional de Áreas Naturales Protegidas, FEMSA, MADISA, Universidad Autónoma de Nuevo León, Consejo Estatal para la Flora y Fauna de Nuevo León, Departamento de Parques y Vida Silvestre de Nuevo León, International Association for Bear Research & Management – Bevin's Grant, Grupo Senda Transport Company, University of Tennessee, USDA Forest Service, USDI National Park Service, Denver Zoological Foundation, CONECO Landowners Association, Constructora Tecnica DORRSA, Grupo Acero del Norte, Oficinas de Convenciones y Visitas de Nuevo León, Parque Ecologico de Chipinque, The Nature Conservancy, Pronatura, A.C., Texas Parks & Wildlife Department, and the Union Ganadera Regional de Coahuila. We would also like to thank our special friends who went beyond the ex-

pected to help bring this conference about: Mr. David Garza Laguera, Mrs. Elizabeth Spence Sellers, Ms. Katharine Armstrong Love, Ms. Cina Alexander Forgason, Mr. Othon Ruiz Montemayor, and the Martinez / Pamanes family of Monterrey. Special appreciation goes to Maria Guerra, Maria Eugenia Rodriguez, Becky Trant, Chris Reopelle, Jere Sepulveda, Yolanda Ballard, and Charity Lawson for their help. Guillermo Palomares of Impulsora de Rentas y Servicios provided excellent services and went beyond what was required to help us with arrangements. Arturo May provided translation services, as always, with a touch of humor. We also thank all of our volunteers and students from the Universidad Autonoma de Nuevo Leon, Universidad Autonoma de Mexico, and Texas A&M University-Kingsville who have worked so hard.

## Presentations and Awards

Our conference program was fairly packed, but we tried to take advantage of having everyone in one place for such a short period of time. There were 55 oral presentations and 87 posters. The conference was inaugurated by several Mexican dignitaries, including Mexico's Director of Protected Areas, Dr. Ernesto Enkerlin. His message was hopeful and gracious, giving special thanks the IBA for bringing its expertise to Mexico. Scientific presentations began with an overview of bear research in Mexico, and followed with topics such as bear foods and nutrition, polar bears, population estimation, bear management and conservation, bear behavior, Andean bear research, human bear interaction, bear physiology, and spatial analysis and temporal relationships. Invited papers covered pertinent topics such as stable isotopes (Merav Ben-David), polar bears and climate change (Marty Obbard), fatty acid signature analysis (Greg Thiemann), Andean bear research (Isaac Goldstein), and Mexican bear research (Diana Doan-Crider). In

addition, the conference included informative workshops (see below) on genetics, population monitoring, project planning, animal monitoring and anesthesia, and black bear management in Mexico. Awards for Best Oral Presentation went to **Kartick Satyanarayan** and **Geeta Seshamani** for their presentation titled "Sloth Bears – from the Forests to the Streets." They also won the award for Best Poster Presentation for their poster titled "Sloth Bears and the Kalandar Community." **Robyn Appleton** won Best Student Presentation for her



Mayan royalty: John Hechtel and Diana Crider

paper titled "Mark-Resight Population Estimates Derived from Observations of Andean Bears Using Water Holes in the Tropical Dry Forests of Peru." Congratulations to all on a job well done! Following are summaries prepared by each session chair of the conference:

## Bear Research, Management, and Conservation in Mexico

Diana Doan-Crider  
Email: [diana.crider@gmail.com](mailto:diana.crider@gmail.com)

Diana Doan-Crider et al., formerly of Texas A&M University-Kingsville,

initiated this session with an overview of bear research & management in Mexico, past, present, and future. Mexico has learned from some serious mistakes in the past, such as the eradication of the Mexican grizzly bear, and there has been a strong effort to ensure that the black bear does not follow in those tracks. While research is still lagging and collaboration is not as strong as it should be, there has been a recent surge in interest toward research and management. In addition, bear populations appear to be recuperating from previously low numbers, and expansion continues into historic areas. **Sasha Carvajal** et al., formerly of PRONATURA, presented their efforts to mitigate co-existence between local communities and the black bear in the El Cielo Biosphere Reserve of Tamaulipas. Sasha and her coauthors worked closely with residents who were losing crops due to bear depredation by familiarizing them with bear ecology and biology, and teaching them to prevent conflict. They hope to evaluate the production of seasonal bear foods to help them predict movements and further understand interactions. **Bonnie McKinney** and **Jonas Delgadillo** of CEMEX gave an interesting review of her black bear research in the Maderas del Carmen, which is part of a collaborative effort to protect this natural area in northern Coahuila. She and her team have captured 60 bears, and continue to monitor 34. Interestingly, 81% of her captures were adult or subadult males. Through radio collaring, they hope to determine key travel corridors for the species within Mexico and also into the U.S., and implement appropriate management strategies. **Cora Varas Nelson** et al. from the University of Arizona presented the results of genetic studies using black bear scats in Sonora. She extracted DNA to identify variability and relatedness among individuals within the Sonora population, and also compared these data to those of other black bear populations in Arizona. She proposed that black bears in Sonora are more

closely related to Arizona and New Mexico bears, but not so much so with Coahuila bears. **Pedro Angel Calderon** et al. from PROFAUNA presented the results of interviews that were conducted in the state of Chihuahua to determine presence of black bears in historic and new areas. Based on sightings, he and his coauthors then conducted transects to evaluate the presence of bear sign for verification. He gave a great update on the bear's status for that state, and will use this information to work with communities to promote bear conservation.

## Bear Foods and Nutrition

Sean Farley, Alaska Game & Fish Department  
Email: sean.farley@alaska.gov

The session began with an invited presentation by **Merav Ben-David** from the University of Wyoming. The discussion, entitled "Why stable isotopes?" provided a highly informative review of stable isotope chemistry for biological applications, as well as newer methods of analysis. Those employing stable isotopes were strongly urged to look beyond animal specific applications to interpretations linking individual diet choices with emerging population parameters. **Jennifer Fortin** et al. from Washington State University next presented on niche partitioning between black and brown bears on a short stream with dense salmon concentrations. Species, gender, individual identification, and diet composition were determined from hair and scat collections using stable isotopes, DNA, and gross fecal composition. Both male and female brown bears used the stream, but only black bear males were found. Salmon constituted approximately 8% and 66% of black and brown bear diets, respectively. Fecal presence of berries did not differ between species; however isotope signatures showed that assimilated plant diet was 84% for black bears compared to 20% for brown bears. **Egle Vulla**, et al. from the University of Tartu examined the

diet of Estonian brown bears. Found in a fragmented landscape with high potential for lethal bear human conflicts, these bears rely on spring-time mammals, summertime insects, and autumn plants as important diet constituents. Estonian bears natural diet showed similarities and regional differences with other European brown bear populations. **Erin Latham** and **Mike Gibeau** from Parks Canada presented a method using digital image analysis to quantify berry production. Histograms of color signatures were correlated with berry densities, and it appears this technique will provide a low cost, objective approach for monitoring berry production. **Mei-Hsiu Hwang** and **Yu-Cen Jhong** from the National Pingtung University in Taiwan presented on the effect of bear gut residence time on seed germination. Gut retention time was positively correlated with an increased germination rate of seeds. Because omnivorous bears are potentially important seed dispersers, and likely affect habitat structure, any changes in bear numbers may have a deleterious effect on plant community ecology. **Karen Noyce** and **Dave Garshelis** from the Minnesota Dept. of Natural Resources questioned the effect(s) of severe food shortage on growing bears. While adult bears typically show little effect from severe food shortages, the impact on growing young may be critical. Compensatory growth and physiological flexibility for growth are likely important evolved traits in bears, but severe food shortages may have long term reproductive and population growth effects if younger bears are affected. The session closed with another invited paper, this from **Greg Thiemann** of the University of Alberta on fatty acid signature analysis. It was noted that while observations of feeding behavior provides excellent identification of diet items, it is impractical to apply that approach on a large scale. More recently, diet has been investigated with techniques such as stable isotope

analysis and fatty acid (FA) signatures. FA analysis can be used to determine foraging patterns, to identify biomarkers in the diet, and to construct quantitative estimates of diet. An excellent presentation of the issues entailed in analysis and interpretation of FA results was provided.

## Polar Bears

Elizabeth Peacock, Government of Nunavut  
Email: epeacock@nunavutwildlife.ca

The session on polar bears started with review of the state-of-the-data and politics of polar bear conservation by **Marty Obbard** of the Ontario Ministry of Natural Resources, Canada. He summarized what biologists know about the effects of climate change on polar bear populations in Canada and the U.S., highlighting work in western Hudson Bay and his own work in Southern Hudson Bay, the southernmost polar bear population. He introduced a USGS concept in which polar bear populations are grouped into eco-regions, areas that differ in ice patterns. It is expected that bears will respond to climate change differently and at different rates in these regions. Graduate student, **Vicki Sahanatien** of University of Alberta reported on her preliminary work with polar bear ice habitat models in Foxe Basin, Nunavut, Canada. She has been able to classify habitats of polar bears and how favorable and unfavorable habitats have changed over the last twenty years. Finally, **Karyn Rode** of the U.S. Fish and Wildlife Service reported on aerial survey flights in the southern Beaufort Sea area, off of the north coast of Alaska, USA. Aerial surveys for polar bears while they are on shore in the autumn have occurred annually since 2000. They estimated that less than 5% of the Southern Beaufort Sea polar bear population came on shore in the autumn and that spatial and temporal patterns of land use were related to the number of seals in proximity to the shore and the distance to the pack ice.

## Population Estimation

Marty Obbard, Ontario Ministry of Natural Resources  
Email: martyn.obbard@ontario.ca

Those who attended the session on Population Estimation were treated to high-quality, informative presentations by researchers with extensive experience in this area. The first presentation by **Kate Kendall** outlined a large-scale DNA-based project to estimate density of grizzly bears in Glacier National Park. In this study, using additional samples from bear

rub trees improved the density estimates derived from samples from barbed-wire hair traps. The second paper, presented by **John Boulanger**, examined whether previous live capture affected detection of grizzly bears by DNA hair-snags. By using occupancy models to compare detection probabilities of collared bears on the study area with uncollared bears it was shown that previously-captured bears had

lower, though non-zero, detection probabilities. This individual heterogeneity should be accounted for when estimating population size. The information presented by Kate and John was provided in greater detail during the evening Genetics Workshops. The third paper of the morning session was given by graduate student **Jamie Skvarla Sanderlin** of the University of Georgia. This paper provided an innovative model for an optimal sampling design used to maximize the ratio of accuracy to cost for non-invasive techniques (DNA hair-snags and digital cameras) to estimate black

bear density in Georgia. After a break for the IBA Members Meeting and lunch, the session re-convened with a paper by **Craig Gardner** that evaluated grizzly bear density using DNA-based capture-recapture sampling in an area in east central Alaska where grizzly bear population reduction efforts had been implemented in order to increase moose density. The study concluded that grizzly bear numbers were low in recent burns and that bears avoided these areas. Large recent burns were more important than harvest in reducing grizzly bear numbers in part



because of low hunter success rates due to low bear numbers in accessible areas. The last paper in the session was presented by **Chuck Schwartz**. This paper compared 2 methods to estimate reproductive rate: the ratio method (that calculates the ratio of female cubs to radio-collared adult females) and a method that estimates transition probabilities and steady state conditions. Reproductive rates are more accurately estimated using transition probabilities and steady state conditions if studies are of short duration, capture heterogeneity is evident, or individual bears are not recollared for the duration of the study.

## Bear Management and Conservation

David Hewitt, Texas A&M University-Kingsville  
Email: david.hewitt@tamuk.edu

The session on Bear Management and Conservation was as diverse as implied by the session's name. The session began with a pointed critique of bear management in Alaska from **Sterling Miller** and ended with a thoughtful evaluation from **Dave Garshelis** of using expert opinion to

map bear distribution in areas where little information is available. A presentation by **Michael Proctor** showed how research results can influence bear management and provided insight into management of small, fragmented bear populations. **Richard Bischof** used data from a long term study of brown bears in Sweden to assess factors influencing a bear's susceptibility to harvest. At the opposite end of the bear abundance

spectrum, a translocation of brown bears in Europe was described by **Piero Genovesi** which illustrated the many positive outcomes of such projects in bear conservation, beyond simply establishing a new population. **Marta de Barba** showed in her presentation that this translocated population may not be genetically viable over the long term without immigration or periodic genetic supplementation. Because release of orphan bear cubs has the potential to impact wild bear populations, John Beecham summarized findings from a meeting of biologists from around the world with experience in releasing orphaned

cubs. **Muhammad Ali Nawaz** showed how conservation groups, government officials, and local people could work together to maintain a brown bear population living in marginal habitat at high elevations. Even in areas of seeming abundance, bears may be faced with declining resources as shown in a presentation of chum salmon mortality by **Joshua Pierce**. **Richard Mace** presented demography data from grizzly bears in Denali Park and discussed implications for bear management. As is clear from this summary, the session gave a captivating overview of the broad range of bear management and conservation activities being conducted by IBA members.

## Bear Behavior

Piero Genovesi, Italian Wildlife Institute  
Email: piero.genovesi@infs.it

The session on bear behavior provided an enlightening overview of the results of several studies carried out in different regions of the world on the topic. **Jon Swenson** summarized the results of over 20 years of studies carried on in Scandinavia on the spacing patterns of brown bears, also based on very detailed information on individual's relatedness assessed using DNA. This huge data set permitted to highlight a largely unexpected geographical structure of female brown bears, which appear to have different levels of organization. The results of the long-term studies carried out in Sweden suggest that brown bears, differently to what previously thought, have some form of territoriality. Also the second contribution of the session - which was presented by **Andreas Zedrosser**, who took the title of his talk from the famous song "should I stay or should I go" by the Clash - was based on data collected in the Scandinavian bear project. Andreas and his co-authors compared dispersal data of two populations of bears

in Sweden with different density and sex ratio. They found no significant difference in male dispersal between the two areas, and female dispersal probability correlated with age of the mother, and negatively correlated with body size. These results appear to support an inbreeding avoidance hypothesis for males, and a resident fitness hypothesis for females. **Ron Swaisgood** presented a review of investigations on chemical communication in giant pandas, based on data on experiments on the meaning of chemo-signals, individual patterns of scent marking, and characteristics of mark sites. The review highlighted the role of chemical signals in identifying sex and reproductive conditions of conspecifics, analyzed the different responses to signals by receivers, and reviewed the role - among other patterns - of age, sex and reproductive status of signalers. The authors also discussed the implications of these findings for improving husbandry of pandas. **Alexandros Karamanlidis** surprised us all by presenting his talk entirely on a very high quality video, specifically prepared for the conference. In his video Alexandros put impressive images of Brown bear marking behaviors recorded in Greece by using sophisticated automated video recording equipment. Most images reported the rubbing behavior on power poles (6500 poles inspected), and the presentation also illustrated the potentialities of this technique to monitor bear populations. Also the last talk of the session, given by **Nevin Owen**, focused on rubbing behavior of brown bears. Nevin carried on his study in British Columbia, where he used camera traps. He discussed some preliminary findings of the research, based on identification of individual bears by coat characters, and discussed his results in terms of relationships between the rubbing behavior of bears, their sex, social dominance and reproductive status.

**Andean Bear Research, Management, & Conservation**  
Shaenandoah Garcia-Rangel, University of Cambridge  
Email: sg343@cam.ac.uk

The Andean-bear session of the past 18th IBA conference involved 3 speakers covering very distinct issues regarding the species research, management and conservation. The invited paper by **Isaac Goldstein**, reviewed the status of Andean-bear research and its impacts on the species conservation. A total of 465 documents were compiled and trends on distribution, topics, impact, involvement and relevance to conservation were evaluated. Results showed productivity peaks in 1989 and from 1999 onwards. A geographical bias was identified, with a negative relationship between the extent of the species distribution and those countries where projects had been carried out. NGO's and universities lead most of efforts, while government bodies had little involvement. Since 1989, the information available was in the form of conference abstracts and reports, but the tendency for peer-reviewed journals appears to be increasing during the last decade. Research topics focused on distribution, food-habits and husbandry, with the recent inclusion of genetics studies and evaluation of human-bear conflicts. The results of a feasibility study to estimate Andean-bear population size in the tropical dry forest on northern Perú were presented by **Robyn Appleton** and colleagues. This is perhaps one of the most extreme Andean-bear habitat and according to their findings, a unique opportunity for population survey, due to the species use of water holes. The project aimed to estimate and compare the numbers of bears visiting water holes, using individual identification on-site based on facial markings and DNA analysis from hair samples. A total of 9 individuals were found using the first technique, while hair samples are still under

analysis. Habitat-use, movements and food-habits were also characterized. Finally, Robyn discussed future plans involving a long-term study focused on estimation of population size, feeding ecology, water-hole use and evaluation of the conservation status of Andean bears across this dry forests. To conclude the session, **Ximena Velez-Liendo** evaluated the effects of human expansion on the distribution of Andean-bear habitats along the eastern slope of the Tropical Andes in Bolivia. Marginal, suitable and optimal habitat for both bears and humans were identified, using two independent models built with bear-presence-only data and eco-geographical variables. Combining these outputs into a risk model, Ximena found both bear's and human's optimal habitat overlapping at the Southern region, and thus a high probability for future conflict in this area.

## Human Bear Interaction / Conflict

Raymond Skiles, National Park Service  
Email: raymond\_skiles@nps.gov

This session started with a great presentation from **Bipan Rathore** and **NPS Chauhan** of India, where they summarized their work about brown bears and predation upon livestock in the Pir Panjal Himalayan mountain range. Bipan included some nice video footage of brown bears feeding on roots, and of the nomadic shepherds with their sheep, goats, and buffalo. After surveying numerous shepherds, they determined that pre-

datation is influenced by the location of resting areas, presence of dogs (or lack thereof), and a basic understanding about bear biology and ecology. **Dick Shideler** then followed with a presentation on hazing and its effectiveness on reducing bear/human conflict in the North Slope oil fields of Alaska. He compared hazing effectiveness on food-conditioned bears to that with bears that fed solely on natural foods. Hazing did not appear to work on



bears (or their offspring) who were already food-conditioned; most eventually died due to conflict situations. However, hazing did appear to be effective in preventing naïve bears from becoming food conditioned. **Dick** strongly recommended a high emphasis on attractant elimination. **Kartick Satyanarayan** and **Geeta Seshamani** continued with their award-winning presentation about sloth bears and the poaching issue in India. The authors spent a great deal of effort and time to interview poachers to evaluate mortality of bears in between capture and their use for dancing to entertain in the streets of India. They found that mortality rates were relatively high due to trauma and illness, and that rates could be as high as 40% for captured bears and cubs.

## Bear Physiology

Jon Arnemo, Norwegian School of Veterinary Science  
Email: jmarnemo@online.no

This session began with a presentation from **Lynne Nelson** and **Charlie Robbins** at Washington State University, covering their research on cardiac adaptations in captive hibernating brown bears. They measured for several cardiac variables. They noted a decreased cardiac mass during

hibernation, along with reduced atrial function. These functions may help bears minimize energy requirements and stress on the heart muscle during hibernation. **Tom Radandt**, of the US Fish & Wildlife Service, presented his data and results from anesthetized bears while using Xylazine, Zolazepam, Tiletamine, and the reversing agent Yohimbine. He measured heart rate, body temperature,

and post-capture movement rates on grizzly and brown bears in Montana, Idaho, and British Columbia, and noted a significant difference in recovery times. This drug combination allows bears to return to normal body function sooner, reduces vulnerability to predation, and allows movements to resume normality at a faster rate. **Asa Fahlman** et al. presented their work on chemical capture and anesthetic monitoring of brown bears in Norway and Sweden. Their objectives were to evaluate the best way to minimize stress, stabilize physiology during anesthesia, and avoid mortality of captured bears. Using a combination of medetomidine and tiletamine-zolazepam, they measured rectal temperature, heart rate, respiration,

and hemoglobin oxygen saturation on both free-ranging and captive bears. Overall conclusions were that bears should be closely monitored during anesthesia, and a portable oxygen cylinder should be part of standard equipment when darting bears to reduce the possibility of hypoxemia. In addition, helicopter pursuit should be as short as possible.

## Spatial Analysis & Spatio Temporal Relationships –

### Session A

Alexandros Karamanlidis, Arcturos  
Email: alkar@bio.auth.gr

Analyzing spatially explicit data has become nowadays an integral part of bear research. This session began with a presentation by **Jesse Lewis** et al. on the seasonal and daily use of habitat and the movements of brown bears in North America and how these were affected by human activity. The authors noted that bears were mostly active during crepuscular periods and exhibited mostly similar daily movement rates. In regard to the influence of the effect of human activity their results indicated that habitat use was affected by the density of roads, human development and timber harvest strategies. **Jared Laufenberg** and **Frank van Manen** presented their work on the identification of potential colonization patterns of reintroduced bear populations in Tennessee. Using a combination of telemetry data and the calculation of Mahalanobis distance values they identified two primary directions of range expansion in their population and demonstrated the value of this methodological approach in bear management. **Andrew Hunter** et al. presented an overview of the research and development of a new system that augments GPS tracking collars and preliminary findings from field work carried out on bears in the Canadian Rocky Mountains. **Tabitha Graves** and coauthors presented a study that evaluated differences in bear density relative to various ecological parameters. Their model-

ing process and the information obtained on the distribution of bears will be used in the development of an effective conservation strategy in their study area. **Marci Johnson** presented parts of her postgraduate thesis, in which she used an array of different techniques, such as GPS telemetry and remote photography in order to evaluate the use of bait by American black bears. Her results indicated that bait may play a significant role in the lives of bears in the area. The final presentation by **Reynolds et al.** focused on the activity and resource use of male grizzly bears in northern Alaska. Using GPS satellite telemetry; they demonstrated that this technology is a valuable tool in bear research in remote areas and areas where logistical costs and weather conditions limit data collection.

## Spatial Analysis & Spatio Temporal Relationships –

### Session B

Session Chair: Mei-Hsiu Hwang  
Email: bear1000@ms25.hinet.net

Spatial and temporal activity of large carnivores like bears has been a critical ecological and conservation issue for scientists and managers. Four presentations about bears in Northern America revealed bear movement and activities could be modified by human activities and natural environment changes. **Barbara Schwab** et al. presented their long-term study on 148 Grizzly bears equipped with GPS collars across western Alberta. They found that home ranges of these bears in foothills were extensive, 1395 km<sup>2</sup>, which was about 3.5 times of bear home ranges in mountain environments. Bear movement rates also varied by landscape (foothill > mountain), sex (male > female), and season (early hyperphagia in July-Aug > June). **Angela Brown** and coauthors examined the recent expansion of American black bears in southeastern Arkansas. These bears were reintroduced during 1958-1968 into eastern Oklahoma. By genotyping individuals of the

Ouachita Mountains, 161 (48.5%) unique individuals were identified out of 332 hair samples, and they occurred less in human-associated landscape. This analysis provided useful information for projecting the expansion pattern of a recolonizing bear population. **Diana L. Doan-Crider** et al. evaluated the habitat quality of female American black bears in Mexico by comparing digestible energy within bear home ranges to that of seasonal locations over landscapes. Bear food production in a desert environment fluctuated with weather, particularly precipitation. The result also indicated that density dependence of bears may be affected by food production through social dynamics, such as social stress, dispersal, and intra-specific killing. The final presentation was given by **Antonio Viveiros** et al. on Antonio's thesis study. Analyzing resource selection function with logistic regression, they evaluated the importance of security areas to radio-tracked adult female grizzly bears. Their result demonstrated that female bears preferred herbaceous habitats and edges across all reproductive groups and season. Selection of secure areas by females varied by their association with different ages of cubs and berry seasons.

## Workshops

### Genetic Research and Population Monitoring

Thanks to Joe Clark and the University of Tennessee, funds were available for a collaborative 9 hour workshop covering topics related to DNA analysis and population monitoring. John Boulanger was a champion in coordinating the various presenters/authors. Although red eyes were the trend for the jam-packed sessions, the workshop was well worth the effort based on input from conference participants. The workshop began with a 2-hour session on the "Fundamentals of DNA Sampling and Estimation of Population Size

and Density,” presented by **Mike Proctor**, **John Boulanger**, and **Gary White**. They highlighted some of the more recent developments in the application of DNA mark-recapture methods, including optimization of attractants, site selection, and study design including sampling intensity, minimizing closure violation, session length, moving or not moving sites, incorporating DNA errors into population estimation procedures, and occupancy models. Gary White also reviews some of the main estimation methods included in the MARK program, and how they have been used in estimating grizzly bear populations.

The second session was titled “Monitoring Bear Population Trends in Forested Environments,” which lasted for 5 hours. **Mike Proctor** discussed the optimization of DNA collection for trend studies, **Rick Mace** talked about designing radio-telemetry based research projects, and **Dave Garshelis** followed with his usual precautionary advice on how to deal with the uncertainty of study results and their possible implications. **John Boulanger** then continued with his discussion on strategies for optimal design and analysis, and **Mark Boyce** followed by including issues pertaining to radio-telemetry studies. Finally, **Gary White** discussed approaches for joint analysis using radio-telemetry, mark-recapture, and DNA data for estimating trend.

Finally, **Kate Kendall**, **Jeff Stetz**, and **Amy Macleod** from the Northern Divide Grizzly Bear Project presented their recommendations and experiences in conducting one of the largest studies on population estimation using noninvasive genetic sampling.

The focus of this session was to emphasize project design, implementation, and data management. They discussed logistical challenges, coordination among agencies and landowners, and quality control for data collection. They emphasized 5 topics of concern, which were: planning, training, field work quality control, data and sample management, and analytical quality control. Wow – with all of this input, how could anyone go wrong? Participants were tired, but well informed, after this workshop!



## Mexican Black Bear Management

For the benefit of our Mexican counterparts, we decided to take advantage of having this much bear expertise in one place at the same time, and produce a workshop on bear conflict management with an emphasis on Mexico. We started with an overview of management strategies within and between states, and current issues and problems. **Diana Doan-Crider** presented some of her work with **Dave Hewitt** in northern Coahuila, and the food influences bear movement across the landscape. **Steve Herrero**, from the University of Calgary, followed with a fundamental

presentation on bear behavior, and how non-natural food management plays a critical role in minimizing conflict. **Rachel Mazur**, from Sequoia and Kings Canyon National Parks, gave great insight into how females can teach their offspring about non-natural foods, and also talked about her personal experiences in trying to manage people and bears in public areas. **Derek Stonorov** of Alaska and **Wendy Gardner** of the Seattle Zoo discussed the important role of outreach programs in educating the public about how to live with bears.

**Raymond Skiles**, of Big Bend National Park, presented a great success story in managing bears and people when bears first began re-appearing in the park after a 40-year absence. **Sean Farley** of Alaska Game & Fish Department scared everyone after he presented the complicated life of a bear manager trying to juggle grizzly bears and people living in close proximity – his work is certainly challenging! His advice was well accepted, and will likely influence current management decisions in Mexico. The

talented **John Hechtel**, also of Alaska Game & Fish Department amused us all with a great presentation on managing bears after-the-fact using translocation, aversive conditioning, and removal. Of course, his best advice was to invest as much time and effort into preventative management strategies – more advice well taken. Finally, **Jaime Saldivar** of the Commission for Protected Natural Areas gave us an informative presentation on the newly developed conservation strategy program for priority species in Mexico, and how this agency hopes to provide incentives and a coordinated effort to conduct bear research and management in Mexico. We wrapped up the session with a great afternoon

# 18<sup>th</sup> IBA Conference

field trip to the Estanzuela Ecological Park, which has experienced recent bear sightings in close proximity to human populations. We didn't see any bears, but our guests saw plenty of weird Mexican plants, and were glad to stretch their legs.

## Bear Anesthesia, Handling and Monitoring

Initially, this workshop was oriented toward students who needed basic training in bear anesthesia, handling, and monitoring. However, about a month before the conference, we had such an interest from other biologists as well, that we decided to open it up to everyone. Attendance was well over 125 at the Parque la Pastora Zoo, compliments of zoo veterinarian **Gustavo Sepulveda**. Well-known veterinarians and doctors **Jon Arnemo**, **Asa Fahlman**, and **Nigel Caulkett** were gracious enough to donate their time and effort to conduct the 5-hour workshop at the end of the conference. The speakers covered everything from precautions for handling animals in the field, physiological responses to different trapping methods, to human safety with tranquilizers. Participants listened to several hours of presentations by the various authors, and then students were invited to accompany the veterinarians to anesthetize a subadult black bear at the zoo. It was an excellent program, and we could tell that IBA'ers wanted more of this

type of workshop in the future (hint hint!). For a more complete summary of the topics, we recommend that you download the conference program at [www.bearbiology.com](http://www.bearbiology.com) under the Conference page (IBA Mexico) for a more thorough review.

## Student Session IBA Mexico 2007

Ximena Velez-Liendo  
&  
Andreas Zedrosser

Three students presented their questions to an audience of about 60 students and a dozen IBA experts. At first, the session was scheduled for a tranquil lunchtime break at the Taco Buey, a wonderful Mexican restaurant across the street from the conference facility. However, the presentation session was re-scheduled for an evening session in Cintermex when we became over-crowded and noisier than a flock of geese, and we still enjoyed a great lunch visiting with students and biologists. Both students and experts were able to attend to both sessions, and here we present a brief summary of the presentations.

**Lorena Araoz** (Bolivia) presented her proposal and the question, "How to estimate population size using camera traps?" Her research focuses on Andean bears in Bolivia, and her next phase is her field work in counting bears. Thus, her concerns were

focused on technical and methodological questions. She wanted to know the advantages and disadvantages of applying camera traps, how many camera traps are necessary, and how many stations. Lorena's topic was later discussed in more detail with our experts who gave her useful feedback. Our second presenter was **Dorixa Monsalve** (Venezuela). Dorixa had similar methodological and technical questions as Lorena. Her aim was to estimate densities and to establish ecological relationships between Andean bears and their environment. Questions regarding sampling efforts, and the design of capture/recapture methods were also discussed with the audience. Finally, our third student was **Kari Signor** (USA). Her studies focus on the how to prevent black bear visits to campgrounds in Utah using conditioned taste aversion (CTA). However, several problems exist, such as difficulties in establishing CTA, identification of compounds that might be more effective for CTA, and the different responses from captive and free-ranging bears to treatment due to the different factors in their external environments. Kari's project goal is to contribute to the knowledge for using CTA to manage nuisance black bears. Special thanks go to our IBA experts who took the time to attend and give input. ❁

## Global Warming/ Climate Change and Its Effects on World Bear Species:

### Report of a workshop at the IBA meeting Monterrey, Mexico November 6, 2007

Chris Servheen  
US Fish and Wildlife Service

University Hall, Room 309  
University of Montana  
Missoula, MT 59812, USA  
Email: [grizz@umontana.edu](mailto:grizz@umontana.edu)

## Introduction/overview

1. A workshop was organized during the Monterrey, Mexico IBA conference to discuss the issue of global warming/climate change and bears. There were 39 people who attended this workshop. There was a discussion of ways to develop a plan of ac-

tion on this issue for the IBA. There was general agreement that global warming/climate change will have impacts on the world's bears, and that the IBA could contribute to the knowledge base on the impacts of these activities.

2. There was a suggestion that interested IBA members would create a summary of possible impacts of global warming/climate change on bears across the world.

3. This summary could be used to establish monitoring programs on specific issues for each species as necessary.
  4. It would be used to highlight research and monitoring needs and to help focus funding and monitoring efforts on key issues.
  5. This summary could be used by the IBA to focus concerns and interest of the public and the media about the impacts of global warming/climate change on bears worldwide.
  6. This summary of possible impacts would serve to enhance the leadership of the IBA on global bear conservation issues.
  7. We need to discuss the pros and cons of such an approach and see if there is some agreement on how to proceed on this if we agree to do so.
- Establishing a global warming/ climate change and bears working group and clearinghouse through IBA will reinforce IBA's role as leading experts and sources of information on the conservation of world bears.

## Comments from the discussion

- General agreement that there is benefit in creating an online clearinghouse of information and literature on the impacts of global warming/climate change on bears.
- There could be benefits in creating a list of ongoing projects that involve monitoring impacts of global warming/climate change on bears or bear habitat. This list would serve as a source of information and techniques for others interested in such monitoring of other species or in other areas. This would also serve as a contact list to locate professionals doing work on particular issues.
- We should highlight current research that has specific application to monitoring the effects of climate change on bears. Examples:
  - Grizzly bears - Yellowstone White bark pine monitoring – changes in incidence of disease and insect attacks on high elevation White bark pine.
  - Sun bears – relationships between mass fruiting events in tropical hardwood forests in Borneo and weather changes caused by ocean current disruptions.
- Polar bear scientists have recently published a review of the impacts of global warming/climate change on polar bears (Stirling and Derocher 2007). This is an example of how to summarize impacts, although the impacts on polar bears are much more clear-cut than the impacts on other bear species.
- There was general agreement that we should maintain a global warming/climate change clearinghouse on the IBA website or some other website. This clearinghouse could be a source of information on literature dealing with global warming/climate change and impacts on bears and a synopsis of each ongoing research program and monitoring program that relates to global warming/climate change and impacts on bears and bear habitat. This clearinghouse should be organized by species and regularly updated so that it is current.
- There is value in such a clearinghouse to coordinate efforts within and between species, to allow people to know of others working on similar monitoring programs and research projects. Techniques could be shared to improve the possibility of data comparisons.
- There was discussion on whether the IBA should take a position(s) or simply provide information? Some people thought we should provide recommendations on the need for long-term monitoring of critical factors related to global warming/climate change. There was agreement that recommendations at this time would be difficult with species other than polar bears.
- There was agreement that there is value in creating a network of long-term monitoring sites to identify specific effects for specific species. It would take task forces for each species to begin to develop these long-term monitoring sites and the basis for these monitoring programs. These monitoring efforts would go beyond bear-specific monitoring. For example we have a general understanding that there may be changes in temperature but the effects of temperature change on moisture and the resulting impacts on bear food production are unclear. For examples of how moisture changes related to climate change can impact bears see Wong et al. (2005) and Fredriksson et al. (2007) on the cascading effects of global warming/climate change on sun bears.
- We will see ecosystem change with winners and losers ... in Yellowstone, oak trees may begin to establish themselves in the ecosystem. There may be positive effects in some cases and these should be monitored and documented.
- There is quite a bit of uncertainty about the specific impacts of global warming/climate change in various geographic areas and on key drivers of ecosystems like moisture. With all this uncertainty it is important to proceed cautiously and to avoid statements of impacts without detailed documentation.
- There may be value in a more structured approach where predictions of the impacts of global warming/climate change are developed for each species, where possible, so these predictions could be tested empirically.
- There is already been a significant effort by many organizations to examine and predict floral changes due to global warming/climate change. One function of a clearinghouse would be to identify experts in other fields such as plant ecologists, botanists, hydrologists, etc. who are already working on global warming/climate change

impacts on plant species that are important to bears (i.e. white bark pine).

- The clearinghouse should have a directory of people with areas of expertise related to global warming/climate change so that people know who to contact and cooperate with about specific issues.
- There is a need to standardize data collection methods so that data are comparable and similar measurements are taken on key characteristics. The clearinghouse could provide a conceptual framework to analyze effects on different bear species. Examples could include changes in diet, den entry and exit dates, home range, population structure, distribution, increased contaminants, trophic effects, etc. This list of effects would be based on hypotheses specific to each species developed by a work group for that species.

## Proposed Actions from the Workshop for the IBA and BSG To Consider Related To The Issue Of Global Warming/Climate Change and Bears

- Establish an IBA global warming/climate change work group with representatives for each bear species. This could be a joint effort with the BSG. This work group would serve as the organizer and updater of the clearinghouse and would help focus attention and coordinate efforts of bear scientists on the issue of global warming/climate change.
- Develop a specific web-based clearinghouse that has a wide range of information on global warming/climate change on bears. This clearinghouse would be organized by species and regularly updated so that it is cur-

rent. This clearinghouse would include updated information on a wide range of issues that would connect people working on bears with information on global warming/climate change and bears, and with other people working on these and related issues.

- For the web-based clearinghouse, create a list of biologists working on issues specifically related to global warming/climate change to facilitate communication and coordination among bear biologists working on each bear species.
- For the web-based clearinghouse, create a master list of all ongoing research and monitoring projects that is updated on a regular basis and categorized by species of bear to facilitate communication and coordination among bear biologists working on each bear species. This list would also illustrate the skewed distribution of funds and effort among the species. This could help in securing funding sources for these poorly funded species.
- Establish a work group for each species to develop predictions of the impacts of global warming/climate change for that species, if possible. These predictions could be used to develop monitoring efforts to test these predictions empirically.
- For the web-based clearinghouse, create an updated list of literature dealing with global warming/climate change and impacts on bears and their habitat. (We have already started this for polar bears with the help of Marty Obbard.)

## Next Steps

The IBA council and the BSG need to decide if they will adopt some or all of the recommendations from this workshop.

## Summary

There was significant interest from the IBA members present at this workshop in enhancing coordination and improving understanding of global warming/climate change impacts on bears. There was a consensus at the workshop that more could be done to focus the skills and interests of bear scientists on this issue. There are ways to improve the contributions of bear scientists on this important topic, and we have made some suggestions on how to improve our efforts based on the discussions at this workshop. The issue of global warming/climate change will continue to impact bears and bear habitat. One of the 8 bear species, the polar bear, is the poster child of the dire consequences of global warming/climate change on life forms on the planet Earth. We as bear biologists need to become more effective in understanding and reporting these impacts, and in participating in efforts to highlight the ecological importance of this issue to the public.

## Literature Cited

Fredriksson, G. M., L. S. Danielsen and J. E. Swenson. 2007. Impacts of El Nino related drought and forest fires on sun bear fruit resources in lowland dipterocarp forest of East Borneo. *Biodiversity and Conservation* 16:1823–1838.

Stirling, I. and A. E. Derocher. 2007. Melting under pressure: the real scope on global warming and polar bears. *The Wildlife Professional*. Fall 2007. 5 pp.

Wong, S.T., C. Servheen, L. Ambu, and A. Norhayati. 2005. Impacts of fruit production cycles on Malayan sun bears and bearded pigs in lowland tropical forest of Sabah, Malaysian Borneo. *Journal of Tropical Ecology* 21:627-639. 🌿

## Bear Specialist Group Meeting in Mexico

Dave Garshelis  
&  
Bruce McLellan

Co-chairs IUCN Bear Specialist Group  
Email: bruce.mclellan@gov.bc.ca  
dave.garshelis@dnr.state.mn.us

The Bear Specialist Group held a one-day meeting in Monterrey, Mexico on Saturday, November 10, 2007, following the 18th International Conference on Bear Research and Management. All expert teams, and a few other individual BSG members, made short presentations about conservation issues facing the world's bears and actions employed (or planned) to help resolve them. Abstracts of these presentations are presented below, starting (appropriately) with Mexican (American) black bears.

Each expert team is responsible for presenting a more extensive report of activities once every 3 years. A full report from the Trade in Bear Parts Expert Team is included in this issue. Readers interested in other reports can find them in past or future issues of *IBN*.

### Mexican Black Bears

Diana Doan-Crider

The American black bear is currently listed as endangered in Mexico, and is not hunted. Little is known about their overall distribution and status. Populations in some areas appear to be expanding. There is evidence that bears historically occupied 11 states: Tamaulipas, Nuevo Leon, Coahuila, Chihuahua, Durango, Sonora, Zacatecas, Sinaloa, San Luis Potosi, Jalisco, and Nayarit. Reproducing populations are currently known to occur in 6 of these (Tamaulipas, Nuevo Leon, Coahuila, Chihuahua, Durango, and Sonora),

and reports of bears occur in the other 5, but population dynamics have been studied only for the state of Coahuila. Efforts to study population dynamics, movements, and genetic composition are underway in Coahuila, Chihuahua, Nuevo Leon, and Sonora, but are not being coordinated as part of an overall conservation strategy. Several other small studies evaluating food habits and disease are under-funded and incomplete.

Because of its status, the black bear is federally managed by SEMARNAT (Secretary of Environment and Natural Resources). This agency also has federal delegates that assist with statewide wildlife management. Each state also has its own state wildlife management agency. Little funding, personnel, and training have historically been available for black bear management and research at both state and federal levels. To address these shortcomings, in 2007 the federal government appointed a committee to develop a nationwide conservation strategy under the "Program for the Conservation Action Plan" (PACE) for the black bear in Mexico. Progress is pending.

### Andean Bear Expert Team

Ximena Velez-Liendo &  
Isaac Goldstein

The ABET has 15 members representing all five range countries. Argentina does not have a representative because further research is needed to clarify whether Andean bears exist there. A principal team activity was to update the conservation status of this species for the IUCN Red List. Team members and other specialists completed a survey to aid

in drafting the Red List species account.

At a more local level, a workshop was carried out in Bolivia to train students on bear tracking and field-data collection. Also, a meeting was organized by the Species Survival Commission-Bolivia to provide an updated list of their members to governmental authorities. In Venezuela, members of the ABET joined other specialists, students and NGOs to develop an Action Plan for Andean-bear conservation in Venezuela (2006-2016). The document was released in June and formally presented by Shaenandhoa García-Rangel at the BSG meeting in Monterrey.

The ABET is also assisting with the organization of the II International Symposium on Andean bear Research and Conservation, to be held later in 2008. This Symposium will aim to promote research, management and conservation of the species through formal reports on recent projects and small group workshops on selected topics. This meeting will also serve as



© Laura Secada

Field training on Andean bears in Bolivia

# Bear Specialist Group

a link for future partnership between researchers and potential funding sources, especially zoos.

## Asiatic Black Bear Expert Team

Dave Garshelis & Mei-Hsiu Hwang

The ABBET has 41 members representing 17 of the 18 range countries (mapping and other data from North Korea, the only country not represented, were obtained from our South Korean representatives). Most team members formally met at the Japan IBA conference, and all participated in range mapping either at the Japan BSG workshop or via email. Some team members also met in Mexico. A poll of our members generated rough population estimates for half the range countries: 2 reported <100 Asiatic black bears (Iran, S. Korea), 3 estimated 200–1000, 3 estimated 5–15,000, and 1 (China) estimated >20,000; other countries had no

credible estimates. Seven countries reported declining bear numbers, 2 (Iran, Thailand) thought numbers were stable, 1 (S. Korea, see below) reported increasing numbers, and the rest had no assessment of population trend.

Major conservation issues include: habitat loss and degradation from agriculture, logging, erosion, and new hydro-projects; poaching for gall bladders and paws (which seems to be rising); depredations on crops and bee yards (with reprisals against bears using guns, poisons, and bombs); and attacks on people. Increasing incidences of severe attacks have been reported in several countries.

Team members are involved with efforts to: reduce human-bear conflicts; remove bears from bear farms and bear baiting operations; promote bile substitutes; ascertain poaching levels and routes for trade in bear parts; survey bear range

using interviews, sign surveys and remote cameras; conduct research on bear ecology, behavior, and genetics; educate, raise awareness, and attract resources for conservation; and conduct workshops and training sessions (capacity building). Possibly the most direct conservation work is in S. Korea, where so far 26 bears from Russia and N. Korea have been reintroduced, with the goal of eventually increasing a resident population of <10 to at least 50 by the year 2012.

## Sun Bear Expert Team

Rob Steinmetz & Gabriella Fredriksson

The most significant development for sun bears in 2007 was that their IUCN Red-list status was changed from Data Deficient to Vulnerable. This assessment was based on current and projected trends in habitat loss, habitat degradation, and commercial hunting for the wildlife trade. From

Country	Activities benefiting sun bears	Person or organization
India	Ecological studies and conservation in NE India (Mizoram and Arunachal Pradesh)	N.P.S. Chauhan and Lalthanpuia, Wildlife Inst. of India
Thailand	2 field research projects in progress	R. Steinmetz, D. Ngoprasert
Cambodia	National bear sign-survey training for Protected Area rangers	Free The Bears, WildAid, Conservation International, Ministry of Environment, Dept. of Forestry, SBET Co-chairs
	3 subsequent sign surveys conducted	Cambodia Forestry Administration, Ministry of Environment, Conservation International, WildAid
Vietnam	Micro-chips implanted in bears on farms to preclude re-stocking from the wild	Vietnam government
	Bear rescue center being established	Animals Asia Foundation
	Bear conservation education campaign in major cities (emphasis on trade)	Education for Nature (local NGO)
Malaysia	Sun bear protected status to be upgraded in Sarawak (all hunting illegal)	Malaysia Government
	Sabah Sun Bear Conservation Center being established	Siew Te Wong
	1 field research project almost completed	Siew Te Wong
Indonesia	Monitoring population recovery in burned forest in E. Kalimantan	G. Fredriksson
	Sun bear enclosure + education center being established	G. Fredriksson
	1 field research project almost completed	G. Fredriksson

the magnitude of these impacts, we inferred that sun bear numbers had declined by at least 30% over the past 30 years — the threshold for a Vulnerable listing. The current sun bear range map (which all SBET members helped create over the past year) clearly shows the fragmented distribution of the species.

Prior to the BSG meeting in Mexico, SBET co-chairs conducted a brief survey of team members about the status of sun bears in each country. We received responses from 7 of the 10 range countries. Vietnam, Cambodia, Malaysia, Indonesia, Lao PDR, and India consider sun bear populations to be declining. Only Thailand indicated mainly stable populations.

Team members, nevertheless, reported many exciting conservation activities that they, other institutions, or government agencies were conducting; these are highlighted in the table below. One interesting development is that sun bear rescue and education centers are being established in three countries: Indonesia, Malaysia, and Vietnam. These centers will promote conservation through public education, bear rehabilitation, and animal welfare.

## Sloth Bear Expert Team

N.P.S. Chauhan & S. Ratnayeke

The SLBET has 11 members from 4 range countries: India, Sri Lanka, Nepal and Bangladesh (Bhutan is not represented as yet). Most team members formally met at the Japan IBA conference, and participated in range mapping of sloth bear distribution. Team members reported occurrence of sloth bears in a wide variety of habitats, including forests, rocky outcrops, grasslands, and scrublands. Distribution and habitat use by sloth bears is greatly impacted by increasing human activities. In India, sloth bears are reported to occur in 174 protected areas (46 national parks and 128 wildlife sanctuaries). They are also found in managed forests outside protected



© N.P.S. Chauhan

Sloth bear habitat loss in India

areas, but their occurrence there is less well known (but no less important). Some debate currently exists as to how connected (or conversely fragmented) these populations, as well as those in the other range countries, currently are: this is a paramount issue in their conservation. In the most extreme case, our team has not been able to ascertain whether sloth bears continue to exist at all in Bangladesh. On the ground surveys are desperately needed.

Other important issues include human-bear conflicts, particularly the increasing numbers of serious attacks on people (currently under study by the Wildlife Institute of India); bears taken from the wild for dancing street shows (a chief focus of a new member of our team); and killing of bears for the sale of gall bladders and other parts (very little information exists on the extent of the bear parts trade related to this species). A new study of sloth bears has been initiated in Jessore wildlife sanctuary, Gujarat, and Mount Abu wildlife sanctuary, Rajasthan; these areas are at the north-western edge of the range, and harbour some of the densest populations of this species.

## Giant Panda Expert Team

Wang Dajun & Lü Zhi

The GPET presently consists of 9 members involved with wild or captive pandas. Major conservation-related issues and projects regarding giant pandas include: (1) a burgeoning captive population in China as a result of better husbandry and consequently improved reproduction; (2) plans for reintroductions of captive-raised pandas to the wild; (3) studies of behavior, movements, and habitat use of wild pandas employing GPS telemetry (currently underway in Shaanxi Province and soon to be initiated in Sichuan Province); and (4) monitoring trends in wild panda populations. The first three points will be the focus of a later, expanded report. This report summarizes current population monitoring.

Rangewide panda population estimates (of which there have been 3 in the past 3 decades) have attracted considerable attention, but because of changing methodologies (and only 3 point estimates), they have not yielded clear insights about population trend. Therefore, a more concerted effort to monitor trend was recently initiated in Sichuan Province (which has roughly  $\frac{3}{4}$  of the world's wild pandas).

# Bear Specialist Group

As requested by the State Forestry Administration (SFA), the Sichuan Forestry Department (SFD) started conducting more frequent monitoring in a number of panda reserves: 20 reserves in the Minshan Mountains (northern part of the province), 7 in Qionglai Mountains (western Sichuan) and 3 in Liangshan mountains (southern Sichuan). Under the direction of Gu Xiaodong (SFD), staffs in these reserves walked monitoring routes every 3 months during 2007 to collect panda scats and observe other sign. This monitoring will be expanded to 39 reserves next year.

For the past 5 years, some reserves in Sichuan Province have also been monitoring pandas with camera traps. The Smithsonian/National Zoo (U.S.) and Peking University collaborated with SFD to conduct training courses on monitoring with infrared-triggered cameras. To date, 16 nature reserves have been trained, although not all are implementing the technique. More training will occur in the future.



Giant panda monitoring with camera trap

## South Asian Brown Bear Expert Team

Emre Can & S. Sathyakumar

The SABBET was created in 2004 and currently has members from 11 range countries. A complex human history with considerable political unrest makes brown bear conservation particularly challenging in this region. A survey of SABBET members in 2005



© Emre Can

Elevated platform to protect beehives from bears in Turkey

indicated that retaliatory killings and poaching were major threats to brown bears. Key aims of our team include assessment of relative abundance of bears in different habitats, monitoring of population trend, and gathering of information on brown bear ecology and bear-human conflicts. All members of our team either participated in the bear range-mapping workshop in Japan or contributed information via email.

No substantiated population estimate exists for the range countries but there are probably <3000 brown bears in Turkey, <1000 brown bears in Himalayas of India, and 1200-1800 brown bears in Iran. Brown bear occurrence in Nepal has long been in dispute, but sightings of bear tracks in upper Mustang, western Nepal in 2007 provided new hope of a small population there. Brown bear numbers in Iran are believed to be stable but populations in Turkey, India and Pakistan are generally declining due to habitat fragmentation and conflict-related killings. Bear-human conflicts have increased substantially in western China and Turkey (nearly 5-fold increase in the last 15 years). Sightings of brown bears in Iraq and in the Big Pamir section of Wakhan

Corridor in Afghanistan have renewed hopes of conservation opportunities in these harsh environments.

Brown bears are protected by law in most south Asian nations, but occasional shooting licenses are issued in Iran and hunting licenses in Turkey. We currently have no information on the status of brown bear in Kyrgyzstan, Tajikistan, Uzbekistan, and Turkmenistan. The occurrence of the species in Bhutan and eastern India is still unconfirmed. A more extensive report from our team was published in the last issue of *IBN* (16[4]: 6-8).

## North Asian Brown Bear Expert Team

Harry Reynolds & Tsutomu Mano

Despite representing a vast land mass occupied by brown bears in this region, the NABBET presently includes only 9 members. We have representatives knowledgeable about bear conservation in Japan, Mongolia, Sakha, parts of the Russian Far East, and western Russia east of the Urals. Important future priorities for the team include (1) improving representation from other Russian regions, northern China, and Kazakhstan, (2) reviewing and providing more up-to-date information for the range maps developed at the Japan IBA conference, and (3) improving our knowledge of the status and threats

for brown bear populations throughout the region.

Brown bears in Japan are confined to Hokkaido, where numbers may be slightly declining; however, management and research programs are being conducted and the status monitored closely. Populations are stable-declining slightly in the Russian Far East and Sakha, but we presently have little information on status for Kazakhstan, northern China, or for republics or oblasts in Russia east of the Urals. Brown bears in northern Mongolia (*Ursus arctos jenseensis*) appear to be declining. Those in the Gobi Desert (*U. a. isabellinus*) are in critical danger of extirpation: less than 50 remain, and there is little likelihood of connectivity with populations in China. Although legal harvest is monitored and efforts to monitor population trend are ongoing in most portions of Kamchatka, Chukotka, Sakhalin, and Sakha, unreported and illegal harvest continues.

Major conservation issues mirror those reported for other bear species: habitat loss and degradation from agriculture, logging, erosion, poaching, depredations on crops, and attacks on people. Team members are working to strengthen management practices, reduce bear-human conflicts, determine distribution based on questionnaires from knowledgeable locals, conduct research upon which to base management, and develop strategies for bear conservation, especially for populations threatened with substantial declines or extirpation.

## European Brown Bear Expert Team

Djuuro Huber & Jon Swenson

The situation for brown bears in Northern Europe is quite good, with increasing and expanding populations in most areas. Conservation problems exist, but are not severe in most of this area. About 2550 brown bears live in Sweden, 800 in Finland, and 100 in Norway. Despite lower bear numbers,

bear-human conflicts are highest in Norway due to livestock depredations; this makes bear conservation there difficult. Population estimates are less certain for European Russia and Estonia, but the Russian population is by far the largest in Europe and seems to be increasing. Bears are rarely found in Latvia, Lithuania and Belarus.

In Southern Europe, large bear populations exist in the Carpathian and Dinaric Mountain ranges, and a moderately large one in the Balkan Mountains. The main conservation and management issues in these areas relate to trophy hunting, specifically quotas and methods of hunting and feeding. Small, isolated brown bear populations occur in the rest of southern Europe. The general trend for these is generally positive, despite occasional setbacks (like recent poisoning of 3 bears in Abruzzo National Park). Reintroduction and augmentation efforts (since 1989) have been conducted in Austria, the Italian Alps (Trentino area), and in the French Pyrenees. Small numbers of bears still exist in Austria, but those in Trentino, and to a lesser extent the Pyrenees, are reproducing well. Acceptance by local people remains the most difficult issue.

On the continental level, the most important new product related to bear conservation is the "Guidelines for Population Level Management Plans for Large Carnivores" produced by the Large Carnivore Initiative for Europe (IUCN Working Group) and accepted by the Council of Europe. Currently this plan is being presented to governments and bear managers in each country.

## Captive Bear Expert Team

Lydia Kolter & Jackson Zee

The captive bear expert team currently has 11 members who are either linked to regional zoo organizations or to NGOs having overview over bears in rescue facilities, rehabilitation centers, or bear farms. The group is not yet complete; members are still being recruited. Several team members met during the IBA conference in Japan to discuss first steps. A document summarizing conservation-relevant issues for ursids living in captivity and actions to address them was circulated to team members and the BSG coordinating committee. Documentation of the size of captive bear populations per region, the number of bears removed from the wild in the last few years, reasons for capturing them, and the motivation for keeping bears were identified as top issues. Development of recommendations for captive conditions that are suitable for the promotion of conservation-related education and research is considered another priority of the team.

Team members provided initial information on numbers of captive bears around the world. More than 1000 bears live in zoos and rescue centers in the range of the European Zoo Association (EAZA bear TAG). All species are represented, but almost half of them are brown bears, the



© Dave Garshelis

Asiatic black bears on farm in China

# Bear Specialist Group

majority captive-born. In the last 20 years an average of 2–3 bears per year (mostly orphans) came into captivity. Andean bears dominate the captive bear population of ~200 individuals in South and Central America. Over the past 2 decades an average of 4 wild Andean bears were taken into captivity each year. More than 500 bears live in zoos and rescue facilities in India; 99% of these are Asiatic black bears and sloth bears. Very large captive populations of primarily Asiatic black bears exist in China (~9000) and Vietnam (3000–4000), mainly in non-zoo facilities (farms). Data are still being collected for other parts of the world.

## Land-use Planning: A Case Study in British Columbia

Bruce McLellan

The basis for conserving bears and biological diversity in general involves 1) limiting mortality rates, and 2) wise land-use practices; often both are interrelated. After years of conflict among resource professionals as well as between environmental activists and various resource industries, culminating in numerous cases of civil disobedience, British Columbia (Canada) embarked on a province-wide (~1 million km<sup>2</sup>) land-use planning process. Local representatives of various interest groups participated: forest, mining, oil and gas, and commercial recreation industries; motorized and non-motorized recreation; hunting and other conservation interests; and indigenous people. Protected areas enlarged from about 57,000 km<sup>2</sup> to 119,000 km<sup>2</sup> — an increase equivalent to nearly 7

Yellowstone National Parks. However, because these protected areas contain a disproportionate amount of rock and ice, conservation action for bears and other species must also include the remaining 87% of the land that is not protected. Conservation strategy outside protected lands was based (given the constraint of powerful economic/industry interests) on forest practices mimicking natural disturbance regimes. Wet regions, where wildfires are rare, have a higher proportion of forests in old-growth management than areas where fire has historically been more common. In addition to this coarse filter approach to maintain biodiversity, fine filter guidelines have been developed for vulnerable or endangered species, including grizzly bears in some areas. The success and failures of this enormous effort will play out over future decades. There is far more emphasis on conservation now than before the land use planning began, but time will tell whether this is sufficient for some ecosystems and species. For further information, see: <http://ilmbwww.gov.bc.ca/lup/>

## Using Bears in Community-based Social Marketing

Susanna Paisley

Bears are profoundly charismatic, prone to charming some people and infuriating others through conflicts over resources. Their salience provides important opportunities to use bears to achieve wider conservation goals. However, bear biologists are not specifically trained to work with people to influence their attitudes and

behavior. Various useful techniques are available to achieve this goal.

One such method is referred to as social marketing — “A process for influencing human behavior on a large scale, using marketing principles for the purpose of societal benefit rather than for commercial profit” (McKenzie-Mohr and Smith 1999). Social marketing campaigns usually begin by dividing a population into subsets. This is usually accomplished using a survey of knowledge, attitudes, and self-reported natural resource use. Messages can then be targeted to specific audiences.

Social marketing campaigns should be planned so as to disseminate a few carefully-crafted key messages to each specific target audience. Part of this process involves identifying and addressing the main barriers and benefits to sustainable behavior. Although it is usually essential to make use of mass media, such campaigns work best with more direct contact with people. These initiatives should always be pilot tested and regularly evaluated.

For further information, RARE is an organization that specializes in this sort of work (<http://www.rareconservation.org>). Also, these two key references are downloadable free from: <http://www.greencom.org/greencom/books.asp>:

- McKenzie-Mohr, D. and Smith, W. 1999. Fostering sustainable behavior: an introduction to community-based social marketing.
- Day, B. and Monroe, M. eds. 2004. Environmental education and communication for a sustainable world (also in Spanish). ❁



## News and Views from the Trade in Bear Parts Expert Team

Chris Servheen  
U.S. Fish and Wildlife Service  
University Hall, Room 309  
University of Montana  
Missoula MT 59812 USA  
Email: grizz@umontana.edu

Chris R. Shepherd  
TRAFFIC Southeast Asia  
Unit 9-3A, 3rd Floor, SS23/11, Taman SEA  
Petaling Jaya, Selangor, Malaysia  
Email: cstsea@po.jaring.my

The following summarizes what we know of the trade in bear parts for the countries that are principally involved.

### Russian Far East

Vladimir Aramilev

In the southern part of the Russian Far East (Amurskaya oblast, Khabarovski and Primorski regions) hunting bears is legal, with approximately 30-40 Asiatic black bears and 280-300 brown bears taken annually. Illegal hunting also occurs but is impossible to quantify. Bear parts from both legally and illegally killed bears of both species are routinely sold. Bile from wild bears sells for US\$4000-5000/kg and paws sell for US\$60-80/kg. Buyers travel from village to village and buy gall bladders and paws. They then sell to wholesalers who smuggle the parts out of the country. In 2006, 35 gall bladders and 94 bear paws were seized by Primorski customs. In January 2008, protection of game will be transferred from the central government to local government authorities, which will complicate bear conservation during the transition period. We recommend the following strategies to reduce bear trade in the Russian Far East: 1) improve the power of local hunting unions, as they are able to police ille-



© Chris Servheen

A large brown bear gall bladder in a red velvet case from the Russian Far East for sale in a traditional medicine store

gal bear trade better than government authorities; 2) strengthen customs services in importing countries where Russian bear parts are being smuggled (mainly China, South Korea, and Japan); and 3) suppress trade of bear bile derivatives in the importing countries to reduce overall demand.

### China

Jackson Zee  
&  
Jill Robinson

The number of bear farms in China declined from 481 in 1992 to 68 in 2006, but the number of bears on farms is likely stable to increasing. The present number of farmed bears is 7,000, according to the State Forestry Administration, although the actual number may be as high as 10,000. Farmed bile in Sichuan Province sells for US\$270/kg. The government asserts that bear farms promote conservation by reducing demand for wild bear bile. However, this position lacks supporting data, as no studies have been conducted to document numbers or trends of wild bear populations anywhere in China. Meanwhile, in 2006-2007, customs officials have seized approximately 500 paws and 160 gallbladders imported from Russia. Moreover,

there has been an increase in production of products containing bear bile that are not a part of Traditional Chinese Medicine (e.g., shampoo, lotion, cosmetics, sports drinks, and toothpaste). To export these products, the active ingredient is listed as UDCA (ursodeoxycholic acid), instead of bear bile, apparently in an attempt to conceal the CITES violation.

### Vietnam

Nguyen Dao Ngoc Van

Approximately 4,000 bears (primarily Asiatic black bears) live on bear farms in Vietnam. Although the trade in bear products was outlawed in 2005, bear farm owners were allowed to keep their bears, and are likely still selling bile. All farm bears were supposed to be micro-chipped in 2005 and 2006 to preclude entry of new bears into this population. However, in September 2007 the Vietnam Forest protection department seized 280 captive bears, 80 of which were not micro-chipped.

### Myanmar

Saw Htun  
&  
Chris R. Shepherd

Intensive timber extraction and export continue along the Myanmar-China border. The access created by the timber harvest is accelerating trade in wildlife in these rich tropical forest areas. Bear parts are openly



© Chris R. Shepherd/  
TRAFFIC Southeast Asia

An Asiatic black bear in Myanmar freshly killed for its gall bladder

# Bear Specialist Group

displayed for sale in numerous wildlife markets, especially those along the Thailand border and to a lesser extent along the China border. Recent surveys have found that most of the trade involves parts of Asiatic black bears.

## Cambodia

Chantal Elkin

A thriving bear trade, involving paws, gall bladders, and live bears, exists in Cambodia. Most goes to the Vietnam border. Food and medicine are the primary reasons for this trade. Live bears sell for US\$100-600 and gall bladders from wild bears cost ~US\$250 each. There are indications that populations of bears are declining throughout the country.



An Asiatic black bear cub for sale in a market in Laos

## Malaysia

(various sources)

The sale of bear meat in wild-meat restaurants in Malaysia appears to be an increasing threat. People from other parts of Asia often frequent these restaurants, especially for bear

paw soup. Government customs authorities have begun using a protein identification kit supplied by the World Society for the Protection of Animals (WSPA) to identify whether imported and exported products contain bear proteins. This kit can be used to identify bear protein in ~10 minutes. This should aid in thwarting the trade in bear parts.

## Indonesia

Chris R. Shepherd

Habitat loss and illegal hunting on Sumatra and Kalimantan (Indonesian Borneo) pose a serious threat to sun bears in Indonesia. Bear parts, especially claws and canine teeth, are sold openly in gold shops and antique stores in many towns and cities, while live bears and parts are sometimes smuggled out of the country to meet international demand. Of further concern is the keeping of sun bears as pets or in private wildlife collections. Although these issues are widely known to the authorities, little official action is taken to curb these activities.

## Summary comments

There are now 12-13,000 bears (principally Asiatic black bears) on farms used for the production of bear bile in China and Vietnam. Increasingly the bile is used in products that have nothing to do with Traditional Chinese Medicine. Despite national and international bans, the trade in bears and their parts continues and appears to be increasing in many areas. Further research into the scale of the bear trade in Asia is urgently needed, along with greater efforts to assess the impact of the trade on wild populations. Enforcement agencies and governments are encouraged to make bear conservation a priority, and to take action against those breaking laws that were instituted to protect bears. ❁

## Bear Specialist Group

The Bear Specialist Group (BSG) is organized into species and topical expert teams, each with two co-chairs. These co-chairs, along with some other specialists comprise the coordinating committee, which is listed below.

### BSG Co-chairs

Bruce McLellan  
bruce.mclellan@gov.bc.ca

Dave Garshelis  
dave.garshelis@dnr.state.mn.us

### European Brown Bear Expert Team Co-chairs

Djuro Huber  
huber@vef.hr

Jon Swenson  
jon.swenson@ina.nlh.no

### North Asian Brown Bear Expert Team Co-chairs

Harry Reynolds  
hreynolds@reynoldsalaska.com

Tsutomu Mano  
mano@hokkaido-ies.go.jp

### South Asian Brown Bear Expert Team Co-chairs

S. Sathyakumar  
ssk@wii.gov.in

Ozgun Emre Can  
emre.can@bozayi.org

### Asiatic Black Bear Expert Team Co-chairs

Dave Garshelis  
dave.garshelis@dnr.state.mn.us

Mei-hsiu Hwang  
bear1000@ms25.hinet.net

### Sun Bear Expert Team Co-chairs

Gabriella Fredriksson  
gmfred@indo.net.id

Rob Steinmetz  
rob@wwfthai.org

© Chris Servheen

## Sloth Bear Expert Team Co-chairs

N.P.S. Chauhan  
npssc@wii.gov.in

Shyamala Ratnayeke  
sratnaye@utk.edu

## Giant Panda Expert Team Co-chairs

Lü Zhi  
luzhi@pku.edu.cn

Wang Dajun  
djwang@pku.edu.cn

## Andean Bear Expert Team Co-chairs

Isaac Goldstein  
igoldstein@wcs.org

Ximena Velez-Liendo  
xime\_vez@yaho.co.uk

## Trade in Bear Parts

Expert Team Co-chairs  
Chris Servheen  
grizz@umontana.edu

Chris Shepherd  
cstsea@po.jaring.my

## Captive Bears Expert Team Co-chairs

Lydia Kolter  
kolter@koelnerzoo.de

Jackson Zee  
jzee@ifaw.org

## Mexican Black Bear Coordinator

Diana Crider  
diana.crider@gmail.com

## IBA Representative

Frank vanManen  
vanmanen@utk.edu

## Technical and scientific advisors

John Seidensticker  
seidenstickerj@si.edu

Chuck Schwartz  
chuck\_schwartz@usgs.gov

Michael Proctor  
mproctor@netidea.com

## Polar Bear Specialist Group Chair

Andrew Derocher  
derocher@ualberta.ca

## Eurasia

## Greece: Bears Have Sensitive Ear To Highway Construction Noise

Yorgos Mertzanis, PhD  
"CALLISTO" - Wildlife & Nature  
Conservation Society  
Greece

Email: mertzanis@callisto.gr  
&

Alexios Giannakopoulos, PhD Student  
University of the Aegean  
Department of Environmental Studies  
Laboratory of Biodiversity  
Management  
"CALLISTO"  
Greece

The monitoring study assessing the impact of the Egnatia highway construction on the brown bear population and habitat in the eastern Pindos mountain range has yielded some interesting preliminary results.

Despite harsh winter conditions, highway construction continues to progress and for a third year. Noise produced by no fewer than 12 work

camps and heavy machinery operating 24 hours a day, appear to be creating an acoustically hostile environment to the indigenous brown bear population.



Over the last 6 months, researchers from Callisto and Alexios Giannakopoulos' have been closely monitoring the response to construction of 14 radio-collared bears (5 are fitted with GPS/GSM radio collars) in the study area. The initial analysis of bears' spatial behavior and movement patterns in response to disturbance from construction has revealed some

interesting results! In particular bear habitat use, determined by locations from satellite telemetry, have been correlated with data on noise level from construction. Noise measurements

were made during day and night hours as well weekends when construction work usually slows down. We also noticed how in a completed and open section of the highway traffic noise impacts bears' spatial behavior.

Our analysis suggests that it is likely that the greater amount of activity of the radio-collared bears during night may not only be related

to their normal biological rhythms but also to the possible negative influence construction noise on the highway during daylight hours.

A sample of 2,481 radio locations from 5 radio-tagged bears showed that 78.95% of the locations in the vicinity of the work camps were during the night hours and/or weekends when the construction and subsequent induced



noise levels are at their lowest level (25-47 dB(A)).

Above 47 dB, the rate of bear radio locations in the same sampled sectors appears to be significantly lower and decreasing during daylight hours and during construction night shifts when noise levels range from 47 – 65 dB.

Currently, some of the radio-collared bears are not denning allowing Alexios to continue active data gathering and processing to better support this hypothesis with a complete year of monitoring to next summer. ❁

## Brown Bears in Yakutia

Innokentiy M. Okhlopkov  
Institute of Biological Problems  
of the Criolitozone

Russia

&

Leonid M. Baskin  
Institute of Ecology and Evolution  
Russian Academy of Sciences

33 Leninsky Prospect

Moscow 119071, Russia

Phone: +7 495-246-53-81

Fax: +7 495-954-55-34

Email: baskin@orc.ru

The Republic of Sakha (Yakutia) covers a good part of Eastern Siberia (Figure 1) and is one of the few

remaining pristine areas in the world. However, the density of human populations in parts of the Lena Valley near the capital city, Yakutsk, as well as near mine sites, is a high. Because brown bears are targeted by hunters, the bear density in this area is poor. In other parts of Yakutia, bears are hunted by indigenous people. For them, killing a bear means not only meat and skin, but also a reason to start a “bear feast” with many special ceremonies. The brown bears of Yakutia are rather big: males are 100-110 cm high and females are 75-85 cm high. The body length of males is 180-193 cm and that of females 140-148 cm (Mordosov, 1993). For indigenous people, harvesting a bear is a great gift.

During 1986-2000, we studied brown bears in the central part of the Verkhoyansk Range, in the Yana watershed and Aldan Rivers and the southeastern parts of the ridge between the Munni and Tigyendya Rivers (Figure 1). In this area, mountains reach 1500-1700 m in height, and the valleys are 860-1100 m above sea level. Winter in this region, where temperatures from -55 to -60 degrees Celsius are frequent, features one of the most severe climates on earth. The summer is fairly hot (+25° is the mean high temperature in July). Due to high humidity (117–151 mm/month of rain is the norm during the summer), there is plenty of lush vegetation

near the river bed as well as mountain valleys.

In the study area, the majority of bears are seen in the spring on the southern slopes, where snow cover disappears first. The first flower buds and leaves on the bushes as well as cowberries found under the thawing snow attract bears. During the summer, the bears’ range expands, although alpine-like meadows in the proximity of streams and rivers remain their favorite habitats. These places are lush with vegetation and provide shelter from blood sucking insects. For this same reason, bears also heavily utilize the wind-blown mountain tundra covered with *Dryas*.

At the end of the summer and beginning of autumn, brown bears stick to the pine forest or (if there are no pine cones to harvest) in blueberry (*Vaccinium uliginosum*) bushes in the river valleys. In the *Populus* and *Chosenia* forests of the river valleys, bears also feed on the juicy roots of “bear pipes” (*Angelica deccurens*). We observed that in the central Verkhoyansk area, grasses, forbs and shrubs (horsetail *Equisetum sp.*, rhizome of Leguminosae and *Angelica*, berries, pine seeds) are bears’ favorite food during the summer. During the summer months, bears also occasionally feed on rodents, like mice, chipmunk (*Tamias sibiricus*), marmots (*Marmota camtschatica*) and ground squirrel (*Citellus undulatus*), or ungulates. Bear attacks on moose (*Alces alces*), reindeer (*Rangifer tarandus*), and snow sheep (*Ovis nivicola*) have also been recorded (Egorov, Labutin, 1964). On June 14, 1987 near Inderkey Lake, we witnessed a big bear trying, without success, to take down five adult male snow sheep. In the spring, bears are often found feeding on carcasses of domestic reindeer.

In Yakutia, the bear mating season starts during the second half of June. The peak is in mid-July, and it is common for a single female to be chased by several males (8-9 at a time). Bears mate in valley bottoms or on stream banks (Mordosov, 1993).

In the central Verkhoyansk area, we witnessed the first signs of mating during the first ten days of June and a peak in activity during the second half of July.

In the mountains, good den sites are few and far from the areas rich in forage, and bears must go elsewhere to den. Between the second half of August and the beginning of September, part of the bear population descends from the Verkhoyansk Range and

cave and even rarer to find a bear hibernating under shrubs or in wood thickets without digging a den. The timing of hibernation varies from year to year, mostly it begins the end of September. In the lean years, they hibernate later. The mean period of hibernation is 6.5-7 months; females stay 2-3 weeks more (Egorov, Labutin, 1964). The time at which bears emerge from their dens depends on their physical status in the autumn. In

ally like forested and low-lying places. There were many fresh and old dens on the edge of where the Munni and Tigyendya Rivers meet.

According to 1980 censuses there are 8,000-10,000 bears in Yakutia (Vinokurov, Mordosov, 1987). According to the same source, all taiga mountain ranges of North East Yakutia are areas of high bear density (0.8-0.9 bears/100 sq. km). Our data show that there are many brown bears in the central Verkhoyansk area. In the axial part of the ridge, according to our observations, in an area of 1000 sq. km., there were 3-5 bears. The more forested the area is, the more bears are found there. In the Gnaas Valley near the mouth of the Konkyunyr River, the density of bears is 1.1 bear /100 sq km; the density is higher where the Munni and Tigyendya Rivers meet (mean density reaches 1.5 bears/100 sq km).

During the study period, we never witnessed signs of bear predation due to lack of food. However, there are times when bears may emerge from their dens and attempt preying on domesticated reindeer due to limited availability of natural foods. In these cases, bears are often shot by herders.

## References

- Egorov, O.V., Labutin Yu. V. 1964. Data on feeding of predator mammal of Verkhoyansk area. In: Solomonov, N.G. (ed.) Vertebrates of Yakutia. Yakutsk, Press of Yakutsk branch of Academy of Sci. P. 51-59
- Mordosov, I.I. 1993. Brown bear. Yakutia. In: Vaisfeld, M. and I. Chestin (eds). Bears – brown bear, polar bear, Himalayan bear. Moscow, Nauka Publishing, 519 p.
- Tavrovsky, V.A., Egorov, O.V., Krivosheev, V.G., Popov, M.V. Labutin, Yu. V. 1971. Mammals of Yakutia. Moscow, Nauka, 659 p.
- Vinokurov, V.N., Mordosov I.I. 1987. Distribution and numbers of brown bear in Yakutia. In: Yudin, V.G., ed.) Ecology of bear. Novosibirsk, Nauka Press, C. 41-45

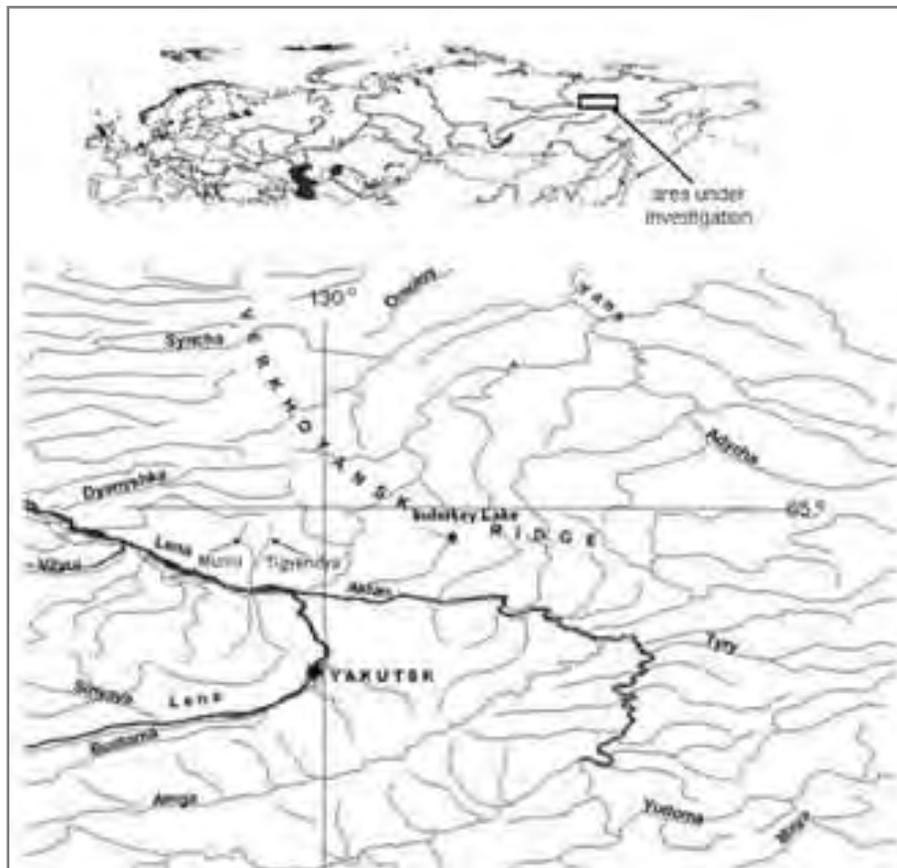


Figure 1. Map of Yakutia area

Adycha Plateau to the Verkhoyansk depression. Other bears come down when it starts snowing steadily. In the central Verkhoyansk area, in early spring (end of April and the beginning of May), bears move back to the mountain range.

In the taiga, bears dig their dens mostly on the southern, western or eastern slopes. They dig a den under tree roots or bushes. It is rare that a bear spends the winter in a natural

Yakutia, bears leave dens at the end of April or beginning of May, staying near the den sites initially. Females with yearlings emerge in mid-May.

We have no direct observations of bears in dens in the axial part of the Verkhoyansk Ridge. Reindeer herders told us of some den sites. In 1987, we found one den on the southern slope, in the Aldan Basin, by the mouth of Konkyunyr River. The den was on a steep bank. For denning, bears usu-

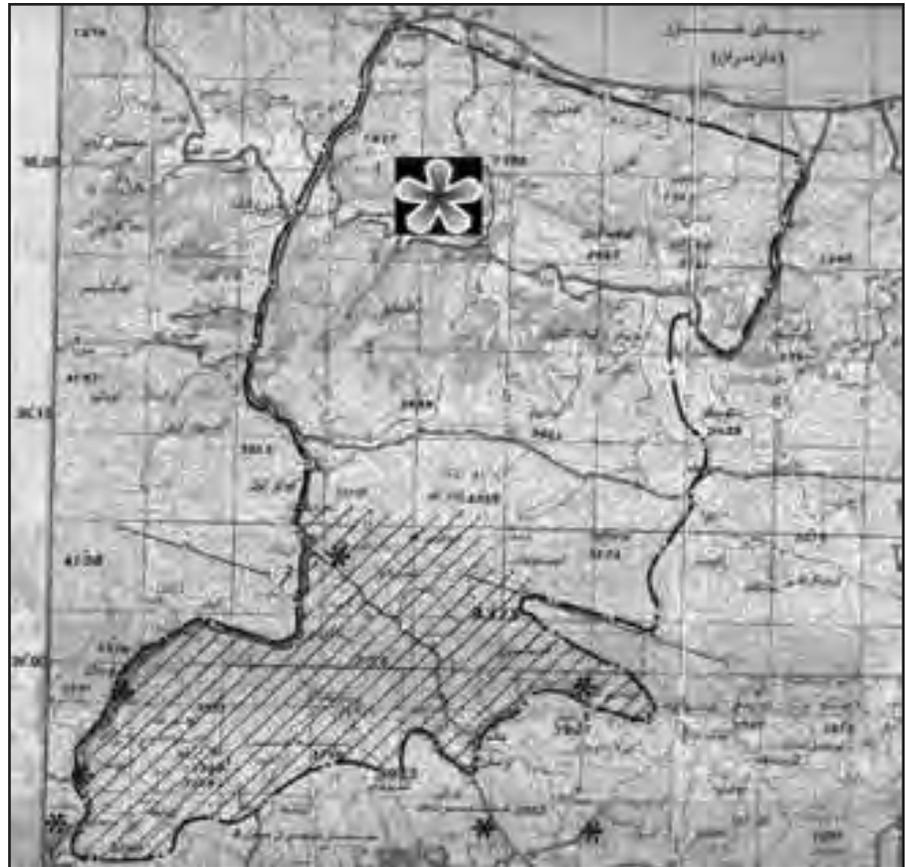
## Brown Bears in Iran

Ali Aghili, Director  
Biodiversity and Ecosystems  
Conservation Society  
No 208 South Mofateh Ave  
Tehran, Iran  
Phone: +98 21-8831-50-99  
Mobile: +98 932-909-59-33  
Email: aagili9@yahoo.co.uk  
&  
Karmela Yahyakashani  
International Affairs, Funds and  
Programs Director  
Biodiversity and Ecosystems  
Conservation Society  
Chino Hills CA 91709, USA  
Email: Karmela421@yahoo.com

Iran is home to various species of wildlife, and also people who help them survive for the long term. Iran contains almost 140 protected areas, wildlife refuges, national parks, and national natural monuments that cover 8% of this 1,648,195 km<sup>2</sup> country. The Department of the Environment in Iran was formed by the government of Iran in the late 1960's, and began to select protected areas of different categories. Iran was also very active in terms of international efforts for the conservation of natural ecosystems, such as the 1972 Ramsar Convention on Wetlands. Iran's revolution in 1979 caused a sudden change in terms of the environment and species conservation, and most emphasis was placed on national security. In addition,



© Ali Aghili



easy access to firearms contributed to serious declines in Iran's wildlife population because of poaching. Because of isolated habitat, some mountain species have been able to persist. Recent political developments have raised more concern because of the lack of international funding available for internal and collaborative projects. One recent proposal recom-

mends turning the nation's resource conservation over to the private sector for an emphasis on hunting and ecotourism, which should be of concern.

The subspecies for the brown bear in Iran is

still questionable; in some cases, it is listed as *Ursus arctos persicus*. Brown bears exist in Iran's Azerbaijan Range, the Alborz Mountains extending to the Turkmenistan border, and in the Zagros Mountains extending to the Persian Gulf coastal foothills. There is little to no scientific information available regarding population status, movements, behavior, diet, ecological needs, and threats. Most information is limited to bear/human conflict cases, or based on old hunting trophies. While the brown bear is currently a protected species, occasional special permits are allotted to foreign hunters. Current reports of the species only presently occur in isolated protected areas.

Central Alborz is a vast protected area in northern Iran, extending from the Iran-Touranian Highlands north to the Hyrcanian jungles and the Caspian coast. This covers 398,853 hectares of mixed mountainous areas from semi-dry to deciduous forests. Most of this area is considered habitat

to brown bears. The Golestanak Protected Area is located inside the northwestern portion of the Central Alborz Protected Area (see map), which consists of valleys with dense forest vegetation and highlands above the tree line. The highest peak is 4000+ meters; other mammal species that live in this area include *Capra aegagrus*, *Cervus elaphus maral*, *Sus scrofa*, and *Panthera pardus caucasica*.

Golestanak is relatively a very good area for observing bears because they are mostly active during the whole year with a seemingly limited hibernation. Observations of the author include diurnal activity in open mountainous areas above the tree line, where they feed on vegetation. Opportunities to observe individuals are high. For example, during 2 hours of tracking during Spring 2006, the author observed 7 different bears in different areas, including a female and her cub, 3 large males, and a mature female with a young male which was chasing her and demonstrating mating behaviors.

There are very few records of bear/human conflict in this area due to the low human population within the Golestanak Protected Area. One of the few threats is from human use during spring and summer when rural inhabitants come to collect mushrooms and herbs. Some herders utilize the area, but few cases of predation have been reported. While the Golestanak Protected Area contains some of the more significant populations of brown bears and contains good habitat, very little biological and ecological information is available at this time. In addition, no management strategies are in place. Funding for research and conservation is strongly needed, but is not likely to happen through Iran's current government. ❁

## News from Pakistan: Bears Facing Serious Problems Again

Fakhar-i-Abbas, PhD  
Director  
Bioresource Research Centre  
34 Bazar Road G-6/4  
Islamabad, Pakistan  
Phone: +923 9552253  
Fax: +925 12275899  
Email: fakharabbas@hotmail.com  
Web: www.pbrc.edu.pk

Three subspecies of bears were once widely distributed in the northern and western mountains of Pakistan. The Baluchistan black bear (*Ursus thibetanus gedrosianus*), the Himalayan black bear (*Ursus thibetanus thibetanus*), and the Himalayan brown bear (*Ursus arctos isabellinus*). Through the involvement of local staff and the cooperation of local residents, we collected some data that confirm that the future of all three subspecies is bleak.

The Baluchistan black bear, endemic to the dry hills of Baluchistan, is believed to be critically endangered and has probably lost the war for its survival against human exploitation. Recent reports point to some indirect evidence of the presence of a small population in southern Baluchistan.

The other two subspecies are still fighting for their survival in the wild against human exploitation. The Himalayan black bear is distributed in comparatively lower altitude of dry and moist temperate forests. Human encroachments on its habitat, cub poaching, and direct killing threaten its survival and are resulting in a consistent decline and fragmentation of the population. Unfortunately, for the last three years, the area that coincides with the bears' distribution range has been under the control of terrorists. Terrorist activities and related government operations represent a major disturbance for the movement of the Himalayan black bear, its habitat and biological activities. As a result, a possible and rapid decline in the bears'



population during the coming years is expected.

The Himalayan brown bear was fairly well distributed in the subalpine zones of Pakistan. The bear has been fighting against the limited biological resources present given the rather harsh climate and dealing with the threats caused by poaching on cubs. About 70% of its habitat occurs in the northeastern part of Pakistan, an area that continues to suffer from the ongoing tensions between India

and Pakistan. As the tensions persist and conservation efforts lag, evidence suggests that the Himalayan brown bear population is rapidly declining. A small population still exists in Chitral, Phunder, and Yasin areas in the northwestern part of Pakistan.

If we would like these populations to persist in the future, strong conservation efforts based on sound biological studies of the subspecies discussed are urgently needed. At present,

acquiring information on the status of the bear population in Pakistan, especially in conflict areas, is challenging, yet a major involvement of local residents is helpful. Engaging local residents in community-focused conservation efforts, through education and appropriate financial incentives, can yield more information on the bear subspecies and, hopefully, over time reduce the impacts that human activities have on them. ❁

## Americas

### Polar Bears International: In-Field Lecture Program

JoAnne Simerson  
Polar Bears International Advisory Council  
Email: jsimerson@msn.com

Polar Bears International is a conservation organization with a clear mission: the conservation of polar bears through research and education. If you are lucky enough to venture to Churchill, Manitoba, during the fall to see the polar bears, you may well experience one of PBI's Adventure Learning Programs. The In-Field Lecture program was formed to provide more education to visitors to the tundra and to develop and promote leadership in women in the zoo profession. The IFL team joins staff from Tundra Buggy Adventures on the buggy tours to share their knowledge and passion about polar bears and the conservation initiatives of Polar Bears International.

Candidates for the In-Field Lecture Team must be members in the zoo profession and have experience working with polar bears. The team members are chosen for their great

people skills and ability to work in a complex environment, intelligence, and superior sense of teamwork. They are energetic and are dedicated to educating their community about polar bears and the arctic. The program is now four years in development and



© Teresa Wiley

005- 2007 team with Tundra Buggy Guides

has had IFL Arctic Ambassadors from Alaska, Oregon, California, Minnesota, Ohio, and New York.

New team members are trained for the experience by other IFL Ambassadors through a DVD of the presentations as well as several discussions with other team members about the experience and expectations for the

trip to Churchill. The backbone to the IFL knowledge is the, currently, 55-page guidebook. This book is a living document constantly updated with the most up-to-date information on polar bears and the climate changes in the arctic. A great benefit to having all disciplines represented on the PBI Advisory Council is ease of getting answers to questions about the arctic environment and ever increasing knowledge about polar bears. Frequently this information is given through personal conversations and publications from members of the advisory council, thus giving the value of the most accurate and current information for our audience. In addition, IFL's team members contribute their own stories and experiences to broaden the scope of the knowledge base. The information in the guidebook, and the IFL's

own professional experience, greatly prepares them for just about any question or situation out on the tundra!

The IFL day begins at dark with joining the team of Tundra Buggy staff to prepare the buggies and buggy launch area for the visitors. The visitors soon arrive and it's off



© JoAnne Simerson

Skull demo - Tundra Buggy guest Jonathon Szymanowski and JoAnne Simerson

to bear viewing on the tundra. The IFL develops relationships with each visitor sharing information about the experience to help each visitor take home a greater appreciation of the

far north and polar bears. During the day, the IFL will give a presentation about some of the conservation work and education PBI is sponsoring throughout the world. The presentation concludes with sharing information on the physiology and anatomy of polar bears with showing a replica polar bear skull and claw, and a piece of fur and hide. A highlight is the now tradition of demonstrating how a polar bear makes a kill using the replica skull and an unsuspecting guest! By the end of the season IFLs have spoken with and shared their knowledge with close to 4,000 visitors. The value of this program is

the personal connection to each guest by the IFL to promote conservation of polar bears through a day of education and friendship on the tundra.

The IFL comes home with a richer knowledge and experience about polar bears and the arctic and initiates a program at home to continue to share that knowledge, experience, and passion about the far north and polar bears. They further fulfill their commitment by bringing the skills and knowledge they gained from the IFL experience to their home organizations, colleagues, and communities. This helps promote these women as leaders in the zoo profession and expands their networks to further the conservation of polar bears.

For information on Polar Bears International In-Field Lecture program, or if you know of a woman in the zoo profession that would be interested joining our team, please contact the author at [jsimerson@msn.com](mailto:jsimerson@msn.com), or see [www.polarbearsinternational.org](http://www.polarbearsinternational.org). ❖

## Fragmentation of the Forest Habitat of the Spectacled Bear (*Tremarctos ornatus*) in the High Basin of the River Bucaral in the Portuguesa Mountain Range, Lara State, Venezuela

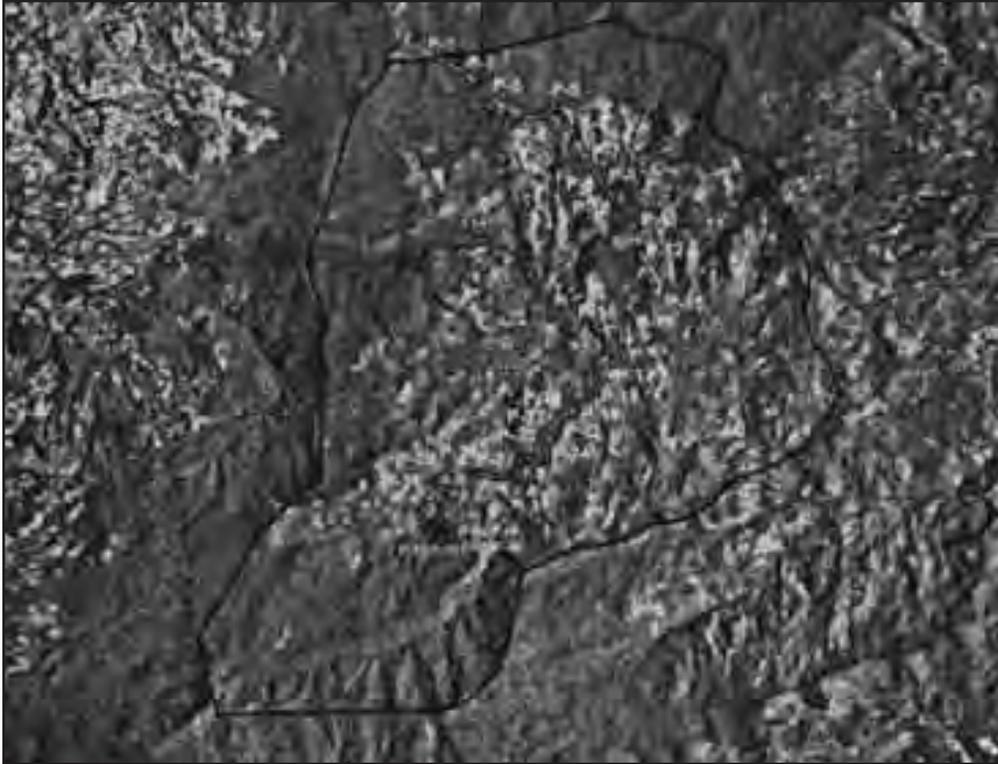
Lcda Lameda C. Fátima Imarú  
University of Yacambú  
Venezuela  
Advisor: Lcda Yasmín Quiroz  
Email: [imarulameda@gmail.com](mailto:imarulameda@gmail.com)  
[osita.frontina@yahoo.com.ar](mailto:osita.frontina@yahoo.com.ar)

This study seeks to determine the variation in the fragmentation of forest habitat of the spectacled bear (*Tremarctos ornatus*) inhabiting the high basin of the river Bucaral in the Portuguesa mountain range, Lara State, Venezuela. The study involved the collection of data in the field and use of Geographic Information Systems (GIS) (ArcGis ArcView 9.1) for the analysis and display of maps and satellite imagery.

The first step was to identify disturbed and undisturbed forest areas in the basin. In the basin (measuring 5001.2 ha (100%)), we identified 31 uniform patches of vegetation for a total of 3907.7 ha (78.1%) and several fragmented/disturbed patches throughout the basin for a total of 1093.5 ha (21.9%). From observations in the field and GIS maps, the undisturbed forest areas have a defined structure especially in the high part of the basin where the patches are very large. Some smaller patches occur in the centre of the basin. In contrast, the disturbed patches are small and numerous; the majority of them represent areas that are cultivated or used for cattle



Investigator measuring tree platforms built by hunters



Ortofotomap of the high basin of the Bucaral river (1998)

© Instituto Geográfico de Venezuela "Simón Bolívar"/Lameda 2006

ed areas and thus serve as habitat for species that need greater space to survive.

The destruction of forests in the high river basin of the Bucaral River as well as other human caused disturbance (e.g., agriculture and hunting) is increasing the pace at which fragmentation is occurring there. As a result, the ability of spectacled bears to thrive is at risk. This species needs large amounts of forest cover to satisfy its needs. The fact that the basin is undergoing a process of fragmentation is a great threat to the bear's survival and could lead to genetic isolation and local extinctions. For this reason, it is necessary to preserve undisturbed areas for bears as well as create ecological corridors between habitat

grazing. They are found along the road and access points to the basin.

We determined that there is a variation in the forest cover in the river basin. There is a high occurrence of

patches of disturbed forest cover, of varying size and shape. Such patches could be restored with adequate work. Some that are not owned or used by anyone could be converted to protect-

patches. These preserves will not only protect bears but the scenic, biological, cultural, and social value of the basin as well. ❁

## Student Forum

### Student Forum

Brian Scheick  
IBA Student Coordinator  
Florida Fish and Wildlife  
Conservation Commission  
1526 Kelvin Ave.  
Deltona FL 32738-5002 USA  
Phone: +1 386-789-7063  
Email: brian.scheick@myfwc.com

#### Greetings!

After Diana Doan-Crider bested me for the position of IBA Secretary, she couldn't let me leave without something to do, so she appointed me

to replace her as Student Coordinator. I've been helping her with the students where needed since San Diego, but I still have some big shoes to fill. I hope to be as helpful and creative. Contact me if you have thoughts, comments, or questions about the Student Forum. Our Student Listserve, Truman, will also be undergoing some changes. For now, Diana will be getting help from David Hewitt to continue managing Truman through the server at Texas A&M University-Kingsville, but she will soon be transferring that site to a new location. Stay posted!

### Monterrey, Mexico

If Diana's family was the backbone of the IBA Mexico 2007 Conference, students were the limbs. They were everywhere helping with everything. A platoon of students from the Universidad Autonoma de Nuevo Leon was around to help with anything and everything. Students from Texas A&M University-Kingsville helped run the presentations and the poster sessions, and also helped with our new tradition of the "silent auction." Several students gave presentations and posters, and the student lunch was so well attended.

## Students Sign Up **Now!** TRUMAN'S LIST SERVE

### Instructions

- For students only
  - Discussions pertaining to bear biology, management, or study design challenges
  - Assistance with proposals and study design through IBA professionals
  - Job searches, announcements, information regarding the IBA and student membership
  - Planning for IBA student activities and meetings
  - IBA membership is *encouraged*, but not required for initial sign-up
- Contact Diana Doan-Crider at [diana.crider@gmail.com](mailto:diana.crider@gmail.com) to enroll
  - After enrollment, go to <http://aristotle.tamuk.edu> (This website may change soon - check website or contact Diana Doan-Crider)
  - Click on *Agricultural Lists*
  - Click on *Truman*
  - Enter your email address and the password "Bears01"
  - Go to *Create Message*
  - Do NOT reply to list serve messages using your "reply" button. You must return to Truman and respond within the list serve or else other members will not receive your response.
  - If you're a new member, please submit a paragraph about your project and include your contact information so we can all get to know you.



As a matter of fact, we spilled over the space allotment and had to reconvene elsewhere.

Speaking of the Silent Auction, corporate sponsors, IBA professionals, and students donated approximately 120 items for the auction. We had a wide variety including key chains, bracelets, hats, shirts, carvings, and a leather mask. The items were spread around four walls of a room next to the poster session so that people could view posters and pop in to place their bids. Bidding grew furious as time grew short, and by the end, students were needed to haze the panicked bidders out of the room. The winner

of each item was posted on a screen, and then continued on to pay for and collect their item at the registration window. This great event helped the IBA raise nearly US\$2,400 to defray costs of lodging and other travel support for students. Several people mentioned that seeing the items at the auction gave them ideas of items they could have brought. THIS IS YOUR REMINDER. Collect, label and put those items aside now for the next conference! If it continues, this can become a fun addition to the conferences.

The day after the conference, a bear immobilization class was held at the

local zoo, which was willing to allow a bear to be immobilized for training. Several experienced veterinarians from Norway and Canada were there to offer advice and answer questions, and what started as a session for students attracted many professionals as well. Only a small group could assist with immobilizing the bear, so after the Q&A session, more experienced biologists were asked not to sign up. That left about 26 students, a large but manageable number. The rest of us were free to wander the zoo for a few hours. 🐻

## Archaeobiological Assessment of a Grizzly Claw Necklace Attributed to the Lewis & Clark Expedition (1804-1806)

David Mather  
National Register Archaeologist  
Minnesota Historical Society  
Email: david.mather@mnhs.org

Coincident with the bicentennial celebration of the Lewis & Clark expedition's western exploration, a remarkable artifact brought back by the Corps of Discovery was rediscovered at the Peabody Museum in Cambridge, Massachusetts.

Historical museum records had indicated that a necklace made of grizzly bear claws was once associated with the Peabody's Lewis & Clark collections. From the scanty paper trail, however, it was previously suspected that the necklace had only been on loan to the Peabody in the early twentieth century. With the turn of the twenty-first century, anticipation of the approaching bicentennial brought renewed awareness and increased interest in the few objects and records that could be securely associated with the Corps of Discovery. It was in this context that the grizzly claw necklace was rediscovered during a museum inventory project, having been mistakenly placed in an Oceania storeroom more than fifty years earlier (Castle McLaughlin, Peabody Ethnography Curator, personal communication; see McLaughlin 2003).

The Lewis & Clark grizzly claw necklace holds incredible research and interpretive potential. It is an enormously powerful and evocative artifact. McLaughlin places the necklace within the category of "chiefly gifts" that would have been given to the explorers by American Indian tribes for diplomatic purposes. Further analysis of the style and materials of the necklace may help reconstruct the path of the necklace, both in terms of the Corps of Discovery and its original source.

The enormous claws are the most striking aspect of the artifact. Thirty-

five are strung on the necklace, and another three are loose. The plantar surfaces of the claws have been cut. This modification creates a flat, smooth, curving surface on the underside of the claw. The claws consist of the bone core of the third phalanx and the keratinous sheath that forms each claw. The claws are drilled through the knuckle of the third phalanx and strung to hang next to one another. Some of the loose claws have a second hole drilled approximately half-way down the length of the claw. A powdery substance that appears to be red ochre is present on the necklace. It is concentrated on the underside of the claws.

The grizzly bear claws themselves were the focus of my study. Ultimately, I sought to determine the minimum number of bears represented by the claws, and to determine which claws were derived from which bear. It was a macroscopic analysis, based on visual examination and measurements, building on previous documentation by Peabody Museum staff. This preliminary assessment can be considered a preparatory step, to facilitate future study of the Lewis & Clark necklace.

Archaeobiology aims to "analyze the relationships between humans and plants and animals and their effect(s) on each other" (Sobolik 2003:2). This is an appropriate approach to the necklace because its research potential is derived from multiple, inter-related sources. As a repositories of biological information about past bear populations, the Lewis & Clark necklace and other grizzly claw necklaces contain data reaching beyond the individual bears themselves. The claws may be appropriate sources for study of past ecological conditions, climate, plant communities, ursid demography and other subjects, through analysis of isotopes and ancient DNA, for example. These are destructive analyses, how-

ever, which always warrant careful consideration relative to artifacts and other ethnographic objects. Given the profound cultural importance of grizzly claw necklaces and artifacts of the Lewis & Clark expedition, it is even more important in this case.

The theoretical movement of "applied zooarchaeology" (Lyman and Cannon 2004) stems from a recognition amongst zooarchaeologists that the data we produce is directly relevant to contemporary questions of wildlife management and conservation biology. While it should be assumed that most animal populations have long been influenced by humans to some degree, archaeological sites can provide baseline data regarding species range, demography and other issues prior to the advent of historic-era overhunting and habitat degradation. Interpretation of these data creates a deep historical context for current management decisions, whether in regard to hunting limits, habitat enhancement and protection, or reintroduction of species to former parts of their range. Seen in this light, the Lewis & Clark necklace, and other grizzly claw necklaces, takes on even greater importance. They are charismatic artifacts, symbolic of, and constructed from, a charismatic large species. While it is unlikely that grizzly bears will ever be reintroduced over large sections of their former North American range, study and interpretation of these necklaces clearly has the potential to benefit ongoing conservation and management decisions, and public perception of the great bears around the world.

I approached this study from a background in zooarchaeology, but there is a significant difference in applying this sort of analysis to an ethnographic object. While archaeological bone fragments are often fragile, they can usually be readily handled, turned around and over, and

held side to side with comparative specimens. For obvious reasons, this cannot be done with the Lewis & Clark necklace, or any intact grizzly bear claw necklace. The object must be studied as a single unit, with a minimum of handling, to prevent inadvertent damage.

Measurements of the claws and color variation within each claw were made in an attempt to identify individual bears within the necklace. Estimates were also made of orientation on the body (left or right paw) and placement of the claw within the paw. Based on this preliminary analysis, it appears that the 38 claws of the Lewis & Clark grizzly bear claw necklace represent a minimum of 20 bears. These hypothesized individuals are designated Bears A through T. Five of these hypothetical bears are proposed with confidence. Another nine are proposed with less confidence. The remaining six are represented by individual claws that could not be correlated with other claws in the necklace.

It is interesting that only one bear is represented by four claws (Bear D). Three (B, E and F) are represented by three claws. All of the others are represented by two claws or less. This implies that some level of trade in claws was going on when this necklace was made. Presumably, the person who made this necklace did not kill all of these bears. Otherwise, a smaller number of bears would be represented in the necklace, and the bears would be represented by a greater number of claws. It appears that the artist took

Photo courtesy of The Library of Congress



Captain Clark and his men shooting bears

care to position the claws for a symmetrical presentation on the necklace. This is most apparent with Bears M and N, each represented by two claws on opposite sides of the necklace.

It was a great honor to study the Lewis & Clark grizzly claw necklace, and I am very grateful for the hospitality shown by the Peabody staff during my visit. Castle McLaughlin, Scott Fulton, Esther Chao and others went out of their way to facilitate this research, and to maximize the work that could be done in the short time available. Comparative study at the Science Museum of Minnesota was made possible by Jackie Hoff, Tilly Laskey, Dick Oelenschlager and Ed Fleming. At the Minnesota Department of Natural Resources, Dave Garshelis, Karen Noyce and Pam Coy provided access to their study collection and offered helpful advice. Special thanks are due to John Hechtel of the Alaska Department of Fish and Game, for his interest in this project, and his descriptions and illustrations of grizzly bear claws with advice on determining left from right, and correlating individual claws with bears. This guidance made a significant contribution to the study. This column is an edited summary from

the report submitted to the Peabody Museum (Mather 2007).

## References Cited

- Lyman, R. Lee and Kenneth P. Cannon. 2004. Applied Zooarchaeology, Because It Matters. In *Zooarchaeology and Conservation Biology*, edited by R. Lee Lyman and Kenneth P. Cannon, pp. 1-24. University of Utah Press, Salt Lake City.
- Mather, David. 2007. The Lewis & Clark Grizzly Claw Necklace (41-54-10/99700): A Preliminary Assessment Relative to Ursid Archaeobiology. Mather Heritage Group, LLC, Project Report M44, St. Paul. Report prepared for the Peabody Museum of Archaeology and Ethnology, Harvard University.
- McLaughlin, Castle. 2003. *Arts of Diplomacy: Lewis & Clark's Indian Collection*. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, and University of Washington Press, Seattle.
- Sobolik, Kristin D. 2003. *Archaeobiology*. AltaMira Press, Walnut Creek, CA. ❁

# Publications

## February 2008 Recent Bear Literature

Richard B. Harris  
*Ursus* Editor  
218 Evans  
Missoula MT 59801, USA  
Email: rharris@montana.com  
&  
Tanya Rosen  
P.O. Box 1404  
Ennis MT 59729, USA  
Email: saffron@3rivers.net

Kannan, K., Agusa, T., Evans, T.,  
Tanabe, S. 2007. Trace Element  
Concentrations in Livers of Polar  
Bears from Two Populations in  
Northern and Western Alaska.  
*Archives of Environmental  
Contamination and Toxicology*  
53(3):473-482

Murphy, M., Kendall, K., Robinson, A.,  
Waits, L. 2007. The impact of time  
and field conditions on brown bear  
(*Ursus arctos*) faecal DNA ampli-  
fication. *Conservation Genetics*  
8(5):1219-1224

Reynolds-Hogland, M. J., Pacifici, L.  
B., Mitchell, M. S. 2007. Linking  
resources with demography to  
understand resource limitation for  
bears. *Journal of Applied Ecology*  
44(6):1166-1175

Robbins, C.T., Fortin, J. K., Rode, K. D.;  
Farley, S. D., Shipley, L. A., Felicetti,  
L. A. 2007. Optimizing protein  
intake as a foraging strategy to  
maximize mass gain in an omni-  
vore. *Oikos* 116(10):1675-1682

Swenson, J., Adamič, M., Huber, D.,  
Stokke, S. 2007. Brown bear body

mass and growth in northern  
and southern Europe. *Oecologia*  
153(1):37-47

Valdiosera, C. E., García, N.,  
Anderung, C., Dalén, L., Cré-  
gut-Bonnoure, E., Kahlke, R.,  
Stiller, M., Brandström, M.,  
Thomas, M.G., Arsuaga, J.L.,  
Götherström, A.; Barnes, I. 2007.  
Staying out in the cold: glacial  
refugia and mitochondrial DNA  
phylogeography in ancient Europe-  
an brown bears. *Molecular Ecology*  
16(24):5140-5148

Zhang, S., Pan, R., Li, M., Oxnard, C.,  
Wei, F. 2007. Mandible of the giant  
panda (*Ailuropoda melanoleuca*)  
compared with other Chinese  
carnivores: functional adaptation.  
*Biological Journal of the Linnean  
Society* 92(3):449-456 ❁

# Communications

## International Bear Cub Newsletter is out!

Tanya Rosen  
P.O. Box 1404  
Ennis MT 59729 USA  
Email: saffron@3rivers.net

The first issue of the International  
Bear Cub Newsletter is out! It's a  
newsletter for children about bears,  
scientists studying them, and places  
where bears live. Harry Reynolds  
inspired the concept when he first  
wrote in the *IBN* about the Gobi Bear  
Children Club and the importance of  
connecting children from all over the  
world and developing their interest in  
bears.

This issue features Siew Te Wong  
and the Sun Bear. I would like to  
feature as many of you as possible,  
your projects, and the bears you are  
studying, so please get in contact

with me! Most importantly, ask your  
children or those you know to send  
me their stories, pictures, or whatever  
the sight or thought of a bear evokes  
in them.

The first issue is available for  
download at [www.planetbear.org](http://www.planetbear.org). The  
second issue will follow sometime  
in the spring. You can send me your  
stories and pictures at [sunbear74@mac.com](mailto:sunbear74@mac.com). Thanks! ❁



## Hair Loss Among Bears – N. American Zoo Survey

Russ Van Horn, Ph.D.  
Researcher, Applied Animal Ecology  
Conservation & Research for  
Endangered Species (CRES)  
Zoological Society of San Diego  
15600 San Pasqual Valley Road  
Escondido CA 92027-7000, USA  
Email: [rvanhorn@sandiegozoo.org](mailto:rvanhorn@sandiegozoo.org)

Research (CRES), veterinary, and  
husbandry staff of the Zoological  
Society of San Diego are surveying  
North American institutions about  
the occurrence of hair loss among  
bears, particularly Andean bears.  
We're especially interested in progres-  
sive hair loss that eventually occurs  
over much of the bear's body. The  
goal of this study is to identify risk

factors and effective treatments for this condition, and to determine whether hair loss may be a predictor of other conditions. Although our initial emphasis is on hair loss among captive Andean bears, we'd like to establish whether hair loss also occurs in free-ranging Andean bears and among captive bears of other species.

We're directly contacting captive facilities in North America, but we'd also like input from field biologists. If you are aware of cases of hair loss among either captive or free-ranging bears of any species, please contact Megan Owen ([mowen@sandiegozoo.org](mailto:mowen@sandiegozoo.org)) or Russ Van Horn ([rvanhorn@sandiegozoo.org](mailto:rvanhorn@sandiegozoo.org)) for more information. Results of the survey will initially be presented at the Second International Symposium on the Andean Bear. 🌿

## Seeking Input and Information to Document Bear Trap Design

Marci Johnson  
Email: [beartrap@pherkad.com](mailto:beartrap@pherkad.com)

For those with experience and expertise capturing bears, I invite your participation in a project collating current knowledge of efficient and ethical trap design. The project will document the history and diversity of trap design and provide a resource detailing materials, techniques, manufacturers, literature, and human safety considerations. The project will primarily benefit biologists, wardens, and other individuals outside of the IBA community who presently do not have this type of information available. The end product will be an illustrated brochure to be distributed among state and federal agencies, universities, and other organizations involved

with bear capture. In cooperation with Dr. Mark R. Johnson DVM of Global Wildlife Resources, Inc., I will be volunteering my efforts and relying upon the participation of others. We hope to provide a resource that will ultimately improve capture techniques and minimize trap injuries.

Your assistance in this project would be greatly appreciated. Please contact me if you are willing to contribute your experience. 🌿

## BEARTREK Campaign and Film Underway – an update

Chris Morgan (M.S. Ecology)  
Executive Director  
WILDLIFE MEDIA  
PO Box 28656  
Bellingham WA 98228-0656, USA  
Phone: +1 360-734 6060  
Fax: +1 360-734 0800  
Email: [chrismorgan@insightwildlife.com](mailto:chrismorgan@insightwildlife.com)  
Web: [www.wildlifemedia.org](http://www.wildlifemedia.org)

BEARTREK is a campaign and film to support global bear conservation. The dream for BEARTREK began about five years ago as one solution to the ongoing need for funding and exposure for critical bear conservation efforts around the world. In 2007 we took some exciting steps towards making the dream a reality, including the establishment of Wildlife Media – the 501(c)(3) non-profit organization that is managing BEARTREK and future projects.

The main component of our campaign is a feature length documentary movie that will highlight several bear projects around the world - an epic, high definition film to capture the essence of bear habitat, the human cultures associated with bear conservation, and some of the many fascinating individuals who are working on research and education projects for bears. To add an element of adventure, the series of expeditions are undertaken on my trusty motorcycle!

Wildlife Media is made up of a small team of filmmakers; conservationists, and business people – all of whom believe in the power of film and media to engage the public and forge change. This is the backdrop to our entire effort – using film to gain



Two brown bear cubs of the year in Katmai National Park, Alaska  
- BEARTREK's first filming location

Photo courtesy of Matthew Felton  
([www.mattfelton.com](http://www.mattfelton.com)).

# Communications

attention, trigger action, and thus help promote conservation. If we do this right, our efforts could result in millions of dollars for bear conservation.

We've been busy. In the last few months we've been working hard to raise US\$1.6M for film production and donations to bear projects on the ground. Thanks to the generosity of many people, we secured enough funding to film in our first two (of 6) locations in September and October: Alaska and Malaysia. In Katmai (Alaska) we filmed coastal brown bears during the fall salmon run, and on the island of Borneo (Malaysia) we were privileged to join bear biologist Siew Te Wong in the field to learn about his incredible sun bear conservation work.

At the moment, all of our attention is focused on editing a 15-minute demo reel of our Alaska and Borneo footage (we shot about 100 hours in total so this is no small task!). It will look and feel like a portion of the final full-length feature film and will become a key fund-raising tool. The demo reel will be ready in April, but in the meantime, a montage of raw clips from Alaska and Borneo can be viewed at the link below.

So, we've made a good start, but we have a long way to go. Our plan is to film in India, Peru, Canada, and Mongolia in 2008, funding permit-



© Chris Morgan

Sun bear biologist Siew Te Wong with orphaned ten month old cub 'Cerah' during filming of BEARTREK in Borneo, October, 2007.

ted. Then in 2009 we hope to secure a distribution deal that will result in BEARTREK being played in movie theaters across North America (and further afield at a later time). As Wildlife Media will be returning box office profits to bear conservation, this is where the impact could be huge.

We're working closely with the IBA and Bear Specialist Group to ensure that any funding distributed by Wildlife Media is well targeted – focusing on innovative and critical bear conservation needs globally – especially

those that include education, and also meet local socioeconomic needs.

If you know of any potential supporters, please help to spread the word. Similarly, if you have an interesting project you would like to profile, ideas, or skills to offer we would love to hear from you about participating in our cause.

To watch montage of raw footage BEARTREK clips or make a donation, go to: [www.wildlifemedia.org](http://www.wildlifemedia.org) 📷

## Events

### 10<sup>th</sup> Western Black Bear Workshop

In response to requests from some IBA members, the 10th Western Black Bear Workshop will include a percentage of presentations on western brown bear topics in addition to black bear. Other suggestions for workshop agenda items include aversive conditioning, bear capture and handling

for beginners, bear human conflicts (probably the workshop theme) and how to get your work published. We would appreciate your comments on these ideas or suggestions for others. The dates will be May 18-21, 2009 in Reno, Nevada. The web page and other pertinent information will be in place by Spring 2008. Start thinking about how you would like to be involved and topics you would like to discuss.

Please send all correspondence to Carl Lackey - Nevada Department of Wildlife at [tenthwesternbb@aol.com](mailto:tenthwesternbb@aol.com) or [cdembears@aol.com](mailto:cdembears@aol.com) or +1-775-720-6130. 📷

# IBA Membership Application

Please Complete Both Sides of Form. Mail or Fax to Address Below.

Name \_\_\_\_\_

Affiliation \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State/Province \_\_\_\_\_

ZIP+4 or Postal Code \_\_\_\_\_ Country \_\_\_\_\_

Telephone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

New  Renewal  Address Change  You may share my membership information with similar organizations.

**MEMBERSHIP**

Standard Membership US\$50.00/year, US\$45.00/year for three or more years. # Years \_\_\_\_\_ US\$ \_\_\_\_\_  
Includes *International Bear News & Ursus*.

Please donate my copy of *Ursus* to a library or deserving recipient.

Institutional Membership US\$100.00/year, US\$250.00/three years. # Years \_\_\_\_\_ US\$ \_\_\_\_\_

For those who cannot afford a Standard Membership, US\$25.00/year. # Years \_\_\_\_\_ US\$ \_\_\_\_\_  
Includes *International Bear News*. If needed, a free copy of *Ursus* may be requested.

Please send *Ursus*. I have no access to it, need it & cannot afford Standard Membership. US\$ \_\_\_\_\_  
 Donation (if possible!) included to help defray costs of sending *Ursus*.

**GIFTS & CONTRIBUTIONS**

Gift Standard Membership US\$50/year, US\$45/year for three or more years. # Years \_\_\_\_\_ US\$ \_\_\_\_\_  
Includes *International Bear News & Ursus*.

Gift Institutional Membership US\$100/year or US\$250/three years. # Years \_\_\_\_\_ US\$ \_\_\_\_\_

Gift Low-cost Membership US\$25/year. Includes *International Bear News*, not *Ursus*. # Years \_\_\_\_\_ US\$ \_\_\_\_\_

\_\_\_\_\_ Gift Membership for: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ IBA Please Choose a Deserving Gift Recipient.

Tax Deductible Contribution to IBA General Fund. US\$ \_\_\_\_\_

Tax Deductible Contribution to IBA Bear Conservation Fund. US\$ \_\_\_\_\_

TOTAL AMOUNT US\$ \_\_\_\_\_

Check or Money Order in US\$ payable to IBA  MasterCard  VISA

Cardholder Name \_\_\_\_\_

Card # \_\_\_\_\_

(government cards include customer #) \_\_\_\_\_

Signature \_\_\_\_\_ Expiration Date \_\_\_\_\_



**SEND TO:** Joseph Clark, IBA Secretary  
USGS-SAFL, University of Tennessee  
274 Ellington Hall, Knoxville TN 37996, USA  
Fax: +1 865-974-3555 or Email: jclark1@utk.edu

OFFICE USE ONLY

Date Received \_\_\_\_\_ Amount Received \_\_\_\_\_ Start Issue \_\_\_\_\_ End Issue \_\_\_\_\_ Date Entered DB \_\_\_\_\_



Please complete both sides of form! Download form at www.bearbiology.com.

# IBA Member Application, page 2

**Please Complete Information on Both Sides of this Form!**

Please check columns in which you have expertise and/or are willing to assist / advise IBA

		1. Expertise	2. Advise/Assist IBA			1. Expertise	2. Advise/Assist IBA
Accounting				Legal			
<b>American Black Bear</b> **	years			Legislative Process			
<b>Asiatic Black Bear</b> **	years			Life History			
<b>Andean Bear</b> **	years			Management			
Awards *				Member Concerns *			
Bear-Human Conflict				Media Relations			
Bears in Culture				Mentoring / Training *			
Behavior				Newsletter *			
Bylaws *				Nominations *			
<b>Brown Bear</b> **	years			Nuisance / Damage Management			
Conferences *				Nutrition			
Conservation *				Organizational Development			
Disease				Pathology			
Economic Development *				Physiology			
Education / Outreach *				<b>Polar Bear</b> **	years		
Enforcement				Policy *			
Ethics *				Population Dynamics			
Evolution				Quantitative Analysis			
Field Research				<b>Sloth Bear</b> **	years		
Financial Management				Strategic Planning *			
Food Habits				<b>Sun Bear</b> **	years		
Genetics				Toxicology			
<b>Giant Panda</b> **	years			Travel Grants *			
GIS				Ursus Journal *			
Grant Review *				Veterinary			
IBA History / Archive				Website *			
Habitat Evaluation				Wildlife Rehabilitation			
Husbandry / Zoo				Other - Specify			

\*\* Please indicate number of years of experience with each species

\* Indicates an IBA committee

Please check all academic degrees earned:  BA/BS  MA/MS  PhD/DVM  Other (list) \_\_\_\_\_

Please list major field of study \_\_\_\_\_

Please list all countries in which you have worked with bears \_\_\_\_\_

\_\_\_\_\_

Please list languages in which you are fluent \_\_\_\_\_

What changes/improvements would you like to see in the IBA (newsletter, *Ursus*, conferences, etc.)? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

How can IBA better serve its membership and/or help you? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Check here to include your name in the IBA membership directory

**Thank you for completing the survey. Please tear out and mail or fax!**

# IBA Publications Order Form

Ursus Journal & IBA Conference Proceedings*	Cost*	Quantity	Total
4th 1980 Montana 1977	\$30.00	_____	_____
5th 1983 Wisconsin 1980	\$30.00	_____	_____
6th 1986 Arizona 1983	\$30.00	_____	_____
7th 1987 Virginia/Yugoslavia 1986	\$35.00	_____	_____
8th 1990 British Columbia 1989	\$40.00	_____	_____
9th (1) 1994 Montana 1992	\$45.00	_____	_____
9th (2) 1997 France 1992	\$25.00	_____	_____
10th 1998 Ursus-Alaska/Sweden 1995	\$40.00	_____	_____
11th 1999 Ursus 11	\$45.00	_____	_____
12th 2001 Ursus 12	\$45.00	_____	_____
13th 2002 Ursus 13	\$45.00	_____	_____
14th 2003 Ursus 14 Volumes 1 & 2	\$45.00	_____	_____
15th 2004 Ursus 15 Volumes 1 & 2	\$45.00	_____	_____
16th 2005 Ursus 16	\$45.00	_____	_____
17th 2006 Ursus 17 inc. Std. Membership	\$45.00	_____	_____

\*40% discount for 3 or more volumes, except Ursus 13, 14, 15, 16, & 17      Less 40% discount (-\$ \_\_\_\_\_ )

**Eastern Black Bear Workshop Proceedings, USA**

10th 1991 Arkansas 1990	\$15.00	_____	_____
11th 1992 New Hampshire 1992	\$15.00	_____	_____
13th 1996 Vermont 1996	\$15.00	_____	_____
14th 1997 Mississippi 1997	\$15.00	_____	_____
15th 2002 Massachusetts 1999	\$15.00	_____	_____
16th 2001 South Carolina 2001	\$15.00	_____	_____
17th 2005 New Jersey 2003	\$15.00	_____	_____

**Western Black Bear Workshop Proceedings, USA**

4th 1993 California 1991	\$15.00	_____	_____
5th 1995 Utah 1995	\$15.00	_____	_____
6th 2003 Washington 1997	\$15.00	_____	_____
8th 2005 Montana 2003	\$15.00	_____	_____

**Safety in Bear Country Videos**

<i>Staying Safe in Bear Country</i> with Public Performance Rights	\$69.00	_____	_____
<i>Staying Safe in Bear Country &amp; Working in Bear Country</i> with Public Performance Rights	\$129.00	_____	_____

**Monographs of the IBA**

<i>A Proposed Delineation of Critical Grizzly Bear Habitat in the Yellowstone Region</i>			
by F. Craighead (#1, 1977)	\$10.00	_____	_____
<i>The Status and Conservation of the Bears of the World</i>			
by C. Servheen (#2, 1989)	\$10.00	_____	_____
<i>Density-Dependent Population Regulation of Black, Brown and Polar Bears</i>			
edited by M. Taylor (#3, 1994)	\$10.00	_____	_____
<i>Population Viability for Grizzly Bears: A Critical Review</i>			
by M. Boyce, B. Blanchard, R. Knight, C. Servheen (#4, 2001)	\$10.00	_____	_____

US\$ Check or Money Order - Make Payable to: IBA      **TOTAL US\$** \_\_\_\_\_



Mastercard       Visa      Card # \_\_\_\_\_

Expiration Date \_\_\_\_\_ Customer # (for government cards) \_\_\_\_\_



Signature on Card \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip Code/Country \_\_\_\_\_

Phone, Fax & Email \_\_\_\_\_

SEND TO: Terry D. White, Southern Appalachian Field Laboratory, 274 Ellington Hall,  
University of Tennessee, Knoxville TN 37996, USA, Fax: +1 865-974-3555

**Please allow 4 to 6 weeks for delivery**

Please fill out form legibly:

Form also available at [www.bearbiology.com](http://www.bearbiology.com).

# Ursus

Volume 16(2) 2005

An Official Publication of the International Association for  
Bear Research and Management



82nd International Conference on Bear Research and Management  
Monograph Series No. 3

## Density-Dependent Population Regulation of Black, Brown, and Polar Bears

Edited by Michael Taylor

with contributions from

David L. Garshelis on Black Bears

Shane McLellan on Brown Bears

Andrew Derocher and Michael Taylor on Polar Bears

An invited paper presented at the 82nd  
International Conference on Bear Research and Management

MICIGAN, MONTANA, USA  
January 23-28, 1982

# Ursus

Volume 17(1) 2006

An Official Publication of the International Association for  
Bear Research and Management



# IBA Officers & Council

## Executive Council Officers

**Frank van Manen**

**President** ⑧

USGS Southern Appalachian Field

Laboratory

University of Tennessee

274 Ellington Hall

Knoxville TN 37996, USA

Phone: +1 865-974-0200

Fax: +1 865-974-3655

Email: vanmanen@utk.edu

Email: ibapresident@bearbiology.com

**Piero Genovesi**

**Vice President - Eurasia** ⑧

INFS-National Wildlife Institute

Via Ca' Fornacetta 9

I-40064 Ozzano Emilia BO, Italy

Phone: +39 051 6512228

Fax: +39 051 796628

Email: piero.genovesi@infs.it

**Karen Noyce**

**Vice President - Americas** ⑧

Minnesota Dept. of Natural Resources

1201 East Highway 2

Grand Rapids MN 55744, USA

Phone: +1 218-327-4133

Fax: +1 218-327-4181

Email: karen.noyce@dnr.state.mn.us

**Diana Doan-Crider**

**Secretary** ⑧

PO Box 775

Kingsville TX 78363, USA

Phone: +1 361-455-3241

Email: diana.crider@gmail.com

**Cecily Costello**

**Treasurer** ⑧

PO Box 567

Manhattan MT 59741, USA

Phone: +1 406-284-3477

Email: ccostello@wcs.org

## Executive Council

**Isaac Goldstein**

**Member** ⑧

Wildlife Conservation Society

PO Box 833

IPOSTEL Merida

Estado Merida, Venezuela

Phone: +58 414-7176792

Email: igoldstein@wcs.org

**Djuro Huber**

**Member** ⑧

University of Zagreb

Biology Dept., Veterinary Faculty

Heinzlova 55, 10000 Zagreb

Republic of Croatia

Phone: +385 1 2390 141

Fax: +385 1 244 1390

Email: huber@mavef.vef.hr

**Mike Proctor**

**Member** ⑧

PO Box 920

Kaslo BC Canada V0G 1M0

Phone: +1 250-353-7339

Email: mproctor@netidea.com

**Shyamala Ratnayeke**

**Member** ⑧

Department of Forestry, Wildlife

and Fisheries

University of Tennessee

Knoxville TN 37996, USA

Phone: +1 865-429-1218

Email: sratnaye@utk.edu

**Jon Swenson**

**Member** ⑧

Department of Ecology and Natural

Resource Management

Agricultural University of Norway

Box 5003, NO-1432

Ås, Norway

Phone: 47 64 94 85 30

jon.swenson@umb.no

**Michael R. Vaughan**

**Member** ⑧

Virginia Cooperative

Fish and Wildlife Research Unit

148 Cheatham Hall, Virginia Tech

Blacksburg VA 24061-0321, USA

Phone: +1 540-231-5046

Fax: +1 540-231-7580

Email: mvaughan@vt.edu

**Koji Yamazaki**

**Member** ⑧

Zoological Laboratory

Ibaraki Nature Museum

700 Osaki Bando-City

Ibaraki 306-0622, Japan

Phone: +81 297-38-2000

Phone: +81 297-38-1999

Email: yamako@j.email.ne.jp

## Ex-officio, Non-voting Members

**Matt Durnin**

*International Bear Newsletter* Editor

B4-2 Qijiyuan Diplomatic Compound

No. 9 Jianwai Dajie

Chaoyang District

Beijing 100600, China

Phone: +86 (10) 8532-4710 ext 232

Fax: +86 (10) 8532-3922

Email: mdurnin@tnc.org

**Dave Garshelis**

Bear Specialist Group Co-Chair

Minnesota Dept. of Natural Resources

1201 East Highway 2

Grand Rapids MN 55744, USA

Phone: +1 218-327-4146

Email: dave.garshelis@dnr.state.mn.us

**Rich Harris**

*Ursus* Editor

218 Evans

Missoula MT 59801, USA

Phone: +1 406 542-6399

Fax: +1 406 542-6399

Email: rharris@montana.com

**Bruce McLellan**

Bear Specialist Group Co-Chair

Box 1732

D'arcy BC, V0N 1L0, Canada

Email: bruce.mclellan@gov.bc.ca

**Jordan Schaul**

AZA Liaison

Email: jordan.schaul@gmail.com

**Brian Schieck**

IBA Student Coordinator

Florida Fish & Wildlife Conservation

Commission

156 Kelvin, Avenue

Deltona FL 32738-5002, USA

Phone: +1 386 789-7063

Email: brian.schieck@myfwc.com

⑧ term expires 2008

⑨ term expires 2009



International Bear News Distribution  
PO Box 462  
Brookeville MD 20833  
USA

ADDRESS SERVICE REQUESTED

NONPROFIT  
U.S. POSTAGE PAID  
SUBURBAN, MD  
PERMIT NO. 2774

## About the International Association for Bear Research and Management (IBA)

The International Association for Bear Research and Management (IBA) is a non-profit tax-exempt organization (USA tax #94-3102570) open to professional biologists, wildlife managers, and others dedicated to the conservation of all bear species. The organization has over 550 members from over 50 countries. It supports the scientific management of bears through research and distribution of information. The IBA sponsors international conferences on all aspects of bear biology, ecology, and management. The proceedings are published as peer-reviewed scientific papers in the journal *Ursus*.

### IBA Mission Statement

**Goal:** The goal of the International Association for Bear Research and Management (IBA) is to promote the conservation and restoration of the world's bears through science-based research, management, and education.

**Objectives:** In support of this goal, IBA's objectives are to:

1. Promote and foster well-designed research of the highest professional standards.
2. Develop and promote sound stewardship of the world's bears through scientifically based population and habitat management.
3. Publish and distribute, through its conferences and publications, peer-reviewed scientific and technical information of high quality addressing broad issues of ecology, conservation, and management.
4. Encourage communication and collaboration across scientific disciplines and among bear researchers and managers through conferences, workshops, and newsletters.
5. Increase public awareness and understanding of bear ecology, conservation, and management by encouraging the translation of technical information into popular literature and other media, as well as through other educational forums.
6. Encourage the professional growth and development of our members.
7. Provide professional counsel and advice on issues of natural resource policy related to bear management and conservation.
8. Maintain the highest standards of professional ethics and scientific integrity.
9. Encourage full international participation in the IBA through the siting of conferences, active recruitment of international members and officers, and through financial support for international research, travel to meetings, memberships, and journal subscriptions.
10. Through its integrated relationship with the Bear Specialist Group of the World Conservation Union (IUCN)/Species Survival Commission, identify priorities in bear research and management and recruit project proposals to the IBA Grants Program that address these priorities.
11. Build an endowment and a future funding base to provide ongoing support for IBA core functions and for the IBA Grants Program.
12. Support innovative solutions to bear conservation dilemmas that involve local communities as well as national or regional governments and, to the extent possible, address their needs without compromising bear conservation, recognizing that conservation is most successful where human communities are stable and can see the benefits of conservation efforts.
13. Form partnerships with other institutions to achieve conservation goals, where partnerships could provide additional funding, knowledge of geographical areas, or expertise in scientific or non-scientific sectors.

**Deadline for the May 2008 issue is April 5, 2008**

*printed with soy-based ink on 100% recycled, post-consumer waste paper*