

# International Bear News



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



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ARCTUROS rescues two brown bear cubs. To learn more about the organization's efforts to rehabilitate the bears, see the story on page 43.

*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)*

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Editors: Tanya Rosen (Managing Editor), Jordan Schaul (Submissions & Correspondence), Janissa Balcomb (Layout & Design), Jim Tomlin (Distribution & Proofing)

Distribution: 19625 Charline Manor Road, Olney, MD 20832 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)

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### 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 February 2012 issue is 5 January 2012.**

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

### Membership

Use the form on **pages 53** or go to **[www.bearbiology.com](http://www.bearbiology.com)** to order or renew memberships, make donations, and/or update member information.

## From the President

Frank T. van Manen  
U.S. Geological Survey/University of Tennessee  
Dept. of Forestry, Wildlife and Fisheries  
274 Ellington Plant Sciences Building  
Knoxville, TN 37996  
Email: vanmanen@utk.edu

The focus of this issue of *International Bear News* will be on the 20th International Conference we held in Ottawa in July. It was a terrific conference with a very strong technical program and many opportunities to network. Sessions covered a wide range of topics, from a Bear Specialist Group session to polar bear ecology to workshops on climate change and spatially explicit capture-recapture techniques. The weather cooperated very well and allowed everyone to experience the best of Canada's capital city. I couldn't be more pleased with the outcome of this conference. It takes much dedication and sacrifice to organize an international conference; many thanks to Marty Obbard and the organizing committee who put in countless hours to ensure that all details were addressed; and Marty's 'superhero' staff of agency personnel and student volunteers who helped throughout; Ontario's Ministry of the Environment for hosting the conference; and the many other sponsors who supported the conference financially. I encourage you to visit the website for more post-conference information: <http://www.wildliferesearch.ca/iba2011/>.

### Ottawa Council Meeting

We had a very productive council meeting in Ottawa with all but one council members present. Here, I will provide a brief overview of the more important decisions, items discussed, and actions taken during and since the council meeting.

**21st IBA Conference, New Delhi, India, November 2012.** The India conference organizers updated Council on their preparations and discussed a variety of topics ranging from lodging options to technical sessions. The conference will be hosted by the Ministry of Environment and Forests of the Government of India, partnering with the Wildlife Trust of India and the Wildlife Institute of India. Our hope is that the conference will bring attention to the conservation plight of India's 4 bear species by promoting a healthy exchange of scientific information and collaboration among government agencies, research institutions and academia, and non-profit organizations. Bear conservation in Asia will be the primary theme for the conference. One important topic will be the illegal trade in bear parts and the role of international and national agencies to address this significant conservation challenge. A website has been developed, which will be expanded as new information becomes available so please check regularly: [www.indianbears.com](http://www.indianbears.com).

**22nd IBA Conference: Provo, Utah, 15-21 September 2013.** IBA Council has worked very hard to find an enthusiastic host organization and venue for the next Americas conference. I am extremely pleased to announce that the next Americas conference will be hosted by Brigham Young University in Provo, Utah during 15-21 September 2013. Dr. Hal Black and colleagues presented the bid for the Utah conference at our Ottawa Council meeting and Council unanimously voted to accept the bid. A number of topics for technical sessions have already been proposed such as hibernation physiology and human health, energy extraction and bear management, and public outreach, timely topics that deserve more emphasis. The Utah conference will put the Americas conference series back on track and I hope many of you will be able to participate.

**Changes to *International Bear News*.** Expect some changes to the newsletter starting in January. Our graphics and layout editor, Janissa Balcomb, will be leaving us and this will be her last issue. I can't emphasize enough how important the volunteer spirit of the entire editorial team is for producing a quality newsletter. Janissa exemplifies that spirit extremely well, as she spent a lot of time on each issue and set a new standard for, literally, the image of *International Bear News*. Janissa, a heartfelt 'Thank you' for your dedication to IBA and best of luck with all your future endeavors.

We have already recruited a new layout editor, which happens to be my wife, Jennapher. For the record, she volunteered on her own accord after IBN Editor Tanya Rosen asked her if she was interested so I did not use my 'husband power' (as if I have any!) to force her into this. Janissa has offered to help smooth the transition by providing software training and so on, which is truly appreciated.

**IBA Elections.** We will soon have the Eurasian portion of the IBA elections. The following seats expire at the end of this year: Andreas Zedrosser (Vice-President), Mei-Hsiu Hwang (Council member), Alexandros Karamanlidis (Council member), and Ximena Velez-Liendo (Council member). One of those Council member seats was an appointed seat to obtain better geographic and species representation on Council. Therefore, elections will be for Vice-President and 2 Council members.

# Council News

Djuro Huber graciously accepted to Chair the nominations committee, which has the following members: Koji Yamazaki, Diana Doan-Crider, and Michael Proctor. See additional information in this newsletter.

**2012 IBA Grants Program.** The Research and Conservation Grants Committee has undergone a few changes. Shyamala Ratnayeke has served many years on the committee. She received a prestigious Fulbright scholarship recently and moved to Tanzania with her husband to start teaching at Dodoma University. Shyamala was a very diligent member of the committee and has much experience in Asia so finding someone to replace her was challenging. I am happy to report that Dr. Muhammad Ali Nawaz from Pakistan accepted my request to fill the vacancy on the committee. He has substantial experience with bear research and conservation at the international level. Moreover, he is a previous grant recipient and is very familiar with the review process of grant proposals and the scientific rigor we expect. Please contact Fred Dean, Chair of the committee, if you intend to submit a Research and Conservation grant proposal. The deadline for submission is **1 December 2011**.

Our Experience and Exchange grants program is smaller but provides an excellent way for biologists to participate in inter-project work and training exchanges. These experiences broaden perspectives and understanding among biologists working with bear conservation programs in different countries. Please contact Ole Jakob Sorensen regarding this grant program. Grant proposals are due **1 December 2011**. More information on both grant programs is available on our website: <http://www.bearbiology.com/index.php?id=grants01>

**Review of Standing Committees.** In recent weeks I've worked with a number of committee Chairs to review committee membership. This is a work in progress but I can report that we have added Diana Doan-Crider, our current Secretary, as a third permanent member of the Conference Committee, in addition to Mike Vaughan (Chair; USA-North Carolina) and Sterling Miller (USA-Montana). Japan conference organizer Koji Yamazaki will be rotated off and Marty Obbard will become our new member. Additionally, we believe it may be beneficial to have liaisons with upcoming conferences on the committee so S. Sathyakumar will serve on this committee as the point of contact for India conference organizers. Additional committees will be reviewed in coming weeks.

**Finances.** Our financial situation has been challenging for quite some time. We have seen a very gradual decline in our assets, although this has occurred over almost a decade. We have taken several steps over the past few years to reduce costs, shifting from a printed to an electronic newsletter, and increasing operating revenue by adjusting our membership fee structure. We will probably need to wait for another year before we can assess if those actions are helping us balance the budget.

**Ursus.** Our journal *Ursus* has had several issues that were a bit on the slim side but our ranking among zoological journals remains good, particularly considering our focus on only 8 species. With the large number of excellent presentations at the Ottawa conference I hope we will see an influx of new submissions. I strongly encourage you to submit your manuscripts to *Ursus*. Because we are a niche journal, one benefit for authors is that our Editor, Rich Harris, and Associate Editors tend to work closely with authors throughout the review process. 🐻

## Experience and Exchange Grants: Applications Wanted

Karen Noyce  
Email: [karen.noyce@state.mn.us](mailto:karen.noyce@state.mn.us)

Applications for IBA's 2012 Experience and Exchange (E&E) Grants are now being accepted. Deadline for applying is 1 December 2011.

E&E Grants fund travel expenses, up to US\$1500 per grant, for biologists participating in work and training exchanges with other biologists. Through this program, biologists are able to learn new skills, exchange expertise and broaden their field experience by traveling to work on other projects or hosting other biologists to work at their field site. These experiences also broaden perspectives and understanding of the biological and cultural context within which bear conservation programs must operate in different countries. The program provides opportunities for young biologists to benefit from the expertise of more experienced collaborators and for mid-career biologists to gain experience in other places.

Despite the obvious value of collaborative work exchanges, finding money to fund this type of travel can be difficult. E&E grants thus fill a unique and important niche, addressing this financial need. Applicants may request up to US\$1500 per exchange to help defray travel and/or living expense. Proposals must demonstrate that travel is for the purpose of a collaborative work exchange that is desired by both host and exchange partner. IBA expects host project personnel to provide housing, food, and local travel needs to the extent possible. Likewise, the traveler must demonstrate intent to keep expenses low and to find supplemental support.

Grant recipients are chosen through a competitive process based on submitted proposals. Priority goes to: 1) project exchanges lasting several weeks to several months, in which tangible benefits are identified for both host and visitor, and 2) projects that provide opportunity for meaningful on-going collaboration. Grant recipients will be notified by 1 March 2012, and the exchange project must occur within the 2012 calendar year.

Application forms and information are available for download on IBA's website: [www.bearbiology.com](http://www.bearbiology.com). Completed applications can be sent or emailed to committee chair Ole Jakob Sorenson (Norway, [Ole.J.Sorensen@hint.no](mailto:Ole.J.Sorensen@hint.no)). Other committee members include Glen Contreras (USA), Isaac Goldstein (Venezuela), Petra Kaczensky (Germany), and Karen Noyce (USA). 🐻

## Research & Conservation Grants

Fred Dean, RCG Committee Chair

### **REMINDER: The December 1st deadline for proposals is approaching quickly.**

We are very happy to welcome Dr. Muhammad Ali Nawaz of Pakistan to the committee. Ali received several R&C grants over the years, both as a doctoral student and more recently as a professional working in Pakistan's high country. He has been able to combine some of his bear survey work with his work on snow leopards, thus stretching the effect of both budgets. I am sure he will contribute valuable perspective to the proposal review process.

Be sure to check the RCG section of the IBA Website. Diana has been putting in a lot of time upgrading existing pages and adding new ones. The work may be complete by the time you read this issue of the News; if not, I am sure that the pages involving the application process and the forms will be ready. Other material that is less time sensitive is being added as time permits. This will include a list of all the past R&C grants, photos contributed by grantees, and copies of selected reports. The reports will provide some examples of both progress and final reports.

Those who have received grants know that we are very interested in these reports. Due to the fact that there is such a range of projects and circumstances, we have not specified a single format. The examples do illustrate a good range. Storage space and costs do not permit including the entire set of reports from all grants. Consequently I have included particularly good examples from the perspective of reporting as well as some especially significant final reports. BCF donors, grantees, and other interested people can download .pdf copies.

I really appreciate Diana's efforts on all of this. One of our goals is to make the site worth checking more often; I really hope that over time we will succeed. 🐻

## Goodbye Janissa ... for now

Several years ago I was sitting at home in New York when I got a panicked call from Matt Durnin, our then Managing Editor and Panda bear researcher dividing his time then between the wilds of China and a more civilized life in Beijing. Janissa was upset at him for some mistakes that as a team we should have caught. She was right. It was a fairly serious mistake in a formula that did not look right to her.

Ever since taking upon herself the duties of Layout Manager in 2005, Janissa has taken her job very seriously, pushing all of us on the team to be rigorous, precise, clear about expectations and timeline. 6 years of IBN, of coming together four times per year to work, comment, share our opinions and views about the stories and articles that we edited and Janissa carefully reviewed and laid out beautifully in the newsletter you all enjoy. 6 years also during which an important friendship developed, days in the field were shared as well as ideas about conservation and development projects. Janissa has been very busy starting an organization dedicated to helping the children of Lesotho, which has the fourth highest HIV/AIDS infection rate in the world, leaving 1 in 4 children an orphan. Lesotho has been a very special place to her for a long time and most of her energies lately have been devoted to getting the project off the ground. And the project took off and needs more of her time.

We will miss her. She is leaving the IBN editorial team for now but her love for the bears stays on. As does our friendship.

Tanya and the Editorial Team 🐻

## Session 1: Status of the World's Bears – Threats and Conservation Measures

Session organizer: Dave Garshelis  
Co-chair, Bear Specialist Group  
Email: dave.garshelis@state.mn.us

The Bear Specialist Group (BSG) opened the conference with a series of 14 presentations reviewing the major threats to the 7 species of terrestrial bears, and the main attempts at mitigating these threats. Each Expert Team (ET) made a presentation, most based on results of a *Survey Monkey* questionnaire that was sent to all team members. Each of the species ETs received the same questionnaire, which asked members to rate the severity of different types of threats within the region (country or portion of a country) that they are familiar with (10 different threats related to habitat, 11 related to killing or removal of bears, 2 related to population size). Next they rated 19 potential conservation measures in terms of frequency of use and effectiveness. Further survey questions concerned the level and usefulness of knowledge about various factors



© Dave Garshelis

The trade in bear parts is the main threat to Asiatic black bears (here, cubs caged on a bear farm) and sun bears

affecting bear conservation, and how this knowledge is acquired. The final questions asked experts to rate the status of bears and the effectiveness of conservation measures in their area.

Presentations were also made by the 3 topical ETs. Additional presentations highlighted conservation issues in specific countries, which helped to underscore the wide diversity of threats and conservation actions directed toward the world's bears.

The first report was by Djuro Huber and Jon Swenson, co-chairs of the European brown bear ET (EBBET). The EBBET consists of 49 members from 29 countries (26 of them with bears), representing 52% of the 56 countries in the BSG. The *Survey Monkey* was completed by 28 members from 23 countries. The major reported threats to bears were habitat fragmentation and habitat loss, specifically from transportation

infrastructure and from residential and commercial development. The most effective conservation measure seems to be compensation programs for losses caused by bears. Other programs deemed to be important in some countries included regulated sport harvest, supplementary feeding, and the maintenance of the current system of protected areas (PAs). The most useful knowledge relates to data on bear distribution (including connectivity) and human-bear conflicts. The most common techniques used to obtain knowledge are nuisance/depredation records, sighting records, and mortality records. Europe has many small countries, a dense population of people, and 10 separate bear populations, making conservation a challenge. The status of these populations is generally well known: half are robust and growing; the others are likely declining and threatened with extirpation. Nevertheless, solutions and a strong will seem to be available to help the weak populations, suggesting that the situation for European brown bears is mainly optimistic.

Larry Van Daele and Tsutomu Mano, co-chairs of the North Asian Brown Bear ET, reported that threats to bears in this region are primarily anthropogenic. Although this is a vast area (from the Ural Mountains in Russia to the Russian Far East, and south to Kazakhstan, Mongolia, northeastern China, and Hokkaido, Japan), human encroachment into bear habitat, timber harvesting, mining, poaching, and human-bear conflicts have already isolated and reduced bear populations in the

southern portion of this region and are increasingly impacting bears in northern areas. Fire and desertification are also major issues in parts of this region. However, information about these impacts is presently either vague or simply not communicated among local experts. The NABBET has only 11 members, and 4 did not respond to the survey. Maintaining the current system of PAs is the most common and effective conservation measure; information is gleaned mainly from kill records and sighting records. Status of most of the populations is unknown, but thought to be declining, with few or no effective conservation actions to help bears in most of the region.

S. Sathyakumar and Emre Can reviewed the situation for brown bears in south Asia. This region includes 15 or 16 range countries, but information for this report was available from only 8. The most severe threats in this region include habitat degradation from livestock grazing, removal of bears depredating livestock, and illegal commercial hunting. Maintaining PAs, increasing

the size and number of PAs, and active patrolling are the most common and effective conservation measures. Knowledge about threats and distribution of bears was judged to be most useful for conservation, but is lacking in most areas; sign surveys and local interviews are the source of most relevant information. Three-fourths of survey respondents indicated that bears were likely declining, although they had mixed feelings about the effectiveness of conservation actions. Some new

conservation programs have been proposed, including better management of PAs, development of new country conservation action plans, and community-based conservation programs.

Dave Garshelis and Mei-hsiu Hwang presented the report for the Asiatic black bear ET (ABBET). Asiatic black bears range across 18 countries, 16 of which are represented in the ABBET, all of which were tallied in the survey (n= 32 respondents). Commercial hunting for bear parts was deemed the greatest threat to this species, especially in all the Southeast Asian countries, China, Taiwan, and India. Habitat loss from expanding croplands was considered the next most important threat, and considered severe in the same group of countries (except China, which is currently converting croplands to forest). Maintaining the current system of PAs is the principal tool for conserving this species, except in



Expanding crop fields reduce forested habitat and attract bears, resulting in increased human-related mortalities

© Dave Garshelis



Conversion of natural forest to palm oil plantations (with tentacular access roads) is a major source of habitat loss and fragmentation affecting sun bears

© Anja Hoffman

the western range countries (Iran, Afghanistan, and Pakistan). Just over half the respondents considered knowledge regarding threats to bears as adequate and useful for aiding conservation actions; only 15% indicated that useful information was available on population trends. Sign surveys, interviews, and camera trapping are the most commonly-employed techniques for gaining conservation-related knowledge. Most respondents (58%) considered local Asiatic black bears populations to be in decline, and 2 countries (Bangladesh and Vietnam) considered local extirpations likely. Current conservation efforts were deemed to be effective by one-third of respondents.

Gholam Hosein Yusefi prepared a presentation on threats facing the bears of Iran (however, Hosein could not attend the meeting so this presentation was delivered by Dave Garshelis). Iran is inhabited by both brown bears and Asiatic black bears. Whereas elsewhere, brown bears tend to live in more open environments and black bears in forest, the opposite occurs in Iran. Brown bears occupy two strips of mountainous, partially wooded areas in the west, with various hard mast (oak, chestnut, beech, pistachio, and almond) trees. Black bears occur in the southeast in semi-forests to arid scrub. Black bears are rarer, as this represents the westernmost fringe of their geographic range. Both species rely to a large extent on culti-



ivated fruits, which is an obvious conservation issue because it brings bears into proximity with people, leading to human-bear conflicts. Habitat encroachment by people is another large issue. Managing conflicts (possibly by providing bears cultivated food crops) and establishing PAs (none exist in black bear range) are recommended conservation measures.

Gabriella Fredriksson and Rob Steinmetz discussed the situation for sun bears, which occupy 11 countries, including all of SE Asia, eastern India, and southern China (present status unconfirmed). Survey responses were obtained from all major range countries (all except China, Brunei, and Bangladesh). Main threats to sun bears are illegal commercial hunting, closely followed by habitat loss (from croplands, commercial plantations, and timber harvest-

Palm oil plantations are a sterile environment in terms of bear foods.  
(Pictured is a young plantation.)

ing). The most commonly used and effective conservation measure for sun bears is to maintain the current system of PAs (and where possible to extend these). Public education directed at reducing the demand for bear products was considered an increasingly effective tool. Conservation measures that need to be enhanced include punishment for illegal killing of bears and patrolling of protected areas. Government support to improve wildlife protection in the various countries where sun bears occur was deemed low. Sign surveys, confiscation records, and camera trapping have yielded information most useful for sun bear conservation. Data on population size and population trends are lacking across the range of the species. Sun bear populations were deemed to be decreasing by 72% of survey respondents (n=16), based on extent of habitat loss and poaching. Conservation efforts were found to be scattered throughout the region and rarely focused on bears, with much room for improvement.

Lorraine Scotson reviewed the status and conservation of bears in Lao PDR. This country appears to be a current stronghold for both sun bears and black bears. However, significant threats include poor habitat management and the trade in bear bile. Lao's PA system is one of the best, collectively representing ~ 25% of its total land, but the majority of PAs are under no form of active management. Many have not yet undergone formal biodiversity surveys. All represent potential bear habitat and the status of populations appear related, in part, to their level of habitat protection. However, poaching and capturing bears severely impacts populations even in prime habitat. Since a ban on bear farming in Vietnam (2006), several bile farms have emerged in Lao, exploiting a legal loop-hole that allows trade from second-generation bears, although all bears originate

from the wild. This could lead to the same trend seen in other bile farming nations, such as Korea and Vietnam, where wild populations have been drained nearly to the point of extirpation. Effective management of PA's and the abolishment of bile farming are recommended as key conservation actions.

Chris Servheen, co-chair of the Trade in Bear Parts ET, presented a summary of the results of the recent TRAFFIC South-east Asia investigation of the trade in bear bile and related products (see *IBN* August 2011, p.10). That investigation showed that bile-related products continue to be widely available throughout Asian traditional medicine markets. Despite 20 years of continued listing of Asian bears as CITES Appendix I, there has been no measurable reduction in the production and trade in bear bile products or the demand for these products by consumers of traditional medicine. Prices paid for bear bile from wild bears remain high, contributing to continued killing of wild bears and trade in their parts across international borders. The use of alternative products, like wines and shampoos, containing bear bile continues to flourish. The continuing trade in bear bile products is detrimental to wild bears throughout Asia. The high level of trade in bear parts highlights ineffective CITES enforcement by many Asian nations. If CITES regulations on bear parts trade continue to be ignored, the result will be increasing extinction risks for populations of Asian bears.

Harendra Singh Bargali, Naim Akhtar, and Thomas Sharp presented an assessment of sloth bears, which occur across India and Sri Lanka and the lowlands of Nepal and Bhutan. This species was recently extirpated in Bangladesh. Survey respondents (n = 13) indicated that habitat loss, due to expanded croplands, livestock grazing, timber harvesting, and development, is the prime threat to this species. The primary conservation measure for sloth bears is the current PA system, which was developed to protect other species. This alone was considered inadequate for long-term protection of sloth bears because much of the sloth bear range is outside PAs. Compensation programs (for losses caused by sloth



© Li Sheng

Camera-trapping is becoming an increasingly popular monitoring tool for several species of bears; bear photos are often obtained in the process of monitoring other species

bears) were considered imperative, but in need of improvement. Other important conservation measures include protection of corridors, public education to reduce demand for bear products, increased punishment for poaching, and establishment of new bear-specific PAs. Most conservation-related information on sloth bears has been gleaned from sign surveys, local interviews, sightings, and kill records. Experts from Sri Lanka and Nepal considered sloth bear populations to be stable, whereas respondents from India generally believed numbers to be declining. Some conservation efforts seem to be effective, but most are either not directed specifically toward bears or are very localized. Species-specific initiatives are urgently required.

Dajun Wang discussed the conservation status of giant pandas in China. Tremendous effort has been directed toward giant panda conservation in the past 30 years. A key question is whether that effort has reduced threats and enabled populations to increase. Three types of activities have focused on answering this: population and habitat monitoring by nature reserve staffs, research on habitat fragmentation, and periodic national surveys. Monitoring by nature reserve staffs started with a single reserve in the late 1990s and grew to a present network of 60 reserves. They employ fixed survey routes and a common protocol for recording sign and disturbance. Results show that logging, forest product collection, and poaching have dramatically declined, but grazing, road and dam construction have increased. Habitat fragmentation is regarded as a main threat to giant pandas, and corridors were designed in the mid-1980's to help alleviate this threat, but data collected to date have not revealed which types of corridors are most effective. National surveys designed to assess population numbers and trends have been conducted 3 times in the past 40 years. Individuals were differentiated based on the size of bamboo



A large fire in March-April of 2011 burned over 120,000 ha of prime bear habitat in northern Mexico

fragments in scats and the distance between scats. Fecal DNA will be used to enhance the upcoming national survey.

Ximena Velez-Liendo presented the report for the Andean bear ET. Survey respondents (n=12) covered all 5 South American range countries. Habitat degradation due to livestock grazing and/or croplands was identified as the main threat. The team considered the maintenance of the current PA system as the most effective and used conservation measure. Public education (to learn to live with bears and other aspects of conservation) was commonly used but not effectively. Experts agreed that information on threats to this species is most available and

useful for designing conservation actions, but population estimates, genetic information, and human-bear conflict studies would be useful across the region. The group indicated that sign surveys and local interviews were the most commonly used field techniques to obtain information for conservation; camera traps were considered less common and killing records rarely used. Despite the increased interest in bear research during the past years, overall conservation initiatives have been mainly scattered and not targeted toward bears. Eight of 12 respondents thought Andean bears were declining in their area, and only 1 expert (in Ecuador) considered the local population to be increasing (due to a compensation program that effectively reduced mortalities).

Diana Doan-Crider provided an update for American black bears in Mexico. Black bear populations have been increasing and expanding in both Mexico and adjoining parts of Texas. In the process, human-bear conflicts (e.g., cattle depredations) are becoming more common. Stochastic events, such as drought and fires, likely have had a strong influence on these populations historically. A particularly hot and expansive fire in March-April of 2011 burned over 300,000 acres of habitat in a key reproductive reservoir for black bears in northern Mexico, likely affecting oaks and other mast-producing trees. Compounded by a historic drought, bears (including reproductive females) are being sighted outside their current and historic distribution, suggesting large-scale movements away from the burned area and possible dispersal



This female American black bear survived the Mexico fires of 2011 by remaining in an unburned food patch

© David Garza Laguera

into new ranges. A field study in and around the burned area will begin this fall. While some field projects in Mexico have been hampered by drug-related violence and budget problems, efforts are still ongoing to study and monitor bear populations, with an eye toward incorporating limited hunting where populations are high and increasing. These plans must be cast within the cultural, fiscal and personnel limitations of the system, rather than patterned after the most sophisticated research techniques.

John Beecham conducted a separate *Survey Monkey* with the Human-Bear Conflicts (HBC) ET, specifically to discern how HBC relates to conservation issues and efforts. Of the 48 survey responses, most came from biologists working on brown bears (54%), Asiatic black bears (27%), and American black bears (15%). Conflicts associated with crops/orchards were more common than those associated with other anthropogenic foods, beehives, livestock, or attacks on humans. Respondents reported that the most effective methods used to reduce HBC were electric fences, public education and regulated harvest. Other commonly-used methods, such as local dogs (as a deterrent) and compensation programs were often ineffective (in part because of the specific way they were employed). Seventy-one percent of respondents indicated that HBC is a threat to conservation efforts for bears; 75% of these individuals considered those threats to be significant (8–16% of survey respondents indicated that bears were *often* killed when in conflicts resulting in loss of crops, beehives, orchards, or livestock).

Lydia Kolter wrapped up the session with a report from the Captive Bear ET (CBET), based on a survey of members of the BSG-Coordinating Committee (CC) and a recent CBET workshop. To effectively use captive bears for conservation, in situ and ex situ communities have to be linked more closely. The BSG-CC agreed that captive bears can play a role in conservation education and fundraising, and can also be used to solve particular conservation relevant research questions, provided the problems of small sample size and the non-natural setting can be overcome. Educational programs, proper husbandry standards, and population management are crucial prerequisites to integrate captive bears into bear conservation. These conditions vary considerably among regions and among various types of facilities (e.g., zoos, different types of rehab centers, etc.). CBET members have started to compile links and references on conservation education, on assessment of its effectiveness, and on husbandry guidelines. A list with conservation relevant studies on captive bears is in preparation. Potential fields of ex situ research to promote conservation will be prepared and an organizational chart to facilitate research collaboration is under development.

Table 1. Primary threats to bears identified by members of BSG Expert Teams.

Type of threat	EBB	NABB	SABB	ABB	SB	SLB	GP	AB
<b>Habitat loss from:</b>								
Roads and development	√	√				√	√	
Croplands				√	√	√		√
Livestock grazing			√			√		√
Timber harvesting		√		√	√	√		
Commercial plantations					√			
Fire		√						
<b>Killing bears:</b>								
For commercial trade		√	√	√√	√	√		
While hunting other species	√							
For depredating livestock			√					
<b>Some small populations isolated:</b>								
Demographic stochasticity	√	√	√	√	√	√	√	√
Genetic isolation							√	

EBB European brown bears; NABB north Asian brown bears; SABB south Asian brown bears; ABB Asiatic black bears; SB sun bears; SLB sloth bears; GP giant pandas; AB Andean bears. 🐻

## Session 2: Climate Change and Bears

Chris Servheen, Session Chair

The session on Bears and Climate Change was held on Monday 18 July from 1:00 to 5:30 p.m. Philippe Gachon led off the agenda with Anticipated Climate Change in the 21st Century at both the North American and Global Scales based on atmosphere-ocean global climate models (AOGCMs). He reported that the global annual average surface air temperature simulated by various AOGCMs is projected to warm between 1.1 and 6.4°C by 2090-2099 relative to 1980-1999. This increase would be greatest in polar and sub-polar regions, and the largest temperature increase is expected in winter and spring rather than in summer. He also stressed that there are uncertainties in these modeled results.

The next speaker was Michael Proctor on GPS Telemetry and Habitat Modeling to Identify Linkage Zones in Fragmented Region of Western North America Providing Adaptive Options for Grizzly Bear Response to Climate Change. He and his 5 co-authors presented information on how they identified linkage areas between fragmented grizzly populations along the transboundary US-Canada border. Their results predicted core habitats and linkage areas. Land conservation actions were then implemented in these areas using a combination of purchase of important private lands, conservation easements, and sanitation enhancement to increase permeability of the landscape in the key linkage areas they identified.

Karine Pigeon and two co-authors then delivered a talk on Denning Behavior and Climate Change: Linking Environmental Variables to Denning of Grizzly Bears in the Rocky Mountains and Boreal Forest of Alberta, Canada. They studied den entry and exit dates for brown bears and investigated links between environmental variables and hibernation patterns. They found that the timing of den entry and the duration of the denning period for females varied by year and with fall temperatures suggesting that females might be susceptible to climate-induced modifications in hibernation patterns. Climate-induced changes in the denning behavior of female bears may increase human-bear interactions as climate continues to warm.

The next speaker was John Whiteman on How are Polar Bears (*Ursus maritimus*) Adjusting their Physiology and Behavior to Cope with Climate Change? He and his two co-authors studied polar bear energy expenditures for bears that follow sea ice retreat compared to other bears that remain on land. Preliminary analyses suggest that ice-bound bears exhibit slightly reduced metabolic rates and may exhaust their lipid stores during fasting. Bears on shore had variable metabolic rates and appeared not to exhaust lipid stores. Future analyses of activity levels, fat tissue, muscle tissue, muscle morphology, serum non-esterified fatty acids, and other blood parameters will clarify the benefits and drawbacks of remaining on shore and following the sea ice north in the context of changing summer conditions.

Karyn Rode was unavailable to present her paper, so it was presented by Lily Peacock who was one of the 6 co-authors. The paper was entitled: A Tale of Two Polar Bear Populations: Ice Habitat, Harvest, and Body Condition. They examined trends in body condition metrics (axillary girth and zygomatic skull width) and relationships with summer time ice concentration (between 15 May and 15 October) between 1977 and 2010 for the Baffin Bay (BB) and Davis Strait (DS) polar bear populations. Despite differences in harvest rates, population density, ice concentration, and prey base, polar bears in both populations exhibited positive relationships between body condition and summertime sea ice cover between the 1990s and 2000s. Furthermore, all sex and age classes exhibited declines in body condition during this time period that were not apparent during an earlier time period (1977-1990s) when sea ice loss did not occur. Their results suggest that unidirectional declines in sea ice are affecting the body condition of polar bears in these two populations. They concluded that it was unlikely that hunter harvest aimed to reduce bear densities can negate the effects of reduced sea ice habitat on polar bear body condition.

Scott Nielson and his co-author Bruce McLellan presented Potential Implications of Climate Change on Grizzly/Brown Bears in North America. They concluded that humans are the major top-down limiting factor of grizzly bears and predicted that in North America, a warming climate will redistribute people, at least seasonally, northward resulting in greater overlap with grizzly bears. This will exacerbate human-bear conflicts, habitat conversion, and fragmentation of bear populations. Bottom-up effects of climate change, on the other hand, will be more complex since these involve ecological relationships for more species. Salmon, ungulates, fruiting shrubs, roots, and stone pine seeds are perhaps of most concern since they provide the energy that bears utilize. They also concluded that as climate warms, grizzly bears, which are extreme habitat generalists, will adapt well and perhaps even expand their distribution in some areas.

The focus then changed to Asia with a paper by Melissa Songer and 2 co-authors on Assessing Impacts of Climate Change on Giant Panda Habitat. Given the giant panda's restricted geographic distribution, as well as the potential climate sensitivity of montane forests, climate change may significantly reduce and isolate already fragmented giant panda habitats, decrease gene flow, and thereby substantially increase the species' extinction risk. They used current giant panda geographic distribution and general climate models and species distribution modeling to predict future distribution and fragmentation of giant panda habitat. Their results support the major general predictions of climate warming – a shift of habitats towards higher

latitudes towards the poles. Their models show climate change may reduce suitable habitat for pandas by nearly 60% over 70 years. Beyond the current geographic range new areas may become suitable, but only 15% of these are currently protected.

Shaenandhoa García-Rangel and her co-author presented *Global Warming: A Threat For The Andean Bear?* They carried out a preliminary evaluation of the impact of global warming on the Andean bear (*Tremarctos ornatus*) across the Northern Andes in Colombia, Venezuela, Ecuador and northern Perú to set the stage for more detailed future research on this subject. Using available climatic and land-cover datasets (e.g. WorldClim, MODIS), they modeled distributional changes in vegetation types associated with the species (i.e. evergreen forests and high-elevation shrub lands), together with variations in habitat suitability for important food resources on Andean bear's diet. Results of these analyses pose further questions to be addressed in future detailed evaluations of the impact of global warming on the Andean bear.

The final paper in the session was an invited paper by Steve Amstrup entitled *Polar Bear Population Projections: Reliability in the Face of Uncertainty*. Observed sea ice declines have been linked to reduced body condition and stature, altered feeding and movement patterns, reduced survival, and population declines. Based upon sea ice losses due to projected rise in greenhouse gases (GHGs), Steve's research team concluded in 2007 that two-thirds of the world's polar bear population could disappear by mid-century. Natural variations in weather and climate mean we cannot predict the first year when the reduced spatio-temporal extent of sea ice will prevent female polar bears from reaching their traditional denning areas or from achieving weight gains necessary for reproduction. Yet, without mitigating GHG rise, exceeding these and other critical thresholds for polar bear survival is inevitable. The longer we delay in limiting GHG emissions, the more thresholds will be exceeded and the lower the probability that polar bears will persist.

The uncertainty in the climate system does not preclude reliable projections for a distant future in which GHG concentrations continue to increase. Steve's paper was a superb finish to the climate change session and provided a clear and ominous call to action if we are to maintain polar bear populations in the future. 🐻

## Session 3: Conservation Case Studies

The status of bears and the challenges facing biologists trying to conserve these animals varies enormously from one place to another. Bears in Canada, the host country for this conference, are likely among the most secure on earth and it is probable that more bears live in Canada than all other countries combined. But even here, there are some conservation challenges, however, these are dwarfed by issues in other places. During this session we heard papers from six presenters who work on bear conservation in developing countries where the goal of people to improve their living conditions often leads directly or indirectly to conflicts with bear conservation. The presenters in this session are some of the real heroes of bear conservation as they work in very difficult situations.

Dr. Ozgun Emre Can, who is the Co-chair of the South Asian Brown Bear Expert Team and a postdoc at Department of Zoology of University of Oxford, started the session with a more general, broadly philosophical presentation of fundamental problems common to bear conservation in developing countries but also of opportunities to overcome these problems. Emre stressed the need for greater cooperation between biologists and managers in regions where there is both a culture and history of bear conservation and biologists struggling to make a difference in areas without a culture of conservation. He pointed out that research on bears to identify threats and limiting factors may be useful in many situations, but research alone will do little for conservation. Biologists should be working together to develop innovative ways to not only learn about bears in developing areas but also to put bears and conservation in general on the policy agendas of these countries. Emre made three concrete suggestions to the IBA community that he believes will make a real impact on bear conservation and also to fulfill the IBA's mission statement. First, develop a multi-disciplinary approach for conservation, second commit much more to building capacity in developing countries, and third explore how to transfer IBA's experience and knowledge to developing countries.

Siew-Te Wong, Ph.D. candidate at the University of Montana and CEO of the Bornean Sun Bear Conservation Center followed with a more specific, data rich presentation on logging methods that may be much more compatible with Sun Bear conservation than more traditional logging and of course, more compatible than forest conversion to agriculture or agroforestry. Wong and his 3 co-authors presented data that compared sun bear sign surveys and fruit productivity between selectively logged forests and primary (unlogged) forests. Results suggest that bear sign was more common in areas with low trail density, lower density of larger trees, and in selectively logged forests. They found fruit production to be similar between primary and selectively logged forests. Species of *Ficus* (figs) produced fruits in both forest types all year long making them an extremely important food for bears and many other animals. Wong concluded with the positive result that sustainably managed, selectively logged forests are very important habitats for the conservation of sun bears and likely other wildlife species.

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

It is well known that brown bears, Asiatic black bears and sloth bears are found in India but the status of sun bears has, until recently, been less clear. In this session, Dr. N.P.S. Chauhan of Wildlife Institute of India and co-author Janmejy Sethy, presented the third paper “Sun bears in India: conservation vs. Threats”. They collected information on the status of sun bears by interviewing villagers living in and near protected areas and by conducting sign surveys along forest trails in the North-eastern Indian states of Arunachal Pradesh, Mizoram, and Nagaland. About one third of the 1915 respondents reported sighting of sun bears or their sign in these states. While surveying the forest trail systems, 3 sun bears were sighted and almost 700 sun bear signs were recorded. The area is remote with dense tropical semi-evergreen forests. Here tiger reserves and national parks offered some protection to sun bears, but poaching appears a serious threat. They recorded 23 cases of poaching of sun bears in these 3 states.

Dr. Nishith Dharaiya (with two co-authors) presented “Status of sloth bears in north Gujarat, India and the conservation opportunities”. This work was also based on interviews with local villagers and bear sign surveys and the information was geo-referenced on a digital landuse cover map. They found sloth bears to be distributed unevenly and in patches throughout the region but in many types of habitats, both protected and unprotected. Bears frequently visited villages that are close to protected areas but most bear attacks on people were in unprotected forested areas. High and increasing human populations and rapid expansion of agriculture and a lack of awareness of bears and other wildlife are the main threats to the bear populations. Awareness campaigns that the authors organized and included workshops for local villagers and forest field staff to reduce conflicts, were found to be very effective. They also distributed preformatted applications for claiming compensation for bear attacks.

In the next paper, from the other side of the world, Becky Zug and 3 co-authors found Andean bears in Ecuador to be having similar problems to bears in India with bears and villagers mixing closely together. In her project area in Ecuador, bears damage crops and kill livestock but the adjacent parks provide little assistance to mitigate these losses. Becky works with the Carnivore Coexistence lab at the University of Wisconsin-Madison and cooperates with Fundacion Cordillera Tropical's Don Oso Program, which has a long-term approach towards working with local communities to conserve Andean bears. The authors have trained community park guards and university students to use camera traps to enumerate the bear population and learn about bear movements and habitat use. They are leading a community and school education campaign that, along with other methods, uses the camera trap photos to increase interest and participation in bear conservation.

Finally, we moved back to India. Aryal Achyut was supposed to talk about the status of brown bears in Nepal but he was detained to do field work, so Kartick Satyanarayan from Wildlife SOS – India moved his talk forward a few days. Kartick gave a very interesting and entertaining talk on the efforts of the NGO Wildlife SOS that he founded in 1998 to stop the illegal trade in sloth bear cubs. In India, skilful bear trackers and poachers make a living removing cubs, often from dens, and trading the cubs through a complex network of traders and dealers. This illegal harvesting of bear cubs is a significant drain on local bear populations. The cubs are then trained, usually with brutal methods to become performing (dancing) bears in India and more recently in Nepal. To combat the illegal trade in bear cubs, Wildlife SOS uses informers and undercover efforts to track down bear cub dealers. They work closely with the Government authorities to enforce the law while prosecuting poachers to discourage illegal trade. In an effort to completely halt the trade in bear cubs (and dancing bears), the Wildlife SOS group also provides poachers with more rewarding careers as wildlife protectors. They also focus on education of tribal children and women empowerment projects to support bear conservation as this will direct the future generations. Kartick believes that the efforts of Wildlife SOS has pretty well ended the practice of dancing bears in India where they have rehabilitated over 600 bears and provided alternative livelihoods and support to over 3000 Kalandar tribal people 🐻.

## Session 5: Ecology and Behavior of Polar Bears

Session Chair: Elizabeth Peacock

The IBA was pleased to have a significant contribution of polar bear science at this year's conference in Ottawa. Dr. Martyn Obbard, the conference chair, who studies both black and polar bears, successfully raised awareness in the IBA of polar bear science, conservation and management. The poster sessions, and the sessions in population ecology, aboriginal and traditional knowledge, and bears and climate change all had important contributions from polar bear scientists. The specific session – Ecology and Behavior of Polar Bears – was led by senior scientist, Dr. Ian Stirling, who gave a big-picture talk on the inter-relationships between polar bears, seals and sea ice change in Davis Strait (Canada and Greenland). This overview gave a 30 year retrospective on the ecology of this unique population of polar bears which primarily feeds on harp seals. I followed up Dr. Stirling's talk with a specific study on the population ecology of polar bears in Davis Strait.

Our analysis suggests that the population has increased since the 1970s, during a period of ice habitat decline, although significant increase in harp seals. We cautioned that our current estimates of recruitment are the lowest recorded for polar bears, and may signify future stress for this population. Vicki Sahanatien then presented results on polar bear habitat use – at the larger ice-scape scale and at finer scale resolution – in Foxe Basin (Canada). Her finer scale analysis uses SAR imagery, which has 75m<sup>2</sup> resolution, which provided insight into polar bear habitat requirements that are hidden within the resolution of larger-scale sea ice maps. Dr. Thiemann then spoke about quantitative fatty acid analysis which provides insight into individual-level foraging patterns of polar bears. Using data from Hudson Bay (Canada), he demonstrated that diets were dominated by ringed seals, although adult male polar bears consumed more bearded seals than other age and sex classes. The selective diets of adult female and subadult bears may render them more sensitive to habitat change due to climate warming.

Anthony Pagano presented data on the extent and frequency of long-distance swimming events by polar bears in the Beaufort Sea (USA). His work documented 51 swimming events that were >50km; the longest swimming event was 660 km over 12.7 days. He showed that the movement rates while swimming were greater than those rates of bears walking over ice. This suggests that long-distance swimming has higher energetic costs, which is concerning as bears in this region must navigate increasing expanses of open water. Polar bear conservation, and indeed polar bear science itself, has become increasingly controversial with the emergence of climate warming as a threat for polar bears. Dr. Andrew Derocher spoke about polar bear politics, ecology and conservation specifically in Canada. His message centered on the inadequacy of actions at the federal level in Canada to monitor, research and conserve polar bears. 🐻

## Session 6: Aboriginal and Traditional Knowledge of Bears

Session Chair: Vicki Sahanatien

Email: Vicki.sahanatien@ualberta.ca

Aboriginal and traditional knowledge (TK), a new session theme, was introduced at the 20th IBA bringing a Canadian flavour to the conference. In Canada bear species, especially polar bear, are managed cooperatively with aboriginal people and the management agreements require incorporation of TK.

The session began with Sue Senger describing the role of grizzly bears in St'at'imc First Nation culture in British Columbia, Canada. Sue used the ecological concept of umbrella species to illustrate the connections of the St'at'imc and grizzlies. She showed how habitat destruction and genetic isolation of grizzly bears parallel the threats facing the St'at'imc in maintaining their traditional knowledge, cultural practices and relationships with nature. The St'at'imc's efforts to enhance protection and conservation of grizzly bears are based in integrating science with TK to promote "healthy, functioning, connected ecosystems ... for the long term viability of bears and culture."

Gwich'in and Inuvialuit knowledge of grizzly bear diet in the Richardson Mountains of the Northwest Territories, Canada was investigated by Catherine Lambert-Koizumi. The grizzlies of this region exhibit a high level of carnivory but stable isotope analysis does not distinguish between Dall sheep, moose and caribou. Catherine used TK with habitat use and home range analyses to verify that Dall sheep is important grizzly bear food.

We then moved south to Columbia and the *marshiramo* (Andean bear). Ximena Velez-Liendo stood in for Daniel Rodriguez, presenting Daniel's overview of Yupka (Bear-People) TK of Andean bears. The Andean bear was considered to be quasi-human, as such, was associated with symbols related to the seasonal activities of harvest, hunting and celebration. Colonialism and displacement of Yupka from their former territories has changed their cultural relationships and knowledge of Andean bears.

Back north, this time to the Hudson Bay region of Ontario, Canada where the discussion of Cree TK of *wabusk* (polar bears) introduced the politics and power struggle of aboriginal involvement in wildlife management. Roy Gray of the Fort Severn Cree First Nation described the challenges that face the Cree in attempting to become partners with government in the management of polar bears in their treaty region.

Dominique Henri gave the final presentation, continuing the exploration of TK of *nanuq* (polar bears) and the politics of polar bear research and management in Nunavut Territory, Canada. Dominique described the root causes of political tension: (1) differences between local and scientific perspectives on the empirical effects of scientific research on polar bears, (2) incompatibilities between Inuit and scientific conceptions of human-animal relations, (3) credibility, trust and communication issues between stakeholders, and (4) the legacy of power relations embedded in past and current wildlife management and a culture of resentment inherited from past top-down practices. She concluded that incorporation of Inuit TK and

scientific knowledge in polar bear research and management will alleviate these tensions and make significant contributions to polar bear conservation.

This session introduced an alternate view of human-bear relationships, one not originating in safety and risk or aesthetics but of the intertwining of bears in aboriginal culture and identity. The session also brought to our attention an important source of information about bear ecology that has often been used by bear biologists but not usually recognized by science. Including the TK of aboriginal or local people can only benefit bear conservation. 🐻

## Session 7: Bear Behavior

Larry Van Daele

Robyn Appleton started the session off with a presentation entitled: Seasonality of reproduction in wild spectacled bears in the dry forest of Cerro Venado, Peru. She reported on work with her 3 co-authors in the dry, rugged mountains of Peru to observe Andean (spectacled) bears from 2007 – 2010. While this was primarily an observational study they also employed 7 GPS collars and several camera traps to document year-round behavior. They documented breeding in late December and early January, immediately after feeding on sapote fruit. Pregnant sows went to maternal dens in August and gave birth in September. Four active dens (among the first discovered in the wild) were found with each containing a single cub. During this study there were few conflicts between bears and humans.

The next presentation was by Lori Homstol as she presented her report on how the use of whistles and slingshots increase the wariness of American black bears. Along with her co-author, Lori worked with black bears in the vicinity of Whistler, British Columbia, Canada where there is a density of about 1 bear/km<sup>2</sup> and a plethora of bear-human conflicts. This project was designed to objectively evaluate the effectiveness of aversive conditioning. To be effective, the conditioning needed to be: 1) consistent; 2) immediate; 3) initially intense; 4) non-contingent (not only applied by a single person); 5) rewarding alternate behavior; and, 6) evolutionarily relevant. Bears quickly associated the sound of a whistle to pain were as likely to run from sling-shot projected marbles as from rubber bullets.

Karen Noyce presented the work she and her co-author developed on the Evidence of conspecific cueing in guiding landscape-level movements of American black bears in northcentral Minnesota, USA. This was an innovative assessment of the movements of over 200 bears over a 10-year period as they dispersed after den emergence with differing patterns in different years. Most of these movements were not related to maternal education, but suggested that many bears were modeling their behavior on more dominant older bears, smelling where they went and following them. This may indicate that certain individuals in that population are keystones on which others model their behavior.

In a report on another long-term bear research project, Kate Kendall presented work on Grizzly bear and black bear marking behavior in northwestern Montana, USA. She and her 2 co-authors have used hair and camera traps, and genetic analyses to identify and examine bear use of over 5,000 bear marking sites from 1998-2009. A wide variety of strata were used for marking, but tree were most common (86%). Camera traps recorded bears sniffing and /or urinating at rub sites before, during and after rubbing, reinforcing other studies' assertions that chemical social communication is an integral reason for the use of these sites. All sex and age classes and both black and grizzly bears rubbed at common sites suggesting that this is not simply dominance or territorial behavior. She encouraged researchers to think about and publish information on bear marking so that we can all gain a better understanding of the importance of these behaviors.

Unfortunately, Ivan Seryodkin and his 4 co-authors were unable to attend the conference, so his presentation on the Intraspecific relationships between brown bears, Asiatic black bears and the Amur tiger was graciously read by his colleague Tsutomu Mano. The Sikhote-Alin Zapovednik in the Primorsky region of the Russian Far East is a unique habitat in which brown bears, Asiatic black bears and Amur tigers co-exist. During this investigation, Ivan and his co-authors visited 427 tiger kills. Of these, 16.7% had been scavenged by brown bears, most of which were red deer. They documented 22 cases in which tigers killed brown bears, 12 cases in which brown bears killed tigers, and 10 cases where the species fought but there were no immediate fatalities. Encounters with black bears were unclear, but it was evident that all 3 species used the same mark and rub trees.

The final paper in this session was The noble cat and the big bad scavenger: the effects of kleptoparasitism by brown bears on Eurasian lynx, presented by Miha Krofel on behalf of his 2 co-authors. This work was conducted in the Northern Dinaric Mountains of Slovenia using GPS collars on lynx and remote video cameras on kill sites. Eurasian lynx are larger than North American lynx, and they can take a long time consuming their prey, especially when it was a large ungulate. In about one-third of the documented cases brown bears scavenged the kills and it significantly reduced lynx prey utilization. Lynx responded by increasing their predation rate to partially compensate for losses, and some also developed anti-scaveng-

ing behaviors such as killing smaller prey or covering prey remains. He hypothesized that the smaller size of other lynx species (Canadian lynx, bobcat, and Iberian lynx) may in part be due to a response to kleptoparasitism. 🐾

## Session 8: Physiology of Bears

Marc Cattet

Speakers at the Physiology of Bears Session provided five informative presentations along three broad themes. In the first theme, three speakers presented findings from their research into the development and validation of indicators of physiological function in captive bears that have potential application for non-invasive monitoring of free-ranging bears. Alejandra Mendoza offered results to show that fecal metabolites of the sex steroids  $17\beta$ -estradiol and progesterone can be measured to monitor ovarian function and clarify the dynamics of the estrus cycle in polar bears. Concentrations of these metabolites were found to vary during the mating season in adult females, but not in immature females. Further, male sexual interest in adult females was closely correlated with changes in the female's fecal estrogen profiles. In her presentation, Terri Roth extended these findings by also reporting on the seasonal dynamics of fecal testosterone metabolites in female and male polar bears. Her results indicate that testosterone metabolites increased in adult males and females during the breeding season, and that brief spikes in female levels were correlated with estrus, and presumably follicular activity. Ovulation appeared to coincide with sustained baseline testosterone concentrations, whereas anovulatory bears continued to exhibit spikes in testosterone throughout the breeding season. Pregnant bears experienced an increase in progestin metabolites in the fall that likely correlated with embryo implantation. Some of these bears, however, did not give birth, suggesting they experienced either pregnancy loss or pseudopregnancy.

On the same theme, but with a focus toward stress, Karl Malcolm presented results from new research to non-invasively assess the stress condition of wild Asiatic black bears in and around nature reserves in southwestern China. As a first step, Karl and his co-researchers conducted a series of trials with captive Asiatic black bears to account for variation in fecal glucocorticoids attributable to sex, season, and social pressures. To a lesser extent, hair cortisol levels were also evaluated as another non-invasive procedure to allow for retroactive assessment of historical cortisol profiles. The results from these studies are being used, in turn, to assist in the interpretation of results from the study of free-ranging Asiatic black bears.

On a related theme, Thomas Spady presented his latest findings on the dynamics of the ursid estrous cycle. Instead of using biological samples with potential application for non-invasive monitoring (feces and hair) of wild bears, Thomas's approach has been to "potty train" captive American black bears to urinate on command as a means to collect urine without handling the animals. Through monitoring urinary metabolites of estrogen and progesterone, and correlating their concentrations with changes in vulvar swelling, sociosexual behaviour and response to administered gonadotropins, he has evidence to clearly indicate that black bears are seasonally polyestrous as a consequence of successive waves of follicular development. These findings are likely to be of direct benefit to ongoing efforts to improve reproductive rates in several endangered bear species.

For the final theme, Ole Fröbert provided a general overview of his collaborative research with the Scandinavian Brown Bear Research Project to investigate cardiovascular function, during both active and denning states, in free-ranging brown bears in Sweden. Specific aspects of this research include the assessment of blood coagulation, oxidative stress, oxygen handling, apoptosis, inflammation and insulin resistance. In addition to cardiovascular function, Ole and co-researchers are also investigating markers of osteoporosis and obesity, and the cultivation of mesenchymal stem cells from fatty tissue. Ultimately, these data will broaden understanding of the physiological adaptations of bears to winter dormancy, but may also provide insight into the pathophysiology and treatment of cardiovascular (and metabolic) disease in humans. 🐾

## Session 9: Population Estimation

Joe Clark

### Estimating bear population by spatially explicit capture-recapture

Murray Efford, Department of Zoology, University of Otago, Dunedin, New Zealand

Murray Efford began the session with a thought-provoking talk describing spatially explicit capture-recapture methods. He first described the technique that he developed and has been used by many bear researchers to estimate population

density. The advantage of Murray's method is that effective study area size does not have to be estimated which is the real problem in obtaining conventional density estimates from estimates of population size. Murray then went a step further to describe how the method could be used to also estimate population size. Finally, Dr. Efford discussed various options for optimizing sampling protocols, including the use of clusters of sampling devices (e.g., hair traps).

## **Genetic gagging free-ranging black bears and grizzly bears since 1995: implications for population-level studies of bears and other wildlife**

John Woods (Wildvoices Consulting), Bruce McLellan (British Columbia Ministry of Forests), Dave Paetkau (Wildlife Genetics International), and Mike Proctor (Birchdale Ecological)

Bruce McLellan and Mike Proctor teamed up to describe the early days of genetic mark-recapture and its resultant applications. Much of the early research involved the design of devices to sample DNA from bears. Interestingly, hairs left on a barbed-wire enclosure for a vegetation study evolved into the hair-snag corrals that we all are now familiar with. The development of this technique, from hair collection to genotyping, to population estimation was the result of collaborations with many bear researchers, and IBA played no small role in this process by facilitating such interactions. The methods have since been used with most bear species and have spread to other taxa around the world.

## **Effects of subsampling genotyped hair samples to estimate black bear abundance**

Jared Laufenberg (University of Tennessee), Frank van Manen (US Geological Survey), and Joe Clark (US Geological Survey)

Jared Laufenberg presented hair DNA data collected in Great Smoky Mountains National Park, Tennessee, to evaluate the effects of subsampling on population estimation. Subsampling is usually necessary for black bear studies because genotyping all collected samples is prohibitively expensive. However, the question is whether such subsampling introduces a bias and how does it affect precision. Jared presented scenarios whereby a full data set was progressively subsampled at reduced proportions (90%, 80%, etc.). He found that capture heterogeneity was not effectively detected or estimated when capture probabilities were low (<0.20), or when <80% of the samples were genotyped, resulting in underestimation of population size. He recommended pilot studies to estimate capture probabilities prior to mark-recapture studies.

## **Grizzly bear abundance, distribution, connectivity and conservation across the southern coast ranges of British Columbia**

Clayton Apps (Aspen Wildlife Research), Dave Paetkau (Wildlife Genetics International), S. Rochetta (Ministry of Environment, BC), B. McLellan (Ministry of Forests and Range, BC), A. Hamilton (Ministry of Environment, BC), and B. Bateman (Aspen Wildlife Research)

Most DNA studies on bears have been conducted in small areas where problems with population closure can be problematic. Not so for the DNA work in BC described by Clayton Apps and his coauthors. Clayton detailed a DNA mark recapture study in large area (40,000 km<sup>2</sup>) in southwestern British Columbia. The study took place over a 5-year period to establish occupancy, estimate population density, and describe connectivity. Densities ranged from 0 to 12.7 bears/km<sup>2</sup> which varied according to habitat quality and human influences. Nine genetically distinct population clusters have been identified, with human influences (e.g., roads, settlements) restricting gene flow. The study illustrated the need to think about conserving or restoring linkages on the landscape to preserve genetic, and possibly demographic, integrity. These linkages are especially critical to allow population expansion from core into peripheral, uninhabited landscapes.

## **Estimating the Asiatic black bear population using different techniques – a case study from Dachigam National Park, Kashmir, India**

Sambandam Sathyakumar, S. Charoo, and L. Sharma (Wildlife Institute of India)

Ecologists working in rugged landscapes face special challenges when estimating bear population sizes. These challenges are no more evident than in the landscapes in the Himalayas, and Sathyakumar and his colleagues used a variety of techniques there to estimate population size of Asiatic black bears. Sathyakumar evaluated sign survey techniques, capture-recapture (camera sightings and DNA), and home range analysis in Kashmir, India in 2007-2010. Camera traps and hair snags were placed in 23 2-x2-km grids and sampled 13 transects in the intensive study area (90 km<sup>2</sup>). Bears were marked using color-coded collars or ear tags and DNA genotyping from hair or scats. The relative abundance estimates from the transect

sampling (0.07-1.05 bear signs/km) were correlated ( $R^2 = 0.79$ ) with the camera trapping data (0 to 17.97 captures/100 trap nights). Densities were determined using spatially explicit capture recapture methods.

## Density estimation of Asiatic black bear and sun bear using chest marks and photographic capture recapture sampling

Dusit Ngoprasert and G. Gale (King Mongkut's University of Technology)

DNA analysis is a powerful technique for identifying individual animals for mark-recapture estimation but extraction and genotyping costs are high. Dusit Ngoprasert presented some results from a blind experiment using captive animals that indicated that Asiatic black and sun bears can be identified with high accuracy based on chest marks (blazes). Using this method, Dusit and his colleagues established 18 bait stations in 2 study areas where they photographed bears consuming baits. Thirteen Asiatic black bears and 8 sun bears were identified on the Khlong E-Tao study area (33 km<sup>2</sup>) and 10 black and 6 sun bears were identified on the KhlongSamor Pun area (40 km<sup>2</sup>). Dusit found that this method, when applied to closed population mark-recapture or spatially explicit mark-recapture, provided estimates of population size with reasonable precision. The ratio of black to sun bears that they observed correlated well with other data from claw marks on climbed trees. Thus, the method may hold promise as an alternative to DNA mark-recapture for those bear species.

## Aerial survey estimation of abundance for polar bears during the ice-free season

Seth Stapleton (University of Minnesota), E. Peacock (Department of the Environment, Nunavut), and D. Garshelis (Minnesota Department of Natural Resources).

Line transect sampling designs are well established for estimating population size of many species, but these techniques have rarely been applied to bears. Polar bear populations are usually estimated with mark-recapture techniques but those methods are costly, logistically difficult, and have been opposed by local Inuit because of the handling and marking involved. Seth Stapleton and his colleagues presented the results of a study to estimate polar bear populations during summer using aerial transects. The study was conducted in Foxe Basin, Nunavut, Canada during the ice-free season when bears are concentrated along the coastline. Sampling effort and methods differed for coastal zones, inland areas, and islands or ice floes. More than 300 hrs of helicopter time was used to survey 40,000 km of transects, during which time 816 and 1,003 individuals were observed in 2009 and 2010, respectively. The detection function varied between years, likely due to greater sighting experience by observers. The model averaged abundance estimate for Foxe Basin was 2,578. Seth and his colleagues documented high consistency in estimates between years and methods, and these results indicate stability in the subpopulation since the early 1990s. They suggested a general framework for future aerial surveys during the ice-free season, including orientation of inland transects, inclusion of coastal contour transects, use of both double-observer and distance sampling protocols, and stratification of the study area based on proximity to the coast. Because aerial surveys provide less information than mark-recapture studies, more conservative management may be required. 🐻

## Session 10: Population Ecology of Bears

Martyn Obbard

Session 10 in the afternoon of Thursday, 21 July was chaired by Chuck Schwartz. This was one of the last contributions Chuck made to IBA before he retired later in the summer. The first paper in the session was "Population regulation of grizzly bears on an industrialized landscape: the case of the changing bottom" by Bruce McLellan. In this paper, Bruce tested the hypothesis that landscape industrialization in southeastern British Columbia would strongly limit grizzly bear populations. Predictions of a declining population during developments and lower density in developed areas than in an undeveloped control were both rejected. Long-term fire history and the consequent influence on huckleberry production appears to be regulating this population with a greater effect than human activities.

The second paper in the session was by Scott Nielsen and co-authors. In "Silver spoons, forest landscapes, and grizzly bear body size patterns in Alberta," Scott and co-authors evaluated a number of hypotheses to explain spatial and temporal variations in springtime body mass, length, and body condition for grizzly bears from western Alberta. Regional productivity and "silver spoon effects" (natal environmental conditions) were important factors regardless of bear age, suggesting that for body size patterns in grizzly bears natal environmental conditions are as important as recent environmental conditions.

Ramona Maraj and co-authors were next with “Effects of conspecifics on habitat selection by grizzly bears in the southwest Yukon, Canada.”

In this paper, Ramona explored sexual segregation in grizzly bears by looking at third-order habitat selection by radio-collared bears. The results suggested that avoidance of conspecifics was the primary factor affecting segregation of family groups from other cohorts during feeding seasons. Next, Ofelia Gonzalez and co-authors presented “Litter size reduction reveals sibling competition in brown bear *Ursus arctos*.” In this paper, Ofelia explored the trade-off between offspring size and number by examining how variability in litter size and partial litter loss affects yearling body mass. Body mass of bears from litters  $\geq 2$  was lower than the entire litter survived than when there was partial litter loss, suggesting a mother-offspring conflict over optimal litter size because intra-litter competition reduces the growth of individual cubs.

The last paper in the session “Are bears effective seed dispersers in the temperate forest ecosystem? Estimate of the seed shadow created by the Asiatic black bear” was given by Shinsuke Koike and co-authors. Having long gut retention times and large daily movements means that Asiatic black bears effectively moved 40% of seeds consumed more than 500 m from the parent tree, and could potentially move seeds up to 22 km from the parent tree. Bears make complex seed shadows due to multiple defecations and extended daily movements. Seed shadows may become larger during poor masting years as bears search more widely for food. Asiatic black bears have the longest seed retention times and greatest seed shadows of seed dispersers in the temperate forests of Japan. The entire session was well received and combined with Session 9 on Population Estimation helped to get conference attendees thinking about the evening workshop to follow on “Spatially-explicit capture-recapture population estimation” delivered by Murray Efford. 🐻

## Panel on Bear Feeding

Moderator: Dave Garshelis  
Minnesota Department of Natural Resources  
Email: dave.garshelis@state.mn.us

Images of people feeding bears hark back to the early-mid-1900s, when this was accepted practice in some U.S. national parks. Through the work of bear biologists and managers, a new philosophy emerged, and concerted efforts were made to educate the public to prevent bears from obtaining human-related foods. Attraction of bears to human-related foods causes conflicts that are bad for people and often bad for bears. This way of thinking has been reinforced by the expression “a fed bear is a dead bear”. But there are also accepted situations where people intentionally feed bears: to bait them for viewing or hunting, to supplement their diet to produce larger bears or to prevent starvation in threatened populations, and in some cases to try to attract them away from other food sources. The latter situation, referred to as diversionary feeding, was the primary topic of this panel. Six invited panelists participated, spanning a breadth of experiences and beliefs about whether intentional bear feeding can serve to effectively divert bears from conflict situations. The purpose of the panel was to bring to light the historical foundation for current management practices, and examine whether new data support a potentially new paradigm.

Prior to the presentations, the audience was polled as to their beliefs regarding bear feeding (see accompanying Tables). Overwhelmingly they opposed intentional feeding, but were divided on the issue of whether diversionary feeding should be recommended as a management technique.

John Hechtel presented an overview of deliberate feeding of bears. The appropriateness of such feeding from a management perspective depends on the specific context (who, where, why, how), kinds of food used, and the duration of the feeding. John proposed standard terminology to differentiate different kinds of intentional feeding (e.g., supplemental, diversionary, recreational, research, commercial). The primary focus of the panel was on diversionary feeding, which he defined as a planned management action, for a limited period of time, to provide alternative foods aimed at drawing bears away from potential conflict locations or reducing their use of certain foods (e.g., tree cambium, ungulate calves). John listed potential secondary consequences of feeding, including: effects on health/condition of fed bears; changes in productivity and survival; increased local density; spread of disease; altered social status, movements, activity patterns, foraging behavior, denning chronology; impacts on species other than bears; habituation to people; and changes in people’s attitudes about bears. John summarized U.S. and Canadian regulations, finding that 48% of states and 27% of provinces prohibit feeding, for various reasons. Most management agencies have attempted, through public education, to reduce access of bears to artificial foods,



Grizzly bears being fed by workers on the Alaska oil pipeline, late 1970s

© D. Roby



The U.S. National Park Service operated bear feeding/viewing stations in Yellowstone National Park from 1897-1942

and evidence shows this to be effective at reducing conflicts.

Kerry Gunther reviewed evolving policies in U.S. national parks regarding bear feeding. During the early history of most U.S. national parks, bears readily obtained anthropogenic foods from garbage dumps, bear feeding stations, recreational hand-feeding by park visitors, and food or garbage in campgrounds. Although watching and interacting closely with bears delighted most park visitors, large numbers of people interacting with human food-conditioned bears also led to high numbers of human-bear conflicts, including property damage and injuries. After closing garbage dumps and bear feeding stations, prohibiting recreational hand-feeding, bear-

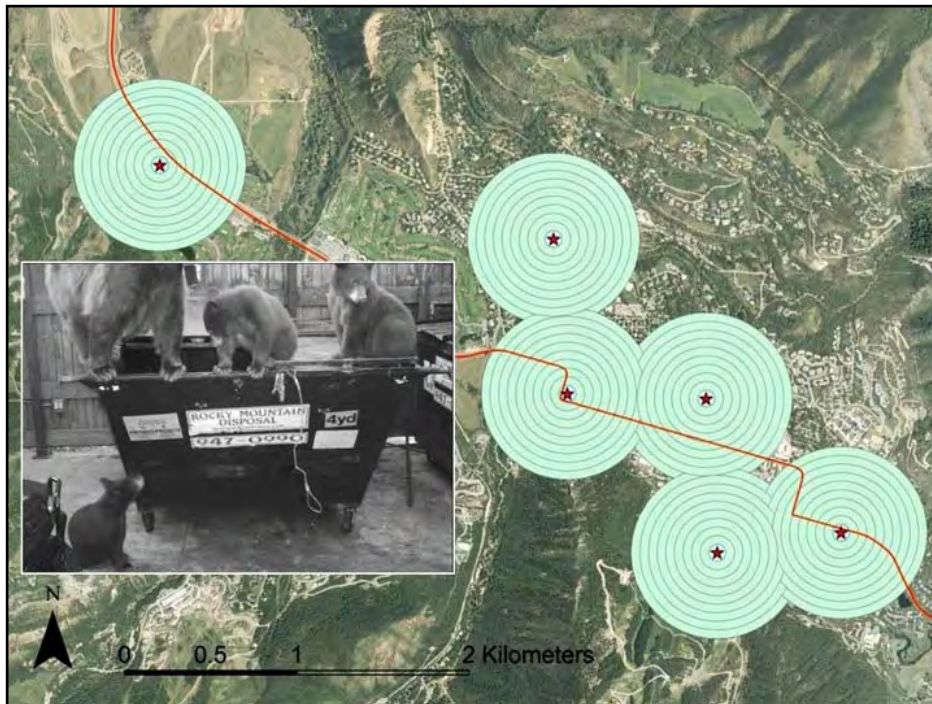
proofing food and garbage containers, and educating park visitors about the negative consequences for bears that routinely obtained human foods (i.e., they likely would be killed), human-bear conflicts decreased significantly. Even without viewing stations and public feeding, many visitors still see bears in national parks, building a constituency of public that support bear conservation and bears living without human intrusions. The national park service experience demonstrates that bear populations can be maintained in a manner that reduces human influences on bear behavior and provides for the safety of bears, park visitors and their property, while still providing the public with adequate opportunities for viewing.

Lynn Rogers, working with American black bears in northeastern Minnesota, USA, presented observations counter to the notion that a fed bear is a dead bear and in support of diversionary feeding as a conflict management tool. Because hunger is a driving force in bear behavior, Lynn believes that trying to keep bears away from human-related attractants during poor food years just “teaches them to be sneakier.” He discussed a diversionary experiment where he provided beef fat near a campground that had bear problems: the number killed in the vicinity declined from 2/year to <1/year, even though the post-treatment phase included a particularly bad food year. He indicated that the success of this experiment was related to the attractiveness of the diversionary food compared to typical anthropogenic attractants. He noted that many bears were killed as



One of many houses in the Lake Tahoe area (California and Nevada, USA) that suffered a break-in by a black bear in 2007, before diversionary feeding was tested, out of desperation

© BEAR League



Main dumpster attractant sites (red stars; trail-camera photo shown in inset) identified in Aspen, Colorado, based on frequency of visits by GPS-collared bears. Bears continued to visit other human-related food sources in town, well beyond the vicinity of the dumpsters (circular buffers of 50 –500 m).

nuisances in northeastern Minnesota during the bad food year, but a town where people fed bears remained “trouble free.” Lynn observed that people in this town began feeding bears to divert them from other human-related attractants but soon came to enjoy their presence and continued to feed them recreationally. These bears, he said, avoid people (when not being fed), avoid nearby campgrounds, get into less trouble, and are less likely to be killed than bears that are not fed.

Ann Bryant discussed the case of a severe drought compounded by forest fires that resulted in a scarcity of food for black bears around Lake Tahoe (California and Nevada, USA) in 2007. Lake Tahoe normally experiences a relatively high level of human–bear conflicts, but the situation in 2007 was far more extreme. Bears began breaking into homes in record numbers. Wildlife agencies in Nevada and California considered this a natural event, which could

result in a population reduction (via natural or human-caused mortality and reduced reproduction). The BEAR League, a local bear advocacy group, found that the normal procedures for alleviating human–bear conflicts (reducing bears’ access to human foods) were ineffectual in 2007, when bears were especially hungry. Therefore, Ann and her group initiated a carefully orchestrated diversionary feeding program. This program was carried out surreptitiously, as it was against state law. [Note that by inviting Ann to make this presentation, the IBA is not condoning unlawful activities, even if potentially helpful to bears or instructive to science and management]. Masses of fruits and nuts were donated by orchards and carried into the nearby backcountry by an army of volunteers in an attempt to lure bears away from homes. In the areas of town near where food was provided, bear break-ins ceased. Fears that a large number of bears would return the following years as a result of this feeding turned out to be misguided.

Sharon Baruch-Mordo used data from GPS-collared bears to investigate whether feeding bears at selected locations in an urban setting can lure them away from conflict situations. She presented detailed movement data on American black bears in Aspen, Colorado, USA, with respect to point attractants (i.e., frequently visited dumpsters), which can be likened to feeding stations. Buffers of 500m radius around these point attractants (see accompanying figure) contained, on average, only 30% of the GPS locations. Backtracking GPS locations, Sharon found that only ~40% of feeding events on anthropogenic resources occurred within 500 m of the feeding sites. Whereas bears used these attractant sites heavily during years with poor natural food production, they still roamed widely throughout the urban environment using other available attractants. These data are consistent with study results of other species in North America and Europe, indicating that diversionary feeding often cannot compete with original attractants, and sometimes increased local wildlife densities and conflicts. Important management questions were raised as to the trade-offs between short-term potential reductions of conflicts versus long-term dependency on feeding. Sharon concluded that while formal testing of current hypotheses is still warranted, limited management resources would be better spent by focusing on removing attractants, rather than providing diversionary food sources.

Klemen Jerina discussed the effects of supplemental feeding on brown bears in Slovenia. In Slovenia and several other European countries, supplemental feeding of bears with maize or carrion has commonly been used for conflict mitigation. However, its effectiveness is not well understood and there is growing concern of potentially negative side-effects. Klemen’s investigation combined analysis of scat and stomach contents, bear use of feeding sites, human–bear conflicts, and GPS telemetry data. He examined use of supplemental food in relation to bears’ nutrition, activity budgets, and probability of approaching human settlements. Bears had access to 70–280 kg/km<sup>2</sup> of maize (in feeders) and 33–146 kg/km<sup>2</sup> of

supplemental carrion. Overall, 35% of annual dietary energy was derived from supplemental feed (maize 24%, carrion 11%), which is among the highest ever reported. Supplemental feeding strongly affected annual, seasonal and circadian spatial distribution of bears. However, no relationship was observed between bear use of feeding sites and extent of human–bear conflicts, indicating that feeding was not effective at diverting bears from other human-related attractants. Klemen and his team rejected the common notion that the discontinued use of supplemental livestock carrion (forbidden since 2004) prompted recent increases in human–bear conflicts.

Following the formal presentations, the audience was invited to engage in a dialogue with the panelists, and was encouraged to ask probing questions that could help get at the roots of the divergent conclusions. The hour-long

discussion cannot be synthesized in the brief space here because it encompassed a host of different issues. Notably, though, a disproportionate number of questions were directed to Lynn Rogers, given his enthusiasm for the use of diversionary feeding, and suggestion that it could be accomplished effectively via continual public feeding of bears, with no administrative oversight. Unfortunately, the effectiveness of the public feeding program that Lynn discussed was not measurable with data (and the little data he did present are refuted by the agency that collected it). Ironically, shortly after the conference, some bears from the Minnesota community where they are fed began getting into trouble, approaching occupied cars in a state park, breaking into a house, and even swatting a person who was attempting to approach a feeder in his yard. In the latter case, the person (who received facial lacerations from the incident) tried to cover up the episode to protect the bears from potential agency retribution. This highlights an important complication in measuring effects of diversionary feeding: If people that feed bears also become more tolerant of behaviors that would normally generate a complaint, then it becomes very difficult to sort out whether reported declines in nuisance complaints are related more to changes in bear behavior or human tolerance (the latter being less predictable and transferable to other situations). Notably, not everyone in this Minnesota community appreciates or feels comfortable with habituated bears routinely roaming the neighborhood, which is why management agencies typically are not in favor of public feeding of bears as a “diversionary” technique.

After the discussion period, the audience was polled again on the 2 questions that had been posed before the panel began. Results indicated no statistical shift in responses, although there was a slight increased tendency for people to consider the use of bear feeding on a case by case basis. Nearly a third of the audience considered diversionary feeding to be effective in some situations, although there was strong concern that it could cause more problems in the long run.

Audience poll about bear feeding conducted at the Ottawa IBA conference:

“Should bear biologists continue to discourage bear feeding by the general public?” People could vote for only 1 response.

Response	Before panel discussion (n=116)	After panel discussion (n=152)
Yes	88%	82%
No	0%	0%
Case by case basis, not set in policy	6%	13%
Need to collect more information	6%	5%



Numerous supplemental feeding sites available to bears in Slovenia (2009), consisting mainly of maize, and maintained primarily for ungulates

K. Jerina

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

Audience poll about bear feeding conducted at the Ottawa IBA conference:

“What message should bear biologists relate to management agencies about diversionary feeding as a tool to reduce human-bear conflicts (HBC)?” People could vote for >1 response.

Response	Before panel discussion (n=156)	After panel discussion (n=213)
It is generally not effective at reducing HBC	8%	11%
It should be considered only during severe food failures	8%	5%
It will cause more problems in the long run	33%	27%
It is effective in some situations, and should be considered an option for bear management	29%	32%
It is an under-utilized and under-appreciated technique that could help alleviate HBC	3%	3%
Not enough work has been done to make an informed recommendation	19%	23%



## Session 12: Human–Bear Conflict/Human Dimensions

Session Chair: Lana Ciarniello

The management of human-bear conflicts/human dimensions in bear research has become an increasingly popular issue during the last decade. As the human population expands human-bear conflicts may affect the conservation of bears worldwide. This session was one of the largest and culturally diverse with 9 presentations and representation of all 8 bear species.

The session began with a presentation by Neil D’Cruze et al. who reviewed the concepts and global trends in human-bear conflict. Neil surveyed biologists working on human-bear conflict and received responses that represented all 8 bear species. The survey contained questions regarding the current types of human-bear conflict experienced in the respondents’ area and their own perceptions of human-bear conflict. The authors concluded that regardless of the country in question a system is needed that accurately and effectively documents human-bear conflict, the management action taken, and the result.

Mark Ditmer et al. discussed the ecological requirements of black bears that resided in a landscape fragmented by agricultural activities versus those in contiguously forested habitats in northwestern Minnesota. For bears that lived in fragmented habitats they found that male bears used corn and sunflower agriculture fields more than females and had larger home ranges than males residing in contiguous habitats. They assessed habitat requirements using a 3-week sliding window approach and concluded that males and females used similar-sized areas during this time period but centroid movements for males were significantly larger than females. They suggested that their results may be used to mitigate human-bear conflicts by understanding how bears use marginal habitats.

The next presenter was Fang Liu et al. who examined the attitudes of villagers to human-Asiatic black bear conflicts in the Sichuan province of China. Fang surveyed local people to determine their attitudes and behaviours towards bears, damage caused by bears, poaching of bears and human-bear conflicts. Responses were group by ethnicity representing Han, Yi and Tibetan people. Interestingly, the killing of bears was more common in areas without human-bear conflicts. Fang concluded that negative attitudes towards bears were shaped by real or perceived threats of bears however poaching and the economic values of bear parts was driving the killing of bears by local people.

Next we were taken to Japan where Takahiro Kubo and Y. Shoji examined trekkers’ preferences for brown bear-encounter risk management in the Numameguri Trail area of Daisetsuzan National Park. Although there was a wide range of prefer-

ences for bear sightings they found that the majority of hikers did not like to see bears while trekking and were in favour of increased patrol systems of the trail. The majority of respondents however did not want those patrols to include lethal forms of bear management (i.e., Rangers with guns) because overall trekkers wanted to limit potential negative impacts on the bear population.

Our next speaker was Usham Singh et al. who investigated human-black bear conflict in Kashmir, India. Usham found that the majority of the 19 bear-inflicted human deaths they recorded were male persons and the majority of all attacks on humans occurred in the agroecosystem. They also conducted abundance estimates of black bears in the south, central and north divisions of Kashmir; the south had the highest cases of conflicts as well as encounter rate, followed by the north and central divisions. Bears were recorded to attack multiple people at once because fear of bears tended to cause panic among villagers who chased bears in retaliation. This work resulted in local community and education programs.

Keeping in India, the next presentation was submitted by Indu Kumari et al. and presented by Rahul Kaul. Rahul discussed the results of a socio-economic survey of rehabilitated Kalandars. Kalandars are a traditional community that makes their living from domesticating bears for human entertainment. Rahul discussed a joint initiative by the Wildlife Trust of India and the World Society for the Protection of Animals to provide alternative means of livelihood for Kalandars that surrendered their dancing bears. The program reported major successes with the majority of Kalandars indeed achieving alternate means of economic income to support their families and generally this income was noted to be higher than that made off of the dancing bears. The goal of the program is to eliminate the traditional practice of dancing bears in India and provide alternate means of livelihood to Kalandars.

Next we were off to Bolivia where Ximena Velez-Liendo examined how to identify human-bear conflicts zones for Andean bears by determining ways to select areas for maximum conservation benefit. She examined human-wildlife conflict zones which she defined as “potential habitats with a high risk of being colonized and transformed into a human dominated landscape.” Three levels of analysis for bears (region, patch and connectivity) were overlaid on maps depicting the probability of human occurrence. She found that human-bear conflict will likely occur at all three scales but areas for maximum conservation benefit could be determined under differing prioritization scenarios.

Djuro Huber presented a paper on behalf of Davor Zec et al. proposing that hunting is a tool that can be useful for the long term conservation of bears. Djuro discussed the “strictly protected” status of the brown bear in the EU and how that status is opposed to the brown bear management plan for the Republic of Croatia. In Croatia the brown bear is treated as game and a request for an exception of bear from the Habitat Directive had been put forward. During the last 60 years the Croatian brown bear population has increased with continuous hunting, however, fulfilling the hunting quota is becoming challenging due to the limited market of hunters.

The final presentation in this session was by Tyler Coleman et al. who evaluated the effectiveness of Yellowstone National Park’s Bear Management Areas as they related to interactions between grizzly bears and backcountry users. Outfitting both bears and some willing recreationalists with GPS units Tyler examined near continuous location data and provided information on how grizzly bear use the landscape in relation to varying levels of recreational use. He showed a detailed example of a bear that moved off a kill unknown to the approaching GPS outfitted recreationalists, and returned to the kill when they had passed.

This session highlighted the increasing use of empirical research to guide decisions regarding human-bear conflicts such as the ways we manage our anthropogenic attractants to bears, the placement and configuration of green-spaces versus human-manipulated landscapes, and the study of human behaviour and attitudes towards bears. The presentations combined management of the human dimension with research techniques that drew on the disciplines of biology and psychology for humans and bears alike. 🐻



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## Large Enclosures for Captive Bears – workshop summary

Agnieszka Sergiel  
Department of Vertebrates Biology and Conservation  
Institute of Zoology, University of Wrocław  
Sienkiewicza 21, 50-335 Wrocław, Poland  
Member: European Brown Bear Expert Team  
Email: a.sergiel@biol.uni.wroc.pl

Jordan Schaul  
Alaska Wildlife Conservation Center  
PO BOX 949  
Girdwood AK 99587 USA  
Email: jordan@alaskawildlife.org

Steve Mendive  
Alaska Wildlife Conservation Center  
PO BOX 949  
Girdwood AK 99587 USA  
Email: steve@alaskawildlife.org

The objective of the LBE workshop was to strengthen communication among large bear enclosure managers. We also convened to develop a consortium of institutions that house bears in ‘habitats’ that fit the criteria of the large bear enclosure along with those institutions that share a similar philosophy in regard to captive bear management. At the workshop, discussion ensued regarding the parameters for building LBE’s and the challenges facing LBE managers from both within the zoo community and among rescue and rehabilitation staffers. The session permitted us to share experiences and gather for an information exchange deemed crucial for building a cooperative network to address the future of captive bear management and welfare.

The Large Bear Enclosure Working Group evolved out of discussion concerning an emerging trend among the designers and managers of bear sanctuaries in Eurasia. Today, many new facilities are built using a model from large, enclosed, semi-natural ‘habitats’ to house rescued bears in high densities.

The stressors placed on bears, such as human encroachment and habitat loss, have made it almost a necessity to place many individual animals in large enclosures in relatively large group sizes. In North America and in Western Europe, the construction of these large facilities for housing rescue animals has grown in popularity. In many cases the enclosures are being designed to replicate the semi-natural habitats for high-density enclosures in Eurasia, but often with the intention to house fewer individual bears than what is found in sanctuaries and rescue centers around the world. In these enclosures it is possible to manage the bears less intensively from a husbandry standpoint, allowing husbandry and health personnel to focus attention on enrichment, husbandry training, and socialization of small groups of captive bears (e.g., conspecifics and different species) while focusing less time on sanitation and disinfection and other husbandry practices.

Within the session, four speakers presented issues related to Large Bear Enclosure concept, management and welfare. The first speaker, Steve Mendive of the Alaska Wildlife Conservation Center presented “Building B.E.A.R.S. – A State-of-the-Art Conservation Facility at a Living Institution” and provided a progress report highlighting features of the facility’s exhibit. He described the history and current status of the 18-acre brown bear enclosure on the AWCC campus and reported on the status of a nearly complete 14-acre black bear exhibit. The report emphasized the importance of developing education narratives for interpretive staff as well as interpretive materials (e.g. signs) that are specific to Large Bear Enclosures. The objective in developing appropriate messages for patrons visiting the B.E.A.R.S. exhibit is to convey a new perspective regarding the captive management of bears and welfare issues relevant to housing ursids in more natural enclosures. Furthermore, the AWCC staff hopes to complement this information with large habitat-specific information, which is ecosystem, as opposed to organismal focused. In conclusion, the talk provided colleagues managing large bear enclosures with some insight into the development of such an exhibit in North America.

Lydia Kolter (Cologne Zoo, EAZA Bear Taxon Advisory Group co-chair and Captive Bears Expert Team of Bear Specialist Group co-chair) in “Large Bear Enclosures in EAZA Ursid Husbandry Guidelines – Concept of LBE, Definition, Requirements and Challenges within the European Zoos”, presented an extensive introduction to the LBE concept, which has been developed in Europe. Dr. Kolter discussed the evolution of LBE’s and addressed in detail how these facilities can

be modified to fit the needs of specific collections. She also discussed how institutions have been able to capitalize on these expansive habitats to improve the overall welfare of ursids in captivity and tackled some of the husbandry challenges facing LBE managers.

Kartick Satyanarayan (Wildlife SOS) presented “Large Bear Enclosures Outside of Zoos in India”. Wildlife SOS developed LBE’s in four locations across India totaling an area of about 260 acres of forested land. This initiative was part of the Indian bear rehabilitation community’s attempt to address sloth bear conservation issues in both the wild and captivity. Through an investigation conducted by Seshamani and Satyanarayan in 1997 it was confirmed that hundreds of sloth bear cubs were poached each year from the wild to feed the dancing bears population and illegal trade in sloth bears. Wildlife SOS worked with the Kalandar community to wean them off this practice of animal exploitation and to eliminate the trade in bears by creating an alternative livelihood for the members of the community. The rescue organization also elected to educate children and empower women in an effort to offer some capacity building in the region and to enrich the community. This resulted in surrendering over 600 sloth bears to Wildlife SOS. At sanctuaries, the sloth bears are put through an extensive socialization process after quarantine and medical care. Today over 400 bears live at these Large Bear Enclosures, which serve as a Conservation Education Platform for Wildlife SOS.

“How to Build a Bridge Between Species Conservation and Animal Welfare” was presented by Patrick Boncourt (Vier Pforten). The presenter addressed how efforts to improve animal welfare can help facilitate conservation efforts and contribute to some of the most important aspects of such conservation initiatives. The International Animal Welfare Foundation VIER PFOTEN, was founded in 1988 in Austria. The organization has an extensive history in dealing with European brown bears in captive facilities. Vier Pforten built three sanctuaries, which care for more than 40 retired dancing bears, circus bears, zoo bears or bears from private collections. In the presentation the following key issues for animal welfare organisations and bear sanctuaries were addressed: (1) negotiations with governments and regional authorities in countries with critically low bear populations (especially endangered subspecies) to introduce and implement animal welfare laws concerning hunting prohibitions, animal dealing and private collection, (2) maintaining cooperation with governments to confiscate and transfer bears to a sanctuary, (3) rehabilitation and reintroduction as a possibility if a confiscated bear is still at a “proper” age (cubs) and (4) education as the most important aspect. The main conclusion of the presentation was that animal welfare organisations actually can contribute to species conservation efforts, even when possibilities are limited and can only be seen as a small addition to the big picture.

During the question period the workshop chairs fielded questions concerning the future of LBE discussion forums and the means for exchanging information. We agreed to set up a listserv and member directory to further channel discussion and facilitate communication among interested colleagues. 🐾

## The Story of a Travelling Bear ...

We would like to give a warm welcome to our brand new Ambassador for the World’s Bears – Mi Ton Teiow.

This is the story of a travelling bear. Mi Ton Teiow, an unusual looking bear, was born in a small Akha village near Luang Prahbang in Lao PDR. The Akha tribe are a unique ethnic group in Lao, known for their wild imaginations and creative workmanship. In July 2011, Mi travelled all the way to Ottawa, Canada, stowed away in the backpack of Lorraine Scotson, to be sold at the student silent auction at the International Conference for Bear Research and Management.

Mi was surprised when Emre Can (Turkey) and Dave Garshelis (USA) got into a bidding war over him. Emre ultimately won (in the final seconds), but as a gesture of generosity and collaboration, gave Mi to Dave. Dave then announced that he would only keep Mi for a year, promising to enrich his life, then pass him on to another “keeper.”

Inspired by his name, translated directly from Lao as ‘The Travelling Bear’, Dave and Emre have begun what will hopefully be a long-standing tradition of sending Mi to the far corners of the earth, to visit conservation projects involving all of the world’s bear species in a diversity of settings. Mi has already been claimed by Shaenandhoa García-Rangel, who will take him on a journey to the Andes during 2012–13. After that, Mi’s fate will be put in the hands of each future IBA silent auction, where he will perpetually help raise money to support future bear conservation leaders.

Mi’s mix-match of woven colors does well to symbolize the range of international biologists in the IBA who come together to research and protect bears worldwide. We can only guess that he is some kind of mash of different ursid genes, adapted to a variety of environments. This will bode him well for the adventures that lie ahead and no doubt help a bit when it comes to communicating with the local bears he may encounter along the way.

Mi has begun his journey in northern Minnesota, where he will soon be wrapping up warm for a long trek out to winter dens. He hopes to get to play with some new American black bear cubs.

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© Ximena Velez-Liendo

Mi Ton Teiow transferred from Lorraine to Emre, and Emre to Dave, who will keep him safe until the next IBA meeting

We wish you well Mi, and expect to see photos of your adventures (a photo album of Mi's journey across the globe, to different bear projects, will accompany him wherever he goes). We also hope that he might drop a note to *International Bear News*, now and again, to let us all know how he is doing and what he is learning about the bears of the world. 🐻

## Ottawa Student Session

Ximena Velez-Liendo & Agnès Pelletier

Under lovely sunny summer weather the 2011 Ottawa IBA Student Session was held at Major hill's park with the presence of nearly forty students. Despite of the limitations of many to travel to Canada it was great to have students representing all continents where bears inhabit.

Since 2004 when the first Student Session was held, this activity became an important event within the IBA conference. With the overall aim to give students a space to present their research, share doubts and get feedback from experts and other students, the Student Session organized either a discussion on a topic selected previously by students or discussion tables where experts and students discussed about specific issues.

Unfortunately, the Ottawa 2011 meeting didn't have either of those activities, but instead an informative activity where Diana Doan-Crider and I introduced the



Student Session and TRUMAN to all students and the visit of our bear expert Hal Black who spoke about the 2013 Utah conference. The organizers of the Utah conference are looking into making this venue easy-going and welcoming, and they hope to have students being hosted by on-site students or researchers during the event. In addition, they are open to ideas, so don't hesitate to contact them with your thoughts. Due to the limited time we had no further activity carried out. Instead students spend the rest of the lunch break chatting with other fellow students whilst enjoying a pizza.

Despite the short time we all had, the outcome from this Student Session was pretty amazing. First of all, it was clear that TRUMAN needs to become more active and to do so one of our new recruits and very enthusiastic student Agnès Pelletier has created a google excel document where all TRUMAN members are asked to fill in their information regarding research, focal species, contact information, etc. This google excel document is now open via a link sent to all TRUMAN members, so please take few minutes and fill it in. This spreadsheet will be permanently available to all TRUMAN students, so you can always look at the list and see if there is anyone sharing similar research topic or interests with you and make contact.

Secondly, it was unanimous that India 2012 and Utah 2013 must re-establish the discussion tables, and such activity should be, preferably, carried out during the first day of the conference. This would give students more time to keep discussion with other experts and/or fellow students during the rest of the conference. For India 2012 Samina Amin Charoo, another enthusiastic student will be our Student coordinator. Samina has started her work by identifying hostels or other affordable accommodation for students, as well as recruiting other Indian students willing to help in India. The selection of topics for the discussion tables will be via Survey Monkey. For this and other activities, we will keep you informed using TRUMAN, so stay tuned!

Finally, we want to thank all students who attended the session and hopefully see you next year in India! 🐻



## Climate Change Workshop

Chris Servheen

### Background

The workshop was conceived as a way to focus effort to develop an understanding of the possible impacts of climate change on the bears of the world. Three approaches were pursued in preparation for this workshop:

1. We distributed the report from a transboundary workshop held on the impacts of climate change on brown bears. This report was envisioned as a template for focused consideration of climate change impacts.
2. We conducted a poll of BSG bear specialists on the impacts of climate change on bears and bear habitat. The results of the poll were presented to the workshop participants and are attached at the end of this document.
3. The product of the workshop was originally conceived as a “white paper” produced by the workshop participants. The purpose of the white paper was to bring together considerations on expected climate change impacts on each of the world’s bear species. To facilitate this, several species specialists were sent a copy of the transboundary workshop report on climate change and asked to develop their own conceptual models of climate change impacts on their species using the transboundary workshop conceptual model format adapted to their bear species and its environment.

Of those asked to develop their own conceptual model, only one group of specialists took up the challenge - the Black Bear Specialists in eastern North America. Their conceptual model and that of the transboundary workshop on brown bears and climate change were presented at the workshop and are attached at the end of this document. The presentation and discussion of these conceptual models for each species was to form the core of the workshop and the resulting white paper. However, since only one group of specialists produced a draft model, we were unable to make any progress on an IBA “white paper” on the possible effects of climate change on the bears of the world.

### Models of Climate Impacts on Bears

On 13-15 September 2010, the Wildlife Conservation Society and the US Fish and Wildlife Service hosted a workshop on “Climate change impacts on grizzly bears and wolverines in the Northern U.S. and Transboundary Rockies: Strategies for conservation.” This workshop was specifically focused on the Transboundary Rockies along the U.S.- Canada border. The goals of the workshop were to:

1. Develop graphical, conceptual models that outline assumptions about the key climate and non-climate drivers affecting grizzly bear and wolverine survival in the Transboundary Rockies region;
2. Summarize the best-available information and uncertainties about the impacts of climate change on grizzly bear and wolverine populations in the Transboundary Rockies region;
3. Begin to identify priority conservation and management recommendations to achieve conservation goals for these species in light of climate change; and
4. Identify priority research and monitoring needs to inform conservation and management decision-making in light of climate change.

Participants included scientists and managers from government agencies, universities, industry, independent researchers, and conservation science NGOs. The discussions at this workshop represent the collective expertise and perspectives of those who were present. We recognize that further discussions with additional expertise will and should add to the discussions started at this workshop. The participants produced a conceptual model (Figure 1) that can be useful when considering all the possible impacts of climate change on grizzly bears in this transboundary US/Canada area. The conclusion of the transboundary brown (grizzly) bear workshop was very similar to the conclusions of the BSG brown bear specialists who also concluded that climate change will not threaten populations due to ecological threats or constraints but that climate change may play a significant role in driving grizzly bear/human interactions and conflicts.

A group of North American black bear specialists developed a conceptual model of the potential consequences of climate change for American black bear populations (Figure 2). These specialists included Joe Clark, Dave Garshelis, John McDonald, Karen Noyce, Mike Pelton, Marty Obbard, Mike Vaughan, and Frank T. van Manen. These specialists considered a range of assumptions about expected climate change the ecological resilience of the species; both broad, large scale and short term ecological processes; and the response of American black bears in the context of other potential impacts on the species.

### Priority Monitoring Needs

Another product of the workshop was development of a list of priority monitoring needs for each bear species. As part of the poll of BSG bear specialists on the impacts of climate change on bears and bear habitat, each specialist was asked to list the important parameters that should be monitored in priority to better understand and document the impacts of climate

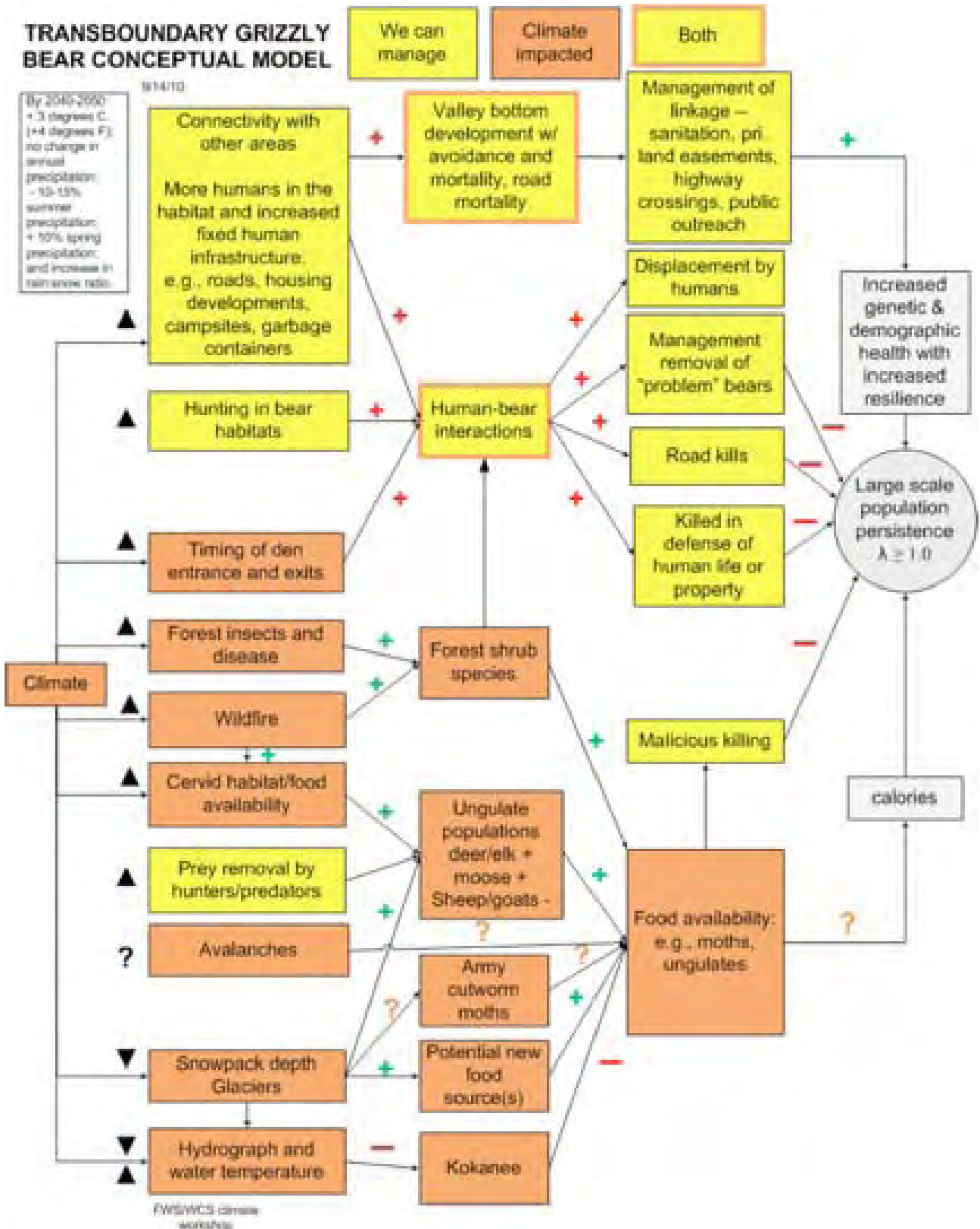


Figure 1. Grizzly bear conceptual model for the Transboundary Rockies showing possible responses to a plausible climate change scenario in 2040-2050. Red + = detrimental increase; red - = detrimental decline; green + = beneficial increase; orange ? = unknown response. Black triangles indicate increasing or decreasing climate change effects on this factor. This model represents a generalized view of possible conceptual relationships within the system, and is intended to generate hypotheses that can be tested through additional literature review, expert consultations, and future research. This model is not intended to be the last word on these relationships.

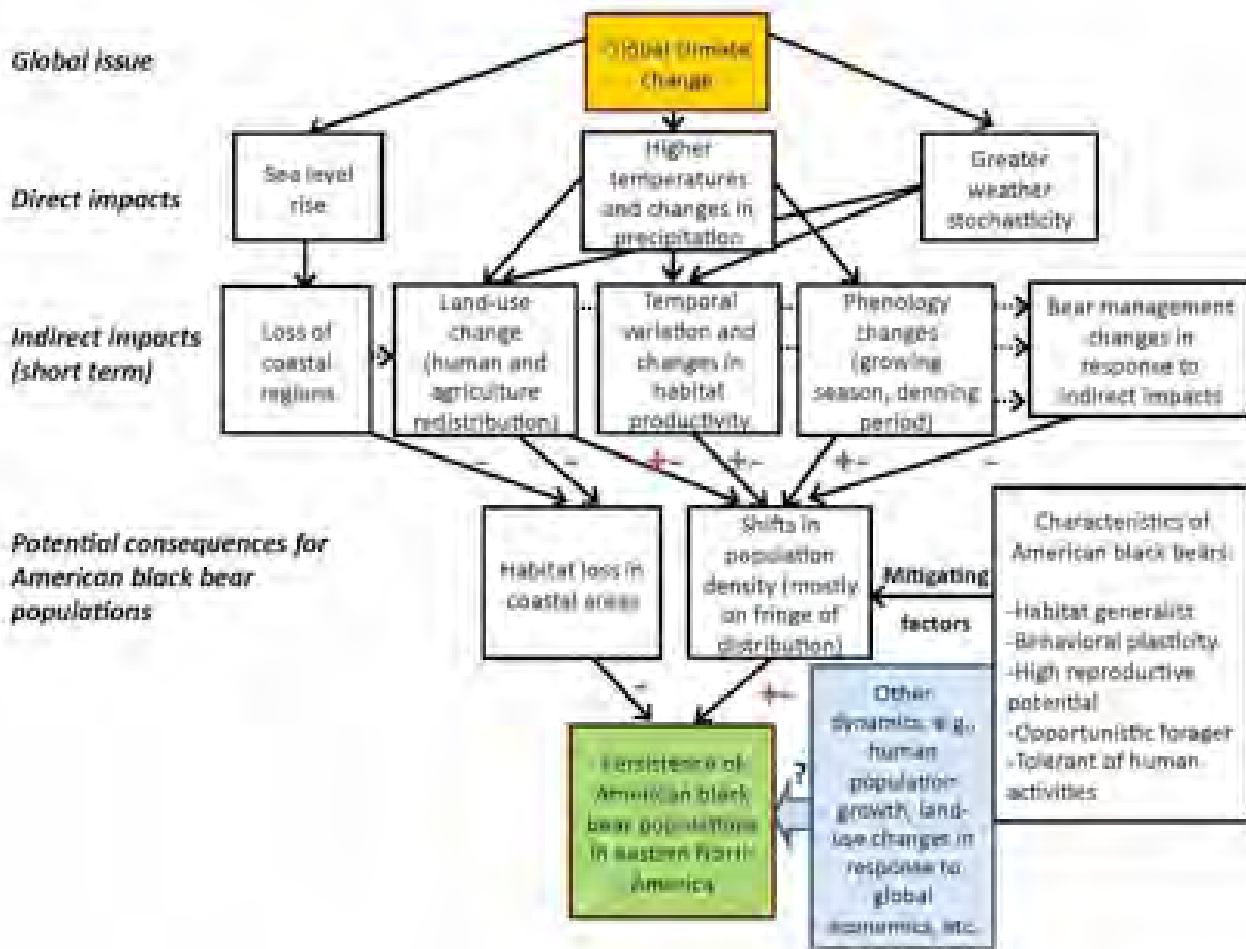


Figure 2. Conceptual model of the response of American black bears to climate change and some of the considerations necessary to properly consider future scenarios about population persistence in the face of climate change.

change on that species. Long-term monitoring data will be invaluable to understand the effects of climate change on the bears of the world. Carefully designed sampling combined with scientific inference can provide rigorous tests of climate-change hypotheses on the origins and effects of changes in bear populations and the ecosystems they depend upon.

When the BSG specialists were polled, less than 2 specialists responded for American black bears, sun bears, and giant pandas so these species were dropped from the analysis. Below are the priority monitoring parameters for brown bears, Asiatic black bears, Andean bears, and sloth bears.

## Brown Bears

Relevant monitoring parameters:

- (7) den entry (Number indicates the number of survey respondents who selected that parameter as an important to monitor to assess the impacts of climate change. )
- (6) den exit dates
- (4) seasonal habitat use
- (4) major food abundance & distribution
- (3) cause-specific mortality data
- (3) reproductive data, especially in areas of low population size
- (2) specific food habits
- human conflict data

- local temperature regime and extremes
- winter activity
- winter habitat use and range
- frequency and severity of forest fires

## **Asiatic Black Bears**

Relevant monitoring parameters:

- (4) seasonal habitat use
- (4) specific food habits
- (3) reproductive data
- (3) survival data
- (2) cause-specific mortality data
- (2) trend data
- (2) major food phenology, distribution, & abundance
- fire frequency and extent
- den entry and exit dates
- human conflict data
- parasite prevalence
- sign survey
- genetic identification of individuals

## **Andean Bears**

Relevant monitoring parameters:

- (4) major food phenology, distribution, & abundance
- (3) seasonal habitat use
- (2) reproductive data
- survival data
- cause-specific mortality data
- specific food habits
- human conflict data
- agricultural land conversion


## **Sloth Bears**

Relevant monitoring parameters:

- den site selection
- seasonal habitat use of wet and dry seasons & food habits during each
- movement patterns based on watering holes during the dry season
- phenology of fruiting plants
- increases in afternoon temperatures
- availability of termites
- reproductive data
- human conflict data

## **References:**

WCS and USFWS Transboundary Brown Bear Workshop Report available at:

<http://www.cfc.umt.edu/grizzlybearrecovery/Publications%20Transboundary.html> 

# Bear Specialist Group

## What's Up in the Pyrenees? Disappearance of the Last Native Bear, and the Situation in 2011

J.J. Camarra  
F. Decaluwe  
P. Y. Quenette  
(PYQ) Member: European Brown Bear Expert Team  
ONCFS, Equipe ours  
Impasse de la Chapelle  
31800 Villeneuve de Rivière – France  
Email: pierre-yves.quenette@oncfs.gouv.fr

R. Jato  
Pasea autonomias 9, Bajos PASEO  
22004 Huesca, Spain  
Email: rjato@sodemasa.com  
J. Larumbe Arricibita,  
Gobierno de Navarra  
Medio Ambiente Seccion de Habitat  
Servicio de conservacion de la biodiversidad  
C/ Yanguas y Miranda, 27 etpta  
31002 Pamplona – Spain  
Email: jlarumar@cfnavarra.es  
S. Palazón  
Biodiversity and Animal Protection Service  
Catalonia Government.  
Dr Roux, 80  
08017 Barcelona  
Email: santiago.palazon@gencat.cat

Jordi Solà de la Torre  
Cap d'unitat de fauna  
Àrea d'Hàbitats i Fauna  
Dept. de Patrimoni Natural  
Govern d'Andorra  
Email : Jordi\_Sola@govern.ad

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The last photo of the last native Pyrenean bear,  
from Aragon, Spain, Feb. 5, 2010

The brown bear population in the Pyrenees has never entirely disappeared, but has been reinforced through the translocation of 8 bears from Slovenia in 1996, 1997, and 2006. Since our prior update of the situation (see *IBN* Nov. 2009, p. 8-10), the French Ministry of Ecology announced the release of a female Slovenian bear to augment the western core of the population. This initiative, planned to occur in Spring 2011, was eventually cancelled. In this part of the Pyrenees, only 2 males now remain.

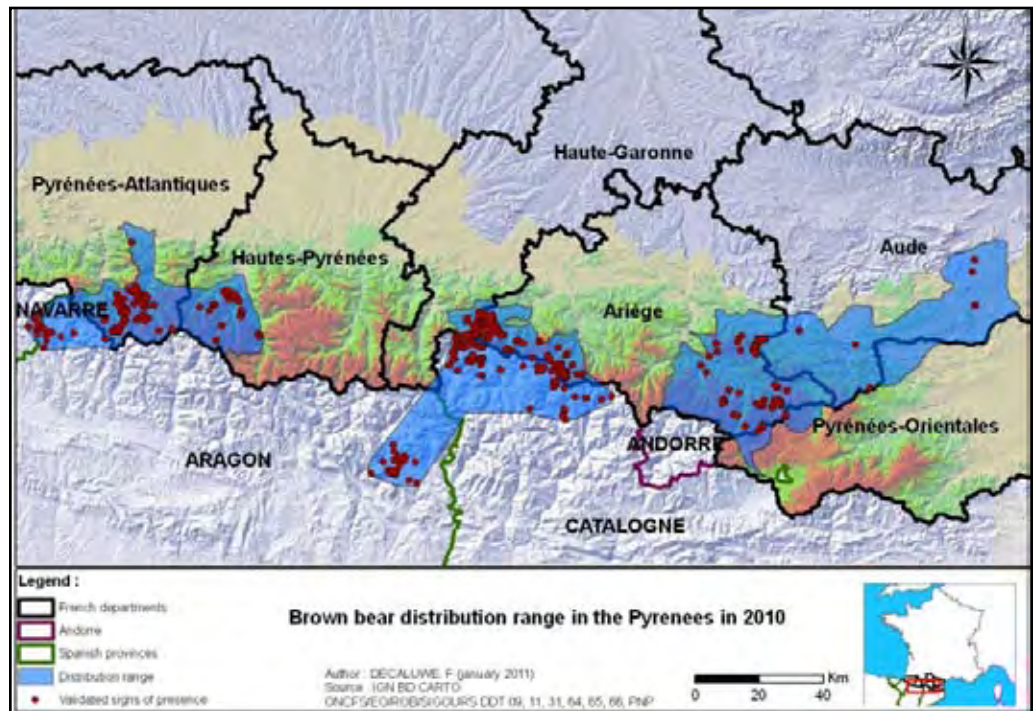
### The End of the Pyrenean Stock

The central core of the brown bear population is considered to have disappeared from the Pyrenees in the early 1990s. In 1995, there were only 5–6 individuals left of the native Pyrenean stock, all located in the western core, slightly less than 100 km

from the central area. This western core seemed headed for extinction, however, since within the framework of the French-Spanish monitoring system, only 1 adult female had been detected.

In the Central Pyrenees, local initiatives have led to the release of several bears. This small population has since recovered solely from Slovenian animals. Currently composed of about 16 individuals, including 6 adult females, this is the only part of the range where reproduction has been detected. A single individual, a young male, emigrated toward the western core during 2000.

In 2004 the western core experienced its greatest losses: an old adult male (29 years old) was found dead and the last native female was killed by a hunter after having given birth to a hybrid Slovenian/ Pyrenean male cub. This hybrid along with only 3 or 4 other males remained in the French-Spanish area of about 1,000 km<sup>2</sup>. Beginning in 2008, photographs of an animal without hair on its rump have been taken on both the French and Spanish sides. Regularly observed in Spain and monitored using camera traps, eventual genetic analysis showed it to be the last native bear of the Pyrenees. The last photograph of this animal dates back to February 2010; given the absence of any more recent photos or genetic evidence, it is presumed to have died. With its loss, the Pyrenean strain is now considered to have totally disappeared. Only the male hybrid bear born in 2004 carries any native Pyrenean genes.



Brown bear distribution in the Pyrenees, 2010, showing 3 core areas and validated point locations (scats, hair, sightings, photos). The only bear with some native Pyrenean genes (a hybrid) lives in the west, but female bears (all Slovenian stock) live only in the central area.

## The Initiative of the French Government

The French Secretary of State for ecology announced during the Summer of 2010 that from now on, all bears whose death was human-caused will be replaced. In Summer 2010, public consultations were launched with a view to replacing the female bear Francka (who had been run over by a car in 2007) with a female released on the western core. Despite fierce opposition from animal farmers, the consultation received a favourable opinion from the general public and from the National Committee for Nature Protection. Contacts were made with Slovenian counterparts for setting up of the operation. However, the Ministry of Ecology backed off of the project in early June 2011, explaining that French livestock breeders were adversely affected by a drought, and increasing the number of bears could overwhelm them.

The female nearest to the western core is about 80 km away, making it unlikely that she would move there. The 2 males still present in the west are aged 7 and 14 years and it is reasonable to assume that without human involvement, the species is doomed to disappear in the near future from this historical core area of the Pyrenees.

## Population Status in 2010-2011

In 2010, the minimum size of the bear population in the entire Pyrenees was estimated at 19 individuals. Currently, only the central core can contribute to the growth of this population. Indeed, 2 litters of 2 cubs were spotted during 2010. This good news was tempered, however, by the discovery of a cub carcass in July 2011. This population is in a precarious state, where the slightest of events affecting a few individual females could have a serious impact on the population's demography. The replacement of the female bear Francka is a growing priority.

As we pointed out in 2009, the effort *already made* to promote the acceptance of the species in the Pyrenean mountains should be continued and thereby facilitate political decision-making. Currently, and since the end of 2009, no bear conservation plan exists in France, although there is a National Strategy for Bear Conservation in Spain. 🐻

# Bear Specialist Group

## On the Trail of Brown Bears in Tajikistan

Stefan Michel, Shodigul Mamadyorbekova, Halil Karimov  
Nature Protection Team  
Dushanbe, Tajikistan  
Email: st-michel@gmx.de

Peter Zahler, Stephane Ostrowski, Tatjana Rosen, James Watson  
(PZ) Member: Asiatic black bear Expert Team  
Wildlife Conservation Society  
New York, NY, USA  
Email: pzahler@wcs.org

Randy Welsh  
US Forest Service  
Ogden, Utah, USA  
Email: rwelsh@fs.fed.us

Khudoydod and Davlatkhon Mulloyorov  
"M-Sayod" Conservancy  
Zihgar, Tajikistan

Haji Ismoil Fayzov  
"Muhofiz" Conservancy  
Khirmanjo, Tajikistan

Atobek Bekmurodi  
Murghab Hunting Company  
Jarty Gumbez, Tajikistan

In September 2011, the Wildlife Conservation Society (WCS) visited Tajikistan (central Asia) as part of an effort to explore conservation needs in the Pamir Mountains; another goal was to investigate options for developing transboundary cooperation and collaboration between Tajikistan, Afghanistan, Pakistan, and China to help facilitate management of the region's unique biodiversity, encourage regional economic development and tourism, and promote diplomacy and cooperation among the countries. Throughout implementation of the Tajik Pamirs project, WCS partnered with the United States Government's Forest Service International Programs office (USFS-IP).

As a first step, WCS and USFS-IP carried out a series of consultative meetings during an 8-day period. The team traveled with members of the local NGO Nature Protection Team to Gorno-Badakhshan, including Khorog, Murghab, Zorkul Strictly Protected Area, and communities along the upper Panj River between Kulyab and Lake Zorkul. Zigzagging across the Pamir Plateau and skirting along the Afghan border, the team talked to a wide range of stakeholders and had first hand opportunities to see some of its unique biodiversity, including evidence of brown bears.



Part of the Team: from left to right, Shodigul Mamadyorbekova, Tanya Rosen, Randy Welsh, Stefan Michel and Peter Zahler.

© T. Rosen

# Bear Specialist Group

Very little information exists on the status of brown bears in Tajikistan. The brown bear is included in the Red List of Tajikistan as *Ursus arctos isabellinus* (Abdusalyamov 1988). Across the border in Afghanistan, brown bears are considered a priority for survey work, given little current data and information available on its status in the region. Brown bears have also been placed on Afghanistan's Protected Species List, prohibiting all hunting and trade of this species within the country. In Tajikistan, taking brown bears is strictly regulated, although illegal hunting, especially for medicinal purposes (bear parts) is known to occur, and a number of bear cubs have been brought to Dushanbe Zoo during the last few years.



The habitat in the Darvaz range, where the team spotted a bear.

During the first part of the mission, while traveling across the Eastern Pamirs between Murghab and Zorkul Strictly Protected Area, the team sighted ~1000 Marco Polo sheep (*Ovis ammon polii*) and 76 ibex (*Capra sibirica*), as well as diggings in the ground where a bear seemed to be hunting red marmots (*Marmota caudata*). This area was a hunting concession where brown bears were frequently sighted moving across the border into Afghanistan. There is no indication of serious human-bear conflicts in the area, despite the large number of livestock (yaks, goats and sheep). However there was one report of a bear briefly harassing a household. The bear was eventually chased away by the local people with rocks. According to local anecdotal knowledge, brown bears sighted on the Tajik side of the Pamirs are subject to poaching pressure in Afghanistan.

The second part of the mission took the team to Zihgar village in the Darvaz range. A conservancy called "M-Sayod" has been active in the protection of Tajik markhor (*Capra falconeri heptneri*), which historically have been heavily poached. The team learned of recent sightings of 8 individual bears in one place in the conservancy, with 3 different pelage colorations: light brown, brown with a white collar around the neck and brown-greyish.

The team hiked through Obgard gorge in the Darvaz range to look for bears, and eventually sighted one hidden in a juniper bush feeding under a fruit tree (*Cotoneaster* or *Celtis*). It was at 2200 meters of altitude, in a mixed habitat dominated by walnut, almond, maple, cotoneaster and juniper amid rocky slopes and steep meadows where markhor and ibex were peacefully feeding. The team observed the bear for more than 1 hour. In conversations with two



Brown bear sighted in the Darvaz range of Tajikistan, 2200 m elevation.

# Bear Specialist Group



Hole dug by a bear excavating a marmot in Jarty Gumbez..

local herders, we learned that the bears are occasionally seen feeding on dead livestock but are not thought to be killing livestock. We found a scat containing traces of fruit and walnuts.

A subsequent conversation with the leader of “Muhofiz” Conservancy, which borders the Dashtijum protected area, revealed that conflicts between bears and livestock as well as farming are more significant, and some farmers might be using poison to eliminate predators.

Consultative meetings occurred in Dushanbe on September 27–28 to address stakeholder concerns and present the opportunities related to both a transboundary Pamirs initiative and improved national efforts at conservation and management of this region. Approximately

50 people attended this meeting from a variety of stakeholder groups. During discussions about the Wakhan and Upper Panj river valleys, brown bear conservation was identified as one of the priorities. Identified threats included conflict with livestock and beehives leading to retribitional killing, as well as poaching for medicinal purposes and parts. Some of the stakeholders proposed finding better measures to protect bears and better tools to reduce conflicts.

Finally, in a separate meeting at the State Agency of Forestry and Hunting, the Deputy head of this agency mentioned that 10 permits for bear hunts have been confirmed by the Commission in charge of quota setting. The so-called Tien Shan (or Isabelline) subspecies of brown bear of Central Asia is on Appendix I of CITES, so hunters from the U.S. or European Union would not be allowed to import trophies; however, Tajikistan is not yet a member of CITES so could conceivably sell a hunt to a person from another non-member country.

Given the local interest in brown bear conservation and the threats that some of the populations might be facing, the team hopes that in the near future there will be opportunities to conduct research on the status of bears in this region (in conjunction with efforts across the border in Afghanistan and Pakistan), and engage in dialogues with local farmers to find ways to mitigate existing conflicts.

WCS would like to thank the US Forest Service, Trust for Mutual Understanding, and Liz Claiborne and Art Ortenberg Foundation for supporting this mission, and the Committee on Environmental Protection under the Government of Tajikistan for hosting it.



Eastern Pamir Plateau, where Tajikistan meets Afghanistan.

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## Increased Awareness of Human-Bear Conflict in Lao PDR Leads to Instant Results of the Unexpected Kind

Matt Hunt

Member: Asiatic Black Bear, Sun Bear,  
Trade in Bear Parts, and Captive Bears Expert  
Teams

Chief Executive, Free the Bears Fund

PO Box 723,

Phnom Penh, Cambodia.

Email: asianbears@gmail.com

Lorraine Scotson

Member: Asiatic Black Bear and Sun Bear Expert  
Teams

Research Associate, Free the Bears Fund

PhD Candidate, University of Minnesota

Email: scotsonuk@yahoo.co.uk

Very little research on human-bear conflict (HBC) issues has occurred in Southeast Asia. With both the Asiatic black bear and sun bear threatened with extirpation in much of this region, and the rapid growth of the human population here, conflict-related bear mortality is likely to add to the already profound threats of habitat loss and commercial poaching. It is therefore imperative to begin investigating mitigation methods to improve prospects for long-term conservation of bears in this part of their range.

In early 2010, a baseline survey in Nam Et – Phou Louey National Protected Area (NEPL-NPA), in northern Lao PDR, identified a surprising level of bear use of crop fields. Crop losses caused by bears have negative consequences for both bears and humans. Humans run the risk of being attacked if they encounter a bear in crop fields while bears risk being killed by counter-measures taken by farmers. In some instances crop fields act as lures for selective hunting of bears; there are frequent reports nationwide of traded bear cubs that were originally taken from crop fields.

The 2010 survey highlighted 2 urgent priorities: determining the annual value of bear-related crop damage (i.e., bear impacts on people) and quantifying the resulting retributions against bears. In August 2011, Free the Bears (FTB) initiated a project in collaboration with the WCS-Lao program to investigate these aspects of HBC in NEPL-NPA. The project is being conducted by a Lao MSc student (Mr Kongseng Vannachomchan).

Following initial village consultations, a HBC workshop was held in NEPL-NPA Headquarters on August 21 to train a dedicated ranger team to respond to conflict reports. Overseen by Kongseng and Lorraine Scotson, the workshop familiar-



The first human–bear conflict study in Lao began in August, 2011. Left to right: Mr. Bouathong (Deputy Head of NEPL), Kongseng (Conflict study leader, MSc student), Mr. Phet Sai (Head of NEPL), Chanthavy Vongkhamheng (BSG Lao Representative). Back row: Lorraine Scotson (Project coordinator), Sengphet (NEPL Administrator)



An Asiatic black bear caught in a wire snare near a crop field in northern Lao PDR, close to the provincial capital of Luang Nam Ta

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# Bear Specialist Group

ized rangers with investigative methodology, interview techniques, and bear sign identification at crop-raided sites. This workshop also served as a working group with the ranger team sharing their years of experience to develop protocols for response and data collection.

During August–October, Kongseng and his field team have been interviewing farmers and inspecting fields around 5 target villages in NEPL-NPA, which appear to be conflict hotspots. Preliminary data suggest that corn, considered an important cash crop and increasingly popular with local farmers, is by far the most affected. Bears are certainly at risk: reports indicate the use of explosive snares being set around crop fields in order to kill raiding bears.

On August 11, 2011 a young female Asiatic black bear was found trapped in a wire snare by a District Forestry Officer within NEPL-NPA. WCS programme staff were contacted immediately and

FTB was requested to provide assistance. Remote sedation equipment was sourced and taken to the site the following day; however, first attempts to sedate the bear were unsuccessful due to technical issues with the equipment. FTBs' Veterinary Programme Manager flew from Cambodia to Luang Prabang on August 14, travelling overland by car and boat to reach the capture site the following day. Once the bear was successfully sedated, the snare was removed and the wound around its right forelimb was cleaned. Long-acting antibiotics were administered to combat the inevitable infection, although it is likely that the bear would lose this portion of its limb. The bear was released back into the forest 4 days after its initial discovery.

This rescue marked the first occasion in which FTB staff was called upon to assist in the release of a bear trapped in a snare. Numerous lessons were learned from the experience, and these were quickly reinforced by a call from the Department of Forest Resource Conservation (DFRC) to assist with another trapped bear in Luang Nam Tha province on September 22. A young female Asiatic black bear had been captured in a wire snare after wandering some distance from the Nam Ha National Biodiversity Conservation Area (NH-NBCA) to raid corn crops close to the provincial capital of Luang Nam Tha. Local authorities were reluctant to release the bear at the capture site, fearing that she might continue to raid crops or attack people in her disorientated state. The bear was sedated, treated for a large snare wound around her abdomen, and translocated 25 km back into the forests of NH-NBCA.

In both of these rescues the immediate release of the bears back into the forest was determined to be preferable to holding the bear in captivity for treatment of its injuries for a number of reasons:

- Previous experiences with adult wild bears being brought into sanctuaries following capture in snares has shown that these animals suffer high levels of stress, often inflicting further damage on themselves that may reduce the likelihood of being released.
- Camera-trap studies throughout SE Asia are increasingly showing wild bears with missing limbs or other snare injuries; these bears have adapted to the loss of their limbs and appear to be in good condition.
- Wild bears are likely to be threatened by snare traps for the foreseeable future; therefore allowing animals with the valuable experience of having been snared to remain within the wild population may provide a stock of snare-averse individuals.

The HBC study aims to determine whether the current scale of this problem justifies moving forward into an active mitigation program. It seems likely that further cases of bears being snared will demonstrate that this problem is not restricted to NEPL. In light of this, further development of local capacity for both mitigating crop loss and dealing with snared bears in NEPL could become a pilot for implementation on a broader scale.

The authors would like to offer their most sincere thanks to our partners in the Government of Lao PDR, in particular the Ministry of Agriculture and Forestry, for their ongoing efforts to protect bear populations throughout Laos. The WCS-Lao program is thanked for their kind cooperation with the human-bear conflict study as well as invaluable support for the first



Released from a snare after several days of agony, this young female Asiatic black bear received veterinary treatment for a deep paw wound

© Free the Bears

bear rescue in NEPL-NPA. Staff from the Department of Forest Resource Conservation, Nam Ha NBCA and Luang Nam Tha Provincial Agriculture and Forestry Office are also thanked for their assistance in the second bear rescue in Luang Nam Tha province. Funding for the human-bear conflict study is gratefully acknowledged from Perth Zoo Wildlife Conservation Action, Alertis Fund for bear and nature conservation and The Intrepid Foundation. 🐻

## Do Andean Bears Attack Mountain Tapirs?

Armando Castellanos

Member: Andean Bear Expert Team, Human-Bear Conflicts ET, Captive Bear ET,  
Tapir Specialist Group, Reintroduction Specialist Group

President, Andean Bear Foundation

c/o 5393 N. Paseo de la Terraza, Tucson AZ 85750, USA

Email: armando@andeanbear.org

Until 1995, biologists and researchers in Ecuador doubted that an Andean bear could prey on cattle. Today we know that they do (Castellanos et al. 2011), and that they can also hunt sheep and horses. Later, researchers speculated that the bear could only kill cows because, having been introduced by the Spaniards at the time of the conquest, cattle have not had sufficient time to evolve and adapt to potential predators in the paramo (high altitude grassland) and cloud forests occupied by the Andean bear. The belief was that wild native animals like deer (*Odocoileus virginianus ustus*), rabbits (*Sylvilagus brasiliensis*) and mountain tapir (*Tapirus pinchaque*) were fast enough to elude bear attacks, and that when their remains were found in bear excrement, it was because they had been scavenged.

In 2008, biologist Patricio Meza Saltos, while seeking to photograph wild condors (*Vultur gryphus*) in Hacienda Yanahurco in northeastern Ecuador, captured a sequence in which an Andean bear successfully hunted a rabbit. This photographic evidence supports other former reports from the paramo (Suárez 1985) and led me to think that since the Andean bear could capture something as fast and agile as a rabbit, it could also kill larger wild animals — perhaps even animals as large as the mountain tapir, as reported by Bernie Peyton in the 1980s and by Craig Downer in the 1990s (Peyton 1980; Downer 1996, 1997).

On August 29 2011, I was on an expedition in the watershed of the Papallacta River in Cayambe Coca National Park (CCNP), Ecuador, to capture mountain tapirs and fit them with satellite collars, to learn more about this endangered species. That day we trapped a male, which after tranquilizing, I deduced was elderly (~20 years old) and about 190 kg (an average size). On one flank there was a large (12cm x 6cm), old wound; around it were deep, healed scratches. According to our veterinarian, Dr. Leonardo Arias, the original wound would have been at least twice that size and had been healing for about 2 months.

I am convinced that this tapir had been attacked by an Andean bear. The size of the wound and the width and depth of the surrounding scratches suggest they were made by large, broad claws like those of a bear, rather than the finer scratches typical of a puma. The size and form of the scratches is like that found on trees marked by Andean bears (Torres 2011). The wound location, on the flank, is often seen on cows attacked by Andean bears, whereas pumas tend to go for the jugular (when hunting deer, sheep and foals, on which they specialize).

At least one other tapir (photographed in the same area in 2008) has been seen with old, deep, scratch wounds on its shoulder of a size that suggests they were made by a bear. Additionally, park rangers from the CCNP have observed and reported a bear attack on a tapir several times a few years ago.



Andean bear catching a rabbit

© Patricio Meza Saltos

# Bear Specialist Group



© Leonardo Arias, TSG-Ecociencia-FZE

Immobilized mountain tapir with a large, scared-over wound on its flank, likely from an Andean bear attack; the white color is a spray applied to aid healing

There have been numerous reports of bear attacks on cattle in this part of Ecuador for at least the last 10 years: Eighty dead cows of 87 reported bear attacks on cattle from November 2009 to June 2011 suggest a high success rate for the bears (Castellanos et al. 2011). A wild male Andean bear may weigh 150–180 kg; a domestic cow in this area weighs perhaps 250 kg and mountain tapirs weigh much the same (males up to 200 kg and females even more). Mountain tapirs, although solidly-built, are cautious in nature, can move fast and have much more stamina than a domestic cow. The individual that I observed obviously got away from the bear. Tapir hair has been previously found in bear excrement (Castellanos 2010), possibly suggesting that some tapirs are not so lucky. The tapir project mentioned above runs for another 12 months and has already installed 50 camera traps in the area. We await the photos with interest.

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© Patricio Pillaio, Fundación Terra Papallacta

Mountain tapir with old, deep scratches on its left shoulder, likely from an Andean bear

## Bear Specialist Group Coordinating Committee

### BSG Co-chairs

- Dave Garshelis, dave.garshelis@state.mn.us
- Bruce McLellan, bruce.mclellan@gov.bc.ca

### Red List Authority Focal Point

- Rob Steinmetz, roberts@wwfgreatermekong.org

### European Brown Bear Expert Team Co-chairs

- Djuro Huber, huber@vef.hr
- Jon Swenson, jon.swenson@umb.no

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

- Larry Van Daele, larry.vandaele@alaska.gov
- Tsutomu Mano, mano@hokkaido-ies.go.jp

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

- Ozgun Emre Can, emre.can@daad-alumni.de
- S. Sathyakumar, ssk@wii.gov.in

### Asiatic Black Bear Expert Team Co-chairs

- Dave Garshelis, dave.garshelis@state.mn.us
- Mei-hsiu Hwang, bear1000@ms25.hinet.net

### Sun Bear Expert Team Co-chairs

- Gabriella Fredriksson, gmfred@indo.net.id
- Rob Steinmetz, roberts@wwfgreatermekong.org

### Sloth Bear Expert Team Co-chairs

- Naim Akhtar, nay\_in@yahoo.com
- Harendra Bargali, harendrasingh@yahoo.com

### Giant Panda Expert Team Chair

- Ron Swaisgood, rswaisgood@sandiegozoo.org

### Andean Bear Expert Team Co-chairs

- Isaac Goldstein, igoldstein@wcs.org
- Ximena Velez-Liendo, xime\_vez@yahoo.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, jackson.zee@gmail.com

### Human-Bear Conflicts Expert Team Chair

- John Beecham, john.beecham@gmail.com

### Mexican Black Bear Coordinator

- Diana Crider, diana.crider@gmail.com

### Technical & Scientific Advisors

- Michael Proctor, mproctor@netidea.com
- John Seidensticker, seidenstickerj@si.edu
- Chuck Schwartz, chuck\_schwartz@usgs.gov


### Education & Outreach Coordinator

- Jordan Schaul, jordan.schaul@gmail.com

### IBA Representative

- Frank van Manen, vanmanen@utk.edu

### Polar Bear Specialist Group Chair

- Erik Born, ewb@ghsdk.dk 

## First Reintroduction Attempt of Brown Bears in Greece

Melina Avgerinou, Kostandinos Stefanidis, Alexandros A. Karamanlidis  
ARCTUROS  
Rogoti Str. 3  
54624 Thessaloniki, Greece  
www.arcturos.gr

On the 10<sup>th</sup> of April 2011, the emergency team of the NGO ARCTUROS was notified of the presence of a lone brown bear cub, approximately 3 months old, trapped in a wood mill, in the prefecture of Kastoria in northwestern Greece. For the following two days the biologists of ARCTUROS, tried to track down the missing mother in order to reunite the family, but in vain. A couple of days latter a similar call reached ARCTUROS from the prefecture of Trikala in central Greece. Despite attempts to reunite also the second cub with its mother, both animals finally ended up in the rehabilitation facility of ARCTUROS.

# Eurasia

Since then ARCTUROS has been preparing the two orphan cubs (*named "Little John" and "Nikitas"*) for what is to be now the first reintroduction attempt of brown bear cubs in Greece. The efforts of the ARCTUROS team are scientifically supervised by Dr. John Beecham, while the veterinary monitoring of the two cubs is carried out by the Veterinary School of the Aristotle University of Thessaloniki.

In order to avoid habituation towards humans that would compromise release, strict protocols have been followed. In the first two months upon arrival, the cubs were housed in a small caged area and had contact only with two members of the ARCTUROS staff, who bottle-fed them. In the beginning "Little John" and "Nikitas" were shy and competitive, but this changed really soon, and now they act as brothers.

After the first two months, the cubs were transferred to the Reintroduction facility of ARCTUROS, a one hectare forest of beech and oak, where they are being monitored by remote controlled cameras. The animals have no contact with humans anymore (the two caretakers try to minimize contact to the necessary feeding sessions), and they have become more independent and even wary of humans. The cubs will remain in the facility of ARCTUROS until late November, when they will be released to hibernate in the wild – post release monitoring will include the satellite tracking for a year and the genetic tracking of the cubs...[to be continued...] 🐻



# Americas

## Nevada to Hold First Ever Black Bear Hunt

Carl Lackey  
Nevada Department of Wildlife  
1100 Valley View Road  
Reno NV 89512, USA  
Email: carllackey@charter.net

Nevada's first ever black bear hunting season began on August 20th of this year and will extend through December 31st or when the quota is reached. According to historical records the hunting of bears in this state took place to a small degree in the late 1800s, mostly by miners and cattlemen, but 2011 marks the first year a managed hunt will occur.

Following several years of a mark-recapture project, population models were used to determine a sustainable hunter kill rate. The quota was set very conservatively at twenty bears, only six of which can be females. Forty-five tags were sold in a draw containing roughly 1200 applicants, almost all of which were Nevada residents. Tag holders were required to attend a bear hunting indoctrination prior to receiving their tag. The use of dogs is allowed but baiting is illegal and there is a mandatory check-in requirement.

As expected the anti-bear hunting sentiment, Nobearhuntnv.org (NBHNV) was strong and organized, mainly consisting of a relatively small proportion of vocal residents from Incline Village, Lake Tahoe. Their oral arguments were mostly emotionally based and centered on the fear of bear hunters shooting other outdoor recreationists or hunting within the limits of Incline Village. Their legal arguments focused on the process by which the Nevada Board of Wildlife Commissioners established the hunt, and they filed suit in Carson City District Court in June 2011. After considering written arguments

from NBHNV, the Nevada Attorney General's Office and the Safari Club International, district judge James Wilson denied the petition, allowing the hunting season to proceed.

As of the deadline (October 5) for this issue of the IBN only eight bears have been killed – five males and three females. None of these bears had been previously marked and none were killed in the Tahoe Basin. One of the males weighed slightly over 700 pounds with a chest girth of 64". The Nevada Department of Wildlife continues to monitor this population and will make adjustments to the season and quota if needed. 🐻

## Engaging Madison Valley Residents in Grizzly Bear Conservation

Steve Primm  
People and Carnivores  
Ennis MT, USA  
Email: sprimm@3rivers.net

Jay Fredrick, Julee Shamhart and Rebecca Skeldon  
Beaverhead-Deerlodge National Forest  
US Forest Service  
Ennis MT, USA  
Email: jfredrick@fs.fed.us

Tatjana Rosen  
Wildlife Conservation Society  
Bozeman MT, USA  
Email: trosen@wcs.org

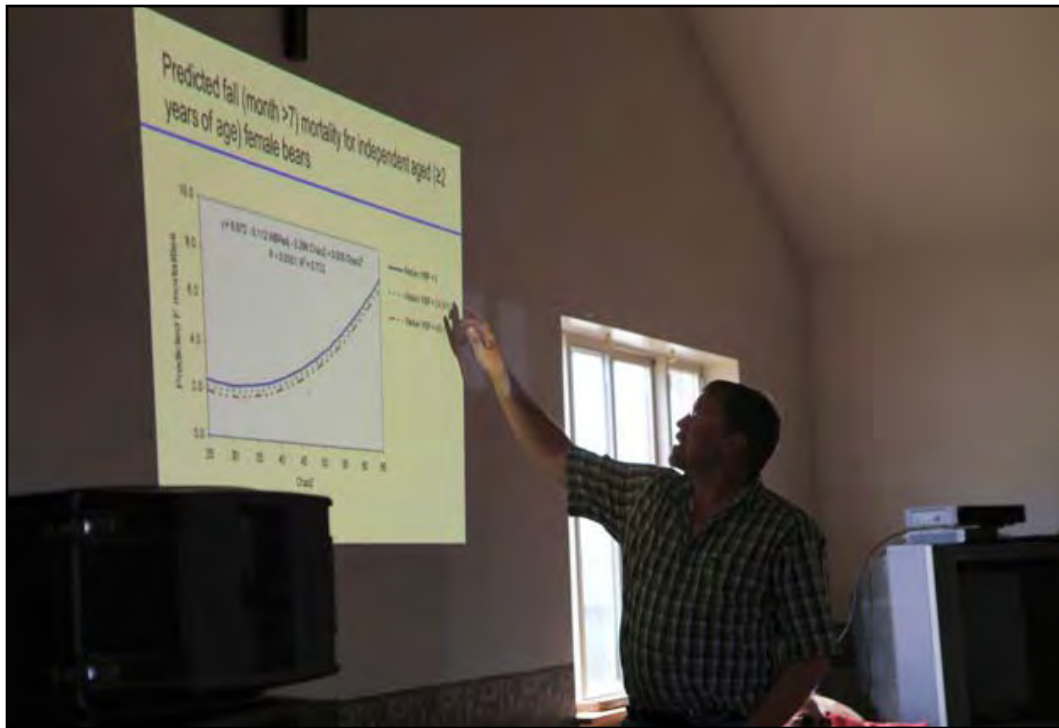
On 20 July 2011, People and Carnivores, the Beaverhead-Deerlodge National Forest and the Wildlife Conservation Society hosted a community meeting to discuss the challenges of living with an increasing population of grizzly bears in an increasingly human dominated valley. There are several known grizzly bears in the valley, some of which are collared. In early September 2011, one of the female bears was killed by a hunter in an apparent self-defense situation.

Steve Primm, Field Director of People and Carnivores, opened the standing room only gathering of local residents, by



Steve Primm, People and Carnivores, discussed community-based conservation effort to reduce conflicts between bears and people.

stressing the importance of working with communities and addressing together conflicts with livestock, human safety concerns and engaging in hands-on projects to prevent habituation of bears to people and food. In the face of increasing concerns about the threats that bears may pose to human safety, Primm emphasized the use of bear spray, hiking in groups of three or more people as well, the compliance with food storage regulation as well as steps hunters can take to avoid confrontations with grizzly bears. In praising many of the valley residents' efforts in minimizing conflict with bears, he underscored that coexistence can be part of the local culture but that several challenges remain for that coexistence to be completely smooth: from loss of habitat, to increasing development pressure and garbage management as



Mark Haroldson, IGBST, highlights grizzly bear latest information and movements in the Upper Madison of bear 360, also known as “Greta.”



Forest, discussed at length the importance of the compliance with food storage regulations, highlighting that for every time such regulations are broken and a bear gains access to human food, the consequence is that such bear will have to be removed from the population. They underscored that food storage boxes and coolers are available for anyone planning to spend time on National Forest to loan. 🐻

there are still residents that refuse to change their habits in a way to reduce becoming an attractant to bears.

Mark Haroldson, Wildlife Biologist for US Geological Survey Interagency Grizzly Bear Study Team, gave a presentation on the movement of bears outside of Yellowstone National Park, population trends, capture techniques as well as explaining policies on relocation of bears in the Yellowstone Ecosystem. He emphasized that bears that feed on garbage are not relocated somewhere else thus becoming a problem for a different community and that existing data show that bears that feed on livestock do not turn into “garbage” bears. Haroldson also discussed the role of whitebark pine (*Pinus albicaulis*) for bears, stressing that it is an important fall food, but in terms of the overall grizzly bear mortality trends, it is the population size of grizzly bears that has been driving increases in bear mortality. A larger population that is expanding its range generally means more encounters between bears and people with many ending badly for bears.

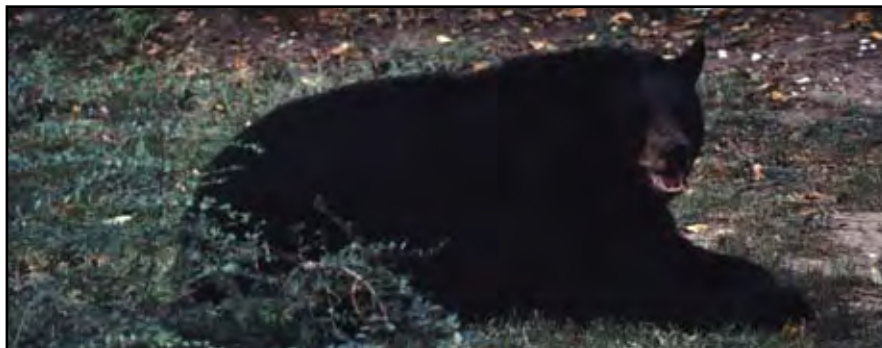
Finally, Jay Fredrick, Julee Shamhart and Rebecca Skeldon, Beaverhead-Deerlodge National

## Student Highlight: Agnès Pelletier

Born and raised in France, Agnès Pelletier knew early in her life she wanted to be involved with wildlife research. As many Europeans do Agnès enjoys traveling so she spent a whole year in the US conducting studies on captive species. Not happy with a BSc, Agnès pursued a 2 year MSc course at Lyon University and took advantage of the educational system that allows students to spend their academic years in different Universities, so she carried out two different researches. Her first subject was focused on the impact of oil drills on humpback whales migration routes (*Megaptera novaeangliae*), and as second project she focused on mating choice and social structure in alpine marmots (*Marmota marmota*). After completing the MSc, Agnès led a scientific expedition organized by the NGO Objectif Sciences International to collect snow leopard (*Uncia uncia*) feces samples in a national reserve of Kyrgyzstan, in the hope of obtaining individual identifications. Currently she is involved with black bear research in Ontario.

Working with bears is a rewarding activity, not only because you work with amazing creatures in breath-taking places but you met equally wonderful and interesting people. During her very exciting field work in Algonquin National Park trapping, collaring and following bears she flew in a chopper with a pilot looking like Hannibal from the A-team and worked with a man looking like MacGyver! Likewise many other bear biologists, the first direct observation of a bear in the wild is something unforgettable. For Agnès was bear 636, a female with two cubs resting in a field 200m from where Agnès and a student were observing. As a bonus, they saw both cubs climbing in the trees. Excitement was such, that both had to keep the squeezing down!

Agnès' PhD uses genetic data to address several ecological questions. Initially she looked at historical genetic signatures of Ontario black bears, and currently she is working on conservation genetics of an isolated black bear population at the Bruce Peninsula, Canada. This population has low genetic diversity, thus she is trying to figure it out if this is a response of geographical isolation or other factors. Finally, she will look at effects caused by humans on the landscape and its implications on black bear genetic structure. We want to wish Agnès all the best and we all hope seeing her in the next IBA conferences presenting her results and read about her findings here in the IBN. 🐻



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# Student Forum

**If You're  
a Student,  
YOU  
Need to  
Sign Up  
NOW!**

## Truman's List Serve

- 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

### Instructions

- Visit: [www.bearbiology.com/iba/stu.html](http://www.bearbiology.com/iba/stu.html)
- Follow the links to request an invitation
- Do NOT reply to list serve messages using your "reply" button. You *must return to Truman to 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. 🐻

# Publications

## Recent Bear Literature

Jennapher Teunissen van Manen  
University of Tennessee, Knoxville  
Forestry, Wildlife and Fisheries Department  
274 Ellington PSB  
Knoxville TN 37996, USA  
Email: [jennapher.vanmanen@gmail.com](mailto:jennapher.vanmanen@gmail.com)

If your research article is going to be published or is in press, please send the citation to Jennapher Teunissen van Manen to be included in the next issue of IBN.

For easy access to articles, we are now including the DOI citation if available. To open articles from their DOI, enter the entire DOI citation in the text box provided at the following website: <http://dx.doi.org>.

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# Events

## 4th International Human-Bear Conflicts Workshop

20-22 March 2012 in Missoula, Montana, USA

Kate Smith

Email: Kate.smith@cfc.umt.edu

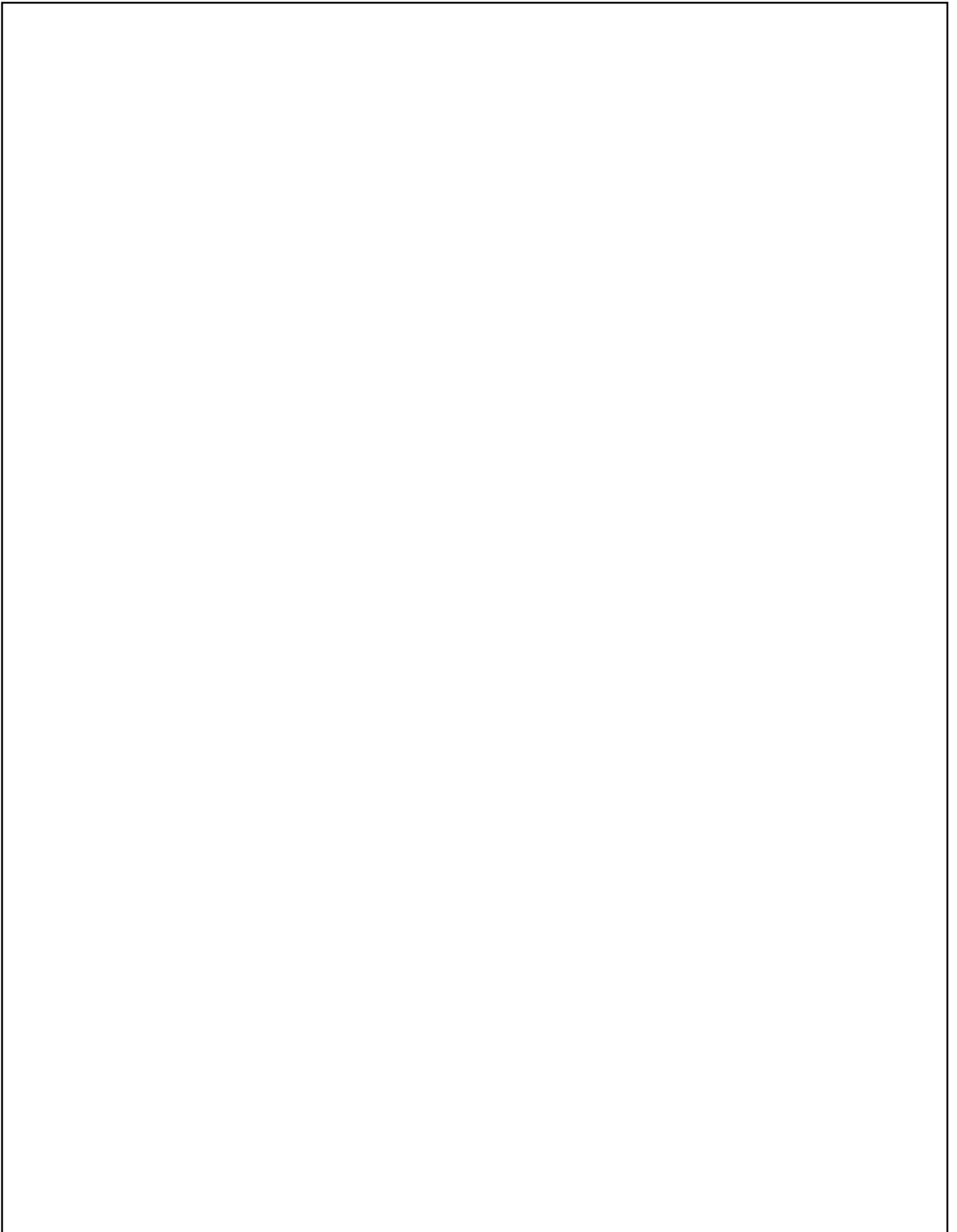
Building on the success of previous workshops, a fourth Human-Bear Conflicts Workshop will take place March 20-22, 2012 in Missoula, Montana. A field trip is tentatively planned for the day after the conference, March 23.

This is a professional development workshop for people that work to manage and prevent bear-people conflicts. The workshop format is interactive and emphasizes group participation. The first day will include formal presentations while the following days will center on panel discussions, workshops, and break-out groups. Participation in the discussions by attendees is not only encouraged but is crucial to the success of the workshop. Experienced wildlife professionals will present topics such as: (1) conducting bear research in today's world; (2) community-based approaches to bear conflict management; (3) increasing the effectiveness of communication and outreach strategies; and (4) approaches to managing both people and bears.

There will be a poster session highlighting new techniques and topics in bear conflict management. Informal breakout sessions for topics such as diversionary feeding will take place in the evenings. There will be display and product demonstration opportunities for registered vendors.

Please visit [www.cfc.umt.edu/humanbearconflicts](http://www.cfc.umt.edu/humanbearconflicts) for more information about registration, accommodations, deadlines, abstract submission, sponsorship opportunities, and vendor and table arrangements. Abstracts must be submitted by January 15, 2012 to [kate.smith@cfc.umt.edu](mailto:kate.smith@cfc.umt.edu).

The conference will be held at the DoubleTree Hotel in Missoula, Montana. To receive the early registration fee of US\$80/person or US\$40/student, please follow the links at the above-mentioned website and register no later than February 21, 2012. 🐾



# IBA Publications Order Form

Please fill out form legibly:

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# IBA Membership Application

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



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## MEMBERSHIP

- Standard Membership US\$60.00/year, US\$55.00/year for three or more years.  
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# 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				<i>Ursus</i> 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 mail or fax both sides of this form to address on previous page.**

# IBA Officers & Council

## Executive Council Officers

**Frank van Manen**  
**President** ⑬  
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: ibapresident@bearbiology.com

**Andreas Zedrosser**  
**Vice President for Eurasia** ⑩  
Insitute for Ecology and Natural Res-  
source Management  
Norwegian University of Life Sciences  
Pb. 5003  
N-1432 Ås Norway  
Email: andreas.zedrosser@umb.no  
Phone: +47-6496-5393  
Fax: +47-6496-5801

*and*

Department of Integrative Biology  
Institute for Wildlife Biology and Game  
Management  
University of Natural Ressources and  
Applied Life Sciences, Vienna  
Gregor Mendel str. 33  
A-1180 Vienna, Austria

**Harry Reynolds**  
**Vice President for Americas** ⑬  
PO Box 80843  
Fairbanks AK 99708, USA  
Phone: +1 907-479-5169  
Email: hreynolds@reynoldsalaska.com

**Diana Doan-Crider**  
**Secretary** ⑬  
PO Box 185  
Comfort TX 78013, USA  
Phone: +1 830-324-6550  
Email: diana.crider@gmail.com

**Cecily Costello**  
**Treasurer** ⑬  
PO Box 567  
Manhattan MT 59741, USA  
Phone: +1 406-284-3477  
Email: ccostello@bresnan.net

## Executive Council

**Mei-Hsiu Hwang, Member** ⑩  
Institute of Wildlife Conservation  
National Pingtung University of  
Science & Technology,  
1 Hsech Fu Road, Nei Pu, Pingtung,  
91201, Taiwan.  
Phone: +886-8-7740516  
Fax: +886-8-7740417  
Email: hwangmh@mail.npust.edu.tw

**Alexandros A Karamanlidis, Member** ⑩  
ARCTUROS  
Rogoti Str. 3  
54624 Thessaloniki, Greece  
Email: akaramanlidis@gmail.com

**Michael Proctor, Member** ⑬  
PO Box 920  
Kaslo BC Canada V0G 1M0  
Phone: +1 250-353-7339  
Email: mproctor@netidea.com

**Martyn Obbard, Member** ⑬  
Wildlife Research & Development  
Section  
Ontario Ministry of Natural Resources  
Phone: +1 705-755-1549  
Email: martyn.obbard@mnr.gov.on.ca

**Sanbandam Sathyakumar, Member** ⑬  
Wildlife Institute India  
PO Box 18  
Chandrabani, Dehra Dun 248 001  
India  
Email: ssk@wii.gov.in

**Ximena Velez-Liendo, Member** ⑩  
Ecology & Evolutionary Group  
University of Antwerp  
2020 Antwerp, Belgium  
*and*  
3252 B. Franklin  
Cochabamba, Bolivia  
Phone: +592 4 4431312  
Email: x.velezliendo@yahoo.co.uk

**Siew Te Wong, Member** ⑬  
Bornean Sun Bear Conservation  
Centre  
Email: wongsiew@hotmail.com

## Ex-officio, Non-voting Members

**Tanya Rosen**  
**International Bear Newsletter Editor**  
Wildlife Conservation Society  
301 N. Willson Ave.  
Bozeman MT 59715, USA  
Phone: +1 406-522-9333 ext 109  
Fax: +1 406-522-9377  
Email: trosen@wcs.org

**Rich Harris, *Ursus* Editor**  
2175 S 11th Street  
Missoula MT 59801, USA  
Phone & Fax: +1 406-542-6399  
Email: rharris@montana.com

**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

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

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⑩ term expires 2011

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## 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 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.

**Deadline for the February 2012 issue is 5 January 2012**

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