International Bear News

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

August 2009 Vol. 18 no. 3

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To list or not to list, that is the question …
See the story about the IUCN's Red-listing process on page 9.

IBA websites: www.bearbiology.org www.bearbiology.com
Ursus website: www.ursusjournal.com

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Cover photo of a captive Giant Panda courtesy of Michael W. Dulaney

International Bear News, ISSN #1064-1564, quarterly newsletter of the International Association for Bear Research and Management (IBA)
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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 are preferred; otherwise, mail or fax to the address above. IBA reserves the right to accept, reject, and edit submissions.

Deadline for the November 2009 issue is 5 October 2009

Thank you to everyone who contributed to this issue.

Membership

Use the form on page 35 to order or renew memberships, make donations, and/or update member information.

From the President

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Summer is well on its way here in east Tennessee. It's been a very wet spring and early summer but we are finally getting more sun than rain. The hardwood forests have taken on a welcoming, lush green color and seem more alive than ever. This biodiversity attracts many visitors to one of the most popular national parks in the world, Great Smoky Mountains National Park. But no other organisms attract more attention than black bears. Most of the 9 million visitors who will be visiting the national park this year hope, or even 'expect', to see a bear. Fortunately, the bear population in Great Smoky Mountains National Park is doing quite well and many visitors will indeed have an opportunity to see a bear. For many visitors, simply seeing a bear is an extraordinary experience that they will still be talking about many years later. It's easy for us working with bears to forget how others who are less privileged may view bears and what it means to them. Areas where bears are relatively easy to view provide valuable opportunities to educate the general public about bears, the importance of bears as 'umbrella' species, and the critical importance that bear research plays to improve management and conservation not only of bears but also the ecosystems that support them.

Bears in the News

Of all species of bears, American black bears are doing better than the other 7 species. The increasing populations and range of black bears in North America and numerous high profile human-bear encounters have received quite a bit of press attention in recent years. Many of you may have seen a recent Associated Press article focusing on the increase in black bear encounters and increase in bear numbers rangewide. The article appeared in many newspapers. Besides several other bear biologists, I was also interviewed and, unfortunately, misquoted. Although the article was largely correct, the journalist indicated that I had stated that bear populations had increased due to bans or limits on bear harvest, intentionally or unintentionally framing this issue within a hunting debate. There are many reasons why black bear populations have been increasing in abundance and expanding their range, including recovery and maturation of forest lands throughout eastern North America, improved management due to research, and better enforcement of hunting regulations. My point regarding hunting was that increasing harvests, extending hunting seasons, etc. are several ways that some wildlife agencies are using to control the growth of some black bear populations in an attempt to reduce human-bear conflicts within levels of human tolerance. Of course, jurisdictions without black bear hunting seasons do not have this management tool available but that is not the actual cause for the population increases we have seen. Unfortunately, that point was somehow lost in the interview. Clearly, I should have paid more attention to Tom Smith's article in the last issue of IBN on "Media Messes and Successes!"

Policy statements

In the member survey we conducted earlier this year, many of you expressed interest in IBA playing a more active role by weighing in on important bear management and conservation issues around the world. Throughout IBA's history, we have drafted numerous position statements and have collaborated with other organizations in the past to lend our opinion and expertise. But maybe we haven't done a good job in communicating this to the membership. So here we go. The Wildlife Society recently drafted a revised position statement on brown bear management and conservation in North America and requested member review and input. Sterling Miller (National Wildlife Federation) initiated an effort to respond to this request and asked several scientists as well as IBA to review, provide additional input, and sign the letter commenting on the position statement. Council reviewed the letter, provided several suggestions for revisions, and voted to support signing the letter. Rather than providing the details here, we will post the draft TWS position statement and the comment letter on our website.

I strongly encourage members to contact Council to weigh in on similar issues. Again, this is an important function of our organization. When considering a request for a position statements or comment letters, please note that IBA Council's involvement in policy issues should be limited to those that meet the following criteria:

1. **Compatible with IBA Mission Statement**. Policy issues should be evaluated whether the issue itself and the style of approach are consistent with the IBA Mission Statement.

2. **Need for Science to Resolve Issue**. Many policy issues involve differences in agenda, philosophy or desired outcome on the part of participants and may have little to do with science. When requested to take action on an issue, IBA Council should carefully evaluate whether science is a relevant and necessary part of resolving the issue.

3. **Conservation Significance**. Issues for IBA involvement should pertain to bear populations or subpopulations of significance. There may, of course, be exceptions; this criterion is intended simply to assist in evaluating potential issues for involvement by IBA.

4. **Catalytic Effect/Value Added**. IBA Council should determine whether involvement of the organization will make a difference in the

ability to resolve the issue, particularly in catalyzing other interests.

5. **Clear Objectives**. The issue must have a clearly defined objective or outcome.

6. **Consensus of Council**. Taking a position requires consensus of Council.

Western Black Bear Workshop

I had the wonderful opportunity to attend the 10th Western Black Bear Workshop held in May in Reno, Nevada. The workshop had over 150 participants and was a great success. Carl Lackey, Diana Doan-Crider, and many others did a tremendous job of putting together a well-organized and successful workshop and I want to thank them once again for all their efforts on behalf of bear conservation. You will find a summary of the workshop elsewhere in this newsletter.

Experience and Exchange Grants

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2009 Recipients

The Experience and Exchange (E&E) Grants Committee is happy to announce two recipients of grants for 2009.

Jessica Amanzo, of Peru, received funds to travel to British Columbia for the month of June and work with Dr. Michael Proctor on the Trans-Border Grizzly Bear Project. Jessica has conducted field surveys of Andean bears and participated in species conservation planning in northern Peru since the early 2000's. Now she is poised to begin a telemetry study in the same area, designed to investigate the impacts of mining on bears. Jessica has received preliminary training in capture and handling through workshops, but desired to gain hands-on experience in safe and humane handling techniques in the field before starting her own field work in Peru. Jessica met Dr. Proctor at the 2nd International Symposium on the Andean Bear, in Lima, Peru, last November. At that time, Dr. Proctor extended the invitation for Jessica to come to his study site for more training. Jessica's E&E Grant provides money for airfare from Peru and in-country travel in Canada, while the Trans-Border Grizzly Bear Project provides room and board and the opportunity for Jessica to receive training in black and grizzly bear capture and analysis of VHF and GPS telemetry data.

A second E&E grant was awarded to Bayasgalan Amgalon. Bayasgalan is currently manager of the Cites Management Authority in Ulaanbaatar, Mongolia. He has been involved with ongoing research on Gobi bears with Harry Reynolds, retired Alaska Department of Fish and Game (ADFG) biologist. Bayasgalan will soon begin work towards an advanced degree on Gobi bears and will use his Experience and Exchange Grant for travel to Alaska, where he will be hosted for 6 weeks on the North Slope Oilfield Grizzly Bear Project and in Fairbanks by Harry Reynolds and ADFG biologist, Dick Shideler. There, he will receive hands-on training in a variety of research techniques used in studies of population biology, habitat use, movements, isotopic analyses of food habits, and in mitigating human-bear conflicts in industrial and residential areas. Bayasgalan hopes to gain exposure to techniques that are not currently used in Mongolia, but that could be applied there to improve research and management programs. He is a dedicated young biologist who plans to spend his career working for the recovery of Gobi bears.

Congratulations to these two grant recipients. We will look for reports on their exchange experiences in future issues of *IBN*.

!!! New Deadline Announced for 2010 E&E Grant Proposals !!!

Mark 1 December on your calendar

In the interest of coordination and providing notification to successful grant applicants earlier in the calendar year, E&E grant proposals for 2010 will be due on **December 1**. This is earlier than in previous years and coincides with the date that proposals for Research and Conservation grants are now due.

E&E grants provide travel funds to facilitate on-site work exchanges between partnering projects. These experiences provide opportunities for hands-on training and for project personnel to forge on-going partnerships for training, collaboration, advice, and information exchange. Grantees receive up to $1500 USD, primarily for travel expenses, and the host project is expected to provide (or find support for) living expenses for the visiting biologist. Exchanges typically are designed to last several weeks to several months.

For more information and for application instructions, visit the BA website at www.bearbiology.com or contact any of the committee members below.

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Research and Conservation Grants

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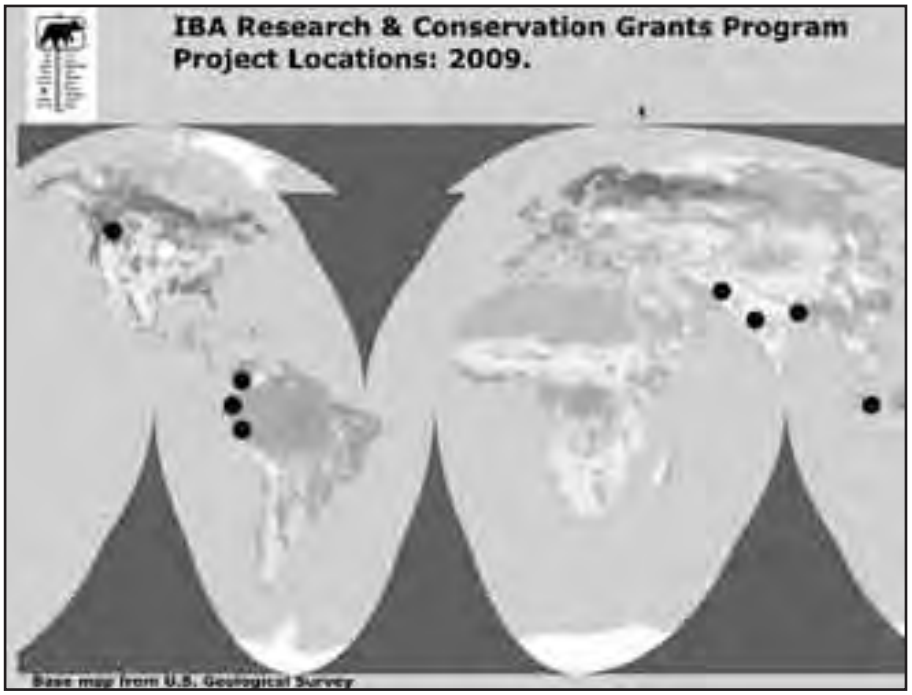
The final selection and awarding process for Research and Conservation Grants was delayed this year, as noted in the May issue of the *IBN*. The delay was due in part to the heavy workload of several committee members; for more than one the proposal review period coincided with seasonally increased loads associated with normal jobs. In addition, the final information on available funds was delayed, to some extent by the uncertain financial times. In the end the many donors who support the IBA grants programs were very generous and made it possible to continue supporting a good number of excellent projects. They are listed in the table below.

The approximate locations of this year's projects are shown on the map.

It was heartening to hear almost before "the ink was dry on the agreement form" that the grant money had already produced results for several projects.

Once again, I want to thank those grantees who have submitted reports on the progress of their projects. These reports are distributed to all



Last Name	Project Country	Project	Species	Grant
Márquez & Franco (WCS)	Columbia	Building capacity to survey and monitor Andean bears in Columbia	*T. ornatus*	$9,500
Islam	Bangladesh	Bear conservation through education/awareness programme in Bangladesh '08-'09.	*H. malayanus, M. ursinus, U. thibetanus*	$5,565
Castellanos	Ecuador - Intag region	Habitat use, activity patterns, and home range of Andean bears.	*T. ornatus*	$4,900
Appleton	Peru	Feeding ecology, behavior and number of bears on Cerro Venado.	*T. ornatus*	$6,500
Powell	Indonesia - Sumatra	Population survey and broad habitat preferences of Sun Bear in Harapan Rainforest.	*H. malayanus*	$9,900
Cristescu	Canada - AL	Grizzly bear response to encroaching development in the Foothills of Alberta	*U. arctos*	$5,000
Dharaiya et al.	India - North Gujarat	Evaluating habitat and human-bear conflict … to seek solutions for human-bear coexistence	*M. ursinus*	$4,665
Nawaz	Pakistan - Karakorum	Population surveys of the Himalayan Brown Bears … Karakoram Range,….	*U. arctos*	$6,400

committee members as well as a number of others who are keenly interested in the progress of bear conservation and IBA's role. Please remember to send in the reports we have requested even if you have also sent articles to the IBN or have published the information elsewhere.

***** IMPORTANT *****
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***** IMPORTANT *****

This is new and correct even if the information is not yet on the RC Grants Webpage.

Please note the following changes in the procedure for submitting proposals.

1. **The deadline for submission of proposals for Research and Conservation Grants is 1 December 2009** at midnight (local time for the Committee Chair).

2. Anyone submitting a proposal for an RC Grant for the first time should attach a CV that summarizes the education and experience of the principal investigator. This should be an attachment to the proposal; it will not be included in the page count.

Our reasoning for setting the deadline earlier and the rest of the timeline are described below.

The RCGC's initial review process should be completed by the first of March (pretty much as it is now). We can not push the final process back very much toward the beginning of the year since the amount of money we will have to work with depends on the calendar year, tax considerations, etc.

The result would be that the Committee would have longer and, for several members a better time of year, to do the initial review. The Co-chairs of the Bear Specialist Group would do their review as soon as possible after receiving the summary information. The Homer Fund Board would not have to change their schedule unless they wished to since the results are reflected only in the distribution of HBCF money.

There are probably going to be a lot of last-minute preparations regardless of when the deadline falls. A deadline well before Christmas might result in fewer delayed reference letters and more of those who are writing letters who actually have had time to read the final proposals.

Thanks to Bear Conservation Fund Donors

Without the generosity of individuals and organizations who donate to the Bear Conservation Fund each year, IBA would be unable to fund its grants programs. This year, despite the challenges of a roller-coaster worldwide economy, the Bear Conservation Fund was able to deliver over $53,000 USD for 2009 grants, including Research & Conservation Grants, Experience & Exchange Grants, Conference Travel Grants, and the new Bear Specialist Group (BSG) Action Fund.

IBA wishes to thank all who donated to the Bear Conservation Fund, supporting 2009 grants programs. We ask IBA members to extend their thanks as well to the following individuals and organizations:

- *Homer's Bear Conservation Fund* (an IBA donor-directed endowment)
- *The San Diego Zoo*
- *The John Sheldon Bevins Memorial Fund*
- *Build-A-Bear Foundation*
- *The Little Rock Zoo*
- *The Robert A. Johnston Foundation*
- *Joan Rog*
- *Tanya Rosen & friends*
- *Aves France*
- *Janissa Balcomb*
- *John Beecham*
- *Alan Brody*
- *Buffalo Zoo*
- *Diana Crider*
- *Masaki Fujimara*
- *Jeff Jorgenson*
- *Matson's Lab*
- *Karl Mitchell*
- *Karen Noyce*
- *Harry Reynolds*
- *Brian Scheick*
- *Maggie and John Sprechar*
- *Dale Strickland*
- *Jim Tomlin*
- *Russ van Horn*
- *Alistair Veitch*

BCF gratefully acknowledges all other supporters, including those who wish to remain anonymous.

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Berries, Nuts n' Grubs

Food for Thoughts About Bears

A Quarterly Column by Diana Doan-Crider

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The goal of this column is to provide a sounding board for management tips, philosophies, and current happenings in the bear world that deserve some digesting. These are the topics that are generally not published in the scientific journals, but are more often heard around bear biologists' coffee tables. We'd be as happy as a biologist with approved out-of-state travel to entertain some of your ideas, or help answer any questions with the help of people who know a lot more than I do. Contact me at diana.crider@gmail.com with your input.

Outdated Distribution Maps

Recently, I was semi-shocked (I'm rarely shocked anymore) to see a report that stated that the Mexican black bear population had been reduced by 80% since the 1950s, which the authors determined by comparing former and updated distribution maps. While I do not discredit the work of our wildlife forefathers, we need to be reasonable about the limitations of anything we see in print. I've noticed that just because something has been published, some folks try using it to prove their point like they were running a football to make a touchdown. Former Mexican bear distribution maps were published by several authors (Leopold 1959, Baker and Greer 1962, Hall 1981), and most of the publications today frequently refer to those publications. However, upon review, most of those distribution maps were estimated based on few observations and anecdotal information. As far as we've come with research techniques, we still struggle today to get a good handle on bear populations and their status. Unless our forefathers knew something we didn't, I think we should be careful in how we use historical information. If you look at the former distribution maps, it essentially looks like someone took a large magic marker and drew a huge swath over the Eastern and Western Sierra Madre mountain ranges of Mexico. However, based on what we know today, bear populations are usually somewhat patchy, especially in mountainous arid environments, and likely do not concur with a huge homogenous blob on a map. Curiously, I looked at Hall's former range maps for other regions, and noticed that the entire state of Nebraska, for example, is included as former black bear distribution. As far as I can tell, however, historical accounts indicate that observations were spotty, at best. Whether this is due to lack of bears or lack of observations, I do not know. Despite the lack of information, however, I think that most biologists would say that the range probably did not include the statewide blob as indicated by these maps. When I was asked to "update" the Mexico black bear distribution map for the IUCN Bears: Status Survey and Conservation Action Plan in 1999, I used a similar magic marker and colored in areas where we had *known* populations of black bears, but likely left many other areas out simply due to *lack of information*. At that time, there were very few researchers in the field, so the lack of information may have simply been due to lack of observation. I was, again, semi-shocked during a workshop in 2005 where over 75 Mexican biologists and state managers got together and, using another magic marker, colored in areas where females with cubs had recently been observed. The areas all fell within the confines of what Hall had reported, but with a very patchy pattern. So, the question is: Does the black bear's former range truly include the entire blob that Hall used for the map, or did he just use a magic marker with a really wide tip? Are bears recuperating and expanding back into their former ranges, or were many of these populations already there and we're just now getting out into the field to observe them? Are the non-colored areas in the updated maps an indicator that there are no bears, or is it because there are no bear biologists observing bears in those areas? I think that most of us know better than to rely too heavily on these older maps, and use them as a reference point to get an idea of trends and patterns. With so many biologists working on bears in the U.S. and Canada, mapping has come a long way and GIS technology has now replaced the magic marker. In Mexico, however, we are still trying to catch up. While mapping techniques vary, it's important to understand the limitations of how the information was collected, and how it can be used. In particular, when folks begin using these magic marker blobs to actually calculate percentages of population declines or increases, that's where someone needs to call a "time-out" and consult with the referees. The call will likely be "15 yard penalty for

failure to read the rule-book and use some common sense."

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Leopold, A. S. 1959. Wildlife of Mexico. University of California Press, Berkeley. 608 pp.

Updated Distribution Maps

Speaking of distribution maps, Brian Scheick, Frank van Manen, and some other fine folks are gearing up to conduct another update of the black bear distribution map for North America (including Mexico!), and they won't be using any magic markers. They'll be charting their course over the next few months, so you may want to contact Brian at Brian.Scheick@MyFWC.com if you're interested in the project. You'll be hearing more about the project in the next newsletter, and they'll also be contacting state agency personnel.

Good News for State Managers

State managers will be happy to know of our plans to implement a management section for black and brown bears on the IBA website. After some interesting discussion between myself, Hank Hristienko, Frank van Manen, and Dave Garshelis, we recognized the need to maintain a "living" publication venue online so managers and researchers can view the latest additions to state and province-wide bear management programs. We'll be using the Jurisdictional Survey Summary for Eastern Black Bears as presented by Hank in Reno this past May as a starter, and then follow with pages for each state/province for both black and brown bears. State and provincial representatives can then update pages as management, density estimates, and other pertinent information changes. Other bear species will be managed by the IUCN Bear Specialist portion of the website. We're always interested in meeting the needs of our bear managers, so please let us hear from you if there are any ideas you'd like us to consider.

Bear Catcher Update

In one of my past columns, I came up with an amazing prototype for a "bear catcher" that would have made Betsy Ross envious. However, while watching an interesting show about an unfortunate young man who weighed over 600 pounds, I was flabbergasted when the paramedics used an innovative device called the "Shamu Jumbo Soft Stretcher" to move him out of his house and into the ambulance. Essentially, it's a large canvas-type cloth with handles around the perimeter that is designed to easily carry and move vertebrates that weigh more than 600 pounds. Alas, my fortune as a seamstress and inventor has been short-lived. With some more research, I found that there is another prototype that is designed for lighter patients called "The Perry Pouch" which can carry up to 500 pounds. What I liked about both products is that they are relatively inexpensive, easy to store in a handy pouch, and come in a beautiful blaze orange that subliminally whispers, "*Yes, the person using this is a real professional.*" Here are the details on the products, both made by Morrison:

- Shamu Jumbo Soft Stretcher, Capacity 1500 lbs., $267.00 USD
- The Perry Pouch, Capacity 500 lbs., $55.95 USD
- Website: www2.mooremedical.com

Nycopress and Snare Photos

Also in one of my past columns, I discussed the use of Nycopress clamps and silicon glue on cable snares to prevent injury. A number of you emailed requesting photos of the examples, so I'm including those photos here for your perusal.

Unused Nycopress clamp

Applied Nycopress clamp covered with silicon glue

IUCN Red-listing: how does it work?

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Did you ever wonder: How does the IUCN decide whether a species is threatened? And if threatened, what's the difference between Vulnerable and Endangered? In late 2007 sun bears were changed from Data Deficient to Vulnerable – what prompted that? And what does a Threatened listing do insofar as conservation of a species?

To clarify, the IUCN itself does not have a separate body that makes these red-listing assessments. There isn't a committee of people sitting around a large table with heaps of papers and whizzing computers, crunching numbers on thousands of species and churning out listings. The assessments are typically done within Specialist Groups, although there is a Red-listing office within the Species Survival Commission (SSC) of the IUCN that provides guidance and oversight.

The BSG is thus responsible for the red-listing of the seven terrestrial bears. We can submit changes whenever new data or circumstances prompt a reanalysis, or when the SSC specifically calls upon us to do so.

The criteria used to make a red-listing assessment have become more and more rigorous over the years. It is no longer a process where a few noted experts make subjective decisions on relative threats and rarity. Instead, species are evaluated based upon very specific criteria, initially developed in 1994 and substantially revised in 2001 (http://www.iucnredlist.org/static/categories_criteria). These criteria have been designed to be applicable to a wide array of taxa.

Even the process for making the assessments has become more formalized, to further remove subjectivity, bias, and political persuasion, making it akin to a peer-reviewed scientific procedure. The specific threats and reason for assessment, as well as the people responsible for the assessment, are shown in each species account on the red-listing website (http://www.iucnredlist.org). This makes the assessment very transparent.

Specialist Groups now have an appointed Red List Authority Focal Point (RLAFP) – a person who is basically in charge of the red-listing process, and who will be specifically trained by the SSC. In the BSG, our RLAFP is Rob Steinmetz, WWF-Thailand, who is also co-chair of the sun bear Expert Team (see Rob's bio at http://www.bearbiology.com/bsgmain.html). Rob will be the person in the BSG with the expertise to ensure that we correctly apply the criteria. Many people, though, are actually involved in the listing process, from submitting data, interpreting and evaluating data, and judging how the data fit the various red-listing criteria. Typically we would expect this to be the purview of an expert team.

Distinguishing a Vulnerable (VU) from an Endangered (EN) species thus follows a fairly rigorous process. Among the ursids, Andean bears, Asiatic black bears, sloth bears, sun bears, and polar bears are all considered VU, and only giant pandas are EN. American black bears and brown bears do not meet criteria for VU on a global basis, so are classified as Least Concern; however, several separate populations of brown bears in Europe have been red-listed as threatened, some as Critically Endangered (the category above EN; see http://www.iucnredlist.org/details/41688/1).

Polar bears were listed as VU in 2006, prompted by new data on effects of global warming. Sun bears were listed as VU in 2007 during an overall SSC species reassessment. Much new data on loss of forest cover and poaching pushed this species into the VU category.

Let's examine one very interesting example – the giant panda. This species is listed as EN under criteria C2a(i), which can be broken down as follows:

C. Less than 2500 mature individuals;
2. Observed, projected, or inferred continuing decline in numbers of mature individuals;
a(i). No subpopulation estimated to contain more than 250 mature individuals.

If any of these three components were no longer met, the panda would need to be reassessed. There has been a recent exchange in the literature about how large the wild population of pandas might really be, and whether new estimates might affect their red-listing (Zhan et al. 2006, 2009; Garshelis et al. 2008). We are not going to take sides here as to the veracity of these new estimates, but we think it is worth commenting on whether they could affect red-listing. Suppose we tentatively accept the value of 2,500-3,000 total pandas posed by Zhan et al. (2009), which is considerably higher than the present official Chinese government estimate of ~1,600. Zhan et al. are correct in asserting that their higher estimate is still small enough to meet component C, as less than half the population would be mature individuals. But, under this revised value, it is possible that at least one subpopulation would exceed 250 mature individuals, and thus no longer meet component a(i). Moreover, there is recent evidence that panda numbers may be generally increasing, due to increased protection (increased numbers of reserves) and habitat improvements in some areas. If this evidence of an overall increase became well-accepted through better documentation, then pandas

would be judged to no longer meet component 2, under criterion C, and that alone would be sufficient to push them out of the EN listing (i.e., even if they met the other two components).

We might expect that if a species was downlisted from EN, it would automatically drop to the next level, VU. In this case, though, pandas would probably not meet any of the VU criteria, as category C2 for VU also specifies an overall population decline. There are other criteria to be considered (A, B, D, E), but we do not believe they would fall under any of these either.

So, if the growing body of information continues to indicate that pandas are indeed generally increasing (to be sure, we stress "if"), then the BSG would be mandated to reassess their status, and from what we see now, it appears that they could fall to a listing called "Near Threatened", which simply means that their status continues to be dependent on active conservation. We note that such a relisting would not occur immediately: once the reassessment was completed, a 5-year clock would be started, and only if the conditions did not change over that time, the downlisting would occur.

Probably, during the 5-year lag period, conservation groups or even the Chinese government might petition against a downlisting, as they are welcome to do so. And, possibly, more uncertainties might arise to alter the reassessment (for example, effects of the massive earthquake last year are still being examined). Parties also might argue that a downlisting would reduce attention, fundraising, and conservation efforts focused on pandas, and for that reason alone, their EN status should be retained. This latter argument, while likely true, is irrelevant to red-listing, and would not be considered in the reassessment.

We are not supposing that any of this will happen in the near future, just raising the possibility, and using this as an example of how red-listing works. Should pandas slip past the other five VU bears and end up at NT, that would not indicate that they deserve less attention, but would signify that the attention that they have received has been successful and should be continued. By contrast, the continued VU status of the other five species of bears would indicate that conservation efforts directed at them have not been successful enough.

On one hand, the red list is really just a list of taxa categorized by risk of extinction. It has no legal power, per se (as opposed to national Endangered Species legislation, like the US Endangered Species Act). Nonetheless, some national listings follow the red-listings, and some international treaties consider red-listing status. Also, the list helps to direct and prioritize conservation actions. For each species there is a full account of its distribution, population status, ecology, threats, and conservation activities. Therefore, it is not surprising that grant proposals and papers submitted for publication often mention the red-listing threatened status as an indication of the importance of the work. But as importantly, the red list provides a baseline from which to monitor change. And if we can downlist a species, it means that change is occurring in the right direction — so that's something to strive for. But the conservation issues are often complex and multi-faceted, sometimes with unexpected major disruptions: see the following articles about three different threatened species of Asian bears as examples.

For a more in-depth review of the current red-listing process, how it has been accomplished for nearly 45,000 species so far, and how it is employed in the practice of conservation, see Vié et al. (2008). For an overall assessment and global comparison of mammals derived from the red list, see Schipper et al. (2008).

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There are presently 268 giant pandas in captive facilities around the world. Most are in China, managed either by the Chinese Association of Zoological Gardens (under the Ministry of Construction) or at the China Conservation and Research Center for Giant Pandas (under the State


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The Conservation and Research Center at Wolong before the 2008 earthquake.

Forestry Association). The China Conservation and Research Center was established at Wolong Nature Reserve (Sichuan Province) in 1982 by an agreement between the Ministry of Forestry of China and World Wildlife Fund (US). A main initial aim of the center was, according to this agreement, the rescue of pandas from wild.

Widespread flowering and subsequent death of bamboo occurred from the mid-1970s to early 1980s across much of the range of the giant panda, which caused much concern over starvation-related deaths of pandas. Rescue and rehabilitation centers were built in a number of nature reserves to take in starving animals. However, these have rarely been used for this purpose, as over the years, few starving pandas have been found.

In Wolong, 7–8 pandas were rescued during 1979–1983. These animals became the founders of the current breeding population of pandas at the Conservation and Research Center. The center has since become a focus for research on a number of topics including diet, chemical communication, behavior, genetics, growth rates, and most importantly, reproduction. Initial troubles with breeding captive pandas have been overcome through better husbandry, improvements in artificial insemination, and innovations in cub-rearing (continually switching twins so mothers can suckle both, one at a time, instead of leaving one to die, as they do in the wild). The behavioral management program for Wolong was summarized in English by Swaisgood et al. (2006) and in Chinese by Zhou et al. (2004). In the past few years, the center has produced 12–19 panda cubs per year, with a survival rate exceeding 90%.

With successes achieved in captive breeding of pandas, the Wolong center's population grew rapidly, and eventually the 20-ha facility began running out of room. In 2003, a satellite base, Bi Feng Xia, was built in Ya An city, south of Chengdu, to take some of the "overflow" pandas. As of May 2008, Wolong housed 63, Bi Feng Xia 22, and nearly 50 more were on loan to various places around the world. Additionally, for several years, plans have been in the making to eventually release some of the captive pandas back to the wild. A problem now is that there is little suitable habitat available for a release site that is not already occupied by wild pandas. One experimental release at Wolong failed possibly because the animal did not fit into the existing social system of the wild population.

But just as all seemed to going well, on May 12, 2008 a major earthquake (magnitude 8.0, with more than 40 aftershocks of 5.0 over the next 3 weeks) shook the Minshan and Qionglai Mountains, affecting two-thirds of wild panda populations in Sichuan Province (Wang et al. 2008). The extent of panda habitat damage is still being assessed, especially in terms of increased fragmentation to an already small and disjointed range (Ran et al. 2009). Wolong was within the most severely-affected areas (Wenchuan county); five reserve staff were killed. In the conservation and research center, 14 enclosures were totally destroyed and 18 more were seriously


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Infant pandas are examined and cared for while the mother cares for the other twin. The individuals are constantly switched so the mother unknowingly raises both.

damaged. One panda died after being crushed under the weight of a collapsing wall, one died of sickness, and one escaped that was not recaptured. All the rest were temporarily moved.

Rebuilding of the damaged Wolong facilities has started. Along with this rebuilding will be a new disease control center for giant pandas in Du Jiang Yan city, west of Chengdu. So, from the ruin may come some benefits for panda conservation. Indeed, others have suggested that connectivity of panda habitat should be a consideration during the rebuilding of devastated residential areas within the range of wild pandas (Wang et al. 2008).

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Escalating Human-Sloth Bear Conflicts in North Gujarat: a tough time to encourage support for bear conservation

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The arid and semi arid regions of northeastern Gujarat in western India support a rich and unique biota including the rare caracal (*Felis caracal*), the Asiatic wild ass (*Equus hemionus khur*) and the sloth bear (*Melursus ursinus*). Sloth bears are patchily distributed in this region and tend to inhabit the forests of the low lying hills and adjacent lowlands. Apart from two small sanctuaries, most natural habitat is unprotected. Human settlements in the form of rural villages occur throughout the region. Although Gujarat is highly industrialized, crop and livestock-farming is the main source of income for most rural families in the north-eastern region of the state. A growing human and livestock population has taken its toll on natural habitats. The current landscape consists of forests that are fragmented and degraded (Ashoka Trust for Research in Ecology and Environment 2007), providing poor habitat conditions for bears and increasing the potential for human-bear encounters. In 2007, we began a survey of sloth bear distribution and bear-human conflicts in Gujarat with financial support from The Rufford Small Grants Foundation, London. Additional funding from IBA in 2008 helped us continue the study.

The intent of this article is to report a recent incident involving a sloth bear that was killed by a group of angry villagers this year. In early May, at the peak of the summer, a sloth bear began to frequent the vicinity of Nortol Village, a farming community in Mehsana district (Figure 1). Over the course of a few days, nine Nortol residents were attacked when walking to

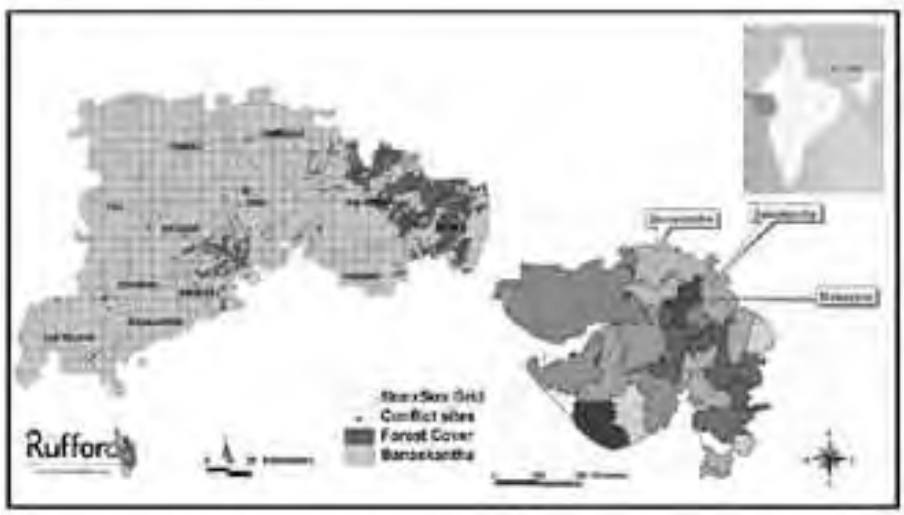

Figure 1. Locations of bear attacks on humans 2007-08 in Banaskantha district, northeastern Gujarat

or from their fields, or while gathering firewood close to the periphery of the village. Three attacks resulted in near fatal injuries. Additionally, three more people were attacked by a sloth bear at the neighboring village of Machchava. Residents believed the same bear was responsible for all the attacks, because bears were rarely seen near villages in Mehsana. In fact, for many residents, this was their first experience seeing a bear. After the first two attacks, perturbed residents contacted the local Forest Department, the legal authority of wildlife and protected species. This message went unheeded. After the ninth attack on a person at Nortol, following two other attacks that same day, residents contacted the Forest Department once again. This time the message was taken seriously. Forest Department staff hastened to the village to learn that the bear had taken refuge in a neighboring agricultural field cultivated with cotton and millet. When the bear finally emerged that evening, several residents from Nortol and surrounding villages had gathered waiting for the bear to make an appearance. The bear climbed a nearby tree by the village temple in an attempt to escape what was now an angry mob. With the intent to force the bear down, villagers built a large fire under the tree, and then used a jeep and tractors to run down, hit, and disable the bear before it escaped. Forest department staff and police did not intervene, despite pleas from a few village residents sympathetic to the plight of the bear. The injured bear was eventually dragged into a nearby pit and dismembered with axes and machetes.

Sloth bear attacks within villages are still rare in Gujarat state. Our 2008 survey in the neighboring district of Banaskantha (Figure 1), which contains more contiguous forest, and probably more bears, revealed that most attacks occurred in forests and not within villages. Of 47 people attacked by bears between 1968-2008, 13 were attacked within the previous year, and five of those 13 victims were attacked in a town by a bear that walked down a street one night, an event unprecedented in the town's history!

Containing only a small (70-80 km^2) isolated patch of forest, Mehsana district has little remaining habitat for bears, and the bear's presence at the village this May coincided with north Gujarat's driest period of the year, where several months of drought precede the monsoon rains in June. Wild sloth bears generally do not frequent areas used by humans, but when streams and waterholes in forests dry up, and where suitable habitat is limited, bears might predictably move towards sources of water or food at villages and in doing so increase their chances of encountering humans. Sloth bears have been reported in uncharacteristic locations during extended droughts (Phillips 1984, Ratnayeke unpubl.) and the five consecutive attacks on town residents that night in Banaskantha followed a recent forest fire that might have displaced several wild animals. The potential for sloth bear attacks to increase in north Gujarat is likely as wild animals lose vital resources and are forced into greater proximity with humans, as in parts of India with numerous human-sloth bear conflicts (e.g., Rajpurohit and Krausman 2000, Bargali 2005).

Direct human retaliation to sloth bear attacks, as in Nortol village, poses a less

Photos: © Darshana Patel and Vishal Parmar

People injured by bear attack in Nortol village (top two) and in a tribal village of Sabarkantha (bottom).

formidable threat to bear populations in Gujarat than the progressive habitat alteration that ensues from a growing human population. Nevertheless, encouraging sustainable resource use will depend on the support of local communities and their positive attitudes toward wildlife and government authorities (Arjunan et al. 2006). Schedule I of the Indian Wildlife Protection Act, 1972, provides sloth bears with the highest level of protection from hunting and harvesting, and is enforced chiefly by the Indian Forest Department. Local communities that coexist with sloth bears cannot legally trap or kill problem bears and must rely on prompt and effective action of the state Forest Department when their safety is threatened. Compensating victims, the most common means of addressing human-sloth bear conflicts in the area, has not worked well for multiple reasons. It is typically a tedious process fraught with delays, and insufficient literacy discourages many victims from seeking compensation (also see Madhusudan 2003).

Conflicts with large dangerous carnivores cannot be separated from the broader context of human impacts on wildlife habitat (Madhusudan 2003). Most villagers living in wilderness areas are economically very poor, have little knowledge of government policies, and depend on forest products for their livelihood. The needs of Gujarat's human population pose serious challenges to the future of wildlife, but indigenous knowledge can also be a valuable tool for diagnosing problems and developing viable plans for dealing with resource management (Ferrari 2002, Pathak et al. 2006) and human-wildlife conflicts at a local level (Treves and Karanth 2003). Communication (i.e., listening, engaging and enlisting) among government authorities and affected communities is an essential ingredient of good conservation management and could lead to cost-effective, culturally acceptable ways of enhancing human safety, and ultimately to solutions for balancing human needs with those of wildlife. Bear attacks outside protected areas are increasing and hostility of local villagers toward bears may become an obstacle to efforts to conserve bears. Clearly, more effective ways of dealing with problem animals could do much to promote good will toward government agencies and conservation policies in general, and result in more humane methods of resolving conflicts.

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Asiatic Black Bear –Human Conflicts in the Agricultural Areas of Jammu and Kashmir, India

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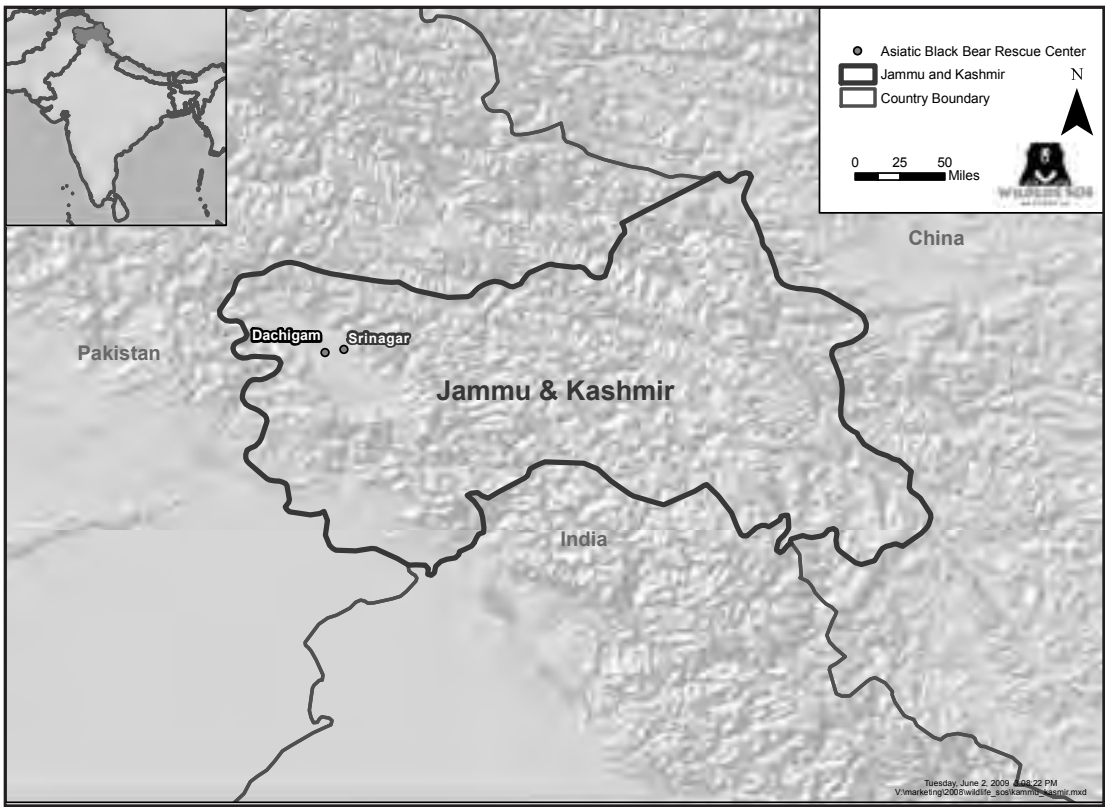
Conflicts between Asiatic black bears and humans appear to be on the rise in Jammu and Kashmir, India. Occasionally these conflicts are fatal. A series of interview surveys documented 211 black bear attacks between 2001 and 2007. Many of these interviews were originally conducted by the Jammu and Kashmir Wildlife Protection Department and then supplemented by Wildlife SOS (WSOS) in 2008. Habitat modifica-

tion and destruction, largely due to increased development of orchards and farms in the Jammu and Kashmir areas, have contributed to the rise in bear attacks. Orchards and farms in the area consist primarily of apples, cherries, walnuts, and corn, all favored by Asiatic black bears. The availability of these foods attracts bears into agriculture areas, where they encounter humans, often resulting in conflict. The interviews confirmed that the vast majority of these attacks occurred in and around these agricultural areas.

The interviews also documented a potential, slight difference in bear behavior and response to humans in these agricultural areas, as opposed to their natural forest ecosystem. Asiatic black bears can be very dangerous, and when in a defensive mode, can be rather aggressive. They are known to raid farmlands, though this usually occurs at night, thereby avoiding human confrontation. Occasional daytime forays into the agricultural areas of Jammu and Kashmir usually result in violent human confrontation. The bears' heightened, aggressive behavior in these situations underlines two questions: Why has there been an increase in bear–human conflicts in this area? And how can these encounters be avoided?

Bears are unwelcome crop raiders, and when observed in the agricultural areas, farmers aggressively chase them off with sticks, stones, or some other available tool. The farmers' motivation for chasing the bears stems from more than saving a few apples. When a bear raids an apple orchard, they not only take a few apples, but due to their large size and fervor to get at the fruit, they also break tree branches, thus damaging the overall productivity of the tree. Thus, bear crop raiding can greatly affect the income of the farmers and causes farmers to protect their crops at risk to life and limb. Data confirm that the vast majority of attacks occur on men who take the active role in chasing these bears off.

The bears, it seems, have grown accustomed to these negative confrontations. Therefore, when they find themselves in an encounter with humans, their immediate reaction is violent and more aggressive than



usual, apparently out of fear and/or for self-preservation. Stopping the bears from entering the agricultural areas appears to be the most logical way to cut down on human–bear conflict. However, stone walls and barb-wire fences are ineffective in excluding bears. Electric fencing would be the favorable option, but there are a few potential obstacles to this solution. First, it would require a collective effort among orchard owners to fence a particular area. Second, the fence and the power source for the fence would need to be carefully checked and maintained regularly.

Thanks in part to a generous grant from the Benindi Fund, WSOS is presently running a "Moon Bear Conflict Mitigation and Conservation Project" in Jammu and Kashmir. Solving the human-bear conflict, as well as human-leopard conflict, requires extensive education programs and training workshops. WSOS is working on educating the public through leaflets and workshops. Training for law enforcement officials on how to handle conflict situations is another important aspect of the program. WSOS also runs two Black Bear Rescue Centers at Pahalgam and Dachigam. These centers provide a sanctuary for moon bear cubs or injured bears that cannot be released back into the wild. That said there is much more work needed, and human encroachment into bear habitat continues to be a problem.

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Experience and Exchange Grant Program: reporting back

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First a confession: this is not an original idea. An article by Tomaz Skrbinsek on spending two months at Dr. Lisette Waits' genetics lab in Idaho (see *IBN* 16(1), February 2007) got me thinking that perhaps I could do something similar. By the way, I recommend reading Tomaz's article: it is much more entertaining than this one! I had already collected samples for the first study in Slovakia involving non-invasive genetic sampling of brown bears (Paunovic and Cirovic 2006). The study confirmed that Slovak bears are different from those in Serbia and so helped dissuade politicians from mixing up what tens of thousands of years of biogeography had separated. Why not apply for a grant to learn how to do the analysis myself, I thought; so I did.

A few months earlier I'd been contacted by Dr. Urmas Saarma, a senior research fellow at the Department of Zoology, University of Tartu, Estonia, whose team has been studying various aspects of brown bear biology for several years (Valdmann et al. 2001, Saarma and Kojola 2007, Saarma et al. 2007). They began work on an international project devoted to evaluation of the world-wide phylogeography of the brown bear. I'd already collected some samples of scats and hair from Slovakia for this project and so I asked if I might spend some time in Tartu learning laboratory procedures for microsatellite and mitochondrial DNA analysis. Urmas readily agreed. There was a particular affinity between our two countries because results of the DNA analysis so far suggest that bears may have recolonized northeast Europe, including Estonia, from the area of present-day Slovakia.

The application procedure for funding from the EEG program was straightforward and the grant I received was sufficient for all my travel and living costs. Urmas's department generously covered my stay at one of Tartu's student hostels, which was of a much higher standard than I had as an undergraduate and masters student in the UK. Three weeks was enough time for me to be given instruction in several different procedures, including extraction of DNA from faeces and hair, PCR, gel electrophoresis and sequencing. Two of Urmas's PhD students, Marju Korsten and Egle Vulla, expertly guided me through the steps and then watched over me as I bumbled through the techniques for myself. For a simple, ecologically-minded soul it was all a bit bewildering at first and it took a little effort of will to throw away so many plastic tubes after only one use. But the toughest moment came late on Friday afternoon, when I excitedly awaited the results of my first solo extraction and amplification only to discover that – there was nothing there at all. Yep, I'd messed it up.

From left to right: Robin Rigg, Urmas Saarma, Marju Korsten, Egle Vulla

I gradually got a bit better at it and after several more days work we were able to say that the hair samples I'd collected were probably from males while the scats seemed to have been left by females. Seeing things in this way, from the other side of the plastic collection bag, certainly gave me a much better understanding of why only samples most likely to yield good DNA should be collected: it's a lot of pipetting and a lot of plastic tubes to go through just to get no result.

Besides the lab work we also got lucky out in the forest, when tracks led us to where a bear had made its winter bed from broken off branches under a young spruce tree, less than 200 m from where our car was parked out on the road. Another highlight for me was walking out on frozen Lake Peipsi, where hundreds of Russians were fishing in holes drilled through the ice, some of them having got to their chosen spots by driving out in cars and tractors modified with an impressive range of monster truck wheels.

I was very lucky to have this opportunity and I would like to thank the IBA EEG committee and my referees as well as Urmas, Marju and Egle for their kindness and teaching. We plan to continue our cooperation and I hope to find a way to do a PhD, ideally combining genetics and ecology.

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Brown Bear – Human Conflicts In Greece

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In an environment increasingly dominated and shaped by the presence of humans, survival of large carnivores will depend largely on not just the amount of their intact habitat we preserve but also on how we address the inevitable conflicts of this coexistence. Monitoring and assessing human – wildlife conflicts is the first critical step in implementing an effective conservation strategy.

With a population of brown bears (*Ursus arctos*) numbering approximately two hundred despite a twenty year conservation effort,, Greece has yet to design and implement a nationwide scheme that will accurately record and effectively deal with bear – human conflicts. Now, with such conflicts steadily rising and the well-being of both humans and bears at stake, Greece must make some important decisions and take crucial steps before it is too late. Two issues are currently the top priorities:

Figure 1a. Car damaged in a collision with a bear in Northwestern Greece in Spring 2009.
Figure 1b. "Attention - Bear crossing" – Greece gets its first "bear" signs.

1. Bear – vehicle collisions: Since 2003 more than 25 bear-vehicle collisions have been recorded in the western nucleus of the species in the Pindos mountains. With not more than 200 individuals estimated in this region, this recent rise has turned into a nightmare of significant impact on the local bear population. If no immediate action is taken to reduce these collisions, we may be witnessing the impact of mere mortality by accident into a threat to the survival of the species. In the first semester of this year alone, six collisions were recorded (Figure 1a). State authorities in cooperation with local NGOs are trying now to find solutions to this thorny issue. As a first practical measure the NGO ARCTUROS designed and erected the first "bear" road signs in the country (Figure 1b). The signs have now been approved by the local authorities of the Prefecture of Western Macedonia, and 36 of them are in preparation and will soon be placed on secondary national roads. In an encouraging act of environmental awareness, Egnatia S.A., the managing body of the major highway in the region, has offered to place such signs on the highway as well. The urgency of the situation is highlighted by the fact that the Minister of Environment has requested to be kept informed in person by NGOs, such as ARCTUROS, about the severity of the problem.

2. Human – bear encounters: Bears in Greece are increasingly less wary of humans and are more and more often seen in close proximity to human settlements. Such "visits" are often associated with the search for food at unsecured garbage dumps. The reactions of rural communities have varied; some communities have taken pride in these unlikely visitors, while others are fearful of the potential impact on human population. Due to recent incidents in northwestern Greece where a village was raided by bears, local authorities have considered translocating some problem individuals. They were reminded that this controversial measure is most effective in areas where there is plenty of intact habitat for bears, which is unfortunately not the case in Greece. Two previous attempts to translocate bears in the country were not successful as the problem individuals either approached human settlements again or returned to their capture point. Until scientifically sound and thorough discussions involving all stakeholders on how to deal with such problems are initiated, the Emergency Response team of ARCTUROS has maintained a non-invasive approach to the problem and is currently visiting affected communities informing them on how to best deal with these encounters.

2nd International Workshop on the Genetic Study of the Alps-Dinara-Pindos and Carpathian Brown Bear Populations"

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Despite considerable conservation efforts several bear populations around the world continue to decline. Because bears require large, well-connected natural or semi-natural areas and have home ranges that can span over several hundreds of square kilometers, maintaining intact habitat requires conservation that extends across national borders. Brown bear (*Ursus arctos*) research, management and conservation actions are much more effective if they are carried out on a larger, multinational scale. However, the legislative, logistic and scientific differences between the various countries involved make this task very challenging. This clearly evident in the Alps-Dinara-Pindos brown bear population that spans over ten different countries (Austria, Italy, Slovenia, Croatia, Bosnia & Herzegovina, Montenegro, Serbia, The Former Yugoslav Republic of Macedonia, Albania and Greece). In fact, to have a comprehensive understanding of the status of the species in the region, we would need to include the brown bear populations in the Carpathian and Rila – Rodopi mountains and add Slovakia, the Czech Republic, Poland, Romania, the Ukraine and Bulgaria to the evaluation, bringing the total to 16 countries that would need to cooperate. It is therefore evident that effective research, conservation and management of brown bears in the region can only be achieved if all the involved stakeholders in the various countries are brought within a common framework.

The need for a common strategy in managing the fate of brown bears in the region, at least on a genetic level, was acknowledged early on and led to the 1st International Workshop on the genetic study of brown bears of the Alps-Dinara-Pindos population in Masun – Slovenia in 2007. Following this first meeting, the participating countries went on to pursue the conservation and research priorities identified. Indeed, growing interest in the genetic research of the species in the region, in combination with the new data on the genetic status of brown bears in other countries (for example, in Greece in the southern part of the Alps-Dinara-Pindos population, and Slovakia and Romania, in the Carpathian population) led to the organization of a second workshop in 2009.

The 2nd International Workshop on the genetic study of brown bears in the region was held on the 9–10th of May 2009 at the facilities of the Veterinary Faculty of Zagreb, Croatia and was organized by Magda Sindičić and Đuro Huber. The workshop was attended by 20 participants from five different countries (Italy, Slovenia, Croatia, F.Y.R. Macedonia and Greece) while another 20 conservationists and scientists from five more countries participated in the pre- and post-workshop activities (i.e. preparation of the workshop agenda, preparation of the workshop report). Information about population status and research activities in each country was presented in the first day of the meeting (Table 1), and served as a

Figure 1: Attendants of the 2nd International Workshop on the genetic study of the Alps-Dinara-Pindos and Carpathian brown bear populations

Country	Study area	Study design	Sample type	Use of bait	Loci screened	Loci used for sex identification	Nr. of individuals identified
Austria	The Alps of Austria: central Austria, western Austria, Karinthia	Opportunistic & systematic sample collection	Scat & Hair	YES	G10B, G1D, G10L, G10P, Mu23, Mu26, Mu50, Mu59	SRY, SE	22
Croatia	Dinara Mountain range in Croatia	Opportunistic & systematic sample collection	Tissue & Scat	NO	Mu10, Mu23, Mu50, Mu51, Mu59, G1D, G10B, G10C, G10J, G10L, G10M, G10P, G10X	SRY	354
(144 tissue + 210 scat)							
Greece	Northern Pindos mountains in Greece, southwestern Albania, eastern F.Y.R. Macedonia, Serbia	Opportunistic & systematic sample collection	Tissue & Hair	NO	G1A, G1D, G10B, G10C, G10L, G10M, G10P, G10X, G10H, G10J, G10O, G10U, CXX20, CXX110, Mu23, Mu26, Mu50, Mu51, Mu59, Msut-2, REN145P07	SRY, Amelogenin	202
Italy - 1	Central - Eastern Alps: expanding from Trentino	Opportunistic & systematic sample collection	Scat & Hair	YES	G1A, G1D, G10B, G10C, G10H, G10J, G10L, G10M, G10O, G10P, G10X, Mu05, Mu10, Mu11, Mu15, Mu23, Mu50, Mu51, Mu59, CXX20	Amelogenin	43
Italy - 2	Central - Eastern Alps: Friuli Venezia Giulia	Systematic sample collection	Hair	YES	G1D, G10C, G10L, G10M, G10P, Mu10, Mu15, Mu23, Mu50, Mu51, Mu59	Amelogenin	10
Slovakia & Romania	Western, Eastern and Southern Carpathians in Slovakia and Romania	Opportunistic & systematic sample collection	Tissue & blood & bone & scat & hair	NO	G10B, G10C, G1D, G10J, G10L, G10M, G10P, G10X, Mu10, Mu23, Mu50, Mu51, Mu59	SRY	373
Slovenia	Dinara mountains in Slovenia, Slovenian Alps	Systematic sample collection	Scat & tissue & hair	NO	G1A, G10B, G10C, G10D, G10H, G10J, G10L, G10M, G10P, G10X, MU05, Mu09, Mu10, Mu11, Mu15, Mu23, Mu26, Mu50, Mu51, Mu59, Mu61, CXX20	SRY	354 (non-invasive) 524 (mortality)

Table 1: Main characteristics and results of the seven genetic projects on brown bears in the Alps-Dinara-Pindos and Karpathian mountains regions

starting point for a productive discussion regarding the future of genetic research and conservation of brown bears in the region. It was agreed that the overall goal of genetic research on brown bears in the region should be to facilitate managing and protecting this species on a population level. In order to achieve this, three distinct levels of action were identified. The following first level activities were already carried out at the workshop:

1. Creation of a network of stakeholders involved in the genetic research and conservation of brown bears in the region. This network includes the following members / institutions:
   - Albania: NGO Transborder Wildlife Association, Korça
   - Austria: Research Institute of Wildlife Ecology/University of Veterinary Medicine and Laboratory of Molecular Systematics/Natural History Museum, Vienna
   - Croatia: Faculty of Veterinary Medicine and Faculty of Science, University of Zagreb
   - F. Y. R. Macedonia: NGO Macedonian Ecological Society, Skopje
   - Greece: NGO ARCTUROS, Thessaloniki
   - Italy: Autonomous Province of Trento, Autonomous Region of Friuli Venezia Giulia, Institute for Environmental Protection and Research (ISPRA), University of Udine
   - Romania: ICAS and the University of Transylvania, Braşov
   - Serbia: NGO Mustela, Belgrade
   - Slovakia: Faculty of Forestry, Technical University of Zvolen
   - Slovenia: Department of Biology, Biotechnical Faculty, University of Ljubljana
2. Preparation of a document that will be available as a CD-ROM or download by the end of the year, defining common guidelines for the genetic research on the species in the area.

New Environmental Centre on Brown Bears in the Former Yugoslav Republic of Macedonia

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Bear conservationists from Greece and the Former Yugoslav Republic of Macedonia (F.Y.R. Macedonia) have recently looked past their countries decade-long differences and are engaging in a new era of fruitful cooperation. Since 2006, joint projects of NGOs from the two countries have included the genetic monitoring of bears in F.Y.R. Macedonia and the SEE.ERAnet, an international project on the conservation of brown bears in the Balkans (see also *IBN* 18(1 & 2)).

In May 2009 another joint project was successfully completed. With funds provided by the Greek Development Program of the Ministry of Foreign Affairs, the Greek NGO ARCTUROS, in cooperation with its counterpart MOLIKA implemented the project "ECO – INFO II". This project involved the environmental education and sensitization of the people of F.Y.R. Macedonia. Within the framework of this project, an environmental centre focused on large carnivores – bears in particular – was built close to the town of Bitola (Figure 1). The centre, which will be run eventually by the NGO MOLIKA, aims to become a focal point for environmental conservation in the region and will highlight the endangered status of the brown bear in a rapidly developing country.

Figure 1: School children learn about the life of the endangered brown bear during the official opening of a new environmental centre on large carnivores, in Bitola, F.Y.R. Macedonia

A Pilot Bear Rehabilitation and Release Study with an Asiatic Black Bear, *Ursus thibetanus*, in Bokeo Nature Reserve, Lao PDR

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From October 2007 until May 2008 Free the Bears Fund Inc. (FTB) funded and implemented a pilot bear release study in Bokeo Nature Reserve of Northern Lao PDR. Through the attempted rehabilitation and release of an Asiatic black bear (*Ursus thibetanus*) cub, orphaned by the illegal wild animal trade, we aimed to assess the feasibility of bear release as a form of improving animal welfare of confiscated animals while contributing to the conservation status of this highly threatened species.

In accordance with the 'Definition of Terms' outlined in the World Conservation Union (IUCN) Reintroduction Guidelines (1998), this release attempt can be classified as "Re-enforcement/ Supplementation: addition of an individual to an existing population of con-specifics."

In early 2008 the Tat Kuang Si Bear Rescue Centre in Luang Prahbang, managed by FTB, learned of a young orphaned black bear cub being held by an ecotourism project in Bokeo Nature Reserve, Bokeo Province, northern Lao PDR. The male cub, named Pola, was estimated to be born in January or February of 2007. He was being cared for by local and western staff of an ecotourism project operating within the National Park who felt that he should be given a chance to return to the wild instead of spending a life in captivity. It seemed that with the guidance of FTB, Pola's chances of making a safe reintegration back into the wild could only be heightened; thus commenced the Bokeo Bear Release Project. Rehabilitating Pola to become a wild bear, fearful of humans and capable of finding enough food to survive, seemed like a huge task.

Bokeo National Park (BNP) seemed to have potential as the ideal release site for this bear. Pola had been taken from local people in a village close to the reserve, thus avoiding concerns about genetic pollution of the wild population. BNP – granted National Park status in November 2008 – is part of Asiatic black bear historic and current range.

Sun bears (*Helarctos malayanus*) also occur there. BNP is of international conservation significance as it is home to one of the last remaining wild populations of Western black crested gibbons (*Nomascus concolor*) and is actively protected by a team of forest guards. Forest guards are supported in part by the Bokeo Provincial Agriculture and Forestry Office (PAFO) and also by the popular ecotourism project, *The Gibbon Experience*, which allows tourists access to the forest canopy through a system of aerial zip lines and tree-houses. For these reasons the wealth of biodiversity in this area is offered long term protection from loss of habitat through deforestation and exploitation through the illegal wildlife trade.

Pola was not an ideal candidate for release because of his upbringing. He had been hand reared by many different human carers from about 3 months of age and had no fear of humans or domestic animals. He was permitted to mingle freely with humans until October 2008 when Free the Bears Fund took control of his care. Our biggest task would be to

reverse this human imprinting – making him willing and able to forage for his own natural foods while avoiding all human contact and the possibility of becoming a 'problem bear'.

In order to tackle the serious issue of human imprinting a rigorous programme of 'Human Avoidance Training' was undertaken throughout Polas' rehabilitation. Pola was subjected to periodic staged human encounters within different areas of the release site at times he was being walked in the forest by carers. Every two to three weeks, negative human encounters were staged in a variety of ways, all designed to instill a fear of humans in the bear. Different people were involved in these activities, sometimes only one person but as many as 10 at one time. Each encounter became progressively more intense ranging from loud banging, chasing, and being fired at with slingshots. Initial attempts to provoke a fearful reaction using strangers making loud banging noises (balloon, horns, whistles, rifle fire) had little results. However, each encounter was deliberately increased in severity, eventually reaching the stage of inflicting pain with stones from slingshots. Training began during Polas' third month of rehabilitation and consisted of a total of 7 separate events spaced over a 3 month period. Training was discontinued once Polas' behavior towards strange humans became so evasive that it was impossible to get close enough to stage a negative encounter. At this point, 5 months into his release, Pola began showing fearful behavior towards his familiar carers who often found it difficult to locate him visually through radio tracking as he was deliberately avoiding them.

To allow Pola to develop his foraging skills while still in the safety of human care we employed a 'walk-release' method in which Pola was accompanied in the forest by carers during the day and contained within a holding pen at night. This method ensured his safety from predators, including wild bears, and allowed close behavioral monitoring at the same time. We hoped that, given time, and with help from the protection of human carers, Pola would establish his own home range in the wild and be able to forage successfully with no need for supplementary feeding. Pola was moved to a remote area of the forest, where the nearest human settlement was a small ethnic village around 6 km away through dense mountain evergreen forest. He was fitted with a radio collar 2 weeks before being transferred to this site. He was released each day to roam freely for 8-9 hours then contained again each night. Supplementary food was given mostly in the evening and his natural food intake during the day monitored closely. After 4 months of containing him each night we stopped and allowing him 24 hour freedom while still leading him back to his enclosure whenever possible in order to give him supplementary food. Once free for 24 hours a day Polas' territory expanded considerably and he explored areas over 3 kms from his usual grounds. He became increasingly wary of human carers, making visual location through radio tracking

extremely difficult. We presume that a combination of Human Avoidance Training and regaining the wild trait of shyness towards humans is what led to this change in behavior.

Pola would also have to integrate in the wild bear population, of which little was known in this area. Due to the urgent need to commence Polas' re-training for life in the wild, surveys of the release site were carried out concurrently with the walk-release programme. Baseline bear sign density surveys gave us baseline information on wild bear activity within the immediate area. Sign data collected during transect surveys showed that within a 4 km^2 area of base camp, at least 2 wild adult individuals were active, one with cubs. Analysis of fresh scratch marks found on trees showed that both sun bears and Asiatic black bears occurred in this region. This was reinforced by verbal accounts from local villagers and on one occasion staff from the release team sighted an adult Asiatic black bear around 1 km from the release sight.

Sadly, 6 months into his release, Pola was killed by what was probably an adult bear – and perhaps the mother with cubs that had been detected by the survey team. This conclusion was reached after fresh mother and cub scratch marks were found within 100 metres of the site his body was found. In addition to this, from a post mortem performed by a qualified Veterinarian it was concluded that his death was the result of a large animal attack, probably a bear due to the nature of his injuries and as there were neither signs nor verbal reports of any other potential predator species within that area, i.e. tiger, or leopard.

Pola's death happened during a period of no human presence due to technical problems with the tracking equipment. The tracking receiver became unable to detect a signal from more than 50 meters away (normally over 2 km) and a replacement had to be located which took more than 2 weeks. Had we been able to keep closer contact with him regularly, through radio-tracking, our presence could have protected him from this animal attack. He may have survived long enough to reach adult-hood and establish his place among other bears. Unfortunately, at the time of his death, Pola was probably too small to defend himself during a confrontation with a wild adult. It is also feasible that, as he had no contact with other bears from a very young age he lacked the appropriate social skills when meeting a mother with cubs in the forest.

We were heartbroken to discover Pola had been killed, but retain a firm belief that our efforts gave him the opportunity to experience life in the wild while providing us with a wealth of information about the ecology and status of bears in Lao PDR. It is clear that research into the release of bears needs to continue to enhance the future prospects of an increasingly endangered species, as well as to increase the options available for confiscated/ rescued bears that continue to arrive in rescue centres throughout South East Asia. We also hope that our work will prompt further research into bears in Lao PDR as this gem in South East Asia is in danger of wilting away while few realize what is there to lose.

Please feel free to contact the author for any further information and full reports for this project.

Americas

10th Western Black Bear Workshop Reno-Tahoe 2009

The Changing Climate for Bear Conservation and Management in Western North America for Both Black and Brown Bears

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Coordinating Committee Members:
Carl Lackey, Diana Doan-Crider, Rich Beausoleil, Kelly Stewart, Cecily Costello, Jon Beckman, and Jason Holley

Overview

Our goal for the 10th Western Black Bear Workshop was to create an atmosphere that encouraged communication among managers and researchers, and leave attendees with an enhanced knowledge of black and brown bear issues facing Western North America. Mission accomplished! Our theme, "The Changing Climate for Bear Conservation and Management in Western North America" was multi-faceted. Not only is our physical climate likely changing, but bear researchers, managers, educators, and conservationists are now challenged

with a barrage of other issues that make bear management and conservation more complex such as economics, politics, homeland security, diseases, and shifting public attitudes. In addition, our ability to interact and exchange ideas with one another seems to be changing everyday, and is complicated by increasing travel restrictions and budget cuts.

The workshop dinner was held at beautiful Lake Tahoe, Nevada.

Despite these challenges, we were very pleased to see so many people at the workshop, and registered a total of 150 participants. Due to the unfortunate cancellation of the Eastern Black Bear Workshop, we tried to bridge the workshop to include their interests, and benefited from their input. We also welcomed guests from Texas, Arizona, New Mexico, and Mexico, which are now contending with expanding bear populations and complex border issues. We all took advantage of these new opportunities to interact with one another, given that bears don't understand much about international borders and state lines.

The program included a wide variety of presentations and workshops, and all sessions were at full capacity. One of the highlights of this workshop was the combination of professionals and students, including some of IBA's "Hall of Famer's" who were the founding members for the earlier bear conferences and workshops. We hope that they noticed the fruits of their efforts with the quality and number of people and students who came to the workshop. Some students drove great distances to get involved and find out about potential graduate projects, so we implemented an impromptu student session that had over 50 attendees. The IBA kindly sponsored our lunch. Great ice-breakers and a beautiful barbecue dinner up at Lake Tahoe provided some great time for old and new friends alike. Things ended perfectly when many of us stayed up until 2 am just hanging out with old friends in the sharply decorated disco suite of a Wyoming biologist, much to the dismay of his neighbors. Most folks prudently avoided spending too much time at the casino, and we did not hear of any bankruptcies. We were disappointed, however, over the lack of casino wedding chapel stories. In his retirement, John Hechtel has taken on the profession of "camera man," and sported a new fancy digital camera. He was thereby dubbed the official workshop photographer, as you can see. Overall, the casino ended up being a great venue to just simply get everyone together because of the great discounts on lodging, cheap airfares, and great conference facilities.

Dave Garshelis, Co-Chair of the IUCN Bear Specialist Group, gave very nice presentations to workshop participants and to the public. The first, "Why American black bears thrive while other bears falter," included a historical look at bear populations throughout North America, and their increasing numbers today. He introduced a new theory about the "wall of bears," and mesmerized us with Davy Crockett's bear hunting tales. Dave's public presentation was titled "The eight species of bears of the world -- is one (or more) headed for extinction?" All of us left having learned something new, and public participation was high.

Financially, Carl Lackey (I'm going to brag on him a bit) did an outstanding job with garnering outside funds and making sure the workshop came out ahead. We all agree that Carl was a real champion to work with, and is a staff member that Nevada Department of Wildlife can be very proud of. We would like to extend a special thanks to all of our sponsors, which included Nevada Wildlife Record Book, Nevada Bighorns Unlimited, The Wildlife Conservation Society, The Carson Valley Chukar Club, Bear Trust International, Safari Club International – Northern Nevada Chapter, Silver Peak Brewery, Teton Welding & Manufacturing, LLC, UNR Cast and Blast Outdoors Club, United States Forest Service, The Berryman Institute, Bear Saver, Bear Trust International, Northstar, Telemetry Solutions, Teton Welding, Vectronic-Aerospace, Sirtrack, Lotek Wireless, Ducks Unlimited-Northern Nevada

/ Nevada Mobile RV, Scheels Sports, Sportsman's Warehouse, Daninject, Matson's Lab, Counter Assault, and Lightfield Non-Lethal Ammo.

We had a great show of vendors and hosted a great mixer for them during the poster session, which made for good visiting time and a great meal. We also conducted a raffle and silent auction, with over 100 items donated by local and regional contributors. Three cheers for our volunteers! Student workers from the University of Nevada-Reno, Texas A&M University (College Station and Kingsville), and the University of Texas at San Antonio were the true engineers for the inner workings of this big ship – without them this workshop simply would not have floated. Even our friends from Mexico showed up a few days early to help us pack bags and set up booths. Special thanks go to Nova Simpson for her diligence in helping us keep track of registrations and managing the photo contest. We thank the Nevada Department of Wildlife, the International Association for Bear Research & Management, and the Western Association of Wildlife and Fisheries Agencies for their generous support. We were also grateful to the Peppermill Resort, which had gone out of their way to meet our workshop needs.

Below are the summaries provided by the session chairs:

Some workshop participants were really excited to get out and take a bus ride.

Sessions

Sessions 1 & 2: State Status Reports

Chairs:
Carl Lackey, Nevada Department of Wildlife
Ron Thompson, Arizona Game & Fish Department

States (and countries) and their respective presenters were Rosemary Stussy - Oregon Department of Fish & Game, Jason Holley - California Department of Fish & Game, Rich Beausoleil - Washington Department of Fish & Wildlife, Steve Nadeau - Idaho Fish & Game Department, Neil Barten - Alaska Department of Fish & Game, Justin Dolling - Utah Division of Wildlife Resources, Carl Lackey - Nevada Department of Wildlife, Ron Thompson - Arizona Game & Fish Department, and Rick Winslow - New Mexico Department of Game & Fish. John Young represented Texas Parks and Wildlife Department, and although he did not present during the workshop, Texas' status report will be included in the workshop proceedings. Hector Villalon Moreno – Departamento de Parques y Vida Silvestre de Nuevo Leon, and Diana Doan-Crider of Texas A&M University, presented the status report for Mexico. Hank Hristienko - Manitoba Department of Conservation, and Dave Garshelis – Minnesota Department of Natural Resources presented the Jurisdictional Survey Summary for Eastern Black Bears.

Session 3: Brown Bear Ecology and Management

Chair: Dr. Chuck Schwartz, USGS and the Interagency Grizzly Bear Study Team

This was the first year the Western Black Bear Workshop entertained papers dealing with brown bears. There were 3 presentations. The first was a Grizzly Bear Status Report by Dr. Chris Servheen, Grizzly Bear Recovery Coordinator. Chris provided an overview of the status of grizzly bears in the 6 recovery zones in the United States. The second paper entitled "Challenges associated with managing Kenai Peninsula brown bears" was presented by Jeff Selinger, with co-authors T. J. McDonough and L. L. Lewis. Jeff discussed the complex management issues associated with the brown bear on the Kenai Peninsula including research and monitoring programs, varying public perceptions and difficulties associated with management. The third and final paper was presented by Chuck Schwartz and coauthored by Steve Cain, Shannon Produzny, and Steve Cherry. The paper contracted temporal activity patterns between sympatric black and grizzly bears in Grand Teton National Park.

Session 4: Bear and Human Conflict Management

Chair: Jon Beckmann, Wildlife Conservation Society

Discussions of bear-human conflicts and ways to manage this complex set of issues was a dominate theme of the 10th Western Black Bear Workshop not only in this session, but over the course of the entire four days. The wide variety of topics related to bear-human conflicts that presenters

in this session covered demonstrated the complexities involved in dealing with these issues. Lori Holmstol began the session by presenting on the role of learning and how understanding learning theory can be useful in understanding the dynamics behind bear-human conflicts. The second presentation by Frank T. van Manen examined the potential ecological impacts of expanding highway infrastructure on black bear populations using pre-construction data as a baseline and a pre- and post-construction comparison. In the third presentation, Sharon Baruch-Mordo presented data from Colorado demonstrating that black bears in their study area are capable of shifting from utilizing anthropogenic food resources in one year to utilizing natural food resources in subsequent years. Thus, she addressed the questions of "what defines an urban bear" and "are we managing the right bear?" The final presentation was by Lynn Rogers who discussed the issue of diversionary feeding as a potential management tool to deal with bear-human conflicts. The presentations in this session were a nice lead-in to the Bear-Human Conflict Management panel and discussion that occurred in the subsequent session of the workshop.

Chuck Schwartz explains to Jeff Selinger why brown bears were included in this year's black bear workshop.

Session 5: Population Ecology and Genetics

Chair: Stewart Breck, U.S.D.A. Wildlife Services, National Wildlife Research Center

The Thursday morning session featured 8 speakers. Benjamin Jimenez from the University of Montana presented results of a study investigating how a network of gravel and paved roads influenced habitat selection and activity patterns of black bears in Idaho. Keith Hamm from Green Diamond Resource Co. gave a paper on results from a study in Northern California relating black bear population size, seasonal and annual damage to conifers, and seasonal movement of bears. Rachael Mazur from the Toiyabe National Forest presented results from her work on food conditioning of young black bears to rearing conditions they experienced with their mothers in Sequoia National Park. Jon Beckmann from the Wildlife Conservation Society gave an update of an ongoing 10 year study investigating the impact of urban development on black bear demography, movement, and ecology in the Great Basin Desert and Sierra-Nevada Range of Nevada. Barb McCall from the University of Montana demonstrated the importance of considering natural food productivity when considering population dynamics of black bears and the use of mark-recapture analyses to monitor populations trends. Cora Varas from the University of Arizona used genetic techniques to investigate the population structure and phylogeographic patterns of black bears in the Sky Island region of Mexico and Arizona. Joseph Northrup from the University of Alberta illustrated that importance of considering individual variation when modeling grizzly bear movement and decision making in heterogeneous habitat. And finally, Kate Kendall from the USGS provided an update and results from the ground breaking effort to monitor the abundance, distribution and genetic structure of grizzly bears in northwestern Montana.

Workshops

Workshop 1: Bear Immobilization & Post-Capture Care

Workshop Chair: Mark Atkinson, DVM, Nevada Department of Wildlife Invited Speakers

During this workshop, Marc Cattet, Canadian Cooperative Wildlife Health Centre, presented "Evaluation of negative effects of capture and handling in bears." Marc discussed the need to evaluate the negative effects of capture and handling on bears, its implications for the health and welfare of captured animals, and for the reliability of research results. He also discussed welfare considerations in the design and implementation of bear research and management, and defined "welfare" as freedom from various stressors (e.g., hunger, thirst, pain, and fear) as well as freedom to express normal behavior. He proposed the application of the "3 R's" – replacement, reduction, and refinement. Replacement implies animals are used only if no replacement exists by which to obtain the required information; Reduction implied the fewest animals are used to provide valid information and statistical significance; and

Refinement implies the most humane, least invasive techniques are used with the goal of minimizing pain and distress. Nigel Caulkett, DVM, presented his work on bear immobilization and anesthesia, and current immobilization techniques and supportive care. Nigel discussed the many advances and developments in the use of tiletamine-zolazepam (telazol®), and combinations with agonist drugs such as such as xylazine or medetomidine. He explained the advantages of this combination leading to reductions in overall doses of telazol®, and more rapid recovery rates. He also discussed complications during anesthesia, and ways to monitor and control these issues.

Workshop 2: Bear and Human Conflict Management

Workshop Chair: John Hechtel, International Bear Association, Alaska Department of Fish & Game (Retired)

Quite a few of the presentations during the main sessions touched on conflict, so everyone was primed for the workshop and a large crowd attended. We were able to recruit a diverse panel with varied backgrounds and perspectives and there was a lot of experience in the audience as well. The panel had expertise dealing with conflicts in the U.S., Canada, and Russia. Members included: Neil Barten (Alaska Fish and Game, Juneau); Sharon Baruch-Mordo (Grad student, Colorado State, Urban black bear ecology); Rich Beausoleil (Washington Fish and Wildlife); Jon Beckmann (Wildlife Conservation Society); Stewart Breck (National Wildlife Research Center, USDA); Mark Bruscino (Wyoming Game and Fish); Lori Homstol (Grad student, University of Alberta working in Whistler B.C.); Linda Masterson (author of "Living With Bears: A Practical Guide to Bear Country"); John Paczkowski (Kamchatka Field Coordinator, WCS); Mike Paulson (Tahoe Homeowners Association); and Tori Seher (Yosemite National Park). We could have easily filled a lot more time. The main challenge was keeping the discussion somewhat focused while trying not to stifle good off-topic discussions. Bear-People Conflicts is a large subject with many common elements, as well as unique aspects. Not surprisingly, the biggest shared challenge is securing human food and garbage, something requiring different approaches in parks versus in towns, resorts or rural areas.

John Hechtel, camera man.

The panel and audience shared some of their experiences and approaches to both people and bear management. We are all looking for creative solutions while avoiding trying to reinvent the wheel. A common theme was that successful approaches take a lot of time and energy, and we cannot hope to solve conflicts by printing another pamphlet. I think everyone appreciated the opportunity to discuss with others successes and frustrations, hear about things that have worked, and some that haven't. One important point that came out and that I think is worth emphasizing is that in the short-term, day-to-day frustrations we face, we sometimes forget that really major changes in public awareness and attitudes have occurred in the last 20 years. Maybe changes in behavior haven't always been as great, but we are making progress and we need a strong commitment to continue the work. Everyone didn't agree about how to deal with human-bear conflicts, but I think most felt that session was worthwhile.

Workshop 3: Monitoring Bear Populations with Genetic Sampling

Workshop Chair: Katherine C. Kendall, U.S. Geological Survey

While the noninvasive genetic sampling (NGS) literature has been dominated by papers on genotyping error and statistical methodology, weaknesses with project design, implementation, and data management can be significant sources of error yet often receive inadequate attention. During this workshop, we provided recommendations for designing, conducting and managing DNA-based hair sampling studies to estimate bear population abundance, trend, and genetic structure. We emphasized five areas of special concern: planning, training, field work quality control, data and sample management, and analytical quality control. We outlined quality assurance measures for field, office and laboratory work. Protocols such as using bar codes to track and enter field sample numbers, integrated database error checking queries, and use of GIS to identify suspicious results help minimize sources of error. Custom maps and pre-programmed GPS units help field personnel adhere to study protocols.

Business Meeting and Workshop Venue

Proceedings for the workshop will be published and sent to workshop participants. Idaho Game and Fish Department volunteered to host the 11th Western Black Bear Workshop in 2012. Stay posted regarding workshop details at www.bearbiology.com.

News from Alaska

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An effort to estimate black bear density in Interior Alaska was recently started. Biologists from Alaska Department of Fish and Game and Yukon Flats National Wildlife Refuge captured and marked 30 black bears in mid May 2009 in a 500 square mile study area near the village of Beaver, Alaska along the Yukon River. The sample included 14 females and 16 males. An additional 20 bears will be captured and marked in May 2010. The capture effort in 2010 will be followed by an intensive aerial survey to determine the proportion of observed marked bears. Peterson and Chapman methods will be followed to estimate black bear density in the study area. For more information on this study please contact Jason Caikoski, Alaska Department of Fish and Game, +1 907-459-7300 or Mark Bertram, Yukon Flats National Wildlife Refuge, +1 907-456-0446.

News from the Southwest U.S.A. and Mexico

Bonnie McKinney, Wildlife Coordinator
CEMEX-Proyecto El Carmen
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Coahuila, Mexico and Texas, USA
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Southwest USA

News from Ron Thompson,
Arizona Game and Fish Department

Genetic Analysis of Black Bear Hair Samples

Investigators:
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Purdue University
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The final report was submitted to Arizona Game and Fish in June 2009. This study was initiated to determine whether genetic subdivisions exist among black bear populations in the fragmented habitats along the Arizona-New Mexico and Arizona-Mexico borderlands. Their efforts also included evaluating the levels of genetic diversity in these areas, as well as the relatedness within subpopulations, and to estimate levels of gene flow. Their study also sampled relative abundance of black bears associated with hair snare grids distributed along the aforementioned borders. We look forward to the final results of this study in relation to cross border bear movement and genetics in the borderlands of the southwest and Mexico.

West Texas Transboundary Black Bear Study

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Alberto Martinez
Wildlife Technician, El Carmen
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This study is located in western Texas on the Black Gap Wildlife Management Area, Texas Parks and Wildlife Department (BGWMA) and the adjacent, CEMEX and Cuenca Los Ojos, El Carmen Land and Conservation Company, LLC-Adams Ranch, (ECLCC). Previous studies on the BGWMA in 1998-2001 by McKinney and Pittman in this lower elevation Chihuahuan Desert habitat resulted in the documentation of a small breeding population of black bears, and the movement of several radio-collared black bears across the Rio Grande into the Maderas del Carmen of Coahuila, Mexico. Our study focuses on the dispersal movements of both emigrating and immigration black bears in west Texas and northern Coahuila to determine corridors regularly used for travel to and from both countries. We are also investigating habitat selection, home range, diet, reproduction, and seasonal movement of resident black bears. The duration of the study is 2 years. This project will increase knowledge of black bear distribution, movement and corridor use in western Texas and adjacent Mexico.

Dispersal from Mexico is critical for the continued reestablishment and expansion of the west Texas population and information relating to the dispersal and transboundary use of habitats along the border is needed to successfully manage black bears in west Texas.

The study will also highlight the need for cross-border collaboration in natural resource conservation including private and public land managers in western Texas and northern Mexico. Conservation and research initiatives are often restricted by political boundaries because of cross-border challenges, however, large-scale ecosystems such as those used by black bears often include habitats that cross political and international boundaries and must be addressed as contiguous, not separate entities.

Preliminary field work began in September 2008; our efforts were severely hampered by unusual heavy and continuing rainfall in the lower Big Bend Region of western Texas and adjacent Coahuila, Mexico. Normal levels for the Rio Grande run about 3' in the area we are working in, during September and October levels ran from 18 to a high of 27'. There was no cross border movement of radio collared black bears during September through November 2008. Our second field season began in early summer 2009. This study is funded by the National Science Foundation, and El Carmen Land and Conservation Company, LLC.

Mexico

Population Dynamics and Movement of Black Bears in Northern Coahuila, Mexico; Maderas del Carmen

Principal Investigators:
Bonnie McKinney
Jonas Delgadillo Villalobos)

This research began in November 2003, field work concluded in May 2009. During 2010, analysis of all data will be completed and results will be submitted for peer review and future publication. The study has been conducted primarily in the Maderas del Carmen range in northern Coahuila on lands owned by CEMEX or under conservation agreement to CEMEX (400,000+ acres). In addition to fulfilling our project objectives, we also conducted many presentations to groups, universities, and government entities on black bear conservation in northern Mexico. We have provided technical support and management techniques to prevent conflicts with bears and ranching practices, and provided free support to ranches to deal with problem bears. We will continue to provide support to area ranchers and provide educational materials to interested parties and area schools as part of our conservation efforts at El Carmen.

One of our highest priorities for bear conservation in the region is the protection of corridors bears use during normal dispersal and seasonal movement in relation to food availability. The corridors not only are important for bear movement in Mexico but across the international border into western Texas where small bear populations have reestablished in historic habitat. Movement from northern Coahuila is imperative to the continued existence of the small satellite populations in western Texas. We will continue with telemetry to document cross border movement working in partnership with the ongoing Transboundary Black Bear study in west Texas as discussed above.

We wish to thank CEMEX-Mexico, Proyecto El Carmen for full funding of this project since 2003. We also thank Charles Smid, Bear Trust International for his support and web coverage of the project. In addition, we thank pilot, Billy Pat McKinney for his flying skills while we conducted telemetry, all of the El Carmen staff that helped in many ways, and staff biologists and wildlife technicians Hugo Sotelo, Beto Martinez and Salvador Villarreal.

We appreciate the support from former Director General, Secretaria y Medio Ambiante Recursos Naturales (SEMARNAT), Felipe Ramirez and current Director General, Martin Vargas, the Coahuila SEMARNAT. We also thank M. Cobian for CITIES permits, Mexico , USFWS, Agent Jose Blanco, and the U.S. Customs, Port of Entry, Eagle Pass and Del Rio, Texas for their courtesy and help with biological samples.

Monterrey, Nuevo Leon, Mexico Request for Information on Coexisting With Black Bears in Urban Area

I received a phone call from a gentleman in Monterrey, Nuevo Leon several weeks ago asking if I would please come to Monterrey to talk to a group living in a gated community in the mountains surrounding the city. He went on to explain that bears were becoming a problem in the area, and that some of home owners were feeding bears pies, cookies, and fruit. There had been incidents of garbage rustling, swimming pool adventures and porch visits. Unfortunately, I was nursing a broken foot and couldn't make the trip. However, Hugo Sotelo, biologist and a member of the black bear research team at Cemex, El Carmen Project in Coahuila, made the seven hour drive the next day and met with the group, giving them educational materials on coexisting with black bears and a presentation, along with a long question and answer session. This community, like many others in the area, has built their homes high in the mountains in bear habitat. As the city continues to grow and more homes are built the habitat for bears shrinks a little more and situations of this type may become more frequent. Interested landowners that want information on preventing conflicts with black bears is encouraging and can set an example for other landowners to prevent conflicts and unnecessary capture.

News from Southeast U.S.A.

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Short-term Impacts of a 4-lane Highway on Black Bears in Eastern North Carolina

Throughout the world, potential ecological impacts of expanding highway networks on bear populations have drawn the attention of natural resource managers. However, few studies have documented impacts of highways using pre-construction data as a baseline. Thanks to early planning and support by the North Carolina Wildlife Resources Commission and the North Carolina Department of Transportation, and additional support from Weyerhaeuser Company, we were able to study potential impacts of a new highway on American black bears (*Ursus americanus*) by collecting field data before and after completion of a new highway. We recently finished this study and present a summary of the primary findings here.

The new highway was part of a larger project by the North Carolina Department of Transportation to reroute and upgrade sections of U.S. Highway 64 between Raleigh and the Outer Banks to a 4-lane, divided highway. A new route was selected for a 19.3-km section in Washington County. To mitigate effects of the highway on wildlife, the new roadway included 3 wildlife underpasses with adjacent wildlife fencing. We focused our study on spatial ecology, genetic structure, population abundance, and occupancy of black bears. We tested our research hypotheses using a before-after control-impact (BACI) experimental design. Data collection occurred during 2000–2001 (pre-construction phase) and 2006–2007 (post-construction phase) in the highway project area and a nearby control area (each approximately 11,000 ha), resulting in 4 data groups (i.e., pre- or post-construction study phase, treatment or control area). We captured and radio-collared 57 bears and collected almost 11,000 locations. Although the power was low for some of our spatial analyses, we detected no changes in home-range or movement characteristics of bears because of the new highway. After the highway was completed, however, bears on the treatment area became more active during morning hours, when highway traffic was low, compared with bears on the control area.

We used DNA from hair samples to determine if population abundance and site occupancy decreased following completion of the new highway. For each study phase, we collected black bear hair from 70 hair-sample sites during 7 weekly sampling periods on each study area and generated genotypes using 10 microsatellite loci. We used the multilocus genotypes to obtain capture histories and applied multiple mark-recapture models to estimate population abundance. Population abundance on the treatment area decreased from 68 bears before construction to 20 bears after construction. Permutation tests indicated this decrease was proportionally greater than we observed on the control area (pre-construction: 144; post-construction: 101). Next, we used bear visits to hair-sample sites as detections in multi-season occupancy models and used model selection procedures to test if the new highway affected site occupancy. We found that occupancy decreased more on the treatment area compared with the control area, primarily as a function of a greater probability of site extinctions on the treatment area.

Finally, we used permutation tests and mixed model analysis of variance to compare gene flow, isolation by distance, heterozygosity, allelic diversity, and genetic structure on the 2 study areas before and after completion of the highway. We did not observe any treatment effects for these genetic measures. Black bear use of the 3 wildlife underpasses was infrequent (17 verified crossings of approximately 10 different bears based on remote cameras and track surveys). Only 4 of 8 bears with home ranges near the highway were documented crossing the highway (n = 36 crossings; only 1 involved the likely use of an underpass). Two of those bears were killed in vehicle collisions. Three additional bear mortalities due to vehicle collisions were reported during the post-construction phase and 3 more within 6 months after the study was completed.

We suggest that impacts of the new highway occurred at the population level, resulting in declines in population abundance and site occupancy. We speculate that the primary mechanisms for these declines were displacement during the construction phase and mortality due to vehicle collisions after the highway was completed. For bears that remained in the area, the only individual-level effect we observed was reduced activity when traffic volumes were greatest, indicating behavioral plasticity. Impacts of the highway on gene flow, genetic variability, and genetic structure were not apparent but may take several generations to manifest themselves. Bear use of underpasses likely was sufficient to maintain gene flow and demographic exchange between areas north and south of the new highway.

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
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Student Profile and Professional Update

Brian Scheick
IBA Student Coordinator
Tel: +1 386-789-7063
Email: Brian.Scheick@MyFWC.com

J. Andrew Trent

I met Andrew several years ago when the Florida Fish & Wildlife Conservation Commission hired him as one of our hair-corral technicians to estimate Florida's bear population. When I met Andrew again at a conference, I thought of asking him about his graduate work for the Student Profile section of the IBN, but realized that he also fits the bill for a Professional Update.

After leaving Florida, Andrew moved to a more exotic location, starting a MSc. project on the Asiatic black bear in the Tangjiahe National Nature Reserve, which lies in far northern Sichuan Province, China. The reserve was established primarily to protect three highly endangered animals – giant panda, takin, and golden monkey. Andrew's major advisor at Virginia Tech (Virginia Polytechnic Institute and State University) is Mike Vaughan, with committee members Marcella Kelly and Bill McShea (from the Smithsonian Institute/National Zoo). David Garshelis was a field advisor and helped get the project going. Field work ran from fall of 2003 through fall of 2006.

The project was funded through the National Zoo and the Smithsonian Institute as part of their field research requirement for having Giant Pandas on loan. They wanted to collect ecological and conservation data related directly to bears but also try to assess the value for other large carnivores of conservation reserves that focused on a single "umbrella" species, as this one did. Andrew's field research involved pretty much everything from deploying GPS and VHF radio-collars on bears, scat analysis with a scat sniffing dog, habitat sampling, hundreds of sign survey transects for presence/absence analysis, village wildlife attitude surveys, poaching surveys and mitigation, wildlife damage surveys, and multiple giant panda reserve rapid wildlife surveys. He was also an instructor for the National Zoo's reserve training courses on Bear and Panda Ecology and Conservation, and Wildlife Camera Trapping. As if this

experience wasn't enough, he was also asked to assist on the first GPS collaring and tracking of a giant panda that was captured in a village. He trained the staff on the deployment and use of the collar (which was one of his Asian bear collars). He also went into the field with them to demonstrate and train them on data download and analysis, as well as basic VHF radio-tracking. Sounds like Andrew did enough for a Ph.D.!

Andrew is still working on his thesis and is currently a research associate at Virginia Tech on another of Mike Vaughan's projects in eastern North Carolina. This time, Andrew is researching American black bears while supervising the field aspects of multiple projects and graduate students. A major component of these projects is to determine the placement of road underpasses for wildlife, especially red wolves and bear, on the Alligator River Section of the U.S. highway 64. This is the final section from Raleigh to the coast that needs expansion to 4 lanes. They will be putting out GPS collars on wolves and bears for population and ecology data, camera surveys for crossing information, running barbed wire hair collection throughout the entire length of the road for DNA identification at road crossing locations, road kill surveys, and wolf/coyote interactions.

It is a small world; I conducted research to locate crossing structures on a western section of this same highway in 1999, showing how small the bear world is. Andrew plans to be working on this project for the next 2 years, and I wish him good luck with it and his defense.

Publications

August 2009 Recent Bear Literature

Richard B. Harris
Ursus Editor
218 Evans
Missoula MT 59801, USA

Tanya Rosen
Research Associate
Northern Rockies Conservation Cooperative
P.O. Box 1404
Ennis MT 59729, USA

Agee, J., Miller, C. 2009. Factors Contributing Toward Acceptance of Lethal Control of Black Bears in Central Georgia, USA. Human Dimensions of Wildlife 14(3): 198-205

Nicholson, J. M., Van Manen, F. T. 2009. Using occupancy models to determine mammalian responses to landscape changes. Integrative Zoology 4(2): 232-239

Events

2009 International Symposium on Conservation of the Asiatic Black Bear

Location: Taipei, Taiwan
Dates: 17-21 Nov 2009
Scope: All ranges of Asiatic black bears
Website: http://tve.npust.edu.tw:8080/project/meibear/web/English/conference-E.html
or go to www.bearbiology.com for links.

Registration: 1 July ~ 30 October 2009
Deadline for abstract submission: 24 August 2009

Coordinator for International Participation:
Dr. Mei-Hsiu Hwang (bear1000@ms25.hinet.net; hwangmh@mail.npust.edu.tw)
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Tel: +886-8-7740-516 (office)
Fax: +886-8-7740-417

Call for Papers
Deadline for submission of abstracts: 24 August 2009
Notification of acceptance will be mailed by 2 September 2009.

Overview

The Asiatic black bear (*Ursus thibetanus*) is one of the largest carnivores in Asia, and is listed as a protected species in most countries of its historic range. In some countries, such as Taiwan, Pakistan, and South Korea, it is listed as endangered. A number of threats jeopardize their population viability, such as habitat

loss and degradation, illegal hunting, and commercial trade in live bears and bear parts. Little is known about the species due to a lack of financial and technical support, qualitative data, and low administrative and public commitment. In addition, trained personnel who are concerned with or engaged in research and conservation are also lacking in most of the species' geographic range. Trying to ensure the long-term persistence of such a focal species represents one of the most difficult challenges in Asian wildlife conservation today.

The goal of this Symposium is to promote research and conservation of Asiatic black bears by providing a platform for improved communication and information exchange between researchers and conservationists. Plenary session and workshop topics will include ecology and behavior, physiology, phylogeny, and conservation and management issues for captive and wild populations. This event is also designed to encourage field researchers, zoo managers and governmental agents to examine their role in the conservation of this species, and to pursue new challenges and develop further collaboration.

Organizers

National Taiwan Normal University, National Pingtung University of Science & Technology, Forestry Bureau, Yushan National Park, Taipei Zoo, and Endemic Species Research Institute of Taiwan

Third International Bear-People Conflicts Workshop Update

Preventing and managing bear-people conflicts is a major task for government agencies, municipalities, industry, homeowners, and others that live, recreate or work in bear country. Practical methods and strategies that are feasible and effective for resolving conflicts have been developed over the years from a variety of sources. Previous International Bear-People Conflict workshops at Yellowknife, Northwest Territories in 1988 and Canmore, Alberta in 1997 have provided a venue for sharing the successes and failures as these methods and strategies have been tested. Building on the success of those previous workshops, we are holding a third workshop in 15-17 November 2009, again in Canmore. The format will emphasize group participation, with a few formal presentations to focus follow-up discussions facilitated by experts in the topic. Participation in the discussions by attendees is not only encouraged but is crucial to the success of the workshop. There will be an open poster session for visual presentation of topics relevant to bear conflict management. There will be rooms set aside for informal break-out sessions in the evenings.

In addition to updated experience with topics common to previous workshops, the 3-day workshop will add new topics such as: (1) lessons from management of conflicts with brown and black bears that can be applied to polar bear conflicts; (2) community-based approaches to bear conflict management; and (3) establishment of a bear conflicts network to serve as a continuing source of information-sharing. Although the first 3 days will include some discussion about polar bear conflicts, a separate 4th day on November 18 will build on the previous 3 days and will be devoted exclusively to issues about conflicts between polar bears and people. Attendees may choose to participate in either the 3-day portion or attend all 4 days.

The conference will be held at the Radisson Hotel and Conference Center in Canmore. Registration will include breakfast and lunch.

The conference has a website sponsored by Red Deer College with details about registration, lodging and travel, organizing committee contacts and preliminary agenda at: www.rdc.ab.ca/bear_conference.

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274 Ellington Hall, Knoxville TN 37996, USA
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Behavior			Newsletter *		
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Brown Bear **	years		Nuisance / Damage Management		
Conferences *			Nutrition		
Conservation *			Organizational Development		
Disease			Pathology		
Economic Development *			Physiology		
Education / Outreach *			**Polar Bear ****	years	
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Ethics *			Population Dynamics		
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Giant Panda **	years		Travel Grants *		
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Density-Dependent Population Regulation of Black, Brown and Polar Bears					
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⑩ *term expires 2010*
⑪ *term expires 2011*

International Bear News Distribution
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Brookeville MD 20833
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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.
13. Form partnerships with other institutions to achieve conservation goals, where partnerships could provide additional funding, knowledge of geographical areas, or expertise in scientific or non-scientific sectors.

Deadline for the November 2009 issue is 5 October 2009

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