

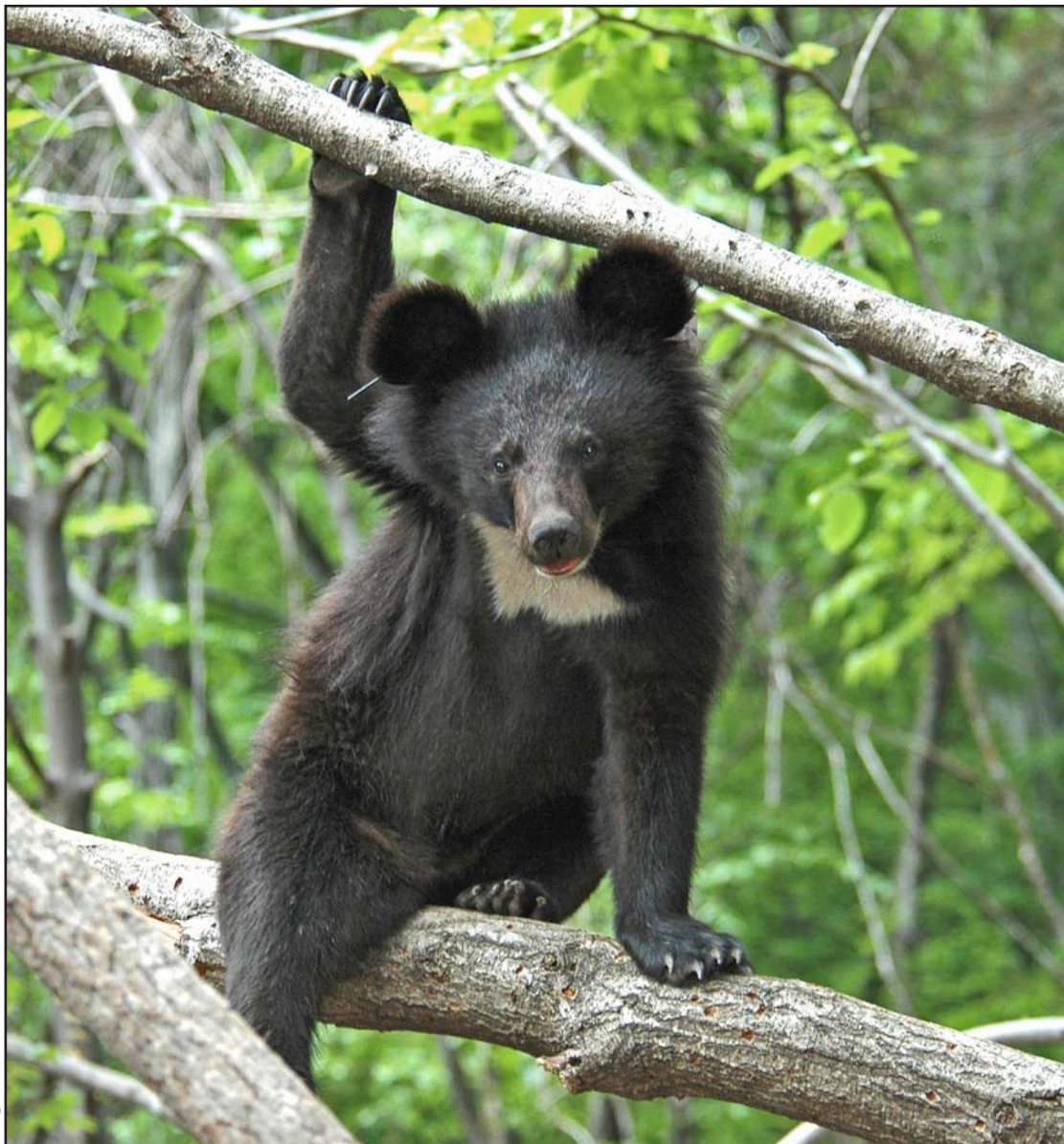
International Bear News



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



May 2011 Vol. 20 no. 2



© Species Restoration Center, Korea National Park Service.

An Asiatic black bear cub imported from the Russian Far East, released into Jirisan National Park, South Korea, in 2005. The cub was found orphaned in the wild in Russia.

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

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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 August 2011 issue is 5 July 2011.

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

Membership

Use the form on **pages 41** or go to **www.bearbiology.com** to order or renew memberships, make donations, and/or update member information.

From the President

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After our elections in December, the new IBA Council started with clarifying expectations for Officer and Council positions and identifying specific tasks. There are many issues that need our attention and we are working on better engaging all Council Members by assigning specific tasks, ranging from expanding the bear species information on our website to revitalizing committees. One challenge we've had to deal with over the last three months is that I have not been allowed to function in an official capacity for IBA until a Memorandum of Understanding between IBA and my employer, the U.S. Geological Survey, was signed at various administrative levels of the agency. U.S. government agencies require such a memorandum for government scientists who serve on boards of professional societies to ensure there is no conflict of interest. Because I was re-elected, a new memorandum was necessary. We are now back on track and will be catching up on major business items in the months leading up to the Ottawa conference and during the conference.

20th IBA Conference 2011 – Ottawa, Canada

This is the last newsletter before the IBA conference in Ottawa so it's time to finalize your conference plans. The international conferences provide an excellent opportunity to exchange scientific information, network, and enjoy great fellowship. All details of the conference program, workshops, evening programs, conference hotel, field trips, etc., are available on the conference website: <http://www.wildliferesearch.ca/iba2011/>. A few important dates to keep in mind: early registration for the conference ends on 15 May and reservation of hotel rooms at the specially reduced conference rate ends on 17 June. Also, field trips need to be booked by 1 June.

At this conference we will once again have a special silent auction to benefit our many active IBA students. Please consider bringing arts and crafts from your country or region as a contribution to the silent auction. Bear-related items are particularly popular of course. I am still the proud owner of a 'Bears' sweater (as in the Chicago football team) worn by the famous Alaskan bear biologist John Hechtel, and I will be bringing it to the auction to find a new owner. Please notify [Diana Doan-Crider](#) if you have an item to donate so we can add it to our list, and ensure that the item is allowable through customs. Then simply bring the item with you to the conference, and drop it off at the registration desk. Please note that no items with bear parts (this includes bear hair) are accepted, nor allowed. Much more information on the conference is available at the conference website: <http://www.wildliferesearch.ca/iba2011/>.

2014 IBA Conference will be in Greece!

As you may recall, when Council met in Tbilisi to consider bids for the next Eurasian conference, we had the luxury of two excellent bids. We had already accepted the bid for New Delhi, India for 2012 but we recently also locked in the great bid from Greece, which will be held in 2014. The host organization for this event will be ARCTUROS, a non-governmental, non-profit organization based in Thessaloniki, Greece. This organization was founded in 1992 with a focus on brown bear conservation and to address issues with dancing bears. It has been very effective and has expanded its mission to other large carnivores and areas in the Balkans outside of Greece. ARCTUROS operates a bear sanctuary in one of Europe's best preserved traditional villages, Nymfaio. Thessaloniki, the 2nd largest city in Greece will be the host city for the conference. This lively city offers something for everyone: it is renowned for its Ancient Greek, Roman, and Byzantine monuments, charming shopping streets, local cuisine, and exciting nightlife. It is also a gateway to many excellent tourist destinations.

Alexandros Karamanlidis, Scientific Director of ARCTUROS, is the Chair of the organizing committee. Many of you know Alex well because he has been very active in IBA, from student activities to his current position on Council. Alex and ARCTUROS have a lot of experience organizing various conferences so the IBA conference will be in good hands! This conference still seems like a long time away but I wanted to share this wonderful news with you so you can start planning your conference trips early.

Although we have now locked in the 2012 and 2014 Eurasian conferences, we still need to secure bids for the 2013 Americas conference. We have been working on several options but would appreciate any suggestions from members.

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2011 Research and Conservation Grants

I am very proud of the many ways in which IBA supports bear research and conservation throughout the world but I'm particularly proud of the Research and Conservation Grants program. Fred Dean is the Chair of this committee and this committee has done a terrific job of selecting high-quality proposals for funding. The committee selected 9 of 29 proposals for funding. Grants totaled well over US\$60,000 this year, an increase compared with last year. Fred Dean provides a detailed overview of the successful grant projects elsewhere in this newsletter.

A special thanks to all the donors who made this possible; you will find a list of those donors in the Bear Conservation Fund update by Karen Noyce.

As always, IBA Council appreciates suggestions and input from members so do not hesitate to contact anyone on Council with your ideas. I hope to see you in Ottawa! 🐻

2011 Experience and Exchange Grants Awarded

Karen Noyce

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Two Experience & Exchange (E&E) grants designed to promote experiential training partnerships between scientists in different regions, will foster partnerships between biologists in USA/Nepal and Canada/Ecuador. These US\$1500 grants will help defray travel costs for biologists looking to visit or host field visits from biologists with similar project goals and share information and training. Hosts and visiting biologists apply as a team for E&E grants, and hosts are expected to provide support for living expenses during the visiting biologist's stay.

This year, Achyut Aryal and his Nepali team will host Jack Hopkins of Montana in the Annapurna Conservation Area (ACA), where Achyut is conducting Ph.D. work investigating interactions between blue sheep and carnivores, including brown bears. Achyut recently published the results of preliminary brown bear surveys in the Manasalu Conservation Area (MCA) and is working on developing a brown bear management plan for Nepal. Jack Hopkins, a Ph.D. Candidate in Ecology at Montana State University, specializes in the use of DNA and stable isotopes in studies of American black and brown bear population genetics and assimilated diets. Collaboration between Jack and Achyut began when Jack traveled to Nepal in May 2010 to visit Achyut and discuss future research possibilities. Little is known about brown bears in Nepal, but with the help of IBA's E&E grant, Achyut and Jack will meet to develop plans and conduct field training in large-scale sampling of hair for studies of brown bear occupancy, genetics, and diet in the ACA. Dr. Charles Schwartz will also provide guidance.

The second E&E grant was awarded to Armando Castellanos, of Ecuador, and Lori Homstol, of Canada. It will enable him to visit Canadian bear biologist Lori Homstol and gain experience working with Karelian bear dogs in research and management. During spring 2010, Lori and her Karelian Bear Dog visited Armando's study site to explore the possibility of using dogs to trail Andean bears in challenging habitat conditions. The dog successfully found and followed bear scent, but the team did not succeed in catching a bear. In Canada, Armando will have the opportunity chance to work with an experienced team of dogs and handlers in an area where bears are plentiful and less cautious than Andean bears. He will investigate the possibilities of obtaining and training a Karelian puppy for work with bears in Ecuador. Armando's trip is planned for 3 weeks in July 2011, and will include several days at the 20th International Conference on Bear Research & Management, in Ottawa. Ultimately, he and Lori hope to develop new approaches for effective trapping of Andean bears for both research and management. 🐻

Bear Conservation Fund Revenues Up in 2010-2011

Karen Noyce

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Contributions to IBA's Bear Conservation Fund (BCF) for IBA's 2011 grants programs were up 37% relative to last year. Gifts totaled US\$66,809 during the period 1 March 2010 – 28 February 2011, the highest yearly total to date, except in 2006 when a US\$50,000 grant provided the bulk of BCF's revenues.

Table 1. Funding Status of IBA Research & Conservation Grants, 2006 - 2011 (\$=USD).

IBA Research & Conservation Grant Program	2006	2007	2008	2009	2010	2011
Proposals received	26	24	20	31	27	29
Proposals identified as "top proposals"	14 (54%)	15 (63%)	10 (50%)	15 (48%)	16 (59%)	11(38%)
Proposals funded	12	11	10	8	7	9
Percent of "top proposals" not funded	14%	27%	0%	47%	56%	18%
Dollars requested in top proposals	\$97,740	\$122,573	\$55,595	\$117,364	\$103,300	\$79,965
Dollars awarded	\$83,700	\$51,500	\$55,595	\$52,430	\$41,425	\$62,662
Shortfall (\$\$)	\$14,040	\$71,073	\$0	\$64,934	\$61,875	\$17,303

Of the nearly US\$67,000 donated, the John Sheldon Bevins Memorial Fund and the Homer Bear Conservation Fund (IBA's internal BCF endowment) each provided US\$12,500. The remaining US\$41,809 came from private individuals, 2 zoos, and several businesses, with donations ranging from US\$25 to US\$20,000. For the IBA, as for many non-profit organizations, increased giving this year represents a welcome rebound from 2009-2010, when lower contributions reflected worldwide economic woes. IBA's Grants Programs depend entirely on these gifts and the annual input from the Bevins and Homer Funds.

Allocations of BCF dollars to 2011 programs are as follows: Research & Conservation (R&C) Grants US\$59,236; Experience and Exchange Grants US\$3,898; Conference Travel Grants US\$1,875; Bear Specialist Group Action Fund US\$1,799. With the addition of some carry-over funds from 2010, R&C Grants awarded this month totaled US\$62,662. Although deserving proposals are turned down by the R&C Grants Committee every year due to lack of funds, increased giving this year made a significant dent in that deficit. 🐻

Research and Conservation Grants

Fred Dean, Committee Chair

The 2010 - 2011 proposal and grant cycle culminated in the last days of March when we were able to offer grants to nine of the 29 applicants. The trend we have seen in the past several years continued, i.e. more proposals and a higher proportion of the total number ranking well into the worthy range. It is very difficult to tell applicants who had solid projects that no grant will be forthcoming. I have extracted (and edited) short statements about the projects awarded grants. These are included below. The map of approximate project locations has been updated. Since we try, over time, to spread grants geographically as well as by species, it was good to be able to support European projects this year.

I want to thank all those who worked hard reviewing the proposals received last December: Research & Conservation Grants Committee Members, the BSG Co-chairs, and the Board Members of the Homer Bear Conservation Fund. Our thanks again to all those responsible for the several funds which together support the grants program. The many individuals and organizations who have donated to help the grants programs should feel well-rewarded. One especially large donation to the Bear Conservation Fund allowed us to include several projects that may turn out to be quite significant.

Lorraine Scotson's was the only grant for the continuation of a project supported last year. However, others of this year's grantees have been awarded RCGC grants for other projects in previous years.

Csaba Domokos, M.Sc. student, University of West Hungary, & Project Manager, Association for Bird and Nature Protection "Milvus Group," Romania (\$6,300 USD)

During 2011, this project will continue efforts in Brown bear conservation and research in Romania (Eastern Transylvania, Western side of the Eastern Carpathians): improvement of the social acceptance of the species (education-information), conservation oriented scientific research (research on habitat use, movement and activity patterns, den characteristics), as well as conservation of the bears' habitat (designation of new protected areas, mitigation of habitat fragmentation that will be caused by a planned highway).

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Some of these activities have already started back in 2006, while some are more recent. Some of our prior results: more than 500 children participated at our educational activities in schools, at the local ZOO and in the Forest School, we have distributed more than 500 of our own brochures about bear biology, ecology and damage prevention, we have mounted and donated six electric fences to local farmers for preventing damages caused by bears, we have identified and are currently monitoring 21 bear dens, we are in the process of designating hopefully over 19,000 km² of new protected areas for bears (Natura2000 sites) in Romania, etc.

Keith Miller, M.Sc. student, Central Michigan University, U.S.A. (\$2,200 USD)

This study is focused on the modeling of potential corridors for the Andean bear (*Tremarctos ornatus*) among remaining habitat in the northern Andean range of Venezuela and encompasses five protected national parks (Terepama, Yacambú, El Guache, Dinira, Guaramacal). The project was started in August 2009. Extensive collaboration has been established with a recent study conducted by García-Rangel (unpublished PhD dissertation) that implemented habitat suitability modeling in the Sierra de Portuguesa region of Venezuela. The important issue of habitat connectivity has not yet been examined. Identification of potential corridor linkages between Andean bear habitat patches and habitat connectivity at a regional scale using GIS-based modeling focused on dispersal capabilities for Andean bears and landscape characteristics will be attempted.

Marine Murtskhvaladze, Ph. D. student, Institute of Ecology, Ilia State University, Georgia. (\$4,700 USD)

The aim of the proposed project is to shed light on the key questions dealing with taxonomy and population genetic structure of brown bear (*Ursus arctos*) in the Caucasus. The main threats for this species are habitat fragmentation and poaching (Brown bear SSR -Georgia). Brown bear is listed in National Red lists of Georgia, Armenia, and Azerbaijan.

The current project will cover the entire south Caucasian range of the species (including Azerbaijan, Armenia, and yet uncovered parts of Georgia) and will be technically executed in the new molecular-genetic laboratory of the Biodiversity Research Centre of the Ilia State University, Tbilisi, Georgia. Our collaborators from Azerbaijan and Armenia will provide the samples collected in their countries. We expect the following outcome: taxonomic status and population genetic structure of brown bear in the Caucasus is revised, management units of the brown bear population are defined, and a scientific paper published based on the obtained information.

Dr. Muhammed Ali Nawaz, Country Director, Snow Leopard Trust, Pakistan. (\$9,697 USD)

The new Broghil National Park (BNP) is situated in the extreme north of district Chitral at an altitude ranging from 10,000- 14,000 ft. Kishmanjah village is the lowest point with an elevation round about 10,200 ft. and Kurambar Lake is the highest (14,121 ft.). Geographically BNP share boundaries with Gilgit-Baltistan in the east, Wakhan strip (Afghanistan) in the northwest, and Yarkhoon valley of Chitral district in the south. The valley is connected with neighboring Gilgit-Baltistan and Afghanistan by a number of well known passes like Darwaza Pass, Darkhot Pass, Sukhtarabad Pass etc. The area is inhabited by Wakhi Community, which speaks Wakhi language as primary mean of communication. Climatic conditions in the valley are extremely harsh throughout the year. Precipitation is mainly received as snow from October to the end of May. Pastoral activities supplemented by limited agriculture, localized trade and tourism are the main sources of livelihood and cash income generation. The valley is rich in floral and faunal diversity. The key mammal species of the valley are brown bear, snow leopard, Himalayan ibex, and blue sheep. Focusing on the Broghil National Park, the proposed study aims to achieve the following objectives:

- Population estimate of brown bear in the area.
- Assessment of human-bear conflicts, and major threats faced by the brown bear and their prey species.
- Build capacity of the stakeholders i.e. Government Wildlife Department staff and local community in brown bear monitoring techniques.

The study will employ the use of questionnaires, interviews from local informants, occupancy survey and molecular genetics techniques.

Dr. S. Sathyakumar, Scientist-F / Professor & Head, Department of Endangered Species Management, Wildlife Institute of India. (\$9,000 USD)

Asiatic black bear (*Ursus thibetanus*) - human interactions is a major management issue in the Kashmir region of India. A research project (2007-2012) was initiated at Dachigam National Park by the WII to understand black bear ecology and

bear-human interactions using conventional field methods and modern tools such as satellite telemetry, camera trapping and molecular genetics. During the last three years of work, scientific information on the black bear revealed that Dachigam NP has high bear densities for a brief period during late summer as a result of high fruit abundance in patches (particularly the *Quercus robur* plantation) indicating possible immigration of individuals from adjacent bear habitats. Despite high food abundance in summer within the bear habitats of Dachigam NP, substantial crop depredation and bear-human interactions occur outside the bear habitats in this landscape. We propose to find answers to some questions through genetic studies, exploring a few aspects of population genetics of black bear in Dachigam landscape i.e. genetic diversity assessment, population estimation, molecular tracking of individuals and genetic structuring of the population. We have 200 hair samples and 400 scat samples collected so far.

Lorraine Scotson, Ph.D. student, University of Minnesota, U.S.A. (\$7,765 USD)

Ms. Scotson has been developing information on spatial distribution, ecology and conservation status of Asiatic black bear and Malayan sun bear in Lao Peoples Democratic Republic. She has moved her graduate study program to Minnesota to work under Dave Garshelis.

The pilot season for this project was completed in NEPL NPA (northern Laos) during January – May 2010. The research is planned to continue for another two years with the following objectives:

1. Create a reliable distribution map of bears in Laos based on data collected through sign surveys, local interviews and existing field data.
2. Use Species Distribution Modeling (SDM) techniques to identify critical 'at risk' habitats as well as regional strongholds to help direct conservation management actions.
3. Use interview surveys, direct evidence of poaching (e.g., poaching camps, snares), and absence of bears in suitable habitat to identify and quantify threats to populations including hunting pressure, international trade and human-bear conflict.
4. Promote continued in-country research and conservation of bears by training and supporting a number of Lao MSc students to undertake bear-related projects; disseminating results on a local, national and global scale.
5. Establish a framework for long-term population monitoring.

Sandeep Sharma and Trishna Dutta. Ph.D. students, Smithsonian Conservation Biology Institute and George Mason University, U.S.A. (\$9,000 USD)

This study will compare gene flow between sloth bear populations between four Protected areas: Bori-Satpura Tiger Reserve (STR), Pench Tiger Reserve (PTR), Kanha Tiger Reserve (KTR) and Melghat Tiger Reserve (MTR) STR and MTR are connected through a forest corridor, as are KTR and PTR. Dinerstein et al. (2007) categorize the Satpura-Maikal landscape harboring Kanha-Pench and Satpura-Melghat tiger reserve as tiger conservation landscape of global priority.

No systematic study of sloth bear genetics has been attempted in India. The team conducted field work during 2009-2010 and collected approximately 200 fecal samples. They have done similar work on tigers and leopards in the same landscape, and are sure about the feasibility of the project. The IBA grant will be used for lab analysis, writing up and publication.

Maria Paulina Viteri, Ph.D. student, University of Idaho, U.S.A. (\$5,000 USD)

Paulina plans to use genetic analysis of mitochondrial DNA and nuclear DNA to determine intra-specific phylogeography and population structure of Andean bears in Ecuador to evaluate population status, trends and fragmentation. The focus is on the Ecuadorian populations, but comparisons will be made with information generated for Andean bear populations from other countries where data are available. Research conducted within Ecuador is carried out inside protected areas using genetic sampling of hair and feces with the collaboration of many researchers, local NGOs, institutions and people from mestizo and indigenous communities that live near bear habitat.

Paulina and her group will be using ecological niche modeling to better understand the past, current and future distribution of Andean bears across the landscape. This technique will help to reconstruct the evolutionary history of the species and also to understand some of the impacts of climate change on Andean bear populations. In addition, they will use landscape genetic tools to identify local patterns of genetic diversity and structure, and variables (i.e., environmental, spatial or anthropogenic) that are driving these patterns. Currently they have analyzed genetic samples from Antisana, Cayambe-Coca and Guandera reserves and have additional samples from other areas in Ecuador that need to be analyzed.

This information is an important component of the Ecuadorian Strategy for Andean bear Conservation that was published this year by the Ministry of the Environment of Ecuador. In addition, our approach of working with local people to

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conduct bear research is an additional component of Ms. Viteri's PhD dissertation which explores approaches for integrating science and traditional ecological knowledge to study and conserve Andean bears in Ecuador.

Drs. Dajun Wang & Cheng Wen (\$9,000 USD)

Direct evidence of the continued existence of sun bears in China is lacking. This expedition will strive to find them. This field-research work will be conducted in and around two mountainous nature reserves in southern Yunnan Province, which support the largest mature cloud forest ecosystems in the region. Cheng Wen has worked in the area for biodiversity assessment and conservation projects on other species since 2007. The collaboration networks have been built up with the nature reserve staff. 🐻

Thanks to the Following Donors for their Generous Gifts to the Bear Conservation Fund, in support of IBA's 2011 grants

Jorge Andromidas
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Stuart Breck
Alan Brody
Kadya Chavkin
Foothills Research Institute
Frederick Dean
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Little Rock Zoo
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Dorothy Noyce
Karen Noyce
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Geoff York
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and

other generous donors who wish to remain anonymous

*The Homer Bear Conservation Fund is
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Are Bear Subspecies a Thing of the Past?

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The subspecies concept has had a tortuous history, in part because the definition of a subspecies is rather vague. Before recent genetic advances, subspecies were distinguished only by morphological traits, which are open to varying interpretations. This ambiguity makes it difficult to use subspecies as a definitive unit for conservation.

Subspecies have remained controversial because taxonomists have historically catalogued far too many of them to be truly useful entities. Legendary evolutionary biologist Ernst Mayr (1982) concluded that “subspecies fulfilled a most important historical role by undermining the essentialistic species concept and also by contributing to a far better understanding of the geographic variation of species.” Subspecies have aroused much criticism in recent years because molecular phylogenetic findings often do not corroborate historically-identified subspecies (except those on islands; Phillimore and Owens 2006). In an extensive literature review, Haig et al. (1996) “found no universally accepted subspecies definition within or across taxa.”

Here’s a definition from Wikipedia: “Organisms that belong to different subspecies of the same species are capable of interbreeding and producing fertile offspring, but they often do not interbreed in nature due to geographic isolation or other factors.” This is a little confusing in that several bear *species* can interbreed and produce fertile offspring, but they generally do not. For example, brown bears and polar bears may appear to fit this subspecies definition. But with distinct species, we also assume some sort of behavioral separation that deters interbreeding.

In order for a subspecies to exist within the range of the broader species, there must be geographical separation sufficient to markedly deter gene flow. Thus bears of truly different subspecies would rarely encounter each other in the wild. Exceptions to this situation may occur with human intervention, as in the case of translocations and reintroductions. For example, in the U.S. during the 1960s, about 160 American black bears from Minnesota were reintroduced into Louisiana, where a small extant population of another (purported) subspecies existed. This sort of reintroduction is not typical today: bear biologists are more cognizant of using stocks for reintroduction that are similar genetically to the local population. But in this day of high-powered genetic testing, have we cast the subspecies concept aside?

Most North American bear biologists would not concur with (or even be aware of) the 16 subspecies of American black bear that are still formally accepted by mammalogists (see listing of all currently-recognized subspecies of extant ursids at: <http://www.bucknell.edu/msw3/browse.asp?id=14000939>). Genetic isolation is murky even among the three most notable subspecies, *Ursus americanus luteolus*, *U. a. floridanus*, and *U. a. kermodei* (from Louisiana, Florida, and British Columbia, respectively), all of which have been given special legislative protection. The Kermode or “spirit” bear has a single recessive unique nucleotide in white-phased individuals (which is particularly common on islands) but is not genetically isolated from other populations (Marshall and Ritland 2002).

In Asia, however, the subspecies concept seems alive and well, and it’s not just that Asian bear biologists are clinging to “old-school” taxonomy. In Asia, there are certain island populations that are sufficiently far from shore, and thus genetically separate, that historical subspecies designations are probably warranted: sloth bears in Sri Lanka (*Melursus ursinus inornatus*), sun bears on Borneo (*Helarctos malayanus euryspilus*) [with these two, the generic name is more disputed than the subspecific designation], and Asiatic black bears in Japan (*Ursus thibetanus japonicas*) and Taiwan (*U. t. formosanus*). But there are other recognized subspecies on the mainland that also seem fitting of their designation due to long-term isolation: Isabelline (brown) bears (*Ursus arctos isabellinus*), ranging from northern India to Mongolia (including the “Gobi bear”), and the Baluchistan black bear (*U. t. gedrosianus*) in southern Iran and Pakistan, are notable examples.

But what prompts us to write this piece is the recent genetic investigation of what to most readers will be an unrecognized subspecies – the Ussuri black bear (*U. t. ussuricus*), so named because it lives near the Ussuri River in the Russian Far East. The northern part of the range of the Asiatic black bear is disjunct: it includes the Russian Far East, the Korean Peninsula, and northeast China. There is a large gap from there to Asiatic black bear populations in central China, caused by a long his-

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tory of intensive land use by humans (as well as probable heavy exploitation of bears for gall bladders in Chinese population centers). So it makes some sense that this most northern cluster of black bears might be a distinct subspecies. But one might ask how long a period of separation is required for a subspecies to form? The gap between this northern area and other parts of China is not long in evolutionary terms – maybe a few thousand years – and the gap may not have completely blocked gene flow until much more recently (there appear to be a few scattered records of a bears wandering in this area in the past 200 years). Recent genetics work, though, seems to corroborate the northern group as a distinct “evolutionary significant unit (ESU)”, a more precise term that may correspond to subspecies. This recent work shows a clear genetic distinction between the Ussuri bear and bears of central China (Hwang et al. 2008), Japan, and Southeast Asia (Kim et al. 2011).

We asked the authors of the later paper to write an article for *International Bear News* (see following article) because we thought their results were intriguing, and, like a previous genetic investigation of the Isabelline bear (Galbreath et al. 2007), revive the concept of the subspecies. It’s certainly fine for geneticists and conservators to talk about ESUs, but we think that the old subspecies names, if they withstand genetic scrutiny, have a certain natural appeal that can aid conservation. Our view is consistent with that of Kitchener (2010), who recently reviewed the taxonomy of the world’s bears and discussed the potential conservation benefits of distinct taxonomic names. Kitchener thought it was worth recognizing some subspecies, and supported the distinction of *U. t. ussuricus*, even before publication of the new genetics work. On the other hand, we must guard against naming or retaining existing names of subspecies simply to highlight a group of bears in an area of conservation concern. Identification of genetically-based morphological characteristics that are grouped within a distinct, isolated region (i.e., not just clinal variation) should help sort out the real subspecies from the “imposters”.

Genetic work supported the reintroduction of Asiatic black bears from Russia and N. Korea into a small remnant population in southern S. Korea, because this is all a single clade. This work also provided evidence that the Ussuri subspecies may be real. However, more extensive comparisons now ongoing across the range of this species could still challenge that, and redraw the subspecies map.

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Molecular Genetic Evidence Supports Reintroduction Program of the Asiatic Black Bear in South Korea

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Asiatic black bears from the Russian Far East
being released into Jirisan National Park, South Korea in 2007

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The Asiatic black bear (*Ursus thibetanus*) has been of cultural and religious importance to Koreans for thousands of years. However, the species was systemically eradicated under the 'Injurious Animal Destruction' program during the Japanese occupation of Korean peninsula (Annual Reports of the Japanese Government-General of Choson 1915–1924). In addition, much of their habitat disappeared during the Korean War (1950–1953) and subsequent economic development, and the species was depleted through over-hunting and poaching. Ultimately black bears in South Korea were designated an Endangered Species I (Ministry of Environment of Korea 2005) and a Natural Monument Species (No. 329; Cultural Heritage Administration Korea 1982, http://search.cha.go.kr/srch/jsp/search_top.jsp), in addition to being a globally Vulnerable (IUCN Redlist) and non-commercial trade species (CITES Appendix I). However, even this protection has not completely stopped illegal hunting of the animals.

Although Asiatic black bears are widely distributed across mountains in South Korea, they are scattered and estimated to number <20 individuals. In Jirisan National Park (JNP), considered a reservoir of the largest wild population in South Korea, fewer than five native individuals are thought to survive (Lee and Jeong 2009). A Population and Habitat Viability Assessment workshop held in 2001 concluded that Asiatic black bears in JNP could not survive without supplementation from other bear populations (Lee and Jeong 2009). With this justification, the Korea Ministry of Environment initiated a reintroduction program to restore the black bear population in JNP. A total of 27 bear cubs from Russian Primorsky Krai and North Korea have been imported and released into JNP since 2004. These source populations were selected on the basis of geographic proximity to South Korea and some basic genetic information (Hong 2005). However, genetic information on the Asiatic black bear populations from Russia and North Korea was limited, thus raising concerns about the efficacy of the reintroduction program.

We investigated the evolutionary status and extent of genetic diversity of these source populations employed for the restoration of Asiatic black bears in South Korea (Kim et al. 2011). Molecular phylogenetic analysis based on both mitochondrial and nuclear microsatellite DNA sequence variation revealed that the Asiatic black bear populations from Russian Far East and North Korea form the same clade, indicating a single evolutionary unit, which is distinct from populations from Japan and Southeast Asia. Evolutionary significant units (ESUs) designate populations or groups of populations with long-term

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Radiotracking the reintroduced bears in Jirisan National Park

evolutionary isolation (Ryder 1986), and are important for managing and establishing priority populations for conservation. Findings of our study support traditional classification of Asiatic black bear populations on the Korean peninsula and Russian Far East as the subspecies *Ursus thibetanus ussuricus* (Ussuri black bear); thus, utilizing Russian and North Korean black bears as the source population for reintroduction of Asiatic black bears into JNP, South Korea is justified.

Comparison of genetic diversity estimates among other black bear species/populations would be informative for understanding the genetic variability of the two source populations reintroduced into South Korea. Genetic diversity, assessed from 16 microsatellites, was equivalent for Asiatic black bears from North Korea and the Russian Primorsky Krai (0.676 and 0.648 expected

heterozygosity, respectively), and was higher than that of most of *U. thibetanus* populations from Japan (Kim et al. 2011). This could imply that the reintroduced Asiatic black bears in South Korea were unlikely to suffer from inbreeding effects or impoverished genetic diversity. Moreover, a moderate level of microsatellite differentiation exists between the 2 source populations, which may provide genetic enrichment to the existing population in South Korea.

Genetic diversity is considered an important component of adaptability and long-term sustainability of natural species (Frankham et al. 2002). Genetic variation is considered important for a population to better adapt to a changing environment. This situation is also true for newly introduced individuals in the process of restoring a threatened animal like the Asiatic black bear in South Korea. Since reintroduction usually involves only a small number of founders, the initial level of genetic diversity should be considered an important element to increase probability for successful settlement and survival of these animals in a new habitat. Moreover, individuals chosen for reintroduction programs need to be screened for genetic variation to decrease the chance of inbreeding depression by avoiding co-introduction and subsequent mating of closely related individuals. This study highlights that the genetic status of the reintroduced population should be closely monitored to confirm the reproductive success of translocated individuals.

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Asiatic Black Bears in the Dachigam Landscape, Kashmir, India – Research Update

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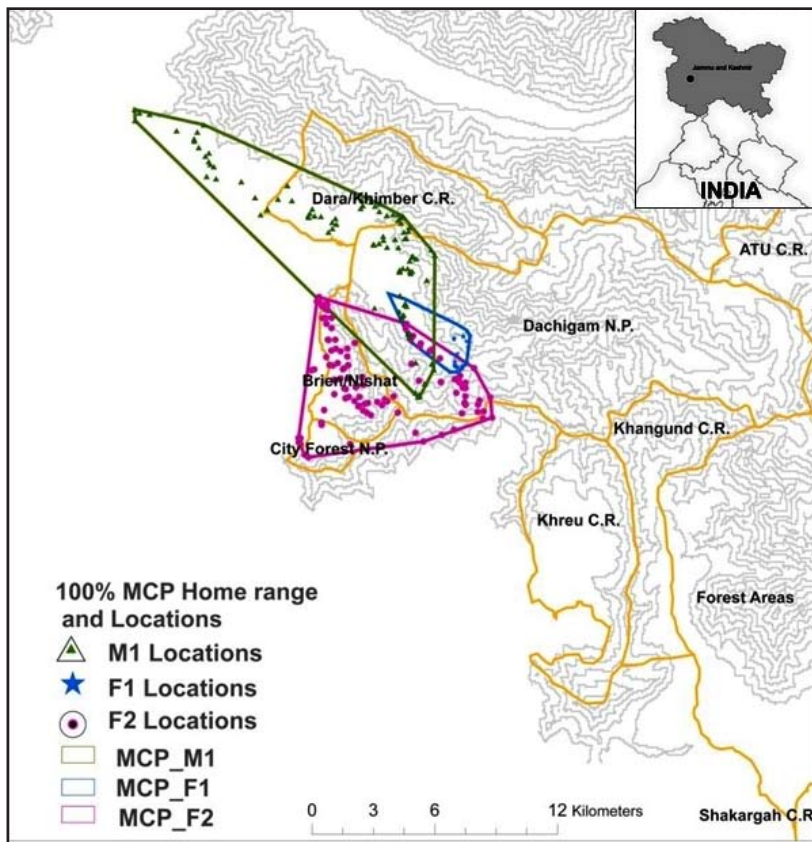
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L. K. Sharma preparing dart for immobilizing an Asiatic black bear captured for radio collaring at Dachigam NP



Home ranges (100% minimum convex polygons) of three GPS-collared Asiatic black bears in Dachigam National Park during 2009-2010

In India, Asiatic black bears (*Ursus thibetanus*) are threatened due to poaching for bear parts, retaliatory killings in response to human-bear interactions, and extensive habitat loss. The landscape in the Kashmir valley in the northern State of Jammu & Kashmir has an interspersed forest, orchards, croplands, and human habitations. Dachigam National Park (NP), along with eight Conservation Reserves (Dara, Hajin, Brain/Nishat, Khrew, Khunmoh, Khiram, Shikargah and Khangund), City Forest National Park and Overa-Aru Wildlife Sanctuary forms the Dachigam Landscape with an area of >1000 km². All these protected areas and other forested habitats are contiguous, but in most places human habitations and croplands adjoin them, raising the chance for human-bear conflicts. Such conflicts have been reported to be increasing in the recent past and have become a challenging task for managers. In order to understand and mitigate human-bear conflicts in this landscape, it is necessary to have an understanding of the movement and resource utilization patterns of the bears. The information presented below is an update on a part of a research project on the ecology of black bears in Dachigam landscape, which was initiated by the Wildlife Institute of India in 2007.

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Habitat of Asiatic black bears in Dachigam, NP

We trapped five black bears (2 males, 3 females) in Dachigam NP and adjacent areas during 2009–2010 using Culvert traps. We chemically immobilized them with a mixture of Ketamine + Xylazine, and fitted them with GPS collars (Telonics, Mesa, AZ, USA). Collars were programmed to store and upload data to ARGOS satellites at fixed intervals, although some problems were encountered with the satellite uplink. The collared black bears were also tracked from the ground with conventional telemetry equipment.

The 16-month tracking period (autumn 2009 to winter 2010) resulted in 1,301 locations for all five collared bears; only 346 GPS locations were transmitted through ARGOS. Post deployment problems, low satellite coverage and background noise in the study area may have caused the poor performance of the ARGOS transmissions. Home range sizes were estimated

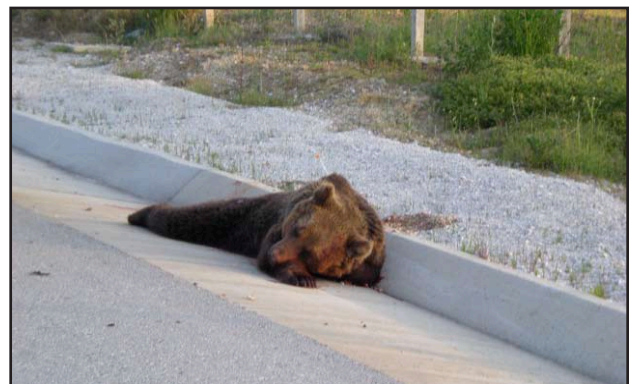
for three bears with adequate samples of locations. The 100% MCP (Maximum Convex Polygon) home range of a female with a cub (7.2 km²) was smaller than that of a solitary female (49.5 km²); the male's range was the largest (72.2 km²). The female with a cub remained within the natural habitat inside Dachigam NP, where as other female and the adult male used large areas outside Dachigam NP, including agricultural and horticultural lands; possibly the female with a cub was trying to avoid interactions with humans outside the park.

We also ascertained the hibernation period from the telemetry data. Hibernation in Dachigam began in December and ended in late March, spanning a period of 40–77 days. Further investigations on these aspects will continue and be integrated with data on quality and availability of habitat and forage to help inform conservation efforts in this landscape. 🐻

A LIFE-Nature Project to Reduce Bears Killed on Highways in Greece

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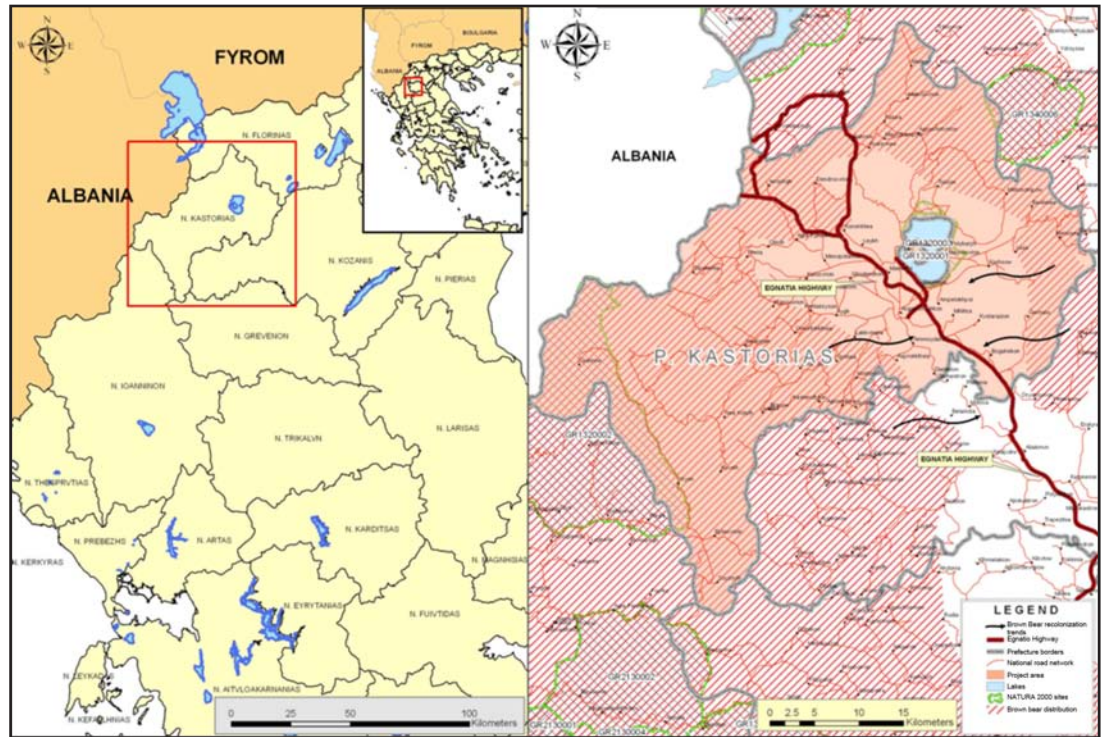
One of several recent bear mortalities along the new stretch of Highway E45

CALLISTO Wildlife & Nature Conservation Society, Greece

A new highway (E45 – part of the Egnatia highway network) is under completion that cuts through the core of brown bear habitat in the prefecture of Kastoria (NW Greece) near the Albanian border. Along the 55 km that have been completed and open to traffic since 2009 and the 250 km of existing, older national and county roads in the same prefecture, at least 15 brown bears (nine on the highway) were struck by vehicles and killed or severely injured in the past two years (2009 and 2010). In response, a LIFE-Nature conservation project called “*Improving conditions of bear-human coexistence in Kastoria*

Prefecture, Greece
 - Transfer of best practices” (LIFE09NAT/GR/00333) was launched in January 2011. The beneficiary of this four year project is the Regional Administration of Western Macedonia, and a key partner is the NGO “CALLISTO.” The project is 75% co-financed by the EU-DGENV.

This project will consist of three parts. First, the bear population will be studied using satellite telemetry, IR camera traps, and systematically sampled bear sign to locate bear travel routes and potential corridors across the highway and other parts of the national road network and to identify the potentially high-risk zones for bear–car collisions. To evaluate bear population parameters such as sex ratio, parental relationships and gene flow in the project area, we will use DNA extracted from bear hairs and scats. Results will document if the existing highway blocks gene flow between two major core bear areas located on opposite sides of the highway. Second our results will lead to proposals for mitigation measures, such as the construction of additional green bridges, overpasses and underpasses as well as for the installation of wildlife deterring devices such as reflectors and sound alarms. Finally, this project will raise public awareness including transfer of knowledge and experiences from other locations. 🐻



Location of LIFE-Nature conservation project to study and alleviate bear mortalities from highway crossings

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Working toward a Brown Bear Management Plan in Poland

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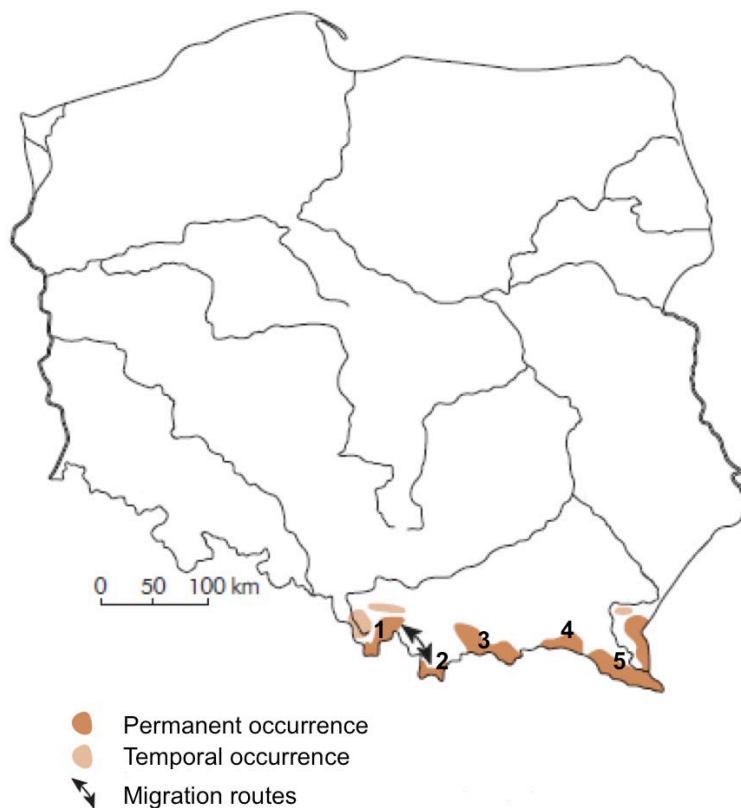
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Participants of international bear workshop held in Krakow, February 2011

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Bear distribution range in Poland: 1 – Beskid Zywiecki, 2 – Tatra Mountains, 3 - Beskid Sadecki and Gorce Mountains, 4 – Beskid Niski, 5 – Bieszczady Mountains (revised from Jakubiec 2004)

been observed during the last decade, and the total population is estimated at <100 (Jakubiec 2001a, Jakubiec and Sergiel 2010). Habitat loss and fragmentation and increasing human disturbance and access to bear areas are the main threats. For example, 96% of Tatra National Park (one of the main bear refuges) is located <1 km from tourist paths. Unsustainable policies of regional development, namely the lack of spatial planning combined with rapid development of transport infrastructure, as well as excessive and unplanned tourism and increasing human pressure, represent the main threats for bear conservation in the near future. Non-evaluated activities, like ungulate supplementary feeding, also might have important effects on the brown bear population (Selva and co-workers, unpubl. data). Human–bear conflicts, especially damage to beehives in the Bieszczady Mountains, are expected to grow (Jakubiec 2001a, Jakubiec 2001b, Zieba and Zwijacz-Kozica 2005, Myslajek and Nowak 2011).

The Institute of Nature Conservation Polish Academy of Sciences (PAS) has conducted a monitoring project based on questionnaires sent to Forestry Administration Units (Jakubiec 2001a). Population estimates were obtained from direct and indirect observations (i.e. sign) of bears by forestry personnel, so these numbers are quite rough.

Ongoing Research

In the last three years, research on brown bear ecology in Poland has increased substantially. A 3-year project is aimed at developing a habitat suitability model. Four bears were trapped and equipped with GPS transmitters, which has provided basic ecological information. Another study focused on effects of ungulate supplementary feeding on brown bear ecology. The use of ungulate feeding sites by bears and the contribution of bait to bear diet are being assessed by photo-monitoring of selected feeding sites and stable isotope analysis of bear hairs, respectively. Two PhD studies on aspects of brown bear foraging ecology and an MSc study on the role of brown bears as seed dispersers are in progress. Studies on winter ecology and the role of supplementary feeding on parasite transmission have also started. The Institute of Nature Conservation PAS has led all these studies.

In 2010, a genetic study was conducted, aimed at estimating the number of brown bears in the two main bear areas. Bear hairs were systematically collected in Tatra National Park at natural rubs and in the Bieszczady Mountains at both natural rubs and hair traps. Genetic analyses are ongoing at the Warsaw University of Life Sciences. In the last few years, WWF

Bear Protection in Poland

Brown bears once inhabited all of Poland, and were protected as a royal game animal. However, intensive extermination during the 18th century and beyond left an estimated at 10-14 bears in the Tatra and Bieszczady Mountains by the end of WWII. Bears in Poland have been strictly protected since 1956. Numbers remained stable until the 1960s, when the population slowly started to recover (Jakubiec and Buchalczyk 1987, Jakubiec 2001a). Presently the species is listed in the Polish Red Data Book as endangered (Jakubiec and Buchalczyk 2001). A proposal for a management plan was prepared in 2001 by Zbigniew Jakubiec (Jakubiec 2001b), but was never implemented.

The Polish bear population marks the northern edge of the Carpathian population and is completely transboundary, so population management in Poland affects populations in neighbouring countries. The international legal framework (Bern Convention, Carpathian Convention) calls on Poland to establish a national management plan and a transnational conservation strategy agreed upon by all the Carpathian countries.

Distribution and Population Monitoring

The brown bear distribution in Poland is limited to five ranges (refuges) within the Carpathians. The main refuge, inhabited by ~70% of the population, is in the Bieszczady Mountains. Expansion of the range has not

Poland has conducted a genetic study using bear faeces, also aimed at assessing the bear population, but results are not yet available.

An important achievement has been the creation of a website (www.carpathianbear.pl) where general information on bear ecology and conservation, as well as scientific findings, descriptions of research, meetings, related events and news, are provided both in Polish and English.

Preparation of the Management Plan

The Warsaw University of Life Sciences started a project to develop management plans for three species of large carnivores (brown bear, wolf, and Eurasian lynx) and three conflict species (Eurasian otter, great cormorant, and common crane). The management plans are to be finalized by the end of 2011. To involve all interested parties, a series of national and international workshops concerning each species were organized. The project is financed (85%) by the European Fund for Regional Development, and co-financed (15%) by the National Fund for Environmental Protection and Water Management.

The management plan for the brown bear in Poland will define the conservation status of the population, identify main threats, and propose conservation measures to guarantee their long-term persistence. These measures will aim at reducing current threats as well as preventing future threats, including potential effects of climate change. The brown bear management plan represents an urgently needed tool for an effective and science-based conservation of the species in Poland.

Workshops

Workshops constituted an important part of the development of the management plan. The first workshop focused on methods of monitoring. A second aspect of this workshop reviewed incidents of bear damage and ways of compensating and preventing them. The second workshop was devoted to the protection of bear habitat – the main threat for bears in Poland. Presentations dealt with the development of transport infrastructures and mitigating measures, the protection of ecological corridors, the negative consequences of the lack of spatial planning in most of the country, subsequent problems of urban sprawl, and the unplanned development of ski resorts and tourism.

The last workshop dealt with transboundary management issues. Colleagues from Poland, Slovakia, Ukraine and the Czech Republic and guests from Sweden and Croatia actively participated in the meeting and made important contributions. Jon Swenson and Đuro Huber contributed their vast experiences in management plans and conservation of transboundary populations. A strong wish to start real international cooperation was expressed by all participants. The international workshop was immediately followed by a Polish-Slovakian meeting organized by the Polish authorities in order to unify and agree to policies in the management of large carnivore populations.



Đuro Huber explaining tooth sampling during training of the Bear Emergency Team in Poland, May 2010

© Robert Masiak

Elements of the Future Management Plan

Following experiences from other countries, the creation of a Bear Working Group, a multidisciplinary and advisory body composed of about eight experts, will be proposed. Their main task will be to follow up the implementation of the management plan, as well as to revise and update it regularly. Additionally, the Bear Working Group will develop standard protocols for monitoring and sample collection, facilitate networking and information flow among groups of interest, encourage international cooperation with neighbouring countries, identify conservation priorities, promote evidence-based measures, inform policy makers, and promote applied science.

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The creation of a Bear Emergency Team also will be included in the management plan. A team of professionally trained experts, able to deal with all types of bear interventions is urgently needed in Poland. To aid in establishing and implementing such a Bear Emergency Team, Đuro Huber and Josip Kusak from the Biology Department, Faculty of Veterinary Medicine, University of Zagreb, presented Croatian experiences, procedures and protocols, and led the training. During the anesthesia of seven bears at Braniewo zoo (organized as a part of captive bears research project – www.bearproject.org - with RSPCA funds), biologists and veterinarians were trained by Đuro on examination procedures for immobilized bears. Another team will be trained in April by the Scandinavian Brown Bear Research Project team during bear captures.

Finally, standard protocols for dead and immobilized bears were prepared, based on scientific publications, protocols already in use in other countries (i.e. Croatia), manuals and reports, and through consultations with experts on bear biology and veterinarians. The implementation of these protocols will make possible the creation of a central databank where all information and samples from living, dead or immobilized bears will be gathered. The Bear Emergency Team will work according to these protocols.

In summary, both national legislation and international treaties oblige Poland to prepare a bear management plan at the national level, and as a next step, at the population level. Results of the current projects on brown bear conservation and data from the completed studies will provide a solid scientific basis for the management plan. Involvement of various interest groups (scientists, national and local administration, State Forest and NGOs) and contacts with experts from neighbouring countries enhance the process. We believe that the bear management plan in Poland will be a functional and useful tool and set the basis for transboundary management plans in the northern part of the Carpathians in the near future.

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Developing a Conservation Strategy for the Andean Bear at the Historic Sanctuary of Machu Picchu, Peru

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In 2010, as part of the International Year of Biodiversity, Peru celebrated the 100th Anniversary of the discovery of the Machu Picchu Sanctuary. As part of this celebration, the Peruvian Government and the National Service of Protected Areas (SERNANP) collaborated with the INKATERRA Eco-tourism Group, CANATUR (Secretary of Tourism), and PROMPERU (Peruvian Commission for Promotion of Exports and Tourism) to develop a series of workshops that would focus on the biodiversity of this unique area.

One of the proposed workshops focused on the conservation of the Andean bear, a keystone species, at the Machu Picchu Historic Sanctuary (MPHS). The SERNANP and INKATERRA Group contacted Isaac Goldstein with a request to coordinate the workshop with the participation of the local stakeholders and a team of invited experts. The overall purpose of the workshop was to develop a conservation strategy for the Andean bear population at the MPHS and the surrounding buffer area.

The workshop and site visit were hosted by Peruvian conservationist and President of INKATERRA, Mr. Jose Koechlin, and was held at the InkaTerra Pueblo Hotel in Aguas Calientes. Mr. Koechlin and his staff have long been known for their efforts to conduct sustainable ecotourism and protect the rich biodiversity of the area.

Representatives were from Peruvian local, regional, and federal government agencies, park rangers, law enforcement, ecologists, and local farmers and ranchers. In addition, international experts were invited to contribute with their knowledge of bears in different areas (Colombia, Venezuela, Spain, and Mexico). The Secretary of Natural Resources and Natural Protected Area representatives were Ada Castillo Ordinola (Sanctuary Director), María Luisa Del Río M., Jenny Fano Saez, Yolanda Hidalgo Sifuentes, David Huamán Ovalle, Jans Huayca, Jessica Morón Álvarez, Angela Oroz Barrientos, Ronal Rojas Apaza, and Favio Sánchez V. Other government representatives were Bertha Bermudez from the Ministry of Culture, and Rody Romero Torres from the Department of Forestry and Wildlife-Cusco). Two local landowners participated, Americo Ccopa Quispe (from Ccollpani) and David Condori Champi (from Lucumabamba). Outside specialists were Juan Carlos Blanco from the Fundación Oso Pardo in Spain, Diana Doan-Crider (Mexico and USA) representing the Bear Specialist Group, Isaac Goldstein (Venezuela) representing the Bear Specialist Group and Wildlife Conservation Society, and William Zorro H. from National Parks of Colombia. Wildlife Conservation Society assistants Alicia Kuroiwa, Raizha Yurivilca Delgado, and Mariana Varese Zimic were essential in coordinating the logistics and facilitation of the meeting. InkaTerra staff members Carmen Soto Vargas and Patricia Vega Gutiérrez provided important knowledge about the local fauna and flora. Independent researchers who were studying the Andean bear in Peru and contributed their input included Heinz Plenge from the Reserva Ecológica Chaparrí, Russ Van Horn from the San Diego Zoological Society, and Rob Williams from the Frankfurt Zoological Society.

The workshop opened with a presentation session by the Sanctuary staff, particularly Ada Castillo, Sanctuary Director, regarding conservation threats to the Andean bear population in the Machu Picchu area. The next two days provided the



Female with cub at Machu Picchu

© William Gibaja Huallpa, Park Ranger

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opportunity to listen and ask questions of the many other stakeholders, and then go to the Machu Picchu ruins to visit critical sites and observation locations. Days 4 and 5 were devoted to the development of the conservation framework and strategy based on the previously gathered information.

As a conceptual framework, stakeholders agreed to strive toward “long term conservation of a viable and ecologically functional Andean bear population at the Machu Picchu Historic Sanctuary.” Two principal threats to reaching this goal were identified: size and habitat quality of the protected area, and small size of the bear population. It was clear that MPHS (32,592 ha) is too small to protect an Andean bear population over the long term. Moreover, previous research indicated that not all of the area was usable by bears. Thus, in order to sustain a viable and ecologically functional population, the overall protected area must be expanded beyond MPHS. This would not be easy because Machu Picchu is embedded in a landscape with a long history of high human impact. Moreover, recent tourist and agricultural development projects have caused a

significant increase in the human use of certain areas.

Workshop participants agreed that to achieve the long-term goal, MPHS must be linked to the proposed Choquequirao Regional Park. This conservation complex would encompass >150,000 ha. The group also prioritized the evaluation of habitat degradation within the complex, and initiation of restoration projects that would augment habitat connectivity between the two sanctuaries. As a result, the first conservation objective of the conceptual framework was stated as follows: “to conserve a non-fragmented landscape unit of at least 150,000 ha, which includes the Historic Sanctuary of Machu Picchu and the Regional Reserve of Choquequirao.”

Achieving a population size that

is “viable” and “ecologically functional” is difficult because these terms are difficult to define and measure. Because human–bear conflicts often resulted in Andean bear mortality, we assumed that a “reduction of Andean bear human induced mortality” was a reasonable starting point for increasing population size.

Having defined the objective of a viable and ecologically functional population, we created a list of direct and indirect obstacles to accomplishing this objective. Direct threats included: 1) development of infrastructure or expansion of agricultural and tourist activities, 2) poaching of Andean bears due to conflicts or commerce, and 3) long-term changes in habitat related to climate change. Indirect threats included: 1) lack of inter-agency coordination, 2) lack of institutional capacity to deal with problems, 3) lack of a coordinated development and conservation plan, and 4) lack of sustainable development projects. In addition, a number of key conservation actions were proposed:

- Improvement of inter-institutional coordination, information sharing, communication, and conservation agreements for Andean bear conservation for both federal and local governments
- Institutional strengthening for law enforcement and inter-agency agreements
- Ecological restoration, reforestation, control, and monitoring of invasive species that might compete with native bear habitat
- Capacity building for federal and local resource management staff
- Establishment of baseline information for plant and animal species, vegetation communities, and GIS maps for the Machu Picchu-Choquequirao
- Updated distribution and population estimate for the Andean bear population
- Sustainable agriculture workshops
- Establishment of an inter-agency bear management protocol for human–bear conflicts



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Workshop participants at Machu Picchu

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- Establishment of local laws for the use of renewable resources such as timber
- Development of public education programs
- Establishment of volunteer park ranger programs
- Establishment of research and monitoring projects in partnership with universities
- Establishment of a garbage management program
- Development of an integral tourism plan using the Andean bear as a key image and umbrella species.

Once the framework was defined, our task was to define what could be done over the next five years. Based on conservation actions listed above, five specific items were prioritized: 1) institutional strengthening, 2) improvement in communication and information sharing, 3) public education programs, 4) sustainable development, and 5) human–bear conflict management. The proposed products for the initial five years of the strategy are:

1. Publication of the workshop minutes;
2. Publication of the Strategy for the Conservation of the Andean Bear Population in the Machu Picchu Historic Sanctuary, reviewed and approved by all pertinent stakeholders;
3. Letter of intention and cooperation agreements signed by the stakeholders;
4. Machu Picchu Web Portal managed by the SERNANP with pertinent information about the area and the Andean bear in Peru;
5. Development of a communication and information strategy as related to the Andean bear;
6. Official recognition of the Machu Picchu – Choquequirao Complex for conservation and management purposes; and
7. The development of a baseline Geographic Information System for the area of the Machu Picchu Choquequirao Complex, which can be built upon for further landscape management

The workshop minutes were revised by the different group members in January 2011 and made public in March 2011. Currently, we are working on the strategy publication, refining and revising the different direct and indirect threats, and the different proposed interventions to ensure that they are directly related to the threats. The final strategy will include all projects needed for each intervention, an executive summary of each project, and if relevant, the stakeholder committed to develop the project. The due date for the publication of the Strategy for the Andean bear population at the Machu Picchu Historic Sanctuary is 30 June 2011. 🐻

Managing Livestock Carcasses to Reduce Conflicts with Grizzly Bears in Montana's Blackfoot Valley

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As spring comes to the Rocky Mountains, the cycle of life, death, and renewal continues. Here, livestock producers are busy with the births of thousands of calves. Some calves and cows die from natural causes during this process. At the same time, both grizzly and black bears are emerging from their dens intent on finding food.

The traditional practice of dumping dead livestock into “bone yards” can attract bears



Grizzly bear at a bone yard in the Blackfoot River Valley, Montana before carcass removal program

© D. Denny

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onto ranches where they may kill live calves or find other foods like grain, pet foods, or garbage. Such conflicts may result in a bear being trapped, relocated, or eventually destroyed. In the Blackfoot River Valley of Montana in 2001 and 2002, a female grizzly bear with two cubs and three adults had to be euthanized by officials. Grizzly bear management specialist James Jonkel explains that, "Grizzlies in the Blackfoot were keying in on the bone yards and starting to hang out on ranches accessing pet foods, garbage and other attractants. We suspected that many other non-collared bears were coming into conflicts as well. The bone yard situation was bad for bears and for ranchers."

To deal with this issue in the Blackfoot Valley, a partnership of ranchers and government agencies was formed under the auspices of the landowner group, the Blackfoot Challenge, and in the early 2000s the group started a livestock carcass pick-up and removal program.

Initial removal efforts in 2003 generated concern. Ranchers did not want their neighbors knowing their death loss numbers for fear of being perceived as unskilled in husbandry. That year only 63 carcasses were removed. In 2004, ranchers agreed to bring their carcasses to designated locations away from their ranches. By building anonymity into the effort

and being respectful of cultural norms, participation increased and 204 carcasses were removed that year.

Ranchers now welcome the collection truck onto their ranches weekly from mid-February to mid-May. Efforts have been expanded to 70–80 ranches covering a total of 607,000 ha. In the past three years, an average of 633 carcasses per year were removed. Livestock carcass composting has proved to be an effective disposal method. This option has enjoyed widespread support of the ranching community. The composted by-product has been used for revegetation projects. The annual cost of the program is approximately US\$12,000, or about US\$21/carcass. The U.S. Fish and Wildlife Service donate fuel and a truck. Funds for the program are generated from rancher donations and private and public grant sources.

The livestock carcass removal effort in addition to electric fencing for calving areas and beehives, sanitation efforts, and broad community support to contain household attractants helped reduce human–bear conflicts in

the Blackfoot watershed. In the core project area, conflicts increased in the late 1990s, presumably due to a grizzly bear population that is growing at about 3% annually, and peaked in 2003 with 77 conflicts, but have decreased each year since with only three minor conflicts in 2010. No grizzly bears have been trapped and relocated since 2005, nor have any livestock been reported killed by grizzly bears since 2004. The decreasing number of conflicts may also be a result of heightened awareness of residents, who now report conflicts less often.

The livestock carcass removal program in the Blackfoot Valley has helped stimulate efforts in Alberta, Wyoming, and Montana and may have broad, global applications where livestock production overlaps with bear populations. 🐻



Load of carcasses brought to composting facility

© Seth Wilson



Livestock composting facility

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Don Oso Program Develops Participatory Monitoring Protocol for Andean Bears in Southern Sangay National Park, Ecuador

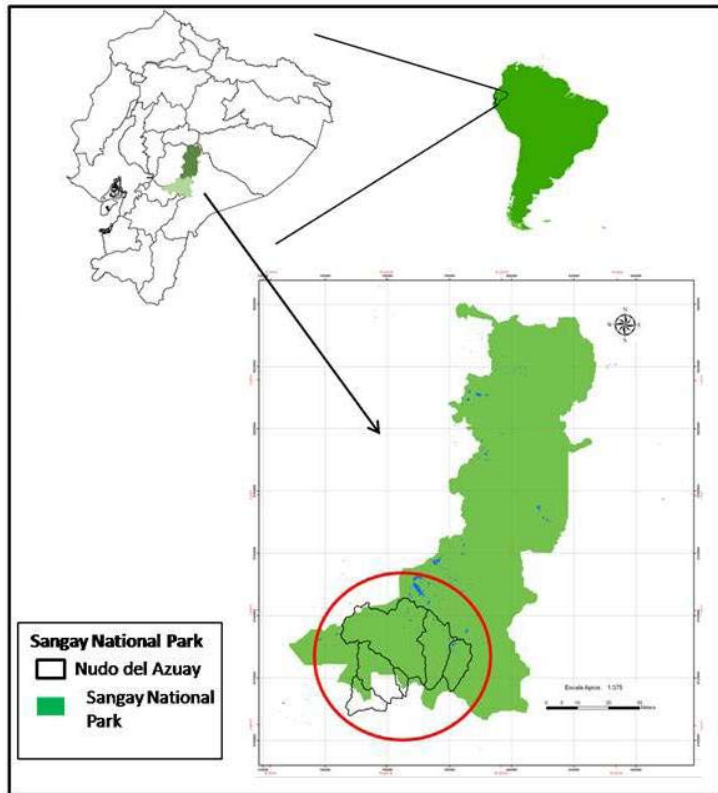
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The 96,000 ha study area, locally referred to as the "Nudo del Azuay" range, includes public lands as well as private in holdings that are within and adjacent to southern Sangay National Park, Ecuador

The Don Oso Program is a holistic, long-term approach to conserving the Andean bear within and near the southern boundary of Sangay National Park, Ecuador. The bear is our flagship species for conservation of montane forests and tropical páramos due to its vulnerable conservation status (Goldstein et al. 2008), large habitat requirements (Peyton 1999), symbolic role in Andean culture, as well as its damage to crops and livestock, all of which make it controversial and important to communities and park officials alike.

The program forms part of a long-term and ongoing collaboration between an Ecuadorian non-profit organization (Fundación Cordillera Tropical (FCT)), a U.S. university research group (Carnivore Coexistence Lab (CCL)) at the University of Wisconsin-Madison, officials of Sangay National Park (SNP), and communities within and adjacent to the park. Created in 2002, the Don Oso Program includes 4 principal initiatives to engage local landowners and communities in efforts to study and protect the bear: (i) environmental education and bear awareness; (ii) scientific research on bear biology; (iii) capacity building for locals as para-biologists; and (iv) interventions to reduce human/wildlife conflicts.

SNP may be one of the best remaining habitats for the endangered Andean bear in Ecuador: it is the 4th largest terrestrial protected area in the country and believed to contain a significant resident bear population (Suárez 1999, Kattan et al. 2004). However, throughout the bears' range a mere 18% of their habitat is within protected areas (Castellaños et al. 2010). It is clear that the conservation of Andean bears cannot be guaranteed within protected areas alone. In SNP, Andean bears frequently encounter people from local communities and private lands as human incursions reach further into their habitat. Consequently, successful conservation must assure their survival within a complex matrix of public and private lands and heterogeneous land uses.

Since mid-2007, FCT has worked to develop a program of economic incentives for conservation on private lands. The Foundation is the principal architect of a novel 2009 Conservation Agreement between a local indigenous community and a downstream hydroelectric company. In exchange for the conservation of hydrological resources as well as the exceptional

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© FCT and CCL



Andean bear photo-captured in camera trap

biodiversity on 1,935 ha of communally-owned montane forest, the company will construct and equip a new cheese factory in the community. Concurrent with these efforts, FCT partnered with a national initiative led by Ecuador's Ministry of Environment called Socio Bosque, aimed at providing private landowners and indigenous communities with direct remuneration in return for the conservation of native habitats. These programs are conserving ~2,500 ha of tropical montane evergreen forest and páramo landscapes throughout the southern region of Sangay National Park.

The continuing credibility of these incentives depends on showing a causal link between the economic incentive and improvements in the status of bears on participating

private lands. Our community-based monitoring program pairs scientific monitoring with community capacity building. Scientifically robust indicators of conservation impact usually require comparing a participating property with a non-participating control that is similar in all other aspects (Ferraro & Pattanayak 2006). Achieving this level of rigor, however, is often difficult in practice due to economic and time constraints.

We initially aimed to use photo-captures to compare the status of bears on participating and non-participating properties; however, limited participation in the conservation programs hampered our ability to draw inferences about the effectiveness of economic incentives for conservation. Our current work aims to show the effectiveness of camera-trapping to ascertain bear use of multiple private properties.

Individual Identification of Andean Bears

Monitoring individually identifiable bears over time confirms individual persistence and may enable estimation of density and range size. More detailed knowledge of factors affecting the detection probability of this elusive animal would help conservationists determine the best sites for monitoring.

Monitoring sites were located on private and communally-owned properties that include both participants and non-participants in the conservation programs. Property sizes ranged from 100 to 5,000 ha with <20% of each participating property dedicated to agricultural or pastoral uses. Participating properties bordered adjacent private properties with varying degrees of conservation as well as untitled lands of SNP. We selected camera trap sites that had bear sign in the vicinity: food remains, claw marks, scat and/or footprints. All sites were located along well-used wildlife trails within montane forest.

In 2008, Zug (2009) deployed 17 camera-trap stations for 2,472 trap-nights, yielding 28 individual bear visits. Five individuals were identified, but many photo-captures were partial shots of bear feet, paws, or chest that did not enable individual identification. In 2009, Jones (2010) monitored the area for 899 trap-nights



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CCL staff teach community park guards to arm cameras at trap site. Left to right: Fabian Tamay (park guard), Marco Pesantez (park guard), Becky Zug (CCL)

and photographed bears during 11 visits and identified seven individuals, two of which had been detected in 2008. In 2008, when one camera was deployed at each station, only 25% of bear visits resulted in individual identification. However, when two cameras were deployed at each station, we increased individual identification to 87%. In 2010–2011, we photographed bears during 182 visits at 10 stations (100%) during 1,321 trap nights. Cameras photo-captured bears during 0600–1700 h, supporting previous findings that Andean bears are diurnal in at least two populations (Paisley and Garshelis 2006, Zug 2009, Jones 2010).

Replicable individual identification has served as a cornerstone of this project. We began by constructing a composite sketch of each bear that visited a trap station and later created a written list of *key* identification features. Secondly, we developed a systematic method for comparison whereby multiple photos were considered the same bear if at least three characteristics matched. Finally, to alleviate observer bias, we asked independent reviewers to repeat the first two steps without fore-knowledge of our team's identifications.

Training Para-biologists

The methods pioneered by our team during 2008–2009 enabled us to expand the project to include new private properties across a larger landscape in 2010. Concurrent with our project expansion, we focused on camera-trap training for local community para-biologists, FCT staff, and local university students. We believe that training local conservation stewards may be one way to assure the long-term conservation of Andean bears. Since September 2010, we have invested >100 hours per month in training. In turn, locals have trained FCT and CCL staff in the identification of bear signs in the forest. The initial results demonstrate a viable method for structuring bi-national conservation partnerships.

Rainforest Alliance recognized the USFWS-funded Don Oso program as the Eco-Initiative of the month in December 2010. This recognition along with our initial successes suggest that training locals in field science may be a model for ensuring long-term conservation of threatened species. The program has a firm grounding in science, conducted by both foreign and national wildlife conservation experts, and also makes a long-term commitment to local capacity building and environmental education. We perceive that training local people as scientists builds both acceptance and support of conservation, and sets up these local scientists to become the primary interlocutors between researchers and their communities.

For more information about Fundación Cordillera Tropical, please visit www.cordilleratropical.org. For more information about the Carnivore Coexistence Lab at the University of Wisconsin-Madison, please visit <http://www.nelson.wisc.edu/people/treves/>.

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Dealing with Bear–Vehicle Accidents in Greece

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Spring awakening does not mark only the beginning of a new year in the life of bears in Greece, but also the beginning of another difficult year for them on Hellenic roads. Traffic accidents have emerged in the past decade as one of the most frequent mortality causes for the species in the country. At the end of March, the heavy toll paid by the species recently, increased, when a bear trying to cross the vertical axis “Siatista – Krystallopiigi” of the “Egnatia” highway in northern Greece was hit by a vehicle and killed. The vehicle was severely damaged and the passenger slightly injured (Figure 1); several fatal accidents have occurred at this particular stretch of the road and the main reason for this is the lack of appropriate mitigation structures including an effective exclusion fence.



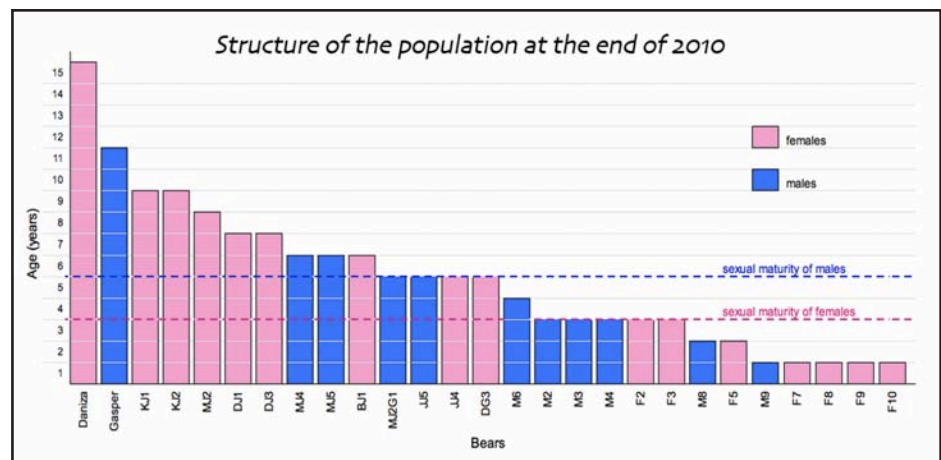
A car severely damaged after a collision with a bear on the “Egnatia” highway in Greece

In order to increase the understanding of the activity patterns and structure of the local brown bear population, the Greek NGO ARCTUROS with the financial assistance of VODAFONE Hellas, have been implementing since the beginning of 2010 a monitoring program, that includes satellite tracking and non-invasive genetic monitoring of bears. In addition, and in order to highlight the importance of this issue to the general public in Greece and the international scientific community, ARCTUROS in cooperation with the University of Western Macedonia will be hosting the 2011 annual meeting of the European Infra Eco Network, a network of experts dealing with the impact of infrastructure on wildlife. The conference will take place on 21-24 September 2011 at the city of Kastoria and the traditional village of Nymfeo in northwestern Greece and will focus on the impact of highways on large carnivores and explore ways to mitigate them. Participants will have the opportunity to meet experts from around the continent, as well as to visit important conflict areas and get informed about the efforts of Egnatia S.A., the Greek state, ARCTUROS and other environmental NGOs to deal with this issue. Conference details will be posted soon on the ARCTUROS website (www.arcturos.gr). 🐻

The Brown Bear Population in Trentino (Italian Alps): still increasing

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A total of 681 organic bear samples were collected in the province of Trento, Italy, in 2010, bringing the total number of samples subjected to genetic testing since 2002 to 3,719. The testing was carried out by techni-



Graph 1. Structure of the population at the end of 2010

cians from the genetics laboratory of the National Wildlife Institute (NWI). In 2010, for the first time, the Forestry and Wildlife Department, also coordinated monitoring of rub trees (73 trees monitored, 132 samples collected).

Overall 28 animals were detected genetically during 2010 in Trentino (Italy). One female cub born in 2010 died. Hence there were a total of 27 bears; 11 males and 16 females (Graph 1; M:F sex ratio 1:1.45 - n=27).

Considering the presence of other individuals not detected in the last year alone (4) as likely, and excluding those missing for two or more years (13), the estimated population in 2010 is from 27 to 31 bears. The minimum number (27) represents the number of bears certainly present, whereas the maximum (31) is exclusively an evaluation of probability based on specific criteria which to date have been shown to be valid but which have intrinsic limitations.

It is therefore essentially a “minimum population estimate,” which is different from a genuine “population estimate,” for which it is necessary to make use of statistical models for capture, marking and recapture (CMR), which are currently being processed in collaboration with NWI.

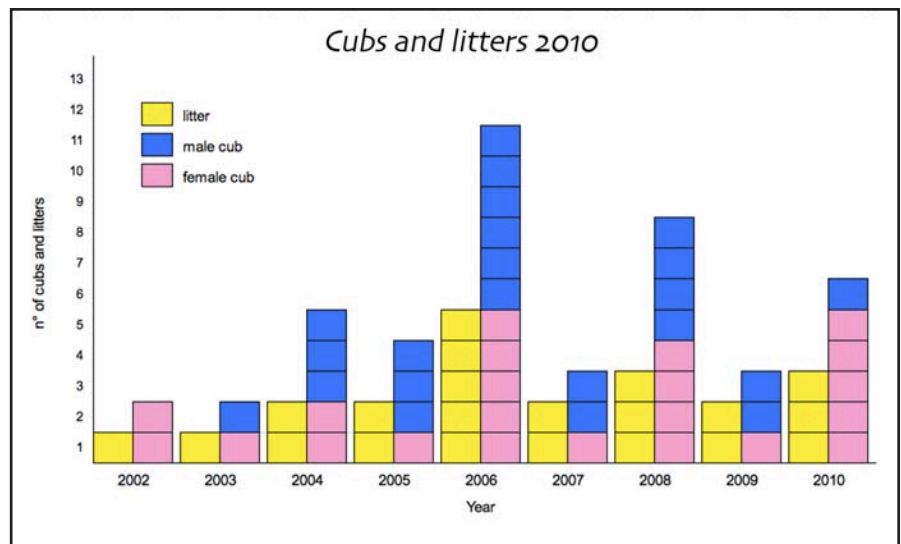
The average annual growth in the bear population in the period 2002-2010 is 15.5%.

Reproduction

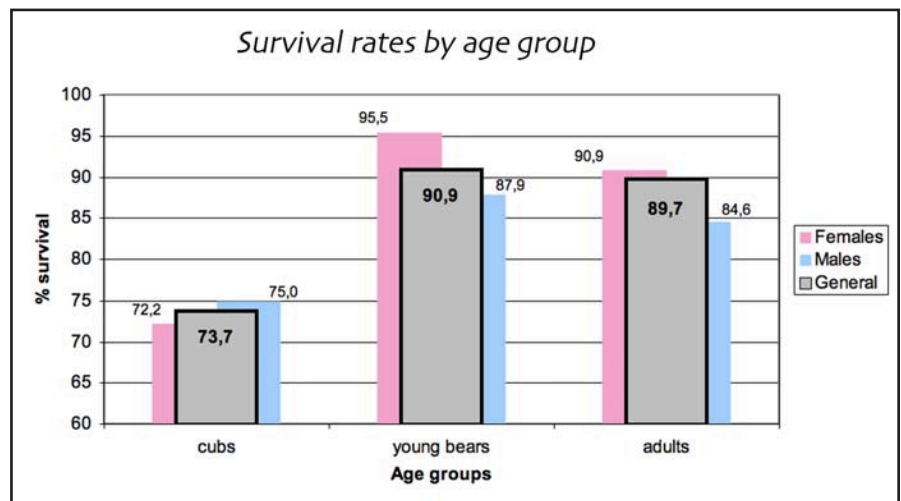
In 2010 there were three litters genetically ascertained, with a total of six cubs. There have, therefore, been at least 21 litters ascertained genetically in Trentino in the last nine years, and at least 44 cubs have been born (22 males and 22 females; Graph 2). The average number of cubs per litter is 2.09 and the M:F sex ratio is 1:1 (2002-2010, n=44). Only two of the 21 litters ascertained to date (9.5%) are the result of mating between blood relatives (father and daughter).

Reproductive Animals

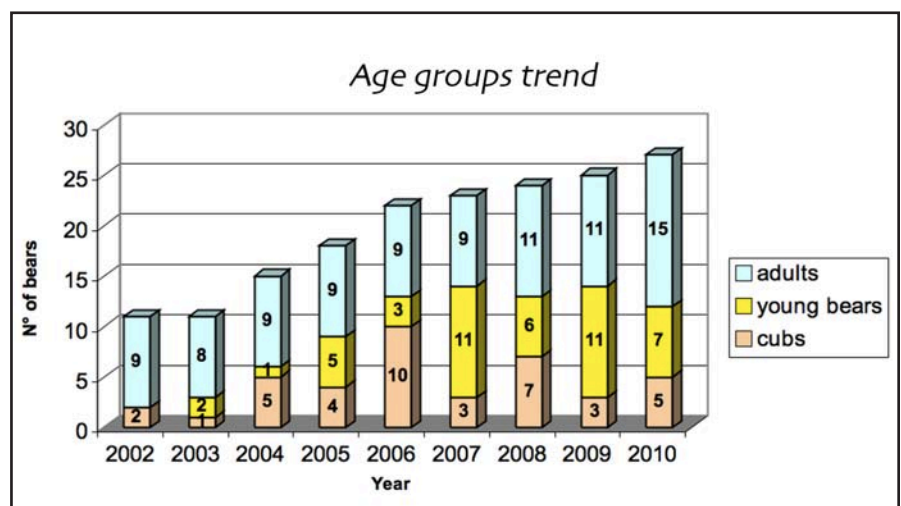
There were five sexually mature males and eleven sexually mature females present at the end of 2010. The average age of



Graph 2. Reproduction



Graph 3. Survival rates by age group



Graph 4. Age groups

primiparous females in the period 2006-2010 (n=6) is 3.67. The average gap between consecutive litters for the same female, recorded in the period 2002-2010 (n=10 gaps, referring to seven females), is 2.2 years.

Survival Rates

The new data available makes it possible to update the survival rate for the three different age groups, differentiated for the two sexes (Graph 3). The data refers to a period of nine years (2002-2010), during which it was possible to record the survival or death of 47 bears, with 161 passages from one year to another (161 bear-years).

Structure of the Population

At the end of 2010, the population ascertained was made up of 16 adults (11 females and five males), six young bears (one female and five males) and five cubs (four females and one male). Graph 4 shows the trend for the 2002-2010 period.

It is also interesting to note the evolution in the average age of the bear population over the nine year period examined, also differentiated by sex; in 2010, for the fourth consecutive year, there was an increase in average age (now 4.89).

Use of the Territory

All 27 bears detected in 2010 were present within Trentino. The presence of six of these animals was also detected with certainty in the province of Bolzano (MJ4, MJ5, MJ2G1, M2, M3 and M8), two also in Lombardia (M6 and M2), two also in Veneto (MJ4 and M4) and one also in Engadina, Switzerland (M2). All eight bears also identified outside the province were males.

Area Occupied by the Population

Considering also the longest journeys made by young males during 2010, the population of brown bears present in the central Alps, which is mainly centred around western Trentino, in 2010 frequented a theoretical area stretching out over around 15,135 km². The area occupied by the females in a stable manner (Figure 1) is decidedly smaller (1,450 km²), still situated within the province, but considerably larger than in the previous year (955 km² in 2009).

Density of the Population

The density for the area frequented by the bears in a more stable manner in 2010 was 1.7 bears/100 km² (25 bears identified genetically within the area occupied by the females in a stable manner in 2010, namely 1,450 km²).

Roaming

In the period 2005-2010, it was possible to document roaming (understood as movement outside western Trentino) involving 14 bears (all young males). Nine of these were still present in 2010; most of them have already returned (although it is not possible to say whether definitively or not), two were shot down following management decisions in foreign countries, one disappeared in 2005 in the frontier area between Engadina (CH) and the province of Bolzano and two have not been detected in the last year.

It should be underlined that the fate of a further six males aged one to three, who have disappeared, is not known. They may have moved into other areas. To date, no roaming of females born in Trentino has been documented.

Compensation for Damage Caused by Bears

Overall, €118,075.87 compensation for damage caused by brown bears was paid during 2010, for 237 claims for compensation. Such data considerably increased the number of cases of damage as compared to the previous year (around + 100%) and reduced the bear acceptance of the public, as a recent public survey indicates. 🐻

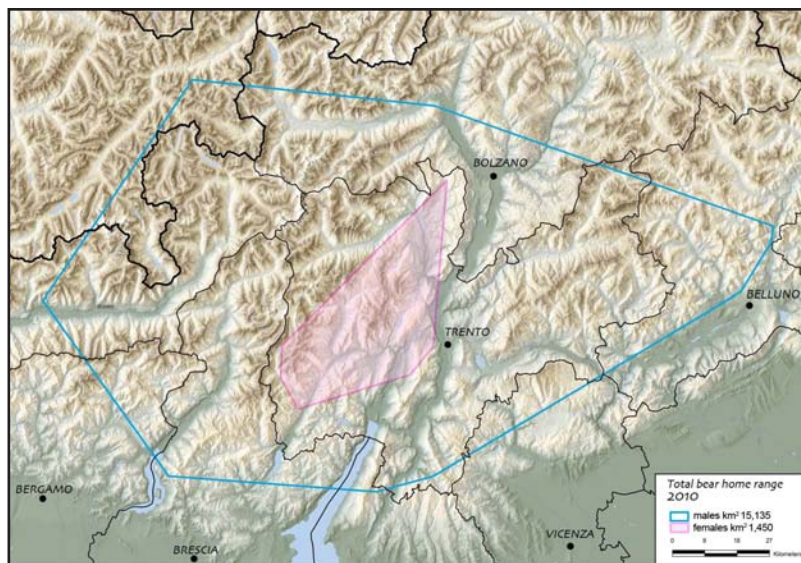


Figure 1. Area occupied by the bears in the central Alps in 2010 (in blue), highlighting the area within this occupied by females in a stable manner (in pink)

Brown Bear-Proof Fence Experiment in Changtang Grassland, Tibetan Plateau

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Human-wildlife conflict has become a popular topic within China, especially in Western China. Between 2000 and 2009, there was reported damage by wildlife, including brown bears, in 20 provinces in China. Most cases occurred in remote and poor areas, such as the Changtang Grassland in the western part of the Tibetan Plateau. The grassland is mostly within the Tibetan Autonomous Region (TAR).

In 2006, TAR announced the establishment of its own government compensation programme for damage caused by wildlife. The programme, entitled “Compensation Measures for Personal Injury and Property Damage Caused by Terrestrial Wild Animals in the Tibet Autonomous Region of China” was officially promulgated in 2010 after the China State Forestry Administration selected TAR in 2008 as one of four provinces for wildlife damage compensation demonstration projects.

However, cash compensation has not mitigated the root cause of wildlife-caused damages. Conflicts with bears, once food-conditioned, have increased, which has resulted in increased economic losses for the people affected and larger compensations. For example, in 2008, Naqu prefecture in Changtang paid RMB 10,599,400 in compensation.

Besides compensation schemes, there is an urgent need to research measures to prevent or mitigate the conflict. Foggin & Rabden (2010) reported a trial use of electric fencing in the east part of the Tibetan Plateau. Tsering (2008) from WWF Lhasa Field Office delivered bear-proof food containers and improved fences.

During 2008-2009, WCS China selected the Tibetan Brown Bear as a target species and conducted a pilot study on bear-proof fence and its effect in Changtang. The project is a part of the “Biodiversity Conservation and Sustainable Natural Resource Use in Chang Tang of Tibet” initiative supported by the EU-China Biodiversity Programme. The main partners for pilot study on bear proof fence are the Provincial Forestry Bureau (TFB) of TAR, WWF and Nagqu Prefecture Forestry Bureau (NPFB). Due to the implementation differences, the information here only refers to the results from three sites cooperatively run by WCS, TFB and NPFB.

The study seeks to answer the following questions: 1) Can prevention measures reduce bear access to human food and houses? 2) Will local communities be interested in prevention measures? 3) Will a three-party cooperation mechanism help monitoring the effect of prevention measures?

The project was initiated in June 2008. Based on a research by Tsering et al. (2006) and initial discussion with NPFB in 2007, we selected, for participation in the study, 20 families in Pubao Town (Ban'ga County), 10 families in Baling Township (Shuanghu Special Zone) and 10 families in Nyma Town (Nyma County). In total, 7,337 heads of livestock were involved. Because of fund limitation and in order to get independent effect evaluation, the project planned to try only one measure for those families. Ten different bear-proof measures were provided for local people to choose. Base on education levels, local access toward materials, local experience, wire netting were selected. Then the project team designed a special wire running along the fence to prevent bear attacks (Figure 1).

In Nyma and Shuanghu county in 2009, the project tried a “three-party cooperation agreement” model in 2009. The project, each demonstration family and related township government signed a contract. Clear responsibility of each part was listed. The families took responsibility to maintain their fence and conduct the requested routine monitoring. The township government assigned one staff member to help with monitoring and coordination. Additionally, each family agreed to pay 20% of the cost of the fence.

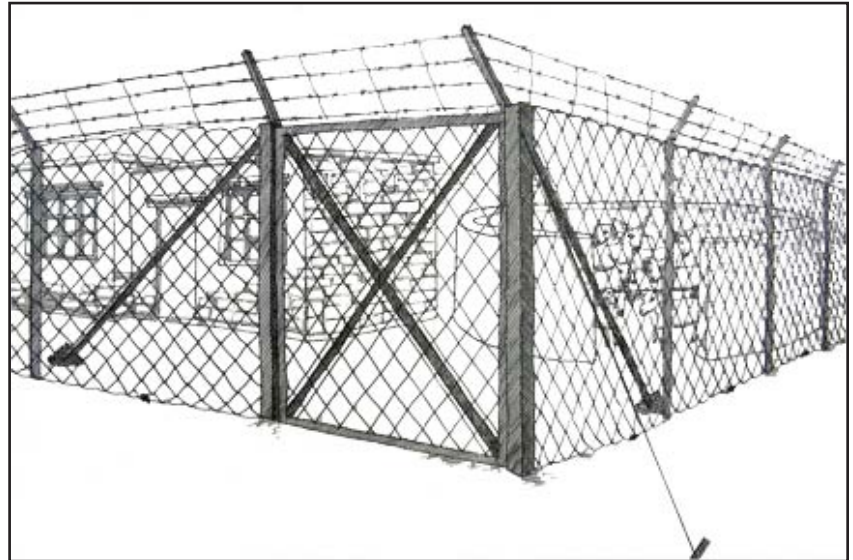


Figure 1. Bear-proof fence designed and established by WCS China for the pilot study in Changtang Grassland

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Project staff discussing with people about the standard of bear-proof fence at trial site.

In Bangaa, the first bear-proof fences were set up in August 2008. Those plots were visited again by the project in September and December of 2008. The project team then set up the fences in two other counties in April 2009.

Monitoring on the effectiveness of the bear-proof fences included weekly records made by participating families on bear occurrence, fence conditions and bear attacks, and four interviews with families carried out by project members and local officials. The monitoring form was designed by the project and translated into Tibetan. Training for learning the monitoring protocol and recording skills was provided to participating families after the fences were set up.

By the end of 2009, the project received 224 monitoring forms

filled by the participating families. The data show that there were 71 occurrences of brown bears around the experimental fences. The fences were attacked 16 times. Four fences were broken and had holes. A total of seven sheep/goats were lost. By comparison, the livestock loss is 90% less than in 2006-2007 when there was no protective fence around the households.

People from the surrounding villages visited the experiment sites and have shown great interest in the tests and have expressed desire to have the same equipment in the near future. Some herders said that they would like to receive technical support from the project, but pay for the fences themselves.

Results seem to show that prevention measures like the bear-proof fence can be a solution to mitigate root causes of wildlife-caused damage. Local communities can understand and welcome those measures.

However, the results are only partial since they account for only the first seven months of the study. Long-term monitoring to gain a fuller assessment will be necessary. WCS China plans to continue collecting information from the same participating families in 2011.

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Project staff conducting training for local people about how to maintain bear-proof fences at trail site.

Alaska Expands Predator Control, Previously Targeting Black Bears, to Include Baiting and Snaring of Brown Bears

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The Alaska Department of Fish and Game announced in an 11 March press release¹ that ongoing efforts to reduce black bears would be expanded to include baiting and snaring of brown/grizzly bears in a portion of southcentral Alaska (Game Management Unit 16B). The objective is to achieve a 60% reduction in brown bear density; this objective is in addition to a previously-set targeted 81% reduction in black bear density in Unit 16B.² This effort to reduce both species of bears in this area is designed to increase the survival of moose calves and thereby increase the number of moose available to hunters. The effort to reduce bear numbers is occurring in a 959-square-mile experimental area on the west side of Cook Inlet, west of Anchorage. Hunters will be authorized to snare brown/grizzly bears in this area following completion of a training course like that now required to snare black bears. There is no limit to the number of bears that can be taken by individual hunters although females accompanied by cubs-of-the-year (COY) and COY may not be taken. Pelts of bears taken may be sold and hunters may take bears the same day they are airborne.

The effort to reduce bears in this area comes on top of ongoing efforts since 2004 to reduce wolf numbers in the same area. In the same Press Release, ADFG identified the effort as an experiment and acknowledged that *"The effectiveness of reducing both bear species through harvest methods to increase moose calf survival has not been demonstrated."* There was no indication in the press release of how, if an increase in the moose population occurred, biologists would determine whether wolf, black bear, or grizzly bear reductions were responsible for an increase in calf survival or what techniques would be used to monitor trends in bear abundance.

The proposal to allow snaring of brown bears was adopted by the Alaska Board of Game (BOG) in a manner that involved inadequate notice to the public that the Board would be considering a proposal to target brown bear reductions through snaring and baiting. Instead, the authorization to use snares to target brown bears for population reduction was implemented by amending a published proposal that made no mention of snaring of brown bears. Previously, brown bears taken incidentally in snares set for black bears were required to be immobilized and released although a lethal take of up to 10 brown bears incidental to black bear snaring in Unit 16B was permitted. Snaring, baiting and same day airborne hunting of brown bears is not currently allowed in any other part of Alaska. For black bears, the BOG has approved (but not yet implemented) regulations allowing Alaskans with a trapping license to snare black bears throughout Alaska. The pattern in Alaska is for expansion of methods to control bears be initiated in small areas initially and then expanded in degree and in the area affected (Miller et al. 2011) so it is possible that these methods will become more geographically widespread in future years.

The brown bear snaring and baiting proposal in 16B was adopted in a 4:3 vote with only one member of the Board objecting to the proposal based on concerns about allowing the snaring and baiting of brown bears. The other two "no" votes were based on procedural concerns over inadequate opportunity of the public to comment on the proposal.

Efforts to increase moose and caribou population through reduction of bears and other predators in Alaska has a long history (VanBallenberge et al. 2006, Miller et al. 2011) but sparse documentation of success. Predator reductions efforts in

1 <http://www.adfg.alaska.gov/index.cfm?adfg=pressreleases.pr03112011>

2 Record Copy 97. Record Copy is information submitted to the BOG during their meeting and not available previous. The RC for the 16B brown bear snaring regulations is available at <http://www.adfg.alaska.gov/static/regulations/regprocess/gameboard/pdfs/2010-2011-4-central-sw/rcs/RC97.pdf?CFID=107404&CFTOKEN=79443416&jsessionid=DDE3A1C0F16C3B37C84CF714D8BFF5FA>.

Alaska were mandated in an “Intensive Management” law (Alaska Statutes 16.05.255e) that was adopted by the Alaska Legislature in 1993. This law mandates intensive management when the abundance of ungulates is inadequate to meet hunter demands and prohibits the BOG from significantly reducing take of ungulates unless efforts have been made to increase the abundance of ungulates.

The U.S. National Research Council in a 1997 review recommended that predator reductions efforts in Alaska be conducted as experiments in a manner that would permit interpretation of results (NRC 1997). Regardless, efforts to reduce brown bears through liberalization of general hunting regulations designed to increase abundance of ungulates is now occurring in 76% of Alaska with corresponding marked increases in number of bears being taken (Miller et al. 2011). Throughout the area where liberalized hunting regulations are in place, grizzly bear research efforts have largely been reduced since 2000 and population trend monitoring programs are minimal or not occurring (Miller et al. 2011).

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Major Three-part Series to Profile the Bears of Alaska: “Bears of the Last Frontier” on PBS and National Geographic in May 2011

Chris Morgan
Wildlife Media
www.wildlifemedia.org

Bear conservation ecologist Chris Morgan and filmmaker Joe Pontecorvo embark on an epic 3000-mile adventure across Alaska to discover the world of black and brown bears for this major three-part series for television. Triggered by their international campaign and feature documentary ‘BEARTREK,’ ‘Bears of the Last Frontier’ will reach millions of homes worldwide with a story that includes world class footage of each species, and a strong conservation message throughout. The series has taken two years to complete and it is something we are very proud of. Filming locations included Katmai, Denali, and Gates of the Arctic National Parks, the western Arctic and Brooks Range, Anchorage, and the pack ice north of Barrow. In the meantime we’ve also successfully filmed Andean bears in Peru for our original independent film ‘BEARTREK.’ With one more location to go (polar bears) we hope that BEARTREK will be ready for theatrical release in late 2012, joining ‘Bears of the Last Frontier’ as another inspirational tool for us to weave into innovative conservation strategies for bears and their landscape-level habitats.

‘Bears of the Last Frontier’ will air in the USA on PBS Nature beginning 8 May 2011. Chris Morgan’s accompanying book of the same title is in book stores and on Amazon.com now. We are so grateful to the many IBA members who provided help with these productions. THANK YOU! 🐻



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Student Highlight: Samina Amin Charoo

Brian Scheick
IBA Student Coordinator

After Samina completed her Bachelor of Science degree, she earned a Master's in wildlife sciences studying the Indian hare (*Lepus nigricollis nigricollis*). She then spent a year studying the common leopard in Gir National Park and Wildlife Sanctuary, Gujarat (a state in western India) for the Indian government's Department of Science and Technology. In 2007, she began work on the ecology of Asiatic black bears (*Ursus thibetanus*) for the Wildlife Institute of India. Her study area included Dachigam National Park and a few other adjacent protected areas, Jammu and Kashmir (the northernmost state of India), which is known to have a high density of black bears. Before this study there had been only a very few field-based studies on black bears in India. Presently she is pursuing her Ph.D. on black bears at the University of Saurashtra, Rajkot, India and her main interests are population estimation, habitat utilization and bear-human interactions.

Although challenging, Samina found working in an area with high bear density to be interesting. She surveyed the entire area for sign and sightings of bears on trails and has been involved in deploying hair traps and camera traps. Setting bear traps and using different kinds of baits to attract them added to Samina's interest in bear behavior. She also assisted in radio-collaring six black bears, which she monitored with the research team.

The study area has many human-bear conflicts, including crop depredation, livestock killing, and attacks on humans. As part of her project, Samina interviewed people to assess black bear-human conflicts. Being local to the area, she could communicate well and increased her interest the work. Her understanding of both the local culture and bear ecology helped her understand the conflicts better. Most of the people living on the fringes of the bear habitats said that bears were visiting their croplands and orchards for food; livestock killings were reported but were much less frequent. Black bears sometimes ventured into human habitations or farmlands and the local wildlife department had a difficult time rescuing these stranded bears. Samina assisted a few of these rescue operations as well.

Samina has had very close encounters with bears and a few mock charges, mostly single bears but also a mother with cubs. During autumn, bears congregate to feed on acorns (*Quercus robur*) and one can easily see five to six bears feeding together. In one 2007 incident, she counted 27 bears surrounding her. Based on these experiences and lessons learned from field work and interviews with locals, Samina created a few do's and don'ts in the local language to raise awareness. The advice was widely circulated to villagers in study area by posters, village and religious heads, and television and print media.

Samina is now processing the hair samples collected in the field, which will be analyzed for population estimation and genetic structuring. Although her work is on a different black bear than the American species I work on, the issues are similar. Putting out cameras, collecting and analyzing hair samples, and trying to better understand human-bear conflicts to improve educational materials are my tasks as well. I wish her luck and look forward to reading the results. 🐻

Truman's List Serve

- For students only
- Discussions pertaining to bear biology, management, or study design challenges
- Assistance with proposals and study design through IBA professionals
- Job searches, announcements, information regarding the IBA and student membership
- Planning for IBA student activities and meetings
- IBA membership is *encouraged*, but not required, for initial sign-up

Instructions

- Visit: www.bearbiology.com/iba/stu.html
- Follow the links to request an invitation
- Do NOT reply to list serve messages using your "reply" button. You *must return to Truman to respond* within the list serve or else other members will not receive your response.
- If you're a new member, please submit a paragraph about your project and include your contact information so we can all get to know you. 🐻

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

Earlier Online Publication of *Ursus* in the Near Future

Rich Harris
Ursus Editor

In addition to the paper copies of *Ursus* sent to IBA subscribers, *Ursus* has been available through various electronic sources for a number of years. *Ursus* has been available via subscription to BioOne since 2004, and Academic Search Complete (with a 1-issue lag) since 2007. All papers in *Ursus* are also posted on the IBA website after a 2-issue lag and can be downloaded free-of-charge.

That said, because *Ursus* currently publishes only twice yearly, delays between acceptance and publication can be longer than is ideal. We are now working to solve that problem as well. Starting later this year, accepted and formatted papers will appear in the *Ursus* portion of the BioOne website (and thus be available to BioOne subscribers) as soon as they are ready. This 'pre-publication' means that papers that are completed early during *Ursus*' production schedule no longer need wait for the entire issue to be finished before being available in pdf format. The paper version of *Ursus* will continue to be mailed twice yearly, spring and autumn.

The only change from the current format of *Ursus* will be that the order of papers in the paper version will reflect the temporal sequence of acceptance, whereas now they are ordered topically. *Ursus* will still have a Table of Contents with papers organized topically. 🐻

Recent Bear Literature

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Events

Update on 20th IBA Conference—Ottawa, Canada, 17-23 July 2011

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As mentioned in the email blast sent to members in late March, the conference registration and accommodation reservation links are live on the conference website at <http://www.wildliferesearch.ca/iba2011/>. Early registration ends on 15 May, so register now and save over 20%. Field trips must also be selected and paid for in advance of the conference.

Those who want to pay for their field trip option using a different means than for their conference registration have that option. Register and pay for the conference first, and then using the confirmation code provided you will be able to select your field trip option and use a different payment method. Don't forget to select your field trip option and pay for the trip to reserve your place. Field trips must be booked by 1 June 2011.

Hotel reservations at the conference host hotel, The Westin Ottawa, may be made through a link on the conference website. Students should submit the request form for student accommodations that is available on the conference website. After the planning committee receives your request we will provide you with the information you need to reserve your own room at University of Ottawa residences. Student accommodation is within convenient walking distance of the meeting venue, but the planning committee may also provide a shuttle service.

The program committee is fine-tuning the program to provide an exciting cross-section of studies from around the world. Dr. Ian Stirling and Dr. Steve Herrero, two of Canada's most prominent long-time bear researchers, will speak in the Tuesday evening public session.

A Silent Auction is planned as a fund-raiser to support students attending the conference. Please donate suitable items for the Auction. See the email blast for further details. Contact person is Diana Doan-Crider at (diana.crider@gmail.com).

A new opportunity for students at IBA 2011 will be our Reprint Exchange Table. IBA members can drop off extra copies of their reprints, and students will be free to take copies for their personal collections. Look for the Reprint Exchange Table near the Registration Desk. Don't forget to bring those reprints!

Register for the conference and make your hotel reservations as soon as you can. This will help the planning committee with final preparations for the conference by giving us a good idea of the number of people who will attend the conference in July.

Questions about the conference? Contact the planning committee at iba2011@wildliferesearch.ca or Martyn Obbard at martyn.obbard@ontario.ca 🐻

Workshop on Captive Bears at IBA 2011

Agnieszka Sergiel
Email: a.sergiel@biol.uni.wroc.pl

Jordan Schaul
Email: jordan@alaskawildlife.org

The Large Bear Enclosure (LBE) Working Group evolved out of discussion concerning an emerging trend among the designers and managers of bear sanctuaries in Eurasia to build expansive exhibits for rescued bears. These large, enclosed, semi-natural facilities may be adapted for other populations of captive bears. In an effort to strengthen communication among large bear enclosure managers, we endeavour to develop a consortium of institutions that house bears in 'habitats' that fit the criteria of large bear enclosures (to be discussed) and other interested parties. The workshop will entertain discussion of the requirements for building LBE's and the challenges facing LBE managers from both within the zoo community and among rescue and rehab staffers.

The last captive workshop on IBA in Tbilisi concluded with discussion conceptualizing a proposed network for an information exchange among captive bear managers. This included suggestions for updating a directory of sanctuaries, relevant

websites, addressing other relevant NGO initiatives, and providing contact details for all involved parties. This was the first step towards creating a cooperative network of captive bear experts. With the forthcoming workshop we hope to expand upon these ideas and recruit managers who were unable to attend the previous IBA meeting. If you would like to present at this workshop, please contact Agnieszka Sergiel (a.sergiel@biol.uni.wroc.pl) or Jordan Schaul (jordan@alaskawildlife.org). 🐻



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IBA Publications Order Form

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IBA Member Application, page 2

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

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

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

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

Check here to include your name in the IBA membership directory

Thank you for completing the survey. Please mail or fax both sides of this form to address on previous page.

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

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

IBA Mission Statement

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

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

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

Deadline for the August 2011 issue is 5 July 2011

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