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

IBA Mission Statement

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

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

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

Deadline for the November 2008 issue is October 5, 2008

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



International Bear News

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

August 2008 Vol. 17 no. 3



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Female black bear in Chihuahua, México.

Read about research projects being conducted in México,
starting on page 22.

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

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Cover photo courtesy of Protección de la Fauna Mexicana, A.C. (PROFAUNA)

International Bear News, ISSN #1064-1564, quarterly newsletter of the International Association for Bear Research and Management (IBA)
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Editorial Policy

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

Deadline for the November 2008 issue is October 5, 2008

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

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

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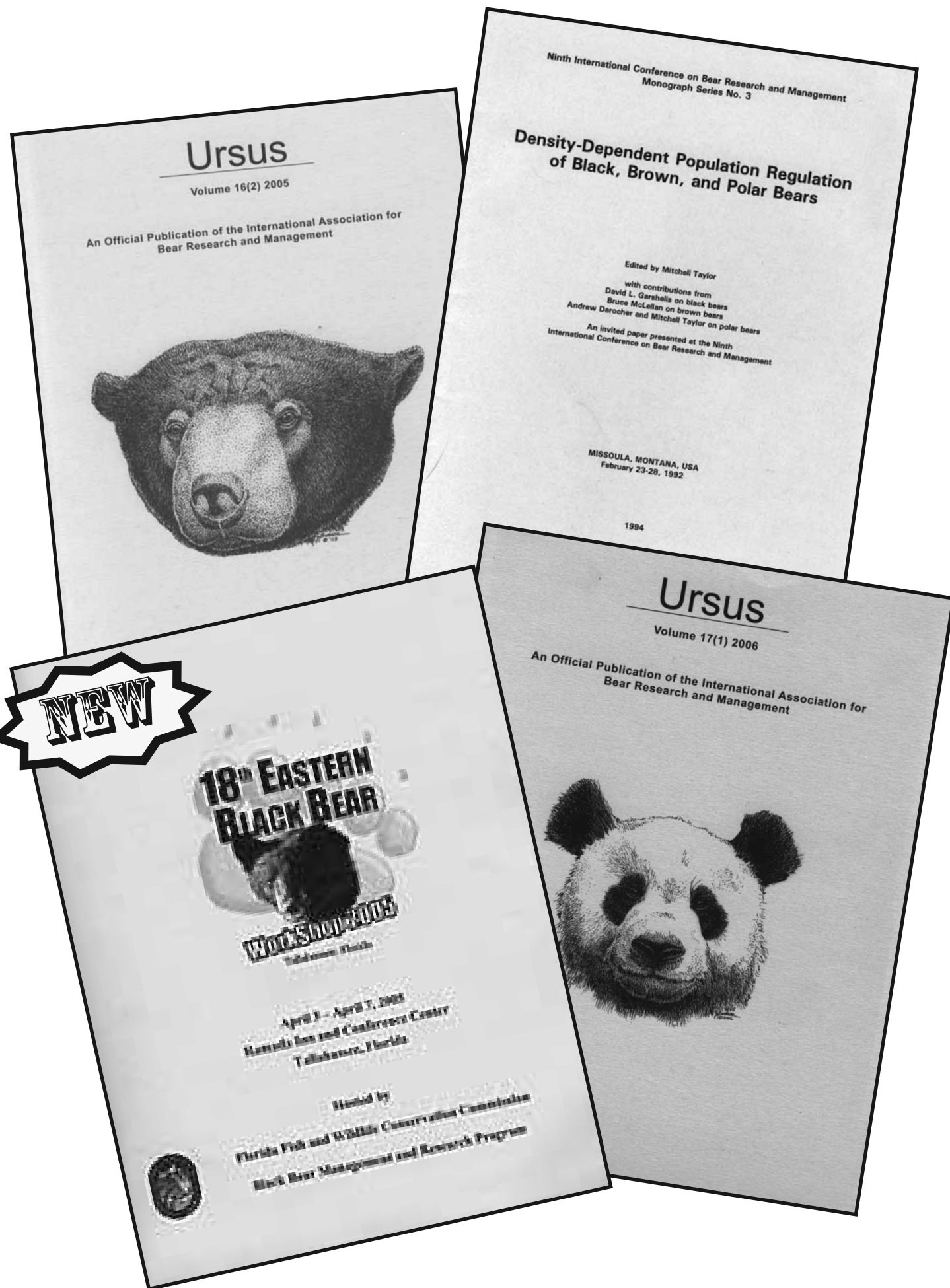
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From the President

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I'm always amazed at the variety of topics of the articles published in this newsletter and the unusual circumstances that draw attention to bears. Diana Doan-Crider's story of numerous black bears showing up in the city of Monterrey, Mexico, provides a good example. What I find most rewarding in that story is the timeliness of the IBA conference we held there in 2007. We have always considered the potential for the conference to make a local or regional impact in choosing conference venues, and it certainly did in Monterrey. We hope the same is true for our 2009 conference in Georgia, where a dedicated group of scientists is working on the conservation of brown bears and other predators.

Online Donations and Bear Conservation Fund

Humans have an almost universal interest in bears, which is why IBA's mission has broad appeal worldwide. Our organization is unique in that we promote science-based management and conservation. Being advocates for science, however, may not be quite as universally appealing to a broad public, but I'm convinced that scientific investigations are absolutely crucial to help secure the future of many bear populations. The scientific quality of work performed by IBA members is simply outstanding. IBA is working closely with members of the Bear Specialist Group (BSG) to better publicize our activities and contributions to bear conservation for a broader audience. We recently took a very important step toward

this goal by creating a donations page on our website. By incorporating this capacity into the website, we hope that we can appeal to a much larger group of people and make it easier for people around the world to donate funds in support of bear conservation. Please check out the donations page (and consider making a donation!).

All online donations are directed into the Bear Conservation Fund. IBA and the BSG are working together to solicit donations through the website, but much work still needs to be done to better profile ourselves among potential donors. While discussing how we raise our profile, several issues came up regarding the fact that BSG Expert Team members often are in an ideal position to raise interest for bear conservation or to provide critical scientific input on decisions that directly or indirectly affect bears in a particular area, region, or country. However, the BSG historically has had no specific budget to support such activities. Therefore, Council passed a motion to support a moderate operating budget for the BSG. In the past, 5% of the annual Bear Conservation Fund was allocated for Publications Outreach. The budgets for our publications are in good shape, so we decided to allocate 5% of unrestricted donations to the BSG operating fund instead. To jump start this program right away, we provided US\$1,000 as seed money. This is a good example of the combined forces of IBA and the BSG making a difference for bears on the ground.

Elections

In a few months, we will have elections for the Vice-President (Eurasia) position and two council positions. I thank the Nominations Committee (Jon Swenson [chair], Matt Durnin, Lydia Kolter, and Koji Yamazaki), who worked diligently to find candidates for these positions. The following members were nominated and have agreed to serve, if elected, for the open positions:

Vice-President Eurasia
 Piero Genovesi

Council Member

Mei-hsiu Hwang (Taiwan)
 Ali Nawaz (Pakistan)
 Brian Scheick (USA)
 Mark Haroldson (USA)
 John Paczkowski (Canada/Russia)
 Andreas Zedrosser (Austria/Norway)
 Alexandros Karamanlidis (Greece)

I'm excited to see these excellent candidates from so many different regions of the world. Additional nominations can be made by individual IBA members up to 1 September 2008. IBA members will receive a ballot by post or email in early September. Your vote will be due by 4 November 2008. Besides the vote for the three positions, we will also ask for your vote to approve the interim bylaws that the Council voted on in preparation for IBA becoming incorporated. As I indicated in my last column, being incorporated is an important step for our organization in response to rapidly changing requirements for non-profit organizations in the U.S.A. The ballot will include a copy of the proposed bylaw amendments with deletions and additions. Rather than printing them here, you can view the amendments on our website (<http://www.bearbiology.com/iba/about0/by-laws-organizational-structure.html>). Alternative viewpoints of members can be submitted to our Secretary. Your votes for the council positions and the bylaw changes are very important, so please take the time to fill out and return your ballot.

Diversifying our Membership

In this newsletter, you will see a report from Djuro Huber regarding the Membership Committee, which has come up with a list of possible reasons why our membership in South America and Asia is relatively low. With the help of this committee and your input, I hope we can turn this around. As is suggested in the article, a long-term strategy is to assist with

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building 'human capacity' in those countries and regions where bear conservation issues are most pressing. Clearly, involving students in IBA is a key factor, and I was delighted to see a new initiative by IBA's student co-ordinator (see Brian Scheick's report) to provide a mechanism for students

to set up internships with professionals in our field. I challenge all IBA members who are in a position to do so to provide internships or other professional learning opportunities within their research or management programs for students and scholars from these areas.

Second Andean Bear Symposium

IBA is proud to support the Second International Symposium on the Andean Bear, which will be held in Lima, Peru, from 10 to 12 November, 2008. I have long been impressed

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For more information, contact Karen Noyce at karen_noyce@bearbiology.com
 Photo courtesy of Jenny E. Ross ©

IBA Publications Order Form

Ursus Journal & IBA Conference Proceedings*	Cost*	Quantity	Total
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5th 1983 Wisconsin 1980	\$30.00		
6th 1986 Arizona 1983	\$30.00		
7th 1987 Virginia/Yugoslavia 1986	\$35.00		
8th 1990 British Columbia 1989	\$40.00		
9th (1) 1994 Montana 1992	\$45.00		
9th (2) 1997 France 1992	\$25.00		
10th 1998 Ursus-Alaska/Sweden 1995	\$40.00		
11th 1999 Ursus 11	\$45.00		
12th 2001 Ursus 12	\$45.00		
13th 2002 Ursus 13	\$45.00		
14th 2003 Ursus 14 Volumes 1 & 2	\$45.00		
15th 2004 Ursus 15 Volumes 1 & 2	\$45.00		
16th 2005 Ursus 16	\$45.00		
17th 2006 Ursus 17 inc. Std. Membership	\$45.00		
*40% discount for 3 or more volumes, except Ursus 13, 14, 15, 16, & 17			Less 40% discount (-\$)
Eastern Black Bear Workshop Proceedings, USA			
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13th 1996 Vermont 1996	\$15.00		
14th 1997 Mississippi 1997	\$15.00		
15th 2002 Massachusetts 1999	\$15.00		
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Monographs of the IBA			
<i>A Proposed Delineation of Critical Grizzly Bear Habitat in the Yellowstone Region</i>			
by F. Craighead (#1, 1977)	\$10.00		
<i>The Status and Conservation of the Bears of the World</i>			
by C. Servheen (#2, 1989)	\$10.00		
<i>Density-Dependent Population Regulation of Black, Brown and Polar Bears</i>			
edited by M. Taylor (#3, 1994)	\$10.00		
<i>Population Viability for Grizzly Bears: A Critical Review</i>			
by M. Boyce, B. Blanchard, R. Knight, C. Servheen (#4, 2001)	\$10.00		

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Form also available at www.bearbiology.com.

IBA Member Application, page 2

Please Complete Information on Both Sides of this Form!

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

1. Expertise 2. Advise/Assist IBA

1. Expertise 2. Advise/Assist IBA

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

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

* Indicates an IBA committee

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

Please list major field of study _____

Please list all countries in which you have worked with bears _____

Please list languages in which you are fluent _____

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

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

Check here to include your name in the IBA membership directory

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

Council News

with the enthusiasm, dedication, and effectiveness of Andean bear researchers and conservationists in South America. I strongly believe that a concerted effort to increase and synthesize our knowledge base on this species will result in tangible conservation benefits for this species. It has been very gratifying to see that the conference has received financial support from numerous conservation organizations, including many zoos. The deadline for submission of abstracts and full-length manuscripts is very soon, 15 August 2008. You will find additional information on this important symposium elsewhere in this newsletter and on our website. 🐾

From the Editor's Desk

Dear IBA members, BSG members, and others,

I want to take this opportunity to thank all of you who have contributed in the past and continue to contribute to the *International Bear News*. It is your continued support and interest in sharing information about your work that make the *IBN* one of the most interesting and top professional newsletters in the business.

I also want to take this opportunity to give a special thanks to our all *volunteer* editorial staff, Janissa Balcomb, Tanya Rosen, Jim Tomlin, and Jordan Schaul. Without their tireless efforts, this newsletter would not be possible. Please join me in thanking each of them for their very hard work in making sure our newsletter continues to be one of the best in the business!

It is with their efforts in mind that I want to remind everyone of the following important guidelines for your submissions.

Submission Deadlines

August issue: July 5th

November issue: October 5th

February issue: January 5th

May issue: April 5th

In the past, I have been lenient on these deadlines, but unfortunately there are many who have taken advantage of this, and I will no longer be accepting late submissions. In fact, I'm guilty of missing *IBN* deadlines myself and promise to hold myself to a higher standard as well! We are all busy with work, research, field work and life, which sometimes make it difficult to meet a deadline. However, with a little bit of planning, I do believe it should be possible to get submissions to the *IBN* by these deadlines.

Content and Length

We welcome articles about biology, conservation, and management of the world's eight bear species. This includes, but is not necessarily limited to, news pertaining to legislation, research updates, human-bear interactions, traditional Asian medicine/bear parts trade issues, and socio-economic-political issues related to bears.

I encourage articles of 750 words in length but will accept up to 1500 words. Articles longer than 1500 words will not be accepted.

The *IBN* is **not** a place to publish technical research papers, and we will not accept such submissions. Technical research papers should be submitted to IBA's peer-reviewed journal, *Ursus*. Please go to www.ursusjournal.com for information on submissions to *Ursus*.

Graphics

Caption

Do not place captions or titles within your graphics. Send captions and titles in a separate text document.

Color

We convert all graphics to grayscale. If you would like to do this beforehand, that would be fine, but it isn't necessary.

Because we print in grayscale, be sure that your maps, graphs, and

charts do not use color to differentiate elements. Use black, white, different values of gray, and/or patterns instead.

Photos, illustrations, and maps

Please send each photo, illustration, or map in a separate graphics file. We can work with almost any graphics format, but .jpg and .gif are preferred. Do **not** send your graphics embedded or placed within text files.

For photos accompanying an article, we prefer 150-200 dpi (dots/pixels per inch). Higher resolutions make the files too large to work with efficiently and don't improve the printed quality. Files of approximately 150-800 KB are of sufficient quality and are easiest to work with, so try to keep your graphic files under 1MB each.

If you have an exceptionally good photo that you think might make a nice cover shot, send a second copy of it at a higher resolution of 200-300 dpi and dimensions of 1000-1800 pixels per side, but try to keep the file size under 2MB, if possible.

Graphs and charts

For graphs and charts, send both the graphics file *and* the original spreadsheet file and the original graph was created (i.e. .xls, .qpw, .wk*).

Tables

Tables in text format are acceptable, but we prefer that you use a spreadsheet format instead. That is easier for us to edit and place in the layout.

Do not convert tables to a graphics format. Converting to a graphic reduces the print quality of the text and limits our ability to fit the table into the layout.

Again, **Thank You** to all who have, or will, contribute to the *IBN*. Your contributions are what make this newsletter, and we truly appreciate your efforts.

Cheers,
Matthew Durnin
Managing Editor 🐾



Berries, Nuts n' Grubs

Food for Thoughts About Bears

A Quarterly Column by Diana Doan-Crider

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Welcome to Berries, Nuts n' Grubs!

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

The Real Stink on Bear Bait

Attracting bears into your traps can be trickier than you think, and for those of us who spend a lot of time trying to catch the sneaky beasts, it can become an obsession. I've heard recipes ranging from banana flavored taffy, rotten fish, fresh beef, pig guts, to donuts and baked goods. Eric Hellgren and Mike Vaughan tell me about using donuts and other tasty baked treats in the Eastern U.S. In some areas, however, you'd probably want to be careful with potential food-conditioning. Truthfully, though, I think we know (but rarely admit) that we all enjoy an occasional dip out of the bait bin, and baked goods beat rotten fish any day. On one study, I was instructed to use frozen carp doused

with steak marinade. That quickly became beyond tolerable in the summer heat, and not even the bears ventured near that ghastly concoction. Bleah. When I was trapping bears on cattle ranches in Mexico, we initially used refried pork lard, which worked great because we burnt the lard at the site to create a lure, and then placed a blob of the congealed stuff in the back of the trap. It also smelled like bacon, so I was an olfactory dream-come-true when I returned to my husband at the end of the day. However, over time we realized that using pork, which is a nice sweet meat, was probably not a good idea since we were, after all, trying to keep bears away from cattle, pigs, and the lot. I then hired the rancher's grandson to shoot cottontails and jackrabbits (I paid 5 pesos for the rabbits and 10 pesos for the hares). We stuck the furry little balls in buckets, let them ferment in the sun for about a few weeks, and voila, instant bear pudding. The bait worked great, and we felt it was a decent compromise. Chris Servheen's favorite bear bait is rotten road kill, which is great if you have access to highways and cooperative highway patrolmen. Road kill is an excellent choice, but Mike Proctor cautions that road kill that is too maggoty or smells like ammonia might be past its prime (*ya think?*). Mike also sent me a recipe that sounds pretty fancy, which he uses for his DNA lures. If I'm not mistaken, this is the recipe used for the Northern Divide Grizzly Bear Project. The ingredients include 3-month-old cow's blood and rotted fish, mixed in a 75:25 or 50:50 ratio. You can even store this stew for over a year if you

can prevent it from turning into ammonia. Mike uses 2-4 liters for each site – packing this stuff around in a backpack must be like transporting nitroglycerin – walk lightly! For live trapping, he recommends using road kill marinated with the lure. You can splash the lure around the site and use it along a trail set to attract the bear into the bait. Bruce McLellan spices up the same formula with a pinch of moose meat – you'd have a hard time keeping me out of *that* bait bucket. Karen Noyce and the Minnesota crew use American bacon (not Canadian – *no offense*), but are adding ground up beaver to this year's menu. Gee whiz – these guys need their own cooking show!

Plant a Scat Garden

One day as I drove into the Escondida Ranch in northern Coahuila, I found Chabela Spence, ranch owner and naturalist, working in her newly planted garden. I asked her what she was growing, and she informed me that she had just planted about 50 bear scats. Her theory was that she thought that bears played an important role in brush encroachment, according to her 50 plus years of experience in watching bears on her ranch. She planned on watering the garden to see what came up. I know that Barry Gilbert and team have done some interesting work on seed dispersal as well. It seems like scat gardening could lend itself to a great school project where kids could learn about seeds and bears (and germs!). Actually, it sounds like a great (and cheap) graduate project where students could learn about seed

IBA Membership Application

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Address _____
City _____ State/Province _____
ZIP+4 or Postal Code _____ Country _____
Telephone _____ Fax _____



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MEMBERSHIP
 Standard Membership US\$50.00/year, US\$45.00/year for three or more years. # Years _____ US\$ _____
Includes *International Bear News & Ursus*.
 Please donate my copy of *Ursus* to a library or deserving recipient.
 Institutional Membership US\$100.00/year, US\$250.00/three years. # Years _____ US\$ _____
 For those who cannot afford a Standard Membership, US\$25.00/year. # Years _____ US\$ _____
Includes *International Bear News*. If needed, a free copy of *Ursus* may be requested.
 Please send *Ursus*. I have no access to it, need it & cannot afford Standard Membership. US\$ _____
 Donation (if possible!) included to help defray costs of sending *Ursus*.

GIFTS & CONTRIBUTIONS
 Gift Standard Membership US\$50/year, US\$45/year for three or more years. # Years _____ US\$ _____
Includes *International Bear News & Ursus*.
 Gift Institutional Membership US\$100/year or US\$250/three years. # Years _____ US\$ _____
 Gift Low-cost Membership US\$25/year. Includes *International Bear News*, not *Ursus*. # Years _____ US\$ _____
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Check or Money Order in US\$ payable to IBA MasterCard VISA

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(government cards include customer #) _____
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SEND TO: Terry White
USGS-SAFL, University of Tennessee
274 Ellington Hall, Knoxville TN 37996, USA
Fax: +1 865-974-3555 or Email: tdwhite@utk.edu

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19th International Conference on Bear Research and Management

Fall 2009
Tbilisi, Georgia (Eastern Europe)

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Georgia is a Eurasian country, located in the South Caucasus, at the juncture of Eastern Europe and Western Asia. Georgia borders four countries: Turkey to the southwest, Russia to the north, Armenia to the south, and Azerbaijan to the east. In addition, there is a western coastline on the Black Sea. Georgia's population is over 4.3 million, nearly 84% of which is ethnic Georgians. It is predominantly a Christian country, and approximately 90% of the population identify themselves as followers of the Georgian Christian Orthodox Church.

Georgia's natural environment is one of the most unique and varied in the world. Remarkable for its landscape diversity, from mountains to desert, from snow to palm trees, Georgia ranks among the world's "must see" countries. Within 67,000 square kilometers (about the size of Ireland) you can find 5000-meter peaks (approx. 16,400 ft.); glaciers, alpine meadows, sub-tropical coastline, desert, semi-desert, fertile alluvial valleys, wetlands, and of course huge swathes of virgin forest. Indeed, nearly 40% of Georgia is still forest, a large proportion of which is still "virgin". Due to its large areas of uninhabited forest, low levels

of tourism and remote high alpine zones, Georgia has preserved more species of animals than any country in Europe. This includes a number of endemic species - of which perhaps the most notable is the Caucasian tur, a relative to the European Ibex that comes in two versions, eastern and western. The western *Capra caucasica* is unique for its splendid laterally curved horns. Besides this, Georgia has many animals now long departed from Western Europe. Apart from the brown bear, Georgia has populations of lynx, wild boar, bezoar goats, chamois, red deer, Caucasian wolves, striped hyena, jackal, wild cat, a number of endemic butterflies, lizards, snakes and tortoises. Recently, the critically endangered Caucasian leopard has been caught on NACRES' remote cameras in the Vashlovani National Park - although it has yet to be seen by naked eye.

Tbilisi, the capital of Georgia (population 1.2 million), is a picturesque city, not simply a hill city of winding cobblestone streets, but a city of the mountains. Nestled in a river valley where the Northern and South Caucasus mountain ranges almost meet, it has spectacular views from innumerable locations, and, after a short drive from downtown, you are high in the alpine meadows. Over the centuries, Tbilisi has become synonymous with gracious living and warm welcomes. "Tbili" actually means "warm," and although it refers to the water in the natural sulphur baths in one of the districts of the city, it could speak for the people as a whole. In addition, it is a very safe place to visit.

Tbilisi International Airport has many direct flights from major cities of Europe (Istanbul, Paris, London, Vienna, Frankfurt, Munich, Amsterdam, Moscow, etc). A passport valid for at least six months is required for visitors of all nationalities. However, there is no visa requirement for citizens of European Union countries, USA, Canada, Israel, Japan. Former USSR nationals (except for Russia and Turkmenistan) do not require a visa.

Field trips will include the Algeti and/or Borjomi National Parks (bear sites), historical cultural tours, city tours in the old historic capital (Mtskheta), famous wine cellars in the Region (eastern Georgia), and the Kazbegi region in the Great Caucasus Mountains.

Due to increasing human-wildlife conflicts (and especially that of human-bear) and heavy poaching, the government has started to pay particular attention to bear research and management. While the government has developed a bear conservation strategy, the document is still far from being fully enforced. Captive bears still remain a serious problem in the country. Every spring, poachers bring small bear cubs to the big cities and roadside snack bars in Georgia. Often, bears are imprisoned at gas stations or restaurants as a form of amusement to attract paying customers. Sometimes, street photographers drag bear cubs along with them and offer the customers their very own chance to be photographed with one of these wild animals. Many countries in the Caucasus region have similar problems. Therefore, this conference will give attention to the issues raised above. Given that Georgia is also at a crossroad between the West and the East, the conference will try to bring more scientists and conservationists from previously underrepresented countries (e.g. Russia, Armenia, Azerbaijan, other former USSR countries, etc) to meet their counterparts from the West to share their experiences, discuss and also plan future potential cooperation in fields of bear research and management.

One of the leading universities in Tbilisi, Chavchavadze State University, is supporting the conference, and student participation is expected to be high.

More detailed information on Georgia, Tbilisi, and our meeting can be found at the conference website: www.nacres.org/bearconference. The call for papers, travel grants, etc. will be posted on the conference website as of the end of July. 🐻

Membership Committee: how to increase membership worldwide

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During the last decade, much has been achieved in making the International Association for Bear Research and Management (IBA) truly international. We have had eight conferences since 1998, and five of those were held outside the USA and Canada in Romania (1999), Norway (2002), Italy (2005), Japan (2006), and Mexico (2007). Five of the current IBA Council members reside outside North America, the Eurasian news section in the *IBN* covers more pages than the news from both Americas, and the number of papers in *Ursus* on bears other than American black bears and brown bears is increasing. The Bear Specialist Group is functional on a global level and works closely with the IBA.

However, one field is unsatisfactory – membership outside North America (Table 1). Although Europe is represented fairly well, South American and especially Asian representation is quite poor. Yet, Asia has six bear species of which many populations are in decline.

After the conference in Mexico last November, the Membership Committee was established with the aim of looking for input on strategies to increase IBA membership outside North America. The next step is to develop a specific plan with action items.

The Membership Committee consists of the following people:

dispersal, scarification, and the influence of bears and vegetation patterns across the landscape. *Hmm ... I smell a proposal...*

Study an Acorn, Learn About a Bear

After years of trapping and radio-collaring bears in northern Mexico, classifying habitat types, documenting movements, and trying to publish something relevant, I was beginning to think I was nuts. Worse, trying to count bears and estimate their densities in a desert environment where rainfall is highly variable (along with food production), was like trying to herd butterflies. In northern Mexico, we experience severe drought about every 5-7 years or so and also short-term droughts within years. This, obviously, causes a lot of variation in both bear populations and food production. Acorns are one of the key components to bear diets in Mexico, and oak trees can be somewhat fickle about when they produce acorns. Some produce every other year, and are dependent on the timing of rainfall (such as in the late winter and early spring). We have observed that when oaks are not producing acorns when bears need them in the fall, then the bears tend to go in search of a place where they *can* find food – as far as other entire mountain ranges. As a result, bears use habitats very differently as rainfall patterns and food production shift. Ergo, just because I have oak trees doesn't mean I'll have acorns, or just because I have acorns one year doesn't mean I'll have them the next. Many habitat suitability models either disregard food production altogether or only assess production for a short time period. Recently, however, I read a great paper written by Davis, et al. (*Ursus* 17(1):41-51), where they assessed variables that would explain *why* bears selected particular sites within their home ranges. Guess what? The best model was associated with berry phenology. In visiting with Dave Garshelis about



See you next time!

Send me something to chew on!



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The problem is obvious, and the email exchange between committee members attempted to address the reasons for this situation and to list possible solutions. The following is a compilation of what we accomplished so far.

On why we have so few Asian and South American members, potential reasons include financial, language, motivation/cultural, lack of expertise,

and poor information. Here I try to discuss each one, both as a problem and including the potential solutions.

Finances. Obtaining funds for membership dues is certainly a problem in countries where the flow of money occurs on a very different scale. We do have means to address that. First, all BSG Expert Team members are already voting IBA members regardless of whether they are paying dues or not. A number of complimentary memberships have been donated. To further promote participation, Matt Durnin suggested matching memberships. For every member that an IBA member sponsors (e.g., five-year minimum), the IBA would sponsor one as well.

Language. I personally see this problem as being more difficult to solve than the financial one. From the establishment of the IBA, members from the USA and Canada were at an advantage, as they live in the only English-speaking countries with bears. One way to address this is to allow the use of some other languages (i.e., on the IBA website) and to help with education on bears and the English language at the same time. I will elaborate on this a bit more in the "Lack of expertise" section. In any case, English is to remain the official IBA language.

Motivation/cultural. There is a vast difference in the way people may value the IBA membership. I know some friends who printed their IBA/BSG membership on their business cards. For some reason, others may feel less compelled to become members. Maybe it is simply a cultural phenomenon, and maybe being a paying member of an organization does not come naturally to some. Certainly we need to develop some kind of bond among all our members. Just having one's name on the membership list is not enough.

Lack of expertise. Many countries or regions simply have no people working on bears. The big steps were achieved by several highly active IBA experts who are promoting and running projects in Asia and South America. IBA research grants allocated to those continents on a priority basis also help. Those are the ways to go ahead and expand.

An even more active approach to give attention to capacity building for students was proposed by Diana Doan-Crider. We need to target students in selected countries to "bring them under our wings" and train them so they can return to their home countries with a new set of skills. Some of the IBA professionals are doing a great job with students in countries like China, Taiwan, etc., and we now see the results with these people continuing their work.

Brian Scheick proposed a similar approach:

1. collect contact information for young biologists that speak some English,
2. develop a relationship with the IBA,
3. invite young biologists that speak English to the Truman student discussion to assist with networking,
4. select biologists and students that are working on bears and help them attend conferences (e.g., the upcoming conference in Georgia), and
5. on a longer term basis (a) create a knowledge base in selected countries by mentoring and assisting students in finding bear projects

Table 1. IBA membership, by continent¹

Continent	Number of Members ²
North America (USA & Canada)	359
South & Latin America	14 (5)
Europe	120 (93)
Asia / Asia excluding Japan	80 (42) / 59 (22)
Australia	2
Africa	1
Total	576

¹ The numbers given do not take into account the fact that some people are not from the area where they do their bear work.

² Total number of members (In parentheses is the number excluding complimentary memberships, mostly BSG members.)

David is survived by his wife, Diane, two children, Erin and Clifton, parents Robert B. and Carol Maehr, two brothers, Robert Brandt and Ted H. Maehr, and one sister, Jennifer C. Maehr.

As per the family's request, in lieu of flowers, donations may be made to

the Dave Maehr Memorial Fund. The donations will be used to continue supporting the work in wildlife conservation and management to which Dave dedicated his professional life.

Checks can be made out to the University of Kentucky, and sent to:

Dave Maehr Memorial Fund
University of Kentucky Office for Advancement
College of Agriculture
E. S. Good Barn
1451 University Drive
Lexington KY 40546-0097. USA 🐾

20th Eastern Black Bear Workshop April 26-29, 2009 Ruttgers Sugar Lake Lodge, Grand Rapids, Minnesota

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The 20th Eastern Black Bear Workshop (EBBW) will be held April 2009 in north-central Minnesota, jointly hosted by the Minnesota Department of Natural Resources, the Wisconsin Department of Natural Resources, and the Manitoba Ministry of Natural Resources. The workshop will take place near the Chippewa National Forest, in Itasca County, home to 1000 of Minnesota's famous 10,000 lakes.

The 20th EBBW will be designed primarily for biologists involved in bear population dynamics, population management and monitoring. The workshop will include an ice-breaker the evening of April 26, followed by two days of working sessions. Ses-

sions one day will focus on the use of population reconstruction techniques in bear management. The other day we will use GIS to explore geographic trends in black bear demographic parameters across eastern North America. Participants will be asked to provide relevant data from their region for use in workshop sessions. Post-workshop field trips begin Saturday, April 29. Registration and program details will be forthcoming soon at www.bearbiology.com.

Registration: TBA
Room rate: US\$72 per room for single or double occupancy
Nearest Airport: Duluth (85 miles) or Hibbing, MN (40 miles) for connecting flights through Minneapolis and Detroit. Possible shuttle service available. 🐾

10th Western Black Bear Workshop

Carl Lackey, Wildlife Biologist
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Minden Nevada USA
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www.ndow.org

The 10th Western Black Bear Workshop is being hosted by the Nevada Department of Wildlife and will take place May 18-21 of 2009 in Reno, Nevada at the beautiful Peppermill Hotel & Resort.

It is the intent of the 10th WBBW committee to create an atmosphere

that encourages communication among managers and researchers, and leaves attendees with an enhanced knowledge of black and brown bear issues facing Western North America. An agenda will be developed later in 2008 but we intend to have morning sessions on various topics, including new management techniques, human dimensions and population ecology in an oral presentation type format followed by facilitated workshops in the afternoon. There will be a poster session one evening.

To keep things on the lighter side we plan to host a barbecue dinner on the shores of gorgeous Lake Tahoe one evening and we would like to have an informal photo contest during the workshop (details to follow).

There are numerous excursions available in the Reno-Tahoe area for those that wish to partake, including fishing, boating, hiking and sightseeing and it is recommended that you plan an extra day or two to fully enjoy all that the area has to offer.

The Peppermill Resort has agreed to a contract room rate of US\$59-69 per night plus taxes. Workshop registration fees will be determined later this year but will reflect fees at similar conferences.

Flying into Reno is very easy and fairly economical, and the airport is only about 10 minutes from the workshop location (shuttle available).

Look for further workshop details as they become available on the IBA website, www.bearbiology.com, under "Conferences". 🐾

no bear had to be killed in the Sanctuary and no person was injured by a bear. This perfect record resulted even though there is nowhere in the world where people and wild bears are as habituated to tolerate each other in close proximity as they are at McNeil. During his tenure as Sanctuary Manager, Larry taught tens of thousands of visitors the truth about bears and through the movies made at McNeil that he assisted and advised on, the professional photographers he talked to at McNeil, the hundreds of slide shows he has given, and books and articles he has written or advised, the McNeil message has reached millions. Perhaps the place where this message is best presented is in the book *River of Bears* by Tom Walker with photos (and detailed information from Larry's notes) by Larry (Voyageur Press 1993).

Larry has been a citizen scientist throughout his career. He is an insightful observer of animal (especially bear) behavior and has always taken detailed and careful notes. More, he takes the vitally important next step and has written up his data for both technical and popular outlets. In our opinion, there is no one in the world more expert at interpreting and understanding brown bear behavior than Larry and we are very grateful that UAF has recognized his ability and talent with this award.

As we write these words, we know Larry would take it amiss if we did not also acknowledge people he worked closed with over the years that also played vitally important roles in the success of McNeil. This list must start with Jim Faro who was instrumental in convincing the Alaska legislature to create the Sanctuary and who hired Larry and supervised his first years at the Sanctuary. Faro was followed by equally important collaborators and excellent supervisors Chris Smith and Dick Sellers. Derek Stonorov conducted early research on bear behavior at the Sanctuary and was a valued collaborator throughout Larry's tenure there. The State of Alaska Department of Fish and Game

has long recognized the value of the Sanctuary to Alaska and the wisdom of Larry's, and his above-mentioned colleagues', advice on how it should be managed in the face, sometimes, of stiff opposition from groups opposed to the Sanctuary. This award is a validation of Larry's and the Department's efforts to maintain an incredibly successful program. 🐾

In Memorium: David Maehr

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Dr. David S. Maehr, 52, Professor of Wildlife and Conservation Biology at the University of Kentucky, Department of Forestry, died tragically in a single-engine plane accident in Lake Placid, Florida, on Friday, 20 June while monitoring radio-collared black bears in the area. The research was part of a multi-year project that focused on black bear ecology and conservation in Highlands County, Florida.

A gifted naturalist, David's numerous contributions to the wildlife profession and conservation community have been widely recognized at the international, national, and local levels. He earned 3 degrees in wildlife studies including a B.S. from The Ohio State University (1977), and both his M.S. (1980) and Ph.D. (1996) from the University of Florida. From 1980-1985, he worked as a biological scientist for the Florida Game and Fresh Water Fish Commission where he conducted statewide research on black bear, river otter, and bobcat. From 1985-1994 he directed pioneering field studies on the endangered Florida panther and other large mammals for the same

wildlife agency, then worked briefly as a consultant in Naples, Florida. David began his tenure at UK in 1997 where his research focused on biodiversity and conservation-related issues, particularly large mammal ecology and conservation projects that included Kentucky elk restoration and the black bear in southeastern Kentucky, Florida, and Mexico. During his far-ranging travels within the U.S. and abroad, David influenced many young scientists and colleagues through his tireless dedication and commitment to wildlife conservation.

While at UK, David mentored dozens of interns, undergraduates, and graduate students, taught hundreds of students, served on numerous committees. David prolifically authored over 100 scientific articles on a wide-range of wildlife subjects and conservation topics. A certified wildlife biologist for 25 years, his devotion and service to the wildlife and conservation profession was also reflected in having peer-reviewed hundreds of books and journal articles, and involvement on numerous panels and discussion groups ranging from species recovery to certification of his fellow professionals. David was an award-winning author of three books, including *Florida's Birds*, *The Florida Panther: Life and Death of a Vanishing Carnivore*, and *Large Mammal Restoration: Ecological and Sociological Challenges in the 21st Century*. David was also a talented artist whose illustrations and drawings have appeared in over a dozen books and articles. He was the resident artist at the Cincinnati Zoo from 1974-77. He recently received the distinguished honor of being named a Research Associate at Archbold Research Station in Venus, Florida.

Always generous and giving of his time, energy, and devotion, David's professional legacy will live on through the over two dozen graduate students he mentored at UK, most of whom are now successfully employed throughout the country. He will be greatly missed.

and graduate work abroad, perhaps through the experience and exchange program, and (b) assist with non-IBA funded studies in those areas.

Poor information. Even in countries where the English language is widely understood and internet access is fully available, it is not easy to promote an organization like the IBA. Our main tools are our publications and conferences. Publications are read by those with access and those who understand them. At conferences, we do get a number of people from the greater region where the conference is held. The organizers of all conferences in the last 10 years are to be applauded for introducing so many

new people to the IBA. The problem is that most of those newcomers did not become active members of the IBA.

In my eyes, addressing that should be our first priority. In view of the 2009 conference in Georgia, we should develop an effective strategy, not only to bring new people there, but also to find a way to engage them.

Petra Kaczensky proposed active public relations work, like lectures at universities or research organizations, in non-North American countries. For this, we could design a promotional PowerPoint presentation summarizing IBA activities and achievements, and the advantages of membership, which

could be made available on the IBA website.

Finally, several countries were mentioned that have many bears but few IBA members (i.e., Russia and China). It will be important to establish better connectivity with the IBA in these countries. Of course, good reference contacts are needed in each country with bears – and we are still missing many, even in Europe.

This article is meant to encourage all IBA members to help, either through direct contacts in the target areas or by suggesting additional ideas to our committee. This is a high priority for IBA, so please share your thoughts! 🐾

Bear Specialist Group

Sir Peter Scott Fund Supports Mitigation of Bear Problems in Tibet

Dave Garshelis &
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Sir Peter Scott, only child of legendary Antarctic explorer Robert Scott, was a world-renowned ornithologist, conservationist, painter, and athlete. He was the founder of World Wide Fund for Nature (WWF), and designed its panda logo. He also worked for the IUCN, was the originator of the Red Data Book (now Red List of Threatened Species), and helped to establish the Species Survival Commission (to which all Specialist Groups now belong). In 1990, a fund was established in his name, backed by the Sultan of Oman, to produce Conservation Action Plans. That fund was eventually depleted.

Through recent fundraising, the Sir Peter Scott Fund was reinstated to help support projects carried out by IUCN Specialist Groups. The ultimate aim is to be able to provide US\$1 million per year in support of conservation work by Specialist Groups. The fund is still well short of that goal, but presently provides several grants of approximately US\$15,000 per year for projects identified as high conservation priorities of Specialist Groups.

Last year, the BSG nominated a project submitted by Dawa Tsering of the WWF China program and member of the South Asian Brown Bear Expert Team. The project was titled *Protecting the Threatened Tibetan Brown Bear Through the Reduction of Human-Bear Conflict in the Chang Tang Region of the Tibet Autonomous Region, People's Republic of China*. Although the Sir Peter Scott Fund is highly competitive, the project was viewed very favorably, and we were pleased to learn that it was funded. A particularly noteworthy component of the project is its close working relationship with local people to find

acceptable and practical solutions to a growing problem with bears.

The following report provides some background and a general course of direction for the project that has recently gotten underway. 🐾

Human-Brown Bear Conflict Reduction in the Chang Tang Region of Tibet

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Threats to Tibetan Brown Bears

The Tibetan brown bear (*Ursus arctos pruinosus*), or *Dremong* in Tibetan, is the largest predator on the Tibetan Plateau. These bears weigh

© WWF China-Lhasa Field Office



Tibetan brown bear (*Ursus arctos pruinosus*)

— a widespread program across the Tibetan Plateau to poison the bear's primary food source, the black-lipped pika, which nomadic herders believe to be a primary competitor with their livestock for the Chang Tang's extremely limited grass resources.

Because of the extensive hunting pressure, Tibetan brown bears were, until recently, extremely wary of humans and only occasionally ventured close enough to human encampments to kill sheep or other livestock. However, with the creation of the Chang Tang National Nature Reserve in 2001, and the accompanying firearms confiscation program and ban on hunting, the threat of hunting was essentially removed. As a result, brown bears quickly learned that they now have little to fear from humans, and the rate of conflict between brown bears and humans has soared, an unexpected result of the new nature reserve's conservation policies. Now, clandestine retaliatory killing of brown bears by livestock herders protecting their homes, property, and livestock rivals commercial poaching as the largest threat to the continued existence of brown bears in Tibet.

Bear-Human Conflict Survey in the Chang Tang Area

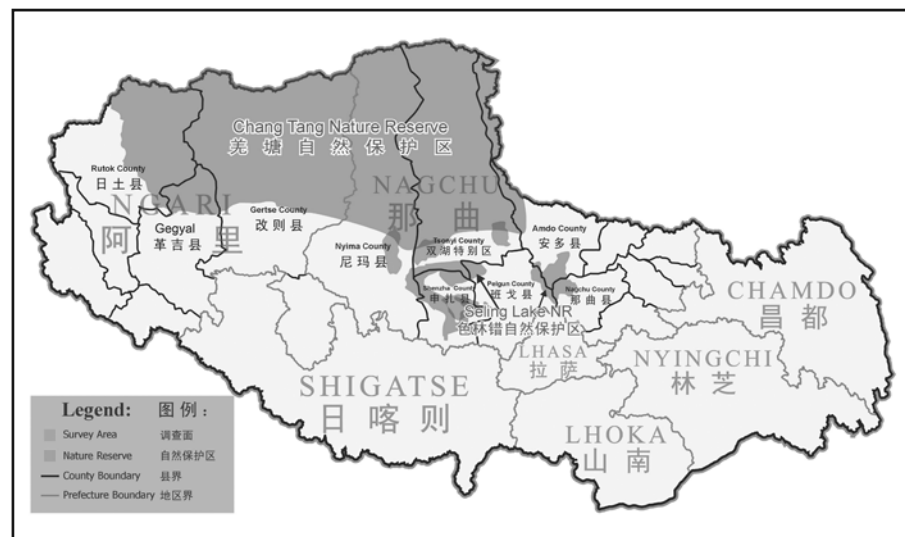
In the Spring of 2006, the WWF China-Lhasa Field Office conducted

up to 180 kg and are up to 1.8 m long, head to tail. They typically have dark-colored legs and sometimes a dark back, large circles of pale brown fur around the eyes and brown fur on the bellies and feet, and a broad white band across the chest and up around the shoulders.

The size, strength, and intelligence of Tibetan brown bears have served them well in the harsh environment of the Tibetan Plateau. Residing at elevations of 4,000–5,300 m on the desolate grasslands of northern Tibet's Chang Tang region, Tibetan brown bears have subsisted almost exclusively by hunting the ubiquitous black-lipped pika as well as feeding on fish, grasses and other vegetation. Whereas accounts of explorers from the past century indicate that Tibetan brown bears were formerly abundant on the open steppes of Tibet, over the past few decades, the population of these bears has declined drastically. Today, Tibetan brown bears are largely confined to mountainous terrain in the interior of Tibet, and may now number no more than 2,000–3,000 animals.

There are several primary reasons for the decline in range and num-

bers of these bears. From the 1960s through the 1980s, they were widely hunted by military personnel working in the Chang Tang region, both for sport and to sell gallbladders and bear paws in Tibet's market towns. During this same time period, there was an active campaign to settle the previously uninhabited Chang Tang steppe with nomadic livestock herders, who also hunted the bears, partly to protect their livestock and partly out of fear. During the 1990s, a new threat to the Tibetan brown bear arose



Map 1. Location of the Chang Tang National Nature Reserve in the Tibet Autonomous Region of China

© WWF China-Lhasa Field Office

general high-quality that *Ursus* has now achieved, and that searching *Ursus* for relevant documentation and citing *Ursus* articles when appropriate will support its continued improvement. Each time you cite a recent paper from *Ursus*, the IF increases by about 0.02 (just 10 more citations in a year would raise the IF above 1.0).

In addition to BioOne and JSTOR, we are working on revamping our website, which currently includes a downloadable database of *Ursus* back issues.

Ursus and the Impact Factor

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The impact factor represents, in essence, the average number of times a recent paper is cited in a year. If you publish your work in a journal like *Science* or *Nature*, you can expect it to be cited more than 20 times a year for several years. If you publish in *Ursus*, it is likely to be cited twice in three years. To be fair, this is not unusual for journals with such a narrow taxonomic scope, and even broader wildlife journals have IFs not much higher than *Ursus*.

Some of our contributors and readers would like *Ursus* to have a higher IF. One way to raise the IF is for contributors to publish more noteworthy (or cite-worthy) articles in *Ursus*. But authors may have good reasons for publishing elsewhere (including the tautological one that *Ursus* doesn't have a high enough IF!). However, *Ursus*' IF can also be increased just by citing it more. Our editorial board already encourages *Ursus* authors to cite articles previously published in *Ursus* whenever possible. But authors publishing elsewhere should also be mindful to cite *Ursus* articles where appropriate (among the 37 citations that yielded the current IF, 24 were from papers published in other journals).

We are not suggesting gratuitous citations, and encourage authors to always use the utmost rigor in their writing. We would, however, remind all of the

we would greatly appreciate your participation.

The project is being undertaken by Dr. Mark R. Johnson DVM of Global Wildlife Resources, Inc. and the volunteer efforts of Marci Johnson. To receive a survey, please contact Marci by email (beartrap@pherkad.com). You may also read more about the project online at <http://www.pherkad.com/beartrap.html>.

Larry Aumiller to Receive Honorary Ph.D. from UAF

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Long time IBA member, Larry Aumiller, received an honorary Ph.D. from the University of Alaska Fairbanks in May 2008. Larry is being recognized for his 35 years of service as the manager of the McNeil River State Game Sanctuary in Alaska. This well deserved award recognizes that Larry was a pioneer in the development of bear viewing practices that were safe both for viewers and for bears. During his tenure which spanned almost the entire period that the Sanctuary has been in existence,

Bear Trap Project Update and Call for Participation

Marci Johnson
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A project is currently underway to coalesce the experience of those using culvert, barrel, and cage traps into an illustrated brochure that will highlight the most effective designs and techniques in use today. It will include a historical perspective about the evolution of trap designs and materials, materials and techniques that should no longer be in use, and descriptions of traps that are considered among the best designs for increasing efficiency and reducing injury.

Thus far, we have received 15 completed surveys representing 289 years of experience capturing nearly 5,000 American black and grizzly bears for research and management purposes throughout North America. We have also been fortunate to receive information from individuals who manufacture traps and have created unique designs.

We would be pleased to receive input from additional professionals worldwide, including biologists, managers, and technicians, until 22 August. For those willing to share information regarding what materials and methods have or have not worked well when capturing bears in traps,

agency personnel will turn to more than they might at first think.

Special Offer For IBA Members!!

Author Linda Masterson and PixyJack Press are currently offering their book "Living with Bears: a practical guide to bear country" at a special reduced price of US\$12.00 to all IBA members (cover price is US\$20.00). Shipping is free for members living in the US, US\$8.00 for members outside the US. To take advantage of this special offer, call 1-303-810-2850 and identify yourself as an IBA member, or send an email to info@pixyjackpress.com. Bulk orders of books for agencies or program use can be purchased at wholesale rates.

New Book for Children: "If I Were a Bear" by Rachel Mazur

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The Sequoia Natural History Association has just released a wonderful new children's book, "If I Were a Bear", written by wildlife biologist, Rachel

Mazur, the Sequoia and Kings Canyon National Parks' bear management specialist. The easy to read rhymes and beautiful artwork make this a fun and educational book. The book is recommended for ages four to eight. Illustrations are by Sarina Jepsen, who holds an MS degree and does research, outreach and education to protect habitats for endangered insects and other invertebrates.

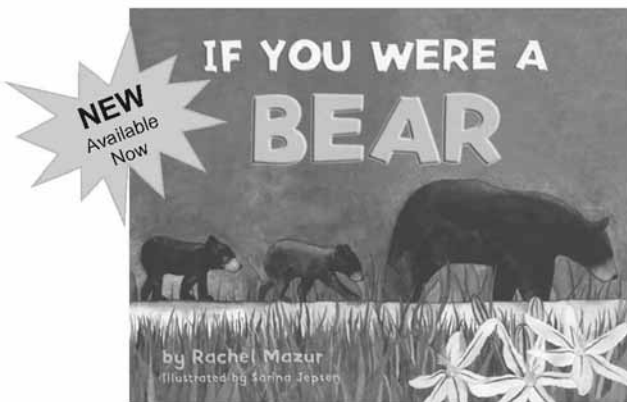
*Can you imagine having paws instead of hands?
Eating acorns and ants?
Sleeping through the whole winter?
It must be really different to be a bear!*

Or is it? Little bear cubs need food, shelter and safety, just like you and me.

Come find out what it's like to be a bear-and how you (yes you!) can help keep them wild.

And once a bear tastes human food that's rich in calories, it finds a way to grab so more, without a thanks or please. And claws that once were used on logs, and teeth that once bit open fruit, bite open cans instead. For bears that don't eat human food stay wild, safe, and free. How fun to be a little bear, up climbing in a tree.

The book can be purchased at visitor centers in Sequoia and Kings Canyon National Parks, and should soon be available in local bookstores. The Sequoia Natural History Association (SNHA) is a non-profit membership organization dedicated to supporting education, interpretation, research, and the natural and historic preservation of Sequoia and Kings Canyon National Parks, Devils Postpile National Monument and Lake Kaweah. The Association is committed to enriching the experiences of visitors and promoting public awareness of the significance of national parks through educational programs, publications, and financial support.



It must be really different to be a bear! Or is it? Little bear cubs need food, shelter, and safety, just like you and me. Come find out what its like to be a bear - and how you can help keep them wild.

ISBN: 978-1-878441-29-4 ppb
Pages: 36
Retail: \$7.99

Author: Rachel Mazur, PhD., is the wildlife biologist for Sequoia and Kings Canyon National Parks, where she watches over the bear population and teaches people from all over the world to live in harmony with bears.

Illustrator: Sarina Jepsen, M.S., works for the Xerces Society for Invertebrate Conservation, where she does research, outreach, and education to protect habitat for endangered insects and other invertebrates.

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Chang Tang. Following are examples of human-brown bear conflicts recorded by conservation agencies in the Chang Tang region:

2003 - Shenzha County

Three marauding brown bears entered a village and broke into several houses and tents, destroying furniture and consuming 1,170 kg of foodstuffs. The bears also entered two sheep pens and killed 75 sheep.

April 2003 - Nyima County

A 62-year-old herder was returning home when he was attacked by a brown bear. He was bitten in the neck, had the skin torn off his face, and ultimately died. Adding to the tragedy was the fact that he was the sole provider for his small family, which consisted of his mentally ill first wife, his disabled second wife, and his senile older sister. As the family was childless, no one was left to care for the family's yaks and sheep.

August 2003 - Shenzha County

On two consecutive nights, brown bears and a wolf killed 75 sheep and goats. A week later, a brown bear entered the same village and killed 30 more sheep. Two nights later, a bear entered the neighboring village and killed 19 sheep and goats. The total economic loss from these livestock kills was estimated at US\$2,300.

September 2004 - Shenzha County

A brown bear broke into a herder's house by ripping off the roof, then proceeded to break furniture and eat dried meat resulting in US\$880 in damages.

April 2006 - Tsonyi County

A bear broke the windows of a house while people were sleeping inside. One herder tied his horse to the gate of his sheep pen because people believe bears are afraid of horses. He now sleeps on the roof of his house. The Governor of Parling Township stated that, "In old times, there were robbers to make our lives uneasy. Now we have brown bears to put our lives in danger."



Map 2. Location of counties and townships surveyed to assess human-wildlife conflicts in the Chang Tang area.

a survey to evaluate the extent of conflict between humans, bears, and other large mammals in the south-central Chang Tang region, the area of the Chang Tang with the largest human population. Results revealed that brown bears inflict more economic losses to herders than any other species. Losses inflicted by brown bears are diverse, including livestock kills; direct damage to corrals, homes, and home furnishings; loss of human food supplies; and occasionally direct physical injury or even death of household members.

An alarming 60% of respondents to the survey in Tibet's Shenzha County had experienced conflict with brown bears since 1990; that frequency had increased nearly 5-fold between 1990 and 2006. A particular surge in conflicts has occurred since 2004, which was likely due in large part to rigorous enforcement of nature reserve regulations, banning hunting and the possession of firearms. Thus understanding and resolving the issue of human-wildlife conflict is key to building a harmonious coexistence between nomads and wildlife in the



Dawa Tsering conducting a survey of bear-human conflicts with a local herdsman.



Damage caused by a brown bear to the roof of a herder's cabin.

Update on Sloth Bears

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The Sloth Bear Expert Team (SLBET) presently has 11 members representing four of the five range countries, India, Sri Lanka, Nepal and Bangladesh; Bhutan is not yet represented. Sloth bears occur in a wide variety of habitats, including forests, rocky outcrops, grasslands, and scrublands. Their distribution and habitat use is greatly impacted by increasing human activities.

In India, sloth bears are reported to occur in 174 protected areas as well as in several managed forests outside protected areas. The habitat available outside protected areas is highly fragmented, degraded and disturbed. Efforts are being made to verify sloth bear-occupied areas in different states, and to locate (or possibly create) linkages among pockets of sloth bear populations.

In Sri Lanka, sloth bears occur in the dry lowland forests that occur in the north, east, and southeastern regions of the island, where human population densities are relatively low. A recent survey (2004) indicated that about half the existing sloth bear range lies within protected areas.

In Nepal, sloth bears occur in a narrow, lowland strip called the Terai, along the India border. A survey, based on sloth bear sign (mainly diggings) was conducted throughout this region during 1990–94, yielding information on occurrence and relative density. There has been no updated information since then.

Occurrence of sloth bears has been confirmed in Bhutan: they have recently been sighted in Royal Manas

Implementation of Bear–Human Conflict Mitigation Projects

The WWF Lhasa Field Office has initiated and implemented the following pilot projects to address human-brown bear conflict issues at the community level in some of the key areas of the Chang Tang region:

1. Compensation for herders' economic losses to wildlife — The herders of Tibet's Chang Tang region are among the poorest people in China, eking out a subsistence existence in one of the most inhospitable environments on earth. With annual incomes of only about US\$400 per year, any loss of livestock, foodstuffs, or property to brown bears can be a devastating financial blow. We have initiated two trial compensation funds in the Chang Tang reserve for victims of wildlife conflict to discourage retaliatory killing of the reserve's brown bears and other wild predators. At present, two of the funds are entirely community managed and self-sustaining, using profits from livestock and vegetable sales. They provide poor families with partial compensation for livestock

depredations. Importantly, these compensation funds also provide a forum for educating residents of the Chang Tang about the need for wildlife conservation and methods for reducing human-wildlife conflict.

2. Bear-proofing local herders' houses and corrals — To reduce threats to livestock, property, and human safety, and to reduce retaliatory killing of brown bears, WWF Lhasa Field Office has also been designing and implementing pilot projects involving the provision of high-quality portable bear-proof containers for food and clothes, and building improved fences around corrals and houses of local herders. Two key villages with high incidences of conflict between brown bears and local herders were selected as test sites.
3. Local training — We have been training local herders on safety issues during encounters with bears. We have also trained local forestry bureau rangers and workers to implement a standardized program for gathering data on Tibetan brown bear conflict, population, range, diet, and behavior. 🐻

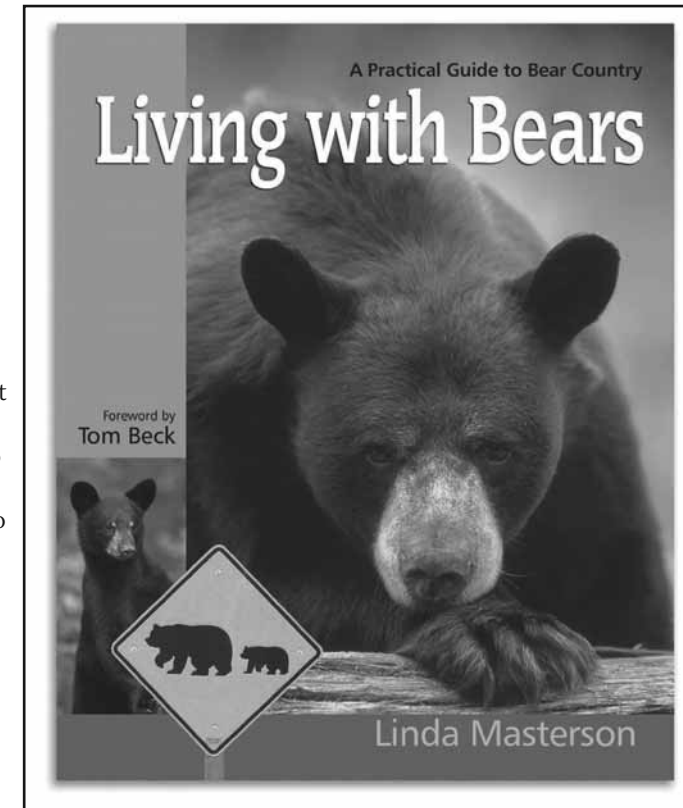
ologist, such as the “Bear Unwelcome Mat” and how to design a kid-proof electric fence. The book's appendices are a helpful resource, providing addresses of bear-aware organizations and government agencies, sources for bear deterrents, examples of community trash management ordinances, and recommended reading for anyone interested in bears.

I particularly appreciated Masterson's decision to infuse the book with 14 case studies from parks, municipalities, and organizations across North America involved in public education and comprehensive bear awareness programs. Among the places profiled are Whistler, British Columbia, Gatlinburg, Tennessee, Durango, Colorado, and Yosemite National Park. All are places with histories of chronically high numbers of bears foraging amidst humans. Each presents a different twist to management solutions. Some of the places I was familiar with, but not so with others and I am glad to now have convenient access to information on them all in a single handy volume.

My criticisms of the book are minor. Some of the recommendations, while regionally appropriate, are not practical everywhere. For example, where I'm from, even the most bear-savvy of canoe-trippers do not hang their food 100 yards downwind from camp, nor does the Forest Service feel it practical or necessary to suggest this in the thick forests and rocky, watery terrain of Minnesota's border lakes country. Similarly, until there is actually a bear pawing at my windows, you won't find me locking all the windows shut every time I leave my rural home for a few hours; the number of days we have to enjoy fresh air and summer breeze in the house are just too few. But some over-generalization is inevitable when coalescing so much

material into a single multi-audience volume, and Masterson always advises readers to check with local sources for specific recommendations. And, to be fair, when a bear does come knocking at my door, Masterson's book will be the first place I turn to for ideas I might not have thought of.

Additionally, some people may find the text a bit repetitious, if reading the book cover-to-cover. This, though, is a necessary artifact of the book's organization and intent; it is what allows chapters to stand alone as



discreet, easy-to-read references on specific topics. With separate chapters addressing hiking, fishing, and camping, repetition of key elements is both inevitable and desirable.

Throughout the book, Masterson's goal is clear: to minimize the number of bears needlessly destroyed each year. She is doctrinaire about “a fed bear is a dead bear”. However, she doesn't shy away from sharing a dilemma with the reader. The subject of the book's last case study, the Vince Shute Wildlife Sanctuary, is in stark contrast to other places profiled. At

the sanctuary, dozens of wild bears are fed every evening while spectators receive lessons in bear behavior on a raised viewing platform. Masterson recalls “I firmly believed ... there was no possible justification for committing the mortal sin of feeding bears.” But four days at the sanctuary “changed my heart, if not my mind. The opportunity to watch bears go about the business of being bears is an almost irresistible lure.” She could have saved herself likely criticism for this admission by omitting this case

study. But by including it, she reinforces the straightforward and thoughtful tone of the book and reminds us of the pervading conundrum that exists at the interface of bear and human societies. That is, that people love to watch bears, and it is through watching bears that many people first come to appreciate them. In most places, however, the opportunity to watch bears usually depends on providing them with food, intentional or not. But as bears become more “watchable”, some become too familiar, or sometimes even destructive or dangerous -- which, in the end, gets them killed. So, to protect them, we try to teach ourselves to resist the temptation of letting them become watchable, and this can be a difficult temptation to resist.

In sum, I found the book to be highly readable, clear, easy to use, and quite complete. I will be glad to have it on my shelf. Throughout the text, Masterson injects interesting anecdotes, facts, and quotes. Her style is informal and concise, and, if sometimes too popular for the hard core scientist, it is accessible and conversational for less stuffy readers. Masterson has struck a good balance between information and entertainment, producing a book that I suspect biologists, wildlife managers, and

**August 2008:
Recent Bear
Literature**

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**Review of "Living
With Bears:
a practical guide
to bear country"**

by Linda Masterson. 2006. PixyJack Press, Masonville, Colorado. 255 pp.

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These days, a person traveling across North America can, with little effort, amass an impressive collection of fact sheets, pamphlets, brochures, and posters all addressing the topic of how to safely live, travel, camp, and work in "bear country". With human and American black bear (*Ursus americanus*) populations growing in most parts of the continent, "bear country" no longer means just the forests and park lands, but includes farmlands, suburbs, rural residential areas and resort towns full of tourists. Municipalities and counties, as well as state and federal agencies, now produce a myriad of publications on avoiding conflict with wild ursine residents. Though often good sources of information, these are usually narrowly focused and geared to local conditions; it is more difficult to locate broadly relevant references addressing the spectrum of bear-human issues.

Linda Masterson, an enthusiastic outdoorswoman, became involved in Colorado's Bear Aware program soon after moving from Illinois to rural Colorado. That year, more bears than usual wandered into towns looking for food, getting themselves labeled as "nuisance" bears and subsequently removed from the population. Masterson hated seeing so many bears killed and set out to compile a complete user-friendly guide to living

peacefully, working, and vacationing where there are black bears in the neighborhood. The result, "Living with bears: a practical guide to bear country", is a comprehensive primer on how to behave around bears and minimize the chances of coming too-close-for-comfort with bears, whether grilling in your back yard or hunting in the backcountry. Masterson has distilled information from countless publications and hours of interviews and produced a book that is easy to read, packed with information, and useful for professionals and the public alike. The text is light and readable and the message is clear: keep human foods away from bears; these are the reasons why and here are many ways to do it. At the same time, the enjoyment the author derives from stories illustrating bears' intelligence, behavioral flexibility, and individuality is apparent throughout.

The book begins with sections on basic bear biology and behavior. I was pleased to see that Masterson sometimes looked further than "conventional wisdom" for her information, as in the section "Why Do Bears Roam?" Instead of the usual "Bears move most when foods are poor", she conscientiously cites data from Colorado showing that, contrary to conventional wisdom, "...how far bears wander doesn't always have much to do with how much food is available."

Subsequent chapters focus on specific aspects of living with bears, such as bear-proofing your home, feeding birds, use of electric fences, bear-safe practices for camping, fishing, hunting, and hiking, and how to behave when you encounter a bear in the woods. Others cover the use of pepper spray, aversive conditioning techniques, translocation of bears, and how to distinguish black bears from grizzlies. Each chapter is packed with practical suggestions, illustrative examples, and entertaining stories from various locales, giving the book a broad appeal and usefulness. It was delightful to find ideas in the text that were new to me, a long-time bear bi-

National Park (contiguous with Manas Tiger Reserve in India). Some field managers in selected protected areas have been asked to record and inform us of the presence of sloth bears in other areas in Bhutan.

The presence of sloth bears in Bangladesh is still unknown. Anwarul Islam, a member of the SLBET, is currently carrying out a survey of bears in Bangladesh, and is hoping to find evidence of all three native species: Asiatic black, sun, and sloth.

tions of sloth bears, one in Mount Abu Wildlife Sanctuary, Rajasthan and the other in nearby Jessore Wildlife Sanctuary, Gujarat. Although sloth bear population density is very high in both of these sanctuaries, human-sloth bear conflicts are much less severe than in central India. Understanding the difference between these situations will aid in promoting coexistence between bears and people, and hence providing a more secure future for these bears. 🐾

Dale Hall, to list the species based on evidence and analysis of the best available scientific information, which shows that loss of sea ice threatens and will likely continue to threaten polar bear habitat. The loss of sea ice habitat imperils polar bears with the risk of becoming endangered in the foreseeable future, a standard established by the ESA for designating a threatened species.

This process has been ongoing since February 2005 when the U.S. Fish and Wildlife Service was petitioned by the Center for Biological Diversity to list the species. In January 2007, the Fish and Wildlife Service proposed listing the polar bear as threatened throughout its range based on receding sea ice. At that time, Secretary Kempthorne directed the Fish and Wildlife Service and the U.S. Geological Survey (USGS) to conduct additional analysis, in concert with other experts from the U.S. and other countries, to assist in clarifying the biological basis for listing under the ESA.

In September 2007, the USGS delivered to the Fish and Wildlife Service nine studies related to the future condition and welfare of the polar bear and its habitat.

According to the ESA, a species is listed as threatened when it is at risk of becoming endangered within the foreseeable future throughout all or a significant portion of its range. In contrast, a species is endangered when it is currently in danger of extinction throughout all or a significant portion of its range. The U.S. Fish and Wildlife Service drew upon biological information on the bear including results of the more recent analysis post proposed rule as well as careful consideration of whether the bear can adapt to new habitat conditions, over 30 years of actual sea ice observations, and dozens of studies and models on sea ice. Under the ESA, five factors determine whether a species is to be listed. One of those factors is whether there is present or threatened destruction, modification,



© H. Bargali & N. Akhtar

Sloth bear female with cubs in Marwahi range, North Bilaspur forest division in India.

The latter two species, if present, are very rare, as they are more reliant on lowland forested habitats, which are now scarce in Bangladesh.

Sloth bear populations are threatened not only by habitat loss, but also by poaching for gall bladders and other body parts. In India, Kalandars, the nomadic people who capture and train bears for street entertainment, trap and remove wild bear cubs from bear denning areas. Bear rescue work combined with education and alternate job training for the Kalandars is greatly helping in sloth bear conservation.

Human-sloth bear conflict is another key threat to sloth bear populations. Crop damage and attacks on people are common in some areas. Education and awareness programs for local communities are generally lacking. A detailed study is now ongoing in and around two dense popula-

**Polar Bear Listed as a
Threatened Species**

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In a press conference on 14 May, 2008, Secretary of the Interior Dirk Kempthorne announced the listing of the polar bear as a threatened species under the U.S. Endangered Species Act (ESA). In the announcement the Secretary indicated that he was accepting the recommendation of U.S. Fish and Wildlife Service, Director

or curtailment of habitat. Another factor is a determination on whether existing regulatory mechanisms are adequate to address the threats to the species. The listing decision made positive findings that loss of habitat and the absence of effective regulatory mechanisms to reverse loss of habitat threatened the species. In addition, as part of the petition review, the Service evaluated other factors that may affect polar bears including oil and gas development, contaminants, disease and parasites, as well as other man-made factors that may threaten the species. While none of these factors were found to significantly threaten the species the analysis indicated that they may become more significant in time, especially for bears experiencing nutritional stress.

Last year, Arctic sea ice fell to the lowest level ever recorded by satellite, 39 percent below the long-term average from 1979 to 2000. The amount of sea ice loss in years

2002-2007 exceeded all previous record lows. In developing the nine studies it delivered to the Fish and Wildlife Service, the USGS relied upon 10 peer-reviewed climate models, all of which project a decline in Arctic sea ice in the future. In particular, the models project declines in September sea ice of more than 30 percent by the middle of the 21st century. Four of the 10 models project declines in September sea ice in excess of 80 percent by the mid-21st century. Seven of the 10 models show a 97 percent loss in September sea ice by the end of the 21st century. Based on actual observations of trends in sea ice over the past three decades, these models may actually understate the extent and change rate of projected sea ice loss.

In addition to the listing decision, a proposed 4(d) Rule was published to clarify various aspects related to implementation of ESA requirements and agency policies. This Rule is intended to synchronize and clarify various provisions of the ESA and the Marine Mammal Protection

Act (MMPA). It specifies that the conservation measures of the MMPA regarding the production, interstate sale, and export of native handicrafts by Alaska natives may continue and that the subsistence harvest of polar bears is not affected. Also existing programs to authorize intentional take of polar bears through not-injurious hazing programs designed to enhance public safety and to protect polar bears will continue. The Rule also clarifies that the import of polar bear trophies taken by U.S. hunters in Canada would no longer be permitted based on the relationship between the ESA and the MMPA and prohibitions within the later.

The Final Decision to list the species, the 4(d) Rule, and supplemental background information is available at (http://www.doi.gov/issues/polar_bears.html). The 4(d) Rule is available for a 60 day public comment period that ends on 14 July, 2008.

Opponents and proponents of listing have indicated that lawsuits may follow. Similarly, there is a potential for litigation with respect to the administrative guidance under the 4(d) Rule.

Next Steps

The decision to list polar bear as threatened will focus attention on the species and threats as well providing an opportunity to begin work with partners and citizens to take additional conservation measures for its future protection and conservation. The polar bear is an important part of Alaska's natural heritage, essential to the cultures of many northern Native peoples, and emblematic of the world's wild arctic places.

Secretary Kempthorne acknowledged Canada has not listed polar bears as threatened. The Canadian law is different from U.S. law with respect to endangered species, both in its criteria for listing and administrative process for making listing determinations. Immediately preceding the listing announcement, a Memorandum of Understanding

was signed between the U.S. Department of the Interior and the Canadian Minister of Environment, for the conservation and management of polar bear populations shared by the U.S. and Canada. Further efforts between the U.S. and Canada are planned in the future while the U.S. plans to expand discussions with all of the Range Countries responsible for polar bear conservation within their jurisdictions: Russia, Denmark/Greenland, and Norway. Additionally, the U.S. Fish and Wildlife Service will continue to: monitor polar bear populations and trends, study polar bear feeding ecology, work cooperatively with the Alaska Nanuuq Commission and the North Slope Borough for co-management of the polar bears in Alaska, provide technical assistance to the participants of the 1988 North Slope Borough Inuvialuit Game Council Agreement for the conservation of polar bears in the Southern Beaufort Sea region and monitor the effects of oil and gas operations in the Beaufort Sea region.

Critical Habitat

The proposed rule to list the polar bear as threatened did not include a description of critical habitat. However, the U.S. Fish and Wildlife Service will be working rapidly to evaluate designation of habitats deemed critical to the welfare of the species under U.S. jurisdiction within the next year.

Recovery Planning

A recovery plan for the species will be developed during subsequent years. This plan is expected to include the involvement of Federal, State, Alaska Native groups, international interests, local agencies, and private entities with an interest in conserving polar bears.

Consultation

In fulfillment of the Section 7 requirement of the ESA, a consultative process will begin for Federal actions with the potential to impact polar bears or their habitat 🐻

The Apple

Because apples do not self-pollinate but are pollinated by insect vectors that can range over 3 to 4 km, and because almost all apple seeds are viable, genetic variability in apples is extraordinarily high. Each apple on a tree, and each seed in an apple is unique and given the right circumstances can germinate. Apple trees live on average 100 years and are fully productive by 30 years – turnover is rapid.

However, apple seeds cannot germinate within the fruit. The placenta must be broken and the seeds disbursed for germination to occur. Birds don't usually eat apple seeds (they contain cyanoglycosides that inhibit seed-eaters) and when finished feeding on the fruit, birds usually leave the seeds inside the placenta which contains agents that inhibit germination. Germination requires that the seeds be freed of the placenta. Larger vectors are necessary, those that can crush the fruit while leaving the seed intact. Apple seeds are small, hard, and protected by a coat of tannin, facilitating their passage, intact, through a large animal's digestive tract. What's more, the seed, freed from its placenta, is deposited in a package of fertilizer.

The Bear

Brown bears probably migrated to the Tian Shan sometime during the Miocene. There they found abundant food in the fruit forests and potential hibernation sites in the many caves.

Bears have a typical carnivore digestive system; teeth and skull musculature more efficient at obtaining and ingesting meat than in thoroughly grinding plant material, a single chambered stomach that isn't particularly efficient for digesting fiber, no ceca where fermentation can occur, and no extra-long long intestine where the proteins and carbohydrates present in fibrous plant materials can be extracted. Thus, when feeding on vegetation, especially during hyperphagia, bears are pretty

much restricted to feeding on plants that contain relatively easily collected and extractable nutrients. As a result, wild fruits including hackberry (*Celtis* species), hawthorne (*Crataegus* species), cherries (*Prunus* species), apples (*Malus* species), and a large variety of berries are important to bears worldwide.

As a rule, bears will high-grade vegetation they are feeding on, especially during the period of hyperphagia; they will select foods that require the shortest searching and capturing time. Foods that have a longer period of availability will also likely be selected. Apples, especially large apples that drop when ripe, accumulating under the bearing tree are likely to be a preferred food source where available – they are abundant, easy to collect, and provide a large amount of food for the effort exerted.

The Evolutionary Context

A geologically active but isolated and non-glaciated site; rich soils; abundant moisture; relatively rapid reproductive rate, an agent of selection – bears, and time; these are the ingredients that could lead to selection of large, sweet fruit.

The apples whose seeds were disbursed and that germinated were most likely the larger, sweeter fruits (selected for these traits by millions of bears over millions of years) that were crushed during processing, releasing the seeds to pass through their guts unscathed. Small apples more often, pass through a bear's digestive tract intact, the seeds remaining captive in their placenta and unable to germinate.

Over thousands of years, on the cooler, moister north-facing slopes of the Tian Shan a large, sweet apple has evolved. Selected and deposited there by bears and ultimately harvested and transported by humans who traveled the same routes east and west through the rich valleys and fruit forests. Humans moved the fruits outside the region of their origin and subjected them to further selection to produce



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the thousands of varieties of apple that we know today.

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It Takes a Village – Or The IBA – to Raise a Bear Biologist

New coordinator announced to facilitate volunteer and internship opportunities

The IBA is announcing Marci Johnson as the new Student Volunteer and Internship Coordinator. This is a new service designed to facilitate volunteer and internship opportunities with existing bear projects worldwide. This idea was developed to foster field experience for students, and to help them network in the professional community. Announcements and other related news will be listed on the IBA Job Board at www.bearbiology.com, along with other employment opportunities.

Do you have a project that needs student help? Are you willing to sponsor an internship?

The IBA is looking to increase student exposure to areas such as wildlife capture and handling, radio telemetry, aversive conditioning, bear viewing, behavioral studies, rehabilitation, captive studies, and pathology. In addition, we are looking for contacts in education, data management, GIS analysis, habitat assessments, and non-invasive survey techniques such as remote photography and DNA sampling. Every bear project can offer new educational opportunities and valuable perspectives to young biologists. Should your project have room to host one or more volunteers, why not let the IBA help connect you with enthusiastic individuals pursuing related careers, and reduce the time and effort involved with soliciting applicants? If interested, please contact us and include the following information:

- number of volunteers you can host,
- the specific dates or the time commitment required,

- the level of skill or education expected,
- the nature and location of the work, and
- whether you offer a stipend and housing, or if the volunteer must incur some living expenses.

Are you a student who would like to participate?

If you are seeking a volunteer opportunity, please send the following information:

- resume,
- short narrative stating your qualifications and expectations,
- specific type(s) of experience in which you are interested,
- dates or duration you are available,
- preferred location by region (states, countries, or continents), and
- if you hope to earn academic credit.

As positions become available and volunteers register their interest, we will work to create a network that will prove to be valuable to the IBA community and the research and programs within.

Send information or inquiries to Marci Johnson at IBAvolunteers@pherkad.com. 🐻

Bears in Culture

An Apple a Day...

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Dr. Barrie Juniper has unraveled a complex, beautiful, and elegant story of geology, evolution, and human history to explain the genesis of the domestic apple in its voluptuous variety – 20,000 cultivars. And bears are a crucial character in the story.

The Setting

The edible apple is believed to have arisen on the northern slopes

of the Tian Shan mountains near the border of northeast China and the former Soviet Republic of Kazakhstan. Kazakhstan's capital was called Almaty (which derives from the Kazakh word *almalyk*, meaning abundant apples). The Tian Shan is the youngest of the mountain ranges arising from the collision between India and Asia, has never been glaciated, and continues to rise – these are young, growing mountains. The range runs east-west and experiences weather that is strongly influenced by the monsoons of the Indian Ocean. Landscape disturbance is the most predictable feature of the area.

Caves are a common feature of the slopes of the Tian Shan. For millions of years caves have been washed out

of the limestone on the unglaciated mountain slopes below the snow pack.

Over the last 12 million years or so, the ancestors of many plants and animals moved into this region of abundant moisture, temperate climate and newly exposed soils. A forest of fruit and nut trees including apricot, pear, plum, cherry, peach, walnut, almond, and apple evolved here in the damp valleys, deriving from seeds introduced probably by birds, horses, and bears. This was and is a land of great diversity in geography, plant and animal life. These mountains have long been a travel route between regions to the east and west by bears, canids, felids, birds, horses, and humans; the Silk Road is here.

Bear Specialist Group

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

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Eurasia

Bears: Guards of Our Forest Resources

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The forests of Pakistan are scattered over some 4.01 million hectares, approximately 5% of the country's total area. Apart from the direct economic benefits that such forests offer, they also play a major environmental role. A decrease in forest cover has resulted in unpredictable temperature fluctuations and untimely torrential rains, resulting in unpredicted floods. The forest cover in the hillside tracts prevents soil erosion, helping in maintenance of soil fertility as well as

preventing landslides and the silting up of the waterways and reservoirs. Forests also play a role as carbon sinks.

Protecting our forests is thus both a national and international commitment. Pakistan has committed to increase the forest cover to 5.7% of the area by 2011 and to 6% by the year 2015. Sadly, despite all the efforts and alleged commitments the forest cover is declining and it is unlikely that Pakistan will be able to meet these

targets. Increasing forest cover may require a combination of reforestation efforts and a major regulation of logging and grazing activities.

A strategy for the management of forest resources requires the support of the public at large which is possible only through outreach campaigns. The employment of forest wardens may be necessary to protect the forests from logging and grazing activities. Different large carnivores species have until recently been filling that role, guarding our forests resources. Wolves, hyenas, leopards and bears especially, have been able to keep loggers and livestock herders to some extent at bay because of the fear that men had of them.

Unfortunately, men have responded to this fear by poaching bears and other carnivores; as a result they have gained greater access to forest



resources and overharvested them. Loss of forest cover and resources has in turn pushed bears to seek food in cultivated fields thus increasing the conflict with man.

Can we have our "natural forest guards" back to our service so that our future generations can find forest cover sufficient to support their life? Our forests still need them. 🐻

Greece: an Attempt to Identify Individual Brown Bears from their Footprints

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Footprint identification in mammals has often been excluded as a reliable monitoring technique because it has not been developed as

an accurate, objective and replicable method. However, recent studies were successful in identifying individuals from their footprints in species such as black (*Diceros bicornis*) and white rhino (*Ceratotherium simum*) (Jewell, Alibhai & Law 2001, 2008), snow leopard (*Uncia uncial*) (Riordan 1998) and tiger (*Panthera tigris*) (Sharma 2005).

Few published works on the brown bear (*Ursus arctos*) footprint differentiation include earlier attempts on the identification of individuals as a census technique (Edwards and Green 1959, Klein 1959). More recently, Mattson (2003) has successfully investigated the relationship between the gender and age-class as indicated by the width of the front-foot footprint of brown bears.

In the framework of a M.Sc. thesis and in collaboration with the non governmental organization CALLISTO a study is being in connection with a

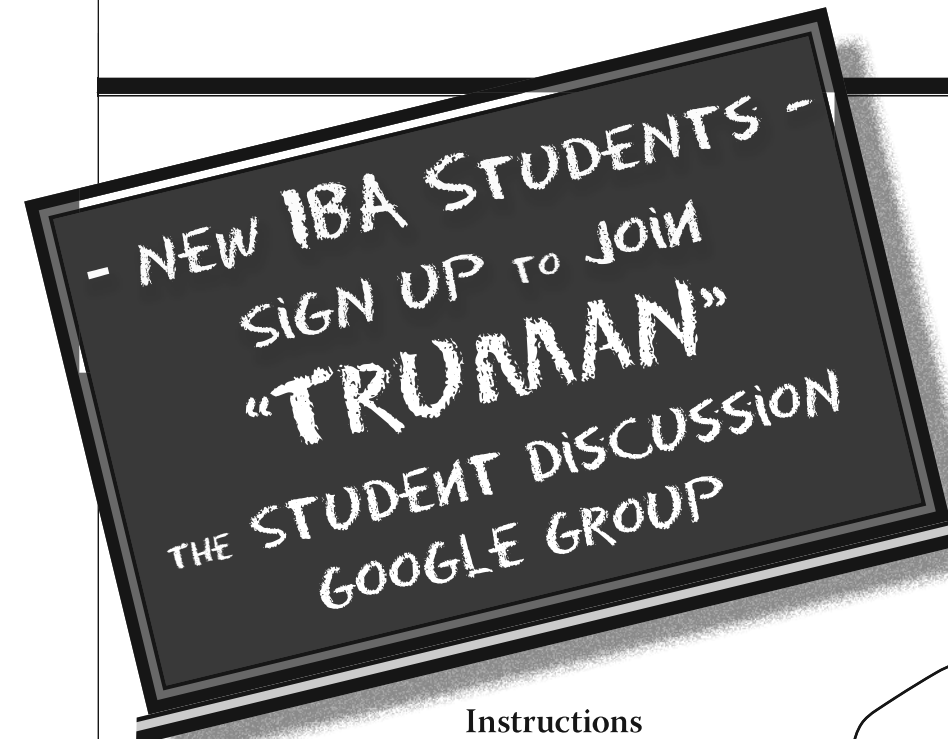
monitoring project for the assessment of the 37km stretch of the Egnatia highway construction impact upon brown bear population and habitats in the eastern Pindos mountain range. The objectives of this study include the development and testing of a new method for the classification-identification of individuals using footprint biometric data.



government's rapid response based on what they learned during the conference. In addition, the government has also responded with a strong push for public education, including widespread television and newspaper coverage, magazine articles, and bus stop announcements. People in Monterey now know not to rope or feed bears, and to keep garbage and other attractants cleaned up in potential conflict areas. In addition, we recently conducted a training workshop for the Civil Protection Authorities, where over 130 people attended from the police, fire, and sheriff's departments. At this point, most of the conflicts are being handled calmly, and are

following departmental protocol. Only 5 bears have been captured to date, and two adult females are being re-released onto private ranches. Two males were captured, but not considered releasable because of their conditioned behavior. Most bears have been left undisturbed, and allowed to return back into the wilderness when feasible. Adaptations for a city of 4 million include having to place a large emphasis on getting along with the media, since public relations is a primary concern. Management officials are conducting workshops to educate the "bear paparazzi," and are providing "filming blinds" (or tents) in order to limit noise and access. In addition,

they have had to instruct the media that they should not break into the zoo without permission to film captive bears, use bright lights and make a lot of noise when bears are being trapped, or shout "oooooh, he missed!" when the attending veterinarian attempts to dart a bear in a tree. We are currently developing proposals to train personnel in bear management, evaluate and monitor bear populations around the city perimeter, and implement wide-scale attractant management and public education programs. Apparently, we now have everybody's attention, and the Governor has now declared Nuevo Leon as "the land of bears." 🐻



Student Forum

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 is not required for initial sign-up

Instructions

- Visit www.bearbiology.com/iba/stu.html
- Follow the links to request an invitation
- 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

Other Important IBA Student Links

- www.bearbiology.com
- Global Bear Research Program Links page : www.bearkeepers.net/GraduatePrograms.htm



dispersal corridors and mortality factors associated with dispersal, DNA sampling, and management options for landowners to coexist with black bears. Methods for field work will follow those used on the Black Gap Wildlife Management Area in western Texas (McKinney and Pittman 2000) and in the Maderas del Carmen of Coahuila, México (McKinney and Delgadillo 2006). Results of our 2-year study will provide necessary information for management of black bears on private ranches to avoid conflicts, provide important habitat information that can be used in other areas of the state, and provide information on black bear ecology in a reestablishing population. Participants include Consejo Estatal de Flora y Fauna Silvestre de Nuevo León, A.C. (CEFFSNL), Parques y Vida Silvestre de Nuevo León (PVSNL), Centro de Investigación, Capacitación, y Educación Ambiental de Vida Silvestre de la Cuenca Palo Blanco, Salina Victoria, Villaldama, Bustamante y Lampazos, Nuevo León (CICEA) and CEMEX-Proyecto El Carmen.

Please Don't Rope the Bears

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Within seven weeks, Monterrey, Nuevo Leon, witnessed the "perfect storm" of bear conflicts. With an expanding bear population, rapidly increasing urbanization, and a severe drought, the compounded effects have resulted in over 40 observations of bears within the city limits of Monterrey and surrounding townships. The state of Nuevo Leon has declared a State of Emergency because of drought

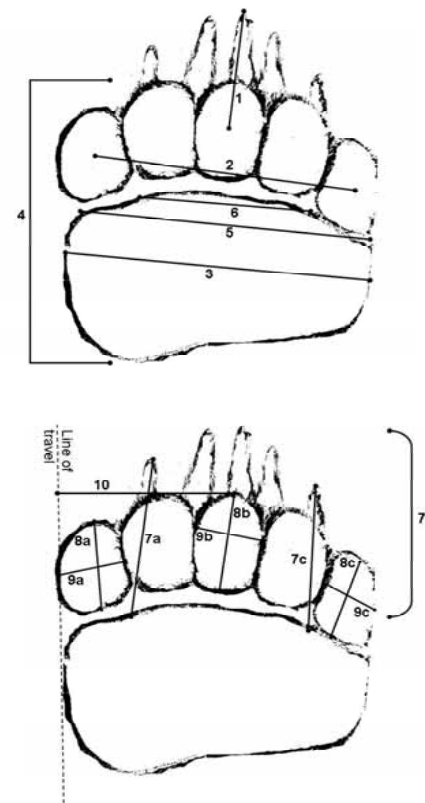


conditions. In the past, occasional observations have been documented along the southern perimeter of the city next to the forested Sierra Madre Oriental, but few have resulted in much attention. However, current reports are being noted on all sides of the city, including within fairly developed areas. The media is calling the phenomenon a "bear crisis", and has garnered several headlines, television shows, and nightly news reports. The crisis was kicked off by a construction worker who roped a subadult male that previously being fed in the yard of a woman nearby. After being roped, the bear died from dehydration and stress, with the entire event being filmed by the media (every agency's worst nightmare). Because the bear is classified as an endangered species, the man was charged and jailed, but has since been released and is pending a formal hearing. Bears have been reported visiting swimming pools, traveling through towns along rivers, and crossing busy intersections. Several bears (including one adult female) have been removed from trees in town plazas and housing developments, including the home of the mayor of one Monterrey suburb where

they were preparing for a 400 guest wedding that evening. The female was chased up the 20-foot tree by the approximately 35 media personnel who got to the site before Dr. Gustavo Sepulveda, the attending veterinarian, was able to get there. Additional conflicts include a bear killing pigs in the desert township of El Carmen, just outside of Monterrey. Managers were unable to capture the bear due to the overwhelming presence of the media, who were also camping at the site with floodlights around the clock to see if the bear would come back. One subadult female was hit by a car, but was captured and relocated to the zoo to recover. The most ironic report took place in the Governor's back yard, but the bear was chased off by his guards and not reported again.

The timing of this "crisis" could not be more serendipitous. Recall that the 18th International IBA conference just took place in Monterrey in November of last year. One important event was a conflict management workshop for Mexico, which was heavily attended by Monterrey's wildlife management agencies. Upon reviewing draft press releases when the crisis first began, we were very pleased with the

For the development of the method, successive prints made by the same bear are measured, in order to find out the variation of the dimensions in the footprints of an individual. On this basis, the 11 GPS/GSM-collared bears of the study area are being tracked. Since it is not yet known which, if any, features of the track might provide a distinctive statistical profile of a particular animal, 16 measurements are taken from each footprint, as indicated in the picture. Also, when a good set of footprints is available, the stride and the straddle of the trail are measured.



For purposes of the study, throughout the capturing procedure of the radio-collared bears, digital photographs of their foot pads were taken. Furthermore, when possible, prints from their pads were impressed on modeling clay and on paper using ink. Both approaches provided a detailed outline of the animals' footprints on acetate sheets for better identification of the known bears' tracks in the field.

At the same time, trials are conducted for the application of the FIT method. This particular method has already been successfully applied on other species by Sky K. Alibhai and Zoe C. Jewell and will be adjusted for this study. For the application of the FIT method, a number of digital images of clear footprints from known animals is needed for the development of the FIT algorithm. For this aim, pictures of the footprints of the radio-collared bears are taken in the field. Also, images will be taken from captive individuals in a controlled environment.

At the moment, after a few months in the field, some sets of measurements from some of the 11 radio-collared animals have been obtained. The autumn rainfalls are being expected for the continuation of the study in the field and in the meantime focus will be on the captive bears.

Acknowledgements

Special thanks to the "Callisto" NGO field team: I. Tsaknakis, A. Tragos, C. Pilidis, A. Giannakopoulos, S. Riegler, A. Riegler, and G. Lazarou

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Egnatia Highway Project Update: a new noninvasive dimension

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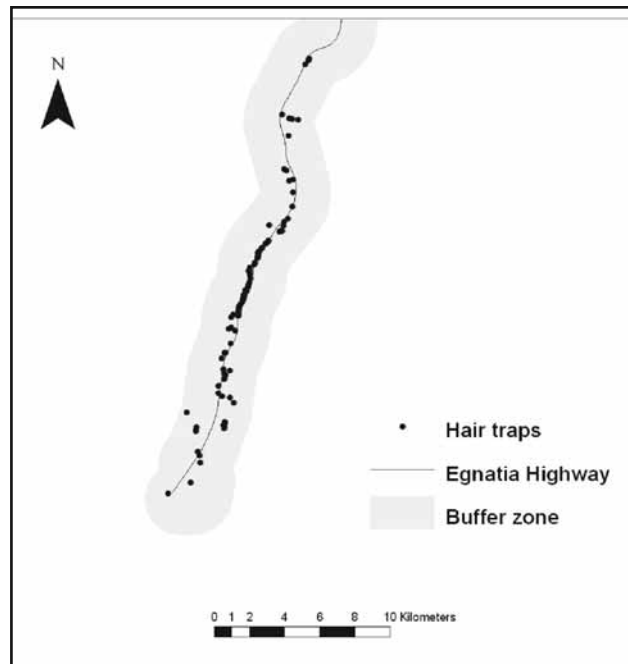
The restriction of gene flow caused by habitat fragmentation induces the loss of genetic diversity of animal populations and in the long term threatens their survival (Andrews, 1990; Saunders et al., 1991). In Northern Pindos mountain range, 37km of the Egnatia Highway at the Panagia-Grevena stretch cut through what it is considered primary brown bear habitat (Mertzanis et al., 2008). In order to maintain habitat connectivity mitigation measures were adopted by the state and penetrability was achieved by the construction of tunnels, bridges, underpasses and a green bridge which mitigate a little more than 11.1 km.

The Egnatia Highway project (see *International Bear News* November 2005, November 2007, February 2008), now well into its second phase, has taken a new turn. A non-invasive genetic monitoring study of the brown bears in the area has been designed, which aims to study the long-term

effects of the human induced habitat fragmentation on the species. During the first phase of the project, we noticed bears rubbing against power poles often leaving clumps of hair behind which were later used for DNA analysis (Mertzanis et al., 2005; Karamanlidis et al., 2007). Recently, power poles located within the 4 km buffer zone of the 4.1 stretch have been selected and fitted with barbed wire, with special attention given to poles close to the mitigation structures of the highway. Additionally a network of hair trap stations and power poles has been established throughout the 1000 km² of the study area in order to update the population status of the species since 2004, where 44 individuals were successfully genotyped (Scouras & Drosopoulou,



A pole is fitted with barbed wire near the Panagia bridge



Power poles selected within the buffer zone of the Panagia –Grevena stretch

2005). Moreover the genetic material will be supplemented with scats collected during transects from the "CALLISTO" field team and blood from trapped bears. So far, the network has yielded 172 hair samples the genetic analysis of which is expected to begin in September.

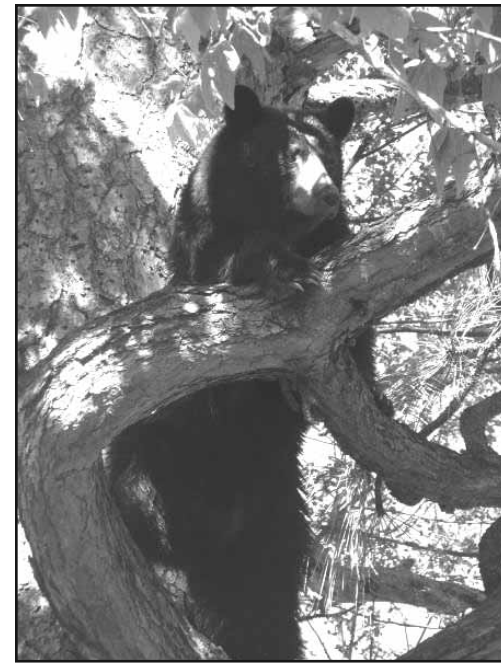
The density of the network makes the region of Grevena the most intensively studied part of the brown bear range in Greece, and it is expected to provide valuable insight on animal movements in an area where plans to construct new large infrastructure, such as the E65 highway and the high speed railway, will add further pressure on the bear population, seriously threatening it with isolation.

Acknowledgements

Special thanks to the field team which includes Thanos Tragos, Susan & Armin Riegler, Yannis Tsaknakis, Yorgos Lazarou and Yorgos Iliopoulos and Frant and Carl Soulsbury.

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Threats to black bears in Chihuahua are large scale habitat fragmentation, and a lack of knowledge among rural people regarding black bear ecology. As a result of this, bear-human encounters reinforce the negative attitudes of rural people toward black bears. Educational campaigns and control of recreational activities in key areas of black bear habitat are recommended. Further research is needed to understand the population dynamics and habitat preference of black bears in the state of Chihuahua, Mexico.

Population Dynamics and Movement of Black Bears in Northern Coauila, Mexico

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We began black bear research in 2003; our study site is located in the Maderas del Carmen in the northern portion of the state of Coahuila, and extends to the west Texas border. Currently we are monitoring 49 radio-collared black bears. Our study focuses on habitat preference, genetics, diet, home range, seasonal and dispersal movements, mortality factors, education and outreach, and development of workable management plans for area private ranches and *ejidos* (communal lands) to prevent conflicts with black bears. A priority of our research is the continued work on corridor identification for emigrating and immigrating black bears in northern Coahuila

including our study site, adjacent Mexican mountains and across the Rio Grande into western Texas. The first five years of the study, we concentrated field efforts on the west side of the Maderas del Carmen. In 2008, we began field work on the east side of this mountain range to further population dynamics data and dispersal corridor information. We are working cooperatively with México and Texas agencies. Results of our work will provide information on black bear ecology and management that can be used in both countries. All funding for this project is provided by CEMEX-México, Proyecto El Carmen.

Program for the Recuperation, Conservation, and Management of Black Bears in an Area of Northwestern Nuevo León, Mexico

Population Dynamics, Home Range, Diet, And Movement

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Recent black bear (*Ursus americanus*) expansion and reestablishment of small populations in historic habitat in the state of Nuevo León, México, has produced a need for research and management techniques to further conservation efforts of the black bear in México. Little information is available on habitat preference, distribution, and other parameters of black bear ecology. We have conducted previous field work to document the presence/absence of black bears on private ranches and obtained permission from these landowners to conduct field research over a two year period. Our study site encompasses 14 private ranches in Tamaulipan thorn scrub habitat. All ranches are under "Unidad de Manejo para la Conservación de Vida Silvestre (UMAS) management plans, and the black bear is included in the management along with other wildlife species. The study area contains $\geq 45,723$ ha in the areas known as the Sierra de Gomas, Sierra de Bustamante, Sierra Moreno, Sierra de Milpillias, Sierra Boludo, Cerro Colorado, Sierra de Sabinas, Sierra de Lampazos, Sierra de Picachos and foothill areas of Mamalique, Vallecillo, and Colorado. The elevation ranges from 500 m to 2240 m in habitats characterized by pine-oak woodlands, thorn scrub, and succulent desert. Our main objectives are to determine distribution, home range, mortality and survival rates, population density, diet, identification of key areas of occupation and possible

of plots during diurnal or crepuscular/nocturnal periods.

The study site is located mainly in the Apache-Sitgreaves National Forest, near the Arizona-New Mexico border, and encompasses a major portion of the watershed that provides water to the metropolitan Phoenix area (Salt and Gila Rivers). Included in the study area are 3 small towns. The study area contains habitats characteristic of Rocky Mountain montane and subalpine forests. Much of our black bear field work has been conducted prior to the United States Forest Service (USFS) beginning fuel reduction programs in the summer of 2007 to reduce the risk of wildland fire to public and private lands. Currently, we have placed spread spectrum GPS radio-collars on 21 (12 males, 9 females) of the 35 captured black bears. A total of 4,217 locations have been obtained and radio-collared bears have ranged from New Mexico to the White Mountain Apache Reservation. We will snare and radio-collar bears in the Spring of 2008. Currently eight radio-collared bears are roaming the study areas, and we plan to collar five to six additional individuals. We will continue to non-invasively sample bear relative abundance using hair-snags. We have established baseline data on black bear resource selection prior to the implementation of the fuel reduction treatments. Based on this baseline data, we can make the following hypotheses of the effects of fuel reduction treatments on bear habitat selection: (H1) treatments that reduce structural complexity will functionally degrade habitat value to bears; (H2) treatments within mixed conifer will reduce availability of key bear foods; and (H3) treatments within ponderosa pine will have no impact on bear space use, (H4) treatments within ponderosa pine will have no impact on the availability of key bear foods; (H5) treatments within oak stands will have no adverse impact on bear space use provided the density of mast-producing trees are not altered, and (H6) reduction of bear food availability in

areas adjacent to human development will result in increased human-bear interactions. The collection and analysis of post-treatment data will allow us to address the above hypotheses.

West Texas

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Mike Pittman, Texas Parks and Wildlife, Area Manager for Black Gap Wildlife Management Area in southeast Brewster County, Texas, reported that bears are more visible this spring and summer because of the extended drought conditions in west Texas. One subadult male black bear was captured in Del Rio, Texas, on 10 June and relocated to the Black Gap Wildlife Management Area. This bear's appearance in Del Rio created quite a sensation making the newspaper headlines for three days. Drought conditions are prevalent all over west Texas and northern Mexico and bears are moving greater distances in search of food and water.

Mexico

Spacio-Temporal Distribution of the Black Bear Population in the State of Chihuahua, Mexico

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Data regarding black bear (*Ursus americanus*) status and distribution in Chihuahua, México, are not numerous and tend to be scattered in a variety of publications. Protección de la Fauna Mexicana, A.C. (PROFAUNA) conducted a preliminary study to identify spacio-temporal distribu-

tion, preferred habitats, and common threats to black bears. Seventy-five interviews were conducted with people in federal agencies, hunting clubs, cattlemen associations, university personnel, and research facilities in order to map historical ranges for black bear distribution in Chihuahua, and to identify current threats. Sixty-seven potential sites for black bear presence were identified through interviews in five geographic regions of the state: three in the Sierra Madre Occidental, one in the central mountain ranges including the Sierra del Nido and Sierra de las Tunas, and one in the desert mountain range. We established 45 transects of variable distance in areas of suitable black bear habitat to estimate abundance based on sign (scats, tracks, hair and visual observations). In areas where bears presence was documented we recorded habitat characteristics. Our field data suggests that black bears are present in a large portion of the Sierra Madre Occidental, ranging from the Janos, Chihuahua grassland in the northwest portion of the state to the sub-tropical forests of the Sierra Tarahumara. The Sierra del Nido is an extensive mountain range: bear presence was documented from the southernmost Riva Palacio area to the Cumbres de Majalca National Park, the Sierra del Pajarito and the Sierra las Tunas. The semi-arid lower desert country contained historical records of bear presence: we also confirmed bear presence in this habitat type. Four habitat classifications were established for forested habitats, and two for the semi-arid desert ranges. Spacio-temporal distribution data suggests that black bears continue to be present in much of the historical range in the state of Chihuahua. However, some historical range has been altered to the point that habitat fragmentation by agricultural development in former high grasslands and foothills have made these areas unsuitable for black bear use. Likewise, several areas contain black bears that were formerly not documented as historical bear habitat.

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Black Bear Population Study in the Yukon Flats, Alaska

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The Alaska Department of Fish and Game and Yukon Flats National Wildlife Refuge will be using mark/recapture techniques to estimate the black bear population in a 500 sq. mi. region in the Yukon Flats near Beaver, Alaska. Beaver is located in the eastern portion of the state along the Yukon River. A 3-hour transect survey conducted in May observed 18 black bear groups during mid-day hours which provides an indication that sightability conditions required for this method will likely be met. Contacts for the project are Jason Caikoski (ADFG, jason_caikoski@fishgame.state.ak.us) and Mark Bertram (USFWS, Mark_Bertram@fws.gov). 🐻

University Of Kentucky Black Bear Lab News

Dave Maehr *
University of Kentucky Black Bear Lab

Dave Unger completed his Ph.D. and dissertation (Resource selection of a recolonizing black bear population) and is currently assistant professor of biology at Alderson-Broaddus College in Philippi, West Virginia. Wade Ulrey completed his MS thesis (Home range, habitat use, and food habits of the black bear in south-central Florida) in May 2008, and is currently a private ecological consultant in Cincinnati, Ohio. Vince Frary, enrolled at Indiana University of Pennsylvania under the direction of Jeff Larkin and funded by the University of Kentucky and Kentucky Department of Fish and Wildlife Resources, completed his MS thesis (Black bear distribution and abundance in Kentucky) in May 2008.

Joe Guthrie is in the final year of work on his thesis that examines the conservation implications of habitat fragmentation and small population size on the black bear in south-central Florida. This work is based largely on data collected from GPS collars and

genetic samples. Rebekah Jensen is in the final year of examining the effects of roads and highways on black bear movements and spatial patterns in eastern Kentucky. Recently deployed GPS/GSM collars that collect at least 48 locations per day and that transmit data via cell phone text messages are providing important data for this project. Andrew Whittle is in the first year of his MS project that examines the effects of sea level rise on large carnivores (including the black bear) in peninsular Florida. Ben Augustine is in the second summer of his MS project that is examining dispersal and colonization patterns in eastern Kentucky bears. MS Student Lauren Dahl and research scientist Dr. John Cox recently completed a feasibility study that examines the potential of forward-looking infrared technology (FLIR) in estimating black bear abundance and distribution in eastern Kentucky. John Hast, former black bear technician for the Kentucky Department of Fish and Wildlife Resources will start an MS program at UK that will focus on the ecological and social aspects of black bear nuisance behavior. This work will not only focus on the bears themselves but on the attitudes and habits of local human residents. Undergraduate Forestry student Sean Murphy is in

the final year of his B.S. program and serving this summer as the technician on the UK Bear Lab's ongoing research project in south-central Florida. He recently was awarded the 14th Annual Trent DiGiuro Memorial Scholarship, and a University of Kentucky summer research grant for examining adult female movements in a fragmented south-central Florida landscape. Dave Maehr took a sabbatical last fall and winter at Archbold Biological Station where he worked on various writing projects and conducted field work associated with south-central Florida black bear ecology and conservation.

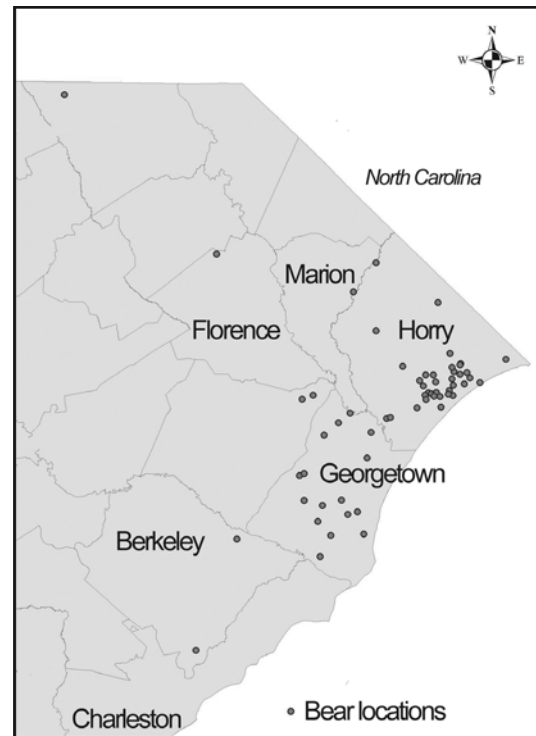
* Dave Maehr died tragically in a single-engine plane accident in Lake Placid, Florida, on Friday, 20 June, 2008. See his obituary on page 32. 🐻

New Black Bear Study in Coastal South Carolina

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Although American black bears once roamed throughout the entire state of South Carolina, there are now two disjunct populations: one population is found in the mountainous, northwestern portion of the state and the other is located in the northern coastal region. Prime bear habitats in the coastal region are centered on Carolina bays, elliptical landform depressions that are typically inacces-



Locations of black bear sightings in coastal counties of South Carolina, 2007.

sible because of high water levels and dense vegetative cover. Because of ditching and draining of Carolina bays and conversion of other bear habitats, the geographic range of the breeding bear population has been limited for decades to Georgetown, Horry, and Marion counties. However, in 2007 wildlife biologists received numerous reports of bear sightings, including female bears with cubs, south (Berkeley County) and west (Florence County) of this area, possibly indicating range expansion. Additionally, the number of nuisance incidents and bear-vehicle collisions has dramatically increased in recent years.

Because of perceived changes in the black bear population, the South Carolina Department of Natural Resources (SCDNR), private landowners, and several non-government organizations are interested in the development of a coastal black bear management plan. Determining

population abundance and to what degree the coastal population depends on ingress of bears from nearby areas in North Carolina are key objectives for the initial stages of this comprehensive plan.

To address these objectives, the SCDNR and the University of Tennessee, in cooperation with Mead-Westvaco Corporation and other local landowners, initiated the South Carolina Coastal Black Bear Study in May 2008. Over the next two summers, graduate student Michael Drewry will conduct noninvasive genetic sampling in two areas with large, contiguous forest tracts in Georgetown and Horry Counties. One study area includes the Lewis Ocean Bay Heritage Preserve near the coastal resort town of Myrtle

Beach, which contains numerous Carolina bays and where restoration of longleaf pine in upland areas is a priority. The second study area, Carvers Bay, is near Georgetown and consists primarily of managed pine forests.



Black bear taking bait within hair-snare site, Lewis Ocean Bay Heritage Preserve, South Carolina, June 2008.

In addition to these two primary sampling areas, we will obtain hair samples from several river corridors that provide potential habitat connectivity with bear populations in North Carolina. We also plan to collect hair and tissue samples from bears killed in vehicle collisions in the region and from harvested bears in North Carolina. These samples will be useful to determine genetic structure and linkage of the population within the broader coastal region.

So far in 2008, there have been twice as many bear sightings in Berkeley County compared with 2007. This summer, a cub was hit on Interstate Highway 26 on the Charleston/Berkeley County line and a female with two cubs was seen at Santee Coastal Reserve in Charleston County, a further indication that the breeding population may be expanding. As in many parts of the southeastern United States, the black bear is poised to make a comeback in coastal South Carolina. The South Carolina Coastal Black Bear Study will provide important baseline information so that the SCDNR can make informed management decisions on the future of the regional black bear population. 🐻

Mississippi Black Bears Get SAFE

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Mississippi landowners can now earn incentives by enrolling eligible cropland into a new program designed to restore habitat for black bears.

Mississippi was granted funding to restore 7,950 acres of black bear habitat through the State Acres for Wildlife Enhancement (SAFE) program administered by the USDA Farm Service Agency (FSA). SAFE is a new nationwide continuous Conservation Reserve Program (CRP) aimed at addressing state and regional wildlife objectives.

The funding proposal was spearheaded by The Nature Conservancy of Mississippi (TNC) and the Bear Education and Restoration Group of Mississippi (BEaR) in partnership with the U.S. Fish and Wildlife Service, the Mississippi Department of Wildlife, Fisheries, and Parks, and the USDA Natural Resources Conservation Service.

While almost eliminated from the state in the early 1900's, black bear populations have shown signs of growth throughout Mississippi in the past five years. This is primarily due to increasing populations in neighboring states which has led to the first documented births of bear cubs in Mississippi in roughly 40 years. Several black bears have been fitted with GPS collars throughout the state in an effort to learn more about bear habitat preferences and movements as the population continues to grow.

A majority of the enrolled acreage will be dedicated to restoring native bottomland hardwood forests and forested wetlands in areas of Mississippi identified as priority zones for black bear recovery. Practices will create favorable habitat by incorporating a mixture of hard- and soft-mast species to provide food sources, creating escape cover, elevated den sites, and providing travel corridors for dispersal.

Financial incentives available to landowners enrolling in SAFE include annual rental payments on enrolled acreage, a US\$100 per acre sign-up incentive payment, 50 percent cost share, plus additional practice incentives. Landowners are required to sign a 10 to 15 year contract for all lands enrolled in the program. 🐻

Southwest USA and Mexico

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Arizona

Effects of Forest Fuel Reduction on Black Bear Spatial Ecology at the White Mountain Wildland-Urban Interface

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Since 2006, Arizona Game and Fish Department (AGFD) has been investigating mechanisms of black bear (*Ursus americanus*) resource selection in response to wildland-urban interface (WUI) fuel reduction timber management in the White Mountains of east-central Arizona. The White Mountains are a forested landscape that have been intensively managed for > 50 years. We are using a quasi-experimental study design to test the widely held hypothesis that forest fuel reduction plots will be avoided by black bears by examining global positioning system radio telemetry data. Our specific objectives are three fold: (1) determine differences in black bear selection of fuel reduction plots (patch or third-order selection); (2) describe selection by season for individual plots (within patch or fourth-order selection); and finally, (3) examine whether there are any differences in selection