

International Bear News



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

Spring 2019 Vol. 28 no. 1



Himalayan brown bear footprints on the ground in Kazakhstan. Read more about these bears on page 16.

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Tri-Annual newsletter of the International Association for Bear Research and Management

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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 regional correspondents by email are preferred; otherwise, mail or fax to the address above. IBA reserves the right to accept, reject, and edit submissions.



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Consult website for submission guidelines. Deadline for the Summer 2019 issue is 05 June 2019.



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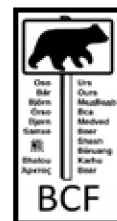
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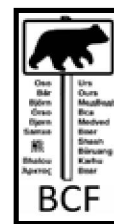
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The use of the IBA-BCF logo at the beginning of an article signifies work that was supported, at least in part, by the Bear Conservation Fund through an IBA grant.

Biological Research

Pilot study into the genetics and population ecology of the Himalayan brown bear (*Ursus arctos isabellinus*) in recreational zones of the Northern Tien Shan Mountains



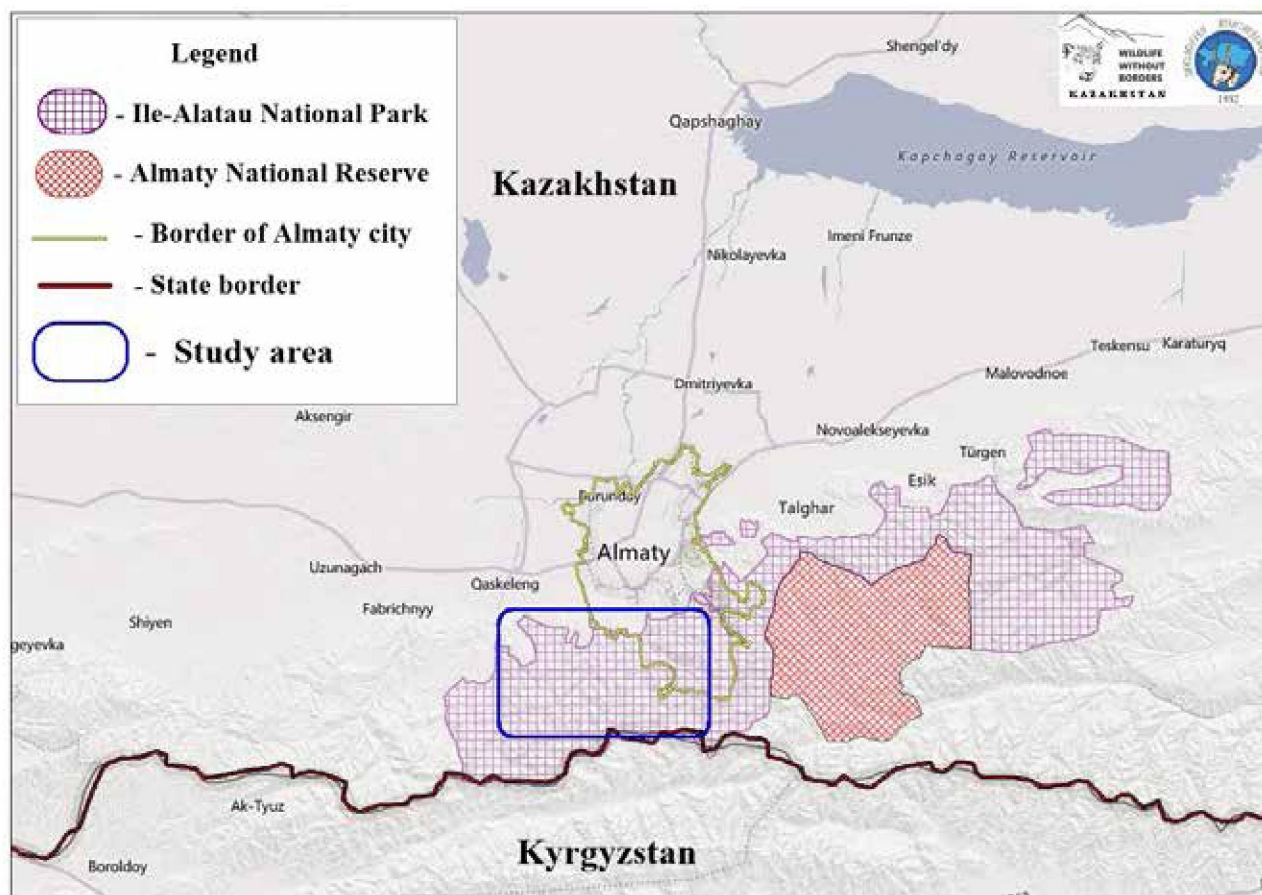
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As a result of strong anthropogenic development of the mountain ecosystems of the Northern Tien Shan Mountains, the issue of preserving biological diversity in the vicinity of the city of Almaty has recently become acute. The brown bear (*Ursus arctos isabellinus*) is an inhabitant of mountain forests of Central Asia, who plays an important role in the ecosystem: as a predator, as a consumer of a large number of invertebrate animals, and as a distributor of seeds of wild fruit plants (Zhiryakov 1980). Bears are also one of the most sensitive animal species to human intervention in nature's processes. In recent decades, as a result of anthropogenic impact, strong changes have taken place in close proximity to the city of Almaty in the basin of the Bolshaya Almatinka River and the surrounding areas. These regions include important habitats for the brown bear (known also as the Tien Shan brown bear), and for many other large mammals.



Our study area (approx. 15,000 ha) is located in the central part of the northern slope of the Zailiysky Alatau mountain range (Northern Tien Shan), in the valleys of the 3 gorges (Bolshaya Almatinka, Aksai and Kargalinka).

The goals of our project for 2018, covering the valleys of the Bolshaya Almatinka, Aksai and Kargalinka rivers, were to:

- identify potential brown bear habitats;
- establish the presence or absence of species;
- select monitoring sites for the installation of camera traps and collection of photo data;
- collect hair and scat for DNA extraction;
- monitor brown bear population in their summer and autumn sites;
- collect environmental data;
- monitor migrations of animals and analyze their distribution;
- analyze collected data and map bear distribution in the project area; and
- map human-bear conflict areas.

The research area (approx. 15,000 ha) is located in the central part of the northern slope of the Zailiysky Alatau mountain range (Northern Tien Shan), in the valleys of the 3 gorges - Bolshaya Almatinka, Aksai and Kargalinka. This initial stage of research being conducted in the basin of the Bolshaya Almatinka River, is to create a foundation for further study and conservation of brown bears and their ecosystem. Despite high levels of recreational activities and proximity to the city, several mammals listed in the Red Data Book of the Republic of Kazakhstan can still be found in the mountains, such as the snow leopard (*Panthera uncia*), the Turkestan lynx (*Lynx lynx isabellinus*), the brown bear, and the stone marten (*Martes foina*). The desire to preserve this unique corner of the wild world, which has suffered from human intervention for hundreds of years, is the main motivating factor in the implementation of this project.

As a result of pilot studies, the permanent presence of a brown bear in the recreational areas of the Northern Tien Shan was established. The main concentration of bears is the region occurs in hard-to-reach areas, with good fodder and protective conditions, where there are practically no traces of human activity. However, as camera-trap observations showed, individual animals regularly encounter humans and overlap in areas used for recreation, which could potentially lead to conflicts in the future.

As part of this project, for the first time in Kazakhstan, we established the genetic bank *Ursus arctos*; the level of genetic polymorphism of individuals representing the *U. arctos* population of the Northern Tien Shan has been analyzed on the basis of the collected material using inter-microsatellite markers.



(right, top) Bear footprints on the ground. (right, center) Collecting genetic material.

Bottom: (left) Installing of the wool trap and pouring an odorous bait (turpentine). (center) Set a camera trap opposite the wool trap.

(right) Bear rubs on the wool trap Sakhnovka gorge May 1 2018. (All Photo Credits: Sanzhar Kantarbayev)

Biological Research

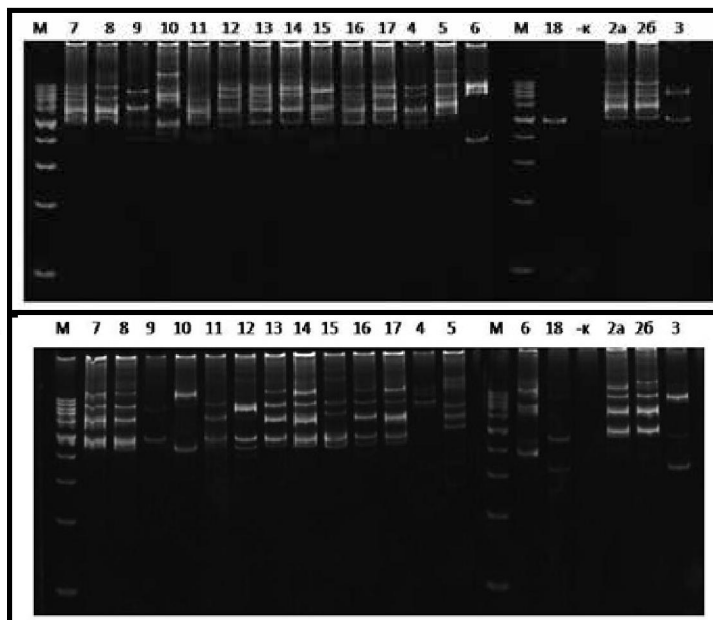
Based on ISSR analysis, 6 brown bears were genotyped for the Northern Tien Shan region. Collected bone remains (two skulls and tibia) belonged to 3 different individuals. The hair found in Sakhnovka in 2016 and in 2018 belonged to 2 different individuals. But based on the similarity of their patterns, we concluded that these 2 bears are related. In general, due to the small number of samples studied, it is difficult to speak about polymorphism in the population. However, given that of the 6 individuals studied, 3 had low polymorphic DNA patterns, it is possible to draw conclusions about the reduced level of polymorphism in our study population. Further studies will allow a more detailed assessment of the level of polymorphism in the population of brown bears of the northern Tien Shan, which can be used to create genetically-based programs for conservation that are important not only at the national level, but also at the regional level in order to preserve this unique rare species gene pool of Tien Shan brown bears.

Acknowledgments:

An IBA Research & Conservation Grant was awarded to the project in 2018. Funds from the grant were used to purchase field equipment and camera traps, as well as materials for genetic research. Funds for the purchase of products, fuel, rental of horses, etc. were sent to the destination and spent during the entire field season of 2018 (the total number of days in the field was 50 days). Our team thanks the IBA Research and Conservation Grants program for the opportunity to conduct pilot studies in Kazakhstan on genetics and population ecology of the brown bear.

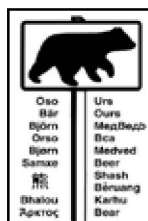
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(top) : ISSR-amplification of *Ursus arctos* DNA using the primer UBC808: M - molecular marker (GeneRuler DNA Ladder Mix 50bp, Fermentas), "-k"-negative control.

(bottom) ISSR-amplification of *Ursus arctos* DNA using primer UBC810: M - molecular marker (GeneRuler DNA Ladder Mix 50bp, Fermentas) "-k"-negative control.



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

The International Association for Bear Research and Management (IBA) is a non-profit tax-exempt organization open to professional biologists, wildlife managers, and others dedicated to the conservation of all bear species. The organization has approximately 500 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 Spring 2019 issue is 5 June 2019