SAIGA CONSERVATION ALLIANCE

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SAIGA NEWS

Providing a six-language forum for exchange of ideas and information about saiga conservation and ecology

Morphological features of *Saiga t. tatarica*

Photo by Victor Maleev

The taxonomy of the saiga antelope

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The traditional classification of the saiga as a single species *Saiga tatarica* was challenged by the allocation of the Mongolian subspecies to an extinct fossil form *S. borealis* in the third edition of *Mammal Species of the World* (Wilson & Reeder 2005). This change in status proved

Taxonomy is important, firstly because it should reflect as accurately as possible evolutionary history and relationships between different forms, but also on a practical level: species units form the basis of the IUCN Red List, CITES Appendices and related legislation, the Convention on Migratory Species and other international treaties and national legislation. Species are also widely used for conservation priority setting at global, regional and local scales. The taxonomy of the saiga is summarised here in an attempt to clarify the situation, especially in view of some recent research.

As with many species, saiga has been known by several names over time, including *S. imberbis.* This name is invalid and the accepted scientific name is *Saiga tatarica* Linnaeus, 1766.

The Mongolian saiga was first described as a separate species *Saiga mongolica*, based on differences in skull measurements, shape and size of horns, and colour of pelage by Bannikov (1946). However, the author soon revised his opinion and considered it to be only a subspecies *S. imberbis mongolica* [= *S. tataricamongolica*] (Bannikov 1954).

That arrangement, with two living subspecies (*S. t. tatarica* and *S. t. mongolica*) has been followed by almost all experts to date (Ellerman and Morisson-Scott 1951, Heptner et al. 1961, Sokolov 1974, Corbet 1978, Sokolov & Zhirnov 1998) with three fossil saiga subspecies also recognised - *S. t. borealis*, *S. t. prisca* and *S. t. binagadensis* (e.g. Sokolov et al. 1998).

Kholodova et al. (2006) provided genetic evidence to support this classification of living saigas. They analysed mtDNA from 93 tissue samples from all 5 extant populations of saiga (3 in Kazakhstan, one in Russia, one in Mongolia). The results showed "…slight but clear differences between *S. t. mongolica* and *S. t. tatarica,*

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confirming the current designation of *S. t. mongolica* as a subspecies rather than a species".

Baryshnikov and Tikhonov (1994) reviewed the extinct forms of saiga, and raised *S. borealis* to a full species, based on size differences among fossil specimens from Yakutia. They also said that this taxon survived in Mongolia as *S. borealis mongolica* (i.e. assigning the Mongolian form to *borealis* and not *tatarica*). This opinion gained much wider recognition when it was accepted by Grubb (2005) in the third edition of *Mammal Species of the World*.

Groves and Grubb (2011) in their taxonomic revision of the ungulates then reverted to *Saiga mongolica* for the Mongolian saiga, citing Bannikov. However, (1) they appear unaware that Bannikov himself had revised his original opinion and (2) they did not refer to, or discuss, the genetic evidence from Kholodova et al. (2006). Groves and Grubb (2011) was in turn used as the basis for the species accounts of ungulates in the recent *Handbook of the Mammals of the World* (Wilson and Mittermeier 2012).

The status of *S. borealis* as a separate species has been undermined by a recent genetic study by Campos et al. (2010) who analysed modern and fossil saiga using mtDNA from 27 ancient and 38 modern specimens from all parts of the saiga range, including two '*S. borealis*'. The results show two distinct saiga lineages: the first includes all modern and fossil saiga from northeast Yakutia and the Urals. The second lineage occurs only in the northern Urals and is now extinct. The authors conclude: "….the data suggest that *S. borealis* does not constitute a distinct subspecies or species". Furthermore, the authors of this study include Baryshnikov and Tikhonov the co-authors of the 1994 paper, and who therefore can be seen to now support this revised view.

The genetic analysis by Kholodova et al. (2006) confirmed that Mongolian saiga was a subspecies of *S. tatarica*, and the more recent study by Campos et al. (2010) showed that all living and most fossil saiga were also *S. tatarica*, so the clear conclusion must be that the correct scientific name of Mongolian saiga at present is *Saiga tatarica mongolica* Bannikov, 1946.

All studies show that Mongolian saiga is slightly distinct from *S. t. tatarica* genetically, but

Photo by Bayarbaatar Buuveibaatar

Morphological features of the Mongolian saiga (*Saiga t. mongolica*)

more clearly distinct based on cranial measurements, horn size and shape, coat colour and ecology. The two genetic studies agree that *mongolica* should be considered a subspecies. However, the genetic research so far has been based on mtDNA only and from a relatively small number of Mongolian samples. To obtain a definitive view of the phylogenetic relationship between *tatarica* and *mongolica*, it would be useful to carry out a further analysis that also used nuclear DNA and with a lager sample size. If such a study did show a species-level differentiation, the rules of zoological nomenclature indicate that the correct name would be *S. mongolica*, not *S. borealis*.

Editor's Note: **Please contact the author for full details of the references cited.**

Updates

The results of the 2012 saiga aerial surveys in Kazakhstan

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The saiga antelope aerial survey was carried out in Kazakhstan from the 8th to 26th of April, 2012, as a collaboration between the Institute of Zoology, Kazakhstan; the Committee of Forestry and Hunting of the Ministry of Agriculture of the Republic of Kazakhstan; the Okhotzooprom State Enterprise; regional territorial Inspectorates of Forest and Hunting Management; the Association for the Conservation of Biodiversity in Kazakhstan (ACBK), and the companies "Wildlife Research and Development" and "Fauna". According to the surveys, the total number of saigas in Kazakhstan is 137,500 (in 2011, it was 102,000), made up of the Betpak-dala population – 110,000; Ustyurt – 6,500; Ural – 21,000. As compared to 2011, the population was 41% higher in Betpak-dala, 11% higher in Ural and 6.5% higher in Ustyurt. For additional information please contact the author.

Construction of a fence along the border between Kazakhstan and Uzbekistan

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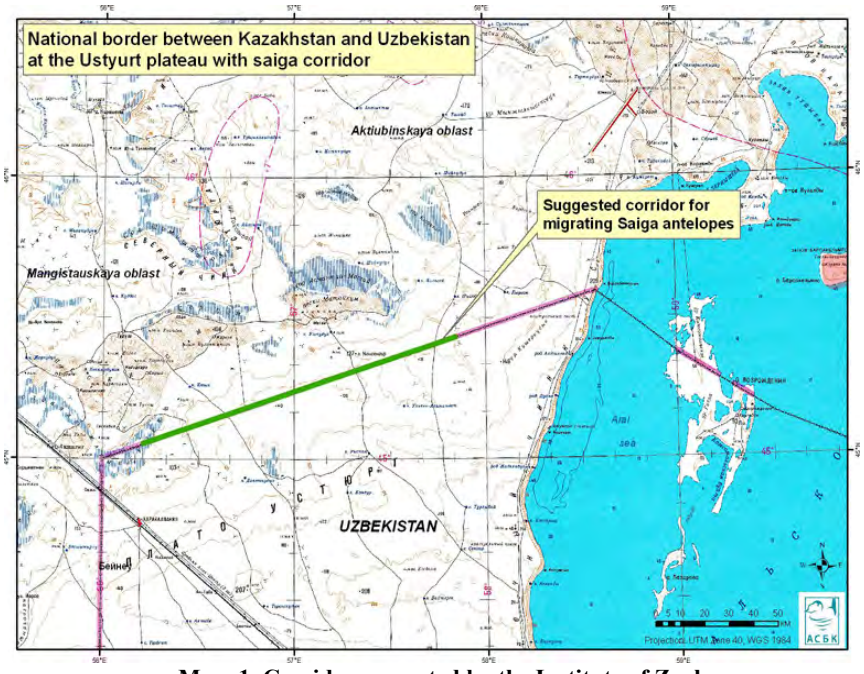
In spring 2012, ACBK received information about the construction of a border fence between Kazakhstan and Uzbekistan on the Ustyurt plateau, which could become a barrier for saiga migration as well as creating perfect conditions for poaching. ACBK contacted the Committee of Forestry and Hunting of the Ministry of Agriculture of the Republic of Kazakhstan (CFH), requesting official information about the ongoing construction, followed by a similar request by the Convention on Migratory Species.

Many saigas cross this border every year on their migration between their summer pastures and calving grounds in the north and winter pastures in the south; a fence along the border would prevent this. The consequences for the Ustyurt saiga population, which is still in a critical condition, are unforeseeable



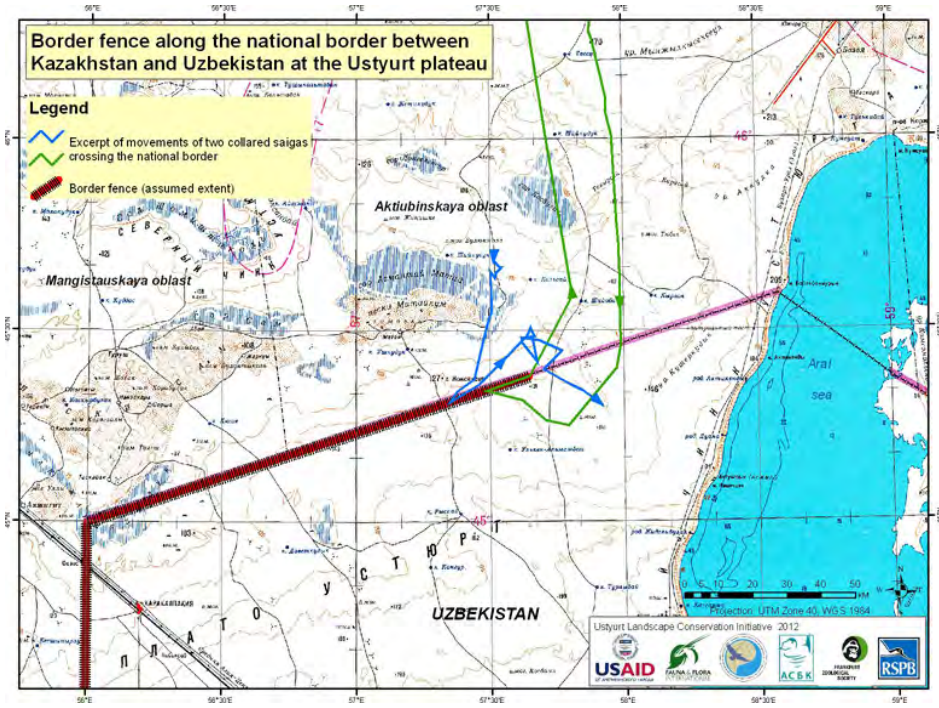
Map. 1. Corridor suggested by the Institute of Zoology

but potentially severe.

The CFH consulted with the relevant governmental borderagency, and reported that the fence is being constructed under a programme to strengthen the exterior borders of the new customs union between Russia, Belarus and Kazakhstan. The Institute of Zoology has provided recommendations for an open corridor at the border to guarantee an unimpeded saiga migration. (Map 1).

The CFH understands the importance of this issue for the Ustyurt saiga population and is interested in learning about experiences from other countries in the design of migration paths and wildlife friendly fences.

In winter 2011/2012, before fence construction was complete, saiga antelopes which had been collared with satellite transmitters for the project "Ustyurt Landscape Conservation Initiative" implemented by FFI and ACBK, crossed the border (Map 2). FFI and ACBK will continue to monitor this issue through the telemetry programme.

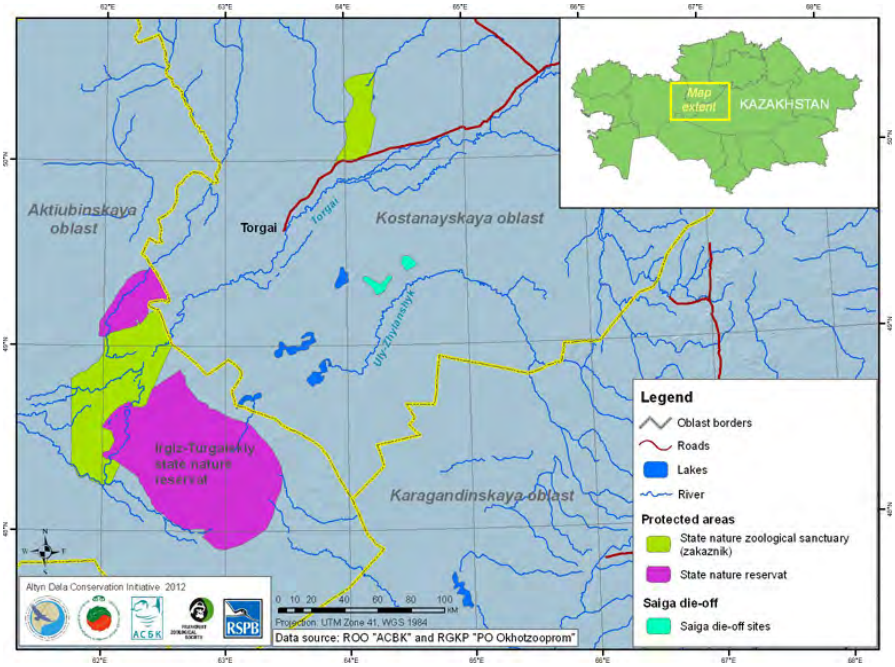


Map 2. Border fence between Kazakhstan and Uzbekistan and seasonal movements of two collared saigas

Mass die-off in the Betpak-Dala population

Steffen Zuther, ACBK, steffen.zuther@acbk.kz

Between 19th and 25th May 2012, a mass die-off of saiga antelopes occurred in the Zhangeldinskiy district, near the main calving area of the Betpak-dala population in the south of Kostanayprovinceof Kazakhstan. This die-off is already the third after similar incidents in 2010 and 2011 in the Ural population in West Kazakhstan (see SN-11, 13, 14). In total in 2012, 926 animals were found dead, among them 759 females, 19 males and 148 calves. The large die-off occurred after calving. There were no clear disease symptoms observed.



Map 1. Locationof saigadie-off sites in 2012

As part of a three-year State-funded research programme on saiga diseases, the National Research Centre on biosafety was already monitoring calving in the area, supported by ACBK. Although at the time of the monitoring there were no clear signs of disease, ongoing data analysis may provide information on the cause of death.

Several institutions were involved in investigating this die-off event. Veterinarians from Torgai, Kostanay, Astana and Almaty went to the field to establish the reason for the deaths. Many rangers from the State enterprise "Okhotzooprom" were involved as well as rangers from ACBK and representatives of the Committee of Forestry and Hunting (CFH). According to an CFH official statement, pasteurellosis was the cause of the die-off. The dead animals were buried on site and investigations are ongoing.

A new educational course for the schoolchildren of Karakalpakstan

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Only a short time ago, saiga migrations passed close by the villages of the Ustyurt Plateau in Uzbekistan, and in severe winters animals often even entered the villages. These days, you never see saigas near people - they graze in the faraway, difficult to access parts of the Plateau; yet even there they remain within the reach of their main enemies – poachers, who come from the few villages scattered across the steppe.

How can the students, teachers and other inhabitants of the Ustyurt help the saiga antelope? Children can't take part in raids to catch poachers. However, these brutal poachers were once schoolchildren, and have families themselves. Since children are keen to acquire new information, it is really important to work with them to overcome their stereotypes of disrespectful and exploitative treatment of nature. It is important to give them as much information about the saiga as possible, and instill a feeling of pride that these unique antelopes are grazing on their native plains.

Photo by Alexander Esipov

Natalia Shivaldova with teachers from Jaslyk village

Since teachers are children's guides to the world, it is essential that state-of-the-art teaching techniques are available to help them to improve learning and make it more entertaining. On April 4-8, we held meetings with representatives of the local community and seminars with secondary school teachers in the villages of Jaslyk, Karakalpakiya and Kyrk-Kyz, as part of preparations for Saiga Day. The team comprised expert ecologists from the Academy of Sciences of Uzbekistan, representatives of the Saiga Conservation Alliance and an experienced training coordinator, who was an expert in youth development. They brought a teaching pack "The saiga, a wonderful creature of nature" including a study guide for students, a tutorial guide for teachers, an educational board game and posters about saiga biology and the steppe ecosystem.

Photo by Alexander Esipov

Seminar participants are discussing an educational poster

This teaching pack was prepared by the State Committee for Nature Protection of the Republic of Uzbekistan for the Saiga Conservation Alliance, with the assistance of the Penguin Club of the Disney-Canada Foundation. The teaching pack was warmly received by the teachers, while the training seminar itself was conducted very dynamically. The teachers joined in with the development and preparation of festive events with great enthusiasm and inspiration. This ecological initiative also received support from the local authorities. This educational initiative is only a part of the large-scale activities going on for saiga conservation in Uzbekistan, focused on preventing poaching.

Yet, in spite of all these efforts, once the snow thawed in spring, by habit or tradition, people went to the steppe looking for easy pickings at the price of saigas' lives.

Photo by Natalia Shivaldova

Seminar participants in the village of Kyrk-Kyz

The appearance of saiga meat in the markets is the tragic confirmation of this. While traveling from village to village across the vast expanses of the Ustyurt, you begin to turn your mind to other things. An absurd idea has stuck in my mind: "*every time a saiga is shot and killed, the moment draws nearer when all the saiga poachers disappear since there will be nothing to hunt for. There will be nobody to re-educate and no one to fight against if there are no saiga son the steppe*". But the steppe will soon turn into a lifeless space like dead lunar landscapes, because the entire ecosystem will collapse like a house of cards. The saiga is the life-force of the steppe and all its inhabitants. It is the foundation on which this many-faceted steppe ecosystem is built. The saiga should be given at least a small chance of survival and it will quickly recover, because of its natural resilience. Unfortunately, this chance depends on more than the willpower of a team of enthusiastic environmentalists…

Editor's Note: **If you would like a free copy of the teaching pack in the Karakalpak (electronic and paper versions) and Russian languages (electronic version), please apply to Elena Bykova, esipov@xnet.uz.**

Saiga Day 2012

This ecological festival dedicated to the saiga, has become a good tradition in the schools of Uzbekistan, Kazakhstan and Russia. Both children and adults look forward to this event. Saiga Day is a good example of an efficient method of education and awareness-raising which consolidates the trend towards a more thoughtful attitude towards nature.

Saiga Day in Uzbekistan

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The villages of Jaslyk and Karakalpakiya have been the venues for this initiative in Uzbekistan; this year the village of Kyrk-Kyz joined them. Hundreds of schoolchildren, adults and little kids participated in this event organized by schools, with the participation of the local administration and assistance of the Saiga Conservation Alliance and the State Committee for Nature Protection of Uzbekistan.

Photo by Alexander Esipov

Little participants in the concert program

The festivals were held in four schools, and were opened with colourful concerts, quizzes, sports and art competitions. The festival was preceded by an ecological theme within the schools, including lessons on the saiga. The Saiga Conservation Alliance gave awards to the five best teachers, who had prepared the most interesting and colorful lessons. A very successful graffiti competition for the 8th and 9th formers of Jaslyk was, perhaps, one of the most impressive events. First the children prepared drawings, which were then transferred to an out-of-use, rusty gas pipe that had served as a school fence for a long time. As a result, the pipe was turned into an original artwork which has beautified not only the schoolyard, but also the village as a whole.

Photo by Alexander Esipov

Saiga toys made by children

Photo by Alexander Esipov

Graffiti competition

One of Jaslyk's residents commented that: "*Beneath our eyes, the teenagers have transformed the ugly into the beautiful with their own hands! This is their first experience of changing the world on their own, without adult assistance*". It is undoubtedly one of the festival's achievements that that the students have not only extended their knowledge of the steppe antelope but also felt confident that they could do something useful for the conservation of their native land.

Saiga Day in Kazakhstan

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In May at school № 5 in Shalkar village,"Akboken"eco-club held their first 'Saiga Day' to celebrate the Ustyurt saiga population. This first Saiga Day was even more special because the Association for the Conservation of Biodiversity of Kazakhstan (ACBK) invited members of the "Tabiyatiayalaik" eco youth club, from Karakalpakiya village, Uzbekistan, making this a truly international event.

Photo by Aizhana Issayeva

Performance of eco-club members from Uzbekistan

The children performed musical pieces about the saiga as a unique symbol of the steppes. A holiday programme included discussions on the topic "What do you know about the saiga", where they showed great knowledge, wit and interest. They also learnt about the rare plant and animal species inhabiting Ustyurt. A showing of the "Saga of the Saiga" cartoon let children learn about the history and main threats to the saiga. The children particularly enjoyed an exhibition of their traditional handicrafts, and a tour of Shalkar lake and walk in the pine forest.

Kumisay Zholdasova, the leader of "Tabiyatiayalaik" eco-club from Uzbekistan, said that eco-clubs play a significant role in engaging and encouraging local communities, particularly young people, to participate in conservation activities. She gave a beautiful presentation about the activities of her club in Karakalpakiya, explaining her approach to environmental education of the younger generation, awakening feelings of concern, responsibility, and willingness to defend nature. "I was surprised how knowledgeable the children are", said Saltanat Kalieva,

Photo by Aizhana Issayeva

Performance of eco-club members from Kazakhstan

the deputy director of school #26 from Karakalpakiya village. "It is extremely important to make a place for nature conservation in people's souls from a very young age. Our children will make our future".

Eco-club members from both countries formed unforgettable impressions, and of course made new friends with the same views and most importantly the desire to work together for the conservation of the Ustyurt's unique symbol – the saiga.

The Saiga Day in Shalkar was supported by FFI's "Ustyurt Landscape Conservation Initiative" which is implemented in cooperation with ACBK and the Forestry and Hunting Committee of the Ministry of Agriculture of Kazakhstan, with the generous support of the Disney Worldwide Conservation Fund and the USAID Sustainable Conservation Approaches for Priority Ecosystems (SCAPES) program. Among other aims, this project promotes transboundary cooperation through increasing public environmental awareness in the cross border region of Kazakhstan and Uzbekistan and enhancing the involvement of young people.

Photo by Aizhana Issayeva

Children during the excursion to the Shalkar lake

Saiga Day in Kalmykia

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The activities carried out by the Centre for Wild Animals as part of the celebration of International Saiga Day included lectures, quizzes and sports competitions for schoolchildren. The objective of the celebration is to draw the next generation's attention to the problem of saiga conservation in the steppe region. Perhaps one of the most impressive events was an ecological lesson "Love and Know Your Native Land" for the fifth form students of school № 10, given in the A.M. Amur-Sanan National Library.

Photo by T. Goryayev

Lecture by Viktoriya Nosytayeva

Photo by Nadezhda Arylova

Students of school №10

This lesson, about the fate of the "four-footed nomad" and other urgent environmental problems of the Kalmyk steppe included lectures, videos and a quiz "The saiga – a steppe antelope".

The children watched the cartoon "The Saiga Saga" with great interest, as well as a video about the saigas in the Yashkul' breeding centre of the Centre for Wild Animals. The students are well-informed about saiga biology and its status, and they took a vivid interest in the saiga's life in the breeding centre. All the participants received certificates with a picture of a saiga.

Secondary school teacher Viktoriya Nosytayeva, from Artezian, gave lectures to children at five schools in the Yashkul and Chernozemelsky districts as a part of the Saiga Day celebrations. She showed them a presentation and video about saigas and the children also looked at the colourful information stands Viktoriya had created as part of a project supported by the Saiga Conservation Alliance.

LITTLE SAIGAS

We, little saigas, are like kids,
We are so fond of caresses.
And from dawn to dusk
We happily frisk around our Mummy

We drink water and nibble grass.
We are trustful and not evil.
But it scares us that sometimes
People bear ill will to us.

We shall tell all the poachers:
«You must not shoot at the saiga!
They should be saved and protected!».

If the poachers are allowed to shoot,
The saigas disappear from the steppe.

Renata Baideldinova,
a fourth-year student of the Gashun secondary school,
member of the Saiga Friends Club

Photo by Tatyana Karimova

Renata is feeding a little saiga

Biodiversity and the oil-and-gas industry

Sevara Sharapova, UNDP-GEF, sevara.sharapova@undp.org

On the occasion of the International Day of Biodiversity, a quiz was held for the second, third and fourth year students of the Tashkent Chemical Technological Institute (TCTI), majoring in Chemical Technology of Oil and Gas processing, on the theme "Biodiversity and the oil-and-gas industry". The Institute boasts over 500 students majoring in this subject. Organized with the support of the UNDP-GEF project "Mainstreaming Biodiversity into Uzbekistan's oil and gas Policies and Operations" and the State Committee for Nature Protection of the Republic of Uzbekistan, the quiz was aimed at raising awareness on biodiversity conservation and promoting environmentally-friendly behaviour amongst the students who will, in the near future, take up careers in the oil and gas industry.

Photo by UNDP-GEF

Participants and winners of the "Biodiversity and the oil-and-gas industry" quiz

Ms. Mahpuza Karakhodjaeva, the Provost of the Institute, gave a welcoming speech to open the event. The quiz had four topics: 1) Uzbekistan's flora and fauna; 2) the concept of biodiversity; 3) Landscapes of Uzbekistan; 4) Processing of oil and gas products. The 'Oilgreen' team carried the day, exhibiting great knowledge and team spirit.

The quiz generated much interest amongst the faculty and students. For instance, student Diyer Kabirov said that he had had no idea that obstacles that at first sight seem to be small or insignificant pose critical threats to animal populations, for example, that gas pipelines can be a barrier to the movement of saigas. Another student, Shokhrukh Kholmatov, noted that the event had inspired him to think about the responsibility that each of us has for biodiversity conservation. The students' interest in the event indicates that there is a growing demand for knowledge in the field of biodiversity conservation, We therefore plan to hold more such events to help raise awareness about biodiversity conservation; one suggestion was that the biodiversity conservation quiz should be held annually as a competition between students from different universities.

Saigas as a focus of the WCS-China Program's South China Project

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To help reduce the illegal wildlife trade, WCS-China established the South China Project in Guangzhou in August 2008. The project's goal is to stop all illegal trade in CITES I, CITES II zero quota, State Class 1 protected species and other species forbidden by local laws in Guangdong. Under this goal, one of our important objectives is to improve the capacity of local law enforcement agencies to reduce wildlife crime. The saiga (*Saiga tatarica*) is a target species for the South China Project. Since 2009, the South China Project has been supported by three Saiga Conservation Alliance Small Grants in their work reducing the illegal trade in saiga products in Guangzhou, through market surveillance and coordination of enforcement by government agencies, based on intelligence and a collaborative education programme.

Photo by WCS-China

Team and Volunteers of the WCS China Programme's South China Project

Ornithologists also like saigas

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On 24-29 March 2011, the 13th meeting of the Goose Specialist Group of the IUCN-SSC was held in conjunction with the 4th meeting of the Russian Goose, Swan and Duck Study Group (GSDSG) of northern Eurasia in Elista, Kalmykia (Russia).This conference, entitled "Waterfowl of Northern Eurasia, geography, population and environmental dynamics and population management" was attended by 140 participants from 18 different countries (http://onlinereg.ru/Elista2011,http://onlinereg.ru/site.php?go=153&page=2819&lang=RUS).

The organizers invited delegates to visit one of the unique sites in Kalmykia – the Centre for Wild Animals, which is one of three places in the world where you can see saigas in semi-wild conditions. Fourteen delegates took part in a post-conference excursion, to see the vast steppes of Kalmykia and the adjacent Astrakhan district, as well as the huge Volga Delta. In the Stepnoi Sanctuary tracks of wild saigas as well as two live animals were observed, and we saw how a well-equipped anti-poaching team can work to stop poaching in this vast reserve.

Photo by Yury Arylov

Gerald Malle, Remo Probst and Sonia Rozenfeldat the Breeding Centre

The NGO Birdlife Carinthia, a regional branch of BirdLife Austria, mainly works to conserve local bird species in southern Austria. However, they are interested in conservation projects all over the world, on other taxa than just birds. On 17th May 2012 its Director Remo Probst and Vice-President Gerald Malle visited the Saiga breeding centre. After the trip Remo Probst said: "We were happy to receive an invitation to the saiga breeding center and Stepnoi Sanctuary, to learn from a best practice example of conservation. It was very interesting to see local species like saigas and birds, and of course the beautiful steppe landscape. In general we are ornithologists, however, we are very much interested in landscapes and habitats as well. We observed how very motivated people are working to save the saiga, which has undergone a VERY serious decline. Moreover, we understood that saving saiga is not only about species conservation, but it is very important to save its steppe habitat including a lot of birds and other taxa.

Therefore, we strongly recommend prolonging and even enlarging those projects, because of their outstanding importance for the steppe ecosystem!"

The Golden Loon will deliver saigas from trouble

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As established tradition demands, at the very beginning of the Siberian summer the cream of environmental television journalism congregates in Khanty-Mansisk. The International Environmental Television Film Festival "Save and Conserve" was held for the 16th time and hosted representatives of 30 countries from near and far, as well as guests from 60 Russian cities. They included well-known TV and film directors, journalists and ecologists. About 300 works were presented to the jury, and the 70 best were selected for screening. They included ecological documentaries, social advertisements, and films on environment protection, and were competing for the grand prize – the "Golden Loon".

The Festival gives a new impetus to nature conservation. Its participants tell a range of stories, and call for a careful and responsible attitude towards nature. The Festival's atmosphere is unique, including discussions, meetings with interesting people, watching films and programs and master-classes. The Yugor landscape provides magnificent natural

Photo by SCA

Member of the Selection Board Maria Vorontsova, Director of IFAW-Russia, presents the prestigious statuette to the film cameraman, Aleksandr Klepalov

scenery. Participants say that the natural beauty of this harsh land inspires them to further artistic endeavours.

This year, the festival prize nomination for "Journalistic investigation"– the Golden Loon - was awarded to a film about saigas, "At the End of the Line" created by the Tashkent GALA-Film Studio, commissioned by the Saiga Conservation Alliance and with the financial assistance of Disney Canada, the Marsh Christian Trust and DVV International (see SN-14). This film attracted the special attention of the jury members, showing how this catastrophe, this tragedy that has happened and is still taking place for saigas in Uzbekistan has reached its limit, "the end of the line". If mankind fails to intervene, then the steppe antelopes will simply disappear as a species in our Republic in the near future.

Ecological journalists call the loon the bird of happiness and we believe that the Golden Loon will shelter the saiga from trouble under its wing.

Photo by SCA

Aleksandr Klepalov with the festival prize – the "Golden Loon"

An information campaign against the illegal trade in saiga horns has been launched

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In June this year, the Association for the Conservation of Biodiversity of Kazakhstan (ACBK) launched an information campaign against signs offering saiga horns for sale, which have literally flooded the cities of Kazakhstan.

A new version of article № 290 of the Criminal Code of the RK was adopted from February of this year which reads that "Illegal acquisition, purchase, storage, sale, import, export, shipping, transportation as well as destruction of rare and endangered plants and animals and/or their parts and derivatives, and also plants and animals and/or their parts and derivatives the use of which is forbidden by law, or their habitats, shall be punished by limitation of freedom for a period of up to three years or by deprivation of freedom for the same period with confiscation of the convicted offender's property…". Despite this, signs offering saiga horns at an attractive price are encountered increasingly frequently in Kazakhstan's cities.

The goal of the campaign is to prevent the spread of signs offering saiga horns for sale and purchase, and to inform the local population of the responsibility borne by the people who respond to these offers and thereby help to encourage poaching. ACBK wants to draw the public's attention to how dangerous the horn trade is both for themselves and for nature, so as to change public opinion, reduce violations of wildlife conservation laws, and inform those who are unaware of the stringent punishments for such violations.

All those who support and share this position are invited to:

- If you find signs offering to buy/sell saiga horns in public places (at bus stops, on lampposts, in stores), please glue over them a sticker with an extract from Article № 290 of the Criminal Code about the illegal nature of these sales and the consequences that follow. You can find information on how and where to get stickers at the ACBK site: www.acbk.kz.
- Caution buyers/sellers against violations of the law by sending SMS-messages to the numbers indicated on the signs. You can get the recommended text of the message by sending an e-mail to: acbk@acbk.kz, or on the social network pages: https://www.facebook.com/groups/443937775636114/and http://vk.com/event39122337.

ACBK relies on your support!

Media reports:

Update on fence construction on the Kazakhstan-Uzbekistan border

Since the autumn of 2011, Kazakhstan has erected over 100 kilometres of barrier going eastwards from its border with Uzbekistan in the west. Another section of 50 kilometres from the border's northeast corner to the south has also been fenced. The barbed wire barrier as high as 180 cm from the ground prevents not only saigas from crossing the border but smaller animals as well.

For more information see http://www.uznews.net/news_single.php?lng=ru&sub=hot&cid=4&nid=19639.

Photo by Uznews

Barbed wire on the Ustyurt Plateau on the border between Kazakhstan and Uzbekistan

Actions against the saiga horn trade by Kyzylorda police

The Kyzylorda police conducts active investigations in order to eradicate the trade in saiga horns in their region. Traders distribute notices about their interest in buying saiga horns using all available means. Police can then trace the trader's telephone number, carry out search operations, or catch him in the act of receiving the goods. It is more difficult to bring "carriers", those who transport the horns, to justice. According to the environmental police, the saiga horntrade routes are as follows: Horns from animals killed in Kazakhstan are illegally shipped to China. Alternatively they are transported through the Russian-Chinese border to Primorye and the Far East where their price is higher – up to 20,000 roubles ($630) per kilo. In Kyzylorda, "old" saiga horns from natural mortality cost 2-3,000 tenge ($15-20) each, while fresh, illegally hunted horns are more expensive. *For more information see* http://www.zakon.kz/kazakhstan/4476050-policejjskie-kyzylordy-objavili-vojjnu.html.

Creation of watering places will help to increase saiga numbers in Kazakhstan

Since 2010, the project "Recreation of watering places in the western area of the Korgalzhyn nature reserve" has been implemented in Kazakhstan with financial support from the Kazakhmys company. Over these two years, the Ternsai, Tobylgysai and Akboken dams have been restored. The project participants' opinion is that saigas move far from the reserve and enter unprotected areas where they are vulnerable to poachers because they are looking for drinking water. Creation of watering places by restoring disused and destroyed dams has considerably reduced the movement of saigas. These measures have also resulted in an increase in waterfowl numbers in the nearby Tengiz lake. Eight more dams remain to be restored. *For more information see* http://locman.kz/newsonly.php?ID=29524#.T_3Cl5Ey2M8.

Electric fence for saiga protection

At the Yashkul' breeding centre, the installation of an electric fence to protect saigas from predators has been completed. Electric strands have been laid in four rows around the entire perimeter of the enclosure. Students from the Agrarian Department of Kalmyk State University volunteered to help the Centre's staff to install the fence. The fence is powered by a solar battery. Predators get a weak electric shock and run away from the fence if they touch the wires. The shock doesn't cause serious harm, and it trains the predators to avoid the fence.

The work was carried out with the assistance of WWF - Russia, the Steppe Project of the UNDP/GEF/Russian Ministry of Nature and Olga Obgenova, a businesswoman from Elista. *For more information see* http://www.unmultimedia.org/radio/russian/archives/117703/

Photo by Nadezhda Arylova

The electric fence laid around the entire perimeter of the saiga enclosure

IFAW will help to conserve the saiga in Russia

In 2012, the International Fund for Animal Welfare (IFAW) will allocate about one million roubles ($31,300) to saiga conservation in the southern steppes of Russia. The money will be assigned to the operational needs of the Stepnoi nature reserve in the Astrakhan region, and for purchase of fodder by the Centre for Wild Animals of Kalmykia.

At present saigas are only found in Russia on the steppes of the Astrakhan region and in Kalmykia. According to the latest surveys, there are fewer than 12,000 saigas in Russia, while IFAW experts estimate no more than 7,000 animals.

For more information see
http://www.elista.org/index.php?option=com_content&view=article&id=14400:2012-06-15-05-46-47&catid=1,
http://eco.ria.ru/nature/20120615/673645518.html.

IFAW representative Elena Zharkova's impressions of her visit to the Stepnoi reserve and the Yashkul' breeding centre are available on the IFAW website http://www.ifaw.org/united-states/news/watch-true-happiness-steppe-meeting-saiga-antelope.

There is also detailed photo coverage by the blogger and photographer Evgeny Polonsky, who recently visited the Stepnoi nature reserve, at:
http://e-polonskiy.livejournal.com/63311.html

Cases of saiga poaching and illegal trade

Kazakhstan

January 6, 2012

Betpak-dala population: 80 kilometers from the village of Zhaisaibai, Irgyz district, officers of the Irgyz district police detained a Toyota Land Cruiser driven by a resident of the Kyzyl-Orda region; Inside the car was an unregistered double-barrelled gun, and on the path of the car the policemen found 5 dehorned saiga carcasses.

For more information see
http://www.avestnik.kz/?p=16078.

January 28, 2012

Betpak-dala population: During search operations in Aktobe, policemen detained a 26-year-old in whose car they found 12 saiga horns. He explained that he had been buying horns through posting notices in the city and nearby areas, offering 12,000 tenge ($80) per pair, and reselling then at 60,000tenge ($400) a kilo. He voluntarily yielded up 102 saiga horns which he had collected over the previous 2 months and kept at his home. Criminal charges are now under consideration, under Clauses 190 and 183 of the Criminal Code. *For more information see*
http://inform.kz/rus/article/2438108.

February 6, 2012

International: A major batch of saiga horns has been detained at the Kurmagazy border check point, Atyrau region (between Russia and Kazakhstan). Two people from Almaty region were attempting to bring 170 saiga horns into Kazakhstan. The smugglers said they had purchased the saiga horns in Astrakhan, Russia, and were planning to sell them in Shymkent. A criminal investigation is underway.

For more information see
http://inform.kz/rus/article/2438956,
http://www.zakon.kz/kazakhstan/4472483-v-atyrau-nezakonno-pytalis-sbyt-8.html.

March 10, 2012

Betpak-dala population: Okhotzooprom inspectors and officers of the Zhalagazh District Police detained an off-road vehicle containing four residents of Kyzyl-Orda. In the boot, the policemen found hunting guns and cartridges, blood spots and animal hairs. Following the car tracks, they found three discarded saiga carcasses. A criminal case for illegal hunting has been initiated.

For more information see
http://tengrinews.kz/crime/209828/.

March 19, 2012

International: At the Ili check point near Kapshagai, officers of the Department for Organized Crime Control, Almaty region, and the Department of Road Police detained a resident of Sary Terek village, East Kazakhstan region, who was attempting to take through a large quantity of saiga horns, musk beaver skins and "baimur" (*Fritillaria pallidiflora* Schrenk) roots. The police confiscated 4,704 saiga horns, 10,608 musk beaver skins and 3 sack ofs "baimur" roots. The police are conducting investigations into the identity of the traders and distributors. The arrested man intended to deliver the products to Zaisan (East Kazakhstan) for onward sale to China.

March 20, 2012

International: During routine surveillance, 178 saiga horns were confiscated at the Kurmangazy border check point (between Russia and Kazakhstan), which an Almaty resident was attempting to carry across the border. The evidence was handed over to the Kurmangazy district police. Preliminary investigations are underway.

For more information see
http://www.zakon.kz/kazakhstan/4481427-krupnejjshaja-partija-rogov-sajjgi-i.html.

May 27, 2012

Betpak-dala population: In the Kulanshi region, Aktyuba province, 45 km from the village of Irgyz, an off-road vehicle operated by local residents was detained; inside the car a saiga carcass and two saiga horns were found. A criminal case has been initiated under Clause 288 of the Criminal Code -"Illegal hunting".

For more information see
http://inform.kz/rus/article/2467509.

June 5, 2012

Betpak-dala population: Okhotzooprom inspectors in Aktebiy district, Aktyuba region, found over 60 dehorned saiga carcasses 12 km from the village of Kyrykkudyk. They also found off-road vehicle tracks and cartridge cases. Later, Department for Internal Affairs police officers and the Arlan special branch detained suspects from Kyzyl-Orda region. Investigations are ongoing to find the horns and a criminal case has been initiated.

For more information see http://rus.azattyk.org/content/saiga-otstrel-roga-aktobe/24614906.html and http://today.kz/ru/news/incident/2012-06-15/67726.

June 15, 2012

Betpak-dala population: In the Ulytau district, Karaganda region, environmental police officers and Okhotzooprom staff detained an UAZ vehicle driven by a resident of Tersakkan village; inside the car they found a dressed saiga carcass. The case has been registered under Clause 288 of the Criminal Code (Illegal hunting).

For more information see http://www.zakon.kz/kazakhstan/4497187-dvukh-brakonerov-s-tushejj-sajjgaka.html.

June 18, 2012

Ural population: During search operations in the village of Akoba, West Kazakhstan region, Committee for Forestry and Hunting and Okhotzooprom officers found 12 pairs of saiga horns and a hunting gun. A criminal case has been initiated for illegal hunting and investigations are underway.

For more information see http://www.kazakh-zerno.kz/index.php?option=com_content&view=article&id=59443:-12-&catid=14&Itemid=108.

July 7, 2012

Betpak-dala population: During inspection of a car driven by a resident of Irgyz village with a passenger from Aktoba, District and Environmental police officers confiscated a saiga carcass, 5 pairs of saiga horns and a gun.

July 9, 2012

Betpak-dala population: Department of Internal Affairs police officers from Aktyuba region detained a resident of Aktoba and two people from Karabutak village, in whose car they found 5 saiga carcasses and two guns. The detainees confessed to illegal saiga hunting. A criminal case has been initiated under Clause 288 of the Criminal Code (Illegal hunting).

For more information see http://kt.kz/?lang=rus&uin=1133168098&chapter=1153557197.

Photo by Eugeny Polonsky in Astrakhan province of Russia

Signs reading "I want to buy old saiga horns" have become commonplace in Russia and Kazakhstan

Uzbekistan

February 23, 2012

Ustiurt population: At Karakalpakia railway station, Kungrad district, officers of the Special Amu Darya inspectorate and the Customs Service of Karakalpakstan detained an Uzbekistan resident of Uzbekistan who was attempting to smuggle 302 saiga horns. An investigation is underway.

China

March 30, 2012

Urumqi customs have announced that Altay customs uncovered one case of smuggling endangered wildlife products, which were saiga antelope horns in a vehicle entering the country. During a routine check at Jimunai check point, the customs officers found a container like a fuel tank in a coach's luggage compartment, where 876 saiga antelope horns weighing 163 kg were hidden. The case has been handed over to the anti-smuggling department.

More information at http://www.chinanews.com/fz/2012/04-01/3793429.shtml.

Photo by Chinanews.com

Saiga horns confiscated in China

Articles

Survival and spatial ecology of saiga calves in Mongolia

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The Mongolian saiga (*Saiga mongolica*; see Feature Article in this issue) occurs in the semi-desert ecosystems of western Mongolia with a population of 5,000-7,000 individuals. The Mongolian saiga occurs in three subpopulations; they now occupy only 20% of their former range. In recent years, the saiga's population size and range in Mongolia have increased, probably due to enhanced law enforcement. Protected areas are the most common and efficient way to conserve wildlife species and their habitats. Given that <30% of saiga range in Mongolia is currently under protection there is a need to expand the size and number of protected areas so that they can effectively conserve saiga habitat. Although much knowledge has been gained regarding the survival and movements of saigas within Sharga Nature Reserve (SNR), nothing is known about the ecology of saigas beyond the nature reserve. To determine if protected areas are having a positive effect on the survival of saiga calves, we captured and collared newborn calves in the 3,088 km^2 SNR and at Khuisiin Gobi, a previously identified calving area 40 km further northeast, which is not part of Mongolia's Protected Area system. During 11-21 June 2012, we collared 10 males and 10 females in Khuisiin Gobi, and 8 males and 12 females in Shargyn Gobi; 24 singles and 16 twins (fig. 1). Calf body mass averaged 2.43 ± 0.39 kg (n=40) and there was no difference in body mass of calves captured at Sharga vs. Khuisiin Gobi (t=0.03, p=0.48). The red fox (*Vulpes vulpes*) was the most frequently observed carnivore in the Shargyn Gobi, whereas corsac fox (*Vulpes corsac*) was mainly observed in Khuisiin Gobi. During the capture efforts, 3 collared calves were killed by foxes and raptors in Shargiin Gobi. Two calves died due to unknown predation and disease in Khuisiin Gobi. The monitoring of marked animals is currently underway to document survival and movements in the two areas. This approach will provide an opportunity to examine detailed ecological and management questions related to movement, behavior, habitat use, and survival within and outside the protected area. This study was funded by the National Geographic Society.

Photo by Bayarbaatar Buuveibaatar

Radio-collared saiga calf in Sharga Nature Reserve in western Mongolia

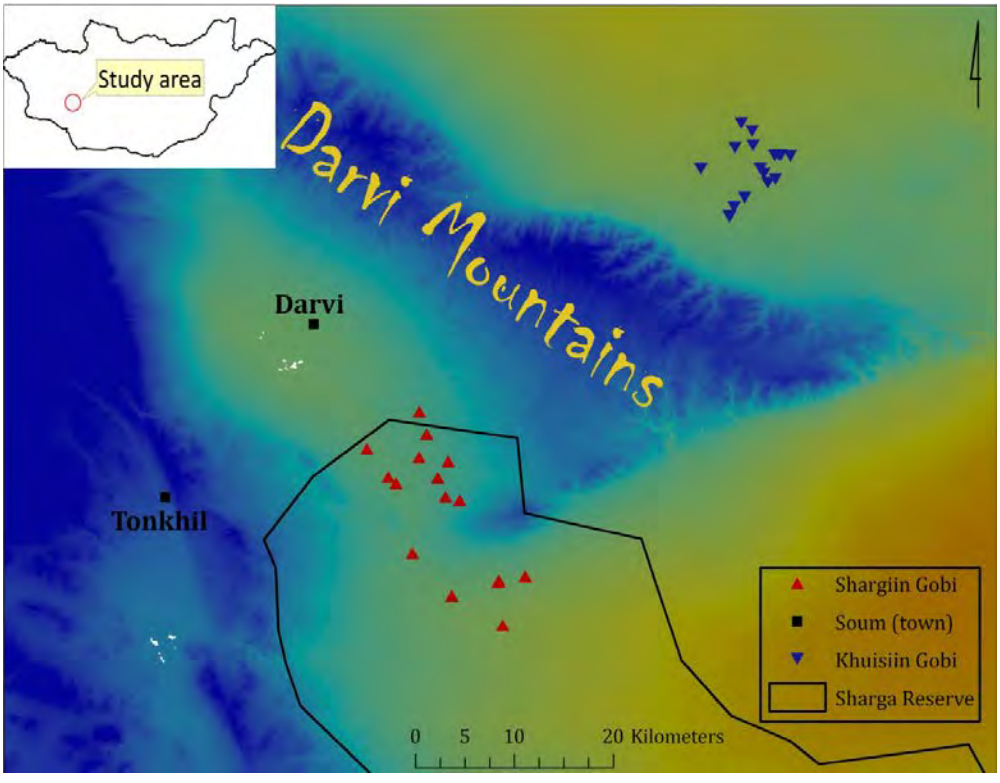

Figure 1. A map of the study site in western Mongolia

Using participatory monitoring to assess saiga habitat use in the pre-Caspian region

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Data gathered from a participatory monitoring programme have helped to clarify the current range of saigas in the pre-Caspian region. The project was funded by the Rufford Foundation and the Mohamed Bin Zayed fund, with the aim of identifying saiga distribution during winter and spring, and determining what drives this distribution. This is important for saiga conservation, as their seasonal distribution is unclear, particularly during the winter months and outside Protected Areas.

The monitoring programme followed a pilot programme established in 2008 by Yuri Arylov and collaborators at Imperial College, using funding from the British Council BRIDGE programme. Given the challenges of surveying migratory species, participatory monitoring can inform conservation efforts through using local knowledge and engaging the local community in saiga conservation. Opportunistic saiga monitoring was carried out by 25 monitors from mid October 2010 to the end of June 2011. The monitors were located to the north and south of the Stepnoi and Chernye Zemli Biosphere reserves; 1 monitor was located between the reserves (Figure 1). In total, 309 groups of saigas were seen, 173 groups in winter (October - February), 136 in spring (March - June). The mean group size was larger in spring (107.7), than in winter (49.8).

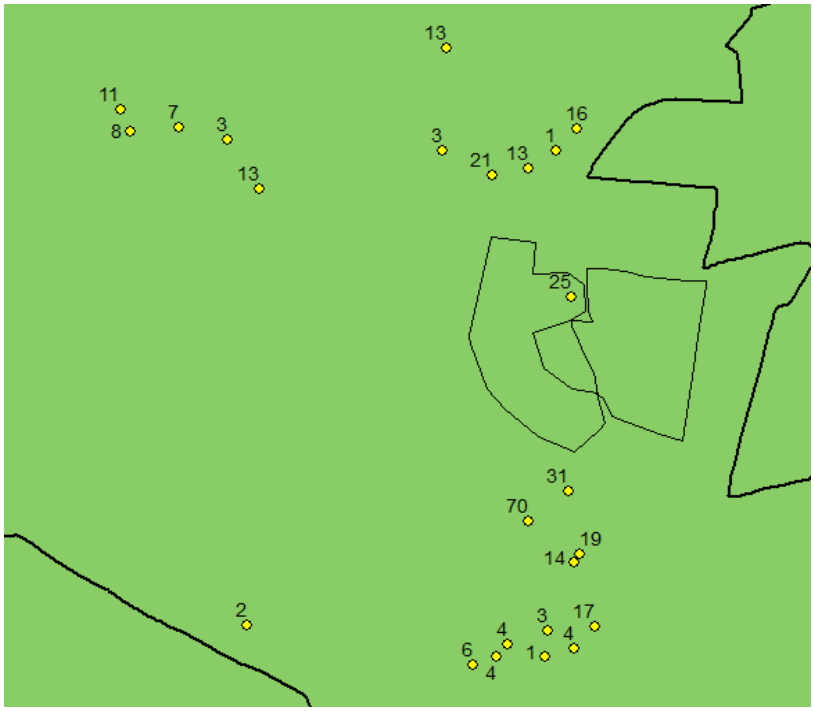

Figure 1. Location of saiga monitors that observed saigas. Numbers indicate the total number of groups of saiga seen by individual monitors. The Chernye Zemli reserve (to the west) and Stepnoi reserve (to the east) are outlined in thin black lines.

The largest groups were observed in February-April. 24 out of 25 monitors observed some saigas, and saiga sightings were relatively evenly distributed throughout the year and throughout the study area.

For a spatial comparison of sightings outside of the protected areas, monitors were divided into 2 groups: one group comprised monitors located north of the protected areas, the other group comprised monitors located to the south of the protected areas. The monitor located within Chernye Zemli Biosphere reserve was excluded from this analysis. A higher number of saiga sightings were reported in the south (175) than in the north (109). In addition, the mean number of saigas per sighting was higher in the south (113.6), compared with the north (20.5). Since some of the monitoring areas overlapped, it is likely that double counting by adjacent monitors occurred. Therefore, these data simply provide an indication of the relative density of saigas, rather than an estimate of the saiga population, in the survey area.

These data were then used to map saiga distribution during the winter and spring using ArcGIS software, and to develop a Habitat Suitability Model with Maxent software. The model was used to identify the factors affecting saiga distributions. The predicted distribution of saigas did not vary from spring to winter and the same predictors of distribution were identified for both seasons. During spring and winter the key predictors of saiga presence were distance to the protected areas and distance to water sources, with increased probability of saiga presence in areas closer to water and closer to the reserves. The importance of distance to protected areas as a driver of saiga distribution has both positive and negative implications. It suggests that the Stepnoi reserve and the Chernye Zemli Biosphere Reserve are fulfilling their functions as areas where saiga are protected. However, the fact that saigas are more likely to be seen in and around the protected areas corroborates the existing body of evidence that poaching continues to be a problem in the pre-Caspian region.

Based on this study, participatory monitoring has clear potential to contribute to our understanding of saiga distribution and migratory behaviour. The data can serve as a benchmark against which further monitoring can be compared, to establish future trends in distribution.

Analysing environmental education on the Ustyurt Plateau

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The Ustyurt population of the saiga antelope is continuing to decline. Stabilising this population and its recovery to sustainable numbers will ultimately depend on the willingness of local people to actively support the species' survival and reject the economic opportunities that poaching offers. As a result community outreach initiatives appear to be a logical tool for conservationists to use. However without critically assessing the impact of outreach programs no definitive conclusions about their value can be made. Being able to prove the efficiency and effectiveness of a conservation approach is particularly important in light of the limited availability of funding.

In Uzbekistan's Ustyurt Plateau an education program designed to raise child awareness of saiga antelope ecology and conservation has been implemented since 2006. The scheme runs in collaboration with local schools in Jaslyk and Karakalpakia, with plans to expand it to Kubla-na-Ustyurt village. Saiga-based classroom activities lead up to "Saiga Day", a celebration where children present what they have learned about the species, act out plays, listen to talks and receive awards for their saiga work (see the Update on Saiga Day above). Local business leaders, politicians and an increasing number of parents also attend Saiga Day. In 2011 Saiga Days held in Uzbekistan had a combined attendance of 845 pupils and approximately 250 parents.

We compared the knowledge about saigas of children attending schools where saiga education had taken place (Jaslyk and two schools in Karakalpakia) with children that had not received the programme of saiga education (in Kubla-na-Ustyurt). We also made an assessment of parents' attitudes towards saiga conservation.

Children who attended educational activities had significantly better knowledge about saiga antelopes and their conservation, particularly if they had attended at least two years of education activities. To measure conservation knowledge we asked children to name the most important threats to saigas. In villages where children are taught about saigas in school, over half of the children named human activities as the most important threat; in contrast 70% of respondents from Kubla-na-Ustyurt thought natural causes were the key threats.

The educational activities were universally well received with 100% of the surveyed children reporting that saiga education was fun. Children who reported that the activities were both fun and educational had higher knowledge scores than children who simply described them as fun. Children were also more likely to report that human activities were the greatest threat to the saiga antelope when they found the educational activities to be both fun and educational.

In general adults in the surveyed communities held very positive attitudes towards saigas and their conservation. All respondents either disagreed or strongly disagreed that "protecting the saiga is a low priority" and 88% of adults strongly agreed saiga extinction would be "a very bad thing" (the remaining respondents agreed that it would be bad). Whilst attitudes appeared to be generally positive, many adults talked about the negative views that other members of their communities held. However this perception of others'

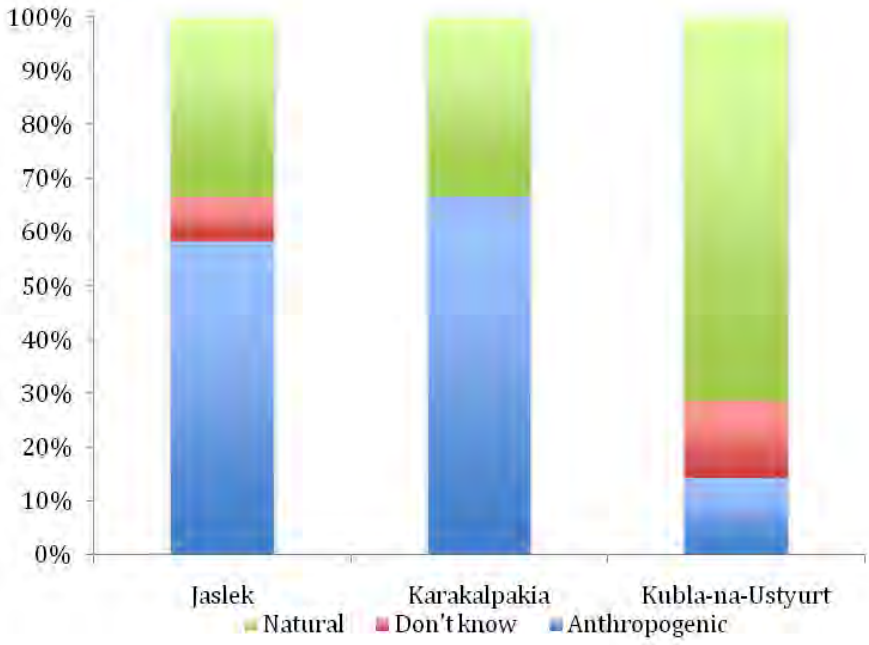

Figure 1. Children's perceptions of the most important threats to saiga antelopes by village

views was very different between those who had and had not attended Saiga Day.

Almost 50% of adults who had not attended Saiga Day felt that people in their community believed saiga hunting was acceptable, this figure dropped dramatically to 0% amongst those who had attended Saiga Day. When parents were asked if other people in their community thought eating saiga meat was a bad thing to do, 65% of parents who had been to a Saiga Day agreed in comparison to only 10% of non-attendees. Interestingly no difference was seen in the two group's responses to the statement "I feel the same way about the importance of protecting saiga as other people in my village".

Whilst attending Saiga Day did not make adults feel that they held different opinions to others, it did make them believe that the other members of their community had more positive attitudes towards saiga conservation. As a result attending Saiga Day appears to have given adult attendees social norms that are a more accurate representation of the community-wide positive attitudes that we observed. People appear not to realise how against saiga exploitation their fellow villagers are unless they have attended Saiga Day. This is a highly significant result, as people's perceptions of what others think is an acceptable way to behave can have a strong impact on their own behaviour.

The study suggests that the educational activities that are taking place on the Uzbek Ustyurt are improving children's ecological knowledge of saigas and their understanding of the role humans have played in their population decline. Additionally the same education program is helping the adults who become involved to realise that throughout their communities there is a pervading negative attitude towards saiga exploitation. This is a very positive result and those working to educate rural children and the wider community in Uzbekistan should feel encouraged that their work is having an important impact.

Photo by Alexander Esipov

Peter Damerell and his assistant Jamshid Abatov question a girl from Kubla-Ustyurt village

As education events are expanded and developed across the region this study suggests that child learning can be maximised by endeavouring to ensure children are involved in the education programme in more than one year and that all children take part in activities that are both fun and have a strong educational component. Expanding the role of Saiga Day into a village-wide event with a strong adult attendance will enable communities to understand better how united their feelings about saiga conservation are.

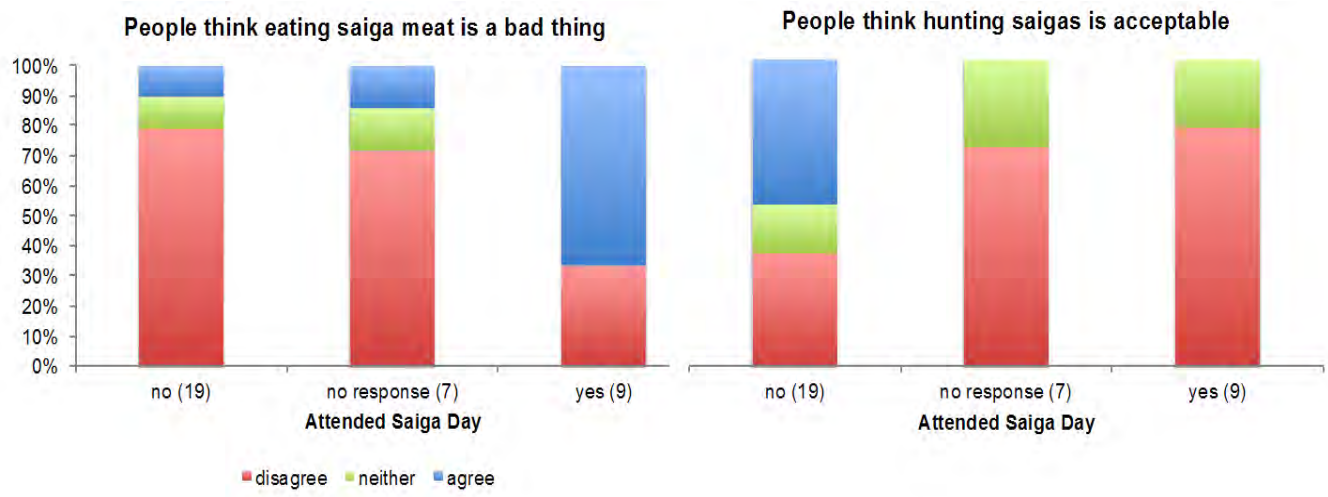

Figure 2. Differing proportions of adults who agree with statements about community attitudes towards illegal saiga exploitation. The number of respondents who said they had or hadn't attended Saiga Day, or didn't say is shown in brackets. The red bars show the proportion of people who disagree with the statement, the green those who neither agree nor disagree, and the blue those who agree.

A network of protected areas in the Irgyz-Turgai-Zhylanshik region

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In Kazakhstan, various types of steppe landscape, inhabited by unique, globally endangered species of animals and plants, cover over 1.2 million km^2. Protected areas (PAs) play an important role in the conservation of steppe biodiversity. As of today, about 1.7% of the natural habitat in the steppe zone is protected by PAs. The Kazakhstan Government's strategy of expansion of the PA system by 2030 includes measures to add new areas of steppe ecosystem into the PAs system under the programme «Zhasyl Damu» for 2010-2014. In 2009, the Global Environmental Facility's "Conservation and Sustainable Management of Steppe Ecosystems" project was launched to support the preservation of steppe biodiversity and creation of a PA network. The Committee of Forestry and Hunting of the Ministry of Agriculture of the Republic of Kazakhstan (CFH) is an executive agency of the Project, which is being implemented via the United Nations Development Programme in Kazakhstan. The Association for the Conservation of Biodiversity in Kazakhstan (ACBK), a partner in the project, is developing a system for the management and protection of steppe landscapes in the pilot area of Irgyz-Turgai-Zhylanshik (ITZh) which is located in the central part of Kazakhstan, in two administrative districts of the Kostanai region, covering an area of 6.2 million hectares. A range of steppe and desert landscapes, water courses and swamps are represented in this area, it is inhabited by rare and endangered mammal and bird species, and it contains sites of migration, calving and summer grazing of the Betpak-dala saiga population.

The conservation of Kazakhstan's steppe zones will be based on a landscape approach, creating a system of various types of PA interconnected by ecological corridors in which the local users of natural resources play the central role in management. This approach will secure the natural movements of wildlife. In this particular case, the PAs include the Irgyz-Turgai state nature reserve and the proposed "Altyn Dala" state nature reserve, which will be connected by ecological corridors. A technical and economic feasibility study has been prepared for this project, which was approved by the CFH's scientific and technical council. The mayor of the Kostanai region has approved the setting aside of the land required. In addition, based on our study, there are plans to expand the Irgyz-Turgai state nature reserve; the feasibility study has been completed and the process of land reservation is underway.

In future ecological corridors are expected to connect the three parts of the "Altyn Dala" reserve and, the Irgyz-Turgai state nature reserve and Turgai wildlife reserve. The corridors will include sustainable hunting areas, private conservation areas and other areas where sustainable wildlife management and land use take place. Local natural resource users and agencies and other stakeholders are involved in the process of defining the corridors and their uses. The strategy for creation of ecological corridors is based on scientific monitoring data on key species and ecosystem condition. These data have been collated from various organisations and a monitoring system is being created to support reserve management and conservation planning in the future.

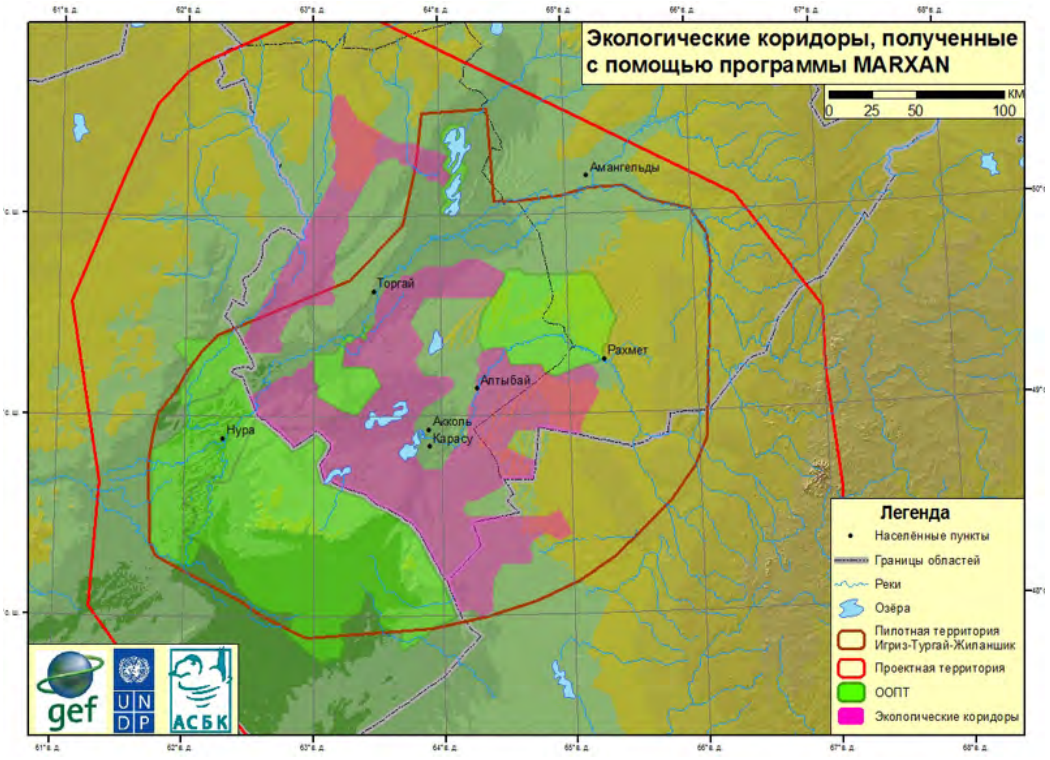
The saiga antelope is the key species in the area which directly influences the choice of corridors and their management. Reliable data are required on saiga distribution and the time, direction and rate of migration. Historical data from Soviet times are inapplicable since the saiga's habitats have changed substantially and its behaviour is significantly different when in small groups. ACBK specialists have recorded saiga observations since April 2008, and have participated in the annual aerial censuses organized by the CFH. State-of-the-art methods are being used, including satellite collaring. These data are being used to develop models for the linkage of priority conservation areas and for the evaluation of ecological processes at the landscape level.

The first stage of planning ecological corridors involves collecting baseline data on ecological zones, reflecting the presence of plant associations as a function of relief and soil type. The landscape map also includes the presence of rare plants and animals, water, fires socioeconomic indicators, etc. The project area is then based on: 1) relative sustainability, 2) ecological risk, and 3) ecological threat. In the future, once negative processes have been eliminated or minimized, or if new threats emerge, the zones' boundaries can be revised. In 2009 to 2011, ecological monitoring was carried out in the pilot area, by a wide range of botanists, ornithologists, mammalogists, GIS-specialists, landscape ecologists and, climatologists. New data were obtained and a baseline was set for future monitoring of the ecosystems and their various components. A monitoring database was established.

The second stage of the process was the selection of targets and criteria for boundary definition.

The key factors were the natural boundaries of target species' habitats; existence of one or another type of landscapes; the undamaged condition of the natural vegetation cover; remoteness from populated settlements; availability of water; vegetation index values; and level of biodiversity.

At the third, final, stage, the boundaries of the ecological corridors were determined and plotted on a map using GIS.MARXAN software was used to find the optimal combination of corridors based on the underlying data and the targets. The complex, system-wide approach applied here will allow us to develop a scientifically-grounded network of PAs and ecological corridors. Our further objective is to ensure that all the network elements are brought under State protection so that the network can function efficiently.



Map.
Ecological corridors designated using MARXAN software

The implications of the border fence on the Ustyurt plateau for the saiga antelope, and options for mitigation

E.J. Milner-Gulland

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In the mid 1990s, the Ustyurt saiga population numbered around 250,000 individuals; along with the other populations it suffered a dramatic collapse in the early 2000s. However unlike the other populations in Kazakhstan, the Ustyurt population continued to decline; the lowest size recorded in Kazakhstan's aerial surveys was 4,900 in 2010, and the latest count put it at only 6,500 individuals, possibly the smallest of all the saiga populations.

The driver for this lack of recovery is ongoing commercial poaching in both Kazakhstan and Uzbekistan, as confirmed in recent research. During this study last year, local people identified trade routes from the Ustyurt, through Kazakhstan to China and stated that the population is being hunted both for meat for local consumption and trade and horns for international trade.

The transboundary nature of the Ustyurt population makes it particularly difficult to manage, with a large proportion of the population moving seasonally between Kazakhstan (in the summer) and Uzbekistan (in the winter). Participatory monitoring is providing evidence of resident saigas inhabiting Uzbekistan year-round, albeit in small numbers. Not all of Kazakhstan's saigas cross the border either, but the majority of the population migrates between the two countries.

The latest news from the region suggests that the section of the fence running from West to East between Kazakhstan and Uzbekistan has now been completed (see pictures accompanying the update above). The information also suggests that this high, barbed wire fence is likely to be impassable for saigas. So what is the likely effect of this fence on the Ustyurt saiga population?

The saiga's migration is an adaptation to its harsh environment, and much research shows that the behaviour has evolved to avoid the harsher winter weather in the north of its range while alsotaking advantage of better summer pastures in the north during the summer. Migrations as a phenomenon are disappearing worldwide, and the saiga has been one of the few migratory ungulates still to display this behaviour, despite the enormous population declines it has endured. This suggests that migration is a key contributor to the saiga's famous resilience and its recovery potential. Any interruption to this migration is likely to have both short and

long-term effects.

Based on experience of the effects of fences on migratory ungulates in other countries, and also based on the large-scale mortality that saigas experienced in the 1970s when canals were placed on their migratory routes, we could expect that in the short term saigas may attempt to cross the fence and die in the attempt, or at the least experience stress and injury. Any accumulations of saigas at the fence will be easy targets for poachers. This mortality could cause a substantial reduction in an already extremely depleted population, and is likely to start this year.

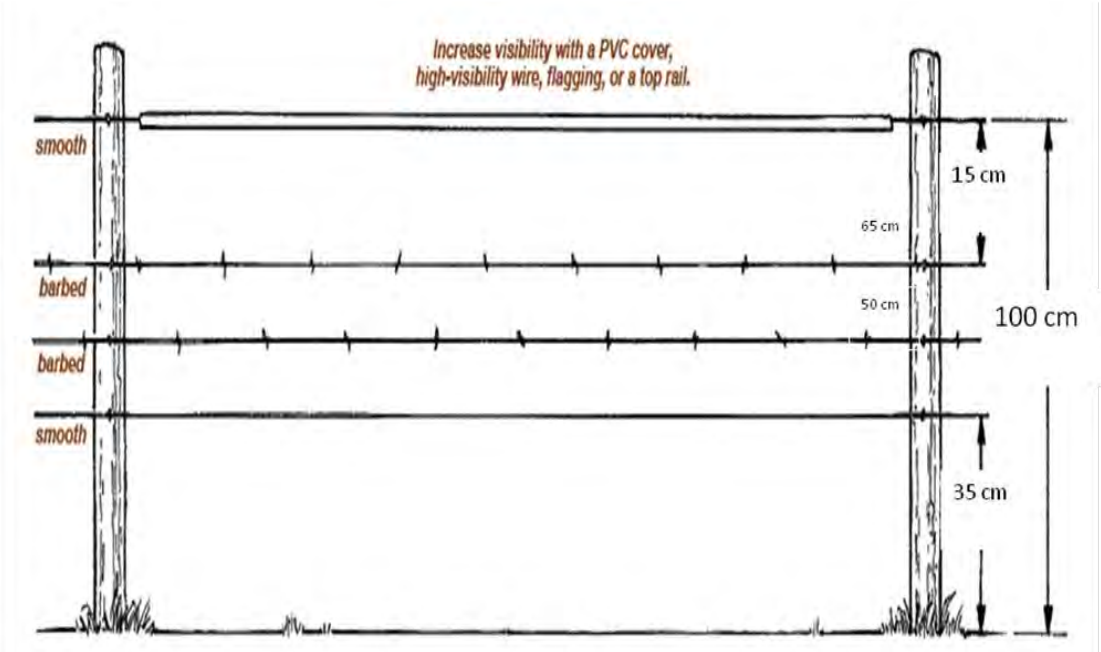
In the longer term, a barrier across a migratory route is likely to lead to reduced recovery potential for the Ustyurt population, with a low-density isolated resident population in Uzbekistan, and the main population in Kazakhstan unable to access important winter resources. There are other populations of saigas whose movements have been curtailed in recent years, or whose movements were never as extensive as the Ustyurt migration (e.g. the pre-Caspian and Mongolian populations), and which survive. Therefore it seems unlikely that, if the population survives the short-term mortality, the fence will lead to the extirpation of the population. Instead, it will cause the curtailment or disappearance of the migration as a phenomenon, and to the loss of the possibility for the population to again reach the sizes observed only 20 years ago.

The world's large ungulate migrations are both a wonderful spectacle and key structuring forces for their ecosystems, altering the vegetation and soil dynamics, and determining the composition and diversity of their plant and animal species. Hence there is also the possibility that the Ustyurt ecosystem will undergo changes as a result of the fence.

So what can be done? Clearly the border fence is here to stay, as part of wider political decisions which are unconnected to nature conservation. But the government agencies involved need information on the potential consequences of the fence, and on possible ways to mitigate its impact, so that the Ustyurt saiga's migration can continue as unimpeded as possible. There is substantial experience to draw on for this, from many countries. The measures used elsewhere range from the very expensive and technical, to the very simple and relatively cheap. An example of a simple and potentially effective measure is given in the pictures below. This involves raising the lower strand of wire and converting it from barbed to plain wire, as well as making the fence visible to moving animals with some kind of flag or streamer.

An animal safely crossing a fence
[*Photo courtesy of Kirk Olson*]

Given that the fence has been completed, and the saiga's winter migration will start in a few months, it is crucial that the options are urgently presented to, and discussed by, the highest level of government, so that a solution can be found as soon as possible. Otherwise we risk witnessing the decimation of one of only four populations of *S. t. tatarica* in the world. Whatever happens, this crisis also highlights the desperate need of the Ustyurt population for further conservation measures, including effective law enforcement, public engagement and awareness, and protected areas, on both sides of the border.



A simple fence design that is less likely to injure migrating animals
[*Picture courtesy of Kirk Olson*]

Saiga heroes

February 2012 saw the centenary of the birth of Arkady Aleksandrovich Sludsky, a famous zoologist and Fellow of the Academy of Sciences of Kazakhstan. He was the founder of research into vertebrates in Kazakhstan and founded the Laboratory of Mammals in the Institute of Zoology, which he headed from 1949 to 1977. His zoological interests were quite wide, but the saiga held a very prominent place in his research. Yuri Grachev, a pre-eminent saiga biologist, has chosen A.A. Sludsky as our Saiga Hero for this issue of Saiga News.

Before Sludsky's time, there were only brief, isolated accounts collected during expeditions, mostly about meetings with saigas in particular places and the saiga horn trade. In the 1940s and especially in the early 1950s, research was carried out more intensively. By that time, saiga numbers had recovered, following a reduction in the population to a critical level in the early 20th century and a prolonged depression, and the issue of saiga use could be raised. Based on his studies, Arkady A. Sludsky prepared a report to the Council of Ministers of the Kazakh Soviet Socialist Republic. In 1954, saiga trade under licence was permitted in Kazakhstan. Over the subsequent 40 years, the saiga trade yielded a considerable profit to the state and in 1983, Sludsky was awarded the State Prize of the Kazakh SSR, along with a group of other biologists, for the development of biological principles for the sustainable use of saigas.

Sludsky's research up to the early 1950s was published in a substantial article called "The Saiga Antelope in Kazakhstan" (1955). This gave detailed coverage of past and contemporary saiga distributions, numbers and population density throughout Kazakhstan in different seasons. It also covered the biological principles of saiga resource management, saiga hunting business management, measures for protection and restoration of the species, and the needs for further scientific research.

In 1962, Sludsky published an article on predator-prey interactions, with a large part devoted to saiga-wolf interactions. It gives a detailed description of wolves' hunting habits and the victims' avoidance behaviour. For example, saigas form large calving aggregations to reduce predation mortality. Sludsky assessed the substantial mortality caused to saigas by wolves, but he concluded that it is not predators which cause their dramatic population fluctuations. Instead, by exterminating sick and weak animals, predators help to make prey populations healthier and serve as an indispensable factor

Photo from the archive of the Institute Zoology, Kazakhstan

Saiga expedition in Betpa-dala, 1956

in their continued existence. The validity of these conclusions was convincingly confirmed in the 1970s, when over a decade the growth and high numbers of the saiga population were concurrent with very high numbers of wolves.

In his other fundamental work, "Dzhuts in the Eurasian Steppes and Deserts" (1963), Sludsky discusses the influence of unfavorable weather conditions on domestic and wild animals, including the saiga. He notes that winter fodder shortage, exhaustion and mass mortality of ungulates occurs regularly throughout the steppes and temperate deserts of Eurasia. He discusses the conditions required for a dzhut (winter mass mortality due to a particular set of extreme weather conditions), and gives evidence for mortality rates up to tens or hundreds of thousands of animals. Sludsky describes the saiga's adaptations to winder conditions; changes in coat colour from brown to white, fat accumulation, the ability to dig for fodder under the snow, forming large herds, grazing with other ungulates, migrations, etc.

Photo from the archive of the Institute Zoology, Kazakhstan

Saigas crossing a river

Photo from the archive of the Institute Zoology, Kazakhstan

Arkady A. Sludsky capturing calves in 1967

In 1965, a field programme for the saiga was set up on Arkady A. Sludsky's initiative; its tasks included conducting annual aerial censuses and ecological studies, including on feeding, reproduction, migration, disease and parasites. Recommendations on the rational use of saigas were submitted annually to government agencies and put into practice. This long research programme (from 1965 through to 1981) resulted in the collection of extensive materials on saiga ecology in Kazakhstan, which were summarized in the monograph "The Saiga in Kazakhstan" (Fadeyev & Sludsky, 1982). Sludsky personally participated in the research and is a co-author of the monograph, but unfortunately he was not able to complete it because of his premature death.

In subsequent decades, the research started by A.A. Sludsky has continued. This work is reflected in the 1998 book "Saiga: phylogeny, taxonomy, ecology, protection and use" (edited by Sokolov and Zhirnov), in the 1998 article "The Ecology and Management of Saiga in Kazakhstan" (by Bekenov et al.) and other works. The vision of A.A. Sludsky is the reason why we now have such a strong basis of understanding of saiga ecology with exceptionally valuable long-term datasets, which are lacking for most other species.

Editor's Note: **Each issue we celebrate someone who has contributed enormously to the conservation of the saiga. These people come from all walks of life and all parts of the world, but are united in their passion for this species. If you would like to nominate a saiga hero for the next issue of Saiga News, please contact the Editor at esipov@xnet.uz.**

Photo by Eugeny Polonsky

Saigas at a watering place

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