

SAIGA NEWS



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



Image © Andrey Gilev & Karina Karenina

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All contributions are welcome, in any of our six languages. Please send them to esipov@xnet.uz or to one of the Editors. We publish twice a year. Guidelines for authors are available in English and Russian at www.saiga-conservation.com or on request from the Editors. Please contact the Editors responsible for Saiga News in your country, or the Executive Editor, Elena Bykova (esipov@xnet.uz), if you have any questions or concerns.

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Editorial

Saiga News celebrates its 10th anniversary!

In 2004-5, the saiga was becoming a high profile species internationally, with the development of the Convention on Migratory Species' Memorandum of Understanding on the conservation of the species, which came into force in 2006. Despite this international concern, there was no mechanism for exchanging information about the ecology and conservation of the species, and the actions being undertaken to conserve and study it throughout its range and internationally. Much excellent work, particularly by range state scientists and conservationists, was going unnoticed, because of language barriers and because there was nowhere to publish it or read about it. So Saiga News was born, as a newsletter for the whole community, with a mixture of news stories, research articles, updates from the press and announcements.

Since then, many people have written for Saiga News, working in all parts of the saiga's range, and including teachers, government officials, researchers and law enforcement officers. The newsletter is read in remote villages, Ministry offices, universities and international NGO headquarters. We are proud of our publication and of the sense of community that it has engendered, as shown by the reflections of members of our Editorial Board about what Saiga News means to them.

Elena Bykova (Executive Editor) and E.J. Milner-Gulland (Advisory Editor)



Anna Lushchekina: Over the last 10 years, the preparation of each new issue has given me the opportunity to meet friends and colleagues, many of whom later became long-term contributors to the newsletter. I have also learned a lot of new, interesting and important things about the saiga in different parts of their range, their fate in the past, the difficulties they face in the present and hopes for the future.

Chimeddorj Buyanaa: As an editorial board member, I am really grateful to read Saiga News and learn from experiences of community-centred saiga conservation in different countries. It also contributes to accelerating progress in different fields. Saiga News helps to gather different cultures and ethics and many different ways of life into one voice for saiga conservation. We at the Saiga Conservation Alliance should think about developing an e-version of Saiga News which is attractive for readers in different target groups.

David Mallon: Since its launch, Saiga News has regularly published articles on every aspect of the saiga, with consistently high editorial standards. One of the most impressive features is that it is published in several range state languages, making Saiga News a genuinely pioneering publication; it is a key element in saiga conservation.

Lkhagvasuren Badamjav: I am more than happy and satisfied with Saiga News, and feel proud to be a member of the editorial team of this wonderful and important bulletin on saiga research, conservation and cooperation. Saiga News is a unique initiative, which has brought together all the specialists and experts working on saiga research and conservation, as well as an international instrument for decision makers and international conventions to address issues for its survival on a global and national level.

Editorial (cont)

Aili Kang: For me, Saiga News is a platform not only representing what different stakeholders are doing for saiga but also giving insights about what we can try. The recent saiga disaster alerts us that we need to look forward more, and this is one thing that Saiga News may need to think further about.

Steffen Zuther: Saiga News has been around for 10 years now and has proven to be the most important medium for exchange of information about conservation of this extraordinary species, the saiga antelope. It is crucial for everybody working for saiga, and the primary information source for anybody interested in the species.

Fenglian Li: At first, I contributed my team's research results as an author in Saiga News; I learnt lots of information about saigas from other countries. Then I joined the editorial team focussing on the Chinese part, so that many Chinese people have the chance to learn more about saigas. I think that this is Saiga News's purpose.

Yuri Grachev: The idea for Saiga News came from E.J. Milner-Gulland 10 years ago when we were establishing the Saiga Conservation Alliance. Back at that time we had some doubts about the implementation and effectiveness of this idea but they quickly dispersed. The general public was very interested in the first edition. Subsequently, the topics covered and the number of authors gradually expanded; readers got an opportunity to learn from this new source about everything that happened to the saiga in all countries of its range, and to react accordingly. The mission of the publication: "to exchange information on saiga conservation and ecology" is fully implemented and Saiga News should continue for certain.

Alexander Esipov: The result exceeded all my expectations. We received essential funding and had a lot of ideas that are still fresh. Everyone involved in saiga conservation has benefitted from a good tool for their work. It is good that all issues are available online in six languages. I am absolutely sure that the newsletter will be in demand in future so it is necessary to keep going with further issues. What is more, it is time to publish a book based on the articles to date. Many thanks to all the people involved!



Image © Andrey Gilev & Karina Karenina

Updates

Advancing saiga conservation: The Third Meeting of the Signatories to the CMS Memorandum on saiga antelopes

Natalia Yakusheva, CMS Secretariat, natalya.yakusheva@cms.int



Participants of the Third Meeting of Signatories to the CMS Memorandum on Saiga antelope. Image © Alexander Esipov

Sunny Tashkent welcomed participants to the third meeting of the signatories to the CMS Memorandum of Understanding concerning Conservation, Restoration and Sustainable Use of the Saiga Antelopes (MOS3), which took place from 26th to 29th October 2015. More than seventy participants from governments, international organizations, NGOs, and academia gathered together to agree on a concrete set of measures to restore saiga populations in Kazakhstan, Mongolia, Russia, Turkmenistan and Uzbekistan. A Technical Workshop for saiga experts and the Annual Meeting of the Saiga Conservation Alliance bookended the MOS3 and provided important platforms for in-depth discussions on disease outbreaks, infrastructure, illegal trade, and local conservation actions.

The meeting was initially scheduled to take place in 2015, as the previous Medium Term International Work Programme, which defines a set of conservation measures for the saiga antelope, was coming to an end. After the spring catastrophic

die-off, when more than 150,000 saigas died in Kazakhstan, the urgency of conducting a meeting became even more evident. The saiga die-off attracted unprecedented attention to the conservation of this species from media all over the world and to some extent helped to facilitate fundraising efforts. Furthermore, it created a momentum to spread the message about the significance of saiga conservation beyond the usual circles of government officials and engaged conservationists. Despite minor logistical and procedural bumps, the meeting served its purpose and participants agreed on the way forward for saiga conservation.

The CMS Memorandum on the saiga antelope entered into force in 2006 and was signed by all five Range States (Kazakhstan, Mongolia, Russia, Turkmenistan and Uzbekistan), as well as nine co-operating organizations working on saiga conservation. The joint efforts of governments and other organisations and individuals committed to saiga conservation brought a significant

Updates (cont)

recovery in population numbers from an all-time low of 50,000 animals in the early 2000s. However, currently saigas face new challenges - along with the long-standing threats of poaching and illegal trade - such as disease outbreaks and rapid infrastructural expansion. The latter is especially detrimental for the transboundary Ustyurt population between Kazakhstan and Uzbekistan, which is on the brink of extinction, not least due to a border fence and a railroad dissecting the migration.

As is the case for any other international agreement, the CMS Memorandum on the

saiga antelope provides an umbrella, aiming to set priorities and coordinate actions. However, the actual actions and results depend on the commitment, engagement and mobilization of resources of each and every person interested in the conservation of this iconic steppe species. The MOS3 demonstrated once again that the “saiga community” is ready to face new challenges, which will hopefully bring fruitful results.

More information and meeting documents can be found on the meeting page here <http://www.cms.int/saiga/en/meeting/third-meeting-signatories-saiga-mou-mos3>

Saiga conservationists meet in Tashkent

E.J. Milner-Gulland, Saiga Conservation Alliance, ej.milner-gulland@zoo.ox.ac.uk



Makhset Kosbergenov, a recipient of a 2015 Excellence in Saiga Protection Award. Image © Alexander Esipov

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The recent meeting of the signatories to the MOU on saiga conservation (26th-29th October 2015) was the culmination of months of work by the CMS secretariat and their technical advisors at the SCA and IUCN Antelope Specialist Group, as well as our hosts in Uzbekistan. It was also an opportunity for saiga conservationists and researchers to present the results of their work over the last few years to their peers, and for free discussion and exchange of sometimes controversial ideas. Finally it was a chance to showcase some of the most inspiring saiga conservation initiatives, to celebrate the achievements of unsung heroes on the frontline of saiga conservation, to catch up with old friends and colleagues and make new acquaintances. At this very difficult time for saiga conservation,



Winners of Young Conservation Leadership Award 2014-2015. Image © Alexander Esipov

where so many threats seem to be piling in on the species, and it is easy to feel despair, this chance to renew our mission was particularly well timed. For me, it gave hope that together we are strong enough to change things for the better.

At the beginning of the meeting we had two days of technical workshops, covering key issues in saiga conservation. These included reports of the latest information about the mass mortality of saigas in Kazakhstan in May 2015, a session on poaching and trade, and one on infrastructural development. These days were very well attended by members of the official delegations as well as the invited technical experts, and provoked lots of positive discussion both in the meeting room and the coffee breaks. A constructive atmosphere helped us to make useful improvements to the official documentation in advance of the formal meeting, and to produce agreed summaries of important issues and solutions for each of the themes. These will be available soon in the meeting report, which CMS is finalising.

The formal part of the meeting was more subdued - people were tired after the excitement of the technical meetings. However, importantly, we agreed our key documents; an overview report,

which is now the internationally agreed statement on the status of the saiga across its range and measures taken to conserve it, and a Medium Term International Work Programme. This prioritised list of actions forms the foundation for all of our fundraising, action and evaluation for the next five years. The saiga is privileged to be a species that has such a clear and strong action plan, with international consensus behind it. Conservation would be in a much better situation if this amount of care and attention were given to all threatened species.

On Thursday afternoon came what for me was the highlight of the whole meeting. This was the Saiga Conservation Alliance's awards ceremony, where a platform was given for some of the most inspiring people working in saiga conservation to speak about their work in a personal way. They told us about their very different approaches to conservation, from intelligence-led policing to painting murals and writing newspapers with children, and came from all the countries where saigas are found. We had a great balance of enthusiasm and initiative from our Young Conservation Leaders, and the long perspective and persistence in the face of difficulties of the winners of our awards for excellence in anti-

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poaching. It was an honour to hear these people speak, and to be able to recognise their hard work with an award in an international forum.

Friday morning was the Saiga Conservation Alliance's meeting. We had good attendance here as well, welcoming new friends to the SCA as well as bringing together long-standing partnerships. We welcomed old friend Anna Lushchekina to a Trustee position, and a new recruit to saiga conservation, Alyona Chukhatina, to the Steering Committee. Alyona has already proved her commitment to saigas and international collaboration by her great contributions to the Saiga Resource Centre website. The session ended with a series of brainstorming group sessions in which we examined the SCA's mission and strategy, and thought of new and innovative approaches to fulfilling these in the next few years.

With a final trip to Tashkent's buzzing bazaar, and a chance to get out into the beautiful autumn

sunshine after an intense few days, the delegates dispersed to their various countries ready to implement the plans we had come up with. They left with a new understanding of the difficulty and importance of the mammoth task ahead of us, but with the warmth of knowing that colleagues around the world - in government, NGOs and academic institutions - are ready to work together, and share expertise and funding to ensure that we can achieve our goals. United for saigas!

The documentation from the CMS meeting, including powerpoint slides from each section of the meeting, is online here: <http://www.cms.int/en/meeting/third-meeting-signatories-saiga-mou-mos3#collapse1529>

The Saiga Conservation Alliance's meeting report and new strategy will soon be sent to all those who attended the meeting. If you weren't there and would like a copy, email mail@saiga-conservation.com.

Saiga antelope mass die-off in the Betpak-Dala population in May 2015

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

As mentioned in Saiga News 19, in mid-May 2015 the beginning of a mass die-off was detected in the biggest calving aggregation of the Betpak-Dala population, in the south of Kostanay oblast, Kazakhstan. The die-off lasted for almost a month and affected all the bigger calving aggregations throughout the range of the population. The veterinary services started to investigate the outbreak immediately, to collect the samples needed for laboratory analysis and to bury the carcasses. The authorities, under the leadership of the Committee of Forestry and Hunting of the Ministry of Agriculture, made enormous efforts to get the required human and technical capacity to the remote mass die-off sites. In the end, 150,044 carcasses were buried, but many more are thought to be spread across a wide area of the steppe,

which probably significantly increases the number of dead animals.

As part of the Altyn Dala Conservation Initiative, a team from the Association for the Conservation of Biodiversity of Kazakhstan (ACBK) was at the main die-off site almost from the very beginning, together with a student from the Royal Veterinary College London (RVC). Originally the team was intending to study calving, as they had done in previous years. However, carcasses were already apparent on the first day, and the task of documenting the symptoms of affected saiga soon became our main focus, as the die-off progressed. The presence of the team from the earliest days of the outbreak allowed us to collect quite a lot of observations of affected animals and

to support veterinarians in their investigation of carcasses and their sampling. This was mainly done in collaboration with experts from the Research Institute of Biological Safety Problems (RIBSP), which has been a partner of ACBK and RVC since 2012.

Saiga antelope affected by the syndrome were extremely weak and depressed, lost the ability to move normally and could not hold their heads up. At some point during the progress of the syndrome, they would just lie down on the ground and not get up any more if left undisturbed. Increasing diarrhoea was observed in these animals, as well as salivation from the mouth and in some cases secretions from the nose. The body was not bloated though, which had been observed in other incidents in 2010 and 2011 (see SN-11,12,13). Breathing became harder and harder for them, they lost the ability to get up, and finally died. All these stages lasted for only a few hours and were documented thoroughly.

An expert mission supported by the Convention on Migratory Species (CMS), the Altyn Dala Conservation Initiative and the Ministry of Agriculture of Kazakhstan was conducted towards the end of May to another die-off site in Akmola province, further north. Veterinary experts from the RVC, FAO, and RIBSP necropsied several animals. As a preliminary diagnosis, hemorrhagic septicaemia was identified, also based on the first laboratory results, which revealed the presence of the bacterium *Pasteurella multocida*, serotype B, which is thought to be the main pathogen behind the die-off. Opportunistic infection with this bacterium has been confirmed by several laboratories. But traces of *Clostridia perfringens* were also found. All experts agree that the toxins from these bacteria caused the die-off, but it is not clear yet what triggered the outbreak.

Several investigations have been started to solve this question. The Ministry of Agriculture has established a special working group consisting of various specialists in veterinary science and saiga ecology, in order to discuss the findings, make



Getting samples from dead saigas for the following analysis.
Image © ACBK

conclusions about the die-off and determine the next steps. By the end of June, another expedition took place, organised by ACBK with support from “Okhotzooptom” State Enterprise, crossing the habitat of the Betpak-Dala saiga population from its wintering areas to calving grounds. The aim was to investigate the ecosystems which were used by saigas this year prior to the die-off, in order to identify any abnormalities and find potential causes for *Pasteurella* becoming virulent. Numerous samples of soil, plants and water were collected for laboratory analyses. Livestock in the region were investigated to detect any diseases which could have been transmitted to saiga. Interviews with livestock owners allowed conclusions to be drawn about previous diseases and their potential effects for saiga. However, although disease was discovered at a few places, no link to the saiga mass die-off could be established. An investigation of the vegetation along the migration routes and at the die-off sites did not show any unusual abundance of poisonous plants. There were completely different vegetation communities at the various die-off sites. This makes an exclusive causal role of plants in the die-off less likely, but there might still be a role for particular plants in combination with other environmental variables. The samples of soil, water

Updates (cont)



and plants have partly been analysed and did not reveal any remains of toxic rocket fuel, which had been suspected to be the main cause in the public media.

Further laboratory investigations of blood samples from dead saigas in European laboratories have not found any infectious disease so far. But analyses are continuing, as well as a complete pathological analysis of tissue samples from the dead saigas.

On the international level, an interdisciplinary research group under the leadership of the Royal Veterinary College in London is aiming to shed

light on the triggers behind this extraordinary die-off event. The strategy is to conduct a comprehensive analysis of all the existing material, do a retrospective analysis of similar die-offs in saigas and other species in the past to identify characteristic patterns, to gather additional data through further fieldwork, and to support the government of Kazakhstan in elaborating quality strategies and policies. This project is funded by the UK government's Natural Environment Research Council and will continue until summer 2016. These efforts are furthermore supported by the Wildlife Conservation Network, the People's Trust for Endangered Species, Fauna and Flora International, the Saiga Conservation Alliance, Frankfurt Zoological Society and the Royal Society for the Protection of Birds.

At the same time, the government of Kazakhstan is preparing a research programme and action plan for future years, in order to carry out high quality research especially on saiga ecology and health and prevent such die-offs in the future. Various institutions and experts from Kazakhstan and internationally are contributing to this process, which is supposed to be finished in the near future.

A trial by fire

Mariya Vorontsova, Office of the International Fund for Animal Welfare (IFAW) in Russia, mvorontsova@ifaw.org

For many years, the International Fund for Animal Welfare (IFAW) in Russia has maintained a close and friendly working relationship with the staff of the Stepnoi Sanctuary. We have repeatedly visited this amazing corner of the Astrakhan region, communicated with the employees of the Sanctuary and watched their work. We always marvelled at the idyllic views (the boundless steppe, quietly grazing saigas, flocks of birds) that opened out in front of us. All this is possible through the efforts of a small group who protect the Stepnoi Sanctuary, within which saigas find

rest and care at different times of their lives. For instance, watering places for saigas and other steppe inhabitants are always maintained in proper working order. Based on their excellent knowledge of saiga ecology and behaviour, the Stepnoi staff have zoned the reserve into two areas; a reserved zone where calving has taken place over the last five years; and a zone of sustainable nature management where other activities can take place. After the calving season, spring days give way to unbearable, scorching heat. An emerald spring herbal carpet turns into a yellow, visibly



The staff of the Stepnoi Sanctuary (right) and the Chernye Zemli Reserve (left) quenching a small fire . Image © IFAW

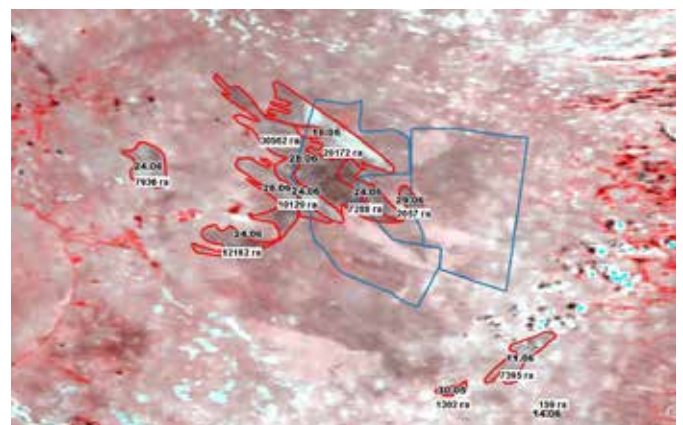
rigid surface. A very alarming picture. Particularly because this is the time of fires, both natural (e.g., caused by a dry thunderstorm), and human-caused. Vast areas of steppe can burn, together with all their inhabitants. In order to minimize the damage caused by fire, reserve staff have started clearing the vegetation on tracks within the reserve and ploughing particularly hazardous areas to reduce the vegetation load. These activities are possible due to the assistance the reserve has received from the Nature Management Service of the Astrakhan region and support from farmers, with whom the reserve staff have established good relationships based on a mutual love of nature and of their native land, mutual aid and a common understanding.

At the start of the fire hazard period in 2015, IFAW allocated funds for the purchase of special equipment (water barrels, mowing machines etc.). This came just at the right time, because on 15th June, a routine ranger patrol notified the directorate of an oncoming catastrophic fire originating in the Chernye Zemli Reserve, which borders the Stepnoi Sanctuary. Without a moment's hesitation, the Sanctuary's director Vladimir Kalmykov raised the alarm with all the reserve's off-duty personnel, who rushed to the steppe at top speed, to the aid of their neighbours and colleagues from the Chernye Zemli Reserve. Volunteers from among the farmers living in the Sanctuary's Sustainable Nature Management zone also joined in. Less than one hour after the alarm

was raised, the team got down to fire fighting.

Because of a strong wind, a wall of fire up to three metres high and almost 20 km long devoured all in its way. With great difficulty the team managed to save a vehicle belonging to the Chernye Zemli Reserve which all of a sudden found itself in a ring of fire. The fire fighting lasted far into the night. According to the Director of the Chernye Zemli reserve, Bataar Ubushayev, the fire destroyed an area of about 6,000 ha in his reserve. The Stepnoi staff left the fire zone having sustained the loss of a tractor and plough, yet having prevented the spread of the fire to the Sanctuary. Many plants were destroyed in the fire. And no one could say what had happened to the wildlife since heavy smoke and the darkness of the night made it difficult to discern anything in the burnt out area. In that period all the steppe inhabitants had just produced offspring - cranes, hares, foxes and others; most likely, many of them failed to pull through the fire.

It was not the first or the last fire in the Chernye Zemli Reserve that year. As can be seen in the satellite image, fires happened there regularly in 2015 from the second half of June onwards, and the total burnt-out area covered about 100,000 hectares. Yet, due to the efforts of the Stepnoi Sanctuary's staff, their reserve barely suffered from fire.



Fires in the area in June 2015 (Red – the Chernye Zemli State Nature Biosphere Reserve and blue – the Stepnoi State Nature Sanctuary, Astrakhan region)

Updates (cont)

“Friends of Conservation Islands” – a movement without borders

Eugenia Samtanova¹, Natalya Shivaldova²

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The “Friends of Conservation Islands” movement was an initiative of the EcoCentres of the Strict Nature Reserves (zapovedniks) in Russia, which started in 2000. In the beginning it only united conservation enthusiasts within Russia. This year the movement has stepped up to the international level, thereby proving that nature does not recognize borders. The International Youth Ecology Congress, “Friends of Conservation Islands”, dedicated to the upcoming 100th anniversary of Russia’s nature reserve system, was held in Voronezh on November 2nd-6th, 2015. Over 150 delegates (children, teachers, reserve staff, and university and senior school students) took part, from 24 regions of Russia and from Azerbaijan, Uzbekistan, Kazakhstan and Belarus.

Steppe Wildlife Clubs at the International Youth Ecology Congress

The theme of saiga protection and conservation ran like a scarlet thread through the congress. The Steppe Wildlife Clubs from Kalmykia and Uzbekistan acted as a united team and successfully presented their environmental protection projects. They held various technical and creative master classes, captivated the congress participants with the issue of saiga protection, and shared their original approaches to outreach work with the general public in saiga habitats.

The congress participants showed their concern



Leaders of SWCs from Uzbekistan receiving an award for the best ecological project. Image © Dzhirgala Oldvurova

about recent deplorable events affecting

saigas: the mass mortality caused by a mystery disease in Kazakhstan; a border fence erected between Kazakhstan and Uzbekistan; the steppe fires in Russia; and continued poaching in all range states. A barrage of questions was hurled at speakers from the Steppe Wildlife Clubs, which then became a brainstorming session on ways to support the conservation efforts of the Steppe Wildlife Clubs and the Saiga Conservation Alliance. As a result of these discussions, the idea was put forward to support the saiga conservation movement by holding marathons in cities near saiga reserves in Russia, Uzbekistan, Kazakhstan and Mongolia, and in China, Europe and America. The idea was to hold the marathons simultaneously in different countries, thus emphasizing that migratory animals do not recognize any borders. This could attract the public’s attention to the serious threats encountered by all saiga populations. What do you think of this idea? We suggest launching this initiative all over the world!

The Friends of Conservation Islands Congress in detail

The ceremonial opening of the Congress was vivid and memorable; teams from various regions had prepared flags in advance with images symbolising the conservation areas they represented. A team from Kalmykia placed on their flag an image of a helpless lovely baby saiga, the symbol of the Living Heritage Steppe Wildlife Club and the Chernye Zemli Reserve. All the flags were then combined into a single large flag, a patchwork of the Friends of Conservation Islands movement, which solemnly sailed over all the participants to the sound of guitars and the hymn “To Conservation Islands” during the inauguration of the Congress.



Participants from Uzbekistan and Kalmykia are at the award ceremony for the best ecological project. Image © Dzhirgala Oldvurova

The announcement of the results of the competition for ecological projects carried out in 2013-15 by members of the Friends of Conservation Islands movement was the most memorable and exciting part of the congress. The creation of the Steppe Wildlife Clubs network, under the guidance of Eugenia Samtanova in Russia and Natalya Shivaldova in Uzbekistan, won the competition. The winners were given diplomas and mini solar power stations.

Kalmykia was represented by members of the Living Heritage Steppe Wildlife Club (Yashkul' school), Elzyat Mandjiyev and Tamara Ubushayeva, as well as by the head of the Department for Ecological Education and Tourism Information of the Chernye Zemli State Nature Biosphere Reserve, Djirgala Oldvurova. The Uzbekistan team was represented by the heads of two of the most effective Steppe Wildlife Clubs; "Nadezhda" from high school № 37, Nukus city, headed by



Steppe wildlife club members from Kalmykia with their leader Eugenia Samtanova. Image © Natalia Shivaldova

Madina Abdikarimova, and "Akboten" from high school № 54, Zhaslyk village, headed by Sadyrbai Shaimenov. The jury praised the valuable efforts of the amateur ecologists and young people in these countries. The main motto of the Steppe Wildlife Clubs is "Prevent the loss of saiga, a unique component of wildlife".

A concert and folk discotheque was an emotional continuation of the Congress. Every delegation showed all the colours of their different cultures in their dances and songs. The attendees were very interested in the Kalmyk dance called "Mingnbair", performed by Elzyat and Tamara.



Congress participants wearing saiga masks. Image © Natalia Shivaldova

A tour of the Peskov State Nature Biosphere Reserve in Voronezh was a vivid event for the Congress participants. Youngsters took part in an ecological quest and a "Congress Trail". There were very interesting and informative tours of the reserve and its museums. The closing ceremony of this notable ecological forum will be best remembered by ecologists; it summarised the outcomes of the Congress and adopted a resolution about the main directions of improvement for activities in Specially Protected Natural Areas in years to come.

The delegations left the hospitable land of Voronezh full of impressions and new ideas. We have truly become "friends of conservation islands" and hope that the caring spirit of concern for our land engendered by the Congress will not expire in the souls of the new generation of young ecologists embarking upon the noble path of nature protection.

Media reports



An ancient saiga skull is found in Yakutia

In July 2015, the skull of an ancient saiga was found on the banks of the Adycha river, Ulakhan Sullar area, near Batagov, Russia. The skull was Late Pleistocene in origin, indicating that the landscape of Yakutia at that time harboured both steppe animals like antelopes and tundra species like muskoxen and arctic foxes. The skull is well-preserved, with both horns and teeth in good condition, and so has potential for further studies.

See more at: http://ysia.ru/news/43865/v_yakutii_najden_cherep_drevnego_sajgaka.html

Illegal trade in saiga horns to China going through Kyrgyzstan

In November 2015, the Xinjiang border police arrested four smugglers and seized 5,300 saiga horns and other illicit goods to the value of 160 million yuan at the “Torugart” checkpoint in China.

The detained truck had entered from Kyrgyzstan. Considering that there are no saigas in that country, the horns are likely to come from Kazakh saigas. This is the biggest saiga horn seizure in China in recent years. On September 5th, 2013, another seizure of 4470 saiga horns was reported, also heading from Kyrgyzstan to China (see SN-17).

See more at: <http://news.21cn.com/domestic/difang/a/2015/1105/13/30237697.shtml>.

Saiga hunting in Kazakhstan has become an organised crime

The press service of the Ministry of Agriculture in Kazakhstan states that 139 criminal cases have been opened over the last two years for the illegal use, purchase, storage, sale, transportation and killing of saigas; 90 criminal cases were forwarded to the judicial authorities and 126 criminals were convicted.

For example, on May 4, 2015 in Ayteke Bi District of Aktobe region, four illegal hunters shot 41

saigas (<http://www.nur.kz/827741-v-stepyakh-aktyubinskoy-oblasti-brakon.html>); on October 15, a car with 36 freshly sawn saiga horns and meat was detained in Nura District, Karaganda region. Later, two SUVs were detained in Aktobe region, with 100 freshly sawn horns (http://bnews.kz/ru/news/obshchestvo/za_dva_goda_viyavleno_139_faktov_nezakonnoi_ohoti_na_saigakov-2015_10_27-1177953). On December 2nd 2015, a vehicle with five carcasses, one head and eight saiga horns was detained in Akshi area, 20 kilometers west of the Kumkol Syrdarya region of Kyzylorda (<http://www.zakon.kz/4760643-zastrelivshie-5-sajgakov-brakonery.html>). All these cases are within the range of the Betpak-dala saiga population.

Russian citizens are also involved in the illegal saiga business. In Kustanai, a Russian citizen was convicted for “illegal handling of rare, endangered and therefore prohibited species of plants and animals and their parts or derivatives”. In May 2015, he illegally acquired 82 saiga horns and sent them through intermediaries to Almaty for sale. Police detained the illicit cargo on its way (<http://informburo.kz/novosti/grazhdanina-ru-sudili-v-kostanae-za-nezakonnuyu-skupku-rogov-saygi.html>).

The saiga will be listed in the Red Data Book of Russia

In Russia, the number of saigas is at a critically low level. Currently, it is probably no more than 4,500 individuals and declining. However, illegal saiga hunting is continuing. On August 12th 2015, inspectors from the Chernye Zemil reserve found the skins of three saigas at a dump in Tavn-Gashun village, Yashkul' district. Later, 33 saiga horns were found and seized in the houses of two residents of Yashkul' district (<http://vkalmykii.com/rassleduetsya-delo-brakonerov>).

The poor status of the north-west pre-Caspian saiga population is reflected in the important decision to include the species in the Red Data Book of the Russian Federation. “The saiga is

already included in the Red Data Book of the Republic of Kalmykia, Orenburg and Omsk regions, and has been proposed for the Red Data Book of the Russian Federation. This list will be approved by the Ministry of Natural Resources of Russia after completion of legal procedures” said Dmitry Belanovich, the Director for environmental conservation at the Department of State Policy and Regulation, at the 3rd Meeting of the signatories to the Memorandum of Understanding concerning Conservation, Restoration and Sustainable Use of the Saiga Antelope, which was held in Tashkent (Uzbekistan) from October 26th to 29th, 2015 (see. above). See more at: <http://www.mnr.gov.ru/news/detail.php?ID=14226>.

Articles

The importance of terrestrial monitoring: A story of saigas on the ground

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Kazakh people say that those who claim to know where the saigas are, are liars. Finding saigas is not easy! These nomadic antelopes are fast runners with no fixed territories and annual movements exceeding 3,500 kilometres. When on the move, they are capable of travelling over 100 kilometres a day at speeds of 70 kilometres per hour. Without doubt, searching for such mobile creatures is a real challenge.

Monitoring saigas is, however, a key element of success in their conservation, management and research. Many threats have been imposed

upon these antelopes in the last few decades, from poaching and habitat loss to environmental abnormalities and devastating disease outbreaks, as recently seen with a series of mysterious large-scale die-offs. It is through effective monitoring and understanding where, when and why changes in saiga populations occur that conservationists are able to develop informed and effective interventions.

Remote sensing through deployment of either GPS or radio-telemetry collars is a common technique for monitoring highly mobile species. The data collected can provide detailed information on movement and spatial distributions. With rapid advances in these technologies, ecologists are now employing satellite tracking more than ever. Yet, for fine-scale observations such as the identification of nearby predators and other determinants of behaviour, terrestrial monitoring is more powerful. So what kind of information can we gather using ground monitoring and what will it teach us, especially in an environment as challenging as Central Asia's?

The saigas' homeland is vast; however, their distribution dramatically changes throughout the year. In spring, after spending winter in the dry deserts of the south in refuge from harsh winter conditions, saigas travel back north in search of better foraging grounds (Figure 1i). On their return journey, between the winter and summer pastures, they give birth over a two-week period in May. During calving, these antelopes are most vulnerable to predation (Figure 1ii). Wolves are their main predators, but even smaller predators such as eagles, vultures and foxes will try to attack calves. Sightings of saigas not only provide insights into their seasonal and spatial distribution, but also inform researchers about behavioural and group characteristics. For example, whilst we would expect saigas to be constantly on the

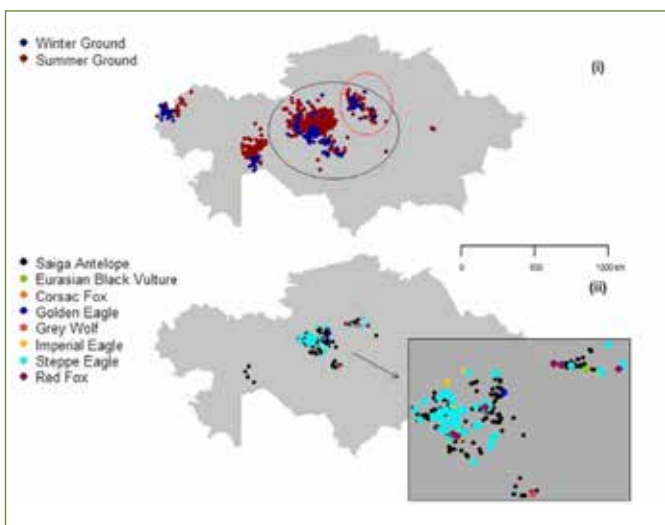


Figure 1

(i). Seasonal distribution of three populations of saiga antelope in Kazakhstan: Ural (north-west), Ustyurt (south-central) and Betpak-Dala (north-central; highlighted in the black oval) from 2008 to 2012. Each point represents a single ground observation event that usually consisted of multiple individuals. The summer range, shown in red, was determined using location points collected from May to September, with winter grounds, in blue, showing December to March locations. For all populations, we can see a clear partition between summer and winter pastures. As an exception, a fragment of the Betpak-Dala population in the north-east (highlighted in the red oval) appears to be present in the area continually throughout the year.

(ii). Distribution of saigas and their predators during the breeding season based on ground observations collected in May from 2008 to 2012. The inset shows that despite gray wolves being the most common predator overall, steppe eagles were the most frequently recorded predator observed around the calving grounds.

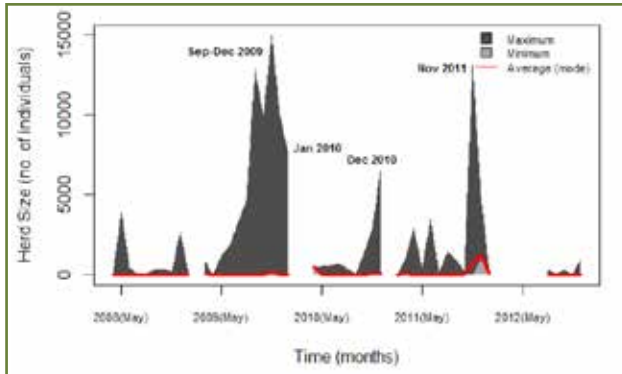


Figure 2

Monthly time-series of saiga herd size; minimum, maximum and average (mode). The average herd size shown as a red line appears to be rather low throughout the monitoring period (April 2008 to December 2012). Zero values represent months when monitoring was not undertaken. From September 2009 to January 2010, herds of up to 15,000 individuals were encountered (highlighted in the dark polygon), but large herds were also seen in December 2010 and November 2011. The higher abundance of animals during winter months compared to the calving season (May) suggests high winter mortality. Alternatively, low numbers recorded in spring might indicate inaccurate estimates of the calving aggregations due to counting difficulties associated with such large numbers of individuals.

move, a small outlying herd in the northwest of the Betpak-dala range appears to remain resident year-round (Figure 1i). For many ungulates it is not uncommon for different populations to show both life-history strategies; migration as well as residency, depending on proximate conditions (e.g. wildebeest, white-tailed deer).

Saigas are both mobile and highly gregarious. Average herd size can drastically change depending on season, ranging from tens to thousands of individuals. Most notably during periods of calving, migration and rut, saigas tend to aggregate; in social species the benefits of herding behaviour are substantial. Critically, herding provides greater protection and early warning against predators. Large and dense herd formations are especially important during the breeding season when defenceless calves are vulnerable to opportunistic predators eagerly waiting for a spring feast. Previous research (Milner-Gulland 2001) suggests that due to declining numbers of saigas, individuals are unable to find large calving groups, leading to increased

predation risks and higher calf mortality. From 2009 to 2011 significantly smaller saiga herds were recorded during calving in May than in the winter months (Figure 2).

Whilst the importance of herding is unambiguous, the effects of sex and age composition on population dynamics are only now becoming better understood. Loss of males might not be seen to be a pressing threat to saigas. As polygynous species, during the rut season males gather harems of 2-15 females that they defend from rivals and subsequently mate with. So having fewer males is no big deal, or is it?

Selective hunting of males for their horns and larger hides reduced the sex ratio of the Kalmykian population to, at the most extreme, one male per 100 females (Milner-Gulland et al., 2003). The insufficient numbers of prime-aged males led to failure to conceive and population recruitment was significantly reduced. As young males are unfavourable and inexperienced partners, often unable to successfully breed, the absence of prime-aged males contributes to diminished reproductive capacity.

In this study, ground-based observational data were provided by ACBK, and analysed by the author to explore the status and trends of saigas in Kazakhstan in 2008-12. Terrestrial monitoring and data collection was carried out by 45 observers in total, mostly governmental rangers and ACBK field staff. There was no indication of sex/age related reproductive collapse in Kazakhstan between 2008 and 2012, possibly due to a substantially larger population compared to Kalmykian saigas (Figure 3). However, the data should be interpreted with caution as neither sex nor age is easy to determine from visual observations (Figures 3 and 4). Animals are either clumped together or too far away for individual identification, and young individuals can be indistinguishable from adults; for instance, immature males without fully grown horns look similar to females. Given these uncertainties, it is hard to draw solid conclusions.

Articles (cont)

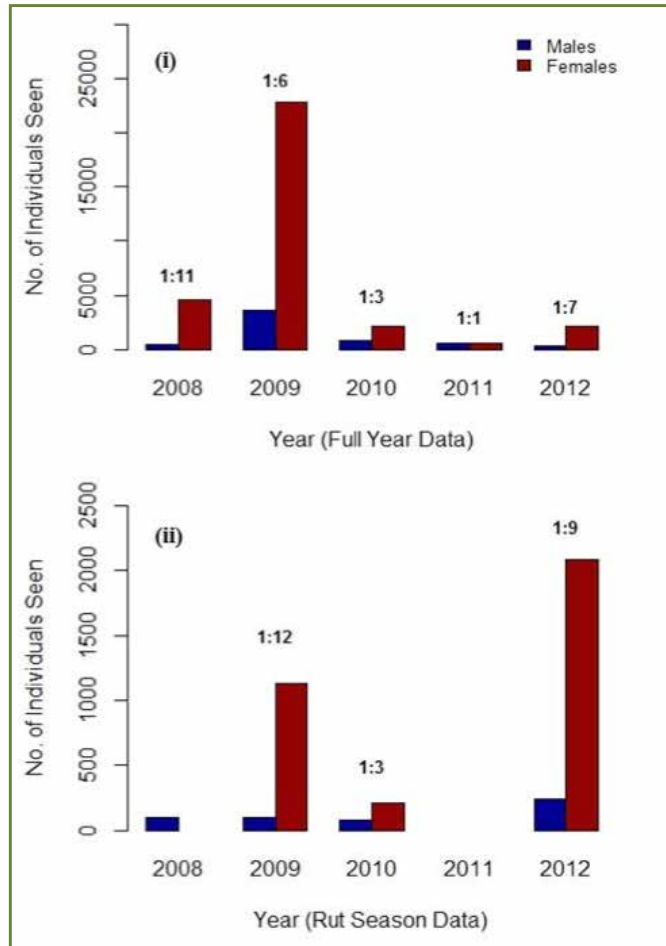


Figure 3.

Sex ratio of saiga populations in Kazakhstan based on terrestrial monitoring conducted between 2008 and 2012. Both full year data (i) and observations collected during rut (December) (ii) suggest that the abnormal bias toward females (>20 females per a male) previously documented in Kalmykia did not occur in Kazakhstan during this period. In 2011 no monitoring was carried out in December during the rut.

It is a true art to keep an eye on saigas! Monitoring the herds in Kazakhstan is a particular challenge, with difficult logistical and climatic conditions, and limited financial and human resources. The low consistency and coverage of data from ground monitoring makes it currently of limited use for analysis of the mechanisms behind population trends, with inevitable biases and uncertainties according to the season and field conditions. Terrestrial surveys are, however, irreplaceable, providing precious insights into animal behaviour,

population trends and problems such as landscape alternations that impact on saiga ecology. From monitoring huge areas through to detecting critical bottlenecks and developing strategic interventions, conservationists need to be able to identify threats and act fast to minimize impact. Ground monitoring undoubtedly represents a cost-effective tool for real-time management implementation, though there is potential for improvements. However, survey programmes like this one are under constant threat of being terminated due to budget limitations and funding cuts, often before improvements in data collection techniques can be implemented and yield essential long-term datasets. Instead of getting axed, programmes should be valued for the data they produce and strengthened for more efficient monitoring. The way is always there; we shall see how large the will is.

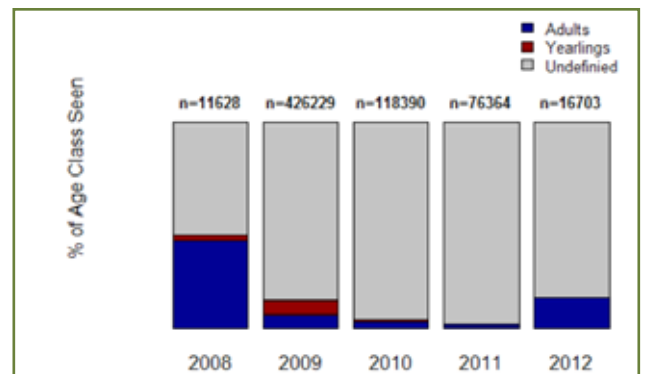


Figure 4.

Age composition of the saiga population from 2008 to 2012. Many individuals remained unidentified (grey). Precise differentiation between sex and age classes in saiga antelope is not easy to achieve, especially from a distance. Therefore, the data presented here and in Figure 3 should be interpreted with caution.

The significance of artesian wells for saigas within the Stepnoi Sanctuary, Astrakhan region

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A tournament between young male saigas in the open land near the artesian lake. Image © Andrey Gilev & Karina Karenina

The role of water sources of different types, including artesian well overflows, in the life history of the saiga is quite well known. They are particularly important in the species' most vulnerable period of calving, and for juveniles when the vegetation begins to dry out in the strong summer sunlight. We studied the role of artesian wells for saigas in detail, by conducting observations on May 11th-30th, 2015, in the Stepnoi Sanctuary, Astrakhan region. We set up a temporary observation shelter close to a small lake formed from the overflow of an artesian well. It was a small, camouflaged colour, tent with observation holes allowing an all-round view. Observations were made every day, usually from

3:00am to 11:30am and 17:00pm to 19:30pm. Two observers entered the shelter and left only where there were no saigas visible. Monitoring was done using binoculars, photographs and videos. Animals were photographed side-on, full-length and full-face and later the pictures were used for identification of individual animals based on specific colour patterns, scars, bald heads and other natural markers. Horn pigmentation and the shape and location of cross rings at the base of the horns served as important identification features for males. If obvious individual features (scars, colour patterns) were missing, then females were identified using differences in the dark-coloured fur on their foreheads.

Articles (cont)



A young saiga drinking artesian water.
Image © Andrey Gilev & Karina Karenina

Over the 20 days of observation, the number of saigas coming to drink varied on a daily basis. Daytime air temperatures fluctuated between +17 and +35°C, on average +25°C (according to data from www.gismeteo.ru in Liman village). Roughly 51-1,569 saigas per day (average 466 ± 119) were recorded at the artesian lake. The largest number of animals was recorded on May 23rd, 25th and 26th (about 1,569, 923 and 1,094 animals respectively). Since observations were calculated conservatively and only made at certain times of the day, the actual number of saigas coming to the artesian lake could be higher. Individual identification showed that many animals came to the artesian lake repeatedly (recorded maximum: 18 times over 12 days). This shows how important artesian lakes are for the existence of the saiga population within the Stepnoi sanctuary.

Artesian lakes as a source of water and minerals

In total our observations lasted 195 hours, during which we noted that when saigas approached the artesian lake, they first started to drink or eat bare soil on the banks. Some animals did not come up to the water but practically every animal spent

a long time (up to 40 minutes) biting the soil. It is characteristic of many birds and mammals to eat clay soil (geophagia) as a source of minerals and a natural adsorbent which neutralises toxins and normalises the intestinal flora. Thus, along with their obvious function as a watering place, artesian lakes also serve as a place for rectifying mineral deficiencies. Apparently, eating soil which is rich in minerals is especially important for females in the calving period, since a large number of pregnant females came to the artesian lake and mainly spent their time eating soil. Individually identified females which were observed for 12 days (both before and after calving) ate soil whenever they were seen near the artesian lake. Other animals would also repeatedly come to the artesian and eat the soil; single animals, mixed groups of females and males, and groups of males. Eating soil took most time for females who came with their calves. The calves (aged 6-8 days and older) did not try to bite the soil, but whether they were with their mothers or not, they would drink often and for a long time (Fig. 2), in spite of the current belief that younger calves only drink milk.

The significance of artesian lakes for socialization and rest

The large, vegetation-free areas of flat land around the artesian lake served as a place for active social interaction by saigas. A common type of interaction was jousts between young males. These were short, and were often interrupted by one or both of the males eating soil, and characterised by frequent changes of partner. The males did not hurt each other. Apparently, this kind of practice jousting is necessary for future success in rutting. Older males that had come to drink with a group of females would drive away approaching males and constantly gathered their females. If there was more than one male in a group, they would often start to joust. Aggression was more manifest in these jousts than in those between younger males. However, in neither case did the animals inflict any visible damage on each other.

Female saigas also socialised with each other on the bare areas near the artesian lake, though considerably less frequently than males. In rare cases the females butted and sprang on each other near the places where they ate soil. Sometimes, the initiator would then chase the other female for 20-40 seconds. From time to time, female saigas showed friendly behaviour, rubbing their muzzles against another female's head. Usually these contacts were between two females who had come to the artesian lake together.

When females came with their calves, the calves often played together. More often than not the play was between siblings, but sometimes calves from different females formed temporary groups to play together. In addition, calves regularly entered into social interactions with adults, including males. Apparently, the area near the artesian lake serves as a safe place for the socialisation of young animals. Due to the good visibility, calves can move away from their mother, still staying within eyeshot. Active contacts with

other animals are, undoubtedly, important for the formation of calves' social skills. In general, the special conditions for social interaction around artesian lakes may contribute to the population's viability.

Artesian lakes also serve as a resting place for saigas. Both males and females would periodically lie down by the banks of the lake and rest with their eyes closed, but their head still lifted. Females often rested in small groups of 5-10 animals. Adult males often lay down for only a few seconds in the intervals between jousts or gathering females. It is likely that the open spaces around the artesian lake provide good visibility and, thus, a safe environment for resting.

The authors thank the staff of the Stepnoi sanctuary and its Director Vladimir Kalmykov for their assistance in this research and their invaluable contribution to saiga conservation. The work was done under the auspices of the Russian Foundation for Basic Research (grant №14-04-31390).

Understanding the drivers of illegal saiga consumption on the Uzbek Ustyurt

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Introduction

The Ustyurt saiga population continues to face a range of threats from infrastructural development and poaching activity. With the border fence erected between Kazakhstan and Uzbekistan severely impacting migratory movements, there is a strong need to address hunting pressures in order to protect the remaining Uzbek saiga population.

In this study we used the Theory of Planned Behaviour (TPB), a social psychological framework for the study of human decision-making (see Mabbutt et al. Saiga News 19). We aimed to

understand people's attitudes towards eating saiga meat and towards conservation and poaching.

Methodology

Researchers carried out quantitative household questionnaires and qualitative key informant (KI) interviews in Uzbekistan in May and June 2015. Household questionnaires examined the three determinants of behaviour defined by the TPB; attitudes, social norms and perceived behavioural control. Additionally, knowledge about saigas was assessed. Key informant interviews were

Articles (cont)



Conducting Key informant interviews at the Academy of Sciences. Image © Alexander Esipov

designed to be more flexible, exploring the perceptions of respondents with specialist knowledge. One hundred and four household questionnaires were conducted in the Ustyurt villages of Kyrk-Kyz and Kubla Ustyurt and 15 key informant interviews were held within the same villages and in the cities of Nukus and Tashkent. Discussion surrounding saiga consumption and poaching was extremely sensitive, with 31% of respondents refusing to respond.

Results

Changes in the saiga meat trade

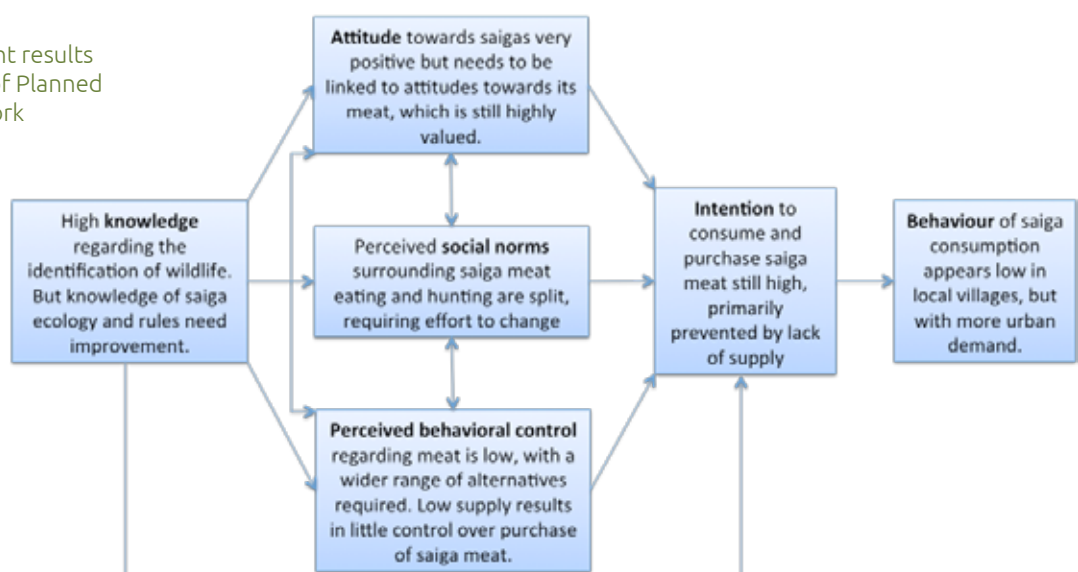
Our respondents suggested that the levels of consumption and purchase of saiga meat are significantly lower than in previous years; a trend attributed to the decline in saiga numbers rather than rule enforcement or increased knowledge. The way meat is procured and the economic status of those who consume it have changed. Saiga meat is no longer viewed as a “meat for the poor”, with just 13% of respondents agreeing with the statement that only poor people would want to eat it. Instead, there is increased demand from wealthier, urban consumers who place orders directly with poachers. Additionally, the role of shepherds in saiga poaching was revealed, with assertions that they alert poachers to the location of saigas and approaching rangers.

The importance of knowledge

Knowledge was positively correlated with attitudes to saigas, such that people who knew more about saiga ecology and laws were more likely to feel positively about saigas (Spearman’s rank; $r_s=0.434$, $p<0.01$). Knowledge scores varied with gender, village and employment status but

Figure 1

Summary of relevant results within the Theory of Planned Behaviour framework



were generally low, with just 34% of respondents recognising the illegality of consuming saiga meat. People who stated they didn't know that saiga meat was illegal to consume were also more likely to state that eating saiga meat is a normal thing to do (T-test; $t=2.21$, $df=99$, $p=0.03$). Awareness of Saiga Conservation Alliance outreach activities was relatively low, with 26% of respondents having heard of Saiga Day and 11% being aware of Steppe Wildlife Clubs. This is probably because there is relatively limited conservation activity by the SCA in these villages, in comparison with Jaslyk and

Karakalpakiya, which are the biggest settlements where the majority of poachers are found. In total, eight out of 101 people interviewed had previously attended a Saiga Day.

The determinants of behaviour

Whilst people were generally positive about eating saiga meat, its low availability has resulted in a decrease in actual consumption (Figure 1). Therefore, continued work is needed to tackle the underlying drivers of saiga poaching, rather than focussing on the overall trends.

Conclusion and Recommendations

Findings highlighted the following actions and target groups to be incorporated in future saiga conservation initiatives on the Ustyurt Plateau:

- An increase in the availability of affordable alternative meats is required in Ustyurt villages to decrease reliance on hunting wildlife.
- Conservation initiatives should include wealthier urban consumers, in cities like Nukus, who now appear to be driving the saiga meat trade. There is a need to identify those involved and explore the best means of altering behaviour.
- Shepherds were found to aid poaching activity. This suggests that they could be targeted for conservation engagement instead, for example by employing them as wildlife monitors.
- Efforts should be continued to improve local knowledge surrounding saigas and other wildlife. SCA activities need a higher profile.
- Considering that eating saigas is part of traditional culture amongst local people, it may be beneficial to promote saiga conservation as a means to enable future hunting and consumption, in order to engage support.
- The Kazakh-Uzbek border fence is a major contributory factor to population declines, requiring international collaboration and mitigation.

We thank the Disney Conservation Fund for supporting this work. A full account of this study can be found at: <http://www.iccs.org.uk/wp-content/uploads/2015/11/MSc-Thesis-LKor.pdf>

Articles (cont)

Teenage Dreams: can adolescent aspirations be used to inform new conservation initiatives in Kazakhstan?

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The younger children of Azhibay School enjoy their prizes from Saiga Day. Image © Sophie Elliott

This research aimed to identify the aspirations and preferred social activities of teenagers in Kazakhstan, and consider how better to engage them with current conservation initiatives regarding the saiga antelope. Research was carried out from May to August 2014, with 56 individual interviews with teenagers conducted in two villages – Azhibay and Nursay – in the Ural region of Kazakhstan, and questionnaires completed by six young conservationists in the UK, Russia, Kazakhstan, Uzbekistan and Mongolia.

The most recurrent career aspirations for the teenagers in the Kazakh villages were teacher, doctor, architect/designer, conservation and singer. Comparing the teens' aspirations to their future career predictions found that the jobs with the most congruence were singer, architect/designer, painter/artist, hairdresser, government, sport and ranger (Figure 1). Fewer teenagers thought they would be teachers than wanted to be, but this response was still very prevalent.

The teenagers gave their views on what might prevent them from being able to pursue their job aspirations; the most frequently stated reasons were education or exam results (with 25% of teens stating these), and money or financial reasons (21% of teens). 13 of the 14 teenagers who stated 'education/exam results' as a barrier were aspiring to jobs needing higher education, such as doctor, computer programmer, or architect. These aspirational careers were also linked to money or financial barriers, suggesting that higher education is viewed as a constraint by teenagers.

Comparing the teenagers' aspirations and career predictions to their parents' occupations was interesting as the most common occupation for parents was unemployment or 'staying at home' (23 teenagers stating this). However, none of the teenagers aspired to, or predicted, having no job in the future, even when one or both of their parents did not work. Girls also did not express any desire to become homemakers, housewives or full-time parents, responding with only career choices, which again is interesting as many girls in the region marry in their late teens and early 20s. It appears that the teenagers do not wish to do the same jobs as their parents and also do not predict that they will do them in the future. One of the more common parental occupations was owning a private business, but none of the teenagers whose parents actually had this job wanted or predicted it as a career for themselves. Likewise, in Nursay, three teenagers stated that their parents were involved in agriculture or breeding cattle, yet none of them stated that this was a career aspiration or prediction for them.

The teenagers also provided information regarding what they did in their free time (Figure 2). The

responses given can be used to design activities and interventions that the teenagers will enjoy participating in, for example, 26 teenagers across the sample (both boys and girls) said that they enjoyed playing different kinds of sport, so sport could be a good way to engage teenagers in saiga conservation. Computing-based activities were also popular, suggesting engaging teenagers with international conservation efforts online might be a useful way forward.

Based on the results of the teenage interviews in Azhibay and Nursay and the questionnaires with young conservationists, specific engagement recommendations were made. Based on the literature regarding the engagement of teenagers from the psychology sector, we focus our recommendations on ways to change teenagers' behaviour and support them to act as advocates for others to do the same:

Homework clubs or private tutoring sessions could inspire more confidence in the teenagers to pursue their aspirations.

Fun activities based on the career predictions of teenagers could make them seem more appealing for the future, for example building birds' nests or saiga shelters could result in the job of 'Builder' seeming more aspirational, or learning to drive a ranger or police car could do the same for 'Driver', and also connect teenagers with male role models who could have a positive influence on their behaviour.

Saiga-related activities which were run year-round instead of just in relation to Saiga Day would ensure that teenagers (and their parents) do not forget their plight, for example having saiga story competitions, with winners being published in a short story book, reading groups with new books and literature provided by NGOs, or steppe art competitions, with prizes for ingenuity and conservation messaging.

Villagers could ask a teenage mural group to paint the walls of their houses with steppe flora and

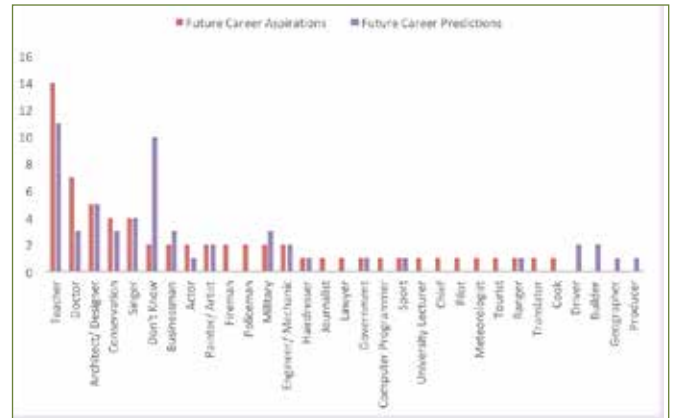


Figure 1
Comparing teenage career aspirations to the jobs they predict for their futures.

fauna, or form a saiga singing club where teens could make their own music videos to be posted online by themselves or NGOs, as well as talent shows with judges made up of their peers.

Teams for all different kinds of sport could be created with saiga logos to play for their village in tournaments with other villages, creating unity between different ages and communities, with teams being mentored by different community leaders, police, and parents, so that the teenagers' enthusiasm could influence their mentor and vice versa.

More emphasis should be placed on the Steppe Wildlife Clubs, with camping trips, events, competitions, games and learning; the clubs could incorporate different members of the community each month as 'sponsors', who organise trips or activities for the teenagers, encouraging parents and teenagers to learn and become enthusiastic about nature together.

Teenagers should be enabled to have more experience of natural areas so as to enhance their connection with nature and encourage compassion and enthusiasm; this could be done with the Steppe Wildlife Clubs, or with teens being taken out by NGOs to help with conservation work, both allowing them to help with saiga protection and creating peer influence as friends and siblings will also want to participate.

Articles (cont)

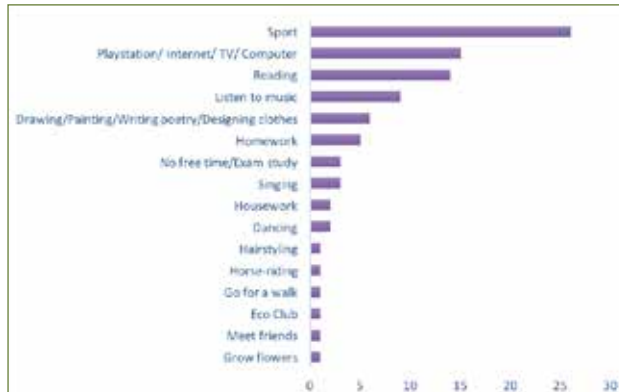


Figure 2.
Free time activities of the teenagers.

NGOs should try to connect more with teenagers as an ever-present group, not just for Saiga Day or when they require data; in schools to build upon wildlife lessons already being implemented in the curriculum, with teachers, giving ideas on how to make the subject more interesting and interactive.

NGOs could offer short courses for teenagers in conservation subjects, which they could apply for like university degrees but will not have the worry of bad exam grades or financial difficulty to deter them.

New activities created should have connections to local traditions so as to encourage more of

the community to participate, thus increasing distribution of conservation messages.

Using positive and negative lectures, imagery and debates to allow teenagers to understand the consequences of behaviours, and creating debating teams so that teens could come up with solutions themselves.

Conservation needs to be presented as a new trend, a 'cool' activity that is alluring for teenagers, who often experiment with new interests; having foreign experts or celebrities endorse the 'trend' will make it even more appealing for teenagers.

Using social marketing techniques for city teenagers or creating campaigns such as 2014's 'no make-up selfie' or the saiga-related 'sand bucket challenge' to raise awareness, with teenagers engaging their peers for the benefit of conservation.

We are very grateful to the People's Trust for Endangered Species and Disney Wildlife Conservation Fund for funding this work. We also acknowledge funding support from USAID via Fauna & Flora International's Ustyurt Landscape Conservation Initiative. The full thesis on which this summary is based can be found at <http://www.iccs.org.uk/publications/thesis-archive-msc-con-sci/>

Identification of saiga horns used in Traditional Chinese Medicines using DNA barcoding technology

Zhigang Jiang, Institute of Zoology, Chinese Academy of Sciences & Endangered Species Scientific Commission of the People's Republic of China, jiangzg@ioz.ac.cn

The saiga population in Northern Xinjiang, China, was extirpated in the 1960s due to over-hunting. Saiga horns, called "Linyangjiao" in Chinese, have long been used in Traditional Chinese Medicines (TCM). The horns of domestic sheep (*Ovis aries*), goat (*Capra hircus*), goitered gazelle (*Gazella subgutturosa*), Tibetan antelope (*Pantholops hodgsonii*), Tibetan gazelle (*Procapra picticaudata*), Mongolian gazelle (*P. gutturosa*), and Przewalski's

gazelle (*P. przewalskii*) are also sold as substitutes for "Linyangjiao" in TCM markets. These substitutes are all of similar morphology, especially when they are sold in slices, cubes or powders, making discrimination between these products with the naked eye rather difficult in TCM markets, especially when the merchants sell fake saiga horn on purpose.

This lack of order in the “Linyangjiao” market impedes not only control of the trade in saiga horns but also conservation of other endangered ungulates. Therefore, an effective and convenient method to identify “Linyangjiao” is needed. Methods like morphological identification, micro-structure comparison, thin layer chromatography (TLC), and gel electrophoresis have been used to discriminate horns of saiga antelope from other species or artificial counterfeits. With the advantages of accuracy, simplicity, and the potential to deal with highly degraded samples, genetic markers are widely applied in wildlife identification nowadays.

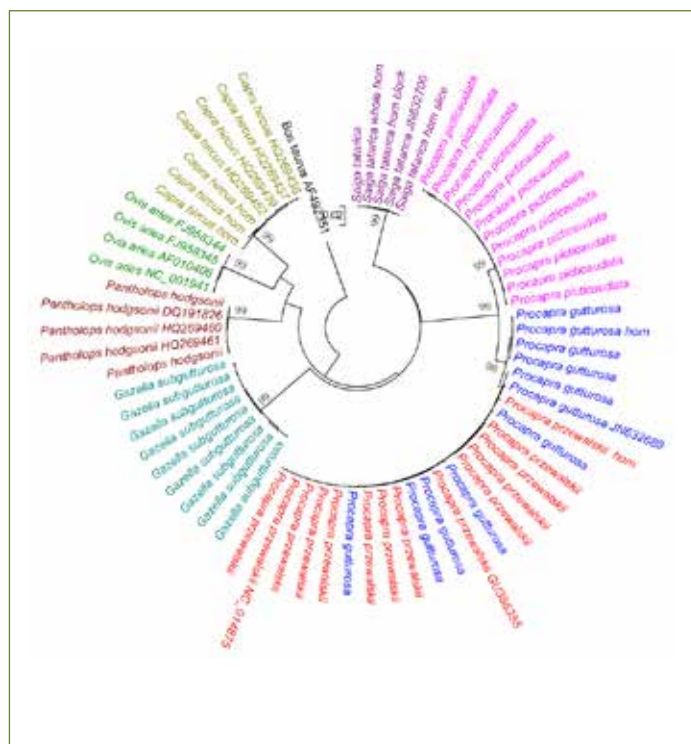
In a paper published in *Ecology and Evolution* in 2015, Dr. Jing Chen and colleagues from the Wildlife and Behavioral Ecology Research Group of the Institute of Zoology, Chinese Academy of Sciences, used Cytochrome C oxidase subunit 1 (COI) as a molecular marker, in order to establish a method to distinguish between the horns of sheep and goat, goitered gazelle, Tibetan antelope, Tibetan gazelle, Mongolian gazelle, saigas, and Przewalski’s gazelle. As species diagnosis is a basic requirement for monitoring wildlife trade and enforcing wildlife laws, this barcoding diagnostic method is expected to contribute to monitoring trade in “Linyangjiao” and to support the conservation of these endangered antelope species.

The cells in horns are surrounded by keratinized tissues, which are inherently difficult to digest. The genomic DNA of “Linyangjiao” from TCM markets was generally degraded, particularly when the horns were processed into slices, cubes or powder before sale and stored at room temperature and high humidity for a long period. Dr. Chen et al.’s protocol covered procedures including extraction of genomic DNA from horn samples, PCR amplification and analysis of barcoding data sets. A nested-PCR system was designed to deal with degraded samples, which are the only available materials in forensic cases. For the two powdered horn samples with low genomic DNA

concentrations, two rounds of nested-PCR were performed.

Nowadays, the legal supply of saiga horns to TCM in China relies on horns obtained before the CITES trade ban; horns from legal sources are being depleted over time. In order to pursue high profits, occasionally saiga horns are smuggled by traffickers. Saiga horns are similar to the horns of other gazelles in morphology; some merchants substitute inferior horns as good horns, fakes as genuine horns, thus cheating the consumers. This new method provides an effective forensic technique to curb saiga horn smuggling and to monitor saiga horns in the TCM market.

Editor’s note: You can access the full article published in the journal *Ecology and Evolution* at: <http://onlinelibrary.wiley.com/doi/10.1002/ece3.1457/full>



Neighbour-Joining (NJ) tree of COI sequences of 644 bp from eight species involved in TCM “Linyangjiao” markets. Samples of horns were marked with their species names. The sequences with GenBank accession numbers were retrieved from GenBank.

New publication

Quaternary skulls of the saiga antelope from Eastern Europe and Siberia: *Saiga borealis* versus *Saiga tatarica* - One species or two?

– Urszula Ratajczak *et.al.* Department of Palaeozoology, Institute of Environmental Biology, Faculty of Biological Sciences, University of Wrocław, Poland

During the Pleistocene, the saiga antelope, a nomadic, non-territorial, herding species, inhabited vast areas of Eurasia and North America; its distribution was at its maximum extent in the last glaciation. Now, it is restricted to a few isolated populations in Central Asia. Two main forms of saiga were recognised: *Saiga borealis* and *S. tatarica*. The former became extinct at the beginning of the Holocene, the latter has survived since the Pleistocene to the present day. They are regarded either as two species or as two subspecies of *S. tatarica*. Our comparison of skull and horn measurements of many Eurasian specimens, including data from the literature, revealed significant differences between these taxa. *S. borealis* was larger than *S. tatarica* in terms of some cranial measurements, whereas *S. tatarica* was characterised by a greater diameter of horn-core base. However, the distinction involved only a few metric features and the ranges of all the analysed measurements overlapped at least

partially, indicating that the two taxa may not be true species. Our analyses also showed that the skull of *S. tatarica* has become smaller since the Pleistocene in terms of several measurements, which was probably associated with the climate and palaeogeographical changes at the end of the last glaciation and a decrease in the population size. We found significant differences between the various geographical subgroups of *S. borealis* and *S. tatarica* only in some measurements. The observed dissimilarities between *S. borealis* and *S. tatarica* correspond most probably to subspecies level and may have resulted from a biogeographical differentiation of the saiga populations in the Pleistocene.

Editor's note: A full version of the paper was published in the journal *Quaternary International*: <http://www.sciencedirect.com/science/article/pii/S1040618215009088>

Announcements

Updates to the Saiga Resource Centre

Thanks to our expert team, the Saiga Resource Centre has recently undergone some improvements. Searches can now be made in the Literature, Pictures and Video sections. Visitors can search literature by author, subject and year and can search pictures by photographer and subject. We have also included a useful new 'mass die-off' search option in both sections.

We've added a lot of new content to the site, including beautiful photographs of saigas taken

by Andrey Gilev and Karina Karenina, who visited the Stepnoi Sanctuary in Russia earlier this year (Ed: see their article above). Check the newsfeed for regular updates on scientific news and project information, which you can access from either the Home page or Background section.

If you've ever read an interesting article in Saiga News, but can't remember which issue it was in, you'll be pleased to hear that we've added a useful tool which allows users of the English and

Russian sites to view the highlights of each issue at a glance. The same function on the Chinese and Kazakh sites will follow soon. If you need to find a 'saiga expert' we have also added several new names to the site. Please let us know if you would like to be added to this valuable section.

Scheduled development work for early 2016 includes: finalisation of the site in Kazakh, Russian and Chinese; picture and video descriptions; improvements to the Education section; CMS content updates. In the future, if we get more funding we aim to provide an archive for saiga-related GIS data and a CITES page.

If you have any resources such as papers,

educational materials, literature, photos etc. which you would like to share with the saiga community, Alyona Chukhatina would love to hear from you; alyona.chukhatina@acbk.kz.

Our thanks go to the following people for their enthusiasm, expertise and support in carrying out these updates: Abi Salmon, Alyona Chukhatina, and Steve Morgan at Siempre Solutions Ltd. Thanks also to Guihong Zhang for his help with Chinese translation and to Alyona for help with the Russian translation of the site.

Visit the Saiga Resource Centre and benefit from being part of the saiga community: www.saigaresourcecentre.com

Saiga heroes

Yuri Arylov: mere enthusiasm is not enough to feed a saiga!

In Saiga News 19 we told our readers about the sad fate of the Centre for Wild Animals in the Republic of Kalmykia. As you will remember, in the autumn of 2014 the Government of the Republic of Kalmykia resolved to liquidate the Centre, which had functioned for 15 years. However, Professor Yuri Arylov, who had been the Centre's director for all those years, continued to run it voluntarily, hoping that all the necessary documents for transferring the centre to the Chernye Zemli Reserve would be obtained shortly. It is obvious that saigas have been Professor Arylov's passion for many years.

Yuri Nimeyevich Arylov is the Director of the Centre for Wild Animals in the Republic of Kalmykia, a Doctor of Biology, a Professor at the Kalmyk State University and an honoured worker of science of the Republic of Kalmykia. Yuri's range of interests in science are extremely wide, having been actively engaged for the last 24 years in studying ungulate ecology, in particular saigas, game ranching, environmental protection, and ecological education for a different sector of the population.



Saiga calf born at Yuri Arylov's centre. Image © CWA

Editor: When did you first take an interest in saigas?

I was born in the city of Surgut, Khanty Mansiysk Autonomous Area, Siberia, where most Kalmyk people, including my parents, had been exiled in 1943 and where, as we all know, saigas could have lived with mammoths and woolly rhinoceroses. After school I returned to Elista, the native city of my ancestors, and entered the Agrarian Faculty of Kalmyk State University. Although in the early years of my education I had decided to devote my life to domestic livestock, I spent a lot of time studying the wildlife of my native land. One day I was attracted by a strange-looking animal with a snout resembling a shortened version of the mammoth's trunk. But then I was not able

to examine the saiga closely, which was quite abundant on the steppes of Kalmykia at the time. The government even developed special programmes to reduce saiga numbers, which greatly damaged the steppe's vegetation. There were even special state agricultural organisations, whose activities consisted of hunting saigas. Kalmykia made considerable profits from selling saiga meat at that time.

Editor: When did you begin studying the saiga and working on its conservation?

In the late 1980s, when the Soviet Union was immersed in Perestroika, the country's agricultural sector began to reduce. In 1991, I was offered the position of Deputy Director of the Chernye Zemli Reserve. It was then that my dream, to learn as much as possible about the saiga and its ecology, came true, and the conservation of this beautiful animal became my whole life. In 2001, when the saiga's situation became catastrophic in Russia, Kirsan Ilyumjinov, the head of the Republic of Kalmykia, suggested that I take up the position of Director of the Centre for Wild Animals, the purpose of which was to breed and keep saigas in semi-wild conditions. So we constructed pens for the saigas and accommodation buildings for the Yashkul' Breeding Centre's staff and visitors, and all the infrastructure needed for scientific research

and to hold ecological education and awareness-raising events for different groups of people, on an 800ha area 70 km east of Elista which had been allocated to the Centre. We have already written about our Centre in Saiga News.

Editor: What is your usual working day?

Actually, every day, including weekends, is very much alike for us. I usually begin my working day phoning the staff of the Yashkul' Breeding Centre to find out what is going on there. These calls determine my working schedule for the rest of the day. Administrative issues associated with the Centre's activities occupy a considerable portion of my time during the day. Among my other daily activities are answering letters, preparing reports, developing plans for the following days and meeting officials from other organisations. I am also actively engaged in teaching at the University, where I deliver a course in ecology. I take great pleasure in working with the younger generation; I often visit rural schools and tell the children about the wildlife of their native land, about the saiga and about the need to conserve our environment.

Editor: Can you tell us an interesting story about a saiga?

In 2003, our saigas lived in a small nursery, Khar-Buluk (17 km from Elista), where we were experimenting with artificial feeding. The most sociable of the animals was a youngster named Pyatnashka (which can be roughly translated from Russian as 'spotty'). At 2.5 months old, Pyatnashka suffered a fracture of the radius in the right fore limb. We immediately applied a splint to the broken bone. A month and a half after the plaster had been removed Pyatnashka felt quite confident resting on his leg, but still remained slightly lame, which was why he received an addition to his name and was now called Pyatnashka-Khromonozhka (the second part translating as 'lame'). In 2005 this male was transferred to the general enclosure at the Yashkul' breeding centre, where he settled in very well, and for a long time he responded when I



Professor Yuri. Arylov carrying out a field survey. Image © CWA

called his name.

Editor: What are the main problems in your work?

At the moment, for well-known reasons, it is hard for me to talk about this. However, my rich experience in this field allows me to confirm (and, I think all my colleagues would agree with me) that the main problem is the extremely scanty funding or, to be frank, no funding at all. Unfortunately, mere enthusiasm is not enough to feed a saiga; nor can it be used as a 'currency' to buy water. To summarise, if the financial support was sufficient, we could do a lot for the saiga and 'bring it back to life', as it once was.

Editor: Can you think of any ways to remove the obstacles to your work?

Speaking globally, ecology and environmental protection must become priorities in the government's social development strategies. Therefore, this area must receive a high level of financial support rather than be residually financed. Conserving all the components of natural ecosystems must become one of the principal objectives for officials of every rank and level, as well as for ordinary people.

Editor: Which is the best part of your work?

Saiga heroes (cont)



Community outreach. Image © CWA

The best part of my work is the realisation that you are involved in a very important field. This doesn't just refer to our work with saigas directly, but also includes communication with experts coming to the Yashkul' Breeding Centre from all over our enormous country and from abroad. Children also occupy a significant niche in my professional activities; they absorb everything we tell and show them, so that they can take our places in future and conserve the saiga and wildlife in general, just like we do. My most important achievement is developing techniques to breed saigas in semi-wild conditions, which were developed in collaboration with researchers from different scientific organisations in Russia. In 2015, the animals in Yashkul' Breeding Centre produced their 15th generation of babies, which means the micropopulation we have created here is quite stable and viable.

Editor: What are the prospects for saiga conservation? What are the primary and most important steps that would help the species survive?

The situation for the saiga is just terrible in the Russian Federation. Also, the pain that the recent tragedy in Kazakhstan has caused us is unspeakable. We are losing a unique species, which has survived numerous natural disasters, the country's economic crashes, diseases and so on. I think it is really important to develop an action plan as soon as possible, a real plan that would be financed properly both at the regional and at the federal levels. In this respect we should learn from the Republic of Kazakhstan, where a real plan of action with adequate financial support yielded good results; the saiga population became 10 times larger within 10 years (from 23-24 thousand individuals in 2004 to 260-280 thousand individuals in 2014).

Editor: You have been working for over two decades studying and conserving rare animals. What changes have you observed over these years? What are current trends in this field?

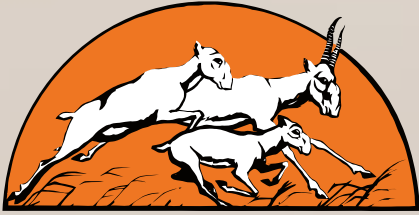
Unfortunately, despite numerous efforts the saiga population has decreased in recent years, which may lead to the utter extinction of the species. I am not a pessimist, but I do not see any positive trends today.

Acknowledgements

We would like to express our deep gratitude to all the people whose donations of money and time support the work of the Saiga Conservation Alliance. We particularly thank the WCN staff and volunteers for their support and advice, and members of the public in the USA and worldwide for their generous donations to our recent appeal. We are grateful to the organisations that have supported this issue of the newsletter – CMS, WCN, WWF-Mongolia and WCS-China.







SAIGA CONSERVATION ALLIANCE

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