

SAIGA NEWS

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



Photo by Igor Shpiltenok

New born saiga twins – you should save us!

Editorial

Nearly 12,000 Critically Endangered saiga antelopes were found dead in the Ural population in western Kazakhstan in May 2010. In this issue of Saiga News, we include a forum section of three articles, offering different perspectives on this tragedy, its causes and context. These deaths represent a severe blow to this population and to the species as a whole, and they remind us of the importance of disease as a limiting factor for this species. This is a very timely reminder, given that the saiga community is about to agree the next Medium Term Work Programme (MTWP) for this species, when we meet in September for the 2nd Conference of the Parties to the MOU on saiga conservation under the Convention on Migratory Species. It is interesting to note that when we met to agree the first five year work programme for saigas, in 2006, disease was not considered as a potential threat to the species, because for several years there had been no outbreak.

The response to the tragedy in Ural by the Government of Kazakhstan has been speedy, efficient and coordinated. There has been much press interest about the deaths in Kazakhstan, which demonstrates the national importance of the saiga. The deaths have also been reported internationally, with articles in a number of newspapers and magazines. The international conservation community was quick to support the national authorities in the aftermath; the CMS organised a phone conference to discuss how best to help, and some international conservation funding has been secured, both by Fauna and Flora International and the Saiga Conservation Alliance.

Donors include the Mohamed Bin Zayed fund, the Save Our Species fund and the People's Trust for Endangered Species. International NGOs will work closely with

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the Association for the Conservation of Biodiversity in Kazakhstan and with the National Authorities, to ensure that the funding is directed to the most urgent and important actions to ensure the recovery of the Ural saiga population, including epidemiological studies and work to engage local people in saiga conservation.

These are difficult times for saigas, not just in Ural but also in Ustiurt, where poaching continues to threaten the population's persistence, and in the pre-Caspian, where they endured a particularly harsh winter as well as continued poaching. The picture is much better for the Mongolian and Betpak-dala populations. Although much has been achieved since the first meeting of the parties to the MOU on saiga conservation in 2006, we need to maintain and increase our conservation efforts if we are to meet the goals of the MTWP; to halt, and if possible to reverse the decline of saiga populations. I look forward to seeing as many people as possible at the CMS meeting in September.

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Forum

Mass mortality among saigas in Kazakhstan: 12,000 dead

A mass death of saiga antelopes took place from 18 to 21 May 2010 in the north west of West Kazakhstan province north of Borsy village, where these animals had concentrated for calving. 11,920 saigas were found dead, including 7625 females, 4259 calves (newly born) and 45 males. This is a third of the Ural population (39,000 in April 2010).

The preliminary conclusions of the Commission consisting of representatives from veterinary, medical, zoological and nature conservation organizations suggested that “the cause of the mass death of saigas was an outbreak of pasteurellosis (the pathogen *Pasteurella multocida*) in the context of a decrease in immunity of calving females after a severe winter and a possible toxic effect of artificially created organochlorides”. The diagnosis was based on laboratory analyses of pathological samples from dead saigas and domestic animals (calves), which were carried out by the local branch of the Veterinary Laboratory of the Kazakhstan Ministry of Agriculture in West Kazakhstan province and by the Urals Anti-Plague Station of the Kazakh Public Health Ministry, as well as on analyses

of samples of pathological material taken from dead saigas, soil and grass, which were carried out by the veterinary reference centre of the Kazakh Ministry of Agriculture, which revealed an elevated chlorine content in the stomach and liver of 3.3 times natural levels, while in the soil and grass chlorine levels were 5.3 and 8 times normal, respectively.

Previous mass deaths of saigas from pasteurellosis in Kazakhstan were recorded in 1981, 1984 and 1988. In the former Turgai province, about 100,000 individuals died in May 1981; about 270,000 in May 1988; and more than 100,000 saigas in the Volga-Ural Interfluvium in February-March 1984. In all cases (including 2010) discharges of bloody foam from the nose and mouth cavity were observed, as well as bloody diarrhoea.

Dissection of dead saigas revealed hyperaemia and



Photo by Yestr-RU News

Kazakh epidemiologists analyse the cause of the saiga deaths.

induration of the lungs, blood in the breast cavity and swelling of the liver and spleen. Inertness, a shaky walk, excess salivation and convulsive muscle contraction were noted in sick animals. The disease was of an acute septic form and the animals died within 3 to 6 days. The causes of outbreaks of pasteurellosis are not quite clear. Clinically healthy saigas are carriers of the disease agent and in some circumstances it may become highly virulent, which can cause mass disease and death of saigas. Sick saiga individuals are sometimes encountered but without large-scale mortality, which suggests the disease can be chronic in some saigas and individual sick saigas could have a role in transmission between outbreaks. One of the possible reasons contributing to the outbreaks of pasteurellosis in May 1988 and May 2010 could be the exhaustion and weakening of saigas after extremely snowy winters in those years; saiga deaths due to lack of forage were recorded in winter 1988.

The main measures outlined by the commission aimed at preventing future mass mortality include monitoring saigas and their habitats; research into saiga diseases and their prevention; a disease survey of pastures; vaccination of domestic cattle and disinfection of pasteurellosis foci; and the protection of the local human population from pasteurellosis.

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Photo by Republic KZ News

A dead saiga during the outbreak, May, 2010.

Possible underlying causes of mortality from Pasteurellosis

Cases of saiga deaths from pasteurellosis have been previously observed in Kazakhstan and elsewhere. A pasteurellosis epizootic has also been observed in wild rodents in Mongolia, namely *Lasiopodomys brandti* and *Marmota sibirica*. However, the most large-scale deaths were recorded in Mongolian gazelles⁶ *Procapra gutturosa* in Mongolia. About 140,000 individuals of this species died in 1974; and again in 1980, 1983 and 1985. It is also noteworthy that pasteurellosis has been affecting saigas in the breeding centre at the Astrakhan State Hunt Farm for five years (see article by N.A. Franov and V.V. Gagarin below).

Under normal conditions, *Pasteurella* inhabits the mucus of the upper air passages and has no adverse effect. Generally it is not the original cause of disease; however, it affects animals suffering difficult conditions. The disease is

very acute usually resulting in death after 10-30 hours. What is the trigger of this current outbreak - a harsh winter (dzhut), another infection, low-value forage, overcooling or overheating? Of particular interest for the exploration of outbreaks such as this is the research conducted in Mongolia by Rothschild et al. in 1988¹. They found that the deaths of Mongolian gazelles were connected to an abnormal content of microelements in their fodder plants. They showed that the most severe disease was connected to a change in the balance of copper and molybdenum in plants, an increase in the lead and zinc content and a deficit of cobalt, which resulted in endemic ataxia (i.e. lack of coordination in movement) or molybdenum toxicosis, accompanied by severe intestinal disorders and lesions on many internal organs.

Pasteurellosis does not only affect saigas in poor

¹Rothschild E.V., Evdokimova A.K., Amgalan L. An abnormal content of microelements in plants as a factor of death of Mongolian gazelles. MSN Bulletin, Department of Biology. 1988, Vol. 93, issue 2, p. 35-42.

condition, but also well nourished animals. When a similar outbreak happened in Mongolian gazelles, a severe copper deficit was found in their spring and summer forage, coupled with a cobalt deficit. Changes in forage in late summer resulted in a significant intake of lead and particularly zinc, as well as extremely high doses of molybdenum in particular areas of pasture.

In general, as Rothschild et al. write, there are no grounds for assuming that wild animals are immune to the harmful effects of biogeochemical anomalies. Therefore this factor should be taken into account among other possible causes of wildlife losses. Associated research is directly related to the solution of these problems, including conservation of existing

populations, prediction of the effects of anthropogenic changes to the environment, prevention of losses of domestic animals and damage to human health. The harmful consequences of the excessive intake of some microelements can be artificially reduced by adding copper sulphate to the diet. This method was successfully used for sheep pastures, by spreading ground crystal copper sulphate from the air, as described by Rothschild et al. (1988). Clearly it would be desirable to take samples of forage for biochemical research from those areas in western Kazakhstan where the recent mass mortality of saigas was recorded.

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Photo by A. Kiryukin



A herd of running Mongolian gazelles.

Pasteurellosis as a cause of disease in wild ungulates

Pasteurellosis is a disease with worldwide distribution, caused by infection with bacteria in the genus *Pasteurella* and, following reclassification, also *Mannheimia* and *Bibersteinia*. Even within species, there are many different strains, with some causing more severe disease than others. It appears that bacteria in the pasteurellosis complex can be carried in the respiratory tract of even healthy hosts. Damage from dust, lungworms or toxins, infection with respiratory viruses, or immunosuppression arising from stress or malnutrition, can allow the bacteria to colonise the lungs or penetrate into the circulation. Disease can then be severe, causing pneumonia and even death. Post mortem signs would generally include abdominal swelling, which is quite non-specific, and possibly foamy discharge from the mouth and nose. Where bacteria infect the blood to cause septicaemia, death can be quick and accompanied by other signs such as haemorrhage and diarrhoea. In domestic sheep, pasteurellosis most usually causes low grade respiratory disease, especially affecting lambs or old individuals, but it can also cause large outbreaks with high mortality. The bacteria do not survive for long in the environment, and transmission between individuals is by direct contact.

The combination of different factors that lead to an outbreak of pasteurellosis is not always clear, even in domestic sheep. Thus, outbreaks often occur after sheep from different sources are mixed, for example in markets. But this could be because new pathogenic strains are circulated as a result of the mixing, or because the conditions involve high animal density and stress. Infection with respiratory viruses, as well as any disease that suppresses the immune system, could also stimulate outbreaks of secondary pasteurellosis.

Wildlife species might be more susceptible than domestic ruminants to some strains of bacteria in the pasteurellosis complex. Thus, for example, the bighorn sheep *Ovis canadensis* is highly susceptible, and pasteurellosis has been

implicated in repeated outbreaks of severe disease, leading to population reductions of up to 90 % in some parts of North America. It is thought that some outbreaks have been stimulated by spillover of pathogenic strains from domestic sheep, while others could involve bacteria normally non-pathogenic in bighorn sheep, with disease triggered by stress or respiratory viruses. As well as potentially high mortality across age categories, outbreaks of pasteurellosis in *Ovis canadensis* have led to poor juvenile recruitment in the following years, further threatening population viability.

Bacteria of the pasteurellosis group are frequently isolated from other species of wild ruminant, including antelopes, sometimes following outbreaks of disease. However, because of the complex interaction of causative factors, and the common presence of the bacteria even in healthy animals, it is usually difficult if not impossible to determine the role of pasteurellosis in such die-offs. Certainly, a diagnosis of pasteurellosis should normally be accompanied by assessment of likely contributory factors. This could include viruses such as parainfluenza or respiratory syncytial virus, or other stressors. In saigas, stressors in spring could include malnutrition after a harsh winter, and suppressed immunity in female saigas around the time of birth, while calving aggregations provide enhanced conditions for transmission between individuals.

There are no obvious methods to control pasteurellosis in wildlife. Vaccines are available for some strains in domestic ruminants, but these have not been thoroughly evaluated in wildlife, and in any case could be difficult or impossible to deliver. In bighorn sheep, control focuses on restricting grazing of domestic sheep on pastures used by *Ovis canadensis*. Such a strategy could in principle be employed in saigas, for example by avoiding grazing of livestock close to calving aggregations, so decreasing the risk of contact and disease spread. Although this would not prevent outbreaks arising from invasion of bacteria carried asymptotically in

the saiga population, decreased human and livestock activity around calving herds, and in the time leading up to calving, might help to reduce stress and therefore disease. In saigas, dispersion of animals from the spring aggregations, and improving nutrition in summer, should limit further deaths among survivors of the large outbreak this year, if pasteurellosis is indeed the cause.

For the future, there is a need to better understand what leads to outbreaks of pasteurellosis in saigas. Improved ability to predict disease might enable management to be focused, e.g. through supplementary feeding following hard winters. Even if such intervention is not realistic, predicting likely impacts of disease on the saiga population will help to set realistic conservation targets. If occasional mass die-offs from disease are in fact part of normal saiga ecology, this should be recognised in conservation strategies, of course while limiting as far as possible human factors that might cause or exacerbate such outbreaks. Improved understanding of disease epidemiology in saigas can be achieved by thorough investigations of outbreaks, since contributing factors are poorly known in this system. This should include thinking broadly about possible infectious causes, for example by storing material for future testing in case additional candidate agents come to light. Possible ecological contributing factors, such as body condition of



Photo by Republic KZ News

Dead saiga females with bloated stomachs.

saigas dead and alive, current and prior forage availability, and the spatial distribution of saigas and disease, should be included in these investigations.

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Updates

Uzbekistan and Kazakhstan have signed a bilateral agreement on the conservation and restoration of their shared saiga population

On March, 17, 2010, in Tashkent, during an official visit to Uzbekistan of the President of Kazakhstan, Nursultan Nazarbayev, five documents were signed, reports Interfax-Kazakhstan. In particular, the Head of the State Committee of Nature Protection of Uzbekistan, Nariman Umarov, and

Kazakhstan's Minister of Agriculture, Akylbek Kurishbaev, signed an agreement on the protection and restoration of the saiga antelope.

For more details see
http://www.interfax.kz/?lang=rus&int_id=10&news_id=5121.

Saiga Conservation Alliance attains Registered Charity status

As of 10 May 2010 the Saiga Conservation Alliance is a registered charity; registered with and regulated by the Charity Commission for England and Wales (no. 1135851). This means that the SCA has full legal status in the UK and can apply for a wider range of grants. It also means that donors can be confident that we are a recognised organisation. Information on the SCA's constitution, structure and officers, and on how to become a member, are

available at www.saiga-conservation.com, or from the Chair (e.j.milner-gulland@imperial.ac.uk) or Executive Secretary (esipov@xnet.uz). The 2010 Annual General Meeting of the SCA will be held on 11th September at 2pm in the Zaluuchud Hotel Ulaanbaatar, just after the CMS MOU meeting; all are welcome to attend. Please contact us in advance if you are intending to come, so we can circulate meeting documents and organise catering.

Kazakhstan to prolong the ban on saiga hunting for another 10 years

"The ban on saiga hunting in Kazakhstan will be prolonged until 2021" said Khairbek Musabaev, deputy chairman of the Committee of Forestry and Hunting of the Ministry of Agriculture. He said that the hunting ban will be lifted after saiga numbers exceed 200,000 individuals. The

current population estimate for Kazakhstan is around 90,000 individuals (see below).

More details are at <http://www.zakon.kz/173822-kazakhstan-nameren-zapretit-okhotitsja.html>.

Members of Parliament discuss saiga conservation in Uzbekistan

On 23 April 2010, a group of deputies from the Ecological Movement of Uzbekistan and the Committee for Ecology and Environmental Protection of the Legislative Chamber of the Oliy Majlis [the parliament] of the Republic of

Uzbekistan held a round table on the subject "Prospects of cooperation with international organization in order to solve the social and ecological problems of the Priaral region". Proposals were outlined concerning the development of

cooperation with international organizations on a number of issues, including controlling ecosystem degradation, eliminating the consequences of the Aral Sea catastrophe, sustainable use of trans-boundary watercourses, and assuring the ecological security and sustainable development of the region. The participants of the round table also suggested carrying out integrated ecological projects, for which the support of an authoritative international organisations such

as the United Nations is needed. One of the proposed directions is the restoration of the flora and fauna of the Priaral region, including saigas, and an increase in the area protected.

Please follow this link for more details:

http://www.econews.uz/index.php?option=com_content&view=article&id=296:ecologists-have-united-in-the-decision-of-problem&catid=5:water-&Itemid=15.

The Minister of Natural Resources and Ecology of the Russian Federation emphasises the necessity of saiga conservation

On 1 April 2010, the Minister of Natural Resources and Ecology of the Russian Federation, Mr Yury Trutnev, paid a one-day working visit to Kalmykia. He chaired a meeting with the Head of the Republic of Kalmykia, members of the Republic's parliament, and the heads of the Federal offices concerned with environmental security, saiga protection and sustainable use of natural resources. During the meeting,

specialists from the Ministry of Natural Resources made a presentation outlining a package of proposed federal laws to counter environmental damage.

Please follow the link for more details:

<http://www.elista.org/elista/kalmykiyu-s-rabochim-vizitom-posetil-ministr-prirodnyih-resursov-i-ekologii-rf-yuriy-trutnev.html>.

A round table devoted to the saiga was held at Kalmyk State University

On 18 March, a meeting of the round table on conservation of the saiga was held at Kalmyk State University. The students prepared reports on the saiga's feeding and breeding habits, their migratory routes and population dynamics. Representatives of the regional office of the Ministry of Natural Resources, the Chernye Zemli state nature reserve and the Centre for Wild Animals of the Republic of

Kalmykia also gave talks. The problems of monitoring, poaching, and the weaknesses in saiga protection resulting from administrative reforms and lack of funds were discussed. The question of the reformation of the special team for saiga protection remains to be solved.

Based on an article in the newspaper Izvestia Kalmykii, 20 March 2010.

A youth forum for the year of the saiga in Kalmykia

On 28 May, an inter-regional youth forum "Ecology. Innovations. Humans" for the Year of the Saiga was opened in the meeting hall of the Government of the Republic of Kalmykia. Mr Kirsan Ilyumjinov, Head of the Republic of Kalmykia, Mr. Badma Salaev, the Minister of Education, Culture and Science of the Republic of Kalmykia, and researchers from Kalmykia and the Southern Federal

University were present. The Head of Kalmykia noted that ecological questions are very pressing now and must be solved as soon as possible. After a gala opening, an exhibition of innovative projects was held in the foyer.

For more details please click the following link:

<http://www.elista.org/elista/v-elite-sostoyalos-otkrytie-molodezhnogo-ekologicheskogo-foruma.html>.



Welcome address by Mr Kirsan Ilyumjinov.



An exhibition of projects devoted to saiga conservation.

Results of the 2010 aerial saiga counts in Kazakhstan

Kazakhstan's annual aerial saiga counts were conducted from 9 April to 1 May 2010, with participants from the Institute of Zoology of Kazakhstan, the Committee of Forestry and Hunting of the Ministry of Agriculture, Okhotzooptom, the regional hunting and forestry inspectorates, as well as the Association for the

Conservation of Biodiversity in Kazakhstan. According to the counts, saigas in Kazakhstan numbered 97,400 individuals (compared to 81,000 in 2009); this breaks down into 53,400 in the Betpakdala population; 4,900 in Ustyurt and 39,000 in Ural. Compared to 2009, numbers increased in Betpakdala and Ural, and dropped in Ustyurt. After the death

of 12,000 saigas from pasteurellosis in May 2010 (*see above*), the population estimate for Ural was reduced to the 2009 level (ca. 27,000 individuals). Thus, the current total

number of saigas in Kazakhstan is 85,300.

For more information please contact Yu. Grachev at teriologi@mail.ru.

Saiga movements are being monitored using radio-collars

An interesting and important study of saiga movement using radio-telemetry is being conducted based at the Centre for Wild Animals of the Republic of Kalmykia. The study was initiated a few years ago in collaboration with scientists from Wisconsin State University (USA) and the A.N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences. Radio-collars were donated by the National Geographic Fund. In December 2009, the radio-collars were put on three saiga males. They were released not far from a herd of wild saigas grazing near the Volga livestock farm. These males were successfully adopted by

the wild herd. During the experiment it became clear that one area of saiga habitat is the northern and eastern part of the buffer zone of the Chernye Zemli State Nature Reserve. A radio-collared captive-bred female saiga from the Centre for Wild Animals has been released into the wild in the Stepnoi Reserve. The data obtained will enable conservation organizations to improve their protection of the wild population.

More details are in Inzestia Kalmykii, 6 February 2010, № 10 and at <http://www.astrakhan.net/?ai=23488>.

Saiga calf births in captivity

The Interfaks-Yug agency reported on 22 June 2010 that the Centre for Wild Animals of the Republic of Kalmykia has achieved a significant increase in the number of saiga births in their breeding centre. "This year has been very lucky: we obtained approximately 35 saiga calves from 40 females, which is the highest calving rate in 10 years of the breeding centre. Due to the height of the vegetation it is hard to establish the precise number of calves, as the herd is protective of them and does not allow humans to approach

closely. However, this calving rate is twice as high as last year", said Yuri Arylov, the Director of the Centre.

In 2010, Gansu Endangered Animal Breeding Centre, China, had 26 saiga births. With the addition of these calves, the population of saigas at the Centre now numbers more than 80 animals. *More details are at <http://news.xinmin.cn/rollnews/2010/07/18/5833748.html>.*

Photo exhibition on Altyn dala

A photo exhibition on Altyn dala opened in Almaty on 29th April, as part of the Year of Germany in Kazakhstan. The Altyn Dala initiative of the Association for the Conservation of Biodiversity of Kazakhstan is aimed at the conservation and rehabilitation of the Republic's steppe and semi-desert ecosystems, in particular, the protection of the Betpakdala saiga population, which is the symbol of the

Central Asian steppes. The exhibition consists of ten information stands and videos depicting research work carried out in strictly protected natural territories and ranches, the protection and monitoring of the native fauna and poaching control. The mobile photo exhibition will visit all of Kazakhstan's major cities during the year.

More details are at <http://inform.kz/rus/article/2263579>.

Wild Wonders of Europe

An international environmental photo-project called Wild Wonders of Europe started in early 2008. Over two years, 60 well-known wildlife photographers took part in the project. Russia was represented by Igor Shpilenok, whose main subject is Russia's nature reserves and national parks. The pre-Caspian saiga population plays a significant role in Igor Shpilenok's portfolio. *More information about this large-scale photographic project is available on Igor Shpilenok's*

website http://shpilenok.ru/galleryru_8.html and his blog at <http://shpilenok.livejournal.com/6141.html>.

Editorial note: Igor Shpilenok is a long-standing partner and friend of the SCA. He has worked for many years in Kalmykia, portraying this unique steppe land. We are proud that photographs taken by this remarkable photographer decorate the pages of Saiga News.

Saiga day celebrated in Uzbekistan

For the fourth successive year, Saiga Day has been successfully celebrated in villages within the range of the Ustyurt saiga population in Uzbekistan. The celebration of Saiga Day is timed to coincide with the saiga's calving period and is a holiday of revival and fecundity, and of nature conservation in our native land. This year, the holiday was celebrated on 26-27 April. Schoolchildren, teachers and local residents from Zhaslyk and Karakalpakia villages, as well as members of the SCA took part in the celebration. The celebration of the Saiga Day was made possible through the support of WCN. By tradition, the celebration was preceded by drawing and writing competitions, in which children from the ages of 7 to 15 took part. The authors of the best works were awarded prizes from the SCA. The most



Photo by A. Esipov

Saiga Day in Ustyurt.

interesting pieces of writing will be collected and published as a book on saigas written by children for children, illustrated with entries from the art competition. Currently, the layout of this book is being developed and sponsorship is being sought.

Each of the participating schools celebrated Saiga Day in its own way. There were exciting sports events, in which the children defended the honour of their teams, and saiga and leopard quizzes, in which people's biological and conservation knowledge was tested. The fans actively supported their teams; at times getting as passionate as fans at the football World Cup. Songs, dances and mini-performances dedicated to saigas and other wildlife, and written by children and their teachers, made the celebration unforgettable. An exhibition of the crafts created by girls from the Zhaslyk crafts group (see below) was also held.



Photo by A. Esipov

Sports competition at Karakalpakiya school.

world is interconnected: humans, saigas, steppe... What strikes me is the contradictory attitude of people to saigas – on the one hand they glorify it as a holy animal, it is a sin to kill a saiga; on the other hand, they kill saigas. The problem of conservation of this amazing animal touched us, our pupils and their parents. It is really wise to carry out this work at schools. This influences the consciousness of children, while children influence the consciousness of their parents. They may not listen to us, but they do listen to their children.”

On the initiative of the teachers of school No 26, it was proposed to celebrate Saiga day as an official village event. This idea was discussed with the administrations of Karakalpakia and Zhaslyk villages and was fully approved. On the day after the celebration, the competition prize-winners from Zhaslyk village went on an excursion to the ruins of the medieval caravanserai at Beleuly, a former saiga calving area. The schoolchildren found out about the history of this monument and its place in the ecosystem, learnt about the animals inhabiting the area, and observed their habitats.



Photo by A. Esipov

Excursion to the ruins of Beleuly caravanserai.

“In the past we did not have the practice of holding special events about saiga protection” said Dina Boltaevna Ajimova, the principal of school 26 in Karakalpakia. “Saigas are inseparable from the steppe. I believe that everything in the

A lie-down protest for the protection of the saiga in Uralsk

In early June, Ural journalists staged a protest demanding an objective investigation into the cause of death of 12 thousand saigas (see above). Twenty-five people went to the central square of the town of Uralsk in front of the building of the city administration and lay down to depict dead saigas. The goal of the protest was both to achieve an

objective investigation into the deaths and to wake up civil society so that they respond more actively to events in West Kazakhstan province. The journalists hope that the authorities will pay attention to their action.

More details at

http://respublika-kaz.ya.ru/replies.xml?item_no=3136.

International foundations respond to calls for help

Saigas in the north-west Pre-Caspian are facing a crisis due to the severity of the last winter and continued poaching. The cause of the dire situation was deep snow covered with an ice crust (a *dzhut*). This significantly restricts access to forage and hinders movement, as a result of which the animals die of hunger and cannot escape wolves and poachers (see SN #10). WWF raised more than 200,000 rubles in emergency funding for the Stepnoi reserve and the local NGO Nash Krai, for anti-poaching activities. Currently, WWF is negotiating to provide further long-term support for this population.

More details at

http://www.fox.ru/science/animal/2010/03/02/V_prikaspiyskom_snye.phtml.

As well as this, IFAW awarded a small grant of 5000 USD to the Ministry of Nature of the Republic of Kalmykia for saiga protection. Nash Krai was awarded a grant by Lukoil of 200,000 rubles, and will spend about 1/3 of it on educational events promoting saiga conservation. Based on reports in *Izvestia Kalmykii*, 20 February 2010, No 30 (4756) and *Pravitelstvennaya Gazeta*, 13 March 2010, No 24 (825).

Private donations from the USA and Great Britain, made through WCN and the SCA, raised a further 2600 USD for saiga conservation in the pre-Caspian area. The money was awarded to the Stepnoi reserve for anti-poaching activities and to Nash Krai for public awareness activities.

A disturbance-free zone created for saigas in Russia

A disturbance-free zone was created during the period 20 April to 31 May 2010 inside the Chernye Zemli State

Biosphere Reserve and in adjoining territories, in order to allow calving to proceed with minimal

stress. The zone restricted industrial activities, vehicle movement and human presence without permission of the Ministry of Natural Resources of the Republic of Kalmykia and the Reserve administration. A joint patrol by state inspectors and militia officers was organized in the area,

under a cooperation agreement between the Ministry of Natural Resources and the Ministry of Internal Affairs of the Republic of Kalmykia.

Based on reports in Izvestia Kalmykii, 24 April 2010.

Cases of poaching control and illegal trade

Ural population

8 February 2010

The court of Zhanibeks district of West -Kazakhstan province sentenced a resident of Kaztalovsky district, A. Taigarenov, and a resident of Zhanibeksky district, S. Nasenov, who illegally shot four saigas, to two years imprisonment. A fine of 1 million tenge was levied and the firearms were confiscated.

More details are at <http://inform.kz/rus/article/2236120>.

Betpakdala population

17 February 2010

Two poachers with six dead saigas were detained in Karagandinsk province. The men had been poaching in Akshal area of Koskol village, Ulytausky district. When Okhotzoprom inspector arrived, they tried to escape; however, their vehicle overturned during the chase. A gamekeeper and a 21-year-old student were detained at the scene of the accident. Dead saigas, firearms and cartridges were confiscated. *More details at*

http://old.minagri.gov.kz/news/index.php?ELEMENT_ID=7828; <http://kt.kz/index.php?lang=rus&uin=1138536468&chapter=1153510433>.

10 March 2010

A poacher, who had killed two saigas, was detained in Taush village, Zhangeldinsk district. An official of the regional offices of the Forestry and Hunting Department found traces of the crime in the suspect's barn. Two dead saigas (a male and a female) were confiscated, as well as an unregistered double-barreled rifle, a stained knife, saiga horns and a snowmobile. A criminal investigation is under way. The total loss is assessed at 454,550 tenge (about 3,000 USD). *More details at <http://inform.kz/rus/article/2246513>*

2 June 2010

In the south of Kostanai province, 53 km to the west of Akkol village, Dzhangendinsk district, 31 decomposed saiga carcasses were found between salt marshes. Two carcasses were taken for analysis, while others were burned. However, it was impossible to state the cause of death. The tissues were in poor condition, and tested negative for anthrax, as stated by Muafik Mustafin, the director of the regional veterinary laboratory. It is most likely that the animals had been poached, as the horns had been cut off. An investigation is underway. *More details at*

<http://today.kz/ru/news/kazakhstan/2010-06-18/22871>;
<http://kt.kz/?lang=rus&uin=1138536468&chapter=1153519833>.

Ustyurt population

21 February 2010

An illegal hunt took place in Akshatau village, Uilsk district, Aktyubinsk province, Kazakhstan. Five residents from the Temirsk and Uilsk districts, aged 30 to 54 years old, had shot four saigas. The poachers were detained by officers of the Hunting Inspectorate of Aktyubinsk province

and conveyed to the Department of Internal Affairs of Uilsk district. Three rifles, cartridges and two pairs of binoculars were confiscated. Criminal charges were filed under article 288 (Illegal Hunting) of the Criminal Code of the Republic of Kazakhstan. *More details at*

<http://news.gazeta.kz/art.asp?aid=141681>.

March, 24, 2010

Eight saiga horns of various degree of freshness were confiscated from an inhabitant of Karakalpakiya village in Ustyurt (Uzbekistan). He was carrying the horns on train № 917 from Kungrad to Beyneu without any documents. The case was dealt with by the Aral Nature Protection Office of the Public Prosecutor. The seizure was made possible by the coordinated cooperation between the transport police and the State Committee of Nature Protection of Karakalpakstan.

April, 4, 2010

At the 'Gisht-Kuprik' checkpoint on the Uzbek/Kazakh border north of Tashkent, an unaccompanied bag with 119 saiga horns inside was found by an inspector. It is supposed that the unknown owner had tried to take the horns to Kazakhstan, but was disturbed and left the bag behind. The case is being currently considered by the regional office of the Public Prosecutor.



Saiga horns found at the Uzbekistan/Kazakhstan border.

Precaspian population

11 March 2010

During a joint operation by the FSB (Federal Security Service) of Kalmykia and the Investigations Department of the Prosecutor's Office of the Russian Federation, an officer of the Chernozemelsk District Department of Internal Affairs was detained not far from the Elista-Lagan' road. Nineteen saiga carcasses were in his car, as well as three civilians. During the check, bullet holes were found in the saigas and their throats had been cut. A weapon (a Saiga carbine) was confiscated and criminal charges were laid. The officer was dismissed from the Department of Internal Affairs. *More details are at*

<http://www.regnum.ru/news/accidents/1263709.html>.

In Pallasovsk district of Volgograd province, Russian Federation, border guards at Elton village stopped a car in which a saiga carcass and a rifle were found. The detained people attempted to escape during the check, but after a two-hour chase the car was stopped. During arrest, the driver and passenger offered further resistance. The files on this incident have been submitted to the Department of Hunting of Volgograd province for a decision as to whether to proceed with a criminal prosecution.

Further details are at <http://v1.ru/newslines/274670.html>.

22 April 2010

At the Elista checkpoint, traffic police inspectors stopped a vehicle, in the boot of which they found a saiga carcass and 20 saiga horns. These were confiscated and an investigation is under way.

Based on a report in *Izvestia Kalmykii*, 27 April 2010.

China

May 2010

The Huanggang customs in Shenzhen, South China have seized 22 saiga horns with an estimated value of 650,000 RMB (approximately 100,000 USD). Two suspects were



Photos by Anatoly Khludnev

A saiga male killed by poachers.

arrested on the criminal charge of smuggling endangered species products from Hongkong.

More details are at

http://news.dayoo.com/shenzhen/201005/12/73439_12745992.htm

Articles

A study of the exposure of the Mongolian saiga antelope (*Saiga tatarica mongolica*) to livestock diseases

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The Mongolian saiga (*Saiga tatarica mongolica*) is one of the endangered species in the Altai-Sayan region of western Mongolia. Surveys completed by WWF-Mongolia and the Institute of Biology estimated the total Mongolian population at 2,950 individuals in 1998, rising to 5,240 in 2000. More recent surveys in and around the Sharga Nature Reserve (Gobi-Altai Aimag) recorded 4,938 (95% CI 2,762-8,828) saigas in a 4,524 -km² study area in 2006 and 7,221 (95% CI 4,380-11,903) saigas in a 4,678- km² study area in 2007. Threats to the Mongolian saiga population may include changing environmental conditions, natural

population fluctuations, overgrazing and hunting. Exposure to livestock diseases has also been proposed as a potential threat to the Mongolian saiga. A review of the literature reveals that health evaluation studies on Mongolian saiga antelopes are lacking. Therefore, this preliminary study to determine the degree of exposure of Mongolian saigas to infectious diseases of domestic ruminants is a crucial first step towards exploring disease dynamics and preventing disease transmission in wildlife. Scientists in Kazakhstan have hypothesized that saigas that graze in proximity to livestock may be exposed to infectious diseases that are present in livestock. Lundervold (2004²) reported that all cattle, sheep and goat herds tested in Kazakhstan showed exposure to foot and mouth disease (FMD), blue tongue virus (BTV), epizootic hemorrhagic disease virus (EHDV), peste-des-petits-ruminants virus (PPRV) and *Brucella*, indicating high potential risks of transmitting these diseases from domestic to wild ruminants in the region.

In August 2006, the Wildlife Conservation Society (WCS) in collaboration with the Institute of Biology, Mongolian Academy of Sciences, fitted radio-collars for the first time on adult Mongolian saiga within the Sharga Nature Reserve (see SN#4). This work focused on capturing and collaring saiga to understand movements and survival, but during capture, blood samples were collected from the jugular vein of eight individuals (7 adult females and 1 calf). Collected blood samples were processed and separated for serum. These samples were stored at -20°C in Mongolia until 2009 when they were transported frozen to the United States for



Photo by Kim Murray

A restrained Mongolian saiga during field capture and collaring in 2006.

² Available in the PhD thesis archive at www.iccs.org.uk

testing at the Animal Health Diagnostic Center at Cornell University's College of Veterinary Medicine. The serum samples were tested for exposure to a panel of common diseases known to circulate among livestock in Mongolia including: Foot and mouth disease (FMD); blue tongue virus (BTV); bovine viral diarrhoea (BVD); bovine respiratory syncytial virus (BRSV); bovine parainfluenza virus type 3 (PIV-3); contagious ecthyma (Orf); leptospirosis (9 serovars); brucellosis and paratuberculosis (Johne's disease). Evidence of exposure to livestock diseases was found in 3 individuals. Two were identified with exposure to contagious ecthyma (Orf) by indirect immunofluorescence testing (1 adult female weak positive and 1 adult female suspect) and one with exposure to bovine parainfluenza virus type 3 (PIV-3) by serum neutralization testing (1 adult female weak positive). This is the first detection of exposure of Mongolian saiga antelopes to these diseases. PIV-3 is an important and widespread respiratory tract disease of ruminants. Infection usually spreads rapidly in susceptible populations of cattle, sheep and goats. Animals infected with PIV-3 often develop secondary bacterial pneumonia which can lead to death if untreated. Contagious ecthyma (sore mouth, orf) is a common disease of sheep and goats that is transmissible to humans and has a worldwide distribution. It has also been reported in reindeer and musk oxen (*Ovibos moschatus*). Animals that have had infection

are immune for one to several years but morbidity rates are high (80%) among naive individuals. PIV-3 lesions may occur at the coronary band, interdigitally, on the conjunctiva of the eye, on the external genitalia, or on the udder or teats, however mortality rates in domestic ruminants are low.

These results indicate that Mongolian saigas are exposed to some infectious diseases of livestock. The limited sample size in this study prevents us from drawing conclusions about disease exposure across the entire saiga population in Mongolia. It is possible that the Mongolian saiga population is exposed to the infectious diseases of livestock screened for in this study but these were not detected due to the small sample. A larger and broader health survey is necessary to estimate the degree to which the Mongolian saiga population is exposed to these diseases. A better understanding of disease dynamics at the interface of livestock and wildlife health will improve our ability to put appropriate management practices in place and protect the Mongolian saiga population from the threat of infectious disease outbreaks.

This research was supported by funding from the Wildlife Conservation Society and the National Geographic Society. Field assistance was provided by Dr. Michael Dunbar, a veterinarian from the U.S. Department of Agriculture and Z. Namshir, a veterinarian and former Institute of Biology researcher.

Saiga breeding at the Astrakhan State Hunting Research Station

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In 2001, the Department of Hunting of the Russian Ministry of Agriculture decided to found a saiga breeding centre at the Astrakhan state experimental hunt farm. Currently, the breeding centre's work is aimed at the conservation of the saiga's gene pool through captive breeding. Reintroductions to the wild are planned once the captive population is established.

Originally the saiga breeding centre occupied four ha, with individual enclosures of 2.4 by 10 m and a general enclosure for females and juveniles, of 180 by 180 m. Two years later, the nursery was modernized; the total area increased to 21 ha and living conditions were improved. Currently, there are several individual enclosures (5 by 9 m) with shelters and several enclosures without (10 by 9 m), three enclosures for the rut (0.5-1 ha) and two large enclosures for keeping males and females with young animals.

Husbandry is semi-intensive; males are kept in an all-male group from the age of 4-5 months in a spacious enclosure. In October-November, four main and four reserve adult males are caught and placed in individual enclosures for the rut, along with four groups of females. In February the males are put back into the male group enclosure. Births take place in the same enclosure as the rut. Immediately after birth and tagging of newborn saigas, the four groups of females and calves are united into one group by opening passages between the enclosures and are moved to a spacious enclosure with natural vegetation. Keeping the females separate until birth enables the newborn calves to be found and their mothers identified. The large enclosures are equipped with a feeding rack that also acts as a trap so individual animals can be caught, weighed and given a



Photo by Vyacheslav Gagarin

So far, this individual has only a number – it still has to earn a name.

veterinary check. The system of maintaining saigas in groups in large enclosures with good forage resources firstly enables calves to begin consuming a range of forage from a young age, helping their development. Secondly, lactating females can eat enough green forage. Thirdly, the large areas help saigas stay active. The breeding stock are fed alfalfa hay, newly mown herbs, crushed barley, succulents and salt licks with mineral additives. To reduce the cost of maintenance, succulents (carrots, pumpkin) were experimentally excluded from the diet, and this led to no discernable change in health or behaviour. Given that succulents made up 75% of the cost of the diet, this helped to significantly reduce feed costs. In winter, one adult saiga

is allocated 1kg of barley and 2.5 kg of hay per day. In summer, part of the hay ration is replaced with newly mown herbs. Further research into cost reduction will investigate the optimal amount of barley for saigas of different ages.

Currently, the Centre's main veterinary problem is periodic outbreaks of acute pasteurellosis, in which the saigas die within a few hours and it is impossible to treat them. For this reason the population size has not increased. *Pasterella multocida* types B and D has been cultured from the dead animals. Only type B was recorded in young animals which died at the age of 3-4 months, while both types were recorded in adult saigas.

After an increase in numbers in May-June resulting from calving or the introduction of newborn saiga calves from the wild (in 2003 and 2007), by November-December the stock reduces due to the death of a significant number of young saigas and some adults. From September to May deaths practically cease. The dynamics of saiga numbers by years is given in Table 1.

As Table 1 shows, in the first two years after establishment of the nursery, the loss of saigas was rather high both from injuries and diseases. In the next two years the birth rate exceeded losses as a result of non-targeted artificial selection leading to a stock able to cope with conditions at the Centre. Later, birth rate and losses became approximately equal. The losses were mainly caused by pasteurellosis. This suggests an accumulation of the pathogenic agent in the environment and its systematic infection of newborn calves. The use of a vaccine against pasteurellosis developed for domestic livestock failed to produce a positive result.

The process of vaccination requires the animals to be captured, during which they are highly stressed and frequently get injured; therefore a decision was made to temporarily halt the vaccination programme. In 2009, a batch of experimental anti-pasteurellosis vaccine was developed, using specimens of the pathogenic agent isolated from the animals at the breeding centre. After a first check of the vaccine using a few animals in December 2009, the whole stock was vaccinated. Antibiotics were also given to the calves at the age of three weeks. This enabled a doubling of calf survival compared to the previous year (Table 2).

The initial stock for the Centre was obtained by capturing 50 calves from the wild in 2003. A further capture took place in 2007. Saiga females reach maturity in the first year of life, and males after 18 months. Therefore, male saiga males obtained from Moscow Zoo were used for the first rut at the Centre. Later, males reared at the Centre were used.

Currently, two seven-year-old females remain from the



Photo by Vyacheslav Gagarin

Saigas fed in captivity become quite tame.

first stocking of the Centre. In 2008, four breeding lines were created for the rut. This will increase the genetic diversity of the stock and mean there is no need to capture calves from the wild.

The priority for selection of saigas for the core breeding stock is those with a positive or neutral response to humans. Saigas which are curious or show interest in their keepers have a more stable temperament and are less subject to trauma. Nervous or easily excitable saigas should be isolated from the herd, as they can provoke panic. High quality prophylaxis and treatment of sick animals are impossible without close contact. Animals with a positive response to humans are easier to catch and treat. During the procedures, they are less subject to stress and recover more quickly. It is interesting to note that the animals with a positive response to humans, when released into a spacious enclosure in a group with negatively responding individuals, quickly adopt these negative behaviours and start avoiding contacts with Centre staff, which contradicts the opinion of sceptics on the impossibility of reintroduction of captive-bred saigas into the wild.

Future work is aimed at improving techniques for saiga breeding, which will take another 2 or 3 years. The work has two main directions; improving the safety of the stock under captive breeding and a decrease in the cost of maintenance. To increase genetic variation, we plan to exchange males between breeding centres. With a stable increase in stock numbers, a systematic release of the animals to the wild will be carried out, as well as transfers to other breeding centres (zoos). The Astrakhan State Hunting Research Station invites interested organizations and individuals to establish cooperation on saiga breeding.

Table 1. Dynamics of saiga numbers in the saiga breeding centre

	2003	2004	2005	2006	2007	2008	2009
Numbers at the beginning of year	0	34	21	24	34	40	37
Born in the nursery	0	7	13	17	25	25	21*
Withdrawn from the wild	50	0	0	0	35	0	0
Other supplies	2	0	0	0	0	0	0
Died in previous year	18	19	8	7	50	28	21
Moved to other nurseries	0	2	2	0	4	0	2

* Offspring from 3 groups (13 females). The fourth group (5 females) was not fertilized by the male.

Table 2. Productivity indices for the last five years

Indices	2005	2006	2007	2008	2009
Average age of females	1,72	2,16	2,16	2,55	2,92
Average number of newly born saigas per female	1,36	1,41	1,44	1,44	1,61
Survival rate of young saigas at the end of the year	no data	no data	52%	36%	61,9%

The North-Eastern Pribalkhash region (Kazakhstan) – another saiga habitat preserved in the modern mosaic range of this species

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Until now, no authentic data have been published on the current presence of saigas in the north-eastern Pribalkhash area, where this animal was regularly encountered and numerous in 1990s-early 2000s. Despite a dramatic (up to 98%) decline in numbers in the last fifteen years, small numbers of saigas have survived in this region. Individual groups and small herds of ungulates often survive as outposts on the margins of their range, such as to the east of the main range of the numerous Betpakdala population. So, quite recently we recorded a stable geographically isolated grouping of saigas in southern Pribalkhash (*see* SN#8, 2008).

In late June-early July 2009, we surveyed the north-eastern Pribalkhash region by vehicle. The route (480 km in total) ran across a vast, sparsely populated and little-developed territory. We twice met groups of saiga antelopes between the Aktogai-Sayak railway line and a gas pipeline. The first encounter was recorded on 25 June in the Balkhash-Alakol depression, 40 km north-east of the eastern end of Lake Balkhash, and was a group consisting of two adult females, two mature males and two yearlings. The animals were grazing in a dense group in an almost completely flat plain. They allowed the car to approach to a distance of 300-350 m and then fled in a northerly direction.

The following day we observed another group of saigas (one large male, two adult females and three yearlings) in a similar area ca. 5 km away from the previous encounter. At a distance of 1.5 km these animals stopped feeding and moved steadily away; they started running when the car approached to about 500 m.

The area is flat and well within view from a large distance (from 2-3 to 5-7 km). Therefore, it is rather hard to

approach saigas closer than 300-500 m, even using a fast four-wheel drive vehicle. This is a favorable condition of the habitat helping this remaining small grouping of saigas to survive.

The dug-in gas pipe crossing the area is a small earthy bank 100 km in length, without crossing-points. The railway also doesn't have special crossing-points for wildlife, although in some places there are archways for vehicles and cattle. Nevertheless, two dead camels were found, which had been killed in a collision with a train on this rarely used dead-end railway branch. Currently, neither the railway nor the gas pipe pose a danger to the survival of saigas in this area or restricts their movements.

The presence of small groups of adult and young saigas suggests that these animals have been able to survive in modern changing conditions despite heavy pressure from humans on both these animals and their habitats. It appears that poaching exists even in this remote area without large human settlements. A survey of local people showed that local poachers frequently visit the Kentobe peninsula in the NE of Lake Balkhash. Saigas come here to drink, but stay for quite a long time. The poachers construct hideouts in the isthmus of the peninsula near saiga paths.

These recorded saiga encounters in the NE Pribalkhash are the easternmost observations of this species in Kazakhstan. This area is 1000 km to the east of the main range of the Betpakdala population. There are no protected areas there as yet. Remoteness, low human population and the relative intactness of the area are the main factors allowing the saigas to persist. There is a clear necessity to carry out permanent field studies on the status of the species in this area.



Photo by Altay Zhatkanbaev

Typical saiga habitat in the north-eastern Pribalkhash.

The saiga population of the Vozrozhdeniya peninsula

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In spring 2010, with the financial support of the SCA's Small Grants Programme, funded by WCN and CIC, a field

trip was organized to study the saiga population on Vozrozhdeniya peninsula.

Vozrozhdenie peninsula is situated in Muinak district of Karakalpakstan and includes the former islands of Vozhrozhdeniya, Lazareva, Komsomolsky, Konstantin, Bellinsgauzen and the former bed of the Aral Sea. The main islands are very similar, representing an Artemisia steppe surrounded by a strip of saxaul. Sphere-like tamarisks grow on the sands. Typical vegetation includes glassworts, black saxaul and goosefoot. The former bed of the Aral Sea or the Aral Kums currently consists of the sandy and salt marsh sites with poor vegetation.

The survey was mainly conducted on the former island of Vozrozhdeniya. We drove around almost the entire island along the perimeter and saw numerous saiga tracks everywhere. There are some brackish-water reservoirs. Near the waterbodies we noted many fox and wolf tracks, which come to drink. In total there are 5-6 wolves in the area.

At 7.45am, in the area of the former runway, we noticed a wolf chasing a saiga male. Later the same day a herd of five saigas (three males and two females) were grazing in the same area. The males took turns to guard the herd while the others were feeding. It is noteworthy that saigas were not previously shy on Vozhrozhdeniya; however, after recent seismic-prospecting work and constant disturbance they have become shyer (see SN#9).

A sole saiga male was noted in the area of the former Island of Lazarev; in November 2009 a group of 18 saigas was noted in the same place.

According to our observations, more than 100 saigas inhabit the peninsula, as the northern part, impassable for transport, remains practically unexplored.

A gas drilling tower is situated on the former bed of the Aral Sea in the western part of the peninsula. The



Photo by Denis Nuriđjanov

Unusual geological formations decorate the peninsula.

construction of a gas drilling tower is also planned for the eastern part of the peninsula, where the seismic-prospecting work is currently being carried out, which will adversely affect the saigas. Due to constant disturbance saiga are mainly confined to the northern part of the peninsula and seldom visit drinking places on the main island.

A road has been constructed across the exposed bed of the Aral Sea to the peninsula, on which there are two checkpoints with guards of the "Aral Sea Operating Company" equipped with satellite phones. The guards do not allow strangers onto the peninsula, including local poachers. The guards say that they frequently see saigas, both individuals and small groups of up to 10 individuals, as well as wolves.

To preserve the sole saiga population permanently inhabiting Uzbekistan it is necessary to pass legislation to create a reserve on the Vozhrozhdeniya peninsula.



Photo by Denis Nuriđjanov

The lake in Vozrozhdeniya peninsula is used by animals as a watering place.

Conservation of saigas is our common cause

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One of the important steps towards the implementation of the Memorandum of Saiga Conservation signed by Russia in June 2009 was the declaration of 2010 as the Year of Saiga by the Head of the Republic of Kalmykia. As part of the plan approved by the Government of this Republic, various events are taking place connected with awareness raising of the local population about the current status of the saiga population, such as competitions and round tables (see Updates above). Measures are being taken to protect saigas from poachers and funds are being raised to support this work. Articles about these activities are regularly published in the Republic's newspapers.

It should be noted that late 2009-early 2010 was extremely difficult both for saigas and the people protecting them. Deep

snow covered with ice (a so-called dzhut) made saigas move to unprotected areas with thinner snow cover to find food. It is here that the poachers wait for them. However, nobody should think that their criminal "hunt" goes unpunished every time. Owing to the interference of FSB (Federal Security Service) agents in the Republic of Kalmykia, a militia major was detained with 19 dead saigas (340 kg of meat; see Updates above). This happened in the period when the females who had survived the severe winter were preparing for calving, which usually takes place in early May. How can one explain the motives of a militia officer, who is entrusted by the state to ensure laws are observed, including those protecting the wild life? One should feel shame and a guilty conscience in killing

pregnant females with firearms. We hope that the court of the Republic of Kalmykia will give this ex-officer his due.

As is well-known, in January 2008 authority for wildlife protection was transferred to regions of the Russian Federation; however, in the economic crisis funding from the Federal centre has become extremely scanty. This resulted in the closing down of the team of 30 saiga protection officers, which had been working in Kalmykia for many years. Currently, the protection of this steppe antelope (as well as all biodiversity) in Kalmykia is carried out by six inspectors of the Ministry of Natural Resources, Environmental Protection and Energy Development, with two Niva vehicles and one UAZ3. This is obviously not enough and it is very hard for the inspectors to work under these conditions. They are not able to chase and catch well-equipped poachers. They need the effective help of the local population, especially shepherds from livestock stations, who have a good knowledge of the steppe and saiga distributions. Interactions with neighbouring districts and strictly protected territories are needed, which, first and foremost, are responsible for the conservation of the saiga.

From the very beginning in 2000, the Directorate of the Stepnoi reserve has been taking all possible measures to stop poaching and provide suitable conditions for saiga breeding in our territory. The Reserve Inspectors provide practically round-the-clock protection of the territory, entrusted to them by the Administration of Astrakhan province. Not so long ago, two poachers were caught red-handed, one of which (a resident of Prikaspisk village) was sentenced to 3.5 years imprisonment in a high-security colony, while the second (a resident of Yashkul district) is waiting for the court's decision. However, one must confess that under the current crisis conditions it is practically impossible to provide reliable protection for saigas given the minimal funding from the regional budget.

Taking into account the situation, we continue to actively cooperate with international nature conservation organisations, searching for additional funding to support our activities.



A saiga female that had died of hunger.



Photos by Anatoly Khludnev

A poacher detained with a dead saiga.

So, in August 2009 the Directorate was awarded a grant from the Saiga Conservation Alliance to buy fuel and oil. These funds enabled us to make over 40 spot checks and cover in total more than 14,000 km throughout the territory of the reserve and adjoining areas. Owing to the project we were able to provide proper protection for the saiga, paying special attention to the rut and calving periods. At different times, the inspectors have observed between 300 and 10,000 saigas in the reserve. In 2010, IFAW allocated funds as emergency aid for purchasing new tyres and two accumulators for our old vehicles; it has also financed the acquisition of a new vehicle. WWF allocated funds for purchasing fuel and oil to continue our spot checks. Owing to WCN, we obtained donations from private individuals in the USA, which were also spent on fuel and oil. Taking this opportunity, the Directorate of the Stepnoi reserve would like to express its sincere gratitude to these organisations for their financial support of our efforts, aimed at the conservation of this unique population of saigas in the NW pre-Caspian.

In conclusion, I would like to note that it is extremely important to declare the Year of the Saiga not only in Kalmykia, but in the entire NW pre-Caspian area and link the efforts of all the nature conservation agencies of the Russian Federation under its aegis, in order to rescue and conserve this "living fossil" of our steppes. We already have experience of collaboration for saiga conservation. An agreement on saiga protection, signed by the Administration of the Committee for Natural Resources and Environmental Protection of the Republic of Kalmykia and the Directorate of the Stepnoi reserve, was in effect in 2006-2007, which unfortunately was not prolonged (not through our fault). The development of a new agreement could be a good contribution to the successful implementation of the activities planned for 2010 both in Kalmykia and the Astrakhan province of Russia. We hope that this publication will give impetus to a new dialogue on the preparation of a new agreement.

The use of domestic buffalo horn as alternative medicinal ingredient to saiga antelope horn

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Written records of the use of a saiga antelope horn may trace back to the 'Shengnong Bencao' (Divine Husbander's Classic of the Materia Medica), 2000 years ago. In traditional Chinese medicine (TCM), the properties of saiga antelope horn are identified as salty and cold. It is mainly used for acute hypertension, epilepsy, apoplexy, fever causing comas and cramps or spasms. Referring to the 'Bencao Gangmu'

(Compendium of the Materia Medica), domestic buffalo horn is also identified as salty and cold, used for clearing heat and toxic materials, cooling the blood and lowering blood pressure. According to research by Hua in 1998, using the layer chromatography method, saiga antelope horn and buffalo horn have the same amino acid composition but with different concentrations of individual elements. Clinical medicinal

³ Editorial note: A Niva is a small jeep, an UAZ is a sturdy vehicle like a minibus

research has indicated domestic buffalo horn could lower blood pressure. For example, Huangjiao Tang (a medicinal soup), mainly composed of domestic buffalo horn powder with Chinese rhubarb *Rheum officinale*, was used for acute cerebral infarction (stroke) in 121 cases, with 90% effectiveness.

We were given an SCA small grant in August 2009 (see SN#10) and made use of this opportunity to initiate a project through the WCS China Program. We recruited 3 groups of local middle school students and volunteers as saiga conservation teams. The teams were responsible for designing conservation publicity materials, and then delivering saiga conservation messages to the target audiences. So far, these teams have worked in 3 communities, encouraging local residents to buy medicines made of domestic buffalo horn instead of saiga antelope horn.

One team, named "Saiga Forever", focused on consumers purchasing TCM. From February to March 2010, this team used their self-designed posters and brochures in outreach activities in Phoenix Street, Haizhu District. They succeeded in convincing a TCM store to allow them to hang their poster in the store. Consumers purchasing medicine in the store were given a brochure on saving the saiga. The team will also organize face-to-face talks to the public about using domestic buffalo horn as a substitute for saiga antelope horn.

The other two community campaigns were focused on



The Saiga Forever team hang their poster in a TCM store.



A saiga antelope poster in a Guangzhou bus.

raising public awareness. The teams composed stories, plays and poems related to saiga conservation, and then performed them for the residents. They asked residents to use alternative medicines such as buffalo horn products. Through these performances and activities, the residents started to understand the significance of saiga antelope conservation and were willing to use medicines with domestic buffalo horn instead of saiga antelope horn.

The WCS China Programme has put 10 saiga-themed posters on Guangzhou Bus No.6 over a period of six months. The bus visits three stops near the TCM wholesale markets. Over 150,000 people will have received this conservation message in this period.

One more team, named "Save Saiga", is planning to hold a saiga antelope drawing competition in Huijing new town of Tianhe District, aiming to encourage more people to love saigas.

Evaluating A Public Awareness Campaign in Russia

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Education, both formal and informal, is widely used in conservation in order to develop positive attitudes and studies have shown that media campaigns, in particular, are an effective tool for increasing knowledge of wildlife and fostering positive attitudes towards conservation. In 2006-2008, the UK Government's Darwin Initiative funded a study in Russia, examining the effect of conservation interventions carried out in this region over the period 2003-2007 on attitudes to and knowledge of saigas. This study was carried out jointly by Imperial College London and the Centre for Ecological Projects, Kalmykia.

We interviewed 250 people in eight villages to find out about their views on saigas and whether they could remember receiving information about saigas in the last few

years. These villages differed in the type of conservation activities that they had been exposed to. Four villages in the Autonomous Republic of Kalmykia (Utta, Erdnevskiy, Molodozhnye and Adyk) were exposed to a media campaign, through regional and local papers and local TV. Two villages in Kalmykia (Khulkhutta and Tavn-Gashun) were also involved in intensive saiga conservation and awareness activities, including being provided cows through the DEFRA-funded Small Environmental Projects Scheme (SEPS). By contrast, two villages in the Liman region of Astrakhan Province (Bacy and Zenzeli) were not specifically exposed to any form of public engagement but were near the Stepnoi reserve.

Interviewees were asked questions about how many times

they had seen saigas, their knowledge of saiga population trends, knowledge of local saiga conservation projects and the amount they would donate voluntarily for saiga conservation. They were also asked about whether they remembered receiving public awareness materials about saigas. If they did remember, then they were asked to say when they remembered receiving the materials, what media format they came in (e.g. newspaper or television), subject matter, for example ecology or conservation, and whether the materials had had an immediate effect (did the interviewee recall undergoing a change in awareness upon receiving the materials).

Public attitudes towards saigas and saiga conservation

The study suggests that there is a generally positive opinion towards saigas and their protection, with 94% of respondents saying that saigas should be protected now for future generations and 84% saying they would care if saiga were made extinct in Russia.

Who is receiving public awareness materials?

76% of interviewees remembered receiving some form of public awareness materials, with all interviewees in the villages that had been involved in the SEPS rotating cows project remembering receiving information. This indicates that the public awareness campaign was reaching its target audience. Those that had seen large numbers of saiga in the wild, and/or knew about saiga conservation, were more likely to remember receiving information. These results suggest that a prior awareness of saigas or saiga-related conservation heightened awareness and increased the likelihood that an individual read, saw or responded to the public-awareness campaign.

What type of information is received?

Those individuals that had not been specifically targeted by the media campaign (the villages in Astrakhan), tended to have received their information earlier than 2006 and normally through the medium of television. In most cases, the information was about the ecology and life-history of the saiga and not about its current threatened status or conservation. In contrast, those exposed to the specific media campaign remembered information from both the newspapers and the television and subjects included ecology, conservation and poaching. The results also indicate that women tended to read less about conservation than men ($\chi^2= 8.986, p=0.029, df=3$).

What effect did the information have?

Whether or not public awareness materials had an immediate effect (whether respondents recalled undergoing a change in awareness towards saiga on receiving the information) was influenced by the sex of the individual and



Photos by Anatoly Khludnev

The research team with the students and teachers of Yashkul school.

the medium of the information. Television was a more effective medium than reading materials and men were moreresponsive to television than women. If people could remember having received information, they were more likely to have become more positive about saigas in the last three years, compared to those who could not remember having received any information.

Conclusions

The results of this study indicate that the population of the North-west Pre-Caspian is, in general, very positive about saigas and saiga conservation, and most of them have been reached by the public awareness activities that have been undertaken by the Darwin project and other projects in the region since around 2005.

In this region, public media such as newspapers and television are readily available to most of the population and are interested in publishing stories about conservation issues. The media campaign utilised both written and visual media and covered a broad variety of subjects. This study highlights the importance of using established information delivery systems like television and newspapers to provide an effective media campaign. It also shows how people who are sensitised to saiga conservation issues, through having seen saigas or through having had targeted conservation projects in their villages, are more likely to notice and remember media reports about these issues. And this makes people more likely to change their opinion towards saigas, in a positive way. This study therefore shows that using the media is an effective component of conservation, particularly in conjunction with other conservation activities.

All that begins with love and heart produces results

Aizada Nurumbetova

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In 2009, the year of village enhancement, the Onerment Craft Association of the Republic of Karakalpakstan, Uzbekistan, started cooperation with the Saiga Conservation Alliance's programme on saiga conservation on the Ustyurt plateau. To increase employment among the local population and to develop alternative sources of income, a traditional embroidery project was initiated. The project started in 2008 with the support of WCN (see SN #7, 9) and continued in 2009 with the support from the Wild Foundation. Unemployed women from two villages noted for their high

Kungrad district) were invited to the training days. We believe that this activity will attract women to saiga conservation, and through them their families, and will convince them not to buy cheap saiga meat.

In spring and summer 2009, a series of workshops and training days were organized for girls to master the secrets of the Karakalpak national style of embroidery. Our goal was not only to teach them this craft, but also to identify and educate leaders, who will in future teach other women the art of fancywork. During the workshops the girls did team-

building exercises, visited the local history museum and the Igor Savitsky arts museum, where they became familiarized with traditional specimens of local fancywork. All these gave them an incentive to develop their skills. Interviews with local television and newspapers raised their self-confidence to new levels. Every girl was awarded a certificate from the Women's Committee of the Republic of Karakalpakstan and the Onerment Craft Association after completing her training.

After the workshops, we continued our successful cooperation with women from Zhaslyk. We gave them all the necessary materials for embroidery. For six months we maintained links with the girls from Kungrad district; a leader, Maina Bijsenbaeva, was identified amongst the girls, who came to Nukus and took orders for embroidery. She succeeded in forming a group of 15 girls, who successfully mastered the skills of embroidery and started earning their first money. The high quality of our girls' work allowed the district authorities to recommend Maina as a contestant in the national TASHABBUS-2010 competition, for a prize given by the President of the Republic of Uzbekistan, which took place in Nukus on 11 March 2010. Much preparation and diligence helped this girl to become a prize winner at the competition and to win a prestigious certificate.

In late April, the group of artisan girls organized their first handicrafts show, during the Saiga Day celebrations (see above). Members of Onerment also took part in the festivities. They got to know Maina's family, as well as those of other group members, discussed plans for the future and gave additional training. The formation of another group was suggested. The most pleasing fact is that the girls from



Photos by Onerment

Maina Bijsenbaeva - leader of the craft group in Jaslyk.

Ustyurt are full of desire to go on improving their skills, for example by mastering Kazakh embroidery, which will enable them to successfully sell their products where they live⁴.

We are continuing this project developing of crafts in Ustyurt. Our common goal is to make this activity sustainable and independent. To this end, we helped Maina to obtain certification as a private entrepreneur and become a full member of the Craft Association of Karakalpakstan. We also helped her to buy a sewing machine. We have a vision that if the girls start sewing Kazakh items in addition to Karakalpak embroidery, the development of this small business will be facilitated, as Kazakh items are in demand in the area.

Project round-up



UNDP/GEF/Ministry of Nature project to protect the Russian Steppe will help to conserve the saiga

A five-year GEF project "Improvement of the system and mechanisms for management of strictly protected natural territories in the steppe biome of Russia" was initiated in May 2010, coordinated by UNDP and the Ministry of Nature Protection of Russia (see Steppe Bulletin No 25, 2009 and No 28, 2010 - <http://www.sibecocenter.ru/sb.htm>). GEF and UNDP have allocated 5.3 million dollars to this project. For Russia, this is the first big GEF project specifically aimed at steppe conservation.

The project is aimed at strengthening of the role of strictly protected nature reserves (SPNRs) in the conservation of the Russian steppes through improvements to the existing SPNR network and an increase in the area of steppe ecosystems under protection. The project consists of three main components: (i) expansion and increase in the integrity of the system of steppe SPNRs; (ii) improvement in the management of SPNR sites; (iii) increase in the institutional potential of the expanded SPNR system. In line with the GEF's usual approach, the main measures will be focused in four pilot regions, with four steppe nature reserves. One of these regions, besides Chita, Orenburg and Kursk regions, is the Republic of Kalmykia. The main pilot SPNR here is the Chernye Zemli State Biosphere Reserve (CZBR). One of its main tasks is saiga conservation.

Under the project, the CZBR will take over the management of two federally important reserves, namely Mekletinsk and Sarpinsk reserves, totaling 300,000 ha (the Ministry of Nature has already confirmed this for Mekletinsk reserve). The project will help the CZBR to establish effective interactions with neighboring land users so that they observe the nature protection rules and minimize conflicts with the reserve, including reducing their incentives to poach. The nature reserve will also get comprehensive



Photo by Igor Smelyansky

Tulipa schrenkii in flower.

⁴ Editorial note: in the Uzbek part of the Ustyurt plateau. about 98% of the population are ethnically Kazakh.

help to improve its operations, including additional equipment and security training, and establishment of a monitoring system for desert-steppe ecosystems and saiga populations. Special attention will be paid to the control of steppe fires, which have reached a disastrous scale in the last few years and pose a threat to the saiga.

The saiga has been selected as one of five indicator species for the project, and so a Federal strategy and regional action plan will be developed for the conservation of the species. As part of this, the project, among other things, will support the resumption of counts and will support high priority practical measures aimed improving the protection of this species (first and foremost within the CZBR). One of the ways to improve saiga protection will be the organization of interdepartmental cooperation for the control of poachers. The principle of an integrated approach to identifying and counteracting the threats to this species will form the basis of this saiga conservation project. *For additional information*



Photo by: Igor Smelyansky

Feather-grass (*Stipa capillata*) steppes are very characteristic of the Sinij Syrt area.

please contact Igor Smelyansky, the project's technical advisor, at Steppe.bull@gmail.com

Saiga conservation through schools

Education for Sustainable Development (ESD) as supported by the UN Decade for Education for Sustainable Development (DESD), is seen as a key approach to fostering change and improvement of the current educational system within which learners at all levels can develop confidence and become competent to support sustainability in Mongolia. WWF Mongolia has pioneered supporting and piloting the ESD approach since 2004. As part of our policy to promote conservation through education, we felt it important to focus on intellectual investment in schools through in-service teacher training sessions. This included schools throughout the saiga range, within the project entitled "Conservation of the saiga antelope in the Great Lakes Basin of Western Mongolia". The mobile training sessions were held twice in each of five schools this year; in November 2009 and May 2010. A key feature of ESD training is its active involvement of every single teacher, head teacher and tutor, where participants are asked to work in teams to develop locally relevant curricula, test and implement them with regular feedback from the WWF team.

As a follow-up to those mobile sessions, teachers have

developed, tested and refined 18 curriculum items, integrating saiga conservation issues based on the ESD approach (i.e. not only looking at the ecological angle, but also including economic and social perspectives). Furthermore, an experience-sharing event was organised on the theme "The linkage between sustainable development and saiga conservation", in late April 2010. The best teachers demonstrated their skills and ESD methodologies in the classroom, which allowed participants to gain a better understanding of this globally-applied approach.

The project has received substantial support from the provincial Education Departments and the head teachers have committed to supporting the pilot initiatives. The role of the Education Departments and their specialists is crucial when it comes to reaching out and supporting in-service training of teachers. All teachers at the pilot schools developed their own priorities for ESD and have tested whole school ESD models (including case studies, methods and materials). The learning-by-doing approach has been shown to be an effective way of making progress.

For more information please contact Ms. Khulan, Communication programme manager, at Khulan@wwf.mn.

Creation is a guarantee of success!



A project by the librarian of the Central Library of Yashkul village, Ekaterina Ochirova, to make a CD entitled "Contemporaries of the mammoth near us", containing comprehensive information about saigas, has been

successfully completed. Ekaterina was the clear winner in the Republic-wide competition for a prize from the Head of the Republic of Kalmykia, in the category "Creation is a guarantee of success!", for municipal librarians. The disc starts with a page entitled "The saiga is a miracle of nature", which provides full texts from different books containing information on the origin, distribution and way of life of saiga antelopes. The next sections reflect topical subjects: "conservation of the saiga is our common cause" and "nature reserves", which contain comprehensive materials on the problems of saiga conservation and on environmental organizations working in Kalmykia.

The sections "Literature page" and "The saiga in Kalmyk folklore" represent a full-text bibliographical description of

sources. The sections "Izo-graphic" and "Photo Gallery" acquaint the reader with the works of Kalmyk painters and photographers who have worked on saigas. An electronic presentation "In a cradle of mat-grass" is presented as a separate section. An important component of this information disk is the bibliography, which includes a list of books, articles, periodicals and website addresses.

The project is attractive because it can be constantly updated. This is the first and so far the only disc presented at meetings of cultural workers in Yashkul district and at events celebrating the Year of Saiga in several educational institutions. The work aroused interest and numerous requests for every educational institution to be provided with the disc, not only in Yashkul district, but in the entire Republic. The Centre for Wild Animals of the Republic of Kalmykia is currently working with Ekaterina Ochirova to revise the disc, but there is not enough funding for the design and copying of the disc. We are very hopeful that we will be able to find support for this work.

For additional information please contact N. Yu. Arylova at arylova@gmail.com.



Recent publications

Singh, N.J., Grachev, Iu.A., Bekenov, A.B., Milner-Gulland, E.J. (2010) Tracking greenery in Central Asia: The migration of the saiga antelope. *Diversity and Distributions* **16**, 663-675

Long distance migrations of terrestrial animals, driven by needs such as food, water and escaping predators and harsh climatic conditions, are widely known phenomena. The saiga antelope (*Saiga tatarica tatarica*) migrates over long distances in the semi-arid rangelands of Central Asia. Both the saiga's range and its populations have been severely affected by socio-political and land use changes over the last century, related to the formation and dissolution of the Soviet Union. We identified ecological drivers of saiga migration, comparing four populations in terms of differences in the geographical characteristics of their ranges, and the factors affecting habitat selection within the seasonal ranges. Using 40 years of direct observations, we tested for differences between the four saiga populations' ranges in terms of precipitation, seasonal productivity and topographical variables using Discriminant analyses. We tested hypotheses concerning the drivers of migration to their seasonal ranges and assessed the impact of peak and average values and the predictability of drivers of habitat use within the seasonal ranges using logistic regressions. Three of the four populations migrate in a similar way, following a latitudinal gradient driven by seasonal changes in productivity, which is closely related to broad-scale differences in precipitation. Intermediate productivity and its low interannual variability determine habitat selection within the seasonal ranges of all the populations. The migrations in Kazakhstan are still intact despite major recent disruption to the populations, whereas the status of migrations in the pre-Caspian region is unknown. All four populations are under severe threat from habitat loss, poaching, lack of protection and gaps in ecological knowledge. A better understanding of the drivers of saiga migration at multiple scales is a key step towards addressing these threats.

Singh, N.J., Grachev, Iu.A., Bekenov, A.B., Milner-Gulland, E.J. (2010) Saiga antelope calving site selection is increasingly driven by human disturbance. *Biological Conservation* **143**, 1770-1779.

Many terrestrial mammalian species aggregate to give birth. Such aggregations are likely to be a response to changing resource and water availability, for predator swamping and avoidance of disturbance. The critically endangered saiga antelope (*Saiga tatarica*) is one such species. We analysed spatio-temporal locations of saiga calving aggregations in Kazakhstan over the last four decades obtained from aerial and ground surveys, to identify the factors determining the selection of calving sites within the species' range as well as any changes in these locations over time. Generalized mixed models were employed in a use-availability framework to assess the factors distinguishing calving from random sites and predict suitable areas for calving. Saigas selected sites, with lower than average productivity and low year to year variability in productivity, at an intermediate distance from water sources, and away from human settlements. A significant change in calving locations was observed during the last decade, with calving areas occurring further north and further away from settlements than previously. The results demonstrate that the choice of calving areas is largely driven by environmental factors. However, disturbance also has a significant impact on calving site selection and in recent decades, its influence overrides that of environmental factors. This increase in the influence of disturbance coincides with a precipitous decline in saiga numbers due to poaching, as well as substantial reductions in the intensity of land use for livestock grazing following the break-up of the Soviet Union. Predictive models based on such studies can improve species conservation by guiding the stratification of sampling for effective monitoring and deployment of rangers to protect the females at this critical time.

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