

PROJECTS REPORTING TEMPLATE FOR SAIGA-RELATED ACTIVITIES

Project: Ecology and Conservation of Mongolian Saiga			
Country:	China <input type="checkbox"/>	Turkmenistan <input type="checkbox"/>	
	Kazakhstan <input type="checkbox"/>	Uzbekistan <input type="checkbox"/>	
	Mongolia <input checked="" type="checkbox"/>	International <input type="checkbox"/>	
	Russia <input type="checkbox"/>		
Organisation / Contact details: Wildlife Conservation Society (WCS), Mongolia Program, 201 San Business Center, Amar Street 29, Small Ring Road-14200, Sukhbaatar district, Ulaanbaatar, Mongolia			
Duration of project: from June 2015 to March 2019			
Location(s) of main activity: Western Mongolia			
Sub-species:	<i>Saiga tatarica tatarica</i> * <input type="checkbox"/>		
	<i>Saiga tatarica mongolica</i> * <input checked="" type="checkbox"/>		
Areas of work:			
Anti-poaching	<input type="checkbox"/>	Habitat restoration	<input type="checkbox"/>
Population monitoring	<input checked="" type="checkbox"/>	Protected area management	<input type="checkbox"/>
Ecological research	<input checked="" type="checkbox"/>	Training & capacity-building	<input type="checkbox"/>
Education and awareness	<input type="checkbox"/>	Law enforcement	<input type="checkbox"/>
Alternative livelihoods	<input type="checkbox"/>	Trade issues	<input type="checkbox"/>
Socio-economic research	<input type="checkbox"/>	Captive breeding	<input type="checkbox"/>
Range mapping	<input checked="" type="checkbox"/>	Reintroduction/release	<input type="checkbox"/>
Habitat research	<input type="checkbox"/>		
For each box ticked, please provide brief details in the project summary box below			
Project Summary: The Mongolian saiga (<i>Saiga tatarica mongolica</i> or <i>Saiga borealis</i>) population is endemic to western Mongolia and classified as an “Endangered” by IUCN. Main threats to this species include illegal hunting, harsh climate, habitat degradation and disease as major threat to the population. Understanding the effects of environmental and anthropogenic factors on distribution and population dynamics of Mongolian saiga is critical to conservation planning of the species.			

* Note that CMS Parties have adopted Wilson, D.E. & Reeder, D.M. (2005) Mammal Species of the World. A taxonomic and geographic reference. Third edition. John Hopkins University Press, Baltimore, USA as taxonomic reference for terrestrial mammals through [Recommendation 9.4](#) where *S. t. tatarica* is referred to as *Saiga tatarica* and *S. t. mongolica* is referred to as *Saiga borealis*.

Overarching goal of our activities is to implement scientific studies to address uncertainties with regards to factors that regulate population trajectory of saiga antelope in western Mongolia. Due to the recent Saiga mass mortality from the Peste des Petits Ruminants (PPR) outbreak WCS has dedicated efforts on wildlife disease response and guiding the Mongolian Government on proper disease management and response actions.

Planned Activities:

- Continue population monitoring of saiga population
- Analyse movement data to understand their movements in relation to distribution of livestock
- Publish results from the genetic analyses
- Respond to PPR outbreak and provide recommendations to government on management actions
- Mapping of outbreak distribution
- Engage with National and International experts on PPR and wildlife disease issues to raise global concern and support global PPR eradication strategy

Achievements to date:

- The ecology of the Pleistocene saiga was investigated using stable isotope ratios ($\delta^{13}C$, $\delta^{15}N$) to decipher how different their diet and habitat were from those observed nowadays in relict populations. A total of 76 samples of bone collagen of ancient saiga from Western Europe, Siberia and Eastern Beringia were analyzed and compared with 52 samples of hair and bone collagen of modern specimens from Kazakhstan, Russia and Mongolia. We found that the modern saiga is thus occupying just one of its potential diverse habitats they used in the past. Hence, the realized niche currently observed for the saiga is reduced compared with their potential capacity for adaptation, a crucially important factor for the conservation of this endangered species.
- During 2016-2017, a total of 20 adult Mongolian saiga were successfully captured and fitted with GPS collars by a joint team consists of researchers from WCS and WWF Mongolia, to better understand movements saiga in relation to human and environmental factors. The capturing of saiga took place in four main regions such as the Shargyn Gobi, Khuisiin Gobi, Durgun Steppe, and Mankhan Nature Reserve in western Mongolia. Blood samples were also collected from each captured animal for the disease surveillance by veterinarians from Gobi-Altai and Khovd provinces.
- The genetic diversity of Mongolia saiga was investigated using mitochondrial DNA and microsatellite markers. A total of 88 samples include 20 skin samples and 56 umbilical cord samples from *S. t. mongolica* and a total of 12 hair samples from *S.t. tatarica*, were analysed for the mitochondrial control region sequence variation. The study reveals that the Mongolian saiga population has quite low mitochondrial diversity with the presence of only four different haplotypes in a total of 62 individuals. None of the haplotypes identified in the Mongolian saiga was detected in the populations from Kazakhstan or Russia, which suggest a pronounced isolation of the two subspecies, which would be expected from long-term geographic isolation. All genetic analyses were carried out by researchers from Centre for Geogenetics, Natural History Museum Denmark at University of Copenhagen, Denmark.
- In December 2018, WCS and WWF carried out the distance sampling line transect surveys to estimate density and abundance of saiga across its entire range. The survey was conducted along 47 systematic line transects with spacing of 10 km a totalling 1,897 km survey effort, across an area of ~17,000-km². During the survey, 50 groups and 886 individuals of saiga observed and mean (\pm SD) group size was 17.72 ± 20.65 individuals (Range = 1 - 113). No sick or dead animals were encountered during the survey. The distance sampling analyses is currently underway.
- In January 2017 WCS and FAO mission team completed field outbreak response trip to

identify wildlife species affected by PPR, to do field testing and confirmation of PPR, to collect as much data and information on the affected wildlife population and to provide appropriate management action recommendations to National and local professional organizations. Key findings of this mission were PPR epidemic in saiga, Siberian ibex (*Capra sibirica*) and goitered gazelle (*Gazella subgutturosa*). 19 cases examined were confirmed to be PPR and 2 other saiga deaths were due to starvation and contagious ecthyma, and an ibex was shot with mange. This wildlife mortality event confirms failure of the attempted immunosterilisation of the livestock population in October 2016, with further spread of infection probably in livestock leading to spill-over to wildlife in December 2016.

- In June 2017, we conducted disease surveillance of Mongolia saiga in and around Sharga Nature Reserve, western Mongolia. During the surveillance, we also captured and collected blood samples from 8 newborn saiga calves. Overall goal this study is to determine if immune against of Peste des Petits Ruminants (PPR) virus is transferred from females to calves. No mortality of saiga due to PPR virus was observed during the study period.
- International Experts Meeting on addressing PPR virus outbreak in Mongolian Saiga and Livestock was organized in Mongolia on May 29-31, 2017. This meeting was jointly organized by the Ministry of Environment and Tourism (MET) and the Ministry of Food, Agriculture and Light Industry (MoFALI) along with WCS and FAO, OIE, USGS, USFS, Royal Veterinary College of UK and the experts recommended best measures and recommendations for PPR control in livestock and wildlife as well as Joint Ministerial agreements on PPR National Strategy was issued.
- WCS NY Bronx Zoo pathology experts visited Mongolia from May 30 - June 11, 2017 to give the pathology and histology training, and to attend three days of high-level meetings with international experts addressing PPR in livestock and wildlife issues. The two experts from WCS were Dr. Charlotte Hollinger, WCS Senior Pathologist, and Ania Tomaszewicz, a staff member in the WCS molecular and pathology laboratory. Training was provided to a total of 12 laboratory professionals from the Mongolian State Central Veterinary Laboratory (SCVL), Mongolian University of Life Sciences School of Veterinary Medicine, Khovd, Gobi-Altai, Uvs and South Gobi Province Veterinary Laboratories, and other key first responders in livestock and wildlife disease and mortality detection and response within and surrounding the saiga range area.
- WCS biologist have trained twelve Khovd province soum and protected area rangers in mountain and steppe ungulate monitoring on August 14-15th and following the training organized field monitoring activity on August 16-19
- This training was organized by WCS veterinarians in collaboration with the Khovd Province Food and Agriculture Agency, the Veterinary and Animal Breeding Agency and the Khovd Province Veterinary Laboratory on August 16-19 at the Khovd Province Veterinary Laboratory and from December 3-6 the same training was organized at the Gobi-Altai Province Veterinary Laboratory.
- List of publications are prepared for submission by WCS and Royal Veterinary College of UK, CIRAD and others who partnered and collaborated on Saiga and wildlife PPR outbreak investigation and response.
- List of Media, communication and videos were developed and distributed to local communities for awareness building and public outreach.

Reports / Publications / Information material:

Publications

Chimeddorj, B., E. Sergelen, B. Buuveibaatar. 2016. Effects of human disturbance on the distribution and movements of saiga antelope in western Mongolia. *Saiga News*. 21: 35–37.

Jürgensen, J., D.G. Drucker, A.J. Stuart, M. Schneider, B. Buuveibaatar, H. Bocherens. 2017.

Evolution of the diet and habitat of the saiga antelope over the late Quaternary using stable carbon and nitrogen isotope ratios. *Quaternary Science Reviews*. 160: 150–161.

Aguilar, X.F., A.E. Fine, M. Pruvot, F. Njeumi, C. Walzer, R. Kock, E. Shiilegdamba. 2018. PPR virus threatens wildlife conservation. *Science*. 362: 165–166.

Pruvot, M., A.E. Amanda, S. Strindberg, D. Batchuluun, B. Buuveibaatar, B. Chimeddorj, G. Bayandonoi, Kh. Bodisaikhan, S. Batkhuyag, N. Jamiyankhuu, J. Tserenjav, B. Batzorig, C. Hollinger, D. McAloose, S. Munkhduuren, B. Ganzorig, M. Mahapatra, M. Selvaraj, S. Parida, F. Njeumi, R. Kock, S. Enkhtuvshin. *Under review*. Outbreak of Peste des Petits Ruminants in Critically Endangered Mongolian Saiga and other wild ungulates. *Emerging Infectious Diseases*.

Rey-Iglesia, A., J. Hjort, B. Buuveibaatar, M. Dalannast, B. Chimeddorj, G. Espregueira-Themudo, P.F. Campos. *In preparation*. Genetic diversity of the endangered Mongolian saiga antelope (*Saiga tatarica mongolica*): insights into conservation.

Xavier Fernandez Aguilar, Amanda E. Fine, Mathieu Pruvot, Felix Njeumi, Christian Walzer, Richard Kock, Enkhtuvshin Shiilegdamba. “PPR virus threatens wildlife conservation.” *Science* 12 Oct 2018: Vol. 362, Issue 6411, pp. 165-166

DOI: 10.1126/science.aav4096

<http://science.sciencemag.org/content/362/6411/165.2/tab-pdf>

Media and Press:

BBC News: Endangered antelope may be wiped out by Victoria Gill Science reporter, BBC News

<http://www.bbc.com/news/science-environment-38901058>

The New York Times: Saiga Antelopes Are Struck Again by a Plague in Central Asia by Erica Goode, NY Times reporter

<https://www.nytimes.com/2017/02/08/science/saiga-antelopes-plague.html>

WCS Newsroom: A Deadly Virus is Killing Saiga Antelope in Mongolia

<https://newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/9836/A-Deadly-Virus-is-Killing-Saiga-Antelope-in-Mongolia.aspx#.WJq9DA2nFps.facebook>

You tube video:

Rare wild antelope facing extinction in Mongolia by Aljazeera, By Pearly Jacobs

<https://www.youtube.com/watch?v=EqhGLU030Kk>

FAO- PPR Clinical signs and warning in wildlife

<https://www.youtube.com/watch?v=onH9C2QbMgQ>

WCS Mongolia- Mongolian Saiga at the Edge of Extinction

<https://www.youtube.com/watch?v=rzbKx6b70Nk>

Collaborators: WWF Mongolia, State Central Veterinary Laboratory of Mongolia, FAO/OIE, Royal Veterinary College, Mongolian Government, University of Tubingen (Germany), University of Copenhagen (Denmark), CIRAD, Tufts University.

Budget available: 60,000 USD

Current sponsors: Morris Animal Foundation, SNAPP: Steppe Health	
Past sponsors: National Geographic Society, UN Food and Agriculture Organization, Trust for Mutual Understanding, Mongolian Children’s Aid and Development Fund, Morris Animal Foundation, USGS,	
Information contributed by: B. Buuveibaatar, Sh. Enkhtuvshin, WCS Mongolia	
Date report submitted:	_14/03/2019_____
	dd/mm/yyyy
Other:	

PROJECTS REPORTING TEMPLATE FOR SAIGA-RELATED ACTIVITIES

Project: An evaluation of Altyn Dala Conservation Initiative (ADCI) in Kazakhstan			
Country:	China <input type="checkbox"/>	Turkmenistan <input type="checkbox"/>	
	Kazakhstan <input checked="" type="checkbox"/>	Uzbekistan <input type="checkbox"/>	
	Mongolia <input type="checkbox"/>	International <input checked="" type="checkbox"/>	
	Russia <input type="checkbox"/>		
Organisation / Contact details: WCS, 2300 Southern Blvd, Bronx, 10460 NY, USA (sostrowski&wcs.org).			
Duration of project: from _June 2016 to October 2016			
Location(s) of main activity: Kazakhstan			
Sub-species:	<i>Saiga tatarica tatarica</i> * <input checked="" type="checkbox"/>		
	<i>Saiga tatarica mongolica</i> * <input type="checkbox"/>		
Areas of work:			
Anti-poaching	<input type="checkbox"/>	Habitat restoration	<input type="checkbox"/>
Population monitoring	<input type="checkbox"/>	Protected area management	<input type="checkbox"/>
Ecological research	<input type="checkbox"/>	Training & capacity-building	<input type="checkbox"/>
Education and awareness	<input type="checkbox"/>	Law enforcement	<input type="checkbox"/>
Alternative livelihoods	<input type="checkbox"/>	Trade issues	<input type="checkbox"/>
Socio-economic research	<input type="checkbox"/>	Captive breeding	<input type="checkbox"/>
Range mapping	<input type="checkbox"/>	Reintroduction/release	<input type="checkbox"/>
Habitat research	<input type="checkbox"/>	Review of project's achievements	<input checked="" type="checkbox"/>
		Disease monitoring and research	<input checked="" type="checkbox"/>
For each box ticked, please provide brief details in the project summary box below			
Project Summary: Evaluation of ADCI structure, organization, and achievements until 2016. A set of 10 recommendations was proposed. The review also included a special focus on the mass mortality event of May 2015 and proposed an institutional statement for ACBK/FZS. Concomitantly and until now worked on disease threat in wildlife in Central Asia particularly on wild ungulates and their predators, and on a regional wildlife health strategy and plans for WCS (in progress)			

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Planned Activities: Development of a WCS strategy on wildlife health in Central Asia (in progress)
Achievements to date:
Reports / Publications / Information material: Review report on ADCI with special focus on mass mortality events in this area. Report owned by Frankfurt Zoological Society.
Collaborators: ACBK, FZS
Budget available: Consultation
Current sponsors: NR
Past sponsors: Frankfurt Zoological Society
Information contributed by: Stephane Ostrowski, WCS
Date report submitted: __27/02/2019__ dd/mm/yyyy
Other: