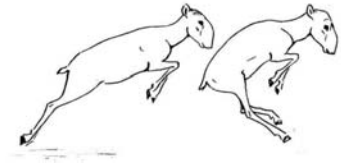


# Saiga News



Spring 2005: Issue 1

Drawing by Vladimir Smirin

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

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"Public awareness and increasing the involvement of local people". New children's book on saigas published in Kalmykia.

## Feature Article - Genetic differences between saiga populations

There has long been controversy over the genetic variation within the species *Saiga tatarica*, and particularly over the position of the Mongolian saiga, which is morphologically and ecologically different to the sub-species found in the rest of the range (see picture for differences in horn morphology). Given that the Mongolian saiga's status is now so precarious (750 at the last count in 2003 - L. Amgalan pers comm), it is important to know quite how genetically different they are, in order to highlight to the international community the potential loss of biodiversity that the extinction of this sub-species would represent.

There is also the issue of the genetic distinctiveness of the four populations of the nominate sub-species. As the Betpak-dala saiga population reaches critically low numbers, is it vital to intervene urgently to prevent catastrophic loss of genetic diversity from the loss of this population? Or might limited funds be better spent on populations that stand a better chance of long-term survival, if the Betpak-dala population is not genetically distinct? What are the implications of mixed origin captive herds and of translocations between populations? A project funded by INTAS aimed to answer these questions.



Saiga males:  
a) Nominate sub-species *S. t. tatarica* at the Centre for Study & Conservation of Wild animals of Kalmykia, photo by EJM.G.  
b) Mongolian saiga, photo from WWF-Mongolia, [www.wwf.mn](http://www.wwf.mn).

Samples were collected non-invasively from all 5 saiga populations by saiga experts, and analysed by Marina Kholodova at the Institute of Ecology & Evolution in Moscow, with technical support from the University of Warwick, UK (funded by the Darwin Initiative) and the Zoological Society of San Diego, and with the help of a grant from the Russian Fund for Basic Research. The results showed that:

- The Mongolian samples showed little genetic variation, and although they were not very different genetically from *S. t. tatarica*, there was no overlap. *This suggests that classification as a subspecies is justified, that the Mongolian population has little genetic variation, but that it is genetically not too distant from other saigas.*
- The 4 nominate saiga populations were not genetically separable. However although there were several shared haplotypes between the populations on the right side of the Volga (Kazakhstan/Uzbekistan), there were none shared with the Kalmykian population. *This may suggest that the Kalmykian population is genetically more distinct than the others, but the sample sizes were small.*
- All populations had unique haplotypes. *Again, sample sizes are small, but the precautionary approach to conserving genetic diversity suggests that all populations should be maintained as genetically distinct entities.*
- In all cases, including Mongolian saiga, the genetic distance between individuals within populations was greater than that between populations. *This suggests that all saigas are descended from one genetically heterogeneous population and were relatively recently separated - which ties in with saiga's nomadic habits and wide distribution in historical times.*

Results taken from Kholodova, M.V., Milner-Gulland, E.J., Easton, A.J., Amgalan, L., Arylov, Iu.A., Bekenov, A., Grachev, Iu.A., Lushchekina, A.A., Ryder, O. (in review) Population genetics of the critically endangered saiga antelope. More information from [mvkhold@hotmail.com](mailto:mvkhold@hotmail.com).

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