



Saiga mortality in Kazakhstan 2015:
**Emergency investigation of
disease outbreak to improve
knowledge of drivers**

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Project overview

- Interdisciplinary, collaborative & multi-country
- We invite input from others!
- 1-year emergency response grant (from NERC & others) that will lead to a broader and longer collaboration in future.
- July 20th 2015 - July 19th 2016.

Memorandum

- > The NERC project in Kazakhstan is implemented through the **Memorandum of Understanding** between the Royal Veterinary College and the Biosafety Institute of the Ministry for Education and Science, Republic of Kazakhstan and a **Memorandum of Agreement** with the ACBK conservation Non-Governmental Organisation of the Republic of Kazakhstan.
- > The work is carried out in partnership with the Convention in Migratory Species of the United Nations Environment Programme, The Food and Agriculture Organisation of the United Nations and informs the Organisation Internationale des Epizooties and the International Union for the Conservation of Nature and Natural Resources through the Species Survival Commission Wildlife Health Specialist Group.

Aim

- to conduct a thorough multi-disciplinary investigation into the causes of the 2015 outbreak;
- to appraise the historical evidence of causes of mass die-offs for the species;
- to work with other stakeholders to make recommendations for future strategies to mitigate future outbreaks.

Objectives

1. to analyse already-collected materials both in Kazakhstan & at international reference laboratories & specialist institutions;
2. to carry out targeted field expeditions to collect supplementary information;
3. to carry out an inter-disciplinary review of past saiga mortality events; and
4. to support governmental and international policy and action.

Objective 1.

Analyse already-collected materials both in Kazakhstan & at international reference laboratories & specialist institutions.

- > Prof. Dr. **Richard Kock** (Principal Investigator), Royal Veterinary College, UK (investigation of wildlife diseases)
- > Dr **Mukhit Orynbaev**, Research Institute for Biological Safety Problems (RIBSP), Kazakhstan (responsible for investigations into disease outbreaks amongst humans, livestock and wildlife in Kazakhstan)
- > Mrs **Wendy Beauvais**, Royal Veterinary College, UK (veterinary epidemiology)

Objective 1: Summary of activities

- Annual monitoring of saiga aggregations (Ministry of Agriculture Kazakhstan, RIBSP & ACBK with support from RVC under a Memorandum of Understanding)
- Documenting the 2015 die-off & supporting its investigation in the field (ACBK)
- Field-trips to die-off sites during the epidemic in May 2015
- Co-ordinating the efforts of international and national experts and the government of Kazakhstan in investigating the die-off (ACBK)

Objective 1: summary of activities continued..

- Co-ordination of additional aerial census of saiga in June 2015 (ACBK)
- Organisation of a botanical expedition to the calving area of the Ural population in 2015 (reference area without die-off)
- Support of sample analysis in Kazakhstan
- Arranging further tests of samples from 2015 die off at RVC & in international laboratories/collaborators (ongoing)
- Analysis and reporting of results (ongoing)

Objective 2

Carry out targeted field expeditions to collect supplementary information.

- > Mr **Steffen Zuther**, Association for the Conservation of Biodiversity in Kazakhstan (ACBK), Kazakhstan
(wildlife biologist)
- > Dr **Eric Morgan**, Bristol University, UK
(disease transmission between livestock and wildlife)
- > Dr **Sarah Robinson**, Independent consultant, France
(livestock movement and grazing systems in Central Asia)
- > Mrs **Wendy Beauvais**, Royal Veterinary College, UK

Objective 2: summary of activities

- Organised and conducted field expedition along the migratory routes of saiga in spring 2015 and to key die-off sites with interdisciplinary team of experts
- Planning of field investigations in spring 2016, (ongoing)
- Planning of aerial survey 2016 (ongoing)
- Telemetry of saiga (ongoing)



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Objective 3

Carry out an inter-disciplinary review of past saiga mortality events.

- > Prof. Dr. **E.J. Milner-Gulland**, University of Oxford, UK
(saiga ecology & conservation)
- > Dr **Eric Morgan**, Bristol University, UK
- > Dr **Sarah Robinson**, Independent consultant, France
- > Dr **Yuri Grachev**, Institute of Zoology of the Ministry of Education, Kazakhstan
(saiga ecology)

Objective 3 cont.

- > Dr **Carol Kerven**, Independent consultant, UK
(interactions between pastoralists and their environment)
- > Dr **Navinder Singh**, Swedish University of Agricultural Sciences, Sweden
(movement ecology of animals and pastoralists)
- > Dr **Sergei Khomenko**, Food and Agriculture Organisation
(on CMS expert mission; link to international organisations)
- > Mrs **Wendy Beauvais**, Royal Veterinary College, UK

Objective 3: summary of activities

- Epidemiological analysis of disease and die-offs 2012 to present.
- Historical data collected on die-offs in saiga prior to 2012 and review in progress.
- Preliminary analysis of weather conditions for all major die-off sites (including historical, 1980s).
- Exploration of mineral nutrition as a possible (co)-contributing factor in the onset of die-offs.

Objective 3: summary cont.

- Additional data collected on Mongolian gazelle die-offs.
- Mapping of spatial data on outbreaks and potential associated factors – in progress.
- Produced a database of outbreaks that can be made available to the colleagues.
- Review of parasitic and vector-borne diseases of potential importance to underlying health and immuno-competence in saigas, including those transmitted from livestock pasture (ongoing).

Objective 4

- > Support governmental and international policy and action.
- > Prof. Dr. **Richard Kock** (Principal Investigator),
Royal Veterinary College, UK
- > Dr **Sergei Khomenko**,
Food and Agriculture Organisation
- > Dr **Aline Kuehl-Stenzel**,
UNEP/CMS Secretariat
- > **Paul Hotham**,
Fauna & Flora International (FFI)
- > Prof. Dr. **E.J. Milner-Gulland**,
University of Oxford, UK

Summary of activities

- Supporting CMS, IUCN, OIE in investigations & communication on saiga mortalities
- Run a technical workshop with stakeholders.
- Support to improve protocols and capacity for future.

Future milestones

April 2016 - Pathology and diagnostic tests, international reference verification & epidemiological evaluation

June 2016 - Interdisciplinary evidence

July 2016 - Report to NERC and other funders

Acknowledgements

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- Fauna and Flora International
- Wildlife Conservation Network
- People's Trust for Endangered Species
- Saiga Conservation Alliance
- Royal Society for the Protection of Birds



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endangered
species



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