Royal Veterinary College
University of London

Saiga Mortality Events

Betpak Dala, Republic of Kazakhstan

May 2015

Preliminary results of Outbreak Investigation – (field and laboratory)

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Photo S Zuther

Sampling saiga on the steppe

As part of a collaborative effort between the Ministry of Agriculture Hunting Committee, RIBSP (Kazakh), & Vet Ref Lab Astana of Kazakhstan & ACBK (Kazakh), IOZ (Kazakh), RVC, FAO, CMS, ICL, FFI, FZS and others;

monitoring of saiga mortality at calving using standard protocols has been instituted routinely since 2011, enabling more thorough ecological understanding of disease processes in saiga.

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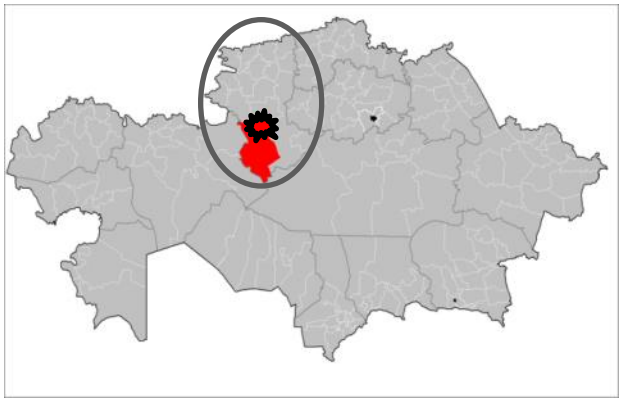
KAZAKHSTAN



2012

May ~ 1000 deaths

2013

August-early September
~ 3000

2014

>1000

Mortality occurs every year but Major die-off is relatively rare

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Background mortality includes: predation, weather stress at calving, in winter (Dzhut)

Dystocia (calving related)

Calves die due to hypothermia (due to fluctuating spring temperatures), acute infections, neglect and predation

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The New York Times

Death on the Steppes: Mystery Disease Kills Saigas

By CARL ZIMMER MAY 29, 2015

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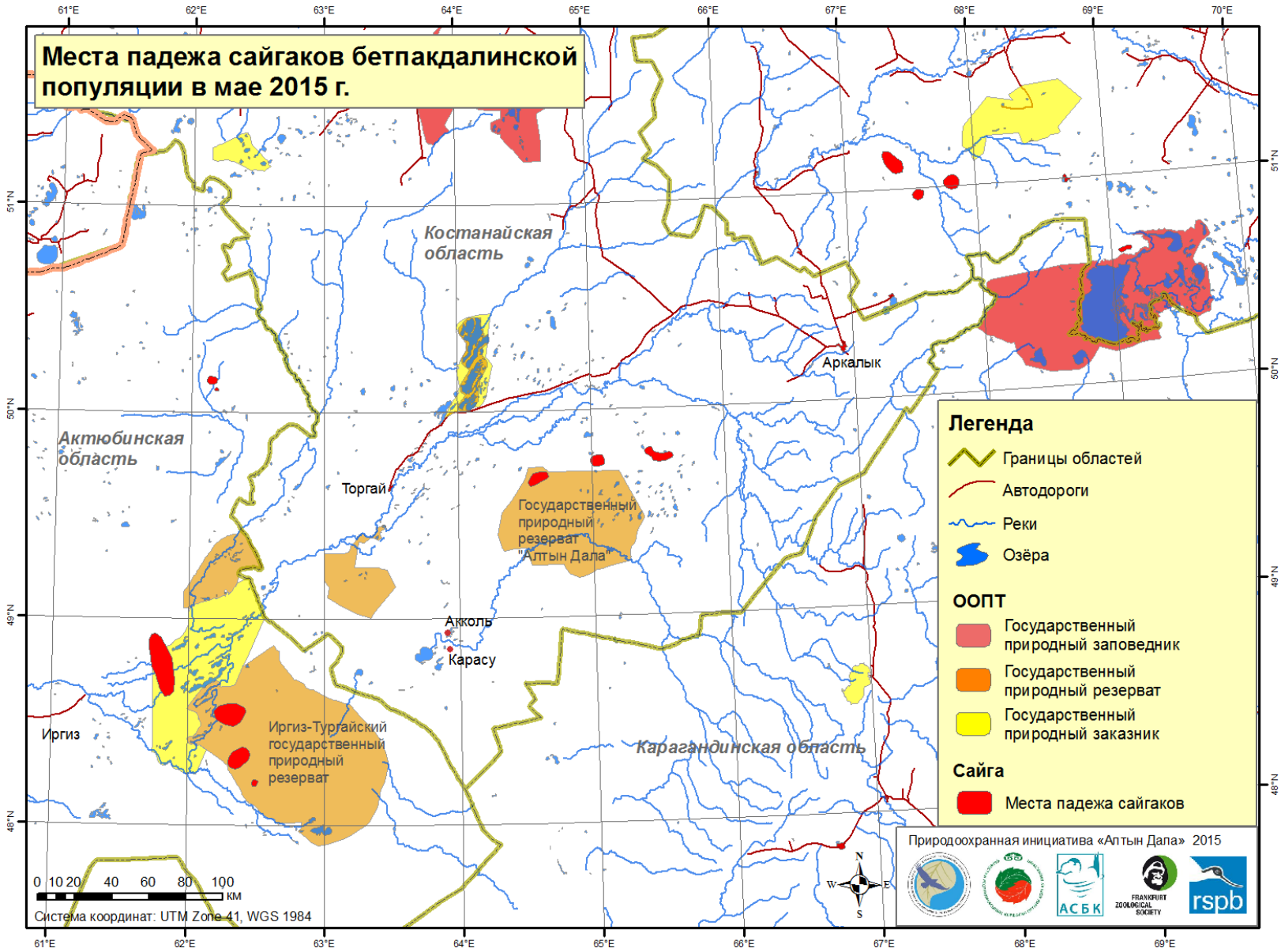
2015 Outbreak Betpak Dala



Die off Betpak Dala 2015

General Observations Outbreak May 2015

Plants being eaten at the time of the outbreak Tengiz

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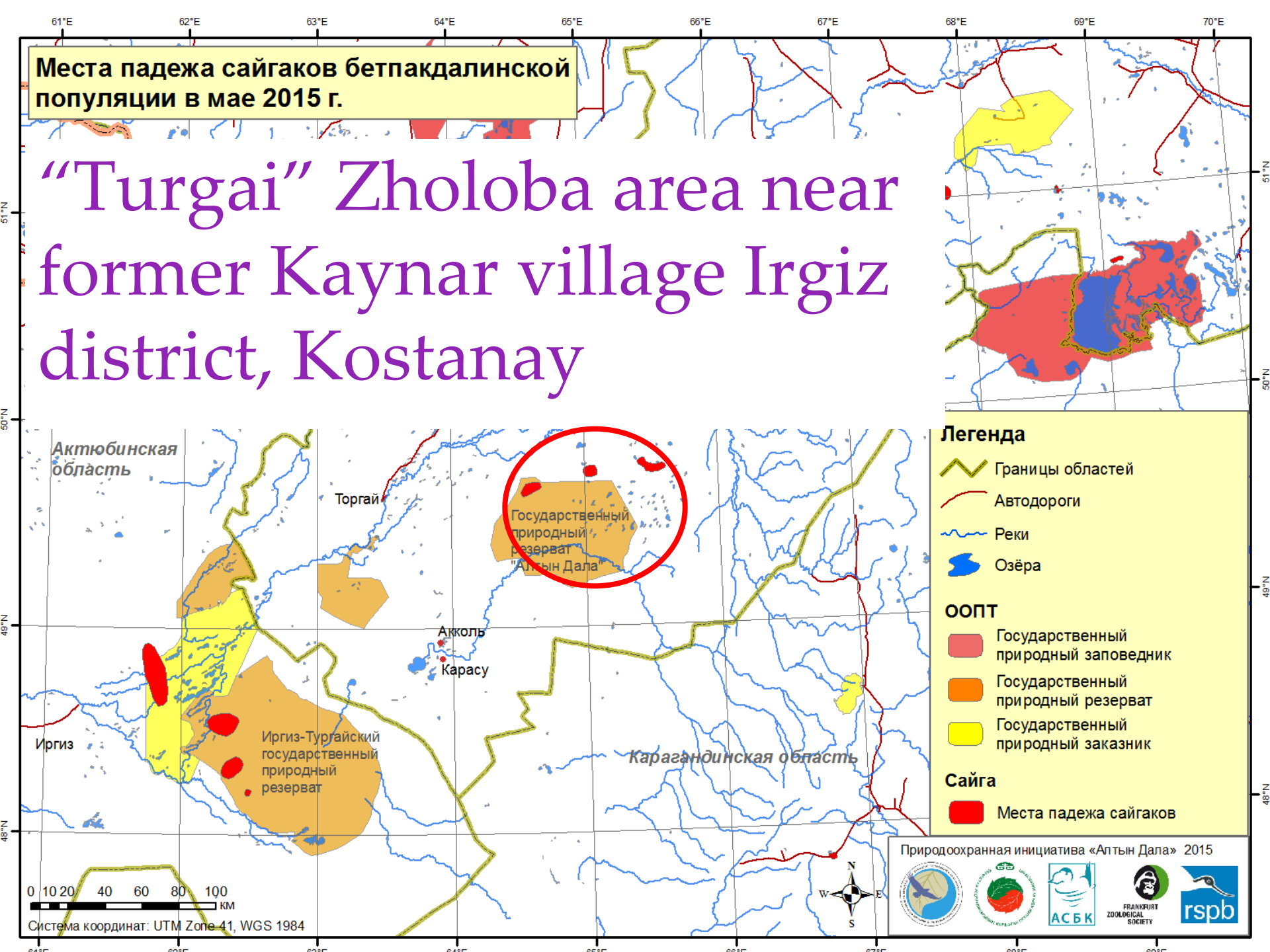
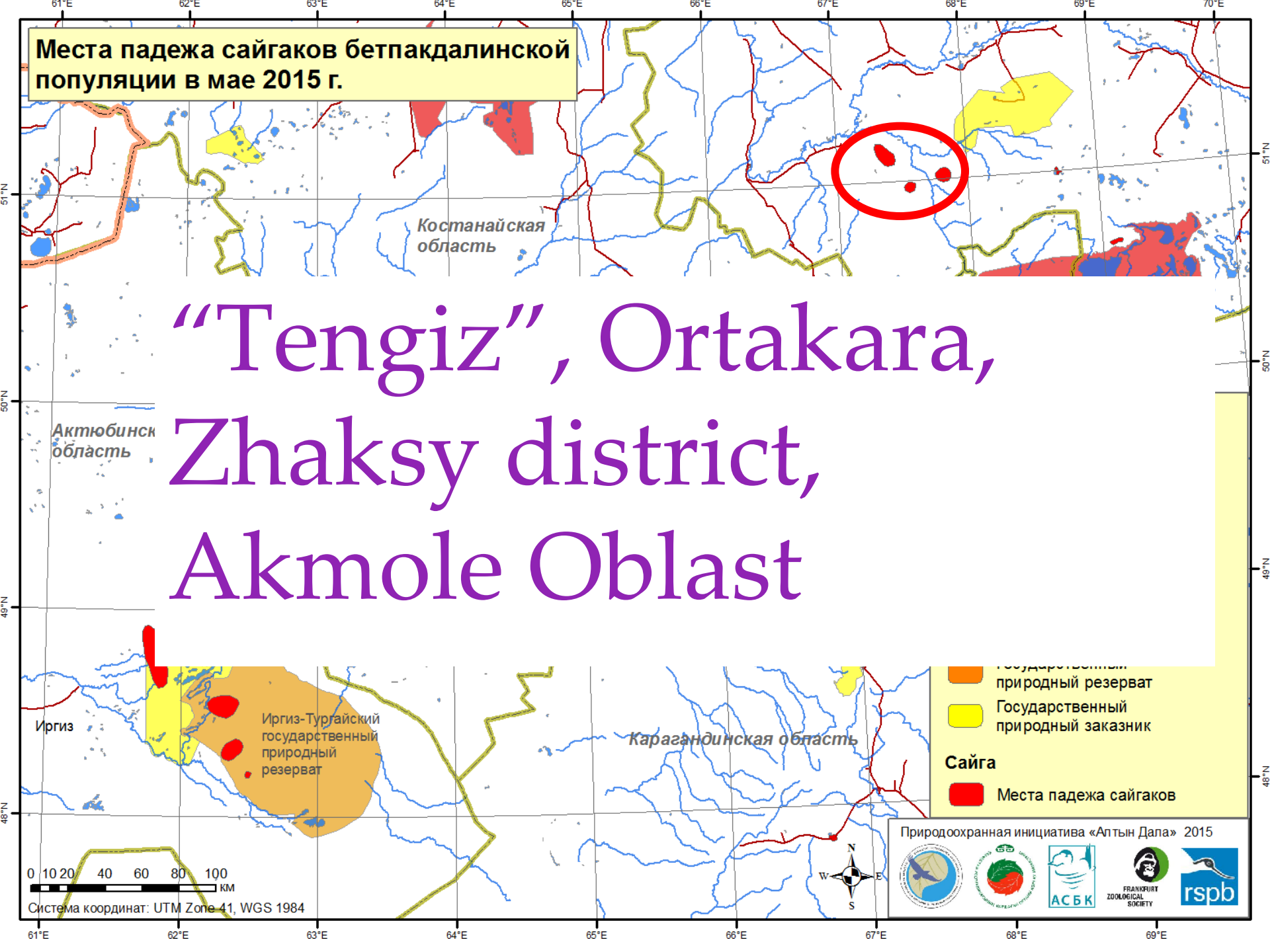
Clinical Picture


Места падежа сайгаков бетпакдалинской популяции в мае 2015 г.
"Turgai" Zholoba area near former Kaynar village Irgiz district, Kostanay
Актюбинская область
Торгай
Государственный природный резерват "Алтын Дала"
Акколь
Карасу
Иргиз
Иргиз-Тургайский государственный природный резерват
Карагандинская область
Легенда
Границы областей
Автодороги
Реки
Озёра
ООПТ
Государственный природный заповедник
Государственный природный резерват
Государственный природный заказник
Сайга
Места падежа сайгаков
Природоохранная инициатива «Алтын Дала» 2015
0 10 20 40 60 80 100 KM
Система координат: UTM Zone 41, WGS 1984

Haemorrhagic disease - Turgai



"Tengiz", Ortakara, Zhaksy district, Akmole Oblast

Haemorrhagic disease - Tengiz

Preliminary differential diagnosis from clinical picture and gross pathology

Adult - Peracute syndrome

Haemorrhagic septicaemia?

Clostridial enterotoxaemia?

Peracute toxicosis?

Calves – Peracute mostly diarrhoea some respiratory (milk source?)

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Test results of RSE "SRIBSP" of the Committee of Science of MES RoK

Supported by Royal Veterinary College, London, UK

Bacteriology

Pasteurella multocida isolated from 93.7% carcases examined PCR, DNA of type B

Virology & Parasitology

Unremarkable

Toxicology

Tissues and blood - alpha-toxin of Cl. perfringens was detected

Environmental samples: Radiology, soil heavy metals, air and water analysis from die off sites were unremarkable

Other National laboratories also demonstrated *P.Multocida* and *C.perfringens*

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Epidemiology

Rapid onset virulent disease in aggregation of saiga at calving

Adult cases (majority) opportunistic infection from latent commensal bacteria, calves contracted infection/toxin from milk


Photo Steffen Zuther

Co-factors - ? Weather stress

~100% morbidity in aggregation and ~100% fatality !!!

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Hypotheses on Disease Co-Factors or triggers

1. **Climate/environmental change effect on saiga ecology**
2. **Environmental temperature changes at time of die off**
3. **Pasture or other environmental factor**

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