Food and Agriculture Organization of the United Nations




When BT and LSD go wild…….

Tsviatko Alexandrov
DVM, PhD, FAO International consultant

Simona Tchakarova
Head of BG NRL for BT

Background

- Bluetongue epidemics in Europe 2006-2009 , 2010, 2011, 2012, 2013
- Bluetongue epidemics in the Balkans in 2014
- remarkable increase wild ruminants populations
- significantly increased epidemiological role
- threat for re-emergence, spread and maintenance of BTV

- Nothing known about LSD in European wildlife

Roe Deer – **9,500,000** (Burbaitė & Csanyi, 2009);
Red Deer – **1,700,000** (Burbaitė & Csanyi, 2010).

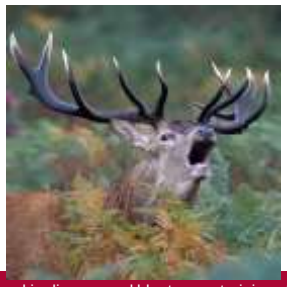

Bluetongue in wildlife

- Most species of wild ruminants are susceptible to BTV infection, though frequently asymptomatic
- Pathogenicity of BT in wildlife ranges from asymptomatic to fatal
- Wild sheep, such as bighorn and mouflon, are susceptible to BTV infection and can develop fatal clinical disease just like domestic sheep

- Clinical disease also results from experimental or natural infection of antelope, wapiti, musk, ox, bison, yak, white-tailed deer and African buffalo

- whereas blesbock, mountain gazelle, roe deer, red deer and Eurasian elk do not show clinical signs after natural or experimental infection, which can only be recognized by the presence of BTV-specific antibodies or viral RNA




- Some camelids are also reportedly susceptible to BTV infection
- A severe clinical form of this lethal disease has been reported in naturally infected llamas, whereas an experimental infection of llamas induced antibodies against BTV, but no clinical signs were observed
- No clinical signs of BT have been observed in experimentally infected dromedary camels, but all animals seroconverted, and RNA BTV was isolated from the blood during viraemia, which suggests that camels may act as a reservoir for BTV and play an important role in its transmission;

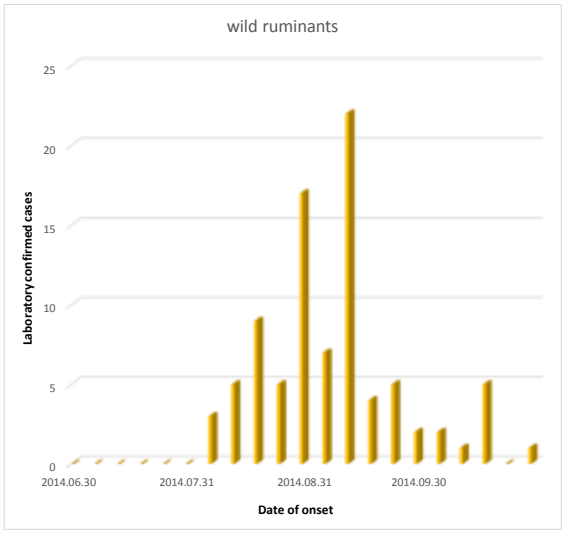

- Wild animals, particularly cervids (because of their wide distribution in Europe), could be used as sentinels for the surveillance of BTV

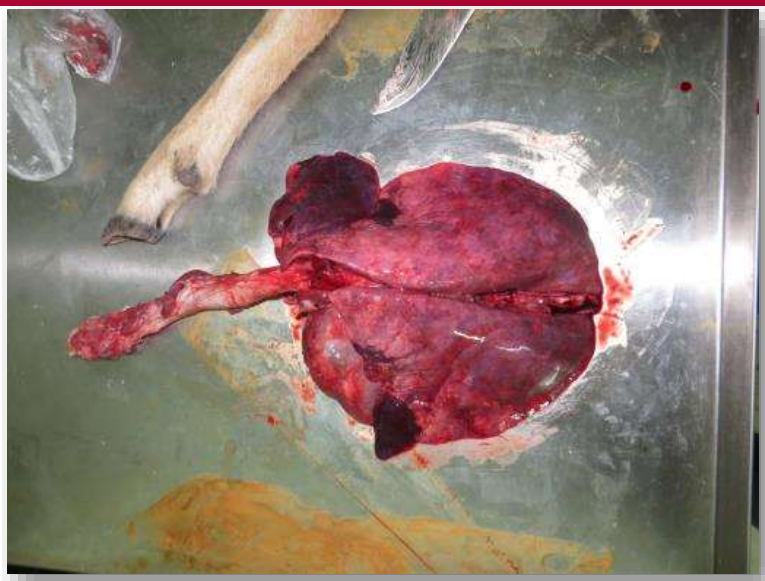
High mortality in mouflons in Bulgaria in 2014 due to BTV4!

State hunting ground	Mouflons, n	Dead, n/% by 10 Sep
Zjenda	465	158/34%
Ablanovo	87	23/26.4%
Ropotamo	150	38/25.3%
Aramliets	80	20/25%
Buynovtsi	60	10/16.7%
Kormisosh	100	16/16.1%

Low mortality in roe deer and red deer also detected!

2014 BT stratified epidemic curve (until October)





Thoughts and conclusions

- Wild ruminants in Europe as reservoir host- identifying gaps in knowledge;
- Wild ruminant species could serve as indicators of BTV circulation;
- Except mouflons (*Ovis aries musimon*), European wild ungulates do not develop clinical disease;
- Diagnostic techniques used in wildlife do not differ from those used in domestic ruminants provided they are validated;

- Wild ungulates might contribute to BT circulation through vector maintenance and virus maintenance;
- There is need to know the role of wildlife in maintaining *Culicoides* populations and which *Culicoides* species mediate the wildlife-livestock-BTV transmission events.
- There is also a clear need to study more in depth the links between wild ruminant densities, environmental factors and BTV maintenance;
- **Regarding disease control, we suggest that research efforts should be focused on wildlife population and wildlife disease monitoring.**

LSD in wildlife

- LSD is host-specific, causing natural infection in cattle and Asian water buffalo (*Bubalus bubalis*), although the morbidity rate is significantly lower in buffalo (1.6 percent) than in cattle (30.8 percent) (El-Nahas *et al.*, 2011).
- Clinical signs of LSD have been demonstrated after experimental infection in impala (*Aepyceros melampus*) and giraffe (*Giraffa camelopardalis*).

- The disease has also been reported in an Arabian oryx (*Oryx leucoryx*) and springbok (*Antidorcas marsupialis*).

- The susceptibility of wild ruminants or their possible role in the epidemiology of LSD is not known.

Surveillance for LSD in European wildlife

- ✓ No studies if LSDV affects European wildlife
- ✓ LSD detected in saliva from affected cattle with generalized form of the disease, while blood was already negative
- ✓ Non-invasive sampling with salt lick type of baits was performed to collect saliva from red deer and follow deer and to be tested for LSD
- ✓ The NI sampling was performed in area where the disease was present in domestic cattle
- ✓ Results: no evidence that LSDV affects red and follow deer. Non invasive surveillance for LSD works well for cattle
- ✓ Surveillance in wildlife is being continued…

Control measures when BT/LSD goes wild…….

- ✓ Surveillance in wildlife for early detection…..
- ✓ Vaccination of all domestic livestock around to reduce virus circulation….
- ✓ Vector control – desinsections at waterpools, game areas, farms etc.
- ✓ Vaccination in farming susceptible game, zoos etc. where possible…..
- ✓ Animal movements control

Thanks for your attention!