Occurrence of infections with bluetongue virus, bovine viral diarrhoea virus and of tuberculosis in free-ranging wild ruminants in Switzerland

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Key words
Bluetongue, Bovine Tuberculosis, Bovine viral diarrhoe, cross-sectional study, Toggenburg Orbivirus, wild ungulates, Switzerland, Liechtenstein

Aim of the study
Documentation of the Bovine viral diarrhoe virus (BVDV), Bluetongue virus (BTV) and Toggenburg Orbivirus (TOV) infection status in free-ranging roe deer, red deer, chamois, ibex in Switzerland (CH) in parallel to the BVD eradication program and the BT epidemic; Risk-based investigations on the occurrence of bovine tuberculosis (TB, caused by *Mycobacterium bovis* or *M. caprae*) in red deer, wild boar and domestic cows in CH and Liechtenstein (FL).

Material and methods
Serological and virological investigations on BVD, BT and TOV infections using blood samples from hunted wild ungulates; Investigations on infections with mycobacteria of the *Mycobacterium tuberculosis* complex (MTBC; real-time PCR and culture on tissue samples) in hunted wild boar and red deer and other ungulates with TB-like lesions; testing of cattle that were summered on Austrian pastures at risk in 2009 (Comparative Cervical Tuberculin Test and/or Interferon gamma assay).

Results and significance
10/1898 wild ruminants (0.5%, confidence interval [CI] 0.3-1.0) had antibodies against BTV, and BTV-8 RNA was detected in 3 animals (0.3%, CI 0.1-0.8). 34/1877 (1.8%, CI 1.3-2.5) were seropositive for BVDV and a BVDV-1h specific viral RNA was found in a chamois (0.05%, CI 0.001-0.3). These prevalences are significantly lower than those documented in livestock. All samples were negative for TOV. Cattle tested for TB were considered negative. Bacteria of the MTBC were detected in 6 wild boars (3.6%, 95% CI 1.4-7.8) and none of the red deer (0%, 0-1.4). *M. bovis* and *M. caprae* were not detected but *M. microti* was confirmed in 2/6 positive wild boars. Data suggest that wildlife is currently not a reservoir for the BVDV, BTV and TOV in CH, and there is no indication that TB has spread into CH and FL. Therefore, wildlife does currently not represent a threat to the health of Swiss livestock regarding the considered infections.

Publications, posters and presentations (until March 2012)
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Schöning, J. M.; et al. Investigations on the occurrence of bovine tuberculosis in wildlife and on the risk of a reservoir emergence in wild ungulates in Switzerland and the Principality of Liechtenstein. In prep.

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