

CO.53 POPULATION STRUCTURE OF TWO RABIES HOSTS IN ALASKA

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Rabies, is widespread in arctic and red foxes in Northern and Western Alaska, but not endemic in Interior Alaska. Areas with endemic rabies overlap with the habitat of the Arctic fox while regions solely inhabited by the red fox are considered free of endemic rabies. It is therefore not known if red foxes serve as competent long-term reservoirs for rabies or support only spill over infections. Three strains of rabies virus are present in Alaska with distinct geographic distribution. Furthermore climate change is expected to alter the distribution of these two species in Alaska, expanding the range of the red fox into the historic habitat of the arctic fox. We assessed the population structure of the two major hosts in Alaska, red and arctic foxes in the context of rabies strain distribution in Alaska. In contrast to previous studies on population structure of Arctic foxes in North America, we found significant structure in the population of arctic foxes, which correlates with the phylo-geographic distribution of rabies strains in Alaska. Red foxes also showed evidence of only limited gene flow between regions of Alaska.

CO.54 THE GERMAN RACCOON (*PROCYON LOTOR*) POPULATION AS POTENTIAL RABIES RESERVOIR SPECIES

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Until recently, the red fox (*Vulpes vulpes*) was considered the only reservoir species for terrestrial wildlife rabies in Europe. However, since the late 1980s another host species has emerged in North- and East Europe; the raccoon dog (*Nyctereutes procyonoides*). Interestingly, several other potential rabies reservoir species occur in Europe but without evidence that these animals play any role in the spread of the disease; golden jackals (*Canis aureus*) in Southeast Europe, the small Indian mongoose (*Herpestes auropunctatus*) inhabiting parts of the Adriatic coastal region, and the raccoon (*Procyon lotor*) in most parts of Europe. Especially in (semi-) urban areas in Germany, extreme high raccoon population densities have been observed (approx. 100 animals/km²). To investigate the possibility that raccoons in Germany could become a reservoir species in case of re-emergence of rabies in Germany the susceptibility of the 'local' raccoon population was investigated. Wild caught animals were inoculated with the most likely lyssavirus variants to infect the German raccoon population. It was shown that the German raccoons were fully susceptible for a dog and raccoon rabies virus (RABV) variant. Five of 6 raccoons inoculated with a fox RABV isolate showed subsequently clinical signs. In contrast to foxes, none of the infected raccoons succumbed to rabies after infection with European Bat Lyssavirus Type 1 (EBLV-1); although all these raccoons seroconverted. The most likely event that a German raccoon will come in contact with a lyssavirus is through contact with an infected bat. It can therefore be a reassuring thought that based on the results of this study raccoons are highly refractory to EBLV-1 virus infection. The highest risk that the raccoon population will become infected with rabies is by re-emergence of this disease by accidental importation of dog rabies. Although the immediate risk may not seem high it must be stressed that no experience and no tools are readily available to control

a rabies outbreak among raccoons in Germany. The study was conducted as part of the Lyssavirus Research Network and sponsored by the German Federal Ministry of Education and Research (grant nr. 01KI1016A).

CO.55 RABIES CONTROL PROGRAMMES IN THE BALKAN REGION: ACHIEVEMENTS AND PERSPECTIVES IN MACEDONIA

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Through the Instrument and Pre-Accession Assistance, European Union provides funding to support the control and eradication of classical swine fever and rabies in seven candidate or potential candidate countries of the Western Balkans, where the main reservoir and vector of rabies is the red fox (*Vulpes vulpes*). Most of those countries have reinforced measures aiming to control the disease and have initiated oral vaccination programmes against rabies which started in Kosovo in spring 2010. The project was initiated in Macedonia in August 2010 and the first objective was to improve passive surveillance and reporting through enhancing public awareness about the risks of the disease and training for stakeholders. Macedonia is a 25,713 km² country bordered by four infected countries. In Macedonia, there had been no cases reported since 2000. The first oral vaccination campaigns were implemented in spring and autumn 2011 in the whole country using SADB19 vaccines and aerial distribution. The first case of rabies was detected in July 2011 on a fox in the centre of the country. Eight other cases have been reported in the centre, in the east and in the south parts of Macedonia. Several cases have been isolated at close proximity with Bulgaria and Greece, requiring the implementation of adequate measures in those countries. The last case was recorded in a cat in March 2012. The number of samples and of species analysed in 2011 was significantly increased compared to that of 2009 and 2010. This reflects a higher level of awareness of rabies among hunters, general public and professionals involved in rabies control activities as well as increased quality of the rabies surveillance and monitoring. The efficacy of the campaigns was assessed through monitoring healthy foxes (with active participation of hunters) in all vaccinated areas and revealed a very high percentage of bait uptake (estimated at 91%) and an rabies antibody response of foxes at 59%. The genetic characterization of eight strains isolated in Macedonia has been undertaken to identify rabies variants circulating in the country. The tested isolates were resolved in the East European group with a high nucleotide identity of the nucleoprotein gene found for all isolates, suggesting wildlife movements of rabies in the region. The multi annual rabies control programme will be shortly described (rabies surveillance network, planning, organisation, implementation and evaluation of the campaigns, laboratory investigations) as well as achievements done in the Balkan region. Perspectives for strengthening collaboration with the neighbouring countries for the next years will also be discussed.

CO.56 RESULTS OF THE FIRST ONRAB® SAFETY AND IMMUNOGENICITY FIELD TRIAL IN RACCOONS IN THE U.S.

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