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Development of African swine fever epidemic among wild boar in Estonia - two different areas in the epidemiological focus

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African swine fever (ASF) in wild boar emerged in Estonia for the first time in September 2014. The first affected region was located in the South of Estonia close to the border with Latvia. It was considered to be epidemiologically connected to the outbreaks in the North of Latvia. About two weeks later, cases were detected in the North of Estonia, close to the Russian border. In the present study, we aimed to investigate the epidemiological courses of the disease in the South and in the North of Estonia. Potential associations between risk factors and the laboratory test results for ASF were examined. A hierarchical Bayesian space–time model was used to analyze the temporal trend of the ASF seroprevalence in the two areas. Young wild boar were statistically significant more likely to be ASF-positive by both, serology and virus detection, than older animals. A statistically significant difference between the two areas in the temporal course of the seroprevalence was found. While the seroprevalence clearly increased in the South, it remained relatively constant in the North. These findings led to the hypothesis that ASF might have been introduced earlier into the North of Estonia then into the South of the country.

African swine fever (ASF) is a notifiable viral pig disease whose emergence usually entails huge economic consequences for the pig industry[1]. In Europe, the disease affects both domestic pigs and European wild boar (*Sus scrofa*). Therefore, an infected wild boar population holds the constant risk to infect domestic pigs and vice versa[2].

Apart from Sardinia, where ASF has been endemic since 1978, Europe was officially free from ASF since 1995[1]. However, ASF was newly introduced into Georgia in 2007. From there the virus spread to neighboring countries such as Armenia, Azerbaijan, the Russian Federation, Ukraine and Belarus.

The spread of the ASF virus p72 genotype II in eastern Europe has involved both domestic pigs and wild boar[3]. In 2011, the virus entered the central part of the Russian Federation, where it is now endemic[3,4]. In addition, several outbreaks in domestic pig were confirmed in Northwest Russia in the region of St. Petersburg between 2009 and 2012, about 160 km away from the Estonian border[4].

In January 2014, the first ASF wild boar case was reported from Lithuania[5]. Subsequently, in the course of the year, Poland as well as Latvia confirmed ASF cases in wild boar[6,7]. Finally, Estonia officially reported the first ASF case in wild boar in September 2014.

The first ASF-positive dead wild boar in Estonia was reported on 2nd September 2014 in Valga county, six km from the Latvian border[8] (Fig. 1). One week later, the virus was detected in wild boar in Viljandi county, which is also bordering Latvia. The outbreaks in the South were most likely epidemiologically connected with the epidemic in the North of Latvia, which had started few weeks before[7]. On 14th September 2014, an ASF-positive wild boar was found in Ida-Viru county, located in the Northeast of Estonia next to the border with the Russian Federation and more than 200 km away from the affected areas in the South[9]. The third county bordering Latvia, Võru county, was found infected by the end of October 2014.

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