Ticks on the move to the north
– increased risk for new zoonotic infections?

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ABSTRACT:

Introduction
Climate change expands the geographical distribution of ticks to higher latitudes and altitudes. Ticks are vectors for several zoonotic diseases e.g. granulocytic anaplasmosis and babesiosis. The role of ticks bringing tick-borne pathogens into the north is unclear. Globally anaplasmosis and babesiosis cause relevant diseases in several species including humans and in the southern half of Sweden they infect especially ruminants. The present study aims to investigate the northern expansion of ticks and tick-borne pathogens in Sweden.

Methods
Through a citizen science study 2018, SVA received around 4500 ticks found on animals or humans in the northern half of Sweden. Morphological species identification and microbiological analysis with FLUIDIGM, a microfluidic PCR-based technique for an array of pathogens will be performed.

Results
Preliminary results concerning the tick species identification and expanded geographical distribution will be presented. Retrospective collection of Swedish official animal disease data revealed 24 cases of babesiosis year 2005-2016. For anaplasmosis there were no cases officially reported but 310 cases were diagnosed on ruminants year 2008-2018 at SVA.

Conclusion
When diseases show up in new areas, the unawareness may compromise protection of a population and the recognition of clinical symptoms. In addition, in an immunologically unprotected population, a new infection may give higher mortality rate or more severe clinical pictures. With new knowledge regarding the northern distribution of ticks and tick-borne pathogens, we may be able to identify new risk areas and suggest measures to minimize diseases.