

Seroprevalence for *Brucella* spp. in Baltic ringed seals (*Phoca hispida*) and East Greenland harp (*Pagophilus groenlandicus*) and hooded (*Cystophora cristata*) seals

Zoonotic infections transmitted from marine mammals to humans in the Baltic and European Arctic are of unknown significance, despite given considerable potential for transmission due to local hunt. Here we present results of an initial screening for *Brucella* spp. in Arctic and Baltic seal species. Baltic ringed seals (*Pusa hispida*, n = 12) sampled in October 2015 and Greenland Sea harp seals (*Pagophilus groenlandicus*, n = 6) and hooded seals (*Cystophora cristata*, n = 3) sampled in March 2015 were serologically analysed for antibodies against *Brucella* spp. The serological analyses were performed using the Rose Bengal Test (RBT) followed by a confirmatory testing of RBT-positive samples by a competitive-enzyme linked immunosorbent assay (C-ELISA). Two of the Baltic ringed seals (a juvenile male and a juvenile female) were seropositive thus indicating previous exposure to a *Brucella* spp. The findings indicate that ringed seals in the Baltic ecosystem may be exposed to and possibly infected by *Brucella* spp. No seropositive individuals were detected among the Greenland harp and hooded seals. Although our initial screening shows a zoonotic hazard to Baltic locals, a more in-depth epidemiological investigation is needed in order to determine the human risk associated with this.

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Prevalence of antibodies against *Brucella* spp. in West Greenland polar bears (*Ursus maritimus*) and East Greenland muskoxen (*Ovibos moschatus*)

Zoonotic infections transmitted from terrestrial and marine mammals to humans in European Arctic are of unknown significance, despite considerable potential for transmission due to local hunt and a rapidly changing environment. As an example, infection with *Brucella* bacteria may have significant impact on human health due to consumption of raw meat or otherwise contact with tissues and fluids of infected game species such as muskoxen and polar bears. Here, we present serological results for Baffin Bay polar bears (*Ursus maritimus*) (n = 96) and North East Greenland muskoxen (*Ovibos moschatus*) (n = 32) for antibodies against *Brucella* spp. The analysis was a two-step trial initially using the Rose Bengal Test (RBT), followed by confirmative competitive enzyme-linked immunosorbent assays of RBT-positive samples. No muskoxen had antibodies against *Brucella* spp., while antibodies were detected in six polar bears (6.25%) rendering a seroprevalence in line with previous findings in other Arctic regions. Seropositivity was not related to sex, age or biometrics i.e. size and body condition. Whether *Brucella* spp. antibodies found in polar bears were due to either prey spill over or true recurrent *Brucella* spp. infections is unknown. Our results therefore highlight the importance of further research into the zoonotic aspects of *Brucella* spp. infections, and the impact on wildlife and human health in the Arctic region.

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