

Abstract

Accumulating research evidence suggests that the European hedgehog (*Erinaceus europaeus*) is in decline in several western European countries. It is therefore essential to understand the reasons behind this decline to optimise and direct conservation initiatives to protect the species in the wild. This thesis attempts to bridge the gaps in our knowledge of the survival challenges for hedgehogs residing in suburban areas, as well as the potential negative influence humans and hedgehogs may exert on each other, when sharing habitats.

In the first manuscript we described the survival and behavioural ecology of 35 radio-tagged juvenile hedgehogs living in suburban areas, during their first year of life, from September 2014-July 2015. We discovered that the juvenile hedgehogs had small home ranges and high survival rates compared to previous studies, and obtained a satisfying weight gain during the autumn. We furthermore observed that the mild climatic conditions during the autumn of 2014 affected the behaviour of the hedgehogs, as they remained active for a longer period of time than previously recorded. However, we also detected how anthropogenic effects such as feeding stations in gardens, could lead to the spread of lethal *Salmonella* infections between the hedgehogs, and how garden tools and loose dogs unfortunately caused deaths to a couple of individuals.

In the second manuscript we investigated the genetic composition of the Danish hedgehog population by adapting the GBS technique to the application of 178 hedgehog samples. The Danish population of hedgehogs was divided into three genetic clusters, representing a total of six different populations. The genetic variability in the Danish hedgehog population was low compared to results from other European countries. This tendency is likely generated by anthropogenic effects such as habitat fragmentation caused by human mediated structures, such as roads, creating isolated populations with a low effective population size.

The third manuscript focuses on the detection of methicillin-resistant *Staphylococcus aureus* (MRSA) carrying the *mecC*-gene in hedgehogs. We discovered that hedgehogs appear to be natural reservoirs of *mecC*-MRSA with a prevalence of 61% positive carriers out of 188 tested, and found no evidence for transmission to hedgehog rehabilitators, in spite of one previously reported case of *mecC*-MRSA transmission from a hedgehog to a human in Denmark.

The insight gained from the present research indicates that humans do affect the health and survival of the hedgehogs in Denmark, and that there is a potential risk of zoonotic transmission between hedgehog and humans, when sharing habitats and living closely together.