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Decomposition of wild boar carcasses

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Introduction

Wild boar infected with African swine fever (ASF) usually die from infection, so their bodies become exposed to scavengers, including healthy conspecifics. In a previous study, wild boar were observed sniffing, poking, and chewing on bare bones from dead conspecifics even after skeletonization was complete (Probst et al. 2017). Since ASF-virus is extremely stable in the environment, this behaviour might be sufficient for ASF transmission, if for example the bone marrow still contains infectious ASF virus.

Against this background, when ASF is introduced into a wild boar population, it is crucial to estimate as precisely as possible the time of death of the first carcasses found in the field to estimate (i) the time point of disease introduction and (ii) the size of the already affected area. However, little is known about the decomposition process in wild boar.

Material and Methods

We describe the macroscopic stages observed in three decomposition trials with a total of eight carcasses. To prevent scavengers from gaining access, all carcasses were exposed in cages.

Trial 1 (domestic pig, wild boar), started in August 2017, was designed to test the hypothesis “Wild boar and domestic pigs are similar in terms of carcass persistence time as well as occurrence and sequence of carrion-related insects”.

Trial 2 (sun, shade, water, buried), started in September 2018, aimed to address the question: How long does it take for a wild boar piglet to decompose in different microenvironments? Carcasses (21-23 kg) were exposed to direct sunlight, in the shadow, in a mixture of soil and tap water or buried in a shallow grave, respectively.

Trial 3 (sun, shade), was started in October 2018 to investigate whether the differences observed in trial 2 are also true for adult wild boar.

Results

The opening of the abdomen occurred in the wild boar later than in the domestic pig. While only bones and pieces of desiccated skin were left over from the domestic pig after twelve months, one and a half year later a large proportion of a hard and crumbly substance (adipocere) remained from wild boar. In trial 2, the piglet in the sun decomposed more rapidly than the other piglets. In trial 3, the differences between sun and shade were not as large as expected.

Discussion and Conclusion

The decomposition process of wild boar carcasses may vary substantially as it depends on the influence of several factors including the weight of the dead animal, the season at the time of death and weather conditions. Especially in winter, it may take several months until a wild boar carcass is skeletonized and fully decomposed. We also found that the decomposition process of wild boar seems to be slower than in domestic pigs, probably owing to their hard and thick skin covered with bristles. This type of skin presumably retains moisture for a longer time and might slow down the rate, at which maggots assimilate carcass material. We also found that sunlight accelerates the decomposition process in piglets, while standing water may slow it down. However, in adult wild boar the difference between sunlight and shade is not so obvious, possibly because the skin protects the inner organs and soft tissues so effectively, that environmental factors including direct sunlight loose relative importance.

Reference

Probst C, Globig A, Knoll B, Conraths FJ and Depner K (2017): Behaviour of free ranging wild boar towards their dead fellows: potential implications for the transmission of African swine fever. Royal Society Open Science 4, doi:10.1098/rsos.170054