

Origin of Scandinavian wolves clarified

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There are no signs that hybrids of dog and wolf have contributed to the Scandinavian wolf population – a matter that has been discussed, especially in Norway. These wolves appear to have originated from the Nordic region or adjacent parts of Northern Europe, new genetic research from Uppsala University shows.

In every mammal, the male-specific Y chromosome is passed on from father to son only. Patriline (lines of descent) are thus formed. These can be followed very far back in time, enabling the origin of animals living today to be traced.

Linnéa Smeds, bioinformatician and Ph.D. student at the Evolutionary Biology Centre, Uppsala University, surveyed the composition of the wolf's Y chromosome. Subsequently, she compared Y chromosomes in [wolves](#) from Scandinavia, Finland and other parts of the world, and in dogs.

"The lines of descent found in the Scandinavian wolf population haven't been found in any dogs," says Hans Ellegren, Professor of Evolutionary Biology, who headed the present study.

Wolf-dog hybrids – crosses between wolf and dog – are known from many parts of the world. This has mainly been the result of male dogs mating with female wolves. One such hybrid was found south-west of Stockholm, in 2017; another turned up near Oslo 20 years ago. In the Storting, the Norwegian parliament, the question has been raised of whether the wolves returning to Scandinavia in the 1980s, after they had

been virtually exterminated, even had some elements from [dogs](#) in their genetic ancestry.

However, the new genetic findings thus show that crosses of this kind do not appear to be involved in the wild wolf population in Scandinavia. The same patriline that was found in Scandinavian wolves also existed in Finnish ones, but not in wolves elsewhere in the world.

"So it's plausible that the Scandinavian wolf population, at least in the male line of descent, is of regional origin. There may, for instance, have been migrating wolves or wolves quite simply remaining from the population that once ranged throughout Scandinavia," Ellegren says.

Today, immigration of wolves is regarded as genetically valuable, to counteract the inbreeding that occurs in the Scandinavian [wolf](#) population.

More information: Linnéa Smeds et al. The evolutionary history of grey wolf Y chromosomes, *Molecular Ecology* (2019). [DOI: 10.1111/mec.15054](#)

Provided by Uppsala University

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