

Old DNA reveals Viking impacts on flora and fauna

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Vikings? navigational skills and travels led to more than plundering and cultural exchanges. It also spread Scandinavian plants and animals to places abroad ? and likewise brought foreign flora and fauna to the Nordic countries.

University of Oslo evolutionary biologists Sanne Boessenkool and Anneleen Kool are researching how Viking travels contributed to the distribution of genetic material and development of biodiversity. Their key to this is the DNA of flax, barley and horses from the Viking Age.

They have just commenced a three-year project.

“The questions we are looking into have not previously been researched with the use of old DNA material,” explains Boessenkool. Her specialty is evolutionary genetics and she has spent the last nine years researching old DNA, in part from penguins.

Uncovering old secrets

“What’s fascinating about old DNA material is that it reveals ancient secrets. We discover facts about existence which would otherwise be a mystery. It’s almost like being a detective,” says Boessenkool, who is originally from The Netherlands.

Anneleen Kool, from the same country, is a botanist and curator at the University of Oslo Botanical Garden. Her specialty is the interaction between plants and people.

Kool has been strongly involved with the planning of the University Botanical Garden’s Viking Garden, which was opened in August 2014. The Viking Garden features 70 plants which were used and cultivated in Scandinavia during the Viking Age (8th-11th Century).

“Here we had a garden of Viking Age plants being planned and a laboratory for analysing ancient DNA.”

“It was natural to join forces to acquire new knowledge, not just about horses, flax and grain. But also how the Vikings could have contributed to the spread of genetic material to the areas they settled, thus impacting the composition of animals and plants,” explains Kool.

Significant horses

“We have heard how exotic spices, silk and other wares were imported to Scandinavia during the Viking Age. But little do we know about the genetic background of the plants and animals which the Vikings used and how changes were made, intentionally or not,” adds Boessenkool.

“Technology has now progressed to a point where we can extract much more information from DNA analyses than previously. For instance, a colleague of ours at the University of Copenhagen has reconstructed the genome of a horse that lived 800,000 years ago,” explains Boessenkool.

Boessenkool chose to research horses from the Viking Age for several reasons. The horse served in vital practical functions, transport and travels, as well as in religious ceremonies. Buried along with the Oseberg and Gokstad ships – the two major relics in Oslo’s Viking Ship Museum – were 26 horses. Norwegian Vikings took horses with them when they sailed to, and settled, Iceland and the Orkney Islands.


What similarities and links can we find between horses from the Viking Age in different spots? How did they change genetically and how much Viking Age genetic material is found in modern horses? These are some of the questions the biologists aim to answer.

Use of barley and flax

“Flax had numerous uses. Maybe we can find out whether emphasis in the Viking Age was on cultivating flax which was best for producing oil or best for making textiles.”

“And likewise with barley. When they raised it were they primarily interested in a grain for bread, for porridge or for brewing beer? What kind of cultivation methods did they use and when were changes made? These are some of the issues we hope to elucidate,” explains Kool.

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 [Anneleen Kool \(left\) has researched old plant DNA. Sanne Boessenkool has done research on penguins. The two biologists are now engaged in studying how the Vikings spread biological material outside of Norway. \(Photo: Dag Inge Danielsen\)](#) [6]

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[The Viking Garden at The Natural History Museum at the University of Oslo](#) [8]

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Glenn Ostling

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