

Eva Andersson Strand

# Textile Resources in Viking Age Landscapes (TRiVal)

## Introduction

The Centre for Textile Research, University of Copenhagen, has received substantial funding from the Independent Research Fund Denmark for a new three-year project, **Textile Resources in Viking Age Landscapes** (TRiVal) 2022–2025. The overarching aim of the project is to contribute to understanding the impact of the huge need for textile resource on the Danish landscape, and its influence on settlement structure, focusing on case studies around Limfjorden and southwest Zealand. The integrated results will reveal and enable studies of socio-political structures. This will be the first time that the results of a landscape analysis of textile resources, combined with textile tools and context investigation, are included in interpretations of the variation, organisation and impact of textile production in Viking Age society.

The Viking Age is generally defined as the time period between 750 and 1050 CE. The use of the term “Viking” is highly debated (Croix 2015). However, even if criticised, “Viking Age” is still used by both scholars and in dissemination events such as exhibitions. The term “Viking Age” is used to define the core period of investigation.

A team of scholars and research assistants will work together in the project (fig. 1). A series of small workshops and in-depth studies, each with a specific theme relating to the work packages, will be arranged in collaboration with an advisory board and other specialists. In order to grasp themes related to the project, a guest researcher is invited for one month’s study in 2023 to work on the theme of Early Medieval textile economies. The project will generate landmark papers, books, and PhD dissertations as the outcome of the research.

## Background

The Viking Age was a period of transition and change, characterised by overseas trade, warfare, and colonisation, where the socio-political developments supported the formation of centralised kingdoms within the Scandinavian homelands (Hedenstierna-Jonson 2009). The Viking Age is also a period in which textile production made a profound impact on society, clearly indicating a new consumption of the sails that supported long-distance travel as well as a new fascination and use of luxury clothing (Bender Jørgensen 1986; 2012; Andersson 2003; Andersson Strand 2016; 2021; Mannering 2017). The introduction of the sail in the 7th century was without doubt one of the most important and innovative technological developments of the period (Kastholm 2014, in prep.; Ravn et al. 2016) and allowed Scandinavian communities to travel long distances over the open sea, in order to engage more efficiently in trade and raiding, and to explore new lands. The project hypothesis is that the use of sailcloth and changes in textile production demanded physical labour as well as a large supply of raw material, which would result in an increased use of land for sheep grazing, a large-scale cultivation of textile crops, and important changes in settlement structures.

This project will combine landscape analysis of textile resources with analysis of textiles, textile tools, and context investigations to determine the variation, organisation, and impact of textile production on the known Viking Age landscape. The project will demonstrate how textile research can be used to gain a better and more diverse understanding of Viking Age society and its actors. It will answer the following research questions: 1) *How an increasing demand for*



Fig. 1: From the left, student assistant Pernille Gottschalk-Hansen, PhD fellow Jonas Jæger, PI Eva Andersson Strand, Senior researcher Charlotte Rimstad. Missing is research assistant Pernille Foss, professor Matthew Collins, research professor Ulla Mannering and further post-doc 1 who will join the team later (Image: Eva Andersson Strand)

*textile raw materials affected landscapes and settlements; 2) How an increasing consumption of textiles affected the production of textiles as well as the organisation of said production; and 3) Whether only local raw materials were used or whether these were supplemented by importing of raw materials and/or textiles.*

Objective 1 is to create an overarching framework and methodology that directly integrates the importance of textiles and textile resources in current debates on Viking Age economy, power, and politics. Objective 2 is to make the results of textile research on Viking Age materials and contexts accessible for the study of settlements and landscapes, at both local, regional, and inter-regional levels.

### **Project design**

To fulfil the overarching aims and objectives, an investigation of selected regions/landscapes, settlements, tools, and textiles will be undertaken. In order to identify a possible increasing demand for textile resources, the starting point will be the beginning of the Late Iron Age from c. 600 to 1050 CE. Two different types of landscapes have been carefully selected: southwest Zealand and the area around

Limfjorden, Jutland. These landscapes represent central and important regions in Viking Age Denmark. They are well studied with numerous settlement and burial structures, finds of textiles, and textile tools (Bender Jørgensen 1986; Ulriksen 1998, 2018; Kastholm 2013; Sarauw 2019). In order to investigate whether textile production in the settlements represents different organisation modes, various types of settlements have been chosen.

The landscape and settlement studies as well as the registration of tools and textiles will be accomplished in close collaboration with the different local museums and the National Museum of Denmark. The project members will collect and record archaeological, osteological, geological, and geographical data in the field and at the museums, and further process the data at CTR and relevant institutes. At CTR, we have facilities for different types of textile and tool analyses in our new CTR TexLab, supported by the Danish Roadmap for Research Infrastructure project E-RIHS.dk. All materials will be recorded in a database, designed for the project, and mapped in a geographical information system (GIS). Significantly, we will combine theoretical perspectives from both

sciences and humanities. We will use natural science (as objective, quantifying, descriptive, fact aiming at discovery, explanation, and solutions) to gain new perspectives on cultivation, sheep management, types of textiles, and tools. This approach will be combined with the humanities (subjective, interpretive, speculative, politicising, aesthetic approaches) to better comprehend the influence and impact of textiles and textile production on Viking Age society (Sørensen 2017).

All the collected research data will be curated and preserved by the individual participants at UCPH and shared with the museums during the project. At the end of the project, all data will be made open access. The project will attain synergy at different levels resting on three Work Packages (WPs), each structured to be shared and take advantage of the research undertaken in the others.

#### **Landscape of Textile Resources, WP1: Post-doc 1 (TBD), research assistant Pernille Foss**

To what extent was the landscape used to provide the raw materials for clothing, sails, and furnishing textiles in the Viking Age? The production of one large sail would demand wool from 100 sheep, which needed 3 to 5 hectares of well-fertilised land to graze on; or more than 1 hectare of land for the cultivation of plant fibres (Frøier and Zienkiewicz 1991; Bender Jørgensen 2012). In WP1, we will investigate the uses of the Viking Age textile landscapes. Data from the selected landscapes will be compiled by PD1 in close collaboration with Dr. Morten F. Mortensen, National Museum of Denmark. New pollen and macrofossil analyses will be conducted by PD1 and the RA to gain detailed knowledge on the use of those landscapes, including infields and backwoods, as well as grazing land. Landscape analysis, by means of GIS, will further contextualise any zoo-archaeological evidence of sheep management, wool production, and flax and hemp cultivation. An investigation of available dye plants in combination with recent textile dye analyses will indicate use of dyes as well as the trade in dye plants. The results from WP1 will be essential when discussing both the access to and cultivation of textile raw materials as well as their trade.

#### **Tools, textiles and contexts, WP2: PI Eva Andersson Strand, Senior Researcher, Charlotte Rimstad, Research Professor Ulla Mannering, student assistant Pernille Gottschalk-Hansen**

Textile tools are one of the most frequent artefacts from Viking Age settlement excavations and analysis indicates which types of textiles might have been

produced given the use of specific tools. WP2 will investigate what type of textile production was performed in the different settlements by recording and analysing the function of textile tools and their find contexts. This work will be done by Eva Andersson Strand together with the student assistant.

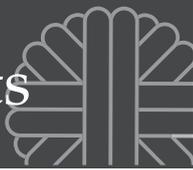
Even if textiles are found in different contexts, textile analyses have until now primarily focused on clothing textiles in grave contexts (for example Bender Jørgensen 1986). This project, however, will combine studies of textiles from different contexts with tools and landscape analyses providing a new holistic view of Viking Age textile consumption. This will enhance the possibility of exploring local production in contrast to the previous focus on imports (Geijer 1938; Hägg 1974; Bender Jørgensen 1986). Analyses of textile finds, including fibre and dye analyses from the selected areas, will be performed by Charlotte Rimstad and Ulla Mannering. They will also collect information on previously analysed textiles and combine these with the new results.

Spatial analysis (GIS) will be used to explore the distribution of textile tools and textile production constructions, in order to identify the space where production took place and identify potential textile workshops. It will be possible to create density maps to associate different classes of textile tools with their original contexts, in order to observe the production trends throughout different chronological phases of a specific site. By combining results from tools, textiles, and context analyses, we can discuss different types of organisation modes and also local production versus imports.

#### **Sheep and sheep management, WP3: PhD fellow Jonas Jæger, supervisor PI Eva Andersson Strand, co-supervisor Professor Matthew Collins**

As the demand for wool increased, was there a corresponding change in animal management? When looking at the preserved fibres, does the wool indicate evidence of a switch from primary hairy female animals, as part of a mixed economy, to the use of castrated males?

Management of sheep in the archaeological record has been confounded by the challenges of discriminating sheep from goats, and previous analysis by Jæger (2020) of Late Iron Age ovicaprine teeth demonstrated that many “goats” were in fact sheep. In WP3, the increasing demand for wool within the Viking textile economy will be explored. Jonas Jæger will conduct a large-scale screening of ovicaprine remains from the Early Iron Age through the Viking Age. Zooarchaeology by Mass Spectrometry (ZooMS) will



be used to complement and cross-validate osteological identification of sheep (Reed 1960; Halstead et al. 2002; Zeder and Lapham 2010; Zeder and Pilaar 2010; Buckley et al. 2010). Selected sheep molars will be subjected to a DNA analysis (collaboration with Prof. Dan Bradley, Dublin) to explore age and sex in order to explore mortality patterns of adult animals and scans will be made for possible genetic signatures of sheep breeding during the Viking Age. An analysis of mortality patterns will be made based on estimates of age (tooth eruption and wear) and sex identification structures of flocks.

### The SYNERGY – Towards a new perception of Viking Age textile landscapes: all project members

The study of animal remains and archaeobotanical studies of plant fibre will provide new insights into landscape use in rural and outland environments. Together with context analyses of textile production sites and settlements, this data will elevate the discussion of the use of the landscape and Viking Age textile craft production, organisation, and specialisation, creating a new dimension of understanding.

Only through meticulous research in the three work packages is it possible to elevate the project to the level of dynamic collaboration that is necessary to fulfil the aim and objectives presented here. The work accomplished within and between WPs 1 to 3 will create the possibility of a fourth part, in which their collective synergy will demonstrate how textiles and textile production can provide a new and fundamental understanding in the development of Viking Age society. Integrating the results of sub-projects' analyses (WPs) will yield significant new perspectives in both the environmental and the social impact of textile production and provide a foundation for further studies on resource exploitation and agricultural practices related to textile production. The synergy will answer the hypothesis of whether textiles or textile resources can be used as markers of large-scale production and land exploitation and give new insights into the development of Viking Age society.

#### Contact:

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<https://ctr.hum.ku.dk/research-programmes-and-projects/trival/>

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