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A landscape biography of the 'Land of Drumlins': Vooremaa, East Estonia

Veldi, M.

Citation

Veldi, M. (2020, December 3). *A landscape biography of the 'Land of Drumlins': Vooremaa, East Estonia*. Retrieved from <https://hdl.handle.net/1887/138482>

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Author: Veldi, M.

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Issue date: 2020-12-03

8 Case study 3: Hillforts – places of power and communication

Iron Age, especially Pre-Viking (600 – 800 AD) and Viking Age (800 – 1050) hillforts in Estonia are small in size, generally measuring around 800 – 1500 m² on top of the plateau. Considering the relatively small size, probably no more than 2 – 3 families were living in them at the same time (Kriiska et al. 2002; Tõnisson 2008a). During the Viking Age a specific settlement unit developed, which comprised of a hillfort and an open village next to it. From the Vooremaa region we have data on 11 hillforts dating from the 2nd half of the Iron Age.

The hillforts include: Ripuka “Punamägi”, Reastvere, Kurista, Vilina, Tarakvere “Linnutaja mägi”, Kassinurme “Kalevipoja säng”, Roela, Roela “Pohlamägi”, Ehavere “Kalevipoja säng”, Soitsjärve “Kalevipoja säng”, and Lähthe “Palalinn” (Figure 61). The function of Pre-Viking and Viking Age hillforts was not merely militant, but they were rather centres for local

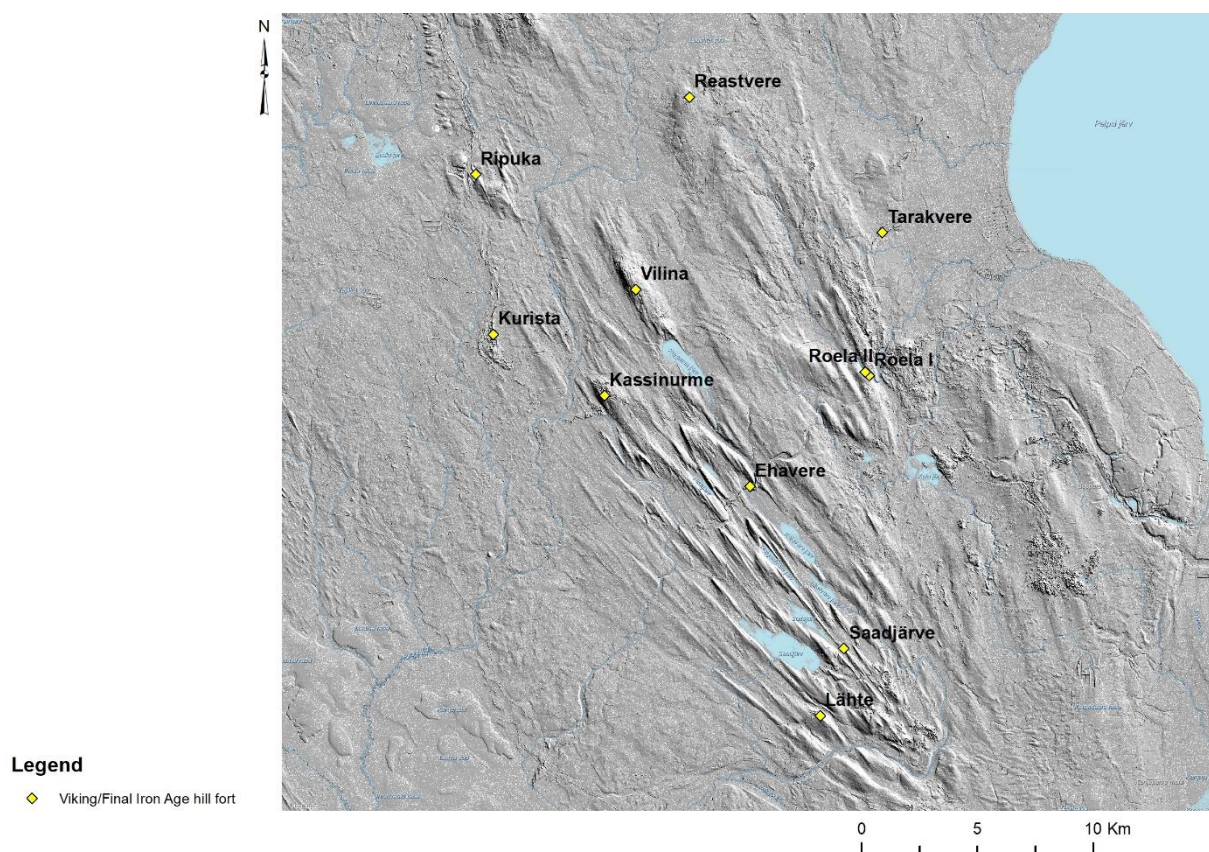


Figure 61. Viking/Final Iron Age (800 – 1225) hillforts of Vooremaa are mostly situated on the edges of the landscape region. LIDAR map: Estonian Land Board.

trade and handicraft³⁴.

³⁴ An alternative interpretation – hillfort settlements are places for regular seasonal markets, and hillforts provided security during seasonal trading, at other times they remained uninhabited (discussion with Ester Oras 19.04.2015).

The hillforts were situated quite densely in the landscape, and the direct distance between two sites usually remained between 10 – 12 km, sometimes even less. Due to short distances, also the economic background of separate hillforts was rather small. Before erecting a hillfort, the choice in landscape must have played an essential part. All the Vooremaa hillforts were protected either from one or several sides by a waterbody, wetlands or natural steep slope. In regard to other sites, and also landscape elevation, the hillforts of Vooremaa seem to be situated on the outskirts of the landscape region, rather than functioning as geographical centres.

In the Livonian chronicle of Henry, which is the main primary source for the Christianisation of Estonia and northern Latvia (region known as Livonia in the Middle Ages) at the beginning of the 13th century, two hillforts of Vooremaa – *Somelinde* and *Riole* – have been mentioned. The pagan hillfort of *Somelinde* (HCL 1982, XV:7), which was described as the centre of the prehistoric county of Vaiga, is most probably the hillfort of Tarakvere (Tõnisson 1987, 50). It has been speculated by Ain Lavi that *Riole* might have been the hillfort of Ripuka, which correlates with the chronicle description, and the fact that the site was still in use at the end of the Final Iron Age (Lavi 2002c, 94).

The most characteristic to Vooremaa is the hillfort type known in Estonian archaeological research as giant Kalevipoeg's bed (*Kalevipoja säng*), because their appearance resembles a huge bed. These are small moraine hillocks, usually with two man-made ramparts on both ends. The oral folk history related with the hillforts is extremely rich and is mostly about the epic giant Kalevipoeg. In their origin the stories about Kalevipoeg are relatively young, and are related to 19th century Romantic Movement, which reached Estonia through Baltic-German manor owners.

8.1 Archaeological sources

The hillforts of Vooremaa have mostly been investigated by three archaeologists – Harri Moora, Aita Kustin, and Ain Lavi. In 1953 Harri Moora and Aita Kustin (Kustin 1953) carried out small-scale excavations on several hillforts in the eastern and central parts of Estonia, including the hillforts of Lähthe, Tarakvere, Ripuka, Reastvere, Vilina, Kurista, Roela, Kassinurme, and Saadjärve. Their main objective was to determine the character of archaeological layer on the forts, and if possible, to get preliminary ideas of their age. The results were published in an article in 1955 (Moora 1955). At that time, most of the hillforts

were just dated to the end of the I millennium and beginning of the II millennium AD, which covered Viking Age (800 – 1050) and the Final Iron Age (1050 – 1225). Later Ain Lavi conducted excavations on the hillforts of Saadjärve (Lavi 1984), Kurista (Lavi 1985; Lavi 1988; Lavi 2002b), Kassinurme (Lavi 1999a), Ripuka (Lavi 2002c), and Reastvere (Lavi 1999b), specifying their datings considerably. In 2010 Martti Veldi and Viire Pajuste investigated the rampart of the Lähthe hillfort (Veldi et al. 2011).

So far archaeological research on Vooremaa hillforts has primarily been concentrated on detecting and dating the occupation layer. The excavations have either been very small-scale, just a couple of m², or have been salvage driven. Thus, no special research questions, except the study of rampart constructions and general dating, have been pursued. It can be speculated that not all of the hillforts were permanently inhabited, and their social, economic and military position might have been of different standing.

8.2 Wealth deposits around hillforts

Erection of hillforts is one of the indications of centralised power and accumulation of wealth. Therefore, in order to acquire better picture, it is essential to map contemporary wealth deposits in the surrounding areas of the hillforts. From some of the finds only short archival

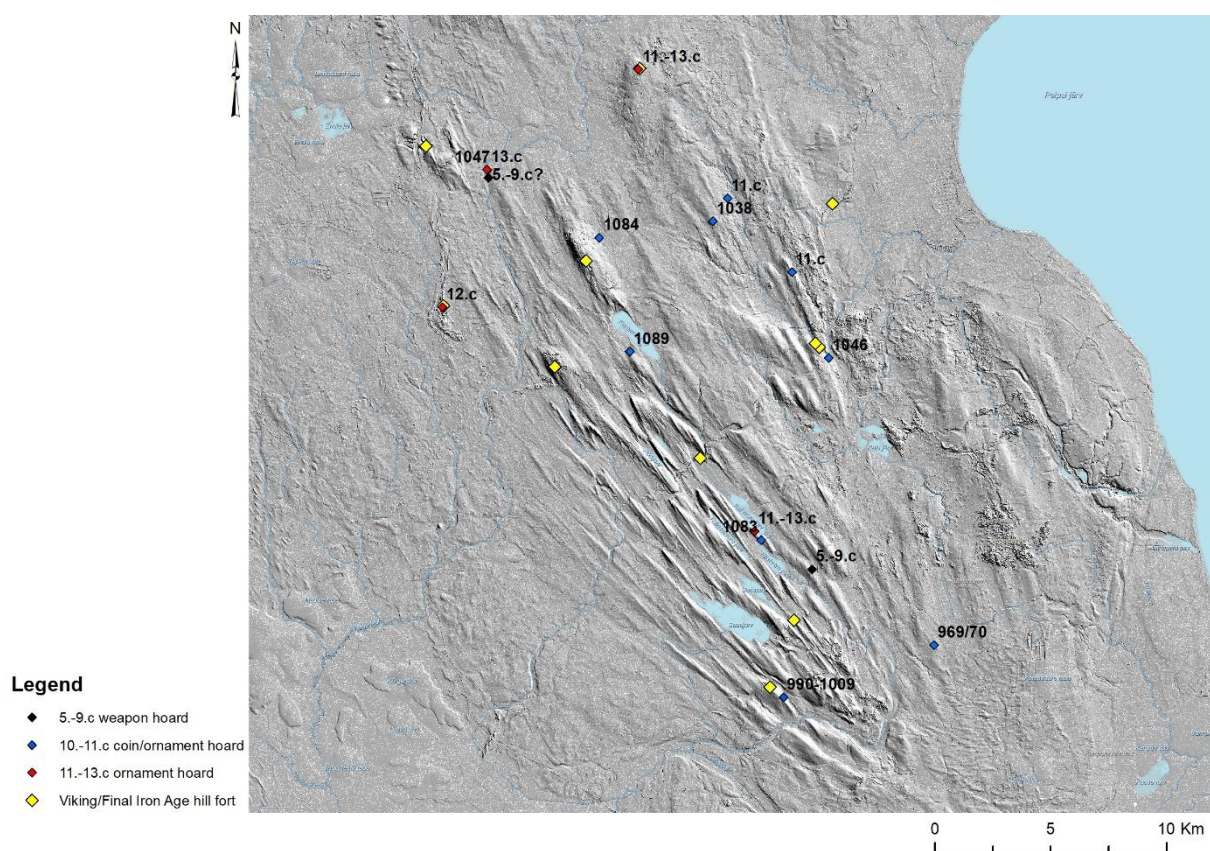


Figure 62. Distribution of coin and ornament deposits dating 10th – 13th century around the Iron Age hillforts. LIDAR map: Estonian Land Board.

records have reached us, and there is little to be known about further fate of the findings.

In the radius of 5 km from the hillforts, it was possible to pin-point following coin, ornament and weapon hoards (Figure 62):

- **Ripuka:**

- Hoard of coins, weapons and ornaments in a tin pot, found from the hillfort (Lavi 2002c).
- Coin hoard of 154 Anglo-Saxon and Saxon coins (*tpq* 1047) in a ceramic vessel (AI PR 5000 / TAAM 13751:90; ERM A 453:19); Rohe village 4.7 km SW from the hillfort (Russow et al. 2014)
- 2 ornamented knife sheaths, 2 pendants with bells dated to 13th century (AI 3515).
- Hoard of axes, swords, spears found 4.9 km SW from Rohe village at the end of the 19th century (Moora 1921, 71). Although, all the finds have gone missing, they most probably date from the Middle Iron Age (450 – 800 AD), the period when weapon hoards, often of votive nature were deposited on the verges of wetlands (Oras 2015).
- Several stray finds, including weapons and ornament between the hillfort and the river Pedja.

- **Reastvere:**

- Three Final Iron Age silver brooches (TaM: A 15-17), 300 m from the hillfort

- **Kassinurme:**

- Coin and ornament hoard (*tpq* 1083; 308 silver coins and ornaments) from Änkküla village; 5.4 km from the hillfort (Leimus et al. 2014)

- **Roela hillforts:**

- Coin hoard (*tpq* 1046; 36 coins; AI 5000: 68) from Levala village; 1 km from the hillforts (Leimus 2007)

- **Vilina:**

- Coin and ornament hoard (*tpq* 1084; 21 silver coins and ornaments) from Laiuse village; 1.8 km from the hillfort. Possibly a votive offering (Kiudsoo 2013)

- **Kurista:**

- Hoard consisting of bronze ornaments (12th century; AI 5756) found from the hillfort (Lavi 1998)

- **Ehavere:**
 - Silver coins and ornaments found in 1894, but lost; Kaarepere village, 3.8 km from the hillfort
 - Silver coins and ornaments found in 1900, but lost; Vaidavere village, 3.8 km from the hillfort
- **Saadjärve:**
 - Hoard of spears, axes, sickles, scythes (ERM 14431) found in 1913 (5th – 9th century); Igavere village, 3.7 km from the hillfort. Possibly a votive offering (Oras 2015)
- **Lähte:**
 - Coin hoard (*tpq* 1009; 10 silver coins) from Sootaga village (Leimus 2007).

Only in the case of the Tarakvere hillfort it was not possible to associate the site with any significant hoard or stray find.

8.3 Chronology

The earliest signs of human habitation on the hillforts of Vooremaa have been unearthed from the hillforts of Ripuka and Saadjärve. Based on striated Early Iron Age pottery, the oldest layers of these two hillforts originate from the Pre-Roman (500 BC – 50 AD) and Roman (50 – 450 AD) Iron Ages. ¹⁴C datings obtained from the most bottom layer of Saadjärve hillfort gave a calibrated result 90 BC – 129 AD (95.4%). From the earliest period, no traces of fortifications have been found, and probably open settlements resided on the hill tops.

The active period of constructing fortifications on the hill tops started about the 7th – 8th century, and gained its peaks in the 9th – 11th century. As pointed out by Kristo Siig (Siig 2014, 313), in the 11th century considerable changes took place in fortifying and exploiting the hillforts. While some of the hillforts, for example, Lähte and Tarkvere were abandoned, then Saadjärve and Kassinurme were extensively fortified further. One of the reasons behind these changes might have been the campaign initiated by the Old Rus leader Jaroslav the Wise to the south western part of Estonia sometime around 1030 as recorded in the birch bark chronicles, also known as *лѣтписѣ*³⁵ (ПБЛ 1999, 65; НПЛ 1950, 176). At the same time, we have no written evidence, which states that the campaigns actually reached the Vooremaa region.

³⁵ Лѣтписѣ – Old Rus chronicles, often recorded on birch bark.

By the end of the 12th century AD most of the hillforts in Vooremaa were abandoned, and radiocarbon datings extending to the first half of the 13th century have only been gained from the hillforts of Kassinurme, Kurista and Ripuka (Table 31).

<u>Name</u>	<u>14C Dating</u>	<u>Calibrated Dating</u>	<u>Accuracy</u>	<u>Excavations</u>	<u>Find Nr</u>
Kurista				Moora & Kustin 1953 Lavi & Peets 1984 Lavi 1987 Lavi 2001	AI 5756
	1) 885+/-40 (Tln-739)	1033-1224	95.4%		
	2) 935+/-60 (Tln-745)	995-1219			
	3) 945+/-35 (Tln-1139)	1021-1163			
	4) 915+/-35 (Tln-1132)	1029-1204			
	5) 1000+/-35 (Tln-1131)	976-1154			
	6) 1100+/-35 (Tln-1133)	782-1020			
	7) 1005+/-35 (Tln-1134)	972-1154			
	8) 980+/-35 (Tln-1138)	993-1155			
Ripuka				Moora & Kustin 1953 Lavi 2002	AI 4063 AI 6551
	1) 375+/-56 (Tln-2683)	1444-1641	95.4%		
	2) 863+/-50 (Tln-2685)	1040-1261			
	3) 964+/-57 (Tln-2684)	985-1207			
	4) 273+/-55 (Tln-2686)	1463-...			
Reastvere				Moora & Kustin 1953 Lavi 1998	
	1) 930+/-43 (Tln-2356)	1022-1205	95.4%		
	2) 969+/-40 (Tln-2358)	995-1160			
Saadjärve				Moora & Kustin 1953 Lavi 1984	AI 4065 AI 4333 AI 4881 AI 5308
	1) 1975+/-45 (Tln-780)	90 BC-129 AD	95.4%		
	2) 1290+/-40 (Tln-898)	652-861			
	3) 1255+/-30 (Tln-744)	672-868			
	4) 1035+/-40 (Tln-798)	895-1147			
	5) 925+/-35 (Tln-841)	1025-1185			
	6) 1310+/-40 (Tln-778); Settlement	651-772			
	7) 1270+/-40 (Tln-898)	662-868			
	8) 1000+/-35 (Tln-910)	976-1154			
	9) 1255+/-60 (Tln-746)	655-937			
	10) 1195+/-60 (Tln-744)	686-970			

	11) 1200+/-35 (Tln-790)	694-944			
	12) 940+/-30 (Tln-984)	1025-1160			
	13) 985+/-30 (Tln-894)	990-1154			
	14) 1945+/-45	50 BC-208 AD			
	15) 1000+/-35 (Tln-910)	976-1154			
	16) 1300+/-40 (Tln-916)	648-800			
Lähte				Moora & Kustin 1953 Veldi & Pajuste 2011	AI 4066
	1) 1184+/-55 (Tln 3225)	690-977	95.4%		
	2) 1333+/-55 (Tln 3226)	599-860			
	3) 1274+/-55 (Tln 3227)	656-880			
Kassinurme			95.4%	Moora & Kustin 1953 Lavi 1998	
	1) 760+/-41 (Tln-2329)	1188-1295			
	2) 821+/-42 (Tln-2332)	1056-1277			
	3) 1042+/-48 (Tln-2331)	887-1150			
	4) 875+/-46 (Tln-2328)	1040-1251			
	5) 985+/-44 (Tln-2327)	983-1160			
Vilina	No 14C dates			Moora 1953 Tõnisson 1975	
Ehavere	No 14C dates			Moora 1953	AI 4064
Roela I	No 14C dates			Moora 1953	AI 4068
Roela II	No 14C dates				
Tarakvere	No 14C dates			Moora 1953	AI 4069

Table 31. Radiocarbon datings from the hillforts of Vooremaa. Data extracted from Tõnisson 2008a.

8.4 Soil and elevation

In correlation with soil types, hillforts indicate very similar trends with settlement sites – 8 hillforts out of 11 are situated on the edges of most fertile soil patches. The hillforts of Lähte, Saadjärve, Reastvere, Ripuka, and Kurista are all located on *mollic cambisols* and *luvisols* with the bonity value between 49 – 64 points (Table 32). The hillforts of Vilina and Reola I

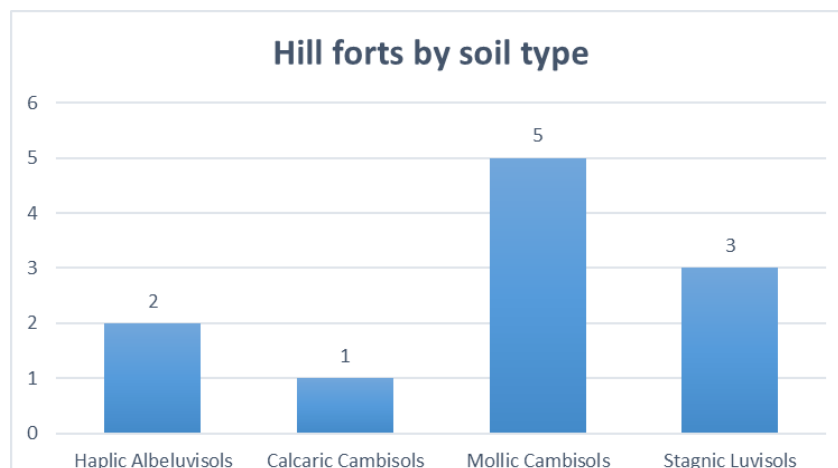


Table 32. Hillforts by soil types.

and II are situated on *stagnic luvisols* with the bonity value of 53 – 55 points.

Even though the Kassinurme hillfort is not located on the top of the most valuable soils, it is

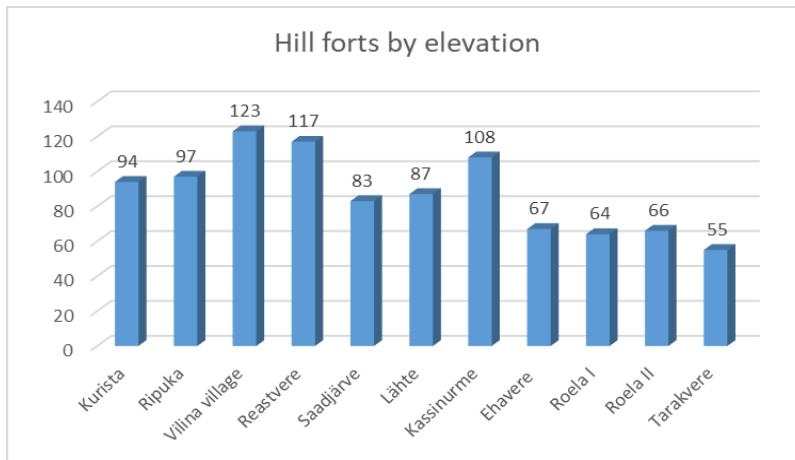


Table 33. Hillforts by elevation.

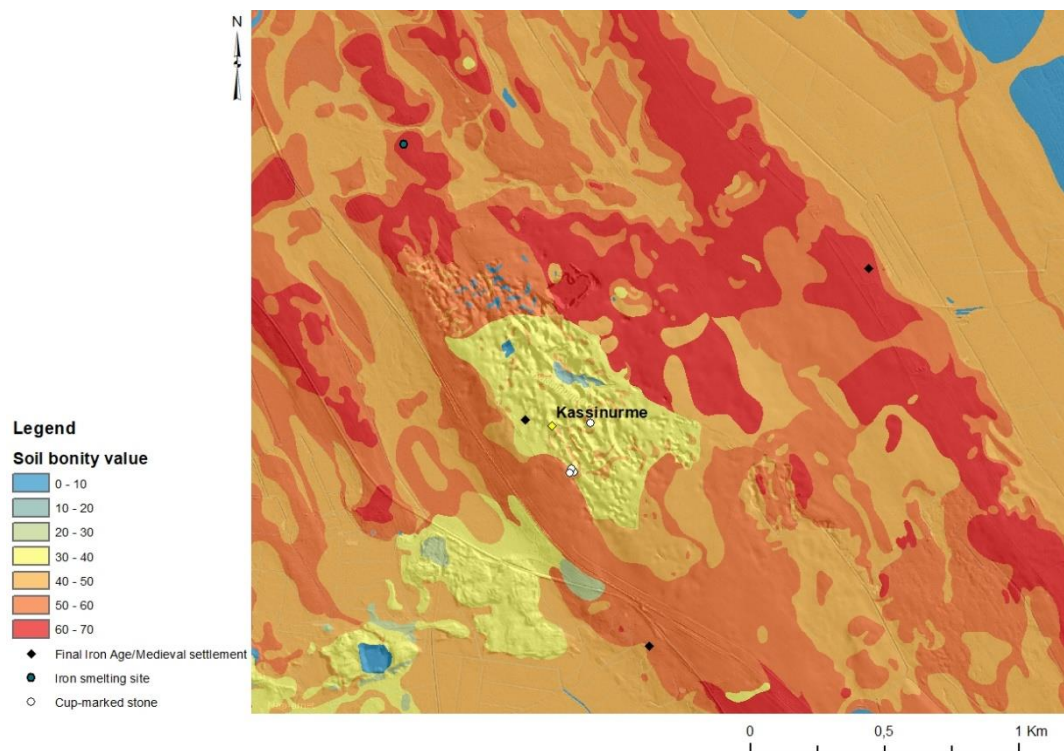


Figure 63. Soil bonity value around the hillfort of Kassinurme. Soil data: Estonian Land Board.

very clearly surrounded by *cambisols* and *luvisols*, which are most suitable for agricultural activities (Figure 63). Only the hillforts of Ehavere and Tarakvere remain somewhat away from larger patches of fertile soils. At the same time, these two hillforts have been established on similar glacio-fluvial moraine formations, which form a natural “gate”, and most probably served as outlook stations on the main routes.

In accord with the landscape, the elevation of hillforts varies considerably: Tarakvere being the lowest with only 55 m, and Vilina the highest with 123 m above the sea level. The relative height of the hillforts compared to the surrounding landscape remains between 10 – 12 m.

8.5 Historic land use

The land use around hillforts in the 17th century could be analysed only in the case of four sites: Lähthe, Saadjärve, Ehavere and Kassinurme. The rest of the hillforts remain out of the area covered with 17th century maps. Land use in 1839, 1935 – 1939, and 2010s could be

Landscape feature	1684		1839			
	4	%	4	%	11	%
Settlement (1)	1	25,0	0	0,0	1	9,1
Arable land (2)	0	0,0	1	25,0	5	45,5
Unused arable land/bush land (3)	2	50,0	2	50,0	5	45,5
Grassland (4)	1	25,0	1	25,0	1	9,1
Forest (5)	2	50,0	1	25,0	2	18,2
Wetland (6)	1	25,0	0	0,0	0	0,0
Water (7)	1	25,0	1	25,0	4	36,4
Road (8)	2	50,0	1	25,0	2	18,2
Gravel/Sand quarry (9)	0	0,0	0	0,0	0	0,0

Table 35. Land use around hillforts in 1684 and 1839.

Landscape feature	1930s				2010s			
	4	%	11	%	4	%	11	%
Settlement (1)	2	50,0	4	36,4	1	25,0	3	27,3
Arable land (2)	3	75,0	9	81,8	0	0,0	3	27,3
Unused arable land/bush land (3)	0	0,0	0	0,0	1	25,0	1	9,1
Grassland (4)	1	25,0	1	9,1	2	50,0	2	18,2
Forest (5)	1	25,0	3	27,3	4	100,0	11	100,0
Wetland (6)	0	0,0	0	0,0	0	0,0	0	0,0
Water (7)	1	25,0	4	36,4	1	25,0	4	36,4
Road (8)	3	75,0	7	63,6	3	75,0	7	63,6
Gravel/Sand quarry (9)	0	0,0	0	0,0	0	0,0	0	0,0

Table 34. Land use around hillforts in 1930s and 2010s.

analysed for all the 11 sites.

In the 17th century the hillforts remain outside of the arable land, mostly in the transitional areas between cultivated landscape and forest. Only the hillfort of Ehavere was situated next to a farm in 1684 (Figure 64), rest of the hillforts remained somewhat away from settled units.

In the 19th century we can see several changes in the land use: both, the proportions of arable land and bushland rose. While almost half (5; 45.5%) of the 11 hillforts were covered in bush,

then also five (45.4%) were in the middle of arable lands. Two of the hillforts were located in forest.

At the beginning of the 20th century the proportion of arable land around the hillforts rose even more and achieved its peak with 81.8% in the 1930s. While in the 1930 only three of the hillforts were in forested areas, then by the 2010s all the 11 hillforts were either partly or entirely covered in forest. At the same time the percentage of arable land around the hillforts had declined to only 9%. The proportion of forest in the 2010s is the sharpest contrast compared to the historic land use. In the case of hillforts, we can see how over the centuries forest has been cut down and then regenerated. This indicates that forest management has proved to be with the strongest impact on the hillforts of Vooremaa.

8.6 Roads

Scandinavian researchers (Nielsen 2002, 188) have pointed out that built roads were not constructed before the Viking Age, and until then simple dirt tracks were used to move across the landscape. Definitely horses were used for travel, but even then, riding along wet and forested areas was full of complications. It is assumed that until the Viking Age horses were mostly applied for horse back riding. A big change in land transportation took place in the Viking Age, when horse harness was introduced in Scandinavia. This enabled to use horses also as draft animals.

When positioning hillforts in the landscape, the presence of roads is of essence. One possibility for studying prehistoric and historic road networks is through retrospective method. The retrospective method enables to detect correlations between historical maps and archaeological sites. The method is very simple – the concentration of archaeological sites around certain road segments on historical maps might indicate if the roads were used at the same time in parallel with the sites. Based on the retrospective method, which I applied both, in ma BA (2004) and RMA (Veldi 2009) research, it was possible to trace the road network in South-East Estonia during the Late Iron Age and the Middle Ages.

In the 17th century the hillforts of Saadjärve and Ehavere are located right next to a larger road, Lähthe and Kassinurme remain ca 200 – 300 m away from the main routes. The *Livonian Special map* by Rücker depicts mostly larger roads, and not all the local roads can be found on the map. Thus, only the hillforts of Lähthe and Reastvere were situated closer than 150 m to

a road. In the case of other hillforts, the closest road remained in the distance between 200 – 950 m.

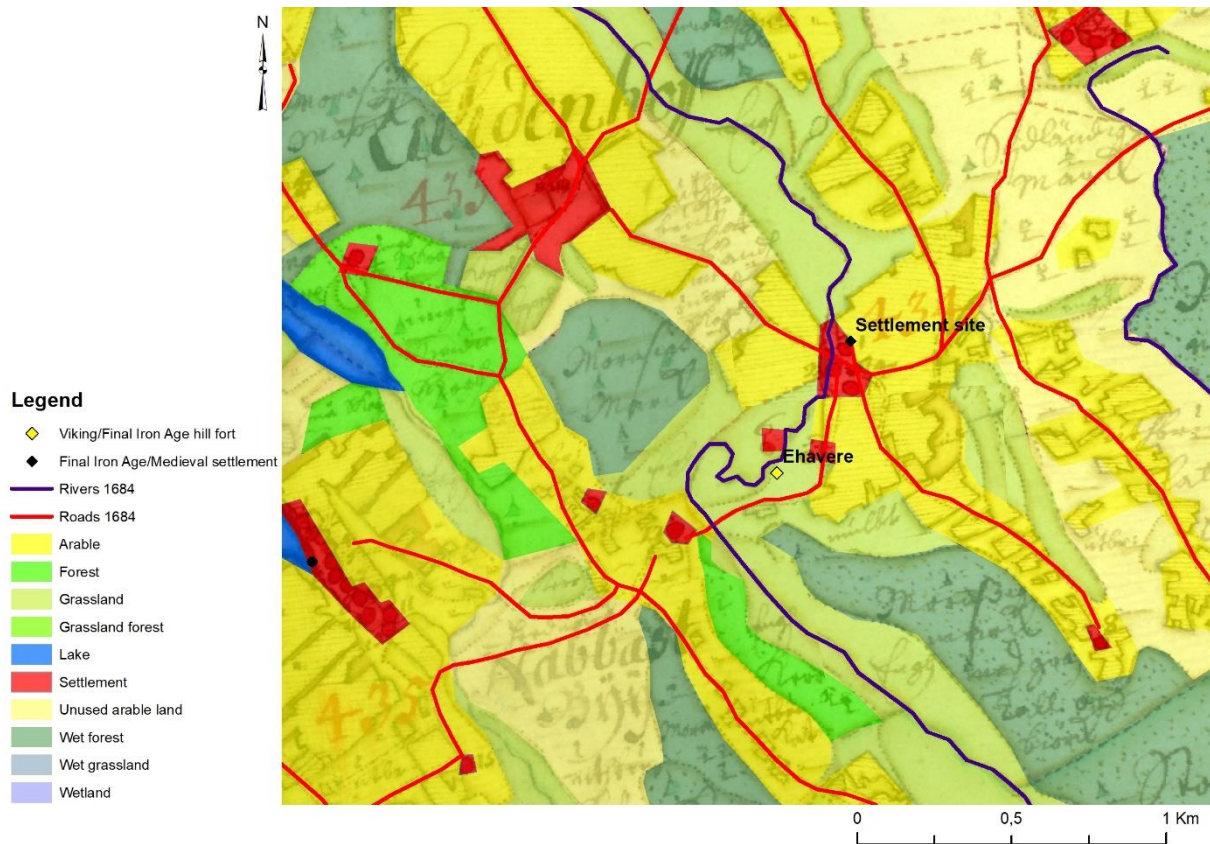


Figure 64. In 1684 the hillfort of Ehavere was situated in open grasslands near a farm, river and road. EAA 308.8.69.

Compared to the situation in 1684 and 1839, the road network improved considerably during the 20th century, although the changes in larger routes have been relatively modest. Both, in 1930s and 2010s seven hillforts (63.6%) were closer to a road than 150 m.

8.7 Rivers

The most important innovation in the Viking Age was not to do with land transport, but with sailing. Viking Age was the time, when large quadrangular sails were introduced (Nielsen 2002, 188), which enabled faster and more effective long-distance travel. Also, the ships grew in size and capacity, and moving bulk materials, such as timber, stone or grain, became reasonable and profitable.

In the communication network hillforts' connection to navigable rivers was even more important than the land routes. When local scale communication could be carried out by land routes, then long distance travel needed navigable water ways. In the eastern Estonia connection to the Lake Peipsi was essential. Across the Lake Peipsi it was possible to travel by water or frozen ice further north to the Gulf of Finland, and south east to the Old Rus

centres Pskov and Novgorod. Long distance travel was most probably of seasonal nature. In wintertime, frozen waters and swamps provided quick travel by sleigh, in high spring over flooded rivers were easier to navigate. Summertime travel by horse or ox- drawn carts through landscape must have been most complicated and time consuming. Thus, winter was the best time for travelling by land, and spring by water.

River crossings were also vital points in the Viking Age communication network. While substantial bridges were not constructed probably before the Middle Ages, river fords played important part in the development of both land, and river routes.

When looking at the possible connection with rivers, the hillforts form three groups:

1. Hillforts along the river Pedja: Reastvere, Ripuka, Vilina, Kurista, and Kassinurme.

The river Pedja is the largest river in Vooremaa, and connecting the region with the river Emajõgi, and the Lake Peipsi, is the most suitable river for navigation. The hillforts along Pedja are not erected straight on the riverbank but remain up to 5.4 km away.

2. Hillforts along the river Amme: Ehavere, Saadjärve, Lähete.

Amme is the second largest river in Vooremaa and flowing into the river Emajõgi runs entirely in the Vooremaa landscape region. The hillfort of Ehavere is located directly on the riverbank, the hillforts of Lähete and Saadjärve are situated both 2.5 km away from the river.

3. Hillforts along the rivers Kullavere and Tarakvere: Roela I, Roela II and Tarakvere.

Both Kullavere and Tarakvere rivers flow into the Lake Peipsi. All three hillforts are situated closer to river than 200 m.

Because most of the hillforts in Vooremaa are not erected directly on the riverbank but remained somewhat away, it is plausible that each of them had its own river harbour or landing place. These places might have also served as first-hand trading or storage places. As no archaeological research on possible river harbours in Vooremaa has been conducted, there is no archaeological evidence on any harbour constructions. Still, it is possible to point out some suitable places based on the landscape situation, stray finds, and wealth deposits. In this context, Viking Age coin finds, but also tools might point to possible harbour places.

For example, the hillfort of Kassinurme is located ca 2.3 km away from the River Pedja, and suitable places for river ports or landings could be searched from the area between the villages of Pakaste and Painküla. The hillfort of Kurista is situated approximately in the same distance

from the river Pedja. If the two hillforts were used simultaneously, they might have shared a same river port. In the village of Painküla a listed settlement site, which based on pottery finds (AI 4847) has been dated to 9th – 18th century. Also, a water mill and a sawmill have historically been in the same place. The Late Iron Age/Medieval settlement is situated on the crossroads of land and water routes. One possible river port for the hillfort of Ripuka might have been in the Rohe village, where a 11th century coin hoard, and also Late Iron Age settlement site (AI 5500) have been located on the banks of Pedja River. 11th century coin hoard, and Late Iron Age settlement site have also been discovered from the village of Levala on the bank of Kullavere River, which is situated just 1 km south-east from the hillforts of Roela. In the similar pattern, places suitable for river harbours connected to hillforts could be as follows:

- **Ripuka:** water mill in Rohe village (5 km from the hillfort). Contemporary settlement site, coins (11th – 12th century), tools and weapons.
- **Kassinurme and Kurista:** suitable harbour site could be near the water mill in Painküla village. Contemporary settlement site with the hillforts is also present.
- **Reastvere:** water mill on River Pedja in Resti village. No contemporary findings.
- **Tarakvere:** water mill on River Tarakvere in Tarakvere village. No contemporary findings.
- **Roela hillforts:** water mill on River Kullavere. Contemporary coin hoard and settlement site in Levala village.
- **Vilina:** water mill on River Pedja near Jõgeva manor (*Laisholm*). No contemporary findings.
- **Ehavere:** water mill and contemporary settlement site on River Amme in Ehavere village.
- **Saadjärve:** settlement site in Igavere village near River Amme.
- **Lähte:** settlement site in Vasula near River Amme

8.8 Example 1: Lähte *Palalinn*

Lähte *Palalinn* (Firetown; Figure 65) is situated in SE part of Vooremaa on the Sootaga drumlin, with the elevation of 92 above sea level. The hillfort's plateau is relatively small, measuring only 34 x 28 m. The forte was erected on one side of the drumlin, which was separated from the rest of the drumlin by a rampart ditch.

Sootaga drumlin is the highest elevated feature in the surrounding landscape. A large part of the drumlin has been excavated for gravel, and after gravel extraction was abandoned, turned into an artificial lake. Gravel excavation has altered the landscape profoundly, and also destroyed several archaeological monuments. According to archival data, an offering stone

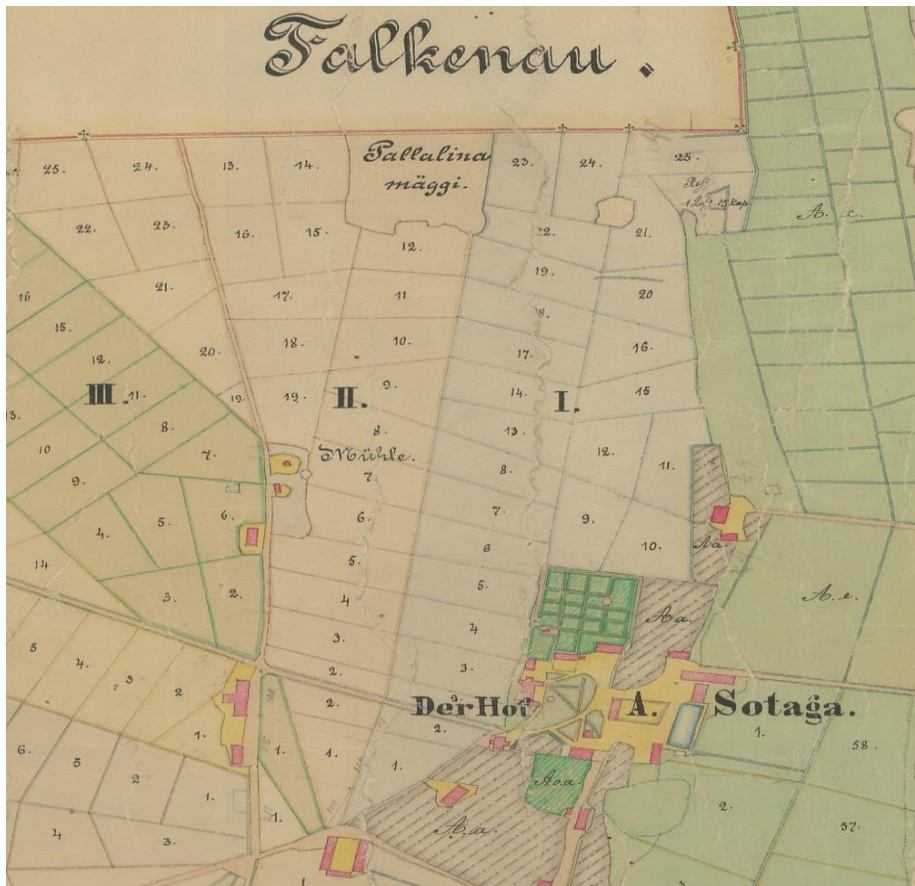


Figure 65. Lääte hillfort recorded with the toponym Pallalina mäggi on a 19th century map. EAA.2623.1.2038

and a refuge site were situated somewhere in the vicinity. There are records of finding human bones near the hillfort. Today, sports tracks go around the lake and the hillfort. The hillfort is overgrown with large bushes and trees and can easily not be noticed.

An account from 1921 (Jürgens 1921a, 14) describes the landscape as follows:

Palalinn is situated on a moraine hillock in the village of Lääte, beside the road coming from Tartu. Around the hillfort is a valley, which is cultivated. Palalinn and the gravel pit belong to the Sootaga manor. /.../ Along the hillfort, large lime trees grow. On the foot of the Palalinn, on the side of the Lääte church is a large sand pit, from which during digging bones of the dead have been unearthed. The hillfort has been excavated (by treasure hunters) several times, but nothing of interest has been found. (Juhan Rebane, 76 years old)

In 1953 archaeologists Harri Moora and Aita Kustin conducted a small scale excavation on the site (Kustin 1953). They discovered cultural layer on the plateau of the hillfort, and some Rõuge-type ceramics³⁶, which allowed to date the fort between 8th – 11th century. In 1993 during a field survey Heiki Valk discovered thin cultural layer from the arable fields surrounding the hillfort. During field walking he found a couple of pieces of hand-made pottery and a penannular brooch with rolled ends. The findings indicate that the small settlement site was most probably contemporary with the hillfort.

In order to specify the character of the cultural layer of the hillfort, and to acquire ¹⁴C samples, a cross section of the hillfort's rampart was excavated by Martti Veldi and Viire Pajuste in 2010 (Veldi et al. 2011). Although, the upper horizons of the cultural layer on the plateau had been disturbed by ploughing, it was possible to detect untouched cultural layer underneath it.

The radiocarbon samples obtained from burnt wooden rampart constructions enabled to date the most active period of the hillfort between 600 – 980 AD. The cultural layer on the plateau proved to be relatively poor in findings, and predominantly contained pieces of hand-made pottery. Amongst other artefacts, a fragment of a Turkish clay pipe originating from the turn of the 18th – 19th century was unearthed.

On the 17th century map the hillfort is in the middle of birch forest, not far away from arable lands. The hillfort belonged to Sootaga estate, which manor centre is located only ca 800 m SE from the site.

8.9 Example 2: Saadjärve *Kalevipojasäng*

The hillfort of Saadjärve (also known as giant Kalevipoeg's bed) is located near the south-eastern tip of the Lake Soitsjärv on a natural moraine kame, just 5 km away from the Lähel hillfort (Figure 66). The hillfort is situated on the verge of an early Holocene paleolake, which



Figure 66. Saadjärve hillfort in the 1950s and 2010s. The once open landscape has grown into forest.

gradually has turned into a swamp. From the LIDAR image we can see, that the hillock with the fort formed during glacial movements, and later was designed by human hands. The farm next to the hillfort, also bears the name Hillfort farm (*Linnamäe talu*), which is already present on a map from 1901 (EAA.1392.1.324). Settlement layer contemporary to the hillfort has been detected in small patches NW and SE from the hillfort. Part of the moraine hillock between the hillfort and the farmstead has been extracted for gravel in 1930 – 1960, and later planted with pine forest (Lavi 2002a).

The plateau of the hillfort measures ca 1250 m² and is slightly elevated from the rest of the moraine kame. Man-made ramparts have been constructed on both ends of the plateau. The ramparts are not very high, just 1 – 2 m measured from the inside. The slopes of the hillock have also been dug steeper (Tõnisson 2008b, 295).

Saadjärve hillfort is one of the best investigated archaeological sites in Vooremaa. The first trial excavations were conducted by Harri Moora and Aita Kustin in 1953, who based on early wheel thrown pottery, dated the most active period of the hillfort between 11th – 13th century (Moora 1955).

More detailed excavations, both on the hillfort and the settlement site, were directed by Ain Lavi in 1984 (Lavi 1984). The fieldwork demonstrated that the hillfort had been burnt down and rebuilt at least on five occasions. The earliest finds from the site are slightly striated pottery shards from the 1st century BC – 1st century AD. Radiocarbon samples gathered during the excavations specified, that the five burnt rampart layers remained between the 7th – 11th centuries AD. In addition to ceramic findings, fragments of tools, weapons, and jewellery were discovered. Traces of human activity on the hillfort plateau could be detected until the 13th century. In the Livonian Chronicle of Henry a village named *Sadegerve*, where 300 people were baptised in 1220 is mentioned (HCL 1982). However, nothing of the hillfort is recorded.

8.10 Discussion and conclusion

At the beginning of the Pre-Viking Age (600 – 800 AD we can see shifts in settlement patterns towards erecting small-scale local hillforts, which became dominant features in the landscape during the Viking Age (800 – 1050) and the Final Iron Age (1050 – 1225). Erection of hillforts suggests accumulation of food surplus, which was then in turn directed towards trade and handicraft.

The Viking Age hillforts and their position in the landscape demonstrate obvious connection between 10th – 11th century coin deposits and communication network of both, land and water routes. Interestingly, we can see that the coin deposits can be divided into three tentative sub-periods: 1) late 10th/early 11th century – the hoards of Vara 2) middle of 11th century 3) late 11th century

The shift in the settlement pattern might directly be connected with grain cultivation, more specifically rye (*Secale cereale*). Even though throughout the Iron Age barley (*Hordeum*) was one of the main cultivated crops, rye yielded significant importance during colder periods. Rye was originally a weed growing together with barley and wheat but became a separately cultivated grain in the northern parts of Europe as the most frost-resistant cultivated grass. Pollen data suggests that rye became an important cultivated grain in Estonia around 500 – 600 AD (Poska et al. 2004, 47). Later ethnographic parallels demonstrate that rye processed in barn-dwellings with chimneyless smoke stoves was of very high quality and imported to central Europe from the north.

The pollen count of cultivated cereals started steadily to grow from the 6th century onwards, and compared to the beginning of the millennium, by the 9th century had risen more than 5 times. During the second half of the Viking and the Final Iron Ages, the proportion of *Cereal* pollen was already 15 times higher than at the start of the millennium, which might indicate that the importance of rye as cultivated crop grew dramatically.

The pollen diagram also demonstrates that the Final Iron Age ended with a slight agricultural downfall, most probably inflicted by the Danish-German Conquest.

By the end of the 17th century rye was the most important trading article to be exported from the Baltic area to the central and southern parts of Europe (Behre 1992; Bogucka 1973). It has also been argued that in the 17th century the Baltic rye was cheap and mainly targeted towards poor urbanising workers of European towns (Hybel 2002).

According to archaeological data chimneyless *keris*-stoves were widely spread all over Estonia at least from the 7th – 8th century onwards (Tvauri 2012b, 67). This correlates very well with introduction of rye as separately cultivated grain. The *keris*-stoves enabled to dry the rye very effectively to prevent it from getting mouldy. Rye cultivation can be seen as one of the results of local iron smelting, which provided efficient tools for ploughing more difficult soils. Unfortunately, no fossil fields have been detected in Vooremaa yet.

So far, rye production has not been claimed in Estonian archaeological research as the main export article and the source of wealth of the Viking Age hillforts. Traditionally, the main exchange item for the silver has thought to be furs, specifically beaver furs, as discussed by Leimus and Kiudsoo in 2004 (Leimus et al. 2004). The south-eastern and probably eastern Estonian hillforts were part of an extensive trade network, which belonged to the same geographical area with north-western Russia, but probably even central Russia. Even if the rye was not the end product to be exported to north-western Russia and from there further to Europe it must have played an important role in the trade network and might have been vital article in the local exchange. In addition to furs and grain, also bees wax was an important item for trade from the forest belt to Christian Europe, which was in need of candles.

The hillforts of South and East Estonia had to be somewhat dependant on the Russian market, through which, either or both, rye and furs were exported to central and western Europe. It can be assumed that the relations between small eastern Estonian hillforts and Russian power centres were not of equal level, and probably smaller hillforts were forced to pay tribute to the larger ones.

When looking at the geopolitical situation of Estonia, and the sprouts of state formation, both in southern Scandinavia and old Russia in 9th – 11th century Estonia was most probably valuable area for submission to tribute. While Scandinavian seafarers probably controlled the costal areas, then south and east Estonia was more in the influence area of Russian centres Novgorod and Pskov. It was through Pskov, Staraja Russa (Old Russia), and Novgorod the eastern and southern Estonian hillforts conducted their trade with central and western Europe.

Probably most of the silver, which ended up in the southern and eastern Estonia during the Viking Age, reached the region with Russian/Scandinavian traders along two main water routes: 1) the smaller route to south across Lake Peipsi to Pskov 2) the larger route to north across Leik Peipsi to the Gulf of Finland, continuing along the River Neeva to Lake Ladoga to Staraja Russa, and from there along the River Volkhov to Novgorod. The latter water route has been considered as the most important water based trade route between northern Europe, Byzantine and the Near East (Сорокин 1997, 106). It was pointed out already in the 1960s by Evald Tõnisson that the shores of the River Volkhov were rich in 9th – 12th century coin hoards (Tõnisson 1962, 228), also the abundance of Viking Age hoards has been noted in the areas along the lower course of the River Neva (Сорокин 1997, 106).

To sum up, the sequence resulting with the emergence of the local hillforts in the Viking Age might have been following:

- 1) with the discovery of bog iron and introduction of iron smelting, iron tools became more accessible
- 2) iron tools enabled to plough more difficult soils
- 3) rye was introduced from central Europe with other grains, such as barley
- 4) rye was favoured because it was suitable for colder climate
- 5) dwellings heated with chimney-less *keris*-type of stoves were also very effective for drying high quality rye
- 6) grain surplus stimulated trade and handicraft
- 7) grain was exchanged locally for furs and beeswax
- 8) grain, furs, and wax were exchanged for silver
- 9) accumulation of capital enabled centralisation of power and emergence of taxation
- 10) hillforts became nodal points in the network of collecting and exchanging goods.