

Land Consolidation and Jointly Owned Forest – Case Haukipudas

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Key words: Land Consolidation, Jointly Owned Forest, the Use of Forests, Land Division of Forest Property.

SUMMARY

The subject of this presentation concerns the land consolidation procedure of forest land and the formation of a jointly owned forest in the Ulkometsä area of Haukipudas, North Ostrobothia, Finland.

In Finland, the property division and ownership of forest properties are severely fragmented in many places, and thus unprofitable from the forest management point of view. This means that the shape and size of the parcels of a forest holding are poor from the forest management point of view. (Airaksinen, et al., 2007:4) The area in Haukipudas was according to the study by Airaksinen et al. one of the poorest when it concerns the sensible use of forests in Finland.

In 2010, the National Land Survey organized an information meeting for landowners in the area. During the meeting, the landowners announced their interest in asking the National Land Survey to assess the need for land consolidation on 5,720 hectares of forest. When the needs assessment was complete, they applied in 2011 for land consolidation and formation of a jointly owned forest in the area concerned. The jointly owned forest was formed at the start of the procedure in 2013 and the land consolidation itself was performed in the period 2013–2017.

The reallocation plan was completed in January 2017. The forest land consolidation covered 6,216 hectares. The size of the average parcel increased from 11.1 hectares to 25.5 hectares. The number of parcels decreased from 574 to 224. In the area, a jointly-owned forest of 1,702 hectares was also formed. At the start of the procedure it consisted of 98 parcels, which were consolidated into 15 parcels.

TIIVISTELMÄ

Esitys käsittelee Haukiputaan ulkometsäpalstan tilusjärjestelyä ja yhteismetsätoimitusta. Suomessa metsäkiinteistöjen rakenne ja omistus ovat monin paikoin hyvin pirstoutuneet ja siten epäedullisia kannattavan metsätalouden harjoittamisen näkökulmasta. Tämä tarkoittaa, että metsälön palstojen muoto ja koko ovat metsätalouden harjoittamisen kannalta huonot. (Airaksinen ym, 2007:4). Haukiputaan alue oli ko. selvityksen mukaan yksi heikoimmista alueista metsien järkevän käytön kannalta Suomessa.

Maanmittauslaitos järjesti Haukiputaalla 2010 tiedotustilaisuuden alueen maanomistajille.

Tilaisuudessa maanomistajat ilmoittivat kiinnostuksensa teettää maanmittauslaitoksella 5720 ha metsäalueelle tarveselvityksen, jonka valmistuttua he hakivat 2011 tilusjärjestely- ja yhteimetsätoimitusta ko. alueelle. Yhteismetsä perustettiin toimituksen aluksi 2013 ja varsinainen tilusjärjestely suoritettiin vuosina 2013-2017.

Jakosuunnitelma valmistui tammikuussa 2017. Metsää järjesteltiin 6216 ha alueella. Palstakoko kasvoi 11,1 hehtaarista 25,5 hehtaariin. Palstojen lukumäärä putosi 574:stä 224:ään. Alueelle perustettiin myös 1702 ha yhteismetsä, jonka lähtötilanteen 98 palstaa järjesteltiin 15 palstaksi.

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1. INTRODUCTION

The aim of Finland's national forest programme is to ensure employment and a livelihood that is based on forests, the biodiversity and vitality of forests and the recreational uses the forest offers every member of the public. The forest programme is based on the Forest Sector Future Review that was unanimously passed by the Forest Council in 2006. The Forest Sector Future Review outlines the focal points and aims related to the forest sector. One of the focal points (3.3.3) of the Forest Sector Future Review is to improve the sizes of forest properties and the structure of forest ownership: "The prerequisites for keeping a forest property contiguous and for increasing the size of forest properties must be improved and alternative forms of ownership must be developed." (Ministry of Agriculture and Forestry, 2006 translation by NLS).

In Finland, the property division and ownership of forest properties are severely fragmented in many places, and thus unprofitable from the forest management point of view. The average size of a forest holding is small, approx. 30 hectares, which damages the profitability of forest management. As forest-based business becomes more common, the average size of forest holdings increases and the average age of forest owners decreases. This means that the owners become more active in utilizing forest resources. Currently, the average age of forest owners is increasing, which means that, for example, sufficient encouragement for generation changes needs to be provided. A larger average size of forest holdings can improve the cost-effectiveness of forest management, as well as making it possible to take environmental concerns into account when planning the use of forests. Preconditions for business-like and active forest management must be provided by, for example, developing taxation and improving the structure of forest ownership and property division in forested areas. (Ministry of Agriculture and Forestry, 2015, translation by NLS).

In the Regional Forest Programme of North Ostrobothnia for 2006–2010 (Finnish Forest Centre, 2006, translations by NLS) the following is stated concerning the parcel division of the forest areas in the district: "When forest ownership is splintered and forest owners become estranged from their own forests, this decreases the availability of wood and forest management."

The structural properties of forest holdings in the area are mentioned in the programme as follows: "Forest holdings are small and their shape is unsuited to forest management."

In the section on increasing efficiency and improving productivity the regional programme lists the following means of dealing with problems:

- To decrease the splintering of forest ownership and to mitigate the effects of such splintering.
- To create new forms of forest ownership to prevent further splintering.

The matters mentioned above have also demanded action by the National Land Survey to improve the property division of forests, in particular in areas that were flagged in the study by Airaksinen et al., such as Haukipudas.

2. GENERAL INFORMATION ABOUT OULU AND THE ULKOMETSÄ AREA OF HAUKIPUDAS

The area of the land consolidation procedure is a part of the City of Oulu. Most landowners in the area live in the neighborhood of Haukipudas.

Oulu is a part of the region of North Ostrobothnia and the Oulu sub-region. Oulu is located approx. 600 kilometers north of Helsinki. Oulu is a city whose population has increased by approx. 3,000 inhabitants annually during the last few years. At the start of 2017 its population was 200,466. The area of the City of Oulu is approx. 3,880 km². (Statistics Finland 2016)

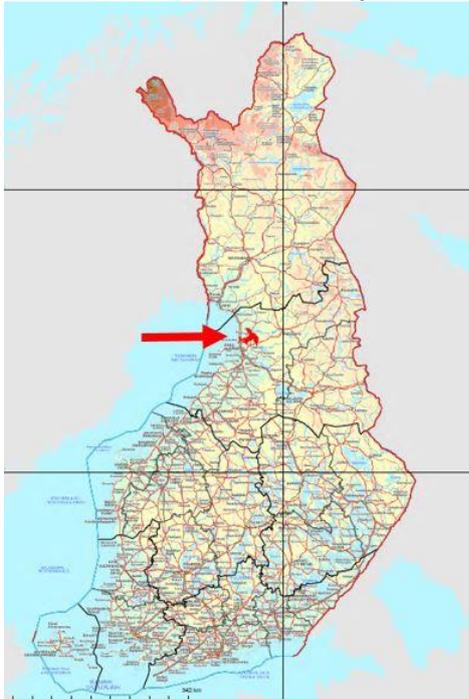


Figure 1. The location of the area (Source: National Land Survey 2017)

Oulu has a long industrial tradition. In the area there is, in addition to electronic industry, several companies in the wood, construction and services sectors and industrial facilities.

Haukipudas is distinguished by being near the shore and by the river Kiiminkijoki, which runs through the borough. The forested areas of Haukipudas are mostly located in the north-eastern corner of the borough. This is also where the consolidation area is located.

The Ulkometsä land consolidation area is located approx. 20 kilometers north-east of the center of Haukipudas and 15 kilometers north of Kiiminki center. The Kiiminki–Yli-Ii highway and the river Martimojoki run through the area. There are no fields in the area, however, there are about two dozen vacation homes, mostly in the proximity of the river Martimojoki and on the shores of small lakes.

The land consolidation area of Haukipudas is mainly intended for commercial forest management. In the area there are 468 forestry holdings, parcels of holdings or shares in common areas.

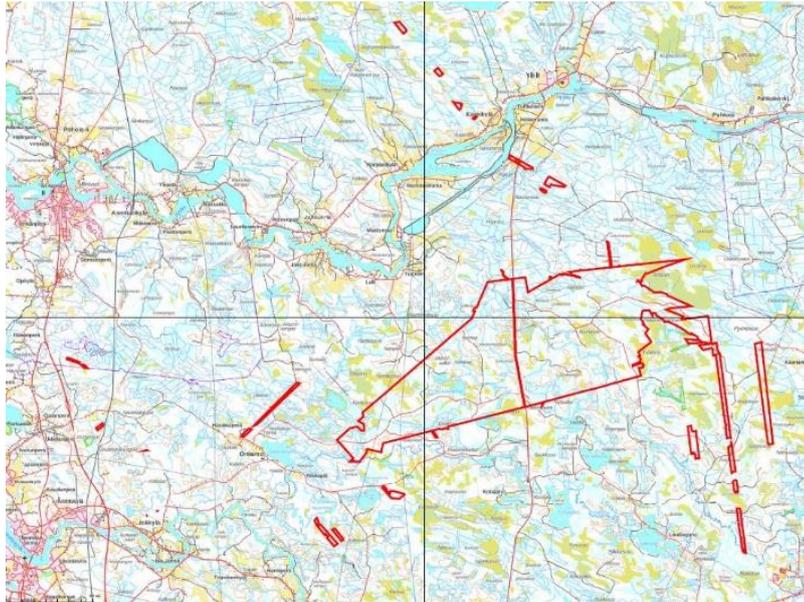


Figure 2. Land consolidation area (Source: National Land Survey 2017)

The main problems in the Ulkometsä area were the banded parcels, splintering and a parcel shape that is unsuitable for forest management, the lack of clarity of property boundaries and a partly insufficient drainage and road network. Some forest holdings in the area do not have official rights of way, particularly in the meadows area. Some of the properties in the area have during the Basic Land Consolidation been appropriated for use as meadows, following the boundary zones of marshlands at the time. Following a forest drainage project in the area in the 1970s, tree growth has improved and the boundary between the original marshland and heathland has disappeared. Today, the boundaries of meadow parcels are in many places difficult to distinguish in the terrain. In addition, the parcels in the area have been further splintered in several reallocations following the Basic Land Consolidation. One distinguishing characteristic of the Ulkometsä area are several jointly owned parcels, whose administration is inadequate. Most drainage ditches in the area are more than 30 years old and for that reason, a small number of ditches are in poor condition and need refurbishing. Although the area that needs refurbishing is small, the condition of ditches begins to deteriorate rapidly after 20 years.



Figure 3. The usability of Ulkometsä parcels for forest management (Source: National Land Survey 2011)

3. NEEDS ASSESSMENT

Following the information meeting for landowners in 2010 concerning the forest land consolidation, the National Land Survey was asked to write a report on advantages of and support for a land consolidation procedure and a jointly owned forest. The preliminary area concerned by the needs assessment was decided in summer 2010. Following the information meeting for landowners concerning the needs assessment in May 2010, the landowners were interviewed. In late winter and early spring of 2011, landowners on the eastern side of the Yli-Ii highway were heard, because the area was extended.

The final report of the study was written on the basis of the North Ostrobothnia Forest Centre's regional forest plan for the area and landowner interviews and a questionnaire. Through the interviews and questionnaires, the study was conducted to learn about each landowner's use of forests, future plans and the needs for refurbishment. In addition, the needs assessment process was covered and the willingness of landowners to participate in the land consolidation and the formation of a jointly owned forest were studied. The information in this section concerning the needs assessment has been collated from the final report of the assessment (National Land Survey 2011).

According to the report, it was estimated that in a forest area of approx. 5,440 hectares, the average size of forest parcels could be increased from 7.4 hectares to 15 hectares by proceeding with the land consolidation. In addition to increasing the size of forest parcels, by placing the parcels in new

locations and by building wider verges, the average distance of timber transport could be shortened from approx. 500 meters to 300 meters. The growth of forests in the area could be increased by draining the forests. When the parcel structure becomes clearer and each parcel larger, the property boundaries, ditches and logging roads require less land, which means that the area where forest could be planted would grow by as much as 350 hectares.

The jointly owned forest that may be formed in the area could be as large as 3,200 hectares, according to interviews.

In the area covered by the assessment, forest land covered 5,438 hectares, of which 3,910 hectares (72%) were suitable for profitable forest management and the remainder (28%) consisted of forest land of low productivity or non-productive land. The area was split between 250 forest holdings and 531 parcels. There were a total of 201 units of use (unit of use = all holdings owned by the same owner). The average size of forest holdings was 21.8 hectares, the average size of units of use 27 hectares and the average size of parcels 10.1 hectares.

- parcels less than 2 hectares approx. 33%
- parcels between 2 and 5 hectares approx. 22%
- parcels between 5 and 10 hectares approx. 19%
- parcels more than 10 hectares approx. 26%

There were 16 jointly owned areas consisting of 61 parcels, total area approx. 549 hectares.

Due to the banded property division, the land that is taken up by logging roads and boundaries is as much as 11.7% per parcel (429 ha).

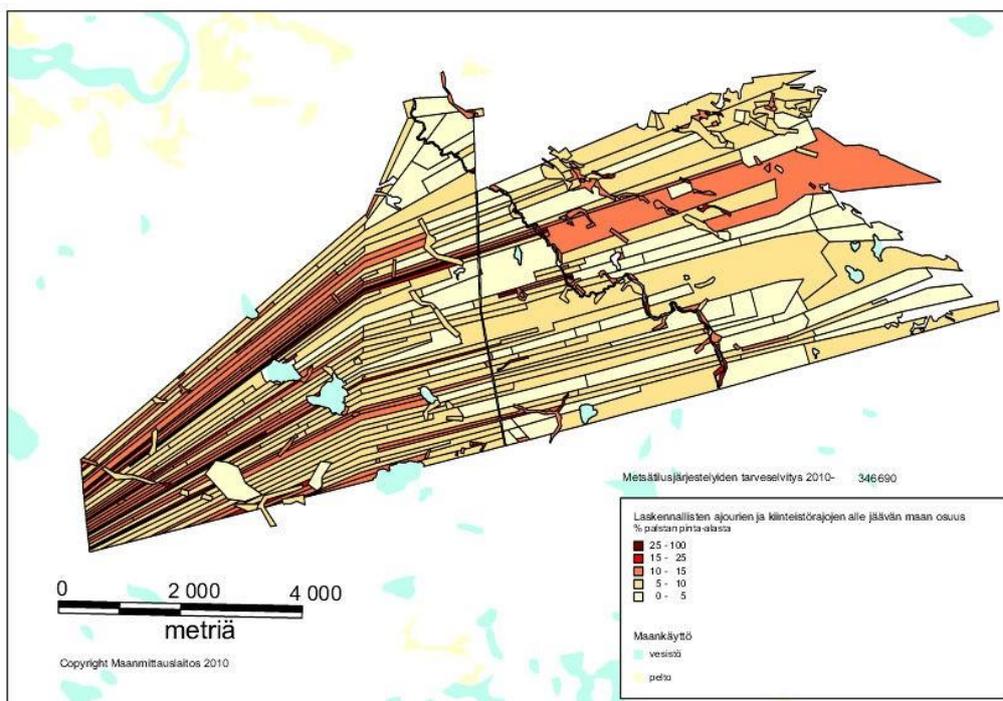


Figure 4. Proportion of land area covered by boundaries and logging roads (Source: National Land Survey 2011)

Landowners provided feedback concerning the needs assessment in mutual negotiations, by telephone, on questionnaires, during a general meeting and in feedback concerning the final report. Landowners were requested to provide feedback concerning the report in June 2011 and 75 landowners provided it.

During interviews and in feedback concerning the proposal for action, out of the owners of a total 201 units of use, the owners of 35 units of use were opposed to the proposed land consolidation or thought that they would not profit from an eventual cadastral survey. The area of the holdings of the opposing owners is in total 541 hectares (10.0% of the total area covered by the needs assessment). The owners of 87 units of use supported the proposed land consolidation. The total land area of their holdings in the area covered by the needs assessment is 4,323 that is 80%. The owners who provided feedback represented 4,865 hectares that is 90% of the total area covered by the needs assessment. The land area owned by landowners supporting the proposal is 89% of the area covered by the needs assessment, and that owned by opposing landowners is 11%.

During the interviews, the landowners were also asked if they were interested in forming a jointly owned forest in the proposed land consolidation area. In total 59 units of use expressed an interest in a jointly owned forest. The total area covered by these is as large as 3,141 hectares, which is 59% of the land suitable for profitable forest management.

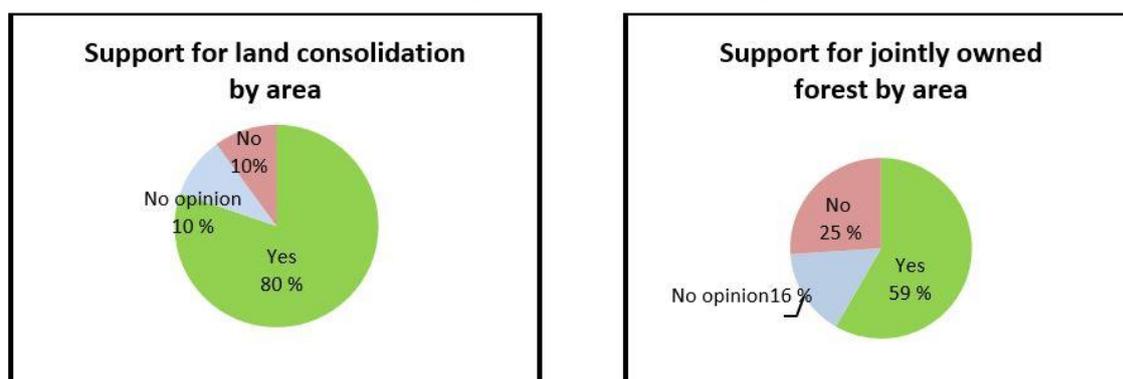


Figure 5. Support for the project (Source: National Land Survey 2011)

The National Land Survey estimates that the costs and benefits of the project are as itemized in the following tables. The final cost-profit calculation will be made once the land consolidation is complete and the real costs of the project are known.

Land consolidation	180 €/ha x 5,438 ha	978,840 €
(landowners' share 20%, i.e. 195,768 € i.e. 36 €/ha)		(180 €/ha)
(state subsidy for forming a jointly owned forest 100%)*		
Refurbishing:		
Reurbishing drainage ditches (200 ha)	56,000 m x 0.7 €/m	39,200 €
Ditch verge	2,000 m x 0.7 €/m	1,400 €
Refurbishing road and drainage networks total (VAT 0%)		40,600 €
(landowners' share 45 % i.e. approx. 18,200 €, (3.3 €/ha))		(7,4 €/ha)
Total costs of the project		1,019,440€
(landowners' share approx. 214,000 € i.e. 39.3 €/ha)		(187,4€/ha)

Figure 6. Estimated costs of the project. (Source: National Land Survey 2011)

Ulkometsä at Haukipudas	
Benefits	€/ha
	interest 5%
Roads	35
Drainage	13
Benefits from refurbishing tot.	48
Better harvesting conditions	18
Stands marked for cutting when the ground is not frozen	8
Cost savings in caring for young trees	7
Logging increases	197
Increased activity in forest management	5
Increased area of managed forest	32
Annulling jointly owned areas and reallocation of meadows	54
Benefits from land consolidation tot.	321
All total benefits	369

Figure 7. Estimated benefits of the project. (Source: National Land Survey 2011)

The State pays for 80% of the costs of the land consolidation and 100% of the costs of forming the jointly owned forest.

4. JOINTLY OWNED FOREST AND LAND CONSOLIDATION

The land consolidation procedure started with a meeting in December 2011. The cadastral surveyor responsible for the procedure was Pekka Törmi, M.Sc. (Tech.). The following proceeding was agreed with the parties: in the first stage, the landowners interested in participating in a jointly owned forest were asked to express their interest and then the jointly owned forest was formed. When the extent of the jointly owned forest was known, the actual planning of the consolidation and the land consolidation itself were initiated. The negotiations concerning the formation of the jointly owned forest were completed in 2014, which included a total of 102 forest holdings consisting of 98 parcels and covering an area of 1,677 hectares. The discrepancy between the area of interested parties in the needs assessment is explained by the fact that a large forestry company (1,700 ha) that was interested in participating in the jointly owned forest, declined to participate in it during negotiations.

The valuation of standing timber started in 2012 and continued until 2013. The valuation was performed by professionals from Oulun Seudun metsänhoitoyhdistys (forestry society) and the final calculations were completed by Forest Officer Esa Ärölä at the National Land Survey.

The planning of the reallocation started with interviews in 2014–2015 and the first reallocation plan was completed in October 2016. On the basis of feedback concerning the first plan, the second and final reallocation plan was drafted in January 2017. National Land Survey employees in Oulu handled the planning of the reallocation and the negotiations with landowners.

The planning of the reallocation started out with the idea of forming the main parcel of the jointly owned forest in the area with the poorest property division. Vacation homes and particularly valuable properties were separated from the area with as small changes as possible. In the area, there were also some parcels that had a good shape and that were left as they were. Following this, a reallocation plan was drafted, taking into account the opinions of the parties and sensible land use.

5. RESULTS

Following interviews, the final size of the cadastral survey area was determined to be 6,216.48 hectares. In the area there were 468 registered ownership units consisting of a total of 572 parcels. There were also several jointly owned areas.

At the start of the cadastral survey, a jointly owned forest was formed among willing participants, consisting of 102 shareholder holdings owning a total of 1,678 hectares of land in 98 parcels in the reallocation area. Figure 8 shows the parcel division and the parcels comprising the jointly owned forest (emphasized in red) before the land consolidation took place.



Figure 8. Initial situation. (Source: National Land Survey 2017)

The reallocation plan was completed in January 2017. Promising results were accomplished through expropriation, annulment of jointly owned areas, combining parcels and improving the shape of parcels. Following the land consolidation, the jointly owned forest consisted of 15 parcels (98 before the consolidation). The area of the jointly owned forest was 1,677.5 hectares before the consolidation and 1,702 hectares after it. The largest parcel of the jointly owned forest is 1,231.8 hectares. The remainder of the privately owned holdings were reallocated so that the 468 register units at the start decreased to 169 units. The number of parcels decreased from 574 to 244. The average size of holdings increased from 27 hectares to 36.6 hectares and the average size of parcels increased from 11.1 hectares to 25.5 hectares.

In addition to the jointly owned forest, 169 privately owned units of use were formed in the area, with an average size of 26.9 hectares. In the area, these holdings have 229 parcels, whose total area is 4,538.98 hectares. Therefore, the average size of parcels of these holdings is 19.8 hectares, whereas it had been 7.4 among those who were not interested in joining the jointly owned forest. Figure 9 shows the jointly owned forest in the central area emphasized in red and the new boundaries of the area in blue.

Through the land consolidation, the parcel division in the area was considerably improved by changing the shape of forest parcels and increasing their size. In addition, in conjunction with the land consolidation project, it is possible to improve the drainage in the area and build roads to the forest parcels.

Forming a large, contiguous jointly owned forest in conjunction with a land consolidation procedure brings many advantages in comparison with forming a jointly owned forest without land consolidation.



Figure 9. End situation. (Source: National Land Survey 2017)

6. POINTS TO CONSIDER

The land consolidation project in the Ulkometsä area at Haukipudas has been important for forest management in the area. Through land consolidation and forming a jointly owned forest it is possible to significantly and permanently improve the operational preconditions for forest management in the area. At the same time, this is a response to the challenges set by the structural developments in forest management and an improvement of the opportunities for wood production in the area.

The most recent National Forest Strategy focuses more intensely than before on the need to utilize the unused timber resources available in the production of bioenergy. (Ministry of Agriculture and Forestry, 2015, translation by NLS). The National Forest Strategy mentioned above also references the changing ownership of forests, which demands new ways of owning and managing forests. Now the delays in logging and caring for the forests will start to be remedied. The difference between active (cared for) and passive (not cared for) forest management is significant, as shown by a study (Ahtikoski 2005).

In my opinion, the property division that was formed during the Basic Land Consolidation in the 1860s has been successfully modernized in the Ulkometsä area at Haukipudas by conducting a land consolidation procedure and a cadastral survey for the formation of a jointly owned forest in the area.

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BIOGRAPHICAL NOTES

For 39 years I have been employed by the National Land Survey, holding various positions as a cartographer. During the last 34 years, my work has mainly consisted of tasks related to land consolidations, particularly concerning public relations. In addition to vocational studies, I have studied geography at the University of Oulu. I have worked together with Lantmäteriet in Sweden concerning land consolidations in forested areas.

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