

# **Forest Land Consolidations and Jointly Owned forests - the way towards better Forestry Competitiveness**

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**Key words:** Land Consolidation, Jointly Owned forests, forestry competitiveness

## **SUMMARY**

Proportioned to its surface area, Finland is Europe's most forested country. Of Finland's surface area, 70% is woodland. The land divisions conducted over the centuries have given rise to many holdings whose land structure is inappropriate. As a result of vigorous urbanization and the aging of the population, the ownership structure of forests has also become fragmented. With regard to the owners of forests, a larger share than before is unable or does not know how to maintain their forests.

This problem has already been acknowledged for long, but it is not until the difficulties of the last few years within the Finnish forest industry to obtain domestic raw materials at a competitive price that a process has been initiated to improve the situation.

The community has considered various means to resolve the problem. It is hoped that the promotion of forest land consolidation and jointly owned forests is the solution to prevent the fragmentation of the property and ownership structure of woodlands.

The experiences in prior forest land consolidations and the establishment of jointly owned forests conducted previously indicate that with these measures clear benefits can be achieved for both land owners and the community. The widespread use of these measures requires both national and regional information distribution to actors in the forestry field as well as to forest owners. The "selling" of rather unusual operational modes to landowners is, however, difficult and requires its own time before words can be converted into practical deeds. A few pilot projects have already been launched, and as they show success the experiences obtained from them will function as good sources of information for information distribution.

## TIIVISTELMÄ

Suomi on pinta-alaansa suhteutettuna Euroopan metsäisin maa. Suomen pinta-alasta 70 % on metsämaata. Vuosisatojen kuluessa tehdyt maajaot ovat synnyttäneet paljon tiloja, joiden tilusrakenne ei ole tarkoituksenmukainen. Voimakkaan kaupungistumisen ja väestön ikääntymisen myötä myös metsien omistusrakenne on pirstoutunut. Metsien omistajista entistä suurempi osa ei pysty tai osaa hoitaa metsäänsä.

Tämä ongelma on ollut tiedossa jo pitkään, mutta vasta Suomen metsäteollisuuden viime vuosien vaikeudet saada kotimaista raaka-ainetta kilpailukykyiseen hintaan on käynnistänyt prosessin tilanteen parantamiseksi.

Yhteiskunta on miettinyt erilaisia keinoja ongelman ratkaisemiseksi. Metsätilusjärjestelyjen ja yhteismetsien perustamisen edistämisen toivotaan olevan yksi ratkaisu metsien kiinteistö- ja omistusrakenteen pirstoutumisen ehkäisemisessä.

Kokemukset aikaisemmin suoritetuista metsätilusjärjestelyistä ja yhteismetsien perustamisista osoittavat, että näillä toimenpiteillä on saavutettavissa selkeitä hyötyjä sekä maanomistajille että yhteiskunnalle. Näiden toimenpiteiden laajamittainen käyttö edellyttää sekä valtakunnallista että alueellista tiedottamista niin metsäalan toimijoille kuin metsänomistajille. Hieman vieraiden toimintatapojen ”myyminen” maanomistajille on kuitenkin vaikeaa ja vaatii oman aikansa, ennen kuin sanoista päästään käytännön tekoihin. Muutamia pilottihankkeita on jo käynnistynyt ja onnistuessaan niistä saadut kokemukset toimivat hyvinä tiedottamisen tiedonlähteinä.

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## 1. BACKGROUND

### 1.1 General

Proportioned to its surface area, Finland is Europe's most forested country. Of Finland's surface area, 70% is woodland. In the area of the European Union, the corresponding figure is 37% on average. The significance of the forest sector in Finland is substantial. The share of the forest sector respective to Finland's gross national product is almost 10% and the share of net export income is almost 40%. The foundation of the forest sector is a strong forest industry and profitable forestry. Securing these matters will create a strong basis for survival in increasingly harsher international competition. An appropriate property and ownership structure for forests on its part is impacting the profitability of the forest economy.

### 1.2 The history of Finland's property formation

#### 1.2.1 Open field system

Prior to the 18th century, the open field system was dominant. The State wanted to firm up the weak relationship between taxation and ownership. Each house received, in accordance with its surface area, a share of the land consolidation area. A rod was used in measurement. The fields found in the various plots thereby assumed the same width. The open field system affected almost exclusively the country's most populated part of West Finland, where it was applied for several centuries from the 1300s to the 1700s. In the absence of village habitation, East Finland was not affected by the system (Wiiala 1952).

#### 1.2.2 Basic land consolidation

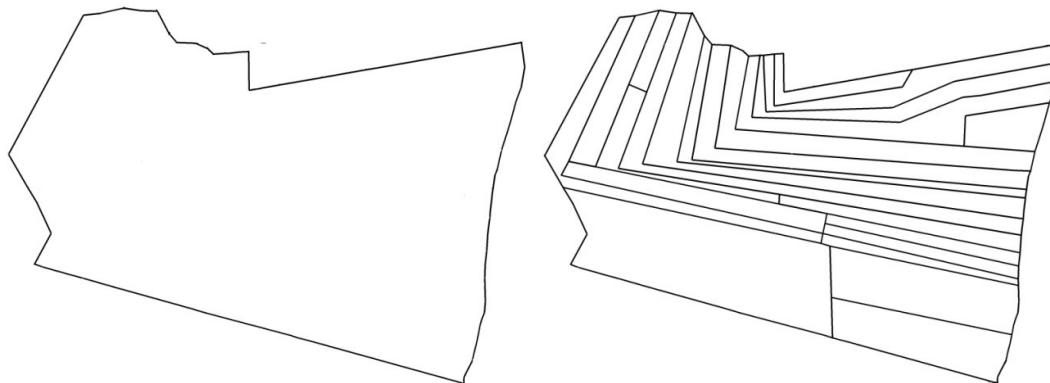
With the further development of rural conditions, the disadvantages of the open field system began to emerge more clearly. The need became evident for reorganizing land consolidation. In order to attain this goal, the individual field pieces separated by the open field system with each house would be combined into large plots. The name for this method of distribution began to be called *basic land consolidation* (storskiften). Prior to basic land consolidation, the forests were mutually enjoyed, but fears developed as a result of the strengthening of the forest industry that the forests would be devastated and even become extinct. In connection with basic land consolidation, other types of land as well (e.g. forests) were specified and separated from state-owned lands. The principle behind basic land consolidation was that each house obtained, in accordance with its share, all types of land. The rationale for distribution

was the tax figure of the house. In the beginning, no targets were set in relation to the plot figure (Wiiala 1952).

### 1.2.3 Property distribution after basic land consolidation

Because of many limiting factors, holdings were generated in basic land consolidation which were inappropriate in terms of the location of the land. These holdings, too, were satisfactory in undistributed form for the requirements of the time. The State authorities have always intermittently set limits on the fragmentation of holdings. The decree issued in 1916 eliminated the very last restrictions with respect to surface area. The constant increase of population and the one-sidedness of livelihoods, particularly in the coastal regions of Ostrobothnia, resulted in the continuous fragmentation of holdings. The holdings were frequently distributed amongst the children, so that holdings that were already long were divided lengthwise for all heirs. This guaranteed that all children received their equal share of good and poor land. As this sort of development continued for centuries, the current property structure is quite poor in many places. This problem of fragmentation was noted decades ago, but in the absence of legislative tools the fragmentation of holdings has continued (Alho 1967).

The figure below shows the fragmentation of a certain forest plot situated in the municipality of Ii, from basic land consolidation to the present day. The plot was originally 130 ha, but has been later distributed by the landowners into 22 separate forest plots. The average size of the plots is now 6 ha.



**Figure 1: A forest plot in the municipality of Ii in 1865 and the same area in 2010**

## **1.3 Change in the ownership structure of property**

The largest proportion (59%) of Finnish forests is owned by private forest owners. At the outset of the 20<sup>th</sup> century, farms owned virtually all private forests. The structural change in the Finnish community which gained momentum during the latter part of the 20<sup>th</sup> century is also reflected in forest ownership. There are fewer agricultural holdings than before and the ownership structure of forests has increased in diversity. Currently, almost every fifth Finn belongs to a family that owns woodland. As a result of urbanization, forest owners reside

more and more outside rural areas. The share of pensioners, women and estates of the deceased amongst forest owners has grown vigorously during the last few decades.

As a result of the change in the ownership structure of forests, the goal of more and more forest owners is something else besides wood production – for example, the recreational use of woodlands. Part of the forests remain outside wood production entirely or untended, because forest owners who are city dwellers do not have the time or know-how to maintain their forests (MMM 2006).

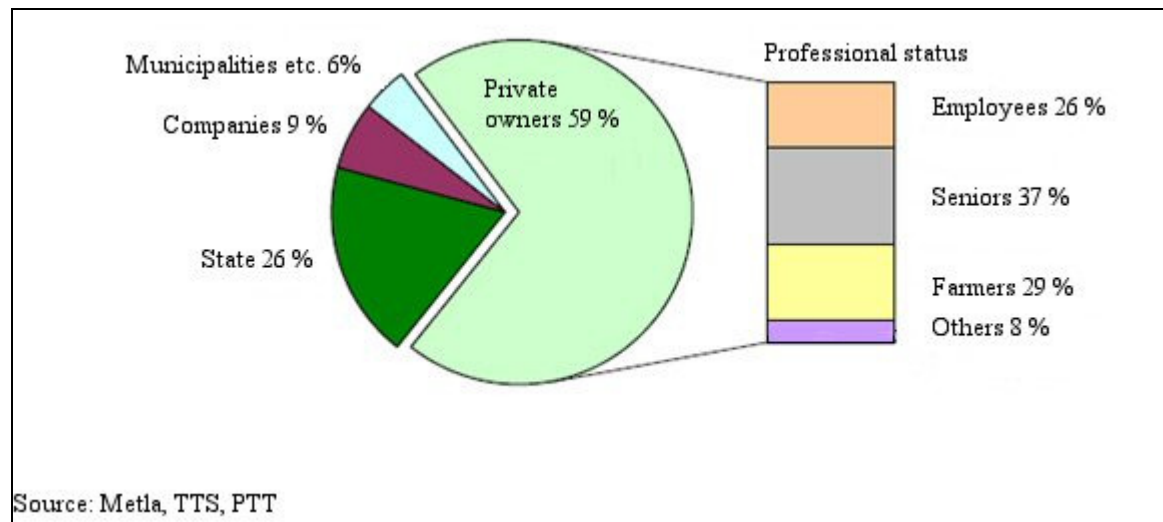


Figure 2: Distribution of forest ownership in Finland, 2006

## 2. THE DIFFICULTIES OF FINLAND'S FOREST INDUSTRY

Finnish forest industry enterprises are amongst the world's largest in the field and have dynamically internationalized. During the first decade of the new millennium, the forest industry has had difficulties in obtaining domestic raw materials at competitive prices. Raw wood is imported, particularly from Russia. Notification from Russia of considerable increases in wood export duties has brought wood import from Russia to a virtual standstill. Partly on the basis of the above-mentioned reasons, Finland's forest industry has reduced its capacity significantly by closing down many wood-processing plants in various locations in Finland. At the same time, the companies have nevertheless built new factories in cheaper raw material nations. In Finland, the search has begun to find ways to halt this development and improve the profitability of the forest industry.

## 3. WHAT ATTEMPTS ARE UNDER WAY TO OVERCOME THESE DIFFICULTIES?

### 3.1 National Forest Programme 2015

Among other things, the impacts of global competition and Russia's wood export duties as well as the European Union's climate and energy policy decisions on the operational prerequisites of the forest sector have reinforced the need to renew Finland's forest-related policies and measures.

The Government approved the National Forest Programme in 2008. The goal of the latter is to increase citizens' prosperity by utilizing forests comprehensively on the basis of the sustainable development principle. The basic starting point for the programme is that production and service functions based on forests and wood can be renewed and expanded so that operations are socially acceptable, economically profitable and ecologically, socially and culturally sustainable. The task of the government is to establish the sort of prerequisites to allow for the beneficial exploitation of forests in a competitive manner.

The National Forest Programme 2015 is made up of six priority areas, whereof one is the nurturing of competitive operational requirements for the forest industry and forestry. This priority area comprises the goal to improve the profitability of private forestry and increase the average size of forest holdings. The goal is to raise the average size of forest holdings from the current 24 hectares to 50 hectares by the year 2050.

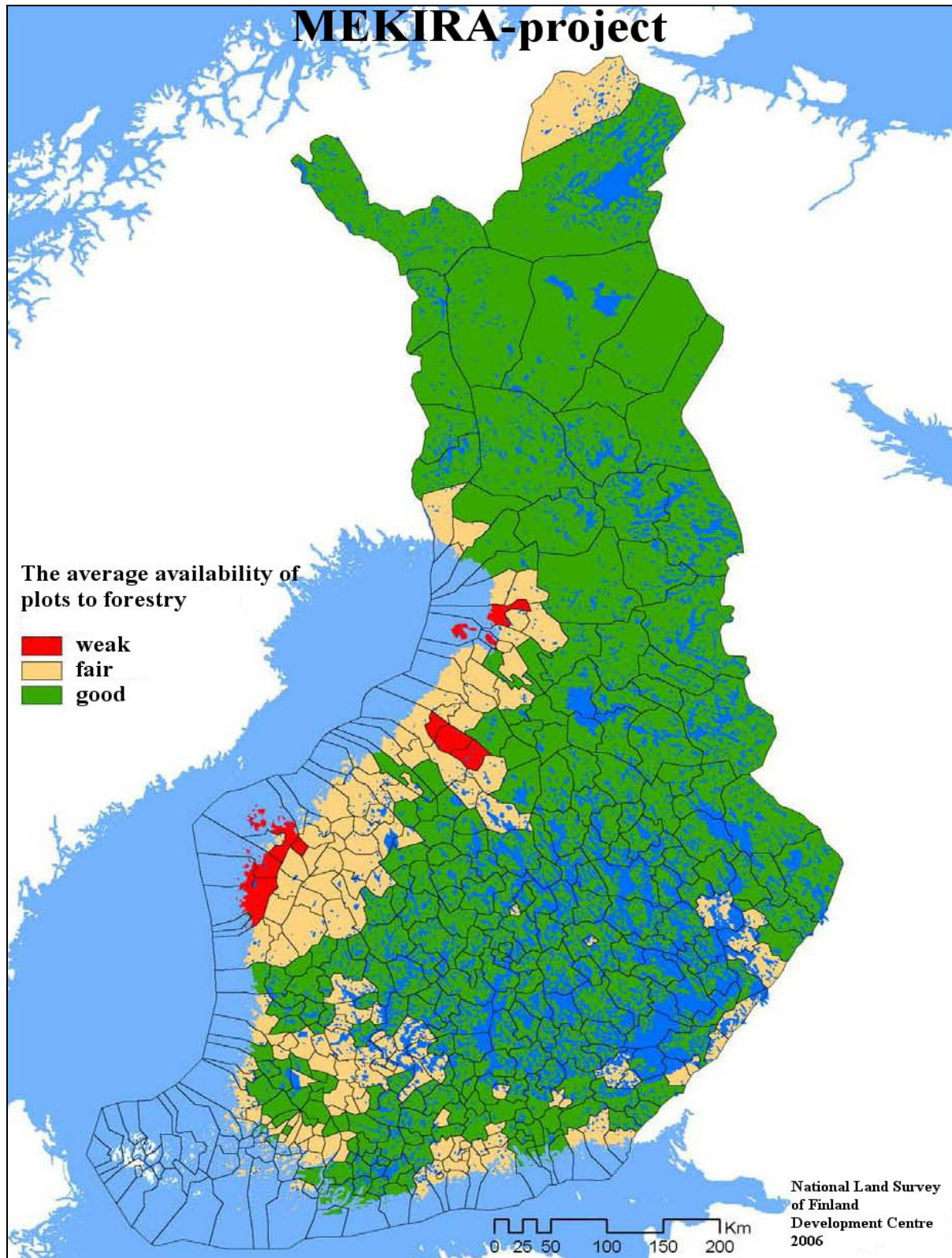
One way to reach this target is to develop the practice of redistribution of forest holdings to improve the landed property structure and as a form of forest ownership for jointly owned forests, and also to increase the communications and guidance regarding the same. The National Land Survey of Finland is involved in the promotion of this aim together with actors in the forest sector (MMM 2008).

### **3.2 Report on property structure of forests (MEKIRA)**

Tools have been developed at the National Land Survey of Finland for the inspection of forests-based property structure according to area. By means of earlier reports and inquiries performed for various forest organizations, an analysis method (theme maps and the calculation of statistical key figures) based primarily on the form and size of forest plots as well as various types of geographical information was developed in the Mekira project. The procedure mentioned is an aid in determining where possible problematic areas from the perspective of forestry profitability are located. Developed in the Mekira projects and applied by the National Land Survey of Finland, the geographical information programmes and related data developed enable property structure analyses effectively throughout the entire country. By utilizing this tool as an aid, it is possible to print average availability of plots-based maps on a municipality-by-municipality basis or by reference to the municipalities' subregions (MML 2007).

Figure 3 shows a map produced by the Mekira project in which the average availability of plots for forestry is clarified. The availability index is reported from municipality to municipality. There may be quite significant differences in the availability of plots within a municipality. As may be noted from the map, the poorest availability areas tend to be based in

West Finland, where other aspects as well beyond that of the property structure of the forests are particularly unsatisfactory.



**Figure 3: Forest plots availability map, Finland as a whole (holding level)**



### **3.3 Information distribution campaigns**

Together with forest field actors, the National Land Survey of Finland has launched information distribution campaigns required by the National Forest Programme. Some of the campaigns are nationwide and some are regional projects led by District Survey Offices.

In these information distribution campaigns, the focus is on communicating the disadvantages of the poor property and ownership structure as well as explaining the means to reduce these impacts. In the events emphasis is put on the weakest areas of the property and ownership structure. The purpose of these events is to promote the implementation of forest land consolidation and the establishment of jointly owned forests by raising people's level of awareness.

## **4. FOREST LAND CONSOLIDATION AND JOINTLY OWNED FORESTS**

### **4.1 Forest land consolidation**

In Finland, the main emphasis in land consolidation during the last few years has been in field areas and the formation of conservation areas. Individual forest land consolidation has primarily been carried out in the area of the Northern Ostrobothnia region. The experiences gained from this land consolidation have aided in developing a new mode of operation. The process applied in field land consolidation is noted as being suitable, with quite minimal changes, for forest land consolidation as well.

Clarification of need always precedes forest land consolidation. Here, the possibilities for improvement in the area's property structure, the land improvement requirements (roads and ditches) and owners' support for possible land consolidation are determined and a cost-benefit analysis is performed. This clarification is conducted in close cooperation with the area's land owners and local operators in the forest field. After the report is completed, the land owners in the area decide whether they will continue with the land consolidation assignment or abandon the project entirely.

In forest land consolidation, the project area's forest plots are reorganized. From the perspective of engaging in forestry, the goal is better-modelled and larger forest plots than previously, which obtain official rights to access from a public or private road. In the same area, measures improving forestry-related operational prerequisites, such as the building of forest roads and restoration draining, are carried out. In connection with these operations, jointly owned forest for example can be established, or the establishment of a conservation area planned for the area can be further promoted.

#### **4.1.1 Benefits of forest land consolidation**

The benefits of forest land consolidation will be realized over a long period of time, because the rotation period of the forests in Finland is almost 100 years. During this period, logging

proceeds can be obtained from the forest 2–4 times at maximum. On the basis of forest land consolidations carried out previously, it can be concluded that many types of benefits have been achieved through such reorganization. A clear property and ownership structure brings benefits not only to the individual landowner but also to the community since, for instance, the formulation and processing of various plans, notices and applications is clearer.

With the growth in plot size, the surface areas of forest patterns also grow, whereupon the size of the forests to be cut increase and the form improves. Growth in the size of the forest to be cut reduces harvesting costs, which on its part raises the prices of standing timber paid for the forest to be cut. Vegetative woodland increases when, e.g. less land remains under the boundary lines and roadways.

Land consolidation together with the forest roads to be built increases the surface area of forests to be cut during the area's melting period. This has, especially as a result of the last few mild winters, a greater impact than before on the price of standing timber paid. When access to the plot is accelerated, maintenance work is more efficient and more economical.

According to the previous land consolidations completed, the fellings of the reorganized area and active silviculture increase as a result of improved conditions. According to the report by the National Land Survey of Finland, forest stand output can be raised €300/hectare for the rotation period of the forest stand, if the maintenance work and first thinnings are done in time (Honkanen 2008).

## **4.2 Jointly owned forest**

As a form of ownership, this joint ownership bound to properties is an old one. Jointly owned forests were established on the basis of various laws from the 19<sup>th</sup> century onwards. Jointly owned forests are private lands. Jointly owned forest represents an area of combined holdings intended for the practice of sustainable forestry for the benefit of partner holdings.

Forest owners can agree on the establishment of jointly owned woodlands. A prerequisite is that their lands make up an appropriate whole. At present, there are over 160 individual jointly owned forests in Finland. Their surface area totals approximately 530 000 hectares, which is about 3.5% of the area of our private forests. The smallest jointly owned forest is 20 hectares in size, and the largest – Kuusamo's jointly owned forest – totals nearly 85 000 hectares.

The community supports the establishment of jointly owned forests, because an attempt is being made through the same to prevent the fragmentation of forest ownership. By means of jointly owned forests, it is possible to form more efficient and larger forest areas in order to increase the profitability of the forest economy. There are many kinds of advantages to jointly owned forests compared to forest ownership by private persons.

Jointly owned forest is a trouble-free and productive form of ownership. Jointly owned forest is treated in accordance with the forest plan, which ensures smooth and continuous revenue

for the jointly owned forest shareholders. When forest is maintained as a larger entity, unit costs decline and sales proceeds obtained from the wood grow. As a jointly owned forest partner, the forest owner continues as a forester: s/he has only transferred the tasks to do with silviculture, the wood trade and administration to mutually selected trustees and forest professionals. Transfer to the next generation is also easy to implement through the transfer of jointly owned forest shares.

## **5. LAND CONSOLIDATION OPERATIONS IN NORTHERN OSTROBOTHNIA**

### **5.1 General**

During the last few years, the main emphasis of land consolidation in Northern Ostrobothnia, as in Finland as a whole, has been in field land consolidation. However, in these projects, there has nearly always been forest areas involved, though the main purpose of land consolidation has been the improvement of land consolidation structure regarding fields. At the Northern Ostrobothnia District Survey Office, there are decades of experience behind the performance of land consolidation.

During the course of three decades in Northern Ostrobothnia, 17 instances of land consolidation have been undertaken, whose combined surface area has been over 100 000 hectares. Woodland as part of this surface area has comprised approx. 80 000 ha. The number of projects in progress or anticipating launch is currently over 20 with a combined surface area of approx. 25 000 ha. These projects primarily concern field areas. In addition, there are 10 areas at the need clarification stage with a combined surface area of over 20 000 ha. Of these, three concern forest areas exclusively.

In the area of Northern Ostrobothnia, three forest land consolidations exclusively concerning forests have been implemented, whose combined surface area has totalled approximately 17 000 ha. In these arrangements, the main emphasis has been on improvement in the requirements related to engaging in forestry, but the realization of other kinds of goals has also been linked as an essential aspect to two of the projects. In connection with the Siikajoki forest land consolidation, a conservation area of over 700 ha was established as well as 2000 ha of jointly owned forest in the land consolidation of Pahkakoski, Ii.

In Northern Ostrobothnia, the local Regional Forestry Centre and District Survey Office have engaged in cooperation in forest land consolidation for years. During the last few years, cooperation has been concentrated in information distribution campaigns in which the detrimental effects of the property and ownership structure have been described. At the same time, landowners and other actors in the forest field have been encouraged to clarify the utility of forest land consolidation and jointly owned forests with respect to their own interests. This work is still being continued. As a result of the campaigns, a few new jointly owned forests have been established and clarifications of the need for forest land consolidation have been initiated in individual areas.

## 5.2 CASE Pahkakoski

Pahkakoski's land consolidation area was situated in the municipality of Ii, about 50 kilometres to the northeast of Oulu. The area does not have much permanent habitation; rather, it is for the most part an external forest plot of properties. The area comprised 4 900 hectares of woodland. It embraced over 200 properties with over 400 landowners. As shown in Figure 4, the land consolidation structure in the area was rather poor. Owing to the poor land consolidation structure, the area did not have a decent road network, and forest drainage was inadequate. Utilization of the wooded area's forest economy was minimal.

Scattered forest plots were combined in the land consolidation and jointly owned forest totalling 1 900 ha was established, with 149 properties joining in partnership. For some of the properties (total: 22) joining the jointly owned forest, a private forest plot of their own was formed, where they can, for example, make a personal visit to gather firewood, or where there is a connection to the Iijoki River, which flows in the region's northern section.

In connection with the distribution, 56 km of drivable forest roads were built and approximately 3 000 ha of forest were drained.



**Figure 4: Plots in Pahkakoski, Ii, before and after forest land consolidation**

## 6. CONCLUSIONS

The property and ownership structure of Finland's forests is very poor in places. This hinders the practice of profitable forestry. Some of the forests have already been left outside the forest economy, because their management is not economically practical.

State and forest field actors have begun to look for ways to correct the situation. A method to sever the development of fragmentation in the property and ownership structure of holdings is regarded to be, among other things, the promotion of forest land consolidations and jointly owned forests.

Implementing forest land consolidations and jointly owned forests represent unfamiliar measures to ordinary landowners, so they frequently relate to them rather sceptically. Both national and regional campaigns have been launched in Finland to increase the knowledge amongst actors in the forest field and landowners. This requires several years of systematic work before practical measures can be initiated on a comprehensive scale. A few practical pilot projects have already been launched in the West Finland region, and as they show success the experiences obtained from them will function as good sources of information for information distribution.

Northern Ostrobothnia has previous experiences with individual forest land consolidation and the establishment of jointly owned forests, as well as the advantages gained from the same. With forest land consolidation, clear improvements in the efficiency of the use of forests can be obtained in the areas of West Finland characterized by poor land consolidation structure. Jointly owned forest established in connection with land consolidation considerably increases the benefits of land consolidation, if the sort of landowners who agree to enter into joint ownership do not have the time or expertise to maintain their forests.

The establishment of jointly owned forests without land consolidation is worthwhile if the practice of forestry is thereby made more effective than that achieved by the actions of individual shareholders. The best benefit from establishing jointly owned forests is obtained if the area's property structure is in good condition or an extensive group of owners of neighbouring properties can be convinced to enter into joint forest ownership. In this manner, benefits are obtainable also for larger forests to be cut, for instance, and for expansion of recreational and hunting possibilities.

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## BIOGRAPHICAL NOTES

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