Estonia

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Facts and Figures

Katrin Heinsoo and Indrek Jakobson

Definitions

Coppice forests are considered a traditional form of passive silviculture that involves:

(1) repetitive felling on the same stump

(2) the meanings of "coppice" and "short-rotation coppice" are considered to be the same.

Coppice is very common, but not undertaken as a form of silviculture.

Lühikese raieringiga metsandus

Legal Framework

Coppice forestry, as with all of other forestry, is mainly regulated by two legal acts:

1) Estonian Forestry Law

2) Estonian Forestry Development plan 2012-2000.

Typology

Simple coppice	Historically common method of forest regeneration, but losing ground
Coppice with standards	No special standards for coppice
Pollarding	Only on roadsides and on islands
Short rotation coppice	Short Rotation Coppice is managed on agricultural lands Willow, Hybird Aspen, Grey Alder
Other types	Very few stands for environmental projects and scientific purposes (Estonian University of Life Sciences) Water cleaning in Tartumaa and Lääne-Virumaa counties, Hybrid aspen etc.; plantations

Images

Description

Katrin Heinsoo

Estonia is located on the border between coniferous taiga forests and broadleaf temperate forest. Hence, there is a large number of different forest types here and many NATURA 2000 plant community types are represented (Keskkonnaministeerium, 2016). Nearly half of the land area is within the boreal zone, which, historically, has always been covered with forests (Eesti statistika, 2016); natural reforestation of agricultural fields has always been more a problem than desired by the landowners.

Coppice forest management has never been a cultural tradition in Estonia; re-sprouting of stools occured simply as a result of use. Due to the cold climate, firewood has always been needed in large quantities. Typically this was collected manually during wintertime from the low quality forest areas, mainly wet sites dominated by broadleaf trees (alders, aspens or willows) (RMK, 2016). Usually clearcuts were not performed; instead older, unhealthy, too dense or dead trees were cut (Valk and Eilart, 1974). The regeneration of trees was natural and the forests contained trees with a large age variability. Such an age distribution of trees in a particular area is also the main aim in the Estonian broadleaf forest protection goals today (Paal, 2000).

Another type of landscape in which coppiced trees can be found, is one specific type of semi-natural grasslands – wooded meadows (NATURA 2000 type 6530*). Historically, the main aim of this particular management form was to provide the cattle of the landowner with grass during grazing period or hay during wintertime (Talvi, 2010). Pruning of bushes and trees was also an option during years of poor biomass production. The main aim of the trees in this landscape was to provide the cattle with shelter, as well as increase soil fertility and moisture through the deeper root-system of the trees. The selection of tree species left to the grassland depended on the landowner's ideas but usually broadleaf trees were preferred. Sometimes these trees were coppiced, but the cutting was selective to keep the farming system going. Today the number of trees that can be grown in this type of grassland is very limited.

A little over 20 years ago we planted the first experimental Short Rotation Coppice (SRC) plots with different willow species in different parts of Estonia in order to promote the local economy and renewable energy production. Since then we have performed different studies on the usage of SRC for woodchip production (Heinsoo et al., 2002), the purification efficiency of SRC vegetation filters (Holm and Heinsoo, 2013) and other ecosystem services that can be provided by SRC (Poplars and willows, 2016). However, due to legislative limitations on the establishment of SRC, the lack of a supporting scheme for SRC management and very volatile wood residue prices, the current area of SRC in Estonia is much smaller than in neighbouring countries.

Figure 1. Examples of coppice and short rotation coppice in Estonia

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Forestry Regulations

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The area of Estonia is 45,227 km^2. Just over half of the country is covered with 2.2 M ha of forest of which 1.6 M ha is manageable forest. Deciduous trees account for 51% of stands; 49% are conifers. The most common tree species are Scots pine, Norway spruce, Silver and Downy birch, aspen, Black alder and Grey alder. 47% of the forest area is in private ownership, the state owns 41% and 12% is still "subject to privatization". State forests are managed and marketed by the **State Forest Management Centre** (Riigimetsa Majandamise Keskus, RMK) and overseen by the Ministry of the Environment (Keskkonnaministeerium). A forestry development plan is prepared every 10 years and approved by the Estonian Parliament (Riigikogu). The principal goals of the **'Estonian Forestry Development Program until 2020'** are to safeguard forest productivity and viability and ensure the varied and effective use of forests. At least 10% of forest land is under strict protection.

Coppice management is not practiced, except in Short Rotation Coppice willow, poplar and alder plantations, but it has been used in the past in traditional wooded meadows, which are species rich and classified as a **European priority habitat** (6530 Fennoscandian wooded meadows). As well as hay harvesting and collection of wood for fuel, branches with leaves were coppiced or pollarded and dried for winter fodder. It is estimated that wooded meadows covered nearly 19% of Estonia's surface area at the end of the 19th century, but only approximately 8400 ha now remain, of which about 2700 ha are protected.

Since the early 1990s there have been several **Forest Acts**, each with amendments. The current Act does not apply to detached plots of forest land of less than 0.5 ha, or land where the average age of trees does not exceed 10 years and is not registered as forest land - even though it may comply with other definitions of forest land (at least 0.1 ha with woody plants at least 1.3m high and with canopy density of at least 30%). Estonian forestry is supervised by the Environmental Board of the Ministry of the Environment who give consent for felling operations.

Some of the provisions of the most recent Act are:

- A forest survey is carried out to receive data on the condition of forest and the volume of growing stock, to advise forest owners and to plan long-term forest management activities. The guidelines give the requirements for forest mapping; the objectives and methods of forest inventory; requirements for planning forest management; the methods of calculating the prescribed cut; and the requirements for preparation of forest management plans. The inventory data in force is mandatory for an improvement cutting, thinning and selective cutting. A forest management plan will be prepared for a forest owner together with forest inventory, unless the forest owner does not wish it.

- The following types of cutting are permitted: regeneration cutting, including clear cutting and shelterwood cutting; improvement cutting, including cleaning in stands with the average DBH of up to 8 cm, thinning in stands with the average DBH of 8cm and larger, and sanitary cutting; track cutting, including the cutting of 'quarter' or boundary lines; the cleaning of an existing ride or road shoulder, ditch bank or ditch shoulder from trees with the average DBH of more than 8cm; formative cutting in a protected area to attain a goal complying with the protection management plan, an action plan for the protection and control of a species, or for the purpose of preservation and improvement of the status of the protected area or key habitat.

- A forest owner must replant clear-cut areas over 0.5 ha within 2 years after cutting, although this is not necessary if natural regeneration with a suitable species composition and number of plants on the whole area is sufficient.

- Regulation of the water and nutrition regime of forest soil is permitted, but fertilisation of forests, except forest nurseries, with mineral fertilisers is prohibited.

- The minister responsible will establish the rotation age at which clear cutting is permitted per tree species and quality classes, making certain that it is: 90-160 years for pine and hard broadleaved tree stands; 80-120 years for spruce; 60-80 years for birch and black alder; 30-50 years for aspen.

- When clear cutting, all trees should be cut from the cutting area within 1 year after the beginning of the cut except for: 20 to 70 pines, white birches, ashes, oaks, black alders, European white elms or Scots elms per hectare, dispersed or in small groups, which are left as seed trees, and viable undergrowth. Seed trees will not be left if there are no trees suitable or if viable undergrowth of the tree species suitable for the forest site type exists in the cutting area for reforestation and is preserved when cutting.

- Old crop trees, i.e. trees necessary to ensure biological diversity, or the preserved standing parts of such trees, should be left so there is a total volume of stem wood of at least 5 solid cubic metres per hectare, or in the case of a cutting area sized over 5 ha, at least 10 cubic metres per ha.

- Key habitats: areas up to 7 ha needing protection and where there is a high probability of finding endangered or rare species. In state forests, the state forest manager organises the protection of key habitats in accordance with a ministerial directive. Protection of a key habitat is by a contract with the owner which gives the Ministry of the Environment a right of use for 20 years which may restrict economic activities. The forest owner must ensure its preservation. About one third of forests are covered with management restrictions.

- Protective forest: In forest designated by a plan for the protection of a settlement or residential building against air pollution, noise, strong wind or snowstorm or for reducing the fire risk or prevention of the spread of forest fire, the local authority may, by agreement with the landowner, establish restrictions as to the type of cutting for regeneration cutting and to the size of the cutting area and the rotation age in the event of clear cutting.

- A cutting right (raieõigus) is necessary to prove the legality of cutting, delivery of timber, etc. The right is established by an entry in the land registry, a transfer deed for the cutting right or timber, permission from the Environmental Board or a forest notification in the state register of the forest resource and an identity document.

- A forest owner, or his representative, must submit a forest notification to the Environmental Board concerning planned cuttings, except cleaning; or serious forest damage. The Environmental Board verifies the compliance of the planned cutting with the legislative requirements, valid inventory data or data about the condition, age, basal area and forest resources if the inventory data does not reflect the actual situation. If the planned activity does not comply with the legislation, the Environmental Board has the right to ban the activity, and making recommendations for bringing the activity into compliance with the legislation.

- A forest owner may cut, without submitting a forest notification or without registering with the state register of the forest resource, up to 20 solid cubic metres of wood per 'immovable' (a particular type of property) per year.

Forest certification

Both PEFC and FSC schemes are used in Estonia. PEFC is most commonly used in private forests; about 110,000 hectares of private forests are certified. State forests are certified by both PEFC and FSC.

Natura 2000

N2000 sites in Estonia are protected under the 2004 Nature Conservation Act. Management plans are compiled and approved by the Environmental Board (Keskkonnaamet). About 18% of total forest area is covered by Natura 2000.

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