Biodiversity and Forest Management

Forest Academy for EU Decision Makers

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Research Manager

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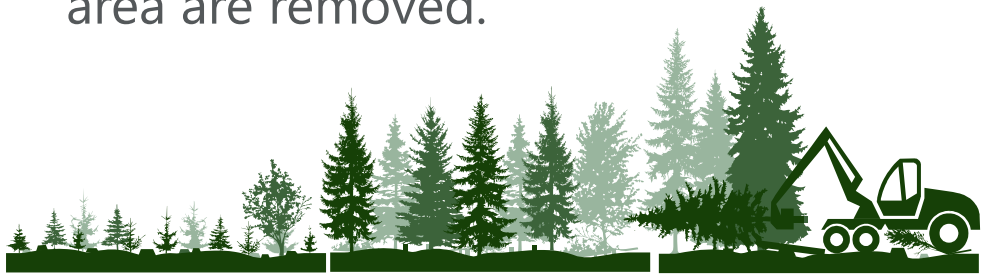
Basics:

Even-aged forest management

Forest rotation is controlled by planting, thinning and regeneration felling. During the regeneration felling (almost) all the trees in the area are removed.

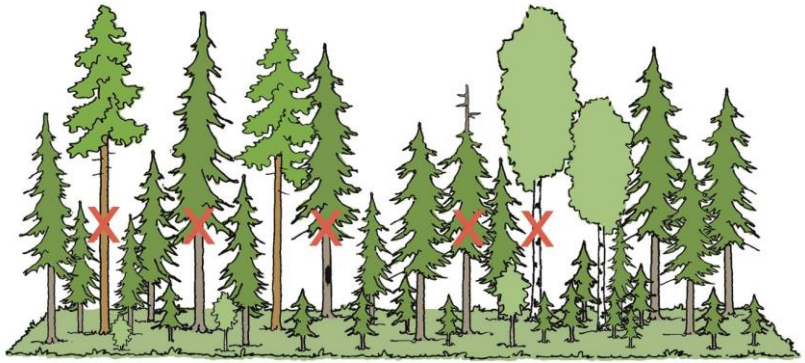


Uneven-aged forest management = continuous cover forestry

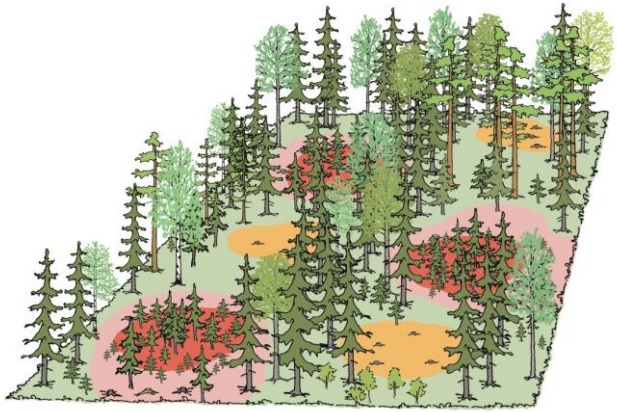
Management method where only some of the trees are removed in one harvest. Forest regenerates naturally through the trees left standing and no planting is needed.

Forest Management main methods – Continuous cover forestry

Selection cutting



Small-scale clear-cutting (gap cutting)



Drawings: Juha Varhi

Forest regeneration

Even-aged forest management

- Planting, sowing or natural regeneration
- Lots of information, guidelines to different kinds of forest type available

Photo: Erkki Oksanen, Luke

Uneven-aged forest management

Photo: Erkki Oksanen, Luke

- Natural regeneration
- Shortage of data from different forest types & species
- Results in spruce dominated selection cutting areas: Amount of seedlings often high, but the mortality is also very high
- Development of seedlings slow in selection cutting areas
- Pine and birch, amount of seedlings low, mortality high, growth weak (light demanding species)

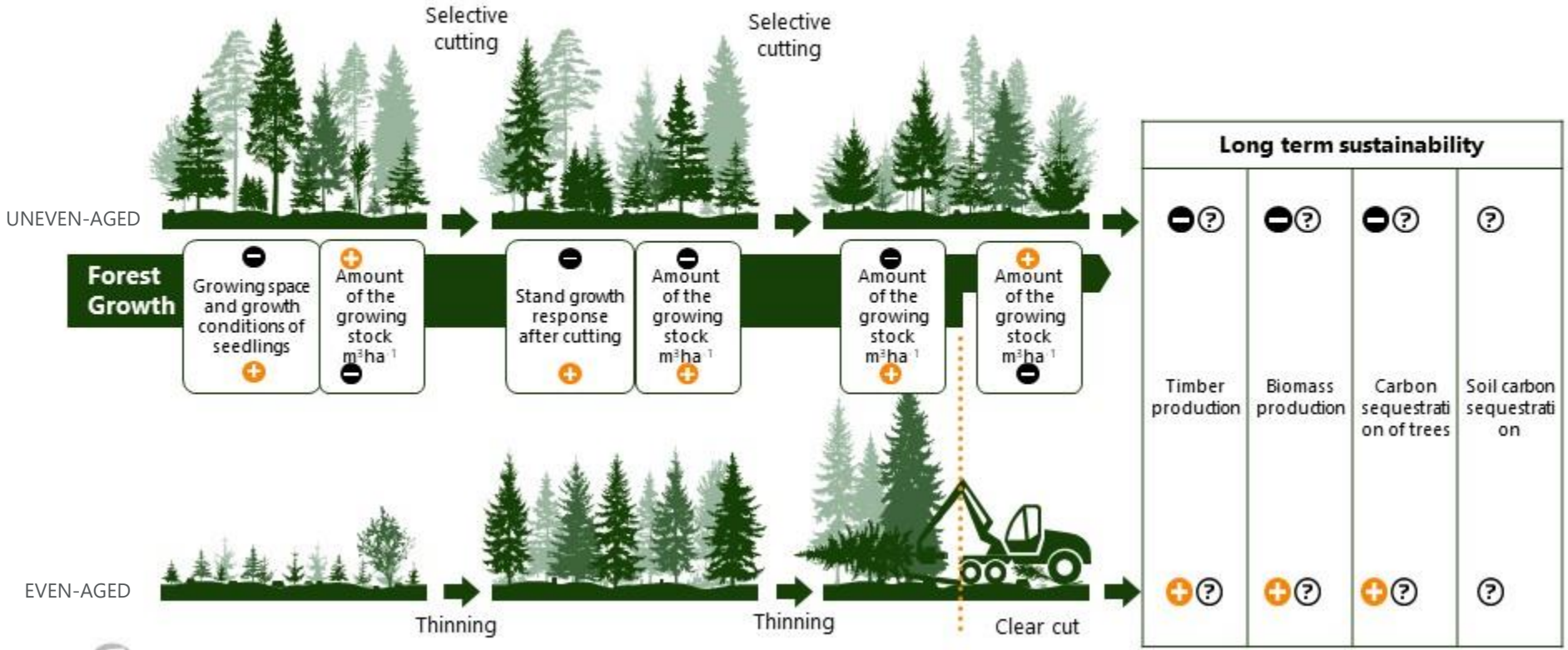
Forest regeneration

Uneven-aged forest management

Results from Small-scale clear-cuttings:

- Shortage of research data, results from mineral soils
- Number of seedlings high but unevenly distributed, soil preparation helps in some cases
- In small gaps, edge forest effects to seedling growth

Photo: Hannu Hökkä., Luke



Biodiversity in boreal managed forests
Continuos cover forestry – what effects to the observations

- Species composition before cutting
- Species and species groups to be studied
- Conditions: geography and type of forest
- Methods and intensity of logging
- Length of the period in study

Photo: Erkki Oksanen, Luke

Biodiversity in boreal managed forests
Continuos cover forestry

- Lack of long-term data, follow-up times have so far been short, usually only the first 1-5 years after logging and up to 10 years
- Based on the results, the species of the old forest remains largely unchanged in treatments where the removed tree accounts for 33-50% of the volume.
- However, the most susceptible species are reduced or even lost.

Photo: Erkki Oksanen, Luke

Biodiversity in boreal managed forests
Continuos cover forestry – selective cuttings

Photo:Erkki Oksanen, Luke

- Selective cutting probably benefits species that need shading, such as blueberries, as well as their companion species; ->larvae->grouse
- Species requiring continuity of cover, such as the flying squirrel or some epiphyte lichens, may also benefit.
- No results after several selective cuttings

Photo: Johanna Routa, Luke

Biodiversity in boreal managed forests
Continuos cover forestry – small scale clear- cuttings

- Small-scale clear-cutting affects the forest species relatively little, but the abundance of the species in the gaps changes the more the bigger the gaps.
- Open ground and shadow environments species react in different ways
- No results after long-term

Photo: Erkki Oksanen, Luke

Threatened species

- Species that have threatened due to forestry most often require large and old living and dead trees and especially deciduos trees.
- Continuous cover forestry does not ensure the survival of these species. The preservation of these structural features must be individually taken care of by natural management

Photo: Johanna Routa, Luke

Conclusions

- We **need both** even-aged and uneven-aged forestry to ensure the preservation of different species groups
- Right method to right place is extremely important
- We need to **diversify different forest management methods** and also diversification of the tree species composition
- Shortage of information in many areas

Photo: Johanna Routa, Luke

Kiitos!

Thank you!

Luke
LUONNONVARAKESKUS

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