Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Scots Pine regeneration in Southern Sweden

PhD candidate: Mikolaj Lula, Southern Swedish Forest Research Centre, Alnarp

Supervisors: Prof.Urban Nilsson, Prof.Göran Örlander, Dr. Kristina Wallertz, Docent Anna Jensen and Dr.Märtha Wallgren

FRAS-future silviculture in southern Sweden

Scots Pine

Economy

- 28, 8 % of the total standing volume in Götaland ;

(SLU, Skogsdata 2017)

Biodiversity and recreation

- Harbour 10% of threatened forest species in Sweden.

(Berg et al., 2000)

Map of Sweden, main regions. (Wikimedia)

Background

”Sprucification”;

(Frank)

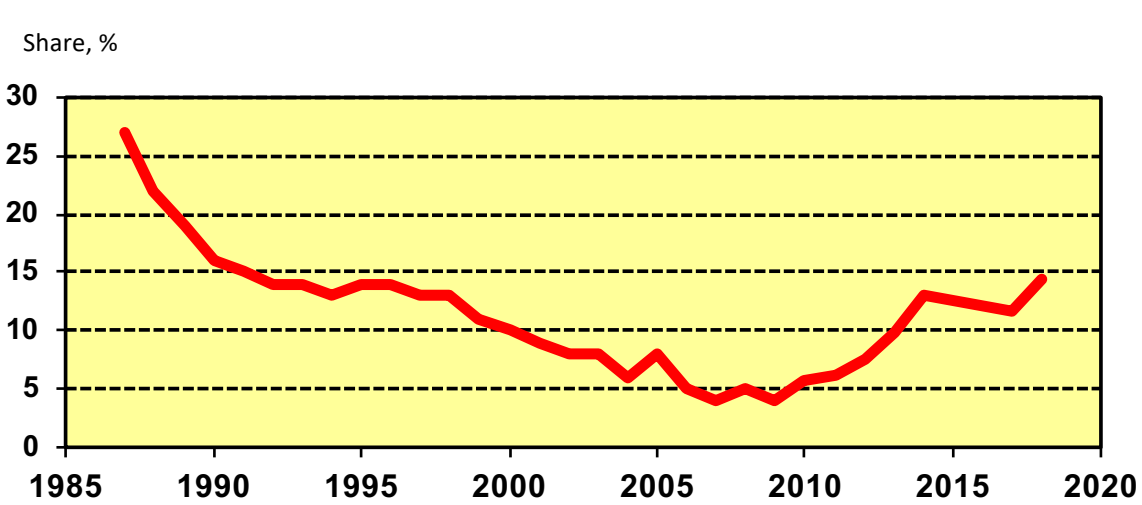
Norway Spruce on ”Scots pine sites”?;

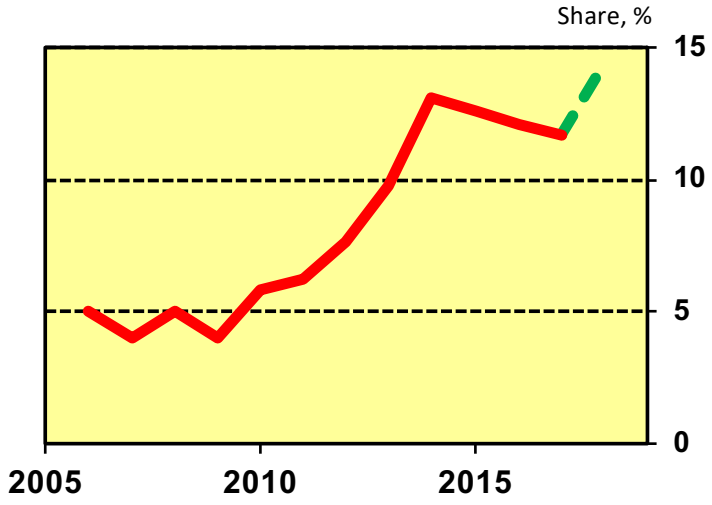
(Wikimedia)

- Loss of Scots pine dependent ecosystems;
- Financial risk (Shortage of pine timber supply).

Scots Pine regeneration in Götaland

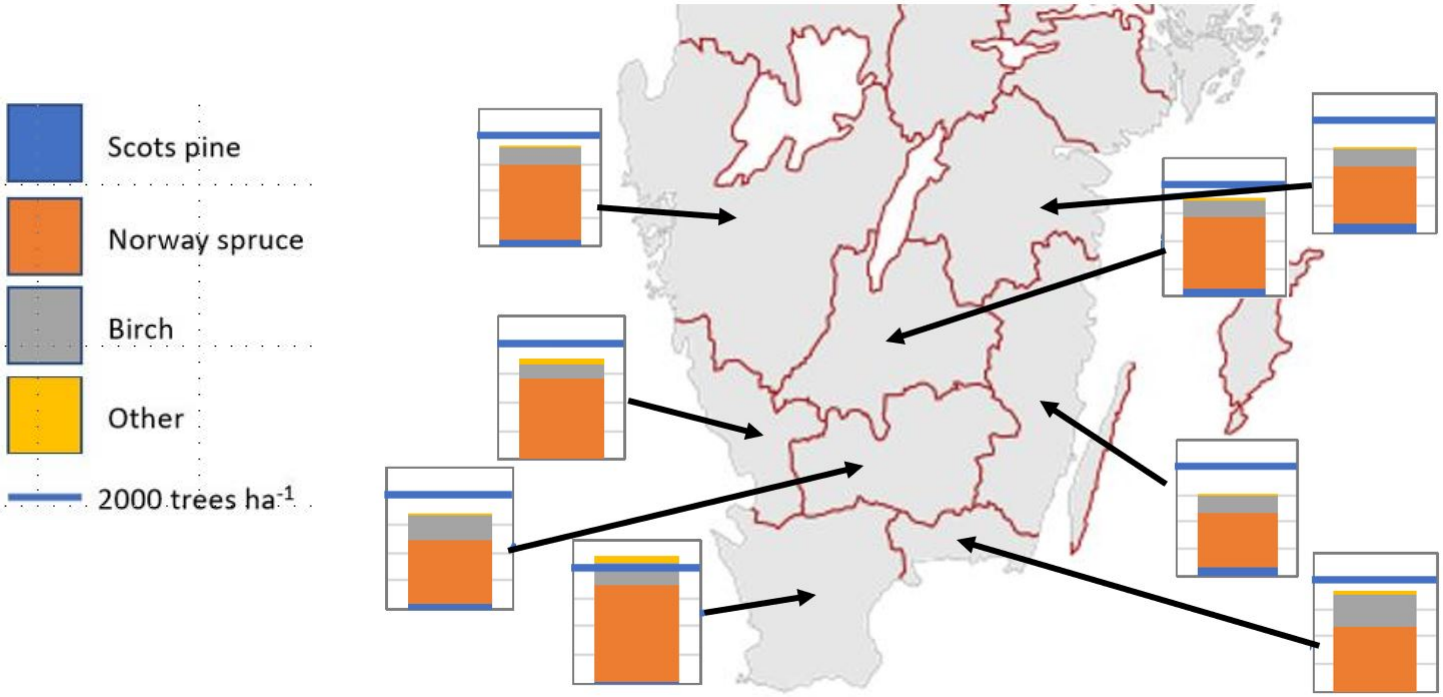
Project ”Mera Tall”





Scots pine, share of sold seedlings. Södra Skogsplantor. (Södra Skog, 2017)

Recruitment of future crop-trees after the PCT



Results from the elk-browsing inventory (ÄBIN). Share of undamaged crop trees after PCT. (Adapted from Nilsson U, unpubl.)

Study I. *Effects of shelterwood density and scarification on establishment and mortality of naturally regenerated Scots pine seedlings*

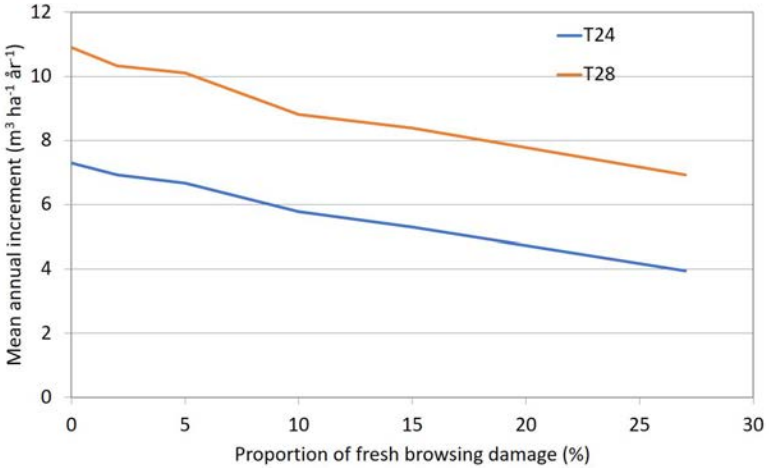
Aim: Evaluate how recruitment patterns are altered by different management activities in naturally regenerated Scots pine stands.

Study II. *Survival and development of naturally regenerated, direct seeded and planted Scots pine*

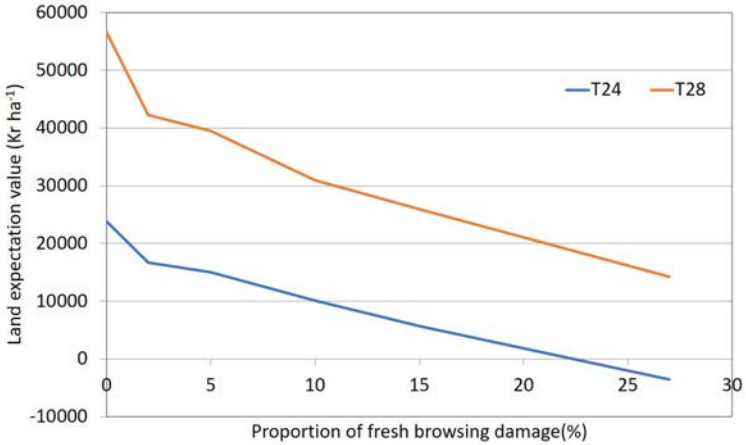
Aim: Evaluate the competitiveness of silvicultural options for regeneration in Scots pine stands.

Study III. *Browsing by roe-deer and moose reduce growth of planted Scots pine seedlings*

- **Aim:** To investigate which are the contributing factors on a landscape level that effects browsing in Scots pine stands;
- Heureka simulations;



Simulations of browsing damage effect on Scots Pine growth, on two different soil-fertility classes (T24, T28).

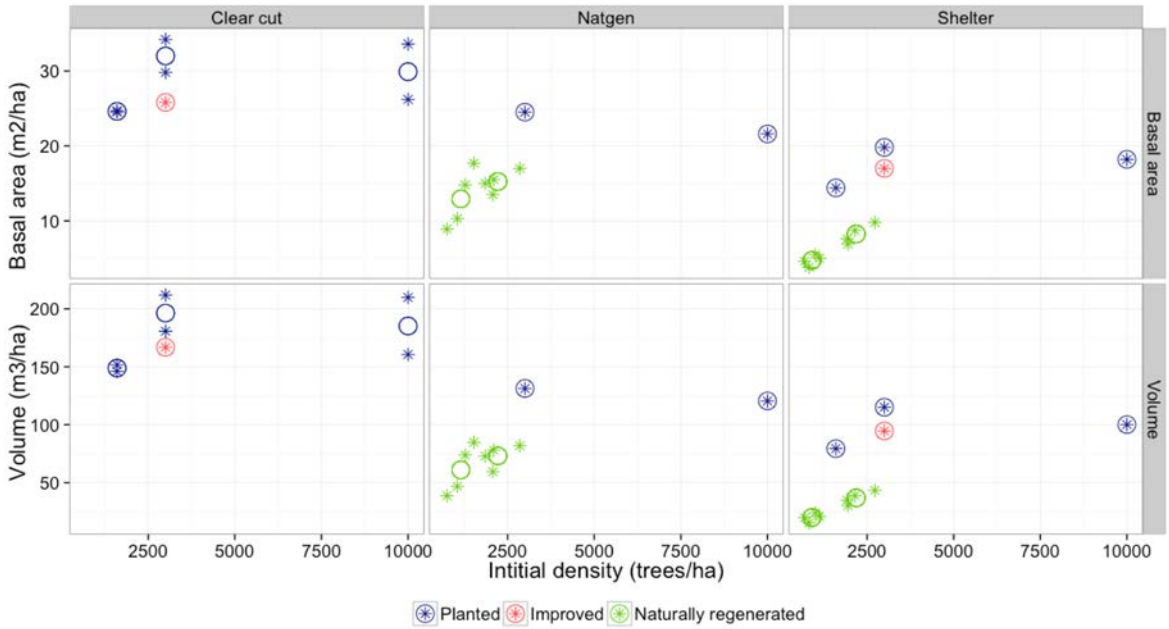


Simulations of browsing damage effect on economy in Scots Pine stands, on two different soil-fertility classes (T24, T28).

(Nilsson U, unpubl.)

Study IV. *Modeling early growth of naturally regenerated, direct seeded and planted Scots pine seedlings*

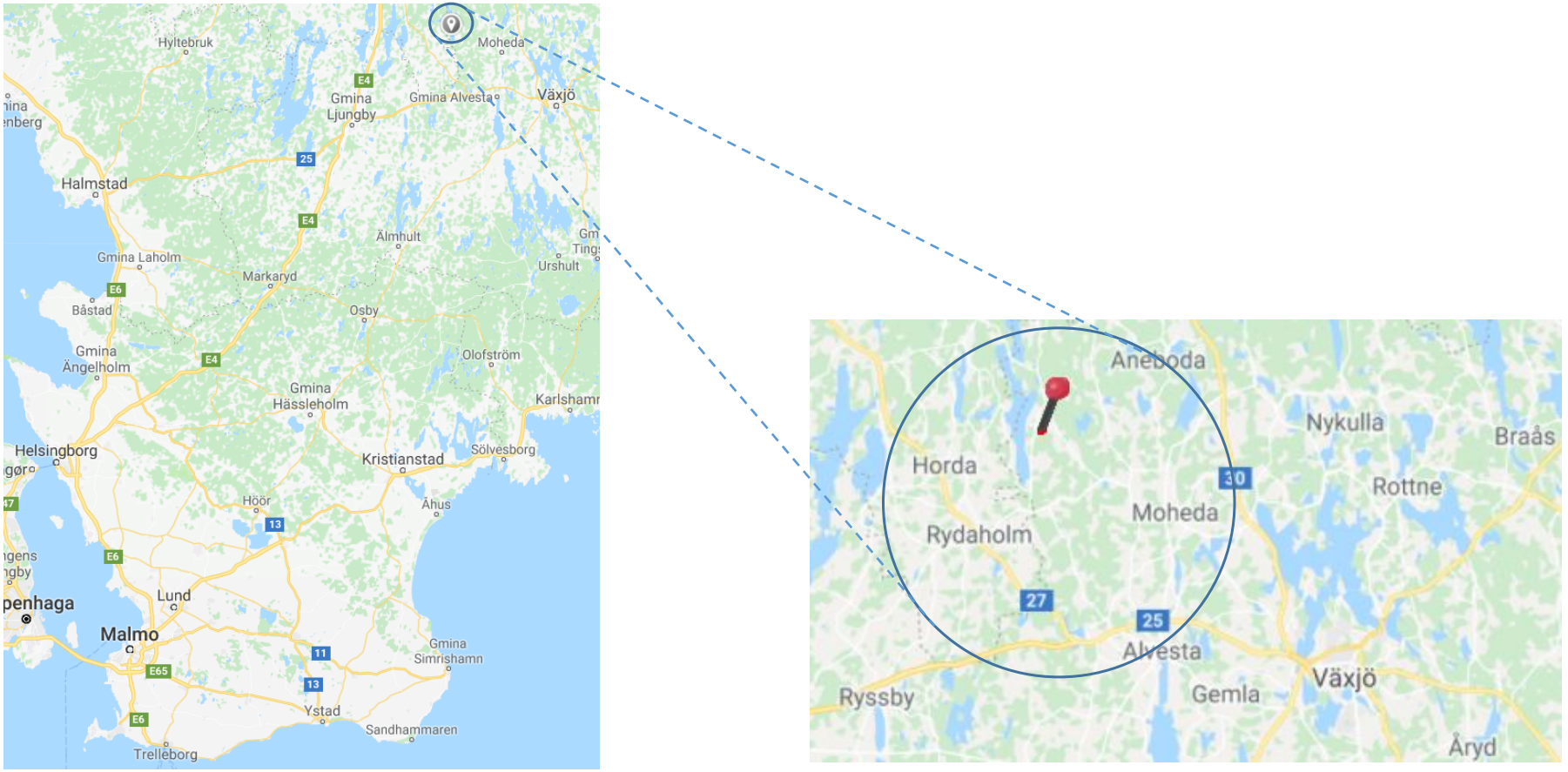
- **Aim:** To compare productivity and profitability of different Scots pine regeneration methods;
- Heureka Simulations.



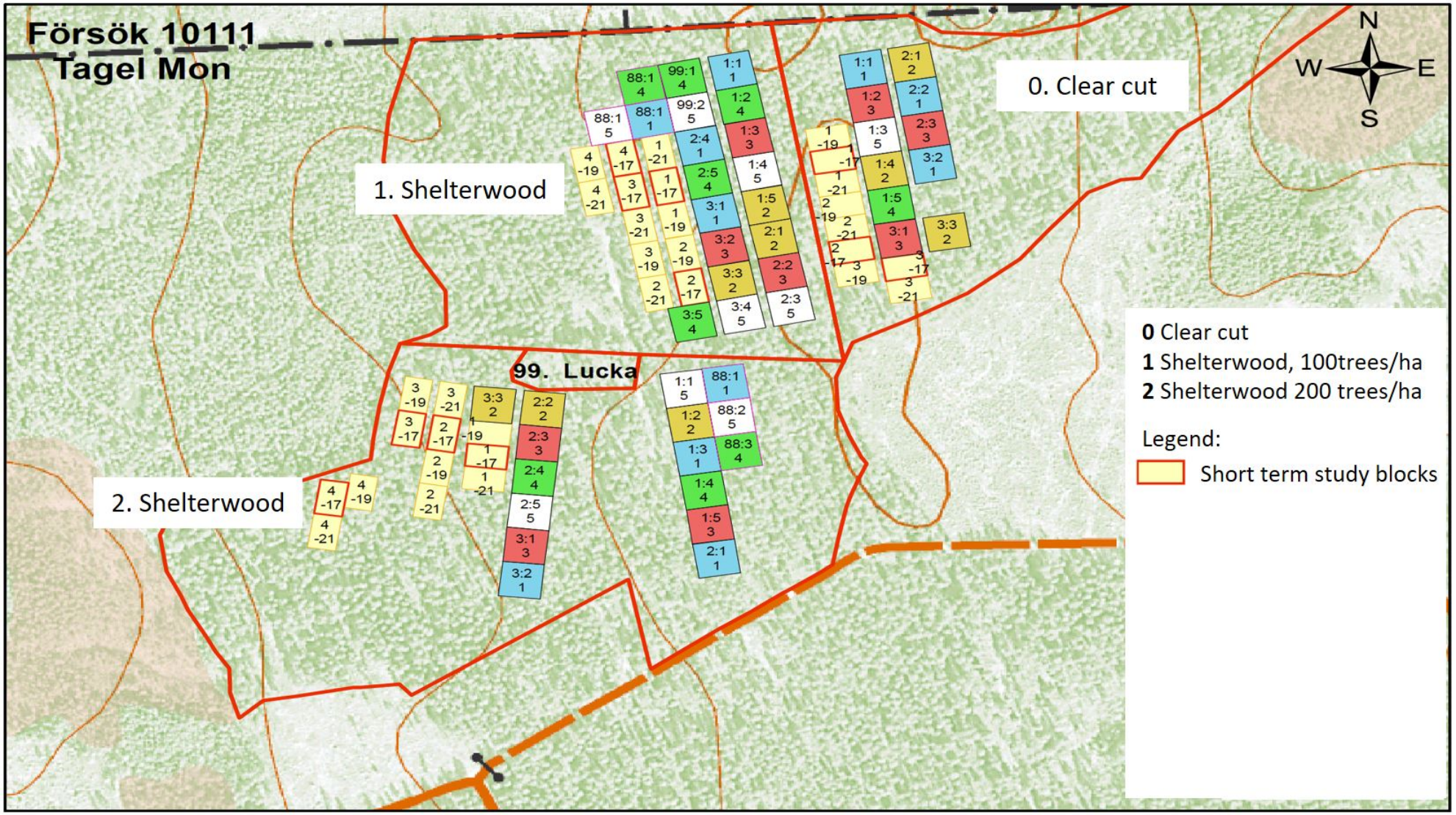
Basal area and volume in 2015, 24 vegetation periods after establishment of the experiment.

(Ekö et al., unpubl.)

A closer look at study I: A short-term project within a long running experiment in Tagel



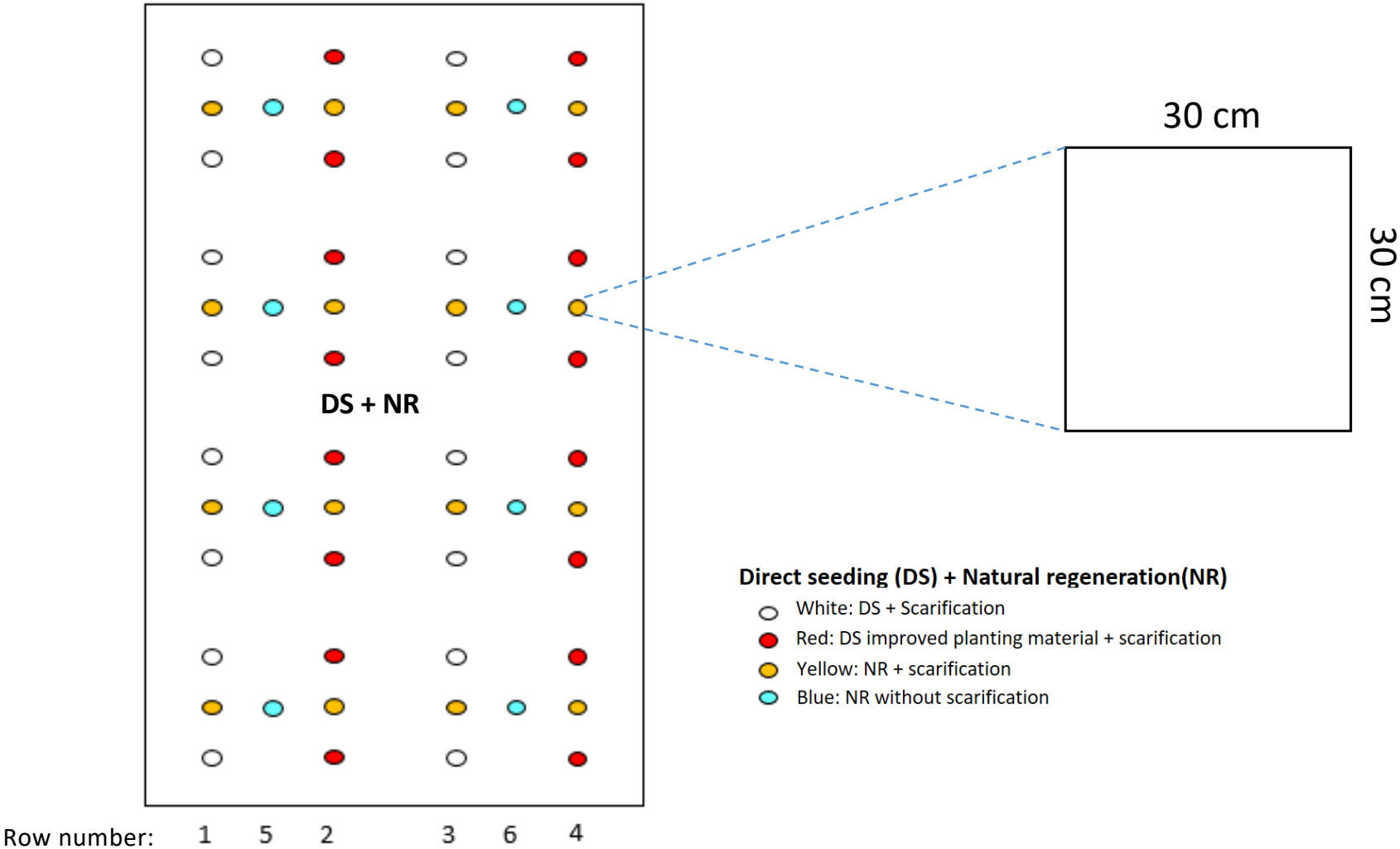
Trial location. (www.silvaboreal.com)



Experiment design. (Nilsson U, unpubl.)

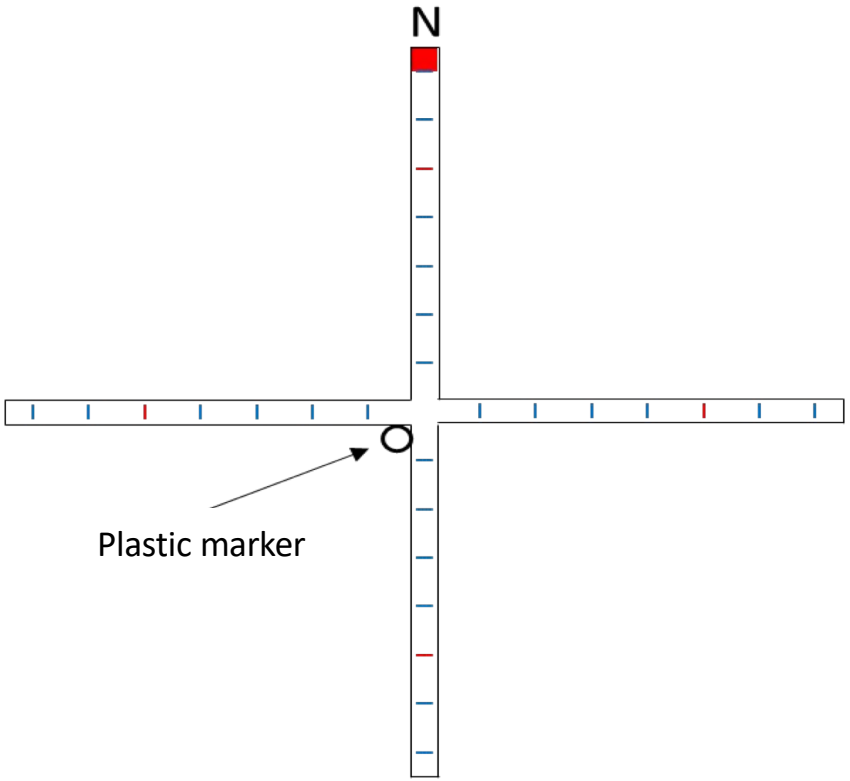
1:3 000

(Urban Nilsson)



Experimental block design. (Nilsson U, unpubl.)

Seedlings tracking



Year	Shelter	Block	Row	Plot	y	x	Color	Cross	Species	Treatment
2017	2	2	1	9	-5	-1	2	1	SP	W
2017	2	2	1	10	3	-3,5	2	2	SP	W
2017	2	2	1	11	-1	1	1	2	SP	Y
2017	2	2	1	12	1	2,5	1	2	SP	W
2017	2	2	1	12	2,5	-1	1	2	SP	W
2017	2	2	1	12	-6	-1	6	2	SP	W


Direct seeding (DS) + Natural regeneration(NR)
White: DS + Scarification
Red: DS improved planting material + scarification
Yellow: NR + scarification
Blue: NR without scarification

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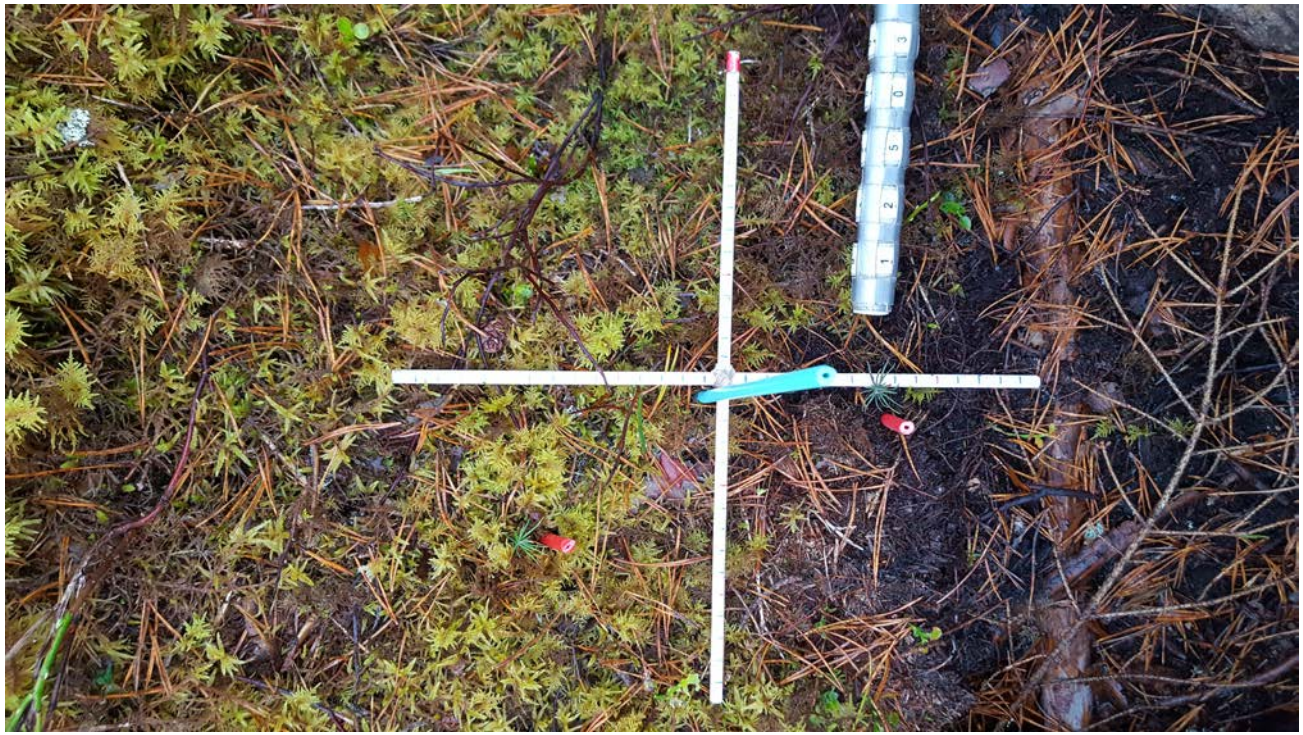

Thank you for your attention!

Contact

Doctoral Student at the Southern Swedish Forest Research Centre

E-mail: mikolaj.lula@slu.se

Postal address:
Inst för sydsvensk skogsvetenskap, Box 49
23053 ALNARP
Visiting address: Sundsvägen 3, Alnarp