

Adapting Managed Forests to Climate Change in Southern Sweden: Constraints and Opportunities for Altering Tree Species Composition

Climate change in Sweden is predicted to be above the global average. One suggested approach for avoiding some of the negative impacts on production forestry is “risk spreading”. We define **risk spreading** as reducing the vulnerability of a socio-ecological system by increasing the heterogeneity of its ecological component, specifically tree species composition in Southern Sweden (Götaland).

Constraints & Opportunities

Owner perceptions of climate change

There are 138,000 non-industrial private forest owners in Götaland, controlling 78% of total forest area, who exhibit a lower strength of belief in climate change than the general Swedish populace (Blennow & Persson 2008).

Forest owners' responses to other risks

83% of spruce-growing forest owners indicated their intention to continue growing spruce even in the case if substantially damaged by wind (Blennow 2008). This raises questions as to how effective pre-emptive risk aversion strategies may be at motivating private forest owners to alter tree species composition.

Consulting Organizations

Mattsson et al. (2003) indicate that forest consultants overestimate the value that owners place on production and underestimate the importance of recreation and biodiversity. If such differences lead to the omission of alternatives, then this can negate the instigation of risk spreading.

Voluntary policy instruments

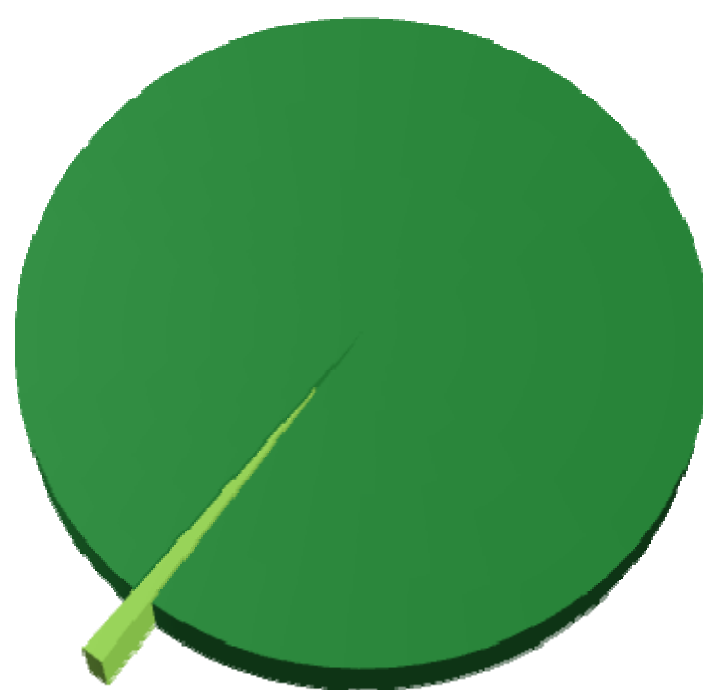
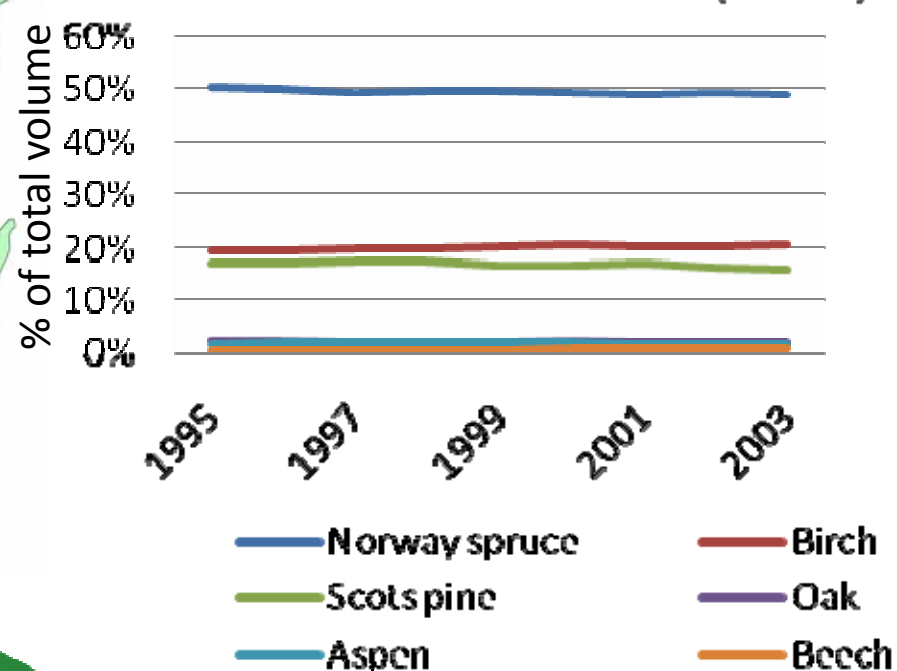
There is significant reliance by government on voluntary measures of forest management. These measures are primarily composed of informative, and to some extent economic rather than regulatory instruments.

Contact: Adam.Felton@ess.slu.se

Adam Felton, Lindsey Ellingson, Erik Andersson, Lars Drössler, Kristina Blennow



Change in tree species growing stock for the <15 cm diameter class (SFA 2008)



Approximately 1.1% of total forest area is planted or naturally revegetated on an annual basis. This, together with thinning operations, constitutes what we consider to be the readily-available adaptive potential per year.

Conclusions

Limited indication of change in tree species composition thus far

- Currently lacking a spatial and temporal goal
- Must assess the motivations of industrial and non-industrial forest owners who are altering tree species composition. This should indicate which policies are likely to be effective at instigating the adoption of risk spreading strategies in this system
- Forest consulting organizations are likely to be integral to instigating change

Blennow, K., 2008. Risk management in Swedish forestry - Policy formation and fulfillment of goals. *Journal of Risk Research* 11, 237-254.
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Swedish University of Agricultural Sciences
Southern Swedish Forest Research Centre

