

# Adapting forest health assessments in Sweden to changing perspectives on threats and the role of forest inventories

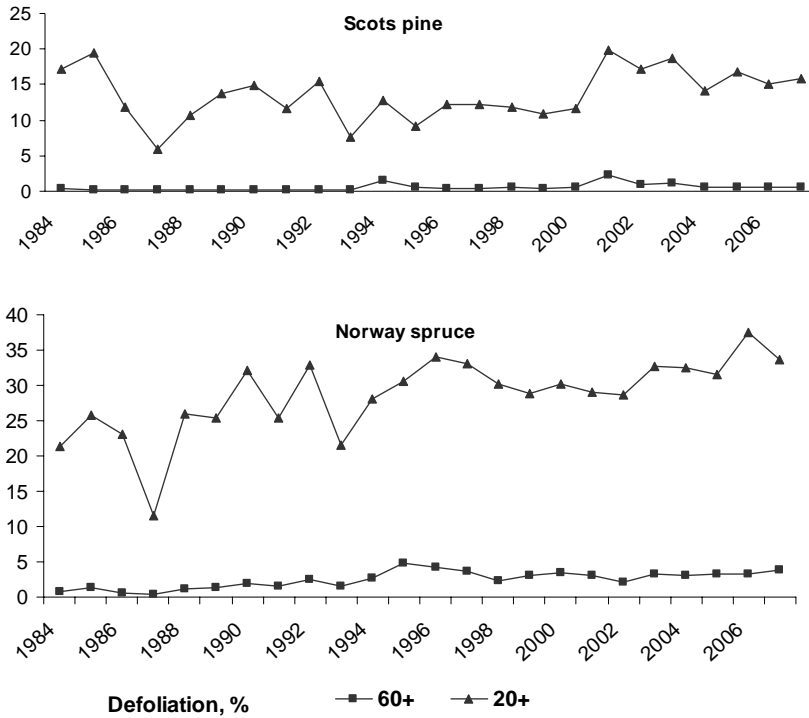
Sören Wulff<sup>1</sup>, Per Hansson<sup>2</sup>, Göran Ståhl<sup>1</sup>

<sup>1</sup> Department of Forest Resource Management

<sup>2</sup> Department of Forest Ecology and Management

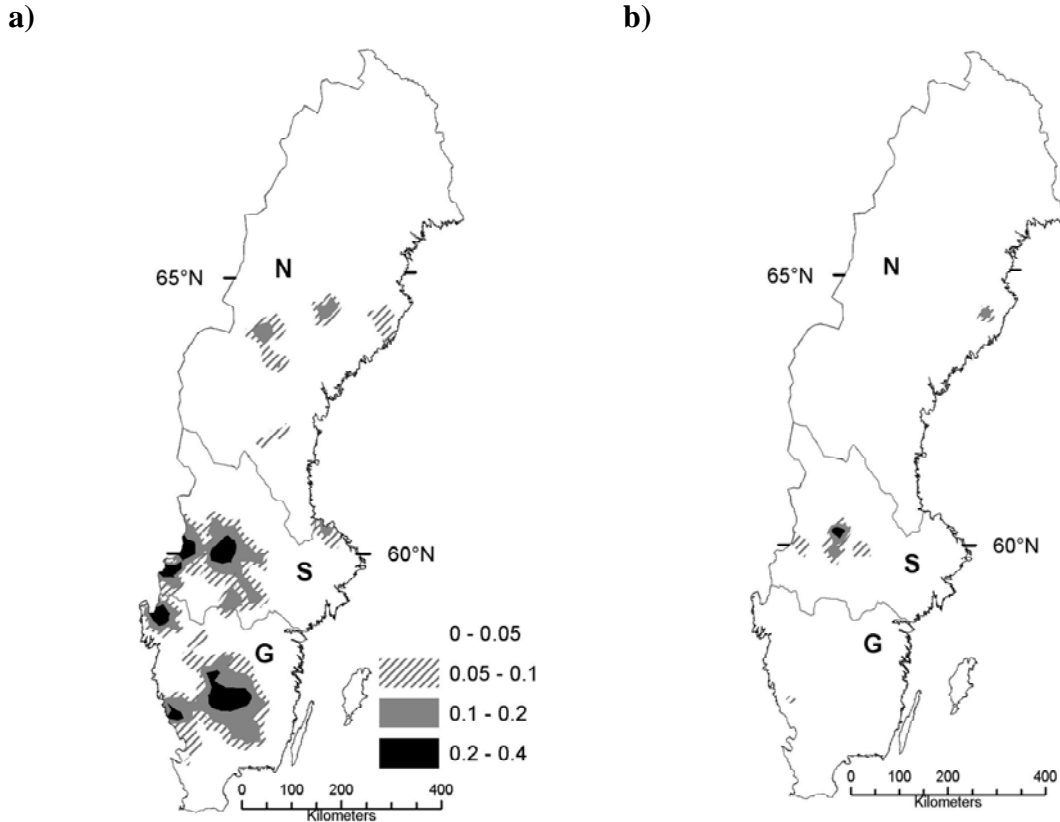
# ICP - Forests

Percentage defoliated pine and spruce trees in middle aged and older forests in Sweden



# Gremmeniella

Figure 1



**Fig. 1.** Proportions of *Gremmeniella*-affected pines in pine forests (at least 65% of stand basal area was pine) 2002 - 2003 a) at least slightly, b) severely affected, c) locations of NFI/NFDI plots (n=4 985) and d) standard error distribution. N=Norland, S=Svealand, G=Götaland.

**Table 3.** Estimated areas (ha) and coefficient of variation (CV%) of *Gremmeniella*-affected pine forest and sanitation cuttings due to the shoot blight disease in Sweden during 2001-2003.

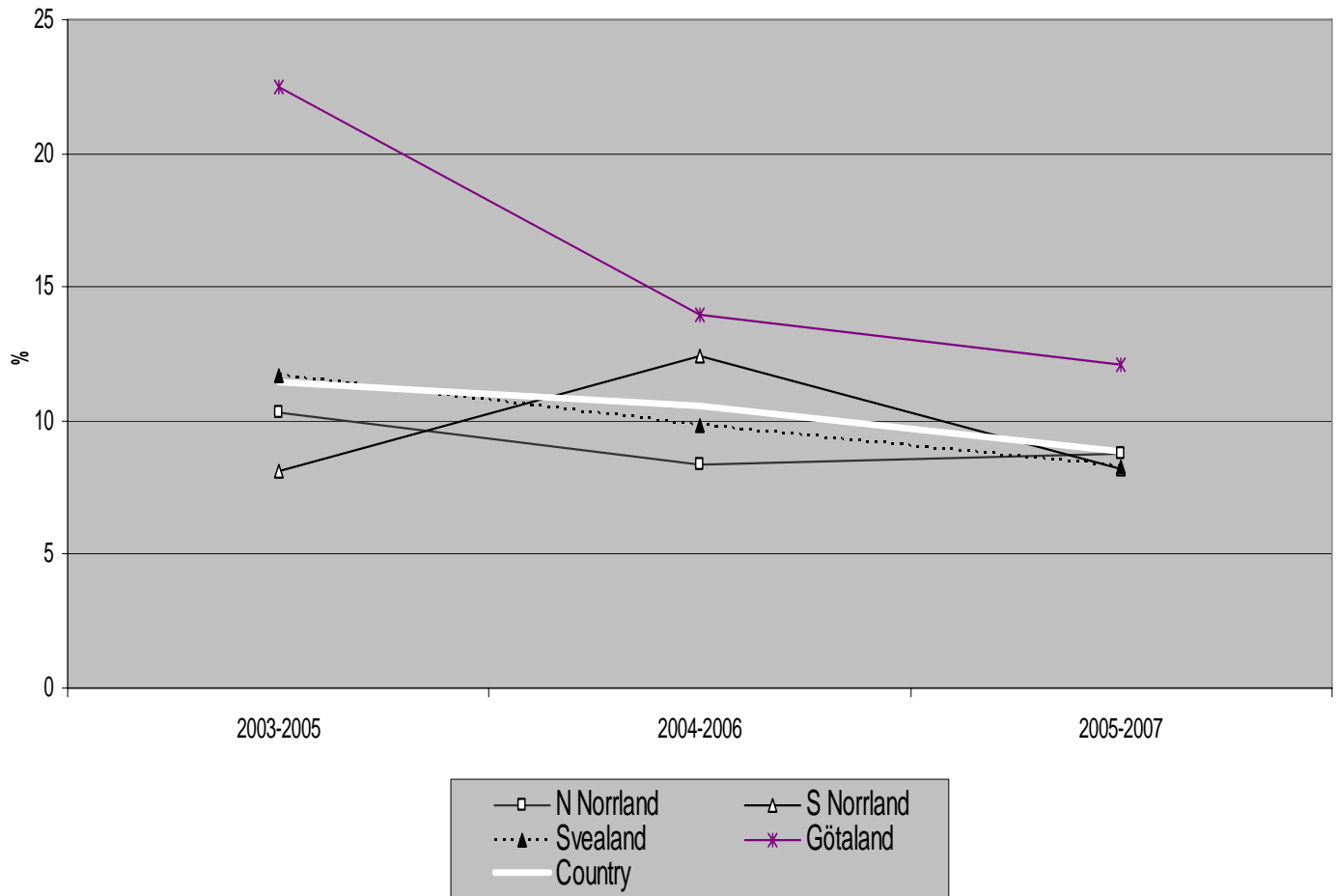
Area	Slightly affected	Severely affected	Total affected	Cuttings
1000 ha (CV%*)	423 (8.9)	62 (25.8)	484 (5.8)	51 (13.3)

\* Coefficient of variation

# A New Forest Health Monitoring

- Data provision for strategic level decisions
- Data provision for operational decision making at local level, linked to specific pest events.

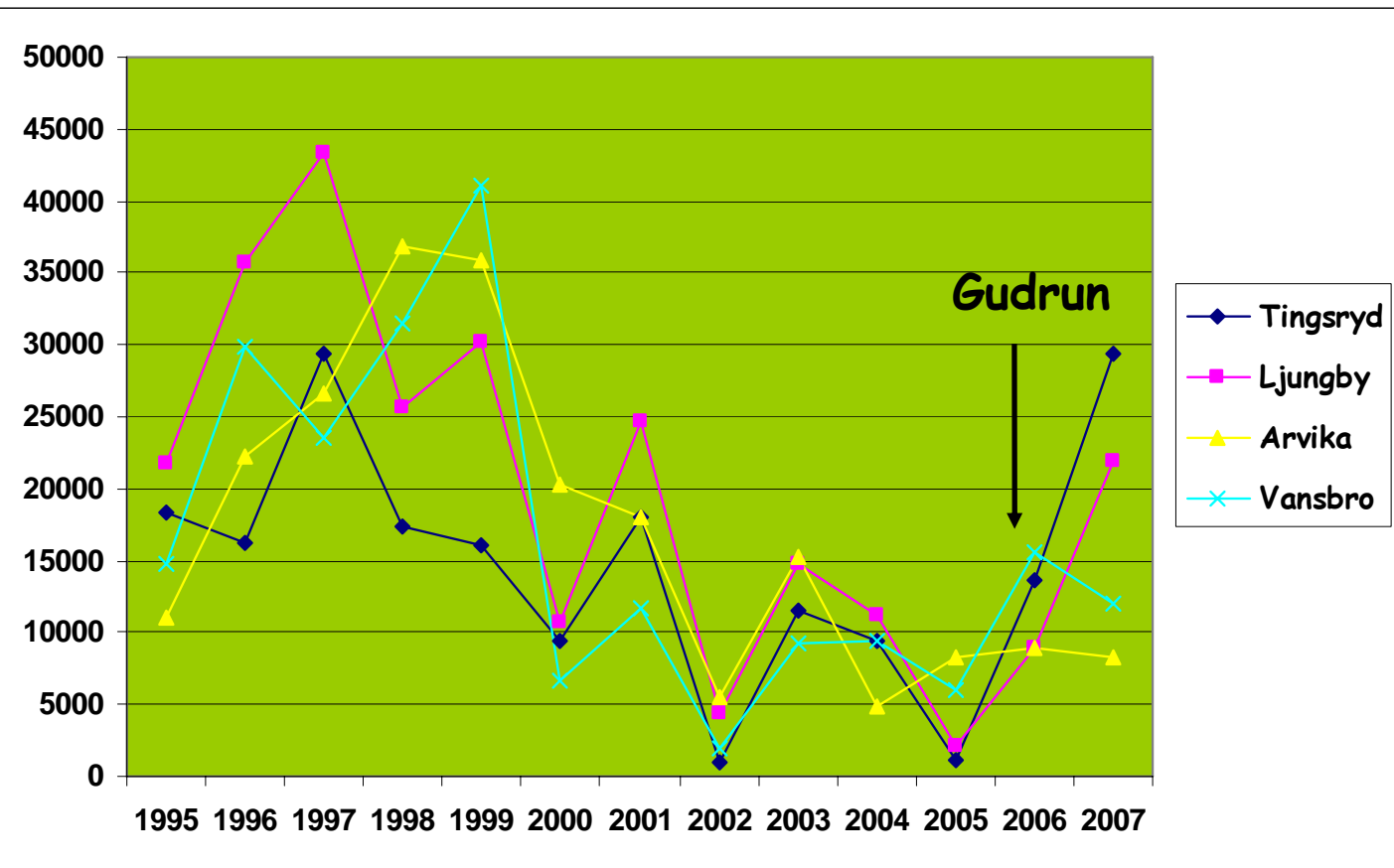
## Moose browsing percentage of stems with new damages



From Swedish Statistical Yearbook of Forestry 2008 Swedish Forest Agency  
Data source: Swedish National Forest Inventory

# Bark beetle population

Trap catches 1995-2007 (number of beetles in 3 traps May-August)



Data from Åke Lindelöw SLU, Department of Ecology

# Operative Inventory of Forest Damages



- To give a rapid reply on requested information on specific damages
- A limited and concentrated sample
- Flexible and robust methods and design
- Adequate information for short-term mitigation scheme
- Information about potential outbreaks of damages are obtained from internet based reporting system SkogsSkada

# Operative Inventory of Forest Damages

**In 2007 and 2008 we have carried out an Inventory of resin top disease on young pine stands in Northern Sweden**





# **Outbreak of pine resin disease in young pine stands in Northern Sweden**



**Scots pine and lodgepole pine => 7 / 10  
Stands with a mean height of 1- 4 meter**

**Preliminary data from the inventory in 2008**

**38% of the pine stand are affected**

**13,5 % of the stands in the northeastern part  
are infected (more than 10% of the trees are affected).**