Consequences of the EU Nature Directives for Swedish forestry and forest based Industry

BACKGROUND
Private ownership of forests has been a reality for farmers and hence forest owners in Sweden for centuries. Private ownership acquired a strong legal basis early on. Private ownership has been an important basis for sustainable land use and long-term planning and investments in the regeneration of forests. There are roughly 300 000 private forest owners in Sweden.

A small number of large industrial forest enterprises own some 25 percent of all forest land in Sweden. Only a few Swedish companies have forest holdings that are integrated with industrial capacity. Industrial enterprises tend to buy wood on a stumpage basis from private forest owners, Sawmills, which for the most part are owned by private enterprises or groups of companies, do not normally have forests of their own. Most of the state forest belongs to the state-owned company Sveaskog, which accounts for 14 percent of all forest land.

Ownership of Forest Land 2012

Sweden is a country dominated by forests. 70 % of the country is covered by forests. Forestry is vitally important for the national economy, and most Swedes closely relate to forests and forestry pursuits. Sweden holds just under one percent of the world’s commercial forest areas, but provides ten percent of the sawn timber, pulp and paper that is traded on the global market.
The forest products industry plays a major role in the Swedish economy, and accounts for between nine and 12 percent of Swedish industry’s total employment, exports, sales and added value. It includes companies within the pulp and paper industry, as well as the wood-mechanical industry. Close to 90 percent of paper and pulp production is exported, and the corresponding figure for sawn-wood products is almost 75 percent. As the raw material is mostly domestic, the forest products industry makes a significant contribution to Sweden’s trade balance.

FOREST MANAGEMENT AND BIODIVERSITY
Since 1993 Swedish forest policy focuses on two major objectives, one for production and one for environmental concerns. Both of these objectives are ambitious. In contrast, the legal demands on forest management, sets minimum requirements. The policy presumes a willingness of forest owners to make larger investments in their forest management—both concerning conservation efforts and measures to improve production—than what is stipulated by law. The change in the Forest Act marked an important shift from a more government-oriented into a more governance-oriented policy.

70% of Sweden is covered by forests. Boreal forests are disturbance-related ecosystems strongly affected by the fires. The species and the habitats are adapted to this. It is the foundation of a conservation strategy combining management and conservation by creating structures and elements throughout the managed landscape in combination with the protection of areas of highest conservation value.

Most nature conservation efforts are aimed at preserving existing areas with high biodiversity values, and, with various methods, simulate and recreate the effect of the natural disturbance regimes or historic land use. Old growth or untouched forests are rare, but different histories and topographies contribute to diverse forest ecology.

Freedom with responsibility- Sectorial responsibility
1991 the general principle of sectorial responsibility for the environment was clarified by the Swedish Parliament; Species conservation a concern for the forest sector as well as a conservation issue. Three levels where defined:

1. The ordinary landscape where responsibility and expenses primarily rests with the forest owner.
2. Areas where special efforts for the protection and care necessary to meet the objectives. Forest owners or mixed responsibility
3. Particularly valuable areas that require more or less complete protection with the support of the Conservation Act/ Environmental Code.

The Parliament specifies goals for these three parts within the Swedish Environment Goal system, for instance regarding forest owners voluntary set aside areas. A total of 1.2 million hectares of productive forest land is voluntary
set aside, mostly as a part of forest certification, FSC or PEFC. Yearly 8% of the harvested area is left as retention trees or as smaller habitats.

The mix of strict protection and creation of structures and elements of importance for all species is considered to be cost-efficient but it is a totally different approach than the EU nature directives. As shown in the map below the system works in a scale from big to small.

Birds and many other species are best protected on landscape level and not on a specific place. Beside this, it is not effective with protection on the spot where species are found, especially not for birds. The important structures for the birds increase on landscape level although some old forests are felled.

In a sustainable managed forest landscape it is usually more effective to protect structures important for the species than a specimen of a species.

EUs nature directives are based on the protection of individual habitats and species. Sweden already before joining the EU had an ambitious conservation policy and now we have got two layers of policy and legislation. As species and habitats in the directives often are not the most relevant for national condition, the directives leads to priority of wrong conservation measures. The designated habitats and species in the directives are not of relevance for the whole EU and many nationally important species and habitats are not included. Rigidly defined habitats have limited importance for biodiversity and ecosystem services. The lack of adaptivity and possibility to change the annexes makes it difficult to focus on species that need additional resources. This creates disproportionately high costs.
The strength of the directives override economic and social interests. Rural areas and industry based on renewable raw materials declines; less and more expensive raw material, fewer jobs, and a poorer competitiveness. In a broader perspective which also takes into account economic and social considerations a variety of instruments are needed; voluntary efforts through forest certification, financial compensation for management actions, information and education, to achieve the objectives in a cost-effective way.

The directives create a situation in which private property can be overridden without compensation to the landowner. Legal security and compensation issues must be ensured in a revision of the Directives. Individual landowners should not bear the cost of the commitments made by the society.

Swedish enterprises and private forest owners have made huge efforts to conserve biodiversity at the landscape level. The concept of Favourable Conservation Status, FCS, is targeting the protection of a number of defined habitats and species. Actions in the landscape outside protected areas are underestimated when FCS is evaluated.

SUMMARY

• Species and habitats in boreal forests have evolved through adaptation to forest fire
  – The landscape approach aims at providing enough structures and elements over time. Scale from big too small.
  – Area or percentage of a specified habitat type is only one part of the solution

• Strict protection of species is just one tool to reach favorable conservation status.
  – The strength of the directives override economic and social interests. Rural areas and industry based on renewable raw materials declines.
  – The Nature Directives puts an undue economic burden on the land owner overriding property rights.
CALCULATION OF COSTS FOR SPECIES PROTECTION ACT (ARTSKYDDSFÖRORDNINGEN)

In the following is an attempt to describe the economical consequences of implementing the Nature Directives in Swedish forestry. The implementation is done through the Species Protection Act.

Art databanken (a part of the Swedish University of Agricultural Sciences) has by request from the Swedish Forestry Board (Skogsstyrelsen) developed a preliminary list of birds that, based on the Species Protection Act (SPA), are considered in need of special protection from forestry. The birds have been categorized based upon their ecological needs. This can be strictly related to the different kinds of detailed consideration and exemptions that the forestry sector may be obliged to make, because SPA among other things do not allow damages in the nesting areas of birds. The following example is based upon this categorization.

Example three-toed woodpecker
The three-toed woodpecker (*picoides tridactylus*) is, according to the matrix, considered in need of strict protection i.e. the species do not tolerate silviculture. In Sweden lives approximately 11 000 pairs of three-toed woodpecker. Art databanken estimates that every pair is dependent of substrates like e.g. dead wood within a home range of about 100 hectares. Strict protection of this species could mean that 1 100 000 hectares of forest would be excluded from silviculture. About half of this total area is considered to already be situated within conventionally protected areas such as nature reserves etc. which means that additionally 550 000 hectares would be excluded from silviculture. The economic value of the wood in which the three-toed woodpecker lives is considered to be approximately 3 160 euros per hectar.

Direct cost for three-toed woodpecker: 550 000 hectares * 3 160 euros per hectar = 1,74 billion euros. To this cost should also be added the loss of employment within the forestry sector as a whole.

Example with species dependent on multilayered spruce forests
Marsh tit (*poecile palustris*), willow tit (*poecile montanus*) and dunnock (*prunella modularis*) are three of the several listed species considered to be dependent on multilayered spruce forests. To maintain older multilayered spruce forest in a site common forestry using clearcut-felling is not possible. The total population of these three species all together is estimated to be about four million pairs in Sweden. In most of the forests suitable for final felling at least some specimen of any of these species is likely to be present. In this example we estimate that silviculture using clearcut-felling can’t be performed on half of the forests suitable for final felling which will add up to an area of 1,5 million hectares. To make this example simple, the forests suitable for thinning is not taken into account.

Reports from among others the research institute Skogforsk show that a transformation to alternative silvicultural methods not using clearcut-felling would cause a decline in the economic value of the forest of approximately 40%.
A forestry based on such alternative methods of non clearcut-felling where only 25-30\% of the volume can be harvested initially leads to great interest costs on the non-harvestable volume, increased costs for harvesting, lower rate of growth and damages (mainly rot caused by fungus). Spruce forests suitable for final felling is as an average valued to 8 420 euros per hectare.

Direct cost for marsh tit, willow tit and dunnock: 1 500 000 hectares * 8 420 euros/ha * 40\% = 5,05 billion euros. To this cost should also be added the loss of employment within the forestry sector as a whole.

Other birds
The preliminary list mentioned above also include a great number of other bird species with different kinds of ecological needs, and species that are considered in need of protection or multi-layered forests. Many bird species are considered sensitive to disturbance, which could mean that harvesting is not allowed during the nesting season in spring and summer. If so, this would seriously interrupt the flow of wood biomass to the industry and by this lead to great costs. Other species are considered to need special attention when harvesting, such as reservations of individual trees, in an extent that by far exceeds the current expectations on the forestry sector. Consequently, the full potential costs of the forestry sector could be much higher than shown by the examples mentioned in this document.

Consequences for the Forest based Industry
The forest industry provides direct employment to almost 55,000 people in Sweden. In several counties the forest industry accounts for 20 per cent or more of industrial employment. Together with its sub-contractors, the forest industry creates upwards of 175,000 jobs. Exports were valued at SEK 124 billion in 2014.

It is very hard to calculate the effects of the directives on the industry, employment and sales. Some key figures from the Swedish Statistical Yearbook of Forestry (1 Euro=9. 41 SEK):

- The gross value of timber felled during 2012 was SEK 28.3 billion.
- The gross output of the forest sector during 2011 was SEK 216 billion.
- During 2011 the value added by the forest products industry amounted to 10.3\% of the total value added by the manufacturing industry. During the same year, the total value added by forestry and the forest products industry equalled 2.2\% of GDP.
- The export value of forestry and the forest products industry during 2011 was SEK 127 billion.

Yours sincerely

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