Sveriges lantbruksuniversitet
Institutionen för skogens produkter, Uppsala

Forest tenure and legislation in Sweden – long term perspectives and developments since 1990

Jan-Erik Nylund
Fredrik Ingemarson

The Swedish University of Agricultural Sciences
Department of Forest Products, Uppsala

Content

Forestry tenure in Sweden – a historical perspective

Jan-Erik Nylund & Fredrik Ingemarson
Dept. of Forest Products,
SLU – Swedish University of Agricultural Sciences
Box 7008, S-750 07 UPPSALA, Sweden
jan-erik.nylund@sprod.slu.se

Abstract

Land tenure regimes are intimately coupled to land use forms, and tenure reforms accompany the ongoing re-evaluation of forest management around the globe. This report summarises forest tenure development in Sweden during the last 500 years. The driving forces of privatisation in Swedish forestry are seen in relation to the modernisation of society. The current forest ownership structure reflects the objectives of privatisation of forestland two hundred years ago. The Crown wished to provide every homestead with enough forest to cover it subsistence needs for major and minor forest products. The privatisation process gained momentum around 1800, well before the industrial revolution gave forestry commercial value. As there was little use for the vast timber resource, other than for household purposes, the Crown initially did not bother to define exact user rights. The transition in the North of Sweden is one example where the state did not foresee any conflict, as forestry, farming and reindeer herding were considered to co-exist. The first period of the privatisation process was turbulent when the full consequences of the transition from forest commons for subsistence to an exploittable natural resource became obvious. Corporate law infringements, dubious affairs, fraud, and exploitation of peasant landowners occurred, and much of the accessible forestland was temporarily ruined. Once secure in their tenure, the peasants started exploiting the now valuable timber resource, then, more reluctantly, began to employ modern management methods in spite of the extremely long investment horizon in northern silviculture. Today, Sweden appears to have reached an "age of maturity" regarding forest ownership, with a modern tenure system that requires an open dialogue between forest owners and stakeholders and considering multiple user rights. Private ownership of forest is a contributing factor to the success of the "Nordic Forestry Model", and experiences from the tenure development in the Nordic countries have a broader application for global forest policy.

Keywords: forest certification, forest ownership structure, forest policy, forestry legislation, partitioning, property rights, Sami land use, tenure

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A NOTE ON SOURCES

For the general narrative, some standard Swedish works have been consulted, listed below. As they largely overlap, reference is only made here. Other references are shown as normal in the text.

Stridsberg E and Mattsson L, 1980: *Skogen genom tiderna. Dess roll för lantbruket från forntid till nutid* [The forest through the ages. Its importance to farming from ancient to present time]

Eliasson P and Hamilton G, 1999: *"Blifver ondt att förena sig" – några linjer i den svenska skogslagstiftningen om utmark* och skog [Hard to reconcile – some developments in the Swedish forest legislation concerned unfenced grazing land and forest]

Eliasson P, 2002: *Skog, makt och människor. En miljöhistoria om svensk skog 1800-1875* [Forest, Power and People. An Environmental History of Swedish Forest 1800-1875]

Kardell L, 2003-2004: *Svenskarna och skogen* ([The Swedes and the Forest] 2 volumes

English-language accounts of Swedish forest politics from 1905 to 1890 are provided by Stjernquist P, 1973: *Laws in the Forests. A study of public direction of Swedish private forestry* and by the same author, 1991-92: *Forest treatment Relations to nature of Swedish private forestry*.

1. Introduction

Land tenure regimes are intimately coupled to land use forms, and tenure reforms accompany the ongoing re-evaluation of forest management around the globe (Garforth and Mayers 2005). In public debate, the Nordic countries, particularly Sweden and Finland, appear to have reached an "age of maturity" regarding forest ownership (Palo 2006). However, a closer look reveals a partly dramatic transition from the tenure forms of traditional society into present-day forms, and today's ownership model is again contested. The present report aims at describing these processes in Sweden, using mainly Swedish-language material previously unavailable to an international readership.

Forest tenure concepts in a European context are analysed by von Below and Breit (1998), whose views are a starting point for the account below. Bekele (2003) summarises the classical contributions to the subject by Locke, Marx, and Mill, and the modern theorist, Bromley, with particular reference to a traditional society, Ethiopia, meeting modern perceptions and political change. A recent study by Fritzbøger (2004) discusses a similar transition in Denmark over a much longer period, from 1150 to 1830. The present study is mainly narrative, and the interested reader is referred to the cited works for a theoretical framework. However, the distinction between formal and exclusive possession rights and various, non-exclusive user rights, as discussed by von Below and Breit (1998, pp. 4 ff.) is also a key concept for interpreting the historical development of tenure rights in Sweden.

1.1. Traditional land tenure in Europe and the process of modernisation

In pre-modern Europe, the land itself was understood as a "gift of God", as nobody can create more or less of it, and hence it could not be owned like man-made artefacts, only used. However, cultivated land was a result of hard labour, and man has right to the fruit of

his labour. This view was a starting point for both Locke and Mill (cf. Bekele 2003), but has far older roots (cf. von Below and Breit 1998). Hence, cultivated land could be held with strong tenure rights, and transferred through inheritance or commercial transactions. Conversely, extensively used land had no distinct owners and was kept as commons by villages or larger local communities. Little time was invested in maintenance of land outside the fences; and only commodities produced by Nature's bounty were harvested, in the form of grazing, tree felling or collection of "minor forest products".

Eliasson (2002) adds to the view of traditional land tenure being based on the concept of a "moral economy". According to this, everybody has a fundamental right to satisfy basic needs, and consequently have an equitable share of common resources in the rural society. Accordingly, parts of the land resource were to be managed as common property, open to all in the local community, whether landed or not. This age-old view was considered to be supported by the Bible.

Against the peasant perspective is the ruling view that all land is the property of the sovereign or the ruling classes, a view most clearly expressed in the classic feudal system, in its strict meaning (cf. Cornell 2005). The Roman Empire with its highly developed civil law never made claims of general state ownership of conquered land (although parts could be confiscated for settlements), but instead focussed on the right to tax collection. Cornell (2005) deducts the origin of the feudal social order from the collapse of Empire in the 5th century and onwards, when new, mostly Germanic, conquerors established their dominion over already settled land. The new rulers considered themselves the ultimate "owners" of all the new territories, and the peasants, etymologically meaning 'people already living in the country', and were according to the conquerors' opinion, using the land only by

permission. Later takeovers, such as the state-building by Charlemagne around 800, or the Norman conquest of Britain in 1066, entrenched this view: all land belonged to the King, who delegated control to his magnates, who in turn delegated it to their vassals. Ultimately, where feudal control was strong, the rural population was reduced to serfdom with few formal rights. In other parts of Europe, a class of free peasants survived, subject only to the ruler. Thinly populated forest and rangelands rarely passed under such strict feudal control.

Legal specialists at the emerging European universities in the 13th century tried to solve the conflicting views by seeing land tenure under two complementary rather than opposing perspectives (von Below and Breit 1998, Fritzbøger 2004). The political power had *dominium directum*, a formal ownership right, including rights to sell and bequeath the lands. However, to this came a *dominium utile*, a user right, or rather many non-exclusive user rights, which could be customary or well defined by written agreements and upheld in court. In the less usual case, where the two *dominia* were united and a single person had exclusive ownership and user rights, the term *dominum plenum* was applied (cf. Fritzbøger 2004). The holder of a *dominium directum* could not legally nullify a *dominium utile*, although numerous conflicts arose when powerful landlords wished to evict rural residents whose livelihoods depended on the user rights. During the 15th century, such conflicts arose in England with devastating social consequences; these were exposed by Thomas More in his famous work *Utopia* (1516). The English Forest Laws (eg. "The Black Act" of 1723) became notorious for their extreme harshness even in case of minor infringements, while, the peasant population still harboured notions that they had been deprived of ancient rights to woods and rangeland.

Privatisation of forest started later than privatisation of agricultural land and improved pastures. Large-scale reforms were initiated in

France and the German lands in the wake of turbulence created by the French revolution and Napoleonic wars. Von Below and Breit (1998) dedicate their study to the conflicts ensuing the transition from common to private ownership. That is also the background to Bekele's (2003) study of the transitions between tenure regimes in Ethiopia during the 20th century.

Writing about the Swedish reforms of forest legislation after 1970, Professor of Law, Per Stjernquist (1993) refers to Renner's (1949) views that property rights have different significance to different categories of owners. To a present-day investor, land ownership may have no importance beyond its direct and indirect economic benefits. To the partners in a housing coop, it is access to a suitable dwelling which is central, while any possible gain when selling the flat is secondary. To peasants all over the world, farming is a deep-rooted personal and social identity, land tenure being an indispensable part of it. Furthermore, in traditional society, the fruits of labour were accumulated over generations in the cultivated land, and holdings were frequently conserved within a family, a clan or a similar social group. Alienation of peasant land, regardless of whether it occurs through economic change or after expropriation for public use, tends to be socially disruptive. The lifestyle connection explains why real or perceived infringements of individual or collective tenure rights are such a sensitive issue. Stjernquist (1993) remarks that these observations are in no way novel to rural development sociologists, but they tend to remain neglected in legislation, where equal application of the law is essential. A court cannot judge differently with respect to the social profile of the litigant, lifestyle peasant or commercial forest farmer.

The late 20th century implied a successive rationalization in agriculture towards economically sound units in many countries, making land ownership less of a lifestyle in some units and more of an economic business. Conversely, exclusive private ownership of

forest, contested in the first half of the 19th century, again became an issue in the wake of conservation and other public interests after 1970: it is currently a matter of growing controversy, not at least in the United States of America (Olivetti and Worsham 2003).

1.2. Traditional land tenure in Sweden

In Scandinavia, the feudal system gradually took root in the south and greatly influenced forest tenure conditions (Fritzbøger 2004). The Jutland Law codified in 1241, stated (in section I:53), that of the commons, the King owned the land but the peasants the trees, whereas, the Swedish Ostrogothia Law (1350: section JB1) stated that the King could sell a commons to the peasants, implying a *dominium directum* over the land (Hoff 1997, p. 255 ff.). Such royal claims were obviously contested, Hoff comments, as the Scania Law stated, that a council of local stake holders could authorise the establishment of new settlements on previously uncultivated commons: no royal rights were mentioned. Similarly, Eliasson and Hamilton (1999) examine the situation in the Swedish lands, and the remainder of this section is based on their narrative. The Swedish central government was weak until the ascendancy of the Wasa dynasty in 1523, and the nobility consisted of great land-owning families rather than the feudal nobility of continental model. This meant that, in the beginning of the early modern era (around 1550), land tenure was primarily regulated under the "peasant perspective". Tilled land users fell into three categories: freehold farmers paying tax to the Crown[1]; crown tenants paying fees not vastly different from the taxes; or noble families holding tax-empted land (and frequently taxed land as well) tilled by peasant tenants paying dues (the estates were rarely managed directly by the owner with hired labour). Tax land and tax-exempted land could be sold, mortgaged, bequeathed and divided, whereas crown tenancy

[1] In line with established Swedish terminology, the word "Crown" is used for the state in its capacity as property owner and fiscal agent: "Government" is used for the state as the Executive and policy maker.

contracts were normally passed on to the next generation. Many tenants on the nobility's tax-exempted estates were, in theory, crown tenants paying dues to the nobleman instead of to the Crown; however, the noble owners tended with time to consider themselves as true owners of the land. Perhaps more than a quarter of all homesteads had previously been held by the church, but most of these holdings were taken over by the Crown as a result of religious reform during the 16th century.

Rural settlements were organised into villages, where the agricultural land was split up in numerous plots, the demarcation of which was recognised by the community. The surrounding forestland was held in common, with right of access to household timber and firewood, grazing etc., for both landed and landless local people. The commons were recognized as belonging to villages, parishes, legal districts (*härad*) or even provinces (Eliasson and Hamilton 1999). In less densely settled areas, they were not demarcated.

In the far North, the Sami population had distinct tenure rights to most of the highland areas. In the inland and mountains, Sami people hunted and herded their reindeer under customary regulation of their land use, paying tax to the Crown, a matter discussed later in a separate section. Much of the North, as well as forest areas in the southern and central parts, were sparsely settled, and the Crown from time to time invited colonists familiar with shifting cultivation methods from the Finnish parts of the realm, to settle in sparsely populated forest areas. The Helsingland Law (codified in the early 1300s), valid in the sparsely populated northern two-thirds of present-day Sweden, specifically stated that anyone had the right to settle and open new farmland in no-man's land.

Practically all forest land in the southern provinces up to river Dal was claimed by a community as commons, but sparsely settled regions still existed where demarcations were missing, and shifting cultivation was practised. Further to the north, commons of various types existed, mainly near settled areas on the coast and along major rivers. Due to intensive settlement, and the addition of former Danish provinces in the South, the number of rural households tripled over two centuries. Table 1 provides data on land owning households in Sweden about the year 1500 (estimates) and 1700 (census data), and illustrates the rapid expansion of agriculture.

Table 1. Estimated number of rural households in Sweden

	Year	
	1500	1700
Land-owning peasant households "tax farmers"	35 000	60 000
Crown tenant households "Crown farmers"*	20 000	67 000
Tenant households on tax-exempted nobility estates	12 000	60 000
Total landed households	67 000	187 000
Landless rural households	n.a.	48 000
Total population (persons)	n.a.	1 780 000

* By 1500, 16,000 of these tenants were cultivating Church land, to be secularised a few decades later. Sources: For 1500: Heckscher, 1935. For 1700: population statistics from all parishes, compiled in several issues of *Statistisk Tidskrift* around 1900. Fiscal statistics are available from 1870, whereas reliable area statistics on landholding were only obtained during the first property inventory in 1927-28, at about the same time as a first national forest inventory was compiled.

1.3. Crown, peasants and companies: leading actors in Swedish forest tenure policy

The factual material in this section is derived from Eliasson &Hamilton (1999) and Kardell (2003); however, the political interpretation is that of the authors, and no further references are provided. - In contrast to general European developments, the Peasants as a social group retained their political freedom and a strong influence on politics. Of the four Houses of Parliament, Nobility, Clergy, Burghers and Peasants, the King frequently

favoured the Peasants to counter the ambitions of the Nobility. During the majority of the 17th century, the Nobility struggled to control the Government and feudalise the land holding, but were thwarted in the 1680s and consequently played little role concerning forest tenure. All holders of tax land and crown tenants, who in this regard were just as enfranchised as the landowners, were entitled to elect their representatives to Parliament. Once the Estates were disestablished in favour of a two-chamber parliament in 1866, the Estate of Peasants was transformed into a political grouping, later to become a regular political party, which only lost its character in the late 20th century as a main vehicle for the political interest of landowning farmers. This politically important group will henceforth be referred to as Peasants, not to be taken as connoting a rural proletariat.

Two themes are evident in the development of forest tenure. The first one concerns the substitution of the older views on tenure for modern ownership concepts. Up till the end of the 19th century, the Crown was exercising some kind of *dominium directum* over all forestland, evident both through the oak regale and its claim to one-third of the commons. Noblemen, companies and tax farmers held dominium utile-style user rights. After a century-long transition period, around 1900, the idea of "inviolable private ownership" or *dominium plenum* (cf. Fritzbøger 2002) had gained general acceptance (except by the far left), whereas the late 20th century saw a re-emergence of *dominium utile*-style claims by external stakeholders, albeit that term is no longer used: various 'public interests' are recognised as intruding on exclusive property rights while formal ownership rights are maintained.

Starting in the late 17th century, another theme was successively growing stronger: the interplay between Peasant, Crown and Company interests. Until recent times, Peasants represented a social group with distinct lifestyle values, and the Companies stood for

organised commercial groups representing a modern, monetary economy. In this perspective, the Crown acts in its own interest, striving to strengthen revenue and maintain political control of the country. While the socio-political development in Britain, France and Germany is seen as a struggle by the Burghers to gain dominance over the Nobility, a strong theme in Sweden is the struggle of the Peasants to control the ambitions of the Crown. With the advent of the 20th century, a new group, the Workers, gained ascendance on the political arena, and were replaced at the end of the century by a much less organised and nebulous urban middle class.

The principal ambitions of the Crown have mostly been political stability and maximal revenue. Control of land has not been a goal in itself; rather, the governments, regardless of whether royal authoritarian or democratic parliamentarian, have striven to increase tax income. This could be derived from mining or farming, and later from saw milling and pulping industries. In earlier times, timber resources could be allocated to mining and metalworking, as Sweden was Europe's only supplier of copper and a major supplier of iron. Forestland could be used for new settlements that would pay taxes or tenants' dues later. However, the Crown had a direct interest in the forest as a source of oak and mast wood for shipbuilding, and heavy beams for construction. To obtain this, it maintained *regale* rights to such timber wherever it was found, except from the Nobility's tax exempted land. During the 20th century, the government's strove to protect and increase forest resources and even tried to force forest owners to fell in order to supply the important forest industry with feedstock, such as in the 1970s.

The Peasants' primary long-term goal was to free their land use from governmental control. Up to the 19th century, the peasantry showed no interest in changing the form of tenure, as forest

products were mainly used for subsistence purposes. However, a few decades before the forest attained commercial value, growing individualism prompted land-owning peasants to want to privatise forest commons along with refiguring their agricultural land. Once secure in their tenure, the peasants first started exploiting the now valuable timber resource, then, more reluctantly, to employ modern management methods in spite of the extremely long investment horizon in northern silviculture.

The Companies' interest in the forests was for a long time indirect, as they wished only to procure sufficient pit props, fuel wood and charcoal for mining and smelting. The technology was extremely wasteful, and smelting works had to be located where timber, not ore was available. From the second half of the 17th century, the Crown "reserved" forest areas to support smelting works, transferring forest commons and adjacent tax and tenant farms to support this: taxes and fees were payable in the form of wood and charcoal deliveries to the Companies as a form of state subsidy. With the introduction of industrial forestry, the new Companies, now having wood as a principal feedstock rather than as an accessory, had better motive to control their feedstock resources in the form of full ownership of forestland. For the entire 20th century, Company forests had a predominant role in forest economy, but land ownership appears less of a key asset at the end of the century.

2. From common to private ownership (1683-1950)

2.1. Forest use under customary tenure arrangements

As discussed above (section 1.3), tenure arrangements up till the reforms after 1800 can best be understood through the 'two dominions' philosophy. The Crown made its influence over the forest felt in several ways, best interpreted as a tacit *dominium directum* over all forestland. Corresponding claims were never made on tilled land, where ownership rights of peasant and noble freeholds were unquestioned.

Most notable in its consequences was the *regale*, or royal claim to ownership of all oak trees (and other trees), as well as to large size coniferous stems suitable for masts and major public works, on all land except for the Nobility's holdings. Freeholders as well as crown tenants could be compelled to take part in extraction and transport of this timber. This regulation, valid just into the 1800s, caused opposition from rural people and continuous conflicts with the Crown's forest guards, and resulted in widespread destruction of oak saplings. Even if the saplings grew on the tilled land, they could not be removed according to the *regale*. The oak issue is discussed in detail by Eliasson (2002).

The Crown felt entitled to allocate forestland for use by mining companies that were in need of wood and charcoal for their operations. Although taking place before 1683 the allocations were regulated by an ordinance of that year, (also allowing regular partitioning of Crown land for settlement). This implied that companies obtained a non-exclusive *dominium utile* within portions of forest commons, as existing user rights of the population were not restricted. Furthermore, with the allocations, freeholders and crown tenants were directed to pay dues to the company, which regularly requested payment in kind, as deliveries of wood and charcoal, rather than cash.

With increasing population and intensified timber use, fears grew throughout the 18th century that forest products would not suffice all uses, and various restrictions aimed at timber conservation were introduced and enforced by the forest guards. In effect, these restrictions clearly infringed on traditional user rights, as did the ever-growing use of wood by the mining industry. However, later evaluations (Kardell 2003) indicate that timber scarcity was mainly a local phenomenon, albeit much used as a political argument. This concern was general all over Europe, and exploited for political purposes by various actors wanting to bring the forestlands under stricter control (Von Below and Breit 1998).

With the ordinances of the late 17th century, the Crown initiated a process of partition and settlement that continued until 1926. Kvist (1988) comments that the ordinance of 1542, stating Crown ownership of all unsettled land, aimed to open up the vast inland forest in the northern part of the country for settlement, despite being claimed as commons by coastal communities. The partitioning created a need for demarcation, which in turn designated land as exclusively owned by the Crown. However, subsistence use of forest products was permitted on most lands, the rules varying locally and with time as to the extent of marking required by forest guards before felling.

2.2. Introduction of private ownership of forest land

The privatisation of forest preceded the profound change in mode of production, which took place with the introduction of steam-power saw milling from 1850, and gave the forest commercial value. As the history of silvicultural legislation highlights (Nylund and Ingemarson, unpublished data), institutional change followed societal and economic changes. The driving forces of privatisation in forestry can thus be seen in relation to the general modernisation of Swedish society.

The privatisation started with the unsuccessful settlement program provided by the 1683 forest ordinance and progressed slowly during the 18th century. New holdings were established on forestland in the interior and the north. Large areas, many hundreds of hectares, were demarcated, as the new farms were to have animal husbandry as their main income, and patches of grazing land was widely distributed in the forest. Early instructions mention 150 to 400 ha, and 350 to 700 ha on weaker lands. Actual property sizes ranged up to several thousand hectares. As there was little use for the vast timber resource, other than for household purposes, the Crown initially did not bother to define the exact user rights that the settlers could exercise.

Seeing to the number of stakeholders, the most important privatisation process concerned the partitioning of the commons. The early phases of this process are obscure, due to the lack of sources (Eliasson and Hamilton 1999). The Forest Ordinances[2] of 1647/1664 order intensified demarcation of Crown land from commons. The ordnance of 1734 § 19 discusses the use of "not partitioned" common land in terms assuming that individually held forest also did occur, but, to our knowledge, there is no positive written evidence of such land other than that of the new settlements. However, Eliasson and Hamilton (1999) report, that the members of the Estate of Peasants had requested that partitioning of village commons should be authorised in the 1734 ordnance, but did not gain enough support. And reading §11 of the 1647 "Ordnance on the Forests of the Realm" closely, the legislator

[2] The legal terminology in older forest legislation is not consequent. The two Forest Ordnances of 1647, republished in 1664 were acts of the Parliament, and addressed only specific issues such as demarcation, shifting cultivation, mining companies, and "carrying trees". The 1683 legislation was issued by the Sovereign only. The ordnance of 1734 was a parliamentary act, and aimed at addressing a wide range of issues. The Forest Ordnance of 1793 and 1805 were also wide in scope, but issued by the Sovereign without assistance of the Parliament. The very decisive legal text of 1789 (see below) was technically only a royal instruction regulating the conversion of Crown tenancies into tax land.

actually deals with the establishment of crofts on individually held land – land where no rights of other shareholders could be infringed upon. Private forest tax land must have existed in some form even then, as it is mentioned in the legislation, but there does not appear to be any empirical evidence of private forest tax land.

Starting around 1750, a major process of reallocating farmland (*Storskiftet*) had been initiated (first royal directive 1757), mainly on landowner initiative, and following similar processes in other Europe countries. The traditional settlement pattern meant core villages surrounded by fields, where each household had its parcel of land, implied serious fragmentation. The reform initially aimed at creating larger cultivation units, but in 1773, records from Karvia in the province of Ostrobothnia tell us, that timber forest was included in one partitioning process (Palo, pers.comm). Partitioning maps from the province of Nyland show parcels of forest distributed with the farmland between 1781 and 1802 (Tasanen 2006). Systematic research into the archives would probably reveal many more cases. - In 1800, the land reform went into a second phase (*Enskiftet*) with the explicit goal of uniting all land of one farmstead into one continuous unit. From then on, land from the forest commons was included in the demarcation, and hence privatised. Nonetheless, parts of the commons continued to exist, for which detailed procedures and regulations were stipulated in 1805, for more information about the present-day commons, see below chapter 3.4.

As this partitioning process went on and private ownership in the modern sense de facto to form, the law lagged behind. Yet, in 1789 a royal directive allowed Crown tenants to gain freehold or strictly speaking tax land status by paying a fee. In this connection, it was essential to specify which rights the freehold status implied. §2 states that forestland should be included in the property demarcation, and that the forest could be freely used by the owner,

§3 that it could also be sold. These rights were immediately understood to apply to all other tax land as well. The 1793 Forest Ordinance confirmed the new policy, which was again confirmed *in clara verba* in the ordnance of 1805: *"…§18. So may a tax farmer use his individual, legally demarcated or partitioned forest and land* [sic] *with the full right of ownership and disposal…"*(our translation).

In Europe in the period after the Napoleonic wars, there was a fundamental move towards a new economic liberalism, long advocated by the ascending power of Britain, and away from government-directed economic policies. For about a century, this view dominated the Swedish political landscape, regardless of other political preferences. According to the liberalist view, private initiatives – individual or corporate –were seen as more efficient than state management of the national forests. While previous reforms aimed at transferring common forest to private ownership, a second stage aimed at liquidating the Crown land ownership (except for military and residential purposes) as a matter of principle.

At this time, novel ideas of active and sustainable forest management were spreading from Germany. A first Forestry Institute was established in 1828 by I.A. af Ström, an enthusiastic advocate of the new thinking. However, the long political struggle aimed at reducing state regulation of private land use, and rendered any kind of forestry legislation unthinkable. Instead, the small but growing corps of professional foresters provided the Crown with forest management plans according to the novel thinking.

Forest tenure and forestry regulation were regularly voiced during the sessions in Parliament. In 1823, the discussions culminated in a series of decisions. The reform was enthusiastically supported by the parliamentary estate of Peasants; the Burghers were moderately positive; and the Nobility and Clergy were negative (Arpi 1959).

Privatisation of non-partitioned forest accelerated with the advent of new legislation (*Laga skifte*, 1827) and 65 000 ha out of 160 000 ha registered forest commons were distributed to peasant owners.

All claims to the Crown's partnership in the commons were withdrawn. The Crown's exclusive rights to oaks and other strategic timber had already been gradually relaxed, with the last regulations being removed in 1830 (Eliasson 2002, p 181). Out of 70 700 ha actively managed Crown forest in 1824, 45 400 ha were partitioned up to 1850 (Kardell 2003, p 117[3]). The "redemption" of the Companies' forest allocations should be seen in the light of this policy change. From 1811, it became possible for Companies to "redeem" their forest allocations into tax land with normal property rights. Under these legal provisions and until the law was abolished in 1898, 330 000 ha were transferred into corporate ownership[4].

As the documentation from this process was spread over numerous local archives, no comprehensive statistics on the total extent of forest privatisation are available. A general property inventory was not conducted until 1928. After simplification, it is estimated that 8 million hectares of productive forest were partitioned and distributed, mostly to peasant households, in only Norrland, the northern part of the country, leaving the Crown the remaining 3.5 million hectares. These figures are approximate, as there are no demarcations, between the forest commons of the communities, existing for centuries, and the "ownerless" lands claimed by the Crown.

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[3] Eliasson (pers.comm) suggests that Kardell's sources may be uncertain in the claim that the land was sold, and the dissolution of the former Crown parks was a part of the general partitioning of Crown and unclaimed land.

[4] This and following statistical information comes from the compilations in Gadd (2000).

Whether privatisation would have proceeded as it did is open to speculation, especially if anybody had been able to foresee the developments after 1850, as illustrated by an anecdotal example (reported around the year 1900 by the politician, C Lindhagen; quoted by Morell 2001, p 124). The peasant Olof Jonsson in Härjedalen (southern Norrland) sold his homestead in 1781 to his son Jon for 67 Swedish dollars (*riksdaler*). In 1811, Jon sold the property to his son Per for 267 dollar, who in 1840 sold it to his son Jon for 1100 dollars. After that, Jon received title to 2250 ha forest through the privatisation of previously non-partitioned land; in these areas, there had not been any demarcations of forest before. In 1864, Jon sold the forest property for 40 000 dollars. Subsequently, the property passed through several owners in a short time, and was acquired by the Voxne-Ljusne Company for 300 000 dollars in 1872. Even at this price, it was a windfall, as the estimated standing value of high-class timber on the land was 2.5 million at the time of the acquisition.

2.3. Conflicts caused by the privatisation of forest

The short-term beneficiaries of privatisation were the growing numbers of freehold owners, some of which had owned their farmland for generations; others were Crown tenants redeeming their farms or settlers in the interior and the north. The reform implied increased limitations of customary use of forest resources by the landless. In 1750, the number of landless households was 25% of that of landed households (including tenant farmers). While the number of landed households did not increase substantially up to 1850, the landless households (including crofters) increased four-fold, mainly because of population growth (discussed by Gadd, 2000). The demographic development accentuated the conflict between time-old perceptions of everybody's right to products and benefits from the forest and new ideas of exclusive usufruct by a legally registered owner.

A number of European historians have searched for hard evidence of social conflict. Von Below and Breit (1998) quote EP Thompson in Britain describing the struggle against the fencing, i.e. privatisation, of the commons in Hampshire in the 18th century, and the harsh "Black Act" of 1723, which stated the death penalty for some 50 different property related offences and infringements. Britain was early with rural privatisations, starting with the conversion of commons into sheep grazing land in the 16th century that caused severe rural proletarianisation (cf. More 1516), unrest and violence. Sahlins (1994) described social unrest in the French Pyrenees following privatisation of nominally royal domains in 1827. In Germany, several researchers (von Below & Breit (1998), Blasius (1978), Radkau (1983 and other works) and Mooser (1984) have studied various aspects of the same process. Blasius (1978) worked with statistical evidence on convictions from tried cases of "forest crime". Eliasson dedicates a full chapter in his book *Skog, makt och människor [Forest, power and people]* (2002) to the discussions on "forest crime". In Sweden, the "illicit" use of forest was an issue in every Parliament session between 1809 and into the 1870s, when company driven exploitative logging and take-over of peasant land became the issue of the day.

In Prussia (Northern Germany), privatisation and new silvicultural ideas led to a rapid exclusion of large numbers of people from the forestland. As rural people were still dependent on the resource, regardless of tenure reform, the number of "forest crimes" escalated. Court statistics give evidence of 1000 convictions per 100 000 inhabitants in 1836, and nearly 2500 at the peak in 1860 (Blasius (1978). This high figure reflects a violent social conflict when the feudal-style land-use patterns were replaced with strict private ownership.

The corresponding figures on court convictions in Sweden were much lower. A cross-county analysis shows median values of 38

convictions per 100 000 inhabitants in1830-34, 19.5 in 1850-54, and 9 in 1870-74. Eliasson (2002) reviews the public debate, and notes that tolerance to illicit use of forest successively decreased. The declining conviction figures indicated that social control brought with it a reduced delinquency in this. - Some county data provides evidence of a higher conflict level. Skaraborg county in central south Sweden stands out with a very high frequency (422 convictions per 100 000 inhabitants during 1830-34, 134 during 1850-54 but only 21 during 1870-74) compared with the national medians quoted above All figures quoted from Eliasson (2002). Illegal loggers operated with paid labour, forest fires were lit to cover up their operations and as acts of revenge against landowners denouncing offenders to the authorities. Skaraborg was not a region of early commercialisation, so the data may express a social conflict over changing forms of land ownership. Figures were relatively high in other reasonably well-forested southern counties, but not in the ones with the smallest forest resources. In these counties, people may have become accustomed to restricted availability of forest products for a long time, as existing resources were controlled by owners well before the early 19th century.

Over time, the number of convictions declined in the South, including Skaraborg, indicating an increased acceptance of the new order, in spite of the growing number of landless. With the booming industry in the North, forest crime increased in the two northernmost counties, Västerbotten and Norrbotten, in the 1870s, but here the issue was economically motivated crime, not social protest.

The rural public's concept of common rights to forest is illustrated by the widespread opinion that illicit use of forest goods and benefits was not seen as "dishonourable". To provide a basis for new legislation, the 1855 Parliamentary Forest Committee conducted an enquiry into all county administrations. One question

was how rural people viewed the illicit use of the forest. In traditional society, theft was considered highly dishonourable. However, the replies indicate that illicit use for private needs, at least on crown and common land, was considered acceptable, particularly by the landless and was not considered dishonourable as theft was. The individual answers showed a high degree of social awareness and concern, whereas, illegal logging for commercial purposes was considered as theft and thus criminal.

As later history shows (cf. Enander 2000 on the debate on the 1903 Forestry Act), the concept of exclusive forest ownership took root rapidly once subsistence economy had been replaced by a market economic system at the end of the 19th century. The character of forest crime changed from adherence to subsistence forestry on common lands to modern, economically motivated criminality.

2.4. The companies' land acquisitions and their political consequences

From the mid-18th century, sawn goods from water-powered sawmills in the southern part of the country were exported in increasing quantities. The total volume (requiring 75 000 timber trees per year; Kardell 2003 p. 205) was small compared to the size of the resource, and it did not make the forest commercially valuable. The first steam-powered sawmill was established in 1849, in southern Norrland, and ten years later, the saw milling industry entered a phase of rapid expansion: from a total production of 1.4 million m^3 in 1850, it peaked in 1900 with 12.8 million m^3. Production of mechanical pulp for papermaking started in 1857, and chemical pulp started in 1872. In 1900, there were 65 paper mills in the country (public statistics quoted by Kardell 2004). In the first phase of expansion from 1890 to 1920, the output rose from 0.15 to 1.1 million tons. The quantity of timber required can only be estimated at around 2 million m^3 in 1900, but was over 10 million at the time of the first national forest inventory (1926-30). The total use of timber rose from 21 million m^3 in 1850 to 40 million m^3 in 1900,

and remained slightly above that level until 1950. From this quantity, the household consumption remained at 16 to 20 million m^3 into the 1930s[5].

Logging operations were organised by sawmills and logging contractors, much of the capital coming from foreign investors (Kardell 2003). During the early years of saw milling expansion, the companies approached the peasants with recent titles to extensive forest domains, which up to now had had no commercial value and were used for grazing and winter fodder collection. In that situation, it was easy for the companies to buy Logging rights to all trees above set dimensions cheaply, and for periods of twenty to fifty years. The price paid was often well below timber value, even in cases where it appeared fair at the date of contract. New waterways were cleared by both companies and the Crown for floating, thus opening up previously inaccessible forest resources. The land was heavily cut, and neither the landowner nor the company had any incentive for any silvicultural action on the residual forest. Just as the illicit use of the former commons was intensively debated by the public between 1809 and 1860, this new ravage of the forest resource and the plight of the forest owners now received as much attention. In 1890, the longest lease period was restricted by law to 20 years, in 1905 to only five years, as frequent cases of fraud were reported.

Once the industry had achieved greater economic stability, and partly in response to the frequent litigation over logging rights, companies started to buy land. This frequently took the form of the company acquiring the entire homestead, and then separating the agricultural land and reselling it to the original or another owner. This became a problem especially in Norrland, where at the same time settlements continued to be established on former Crown land,

[5] All statistics on timber consumption are from Arpi (1959).

and which in some cases quickly passed to company ownership. The political climate was still in favour of economic liberalism, and even the peasants' political representation was against any limitations of landowner's right to sell to whom he pleased. In the debate (cf Enander 2000), it was argued that restrictions on company acquisition of land would lead to drastically falling property values. Finally, the negative consequences, of the companies becoming monopoly owners of non-Crown forest in northern Sweden, became obvious, and a "stop law" to prevent further company acquisitions in Norrland was introduced in 1906. Although the problems had never been serious in the South, as the peasants' forest holdings were much smaller and there were fewer industries, the "stop law" was extended to the whole country in 1926.

According to the 1928 property inventory (*Statistisk Årsbok* 1931, Tables 99 and 100), more than 4.5 million ha of productive forest in Norrland and Kopparberg counties were in company hands after being bought from peasants, whereas, 5.5 million remained as peasant holdings. A majority of these 10 million ha were "unused" (besides Sami use and the commons of the old coastal and river valley settlements) in the sense of royal claims of 1542 and 1683; now the Crown was left with 3.8 million ha in Norrland and Kopparberg. In Värmland county, another 0.6 million ha passed into company ownership, and the areas in the South were smaller. In the whole country, the forest sector companies now owned 5.5 million ha, other companies 0.3 million ha, larger estates 0.7 million ha, the Crown and other public owners 5.2 million ha, and peasants 9.9 million ha.

In Finland, which was until 1809 a fully integrated part of the Swedish Realm, privatisation proceeded as it did in Sweden, but the growth of the saw milling and pulp industry started a few decades later. Consequently, company acquisitions were slower, and the

negative experience from Sweden made the legislators to pass a corresponding "stop law" in 1925, when only 7% had passed from private to corporate ownership. At this time, family holdings accounted for 51% of the productive area and State forests for 40% (Ilvessalo 1927). As Finland and Sweden socially and technically were similar in the 20th century, the resulting differences in forest ownership structure and the functioning of the forestry sector have been small.

In response to the rapidly increasing value of the forest, the Crown changed its previous policy of selling land (except for settlements in inner Norrland) and started buying back land in the southern part of the country. In 1870, the total area of managed productive state forest was down at 0.4 million ha: in 1946, with ownership distribution being stable for several decades, state forest comprised 5.6 million hectares, including vast areas in the interior of the North that never passed out of Crown ownership and were not demarcated or managed in 1870.

The period from 1850 to 1900 was highly turbulent when the full consequences of the transition from forest commons for subsistence to an exploitable natural resource became obvious. Many corporate law infringements, dubious affairs, fraud, and exploitation of peasant landowners occurred, and much of the accessible forestland was temporarily ruined. Simultaneously, the future value of forest and forest industry became widely recognised and finally led to the breaking of political blocks and the introduction of adequate and successively stricter silvicultural legislation, starting with the first Forestry Act, of 1903. This provided an impetus for forestry research, improved forestry education, a national forest inventory (the first in 1923-29), and restoration and reforestation, the full benefits of which became obvious only in the 1980s.

Besides the negative consequences for the condition of the forests, the public debate at the end of the 19th century was particularly concerned about the social consequences of the loss of peasant forestland, especially in the northern parts of the country. At that time, the vision was for prosperous farmers settled in Norrland to till the soil during the summer and work in the forest during the winter[6]. However, efforts to settle the interior were largely unsuccessful, and the homesteads were abandoned due to the extent of labour required to exploit and later restore the vast forests. Forest work, on company and Crown land, provided a basic income for the rural population well into the second half of the 20th century, when mechanisation drastically reduced the labour force required and caused regional emigration to the urban centres along the Norrland coast and the southern parts of the country. The social catastrophe feared by many never fully materialised, but the general sufferings of the settlers and the conflicts between "the little man" and "the heartless Company" became a common theme in lore and literature.

2.5. Summing up the tenure changes up till 1950

The ownership structure of productive forestland according to the first comprehensive property inventory in 1927-1928 appears in Table 2. By then, most reform work was complete, colonisation in the north had ceased and companies were unable to buy more peasant land. Thus, the outcome was the creation of a quarter million homesteads with 9.9 m ha forest, all with legal title to their land. Approximately one quarter of the national forest area had passed into company ownership; the majority of which was originally unsettled Crown lands in the six northern counties, distributed free of charge to peasants and then resold at variable prices to the companies. The company acquisitions in the south (1.3 million hectares) mainly comprised privatised peasant commons

[6] Cf. the idealistic picture of Norrland given in 1906 Nobel Prize winner Selma Lagerlöf's novel *Nils Holgersson's wonderful journey.*

and were assumed to have changed owners at more normal market prices. No available records show the total number of homesteads partly or entirely taken over by companies (Arpi 1959; Eliasson 2002).

Table 2. Tenure of productive forest land according to the 1928 property inventory

Property type	Northern Sweden: Norrbotten, Västerbotten 1)	Northern Sweden: Jämtland Västernorrland 2)	Northern Sweden: Gävleborg Kopparberg 3)	Southern Sweden	Whole country
Peasant homesteads etc	36 145	26 575	39 820	175 869	278 409
mean holding, ha	62,4	69,1	35,2	25,1	35,6
Other private holdings	-	-	22	1 319	1 331
mean holding, ha	-	-	1 117	538	552
Peasant forest, 1000 ha	2 255	1 838	1 402	4 414	9 909
Other private, 1000 ha	-	-	25	710	734
Company, 1000 ha	1 135	2 087	1 266	1 380	5 868
State, 1000 ha	2 966	449	396	538	4 349
Other public bodies, 1000 ha	363	14	229	216	821
Total area	6 718	4 388	3 318	7 257	21 682
Peasant forest %	33,6	41,9	42,3	60,8	45,7
Other private %	-	-	0,7	9,8	3,4
Company %	16,9	47,6	38,2	19,0	27,1
State %	44,1	10,2	11,9	7,4	20,1
Other public bodies %	5,4	0,3	6,9	3,0	3,8

1) Norrbotten, Västerbotten: forested inland settled by ethnic Swedes only after 1850

2) Jämtland, Västernorrland: ancient nuclei of settlements in otherwise forested land

3) Gävleborg, Kopparberg: mainly forested but engaged in mining industry for centuries

Government policy had achieved two goals, one of fiscal consolidation by increasing the number of taxpayers, and the other of securing political stability. The rural population and the area of agricultural land reached a peak in the period between the two World Wars. During the entire period of settlement, forest was seen as a necessary complement to farmland and pastures. The peasant labour force worked in the forest during the winter, ideally getting both the stumpage value and the income from felling. The forest policy during the first half of the 20th century began with the assumption, that the normal rural household combined farming and forestry for its sustenance.

During this period, Sweden's population rapidly increased: in 1750, it was 1.8 million, in 1810 it was 2.4 million, in 1860 it was 3.6 million, and in 1930 it was 6.1 million. Between 1860 and 1930, 1.4 million people emigrated. The number of landed households (freeholds, crown and estate tenants) rose from 178 000 in 1700 to 278 000 in 1928. This expansion did not solely account for the population increase, but with at least 2 million people having land-owning households (assuming six persons per household; no household census data are available for the period), political stabilisation was achieved. This was particularly so, as the parliamentary estate of Peasants and the Peasants' Party had political influence during the entire period.

3. Back to multiple user rights (1950-2000)

From 1950, new patterns of societal change took place in Sweden: strong opinions formed among certain stakeholders and values among the rural population changed. In 1950, the countryside was well populated and normal holdings were small, combining farming and forestry. Over just two decades, mechanisation was introduced in large-scale forestry, and at the beginning of the 1970s, horses was only transporting a fraction of off-road extraction. Kardell (2004) points out that forest operations had lagged behind the development in other sectors for a long time, the result being a rapid transition with deep social consequences. In 2000, mechanisation has lead to lower employment in forestry and an increasing proportion of non-resident, non-farming owners. Income from forestry comprised a smaller proportion of the owner's total income. During second half of the 20th century, living conditions and values of the rural population approached those of urban people. Therefore, the word "peasant" has been superseded by small-scale private forest owner.

By 1950, private forest ownership with far-reaching, almost exclusive user rights had been the accepted norm for two generations. Since 1903, forestry legislation had imposed limitations on owners' management options, but the Forestry Act of 1948 marked a turning point regarding owner's freedom of action, and during the coming decades, user rights became stronger. The limitations of owner rights followed the political climate, with an increased claim for socialization of forests: even private forest ownership was occasionally questioned during the second part of the 20th century.

3.1. Public interest in maximal production

Politically, the Peasants' Party and the Worker's Social Democrat Party had collaborated for some time, and continued to do so. In 1952, groups within the Social Democrats started campaigning for

collective management arrangements, or even outright socialisation of the private forest. Their argument was that small-scale owners did not manage the forest efficiently. As the claim was not supported by empirical references, the National Forest Inventory was asked to investigate the situation. The results showed that both companies and individuals had quite large areas of poorly stocked and unproductive forest, especially the small-scale owners. The survey prompted an intensification of restoration efforts. Particularly, the forest owners' organisation started assisting members with management, voluntarily forming areas of joint silvicultural operations. This was necessary, considering the fragmentations of the holdings and that the main argument of the Social Democrats was small-scale private holdings were too small for the necessary mechanisation and other rationalisation of forest work (Enander 2003).

The socialisation initiative had never had wide support, and had been impossible considering the political collaboration between the Peasants' and Social Democrat parties. However, in the early 1970's, the forest industry experienced a short-lived boom resulting in an over-establishment of new industries. Accordingly, political and company representatives repeated concern over the small-scale forest owners not delivering enough feedstock to the industry. Coercive measures were again discussed, this time by a public committee that saw the forest exclusively as a raw material resource that should be developed maximally: any other interests being secondary. The committee's radical recommendations were considered extreme and were rejected by the government, but the concept of maximising value production was expressed in a set of new legislation (the 1979 and 1983 Forestry Acts), implying regimentation of forest owners' action. Maximum and minimum limits to felling, obligations for restoring low-productive forest, compulsory management plans etc. were not detrimental to the owner who shared the goal of intensified management. In some

instances, regeneration and road building were subsidised, but the compelling laws meant considerable limitation of the owners' freedom of action. The owners complied, but dissatisfaction was widespread, particularly among owners with different management ideas than those prescribed by the authorities. During the 1980s, production-oriented forest policy reached the same regulation level as in 1780 (Enander 2003), but trends changed swiftly and one decade later the policy was more liberal.

3.2. Conservation and stronger public rights

The environmental movement strengthened during the 1960s, and the State began assigning large areas for nature conservation and recreation. Limitations in 'owners'rights were solved through voluntary collaboration and compensation for infringements, but compulsory acquisition for conservation purposes was made possible. During the following years, conservationists managed gained media and public attention by questioning the basic silvicultural practices used in forestry, in particular the clear cutting system and the use of chemicals.

From the early 1970s, owners'freedom of action was not only suppressed by new Forestry Acts. The customary right of common access to private land entitled the public to collect berries and mushrooms on any forestland. Previously, this had been seen as a concession to non-owners, not involving economic loss for the landowner. Now, the right was conceived as a claim on the owner to grant certain services to the public. In consequence, the use of fertilisers or pesticides was not allowed as it damaged the quality of berries and mushrooms, and felling and soil preparation made the forest less pleasant for the public.

The development of the modern forest industry in the 1960s and 1970s, with an increased area of young forest, increased the supply of food resources for the Swedish deer population. During the 1970s, the elk (moose) population increased dramatically. Towards

the end of the 20th century, the elk and roe deer populations were so large that their grazing influenced the landscape, for example, with respect to the mix of different tree species. Hunting created excellent conditions for recreation, and the meat was valuable; however, the damage caused by deer on the roads and to the deer forest industry was a problem. The consequences for forest owners with a high population were a limited choice of tree species and high costs for damage to plants and young forest and for taking deer preventive measures (Ingemarson et al. 2007). Since the end of the 1960s, elk hunting has been regulated by the County administrative board, but they only give recommendations and the hunters collaborate with the local forest owners on the level of shooting for moose reduction. The relative strength between the two partners has lead to conflicts and even in 2000, owners' rights were still weaker than the user rights of the hunters, who had strong support from hunting associations with their own political agenda.

New entertainment activities, such as snowmobiles, mountain biking, canoeing, and the collection of reindeer moss (lichen) for fodder were added to the common access agenda. The customary right of common access had a wide political support and emerged even stronger at the end of the 20th century (Kardell 2004). Access for commercial gain has always been viewed as requiring a formal agreement and usually compensation to the owner, but the limits of this non-codified right are increasingly challenged, even in court. Tour agencies arranging rafting, canoeing and horse riding on a regular basis on private land resisted all claims for compensation. At the same time reindeer management expanded in the North. Several conflicts ended in court, and were mostly decided negatively towards the owners. Even so, the customary right of common access was never questioned (Kardell 2004). Stjernquist (1993) pointed out that property rights have widely differing significance to different categories of owners (cf above, section 1.1).

3.3. NON-GOVERNMENTAL ORGANISATIONS INCREASE THEIR INFLUENCE

At the end of the 1980s, the emphasis on regulation for maximal production was relaxed, following a more liberal political climate. Conversely, regarding tenure, global organisations started to set the limitations for the owners' rights in Sweden in different ways. This, along with higher public commitment towards the environment, strengthened user rights.

The changing attitudes were politically manifested as a new Forestry Act passed by the Swedish parliament in 1993, which became valid in 1994. For the first time in forest policy, biodiversity and production objectives had equal legal importance. Detailed regulations of operations were replaced by increased owner's responsibility with target-oriented rules: the private forest owners had to take responsibility and set voluntary areas aside for conservation, not restricted according to the law. The political pressure claimed that nature, cultural conservation, and different user right aught to be taken into consideration during all forest management planning (Ingemarson 2004). During previous legislation, many private owners had disobeyed regulations while sharing the goal of high production, mostly to the benefit of biological and scenic diversity (Kardell 2004). Now, this behaviour received official approval.

When the 1994 Forestry Act was passed, the National Board of Forestry began developing work with green forest management plans; simultaneously other organisations worked with corresponding plans. In the green management plan, every compartment is assigned a goal class describing the direction of the long-term goals aimed at production or conservation, in accordance with the Act (Ingemarson 2004).

With changed emphasis of the national legislation, another strong external factor restricted the freedom of forest owners' action in the

form of pressure from local and global non-governmental organisations, sometimes with their own political agenda (Sörlin 1991, pp 233 ff.). Some environmental organisations have a history of limiting forest ownership rights and criticising the Swedish silvicultural model. Although the environmental movement has been critical, the international perspective of Swedish forest owners' responsibilities and obligations is that they stand on a high level.

Third part (independent control) forest certification schemes are examples of non-governmental policy tools, partly market driven, developed to set standards at a higher level than legal ones in an open negotiation process. Forest certification could be seen as one of several external influences on the forest owners' right. Thereby certification is a complement to the national laws but a result of action from stakeholders groups dissatisfied with the national laws. The phenomenon of public decision making where organisations and interest groups outside the formal democratic system strongly influence the outcome is further analysed by Habermas (1996).

Forest management certification should promote sustainable forest management from an environmental, economic and social perspective. Two international certification schemes came into force in Sweden during the last decade of the 20th century: the FSC (Forest Stewardship Council) system and the PEFC (Pan European Forest Certification) scheme. These two are similar with regard to forest management, but the FSC system is more transparent and has a wider non-owner stakeholder interaction during the development of the standard. The environmental and economic requirements are also similar, but there are differences regarding social issues. The FSC system demands further consultations with indigenous people and local villages, whereas, PEFC demands a certificate for the contractors. The forest owners' associations were active during the creation of the national FSC standard, but decided to leave the collaboration to follow the European scheme PEFC.

The Swedish government was not involved in the process, as certification was seen as a non-state market driven tool, although the green management plan was developed by the National Board of Forestry in accordance with the requirement of the FSC system. A certification code ensures the market that the wood comes from sustainable managed sources, but whether the certification systems are market driven is questionable, as Non-Governmental Organisations (NGOs) use the market mechanisms to promote the schemes.

From an international perspective, the Swedish 1994 Forestry Act was of a high standard, and built upon a stable framework e.g. the Brundtland report and the UN conference in Rio de Janeiro in 1992. A third part international certification scheme requires certain conservativeness to become trustworthy, and has to address recognised global issues. In a society with a mature forest economy, and a high level of legal compliance by landowners and contractors, development might be more rapid and graded than a certification scheme can handle.

3.4. Ownership structure 1950-2000

In public statistics, forest ownership in Sweden was classified into four groups: private forests, company forests, state-owned forests, and community forests. The proportions between the groups have not changed since the 1928 property inventory; however, within the groups notable changes have taken place.

The Crown recently placed (1994/2001) most of its productive land in a state owned commercial company, Sveaskog, producing timber for an open market with nearly 5 million ha of forest. This land includes the Crown parks, acquired in the 19th century, and land that was never settled. Direct state ownership applies only to land with cultural, environmental or military interest, that is 0.9 million hectares. The public expects the state-owned company to maintain a higher environmental and social profile than any other owner,

reflecting the ideals from the 19th century where the Crown parks were supposed to lead silvicultural development.

The private company holdings, 3.4 million ha, have been subject to land exchange in order to create more rational units. The merges have resulted in only three large owners besides Sveaskog: Stora Enso, SCA and Holmen. Recently (2004) Stora Enso together with a smaller company, Korsnäs, placed their land in a public company, thus separating pulp, paper and saw milling from silviculture. The community forests encompass 1.7 million ha, and include forestland belonging to church parishes, municipalities, public foundations, and some non-partitioned regional commons. Municipalities increase their holdings with land for future expansion plans and for recreational purposes.

During the second half of the 20th century, the total forestland area for the small-scale private forest owners remained unchanged. In 2000, private holdings encompassed approximately 50% of the total area of productive forest in the country: some 350 000 owners of about 238 000 holdings, with an average area of about 45 ha of productive forest per holding, totalling 11.4 million hectares. One third of the small-scale holdings had non-resident owners, and this did not differ over the country. Slightly more than 40% of all holdings had more than one owner, with an average of 2.2 persons per holding. Of single owners, 28% were non-resident, and for multiple owners it was 43% (Skogsstatistisk Årsbok 2000). Most owners inherited the holdings. These data illustrate owners prefer to keep the property in the family and did not want to split it, even when moving away, presumably into towns. Most small-scale forest owners live in the South and control 57% of the timber production in the country (Törnqvist 1995), and state and company forest dominate the North. In the South, private holdings are smaller, with greater diversity and productivity compared to those in the North of the country.

The structure of small-scale private forest ownership underwent profound changes during the second half the twentieth century, which resulted in new approaches in forest policy (Hugosson & Ingemarson 2004). One major factor was the rapid rationalisation in agriculture. Between 1964 and 1992, the number of farms decreased by 60%, mainly due to fusion of holdings, and between 1928 and 2000, the number of forest holdings fell by 15%. The proportion of farm holdings with forest slightly increased from 65% in 1964, to 71% in 1992. During this process, ploughed land was separated from forest. In the early 1950s, one-third of the forest holdings had less than 2 ha grazing or farmland. At the end of the period in 1992, the corresponding figure rise to 72% (Skogsstatistisk Årsbok 1951 - 2000). The slow start to rationalisation of forest operations, accelerated rapidly in the 1960s. Income from work in the forest was important to the farmer during winter when agriculture was less demanding. Today, the typical forest owner, farmer or not, does not participate in thinning and final felling, but leaves that job to contractors.

During the last decades of the 20th century, reforms in legislation regulating the acquisition of farmland and forest allowed non-resident and non-farmer to buy forests. Previously, property transfers were tightly regulated by the Agricultural Boards, strictly pursuing a policy of agricultural rationalisation through the creation of larger holdings. Membership in the European Union resulted in lower agricultural activity among farmers, and during the end of the century farm owners strictly performing forestry activities are in majority. The value of the forest previously corresponded to the return from the forest, but other interests, such as hunting, tax planning and quality of life on the countryside raised the prices of properties (Ingemarson 2004). Average farm prices and forestland nearly doubled in the last ten years of the century (Skogsstatistisk årsbok 2000). The open market for

forestland created new objectives among the categories of small-scale owners, and forest owners are differentiated by their objectives into five types (Ingemarson et al 2004): 'the economist', 'the conservationist', 'the traditionalist', 'the multi-objective' and 'the passive' owner. This confirms a shift among values took place during the 1980s and a sole emphasis on economic benefits is not desirable for a majority of forest owners.

By the end of the 20th century the forest owners association in Sweden had their own sawn mills and the largest association had its own pulp industry. Although it has been questioned if is suitable to assist the forest owner with both a selling and a buying organisation the owners associations were well organised. Ninety thousand holdings, including 6.3 million ha of forest (54% of total small-scale privately owned productive forest land), belonged to an association in year 2000 (Skogsstatistisk årsbok 2000), representing a considerable political power.

The present-day commons are an institution that has survived for hundreds of years, despite the many changes in rules and regulations. At the end on the last century, the commons covered some 730 000 ha and the share of productive forest was 2.5% of the Swedish forest (Carlsson 1995). The present days commons do not operate as companies and have their own legal regulations, and are based on private ownership, as the joint owners own different shares that can be passed on to the next generation. Common forestlands are often well integrated in local society and the main goals are for sustainable return and to use profit to support the local infrastructure.

3.4. SAMI TENURE AND USE OF FOREST AND MOUNTAIN LAND

The transition in the North of Sweden is one example where the state did not foresee an uprising conflict, as forestry, farming and reindeer herding were considered to co-exist. Some 17 000 persons are recognised as Sami, an indigenous ethnic group with legal

minority status: all Sami are fully integrated in the Swedish society. The Sami suffered most during the transition process, and their past and present tenure and user rights to northern forests and uplands continues to be subject of controversy. There are several different perspectives on this, which are further developed in Appendix 1, and only a summary of facts with immediate consequence for the general issue of forest tenure are presented.

Sami rights to hunting and annual husbandry were recognised in medieval royal decrees and traditional law. By the beginning of modern times (after 1500), Sami people paid tax on a village basis for the use of wide, demarcated tracts of upland in the north, and their tenure rights were recognised by the Crown in subsequent tax reforms. Reindeer husbandry was the main livelihood for most Swedish Sami, occupying uplands in summer and lichen-bearing forest in wintertime.

The move to colonise the North accelerated during the 19th century and was bound to conflict with Sami tenure rights. At a time when ethnic Swedish peasants obtained modern ownership rights to forest land, based on customary user rights, the county authorities, administrating the partitioning, disregarded the corresponding user rights of the Sami, ignoring the tax-and-tenure arrangements previously acknowledged by the Crown. No royal or parliamentary decisions to this end were issued; instead, it is assumed that the county administrators, unopposed, saw the "overriding interest" of the nation opening the North to farming the country as a guideline. Tenure conflicts concerning tax land redistribution ought to have been settled in the district courts; however, the partitioning process was handled by the County authorities, a procedure used only when exclusively Crown land was involved (Korpijaakko 1989). Ethnic attitudes undoubtedly prevailed; however, any Sami who wished "to settle" had the same rights to a homestead in the

partitioning as everyone else[7]. The plight of the Sami was increasingly brought to public attention, resulting in the Act of 1886, which established specific user rights of recognised Sami villages. This legislation has been to some extent updated, but the basic tenets are still valid. At the same time, general society, the Sami community, and the reindeer husbandry underwent major changes. Three issues prevailed: ownership rights, Reindeer herding rights, Certification, indigenous peoples' rights and intrusion on forest owner's rights.

In a major legal process, "*Skattefjällsmålet*", the Crown's ownership of a wide upland area was contested by some Sami individuals. Even if the Supreme Court decided (in 1981) to uphold the Crown's claims in this specific case after ten years litigation, more cases will be brought up. The basic issue is whether it can be justified that customary tenure rights are converted into modern property rights for ethnic Swedes, when corresponding rights are not recognised regarding ethnic Sami. "Restitution" would imply handing over vast tracts of land to the few Sami able to prove their claims, without redress to the rest of the community

According to the 1886 legislation, reindeer herding rights, including rights to winter grazing in 25% of Sweden's productive forests regardless of ownership, are exclusively held by recognised Sami villages. However, only some 2500 persons out of the 17 000 Sami community are members of these villages, and membership is not readily conceded to non-family newcomers. Established members have the decisive vote in each individual case of application. Efforts to redress the injustice of the general partitioning through extending a different kind of user rights have succeeded in creating only a favoured minority.

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[7] In the European overseas colonies, indigenous tenure rights were normally not recognised by the new rulers as anything but temporal arrangements (exception: highly developed India)

As lichens growing on trees are an essential winter forage for reindeer, the 1886 Act entitled the reindeer keepers to herd their animals in lowland forest designated as "the reindeer management area", regardless of ownership. This area comprises about the northernmost 1/3 of all productive forestland. The law expects conflicting interests to be settled by negotiation. In the beginning, when both forestry and reindeer husbandry were less intensive, few clashes of interest occurred. Over time, they have become more frequent, especially during the second half of the 20th century. Recent Government reviews (SOU 1999:25 and 2006:14) have dealt with some aspects of the issue, as forestry and reindeer husbandry has adopted modern technology and intensified the use of the natural resources.

Both international agreements, expressed in ILO convention 169, and certification requirements, as expressed by FSC, are becoming contradictory on the conservation profile and social rights. In a situation where non-reindeer owning forest owners (regardless of ethnicity) may suffer considerable intrusion and even damage because of present rights, and where the privileged reindeer owners represent only a minor part of the indigenous ethnic group, it is not self-evident that reindeer owners rights should be further extended.

4. Reflections over the present situation

From the early 1970s, freedom of action was restricted by external stakeholders' demands for yield production in accordance with the Forestry Act 1948, amended in 1974 and notably tightened 1979, and at the same time, a series of amendments to the 1964 Conservation Act contributed to further restrictions. During these years, trends changed swiftly after a more liberal political climate, and within ten years, forest owners' user rights went from highly limited to ' less restricted rights. User rights were strong, with a higher public environmental commitment than during the first part of the 20th century.

The forest ownership structure in Sweden today reflects the main objective of the privatisation of forest land two hundred years ago: to provide every homestead with enough forest to cover it subsistence needs for major and minor forest products. The redistribution of the forest commons and Crown land occurred before the forest had commercial value, which industrial forestry created just a few decades later. In a hypothetical situation of commons and Crown land remaining intact up to 1870, the State could possibly have retained a larger share and favoured the creation of fewer and larger private forest estates. Then, perhaps a major part of what is now private forest would have urban owners, e.g. 'the conservationist' according Ingemarson et al. (2004).

In reality, what happened was the existence of a large class of land-owning peasants created political stability in a situation where the number of rural landless grew rapidly and urban industry could not absorb the surplus of labour. For the forest industry, the situation could have developed less favourably, where over half of the timber production capacity lay in smallholdings, with owners whose main income was from agriculture and later industry wages. A comparison with the United States shows that the potentially

very productive pinelands in the Atlantic South East, where there are numerous individual landowners with little interest in improving the timber production, are less of a forestry area than the Pacific North West is, which is dominated by public and corporate owners enhancing the interest in forestry among individual owners.

The situation in Sweden (and Finland and Norway with their similar development of forest tenure) is a different one, with high standards in both the 250 000 private holdings and institutional forest owners. This testifies to the success of the work of the National Board of Forestry, with its concept of 'small stick and large carrot' in supervision and extension to private forestry, and the importance of small-scale private forest owners' co-operative movement. During the second half of the 20th century, private timber purchasers offered more interesting management packages, including counselling and management plans, including multi-objective forestry activities. Without these instruments to inspire and guide the forest owners, progressive forestry legislation would not have achieved the success of today's forest production, 100 million m^3 cubic meter growth and 90 million m^3 actual cutting on 22.6 million ha of productive forestland.

The creation of a legal and institutional framework, instrumental in turning the apparent sub optimal tenure situation into one of social and productive strength will be discussed in a future paper. The authors share the view of Palo (2006), that private ownership of forest is not only compatible with but a contributing factor to the success of the "Nordic Forestry Model", and the experiences from the development in the Nordic countries have a broader application for forest policy globally.

The Swedish forestry framework is stable and well developed. The ownership structure and their roles are well defined. The well-established institutions require that partners can foresee the

consequences of their actions, and thereby, trust in the agreements made. Continuous dialogues with stakeholders and clear market channels contribute to a sustainable tenure system. The activities are surrounded by far-reaching rules and regulations that are mature in the sense they can handle the swiftly changing trends in society. However, attitudes among stakeholders towards owner and external stakeholder rights have changed with the trends in society. Thus, future successful forest policies ought to take into consideration that the different meanings of land ownership to different categories of owners, and that user rights consider several recognized users.

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Appendices

APPENDIX 1. SAMI TENURE AND USE OF FOREST AND MOUNTAIN LAND

The Sami population, who suffered the most in the transition from traditional to modern forms of tenure, mainly appear in the margins of literature. Even though the Sami issue adds valuable perspectives on the development of forest tenure system in Sweden, it was only in the late 20th century that the negative consequences of privatisation become more widely debated in the public. The Sami ethnic groups stem from early post-glacial settlers of northern Scandinavia, and are recognised by Swedish law as a national minority. Some Sami have exclusive rights to reindeer husbandry, involving grazing rights on designated forest and mountain land under public, corporate and private ownership, which alone motivates the treatment of the Sami issue in connection with tenure of forestland. Reindeer herding requires large pasture areas and implies there are challenges associated with the practice, even so, the employment and economical impact of reindeer herding on the national level is small.

Since the first reindeer-herding Act was established in 1886, there have been disputes about Sami customary rights. Whether traditionally transhumant, or extensively land using aboriginal people, should have legally recognised land tenure rights, in forms adapted to their indigenous social organisation, was not seriously considered during the expansion of European culture, locally or in the "new" lands on other continents. "Progress" seems to have legitimised the takeover of land use rights by the expansionist nations.

The mountain Sami started to live off reindeer herding after wild deer disappeared due to over hunting. In the 17th century, reindeer herding became a principal source of income and the Sami started to migrate with them throughout the year. This is the origin of today's Sami villages (Borchert 2001). In Sweden, the partition and settlement of Norrland, taking place in the 18th and 19th centuries, led to changes in the Sami society, and in both contemporary and present-day opinion, the infringements of Sami tenure rights. During the 20th century, reindeer herding began to move increasingly towards meat production

and with this the traditional Sami livelihood has adapted to the technological innovations of the modern world.

Efforts to safeguard Sami survival around 1900 created new problems related to tenure and multiple-use that accelerated during the last decades of the 20th century. As in other parts of the world, action was demanded to redress the perceived and established wrongs-doings during the expansion of population. Three cases are noteworthy: the ILO convention (International Labour Organisation) 169, the FSC certification standard, and a Swedish Supreme Court ruling against Sami claims for ownership of present Crown land.

The ILO convention 169 covers user and tenure rights of indigenous peoples. In preparation of Sweden's possible ratification, two official reports to the Government (SOU 1999:25 and 2006:14) have so far been prepared. To comply with the convention, the rights of reindeer owners would have to be strengthened at the expense of forest owners, infringing on their tenure rights in relation to forest owners outside the reindeer grazing area, according to the reports. The FSC certification standard shares a number of assumptions held by the ILO report, and makes demands on forest owners that surpass those of current legislation. The justification for the precise measures required by FSC has been questioned, partly because of the social issue the standard wants to address, and partly because of conflicting environmental concerns, such as overgrazing. The legal claim of some Sami to extensive Crown mountain land was decided by the Supreme Court in 1981, after 15 years of litigation. The verdict went against the Sami claims, and argued that their traditional user rights were not strong enough. Notable legal and historical expertise does not agree with the Supreme Court and according to Jahreskog (1982), new cases are likely to be brought up as archive research advances. Since 1981, other court cases related to tenure and grazing have been opened.

In the partition process during the 18th and 19th century, all former user and tenure rights, partly collective and partly individual, were set aside, to the detriment of mainly Sami but also non-Sami dwellers. This was a consequence of a general campaign for the effective use of the natural resources of Norrland. The action by middle level authorities and provincial civil servants was instrumental, whereas no

decisions on parliamentary or central government level explicitly called for the setting aside of previous land rights. The courts and the political system have been negative to the Sami claims for redress. Besides the consideration of legal niceties, such a redress would transfer ownership of extensive areas of land in the far North from the State to relatively few individuals.

When all previous tenure rights had been set aside, the Crown granted new user rights to specific Sami communities, "villages", regulated by Law (1886 and subsequent revisions). These communities had rights to graze their herds on mountain land, that at the same time were redefined to be Crown property, and on extensive areas of private and public forest land in winter. The forest owners were and are still obliged to accept this intrusion on their property rights, even when the animals create substantial damage to regenerations, and are obliged not undertake forest management without considering the needs of reindeer husbandry. Both existing and possible new provisions of the ILO and FSC standards are questioned from two points of view: an ecological view and a social view.

From an ecological point of view, reindeer herds have grown considerably since the conception of the 1886 legislation. In 2000, the total number of animals was 240 000, and this may have a negative effect on the ecological balance. About one third of the national territory is legally defined as reindeer grazing land (SOU 1999:25). The damage foreseen by the legislators to other peoples' forest may have been small, but the growth of the reindeer economy during the last forty years has made the clashes between conflicting interests substantiated. FSC rules state that reindeer herding is sustainable and compatible with environmental goals. However, the intensity of current grazing over the Nordic countries appears heavier than with the much less grazed lands in Russia's Kola Peninsula: the average distribution in Finland is 1.5 reindeers per km^2, Sweden is 1.4, Norway 1.2 and European Russia 0.4, , according to Turi (2002). The effect of reindeer on the regeneration of conifers in timberline forest is significant in areas where the number of reindeer exceeds the carrying capacity (Tasanen 1999). The reindeer forage on lichens and evergreen shrubs. Studies of caribou in Quebec show that lichens are of primary importance for these animals in winter and make up 50-70% of their diet (Scotter 1967). The practical

consequences of complying with ILO and FSC requirements are in conflict with the general conservation profile of the FSC system. In South Sweden, FSC rules call for a reduction of the large deer stock in order to protect herbaceous flora and the regeneration of broadleaf trees, whereas in the north, the standard ensures Sami grazing rights on traditional winter grazing land. The Sami reindeer herding communities will face problems feeding the current number of reindeers with a smaller winter grazing area than the one currently used. Therefore, it appears that grazing pressure on the ecological system is high in Scandinavia.

From a social point of view, the Sami rights to the land is tied to the right to engage in reindeer herding, although the Swedish reindeer herding law (1886) has been updated several times. Out of 17 000 persons defining themselves as Sami, only some 2500 are members of a Sami village, and only these persons have right to reindeer husbandry and have special hunting and fishing rights. The village has exclusive right to grant membership, which is frequently denied to the remaining 90%, the "outsider Sami". This is currently a source of internal conflict among the Sami. ILO and FSC principles assume that indigenous people are clearly distinguishable from the majority population. This may be the case with previously relatively isolated rainforest inhabitants, but is highly problematic where the ethnic minority has interacted with the majority for a long time, such as in India and Scandinavia. In Scandinavia, genetic markers frequent in ethnic Sami groups are common among ethnic "Swedes" in the same areas, and historical records provide sample proof of intermarriage, of Sami becoming settled farmers in the "Swedish" forest land, and of Swedes establishing holdings in the "Sami" mountain areas. Hence, the current definition of Sami is a social one.

These critical points illustrate the difficulty of redressing past wrongs of State and society in abolish Sami tenure rights in the past. Land ownership in the modern sense was introduced in Sweden in the mid 18th century with land reforms and accompanying legislation. This was also the point of departure for the Supreme Court in 1981, when the verdict went against Sami claims to extensive Crown mountain land (Jahreskog 1982). In the southern part of the country before the mid 18th century, only agricultural land (and built-up land) could be owned.

Ownership implied exclusive right to cultivation, as well as the right to mortgage, sell, partition, and confer by will. The 1789 constitution inferred full ownership in the modern sense, and forest was assigned to private owners as part of continued land reform. In the northern lands, instead of holding all forest in common, land reform included large tracts of forest for established settlements, and land for animal husbandry was scattered over less fertile forestland.

At that time, the Sami lands were already partitioned between villages, families and individuals according to the Sami community usage, and demarcated by cairns or natural objects. The Law of Helsinge, a medieval set of laws recognised by the Crown as applying to all Norrland, specifically recognised such demarcation as valid. The individual land lots could be sold and inherited, and were normally used exclusively by the owner (Jahreskog 1982, Lundmark 2002). During the middle ages, taxes were collected from the Sami (Borchert 2001). Decisions on community level could motivate redistribution, but not change in total ownership of farmland. In 1602, the arbitrary taxation of the Sami was replaced by regular land taxation, with individual land holdings as the base, and with collective (village level) responsibility for all dues being paid. This reform was implemented within a short time, which indicated that the established tenure system only required ratification by the fiscal authorities. Later, conflicts over land use were treated in district courts, in the same way as cases related to other taxed landowners,, whereas, conflicts related to Crown land tenants were considered administrative matters and treated by the county authorities (Korpijaakko 1989). Many (*vide* Cramér 1972, Cramér and Bergsland 1975) consider this evidence for the traditional Sami tax land tenure was as firm as tax land tenure in the rest of the country, but not by the Supreme Court in 1981, when the verdict went against Sami claims to extensive Crown mountain land, see above. When borderlines for reindeer grazing land are unclear, conflicts regarding hunting fishing and reindeer herding arise (SOU 2005:116). In case of conflict, it is the Sami's responsibility to prove their customary rights in the courts. During the last two decades of the 20th century, Sami reindeer herding communities have been sued by private small-scale forest owners. The verdicts from these cases provide a guideline as to where a borderline for the winter grazing could be drawn. One Commission mapped winter grazing zones (SOU 2006:14).

The Sami tax land was treated as Crown land in the partitioning, and is the root to the present conflicts. The entire partitioning process was handled by the county administrations, not by the courts, and the administrators considered the entire north, away from traditional agricultural areas, as being "no man's land", and as such under the dominion of the Crown. During the 19th century, the semi-nomadic Sami were considered as disqualified as landowners, unless they became sedentary, and it would have been easy for the company logging to take-over Sami land (SOU 2006:14). While society approved of the partition for settlement, and shared the view that a nomad could not be considered a landowner, plight of the Sami soon drew attention. However, the proposed solutions also reflected societal opinion: the "ethnic" lifestyle of reindeer husbandry should be protected by allowing nomad Sami user rights on Crown and private land, whereas the 'other' Sami were invited to be assimilated into the majority population. There is little evidence of prejudice or discrimination against those who had a Swedish language and lifestyle (Lundmark 2002).

The Swedish state did not foresee the uprising conflict, as forestry, farming and reindeer herding were considered to co-exist. The settlers were to live on farming and the Sami by herding, hunting and fishing (SOU 2006:14). In reality, the climate was not suitable for farming and settlers were forced to hunt and fish, and reindeer herding moved more towards meat production. On crown land and in forest owned by forest companies there are fewer conflicts regarding customary rights; however, in areas of conflict, the scattered ownership pattern with several small-scale forest owners between the state owned lands renders it impossible for reindeer herds to avoid small-scale private land during migration.

The current definition of Sami is a social one. Consequently, the extended rights called for by ILO and FSC may actually discriminate against the Sami as a group and favour only a limited few. Regardless of past legal wrongs and present cultural rights, whether an exclusive group of a few thousand should have legal rights to interfere with forest owners' rights to the extent the proposed redress calls for, is questionable.

Forestry legislation in Sweden

Jan-Erik Nylund
Dept. of Forest Products,
SLU – Swedish University of Agricultural Sciences
Box 7008, S-750 07 UPPSALA, Sweden
jan-erik.nylund@sprod.slu.se

Abstract

The paper is a review of Swedish forest policy and legislation over four centuries, using mainly Swedish language literature, including Government and Forest Authority print. - Government policies during the 17th and 18th centuries favoured mining and Navy interests, restricting the rural population's use of the forest commons. The commons and the Crown lands were largely privatised around 1800, and the ensuing philosophy of economic liberalism was against any restrictions on ownership right. Thus, modern legislation was introduced as late as in 1903, in spite of the ambitions of several generations of foresters inspired by the emerging forestry thinking on the Continent, aiming at sustainable timber production. From that year, legislation and institutions were developed gradually striving to utilise the full timber producing potential of Sweden's forestland. From 1979, this policy reached a climax, with far-going state control of forest management while retaining formal ownership rights. The forests were restocked the forests but environment had been steamrolled – at least, a growing opinion saw it like that. After 1990, the policy was reoriented towards more broadly understood sustainability and multifunctionality. This most notably was achieved through the 1993 Forestry Act, but also through new environmental legislation, taxation and property legislation and institutional change, in parallel with similar developments in a majority of European countries. The change can be seen as a transition from state-formulated policy to forest governance where several actors compete for influence. - Policy development over the four centuries is seen as a result of political and economic forces. During the 17th century, Sweden was in many respects a military state where the Crown and the Nobility shared economic interests, while the Estate of Peasants (the peasants never lost their political freedom in Sweden) struggled to defend its land rights. During the last decades of the 18th century, the Crown aligned itself with the Peasants, curbing the former elite, preparing for the Napoleonic era (~1800). This was marked by a transition towards political and economic liberalism, privatisation of commons as well as of public land, and an ascendancy of both peasants and urban entrepreneurs. Towards the end of the 19th century, forest industry became an important actor, while the state wanted to ensure social stability by safeguarding farmer interests. After 1950, industry and the trade union interests dictated the policy, while traditional farming-with-forestry was transformed, losing political leverage. At the end of the 20th century, increasingly urban middle-class values came to dominate the ideational landscape, paving the way for present policies.

Key words: Silviculture law, Forestry Act, forest owners, subsidies, extension

NOTE: SOURCES OF GENERAL REFERENCE

Most sources in this field are written in Swedish. Stridsberg & Mattson (1980) provide a thorough analysis of the role of forestry in relation to general economic and social development from early modern time and on the role of the developing legislation in the general political process. Eliasson and Hamilton (1999) describe the Crown's efforts to regulate forestry since late medieval times, with a superficial treatment of the 20th century. Ekelund & Kihlblom (1996) and Ekelund & Hamilton (2001: in English), concentrate on the period after the first Forestry Act (1903), analysing the objectives of each piece of legislation and making a detailed follow-up of their implementation, with focus on the work of the County and National Forestry Boards. Enander (2000, 2001, 2003, 2007) provides an account of the political processes behind the successive Forestry Acts, against a background of the general development of the forestry and forest industry sectors. All these authors focus on public policy making.

A broad account of the development of forestry in Sweden, including legislation and institution building, is provided by Kardell (2004). Eliasson (2002) deliberately takes a bottom-up perspective in his account of the forestry boom in the 19th century and the consequent conflicts of interests when traditionally minded peasants encountered officialdom and capitalism. Stjernquist (1973: in English), Professor of Sociology of Law, examines the legislation and the work of the Forestry Boards in relation to private forest owners between 1905 and 1960 from a sociological perspective: in two later Swedish language papers (1992, 1993), he develops refreshing views on tenure and legislation. From the same perspective, Appelstrand (2007) examines forestry legislation up to 2006, with special emphasis on environmental governance.

When general information from Eliasson & Hamilton (1999), Ekelund & Hamilton (2001), and Enander (2000. 2001 and 2003) is used for the running narrative, no specific references are given, as the accounts overlap. Direct references to parliamentary committee reports (SOU), government proposals to the parliament (Prop), and legal texts (SFS) are given as footnotes. Translations of these texts are partly from Stjernquist, partly my own.

Contents

Abstract

1. Legal arrangements up to 1900

1.1 INTRODUCTION

In a preceding paper (Nylund & Ingemarson 2007), forest tenure in Sweden has been examined. After radical privatisation during the 19th century, a mixture of family holdings (about 50%), company forests, and publicly managed land characterised the 20th century. The present paper examines how the State strived to first regulate and later actively develop forest resources through legislation and institution building. The analysis ends with a summary of policy reform expressed by the 1993 silvicultural act and its consequences. An examination of national forest policy developments since the mid 90s, and the role of Sweden as an actor in the EU and UN forest policy will be presented in a forthcoming report.

Up to the 19th century, the guiding view of all forest policy was that forest is a God-given good to be exploited with due consideration and restraint (cf. von Below and Breit 1998). The concern over perceived and real timber scarcity set the precedence for Europe. However, the first scientific foresters in the early 19th century saw forest as a resource that could be managed, developed, and increased. In Sweden, it took three generations for these ideas to enter the public mind and be expressed in Sweden's first Forestry Act (1903). The 20th century saw successive more normative and coercive legislation, until a reversal in 1993. The latter shift in policy has been evaluated by government authorities and publicly discussed.

In a survey of forest legislation, public extension, and forest owners' response, Stjernquist (1973, p.21 ff.) observed that traditional law aims at preserving the existing social order in society, whereas, legislators assume the laws take effect by their mere existence. Conversely, Stjernquist (1973) claimed, modern political legislation aims at changing the behaviour of individuals (as well as authorities and public companies). Forestry legislation in Sweden and other countries are, according to Stjernquist (1973), early examples of a new legal thinking, the result of which is nowadays evident in every aspect of life. The legislation gradually introduced from 1903 to 1948 had two immediate goals: to stop destructive logging practices and to introduce orderly silviculture among private forest owners, in the beginning almost exclusively people combining agriculture with forestry. The aim of the present paper was to describe how legislators strove to influence the behaviour of Swedish forest users/owners, above all peasant ones, from early modern times to the present, and how the users/owners responded, particularly those managing holdings.

1.2 THE PERIOD OF THE COMMONS

Legislation in pre-Christian and medieval Sweden was based on provincial laws, codified in the 12th century and onwards (cf. Hoff 1997, Eliasson and Hamilton 1999, Fritzbøger 2004). In the 14th century, these formed the basis of a Country Law and a Town Law. Under this legislation, the use of what is now called "minor forest products" was central: timber was so widely available that it had less focus. Royal prescripts were issued to regulate specific matters, but did not reflect any kind of consistent or public policy.

The establishment of the centralised national state during the first half of the 16th century also marked the beginning of a consistent forest policy. Firstly, in 1542, the Swedish Crown presented a general claim to all unsettled land and, less specifically, upheld a right as a partner in all commons. These claims reflected medieval practices as stated in the Danish Jutland's Law and elsewhere in Europe (cf., Eliasson and Hamilton 1999, Fritzbøger 2004), but were never raised in Sweden. Secondly, the Crown reserved the right to all oak trees; these were indispensable for the fleet. This right was to remain 'a thorn in the eye' to the peasants as long as it existed. Thirdly, the mining industry, requiring vast quantities of wood and charcoal, was given rights to forest use on former commons, as well as the income from land tax on those areas. These measures indicated the Crown considered itself as an overlord of all forest, having a dominium directum, and all other parties had various kinds of non-exclusive user rights, dominium utile. Compared to most of Europe, the regal claims in Sweden came late and were modest. In neighbouring Denmark, according to the medieval Jutland law's concerning forest commons, the king claimed ownership to the soil, and the peasants owned the growing trees (cf. Hoff 1997, Fritzbøger 2004).

A constitutional reform in 1617 created the formal preconditions for modern-style lawmaking. In 1647, the first pieces of regular forestry legislation were passed in the form of two Forest Ordnances: one dealing with "carrying trees", including oak for shipbuilding; and, the other, concerning restricting wasteful logging practices and shifting cultivation in high forest. Both matters had been previously treated in royal letters and discussed in Parliament, however, this was the first time the form and procedures of legislation regarding forest issues, still observed today, were used. Heavy opposition to any restrictive legislation was weathered during Parliamentary debates preceding the two ordnances, with the argument that this infringed on property rights and "God's Order of Creation" (see discussion in Eliasson and Hamilton, 1999). The same arguments were to be raised during parliamentary debates two and three centuries later!

In the period 1674 to 1697, several royal commissions worked in southern Sweden with the main task of demarcating Crown land from the commons. However, they also sought to regulate the peasantry's user rights in the Crown forest, thereby, setting a standard for their management. Forest administration had the right to mark out timber for the peasants' immediate use. Another round of commissions during the latter part of the 18th century also discussed forest management, but had little influence on policy.

Forest administration gradually developed. The first Royal Master of the Hunt and Game Keeper (Jägmästare) is mentioned in 1551, and the organisation was designed to protect and organise royal hunting. In 1634, a parallel post as Riksjägmästare, or in effect a Chief Conserver of Forests, was instituted. Around this nucleus of a national forest administration, a network of higher and minor officials was developed, who were charged with maintaining "law and order" in the forests, above all to look after the Crown's rights to oak trees and stop other illicit use of the forest, according to existing local rules. Until 1780, even subsistence timber from the village commons had to be marked by the forest service[1]. The spirit of all legislation was to prohibit perceived destructive practices, not to encourage creative practices. The guards were severely underpaid and corrupt, and were loathed by the peasantry, who considered their activity as harassment of rural people.

The general attitude of the authorities towards the rural people and their use of forest goods was restrictive and negative. During the latter decades of the 18th century, King Gustavus III wanted the peasants' support in his struggle with the nobility and gradually reduced the staffing of the forest administration and relaxed regulations (main deregulation in 1789, beech trees 1793, ship oaks 1830, mast trees 1875: Enander 2007b, p. 45).

In a paper on forest tenure (Nylund and Ingemarson 2007), the appearance of new perceptions of the concept of land ownership that resulted in successive land reforms is presented. Simultaneously, the age-old resistance to the Crown's interference in the use of private forests developed a more clear-cut ideological basis, economic liberalism. As a result, state interference in the expanding forest economy was minimised and Crown land was partitioned and privatised.

1.3. BUSINESS, BUT NO LEGISLATION

At around 1850, large parts of Sweden's forest land, except in the North, was demarcated and under private ownership (Nylund and Ingemarson

[1] According to the Royal Ordnance on the Forests of the Realm, 1734.

2007). With the introduction of steam saws and Britain opening up free trade, saw milling increased and continued to expand for the rest of the century. Pulp and papermaking became important after 1890. The rest of the North was successively privatised or brought under Crown management. Over the entire 19th century, forest exploitation increased, and the old fear of timber shortage gained substance. The professional foresters, notable among them A. af Ström, founder of the Royal Forest Institute (1828) and author of the first textbook, *Handbok för Skogshushållare* [Manual for Forest Managers] (1823), had a clear vision of how forests should be managed for sustainable yield. However, the spirit of the time was against any legislation on the use of the forests. In 1856, Parliament started a commission to systematically gather information and formulate proposals, but in 1858, it decided not to legislate on the management of private property, but to strengthen and develop the management of Crown forests. With this purpose, the State Forest Directorate (*Domänstyrelsen*, later renamed *Domänverket*) was reorganised 1859 to manage remaining and newly acquired Crown land according to the best contemporary standard. The purpose was multifunctional: to generate income for the Crown, to ensure timber supply to sawmills, and to set tangible examples to corporate and estate forest owners. Management principles for these forests were laid down in Forest Ordnances. Ordnance 1866:62, followed by 1894:17 required silvicultural management plans based on scientific principles and aiming at high sustained yield (cf. Dickson 1956, p.28 ff.). As the companies' holdings became larger, they modelled their forestry organisation after the State Forestry organisation, with districts and sub-districts headed by professional foresters.

This was a result of concern for forest issues arising in Parliament along with the expanding forest industry and the spread of clear-cuts. The "1856 forestry commission" presented proposals for an updated legislation, but both the commission and the MPs focussed on the illicit use of the forest, rather than on general management principles. However, there was also a radical proposal, that forest intentionally devastated by its owner should be put under compulsory management by the State Forest Directorate. This idea was hotly opposed in Parliament, and all initiatives to legally compelling rules for regeneration after exploitation were deferred. As an illustration of the mood in the parliamentary estate of Peasants, protests were even raised against a recent ban on shifting cultivation, which was seen as an intolerable infringement of property rights (quoted by Eliasson 2002, p.335).

There were propositions for legislation similar to that introduced two generations later. JM Sprengtporten (1855), an influential politician with a

career involving forestry, developed ideas that were to reappear in the future. Any forestry law must define the concepts forest and/or forestland. The prime purposes of a law should be to prevent the devastation of growing forest and ensure final felling was undertaken in such a manner that regeneration was possible.

Considering the political opinion against regulation, the State Forest Directorate sought to use existing property legislation as a tool to stop illicit cuttings. These were no longer carried out by single peasants who cut household timber where they had no right to do so, but by unscrupulous loggers, or even companies, supplying the industry with timber. In the county of Västerbotten, the illicit timber volume confiscated by the Forest Service in between 1866 and 1868 was larger than the total volume legally marked out for felling. The number of legal convictions for forest-related crime rose to over 200 per 100 000 inhabitants, whereas, in the rest of the country at that time, forest-related crime ranged from 2 to 30 per 100 000 (both examples from Eliasson 2002 p 342). Dramatic action by the foresters sometimes came close to armed violence, but overall, after some very turbulent decades in the north, law and order was restored. In public debate, strong opinions still claimed that illicit logging was not to be treated as theft, as the timber appropriated was not produced through man's labour but given by Nature's bounty. Eliasson (2002) makes an note on large-scale exploitation, illicit or legal: As general industrialisation was just starting, employing relatively few workers, the forest work provided a livelihood for large numbers of landless households and decisively contributed to reducing social tensions.

Politically, the forest issue continued to be debated. The 1862/63-parliament update of the criminal law made it easier for State foresters to act against illicit logging. The parliament of 1865/66 decided to establish extensive "Crown parks" for the rational management of the northern forests. The Ordnance for the Crown forests was issued, setting principles for a selective logging system aimed at continuous regeneration – a practice lacking empirical support and much debated since af Ström's (1830) devastating criticism. Due to the special conditions on the island of Gotland, regeneration after clearfelling was made compulsory, despite general resistance to any kind of regulation. A comparison of the records on reforestation with the logging statistics from other parts of the country reveals that even in the Crown forests, reforestation was neglected where the exploitation was most intense (Enander 2000).

2. Teaching people silviculture by law, 1903-1983

2.1 THE PATH TO THE FIRST LAW IN 1903

The traditional four-estate parliament was reformed in 1867, and the new two-chamber organisation allowed the Peasants to play an even more prominent role. A new forest committee delivered its report in 1870 and presented estimates of the status of the forests; a delicate task as no national forest inventory had been conducted. The commission proposed further intensification of State forestry, and worried about "social and moral consequences" of ongoing exploitation. Therefore, a limit on logging leases of ten years was suggested, compared to the current twenty years. It sought to slow down extraction through a ban on transport and milling of small-scale logs, supposedly from immature trees, and, most radically, recommended compulsory regeneration after final felling, in many respects echoing Sprengtporten's proposal. The State Forest Directorate criticised all recommendations; it appears that the Directorate envisaged further strengthening of State-owned forestry. In accordance with this, the Directorate got a parliament mandate and funds for buying land for reforestation in southern Sweden. This created a basis for state forestry in southern Sweden, where most of the former Crown land had been privatised during the first decades of the century. From that date up to 1955, 635 000 ha was acquired for state forest production, 70% in the southern part of the country (Eliasson 2002). Along with this, there were areas never privatised, resulting in 4.4 million ha, including unproductive land.

In 1874, the Government proposed a silviculture law, based on the c1856 commission recommendations, compelling all private owners to ensure regeneration, which in case of failure could be executed by the authorities at the expense of the owners. However, due to dissension between the two chambers of parliament over the severity of the proposed sanctions, no laws were enacted (Enander 2000). In contrast, Finland passed its first silviculture act, similar to the proposed Swedish one, in 1886 (Palo 2006). Other legislation proposed in 1874 and 1875, defining grave illicit logging as theft, was intensively debated, particularly where the limit was set between single, often landless households' unregulated use of wood, and commercially motivated theft (Eliasson 2002). With the passing of the latter laws, the privatisation of forest could be considered complete: forest goods were treated by law as another commodity, leaving a grey zone in its actual application for social reasons only. In this debate, the argument about the forest as free goods was not broached; illustrating how growing commercialisation was rapidly changing age-old perceptions. Finally, in 1874, several MPs proposed a law regulating the minimum dimension for

timber to be felled, but after heated debate, this was applied only to the 'hottest' industrial areas in the north. Even so, the limitation of the rights of private ownership was considered unacceptable by many; for example, the Minister of Finance, CF Waern, politically a Liberal, resigned from his post as a consequence of the decision (Enander 2000).

The unsatisfactory results of forest regeneration continued to be debated, and in 1888, the parliament a subsidy for forest plantations on private land was introduced. However, the main issue was company acquisition of peasant land, further described by Nylund and Ingemarson (2007). The matter was raised in Parliament in 1892 with no consequence, but a decade later (in 1904), the situation was considered alarming enough for restrictive legislation to be proposed, even if this seriously affected the owners' rights to sell their land. In 1906, a law was passed: no further peasant land was to be sold to corporate owners in the northern part of the country.

In response to the inability of the Parliament to act on the key issue of a silvicultural law, King Oscar II and Prime Minister Boström initiated a new forestry commission in 1896, which represented various interest groups, rather than political parties. The commission collected facts and research results from the country and abroad and arranged nationwide public meetings that followed a strict agenda of matters to be discussed. In addition, a wide array of local and regional authorities was consulted. After much debate, the following commission proposals were accepted by Parliament[2] in 1903:

- "Private land must not be logged or treated after logging in such a manner that regeneration of the forest is endangered"
- If the land has been abused so that the forest does not regenerate, the responsible person is obliged to correct the situation.
- County Forestry Boards will be set up to enforce proper action in such cases"

However, some committee proposals were not accepted:

- a requirement for professionally trained managers of larger estates and company forests.
- a nationwide law on minimum dimension for clear felling.
- compulsory marking by public inspectors of all trees to be felled.
- a declaration of the principle of sustainable timber production and long-term economic viability.

An overview of the provisions of this and all subsequent Acts is presented in Table 1.

[2] SFS 1903:79

Table 1. Issues treated in the successive Forestry Act

	These laws does not apply to state and other public forests, which are governed by their internal rules of similar purpose			These laws apply to all forests in the country		
					Amendments to 1979:429	Introductory statement: Conservation and production are to be given equal consideration
Duty to manage the forest	§1 Privately owned forest land must not be logged in a way clearly endangering regeneration. If it has been devastated, the responsible person is obliged to ensure its restoration	§1 Forest land has to be used for forest production	§1 Forest land has to be managed to achieve a satisfactory economic gain and an even yield Amendment 1974: 1026 The interests of environmental protection have to be considered.	§1 Forest land has to be managed to produce a sustained high and valuable timber yield. Environmental protection and other public interests are to be considered	§1 Forest land has to managed to produce a sustained high and valuable timber yield. Environmental protection and other public interests are to be considered	§1 Forest is a national resource to be managed for a sustainably good yield, at the same time maintaining biological diversity. Its management should consider other public interests as well.
Validity of the law				§4 The law of protection of nature overrules the forestry law		§4 Do.
Definition of forest land			§2 Short definition of forest land	§2 Definition of forest land and productive forest (>1 m^3/year)		§2 Do
Rights of Sami people			§3 Brief mentioning of special Sami rights	(No mention, but some relevant provisions exist in the law regulating reindeer herding)		§20-21 Consultations and consideration in reindeer herding areas. Also §31
Use of forest land		§23 Forest land may be transferred to other uses; permit required for transfer to extensive grazing land	§30 Do.	§3 Forest land may be used for other purposes		§3 Do.
Subsistence forestry		§4 Wood and timber may always be felled for household use	(Removed. Only provisions for old easements included)			
Regeneration methods				§7 The authorities may prescribe methods for regeneration, sources of seed and seedlings, etc.		§6-7 Do. Deep ploughing for site preparation not allowed. Restrictions on exotic and cloned material
Pre-commercial thinning				§9 Pre-commercial thinning compulsory		
Thinning		§3 Felling of immature forest only through silviculturally sound thinning	§6 Do. Economic definition of "immature".	§12 Felling may only take place as thinning, aimed at improving the forest's development, or as final felling that makes regeneration possible	§9 Thinning is compulsory when the forest is so dense that its production of valuable timber is reduced	§10 Felling should be compatible with regeneration or improvement of the forest
Final felling		§5 Mature forest must be felled and the land treated so as not to imperil regeneration	§7 Mature forest must not be felled so that a future even yield is imperilled nor so that regeneration is imperilled	§13 Final felling allowed only when growth is declining, compared to the rotation average		The National Forestry Board gives instructions on lowest felling age, allowable clearcut area, etc.
Reforestation of unproductive forest land		§9 If forest has been felled so that natural regeneration is unlikely, sowing or plantation must be done and the success of the work ensured	§14 Do.	§5 Compulsory reforestation of poorly stocked or idle forest land		§5 Do.

Forestry Boards to provide advance approval of intended felling		Owner may request advance approval of intended fellings	§10 Do.	§16 Do.		§13 and 14 Do.
Advance notification of intended felling			Amendment 1974: Compulsory notification of intended felling larger than 0.5 ha	§17 Compulsory notification of intended felling		§14 Compulsory notification of intended felling, of regeneration method and of measures to protect environment and cultural remains
Compulsory reforestation after calamities		§10 Reforestation required after calamities, but with a cost limit	§15 Do.	§6 A Forestry Board may order a rot-damaged or declining stand to be clearfelled and reforested		Not clearly stated, but a consequence of §14
Owner always responsible for regeneration/reforestation after felling	(§1 Unclear who is responsible)	§11 The owner is always responsible for regeneration, but contractors are economically responsible if exceeding permits	§18 Do.	§10 The owner is responsible for the regeneration of the forest		§8 Do.
Further rules regulating final felling				§14 The owner has to ensure that fellings create an even age distribution. Minimum ages and maximum areas for clearfelling, expressed as proportions of total area etc.	§14 Do. Compulsory minimum and maximum areas of felling	§11 Maximum but no minimum area
Management plans and data					§21 Silvicultural management plans compulsory for holdings > 20 ha in S Sweden or >40 ha in N Sweden	§14a Documentation of forest status and conservation plans compulsory.
Protection forest	Special rules for protection and management of seaside and highland forest	§18 Do	Extended rules for protection forest and forest difficult tc regenerate.	Management rules for protection and highland forest, relaxed compared to previous rules		More detailed rules for protection and hard to regenerate forest
Wetlands		§22 Special rules for forest on wetlands	(wetlands not mentioned)			
Valuable hardwoods					1984:119 Law for oak, beech, elm, ash and other valuable hardwoods	§22-28 Dealing with oak, beech, etc..
Insect pests			§34 National Board authorised to issue special regulations to combat insect pest outbreaks	§20 Do. To prevent and combat pest outbreaks		§29 Do.
Silviculture and conservation				§21 The authorities may regulate silvicultural practices in the interest of conservation, however, not to a degree seriously interfering with ongoing land use		§30 Do. §32 Anyone planning to try new silvicultural methods must submit an analysis of environmental consequences.
Authority of the Forestry Boards	County Forestry Boards to supervise and counsel	Do. A Board may authorise exemptions and pass advance judgements on the legality of proposed management measures. A Board may halt illicit fellings, levy fines and confiscate illicit timber.	§4 Do. Establishment of a National Board to supervise county Boards	Do.		
Work of the Forestry Boards	1912:274 Income from timber sales to be declared in income tax return	1923:213 The Forestry Board should - divulge silvicultural knowledge - pay out subsidies - otherwise promote good forest management - ensure the supply of sedd and seedlings - supervise and enforce the law - provide advice and technical instruction to forest owners at a fee or free of charge	1941. Setting up of a National Board of Forestry	Establishment of ÖSI - general assessment of forest condition as a tool for supervising forest owner performance. (1975: general obligation to notify FB about intended final felling)		
Other pertinent legislation	1933:269 Control of grazing 1937:222 Control of forest fire	1923 onwards. Government instructions to conduct a national forest inventory, county by county				

The 1903 Forest Act was the first step towards a general obligation for rational forest management. Reception to the law was mixed. It was a victory over century-long resistance to public regulation of the use of private property, but insufficient in itself, according to forestry professionals. Lacking a legal definition of forest, and keeping in mind the widespread extensive grazing, law enforcement officials found it difficult to delimit land where forest laws were to be applied from agricultural land with trees on it. Forest owners, on the other hand, were initially incensed by hard-line representatives of the newly instituted Forestry Boards. One major issue was at which point of owner mismanagement legal intervention had to begin. Details of early deliberations are presented by Carbonnier (1907). Over the next decades, forest grazing slowly lost importance, but was still such a problem in 1948 that is was specifically banned. A greater problem was that younger forests lacked protection, and were felled once the older trees were gone.

2.2 THE FORESTRY BOARDS – A KEY TOOL FOR FOREST POLICY

The privatisations in the 19th century, creating a quarter of a million forest-owning peasant households covering half of the country's productive forestland, could have resulted in permanently poor management of these forests. Management of company land also needed consolidation after decades of exploitation. Referring to the observations of Stjernquist (1973), a law aiming at changing social practices requires some kind of active enforcement. Fortunately, the path chosen was that of extension, primarily educating and motivating forest owners: coercive and punitive action was only used as an ultimate corrective to deliberate law infringement. This principle was to be actively upheld during all successive legislation. The creation of County Forestry Boards was a far more decisive act than any single legal paragraph on forest management. A hundred years later, the Swedish Forest Agency, as the authority is now called, plays a pivotal role in the implementation of national forest policy, particularly among the owners of 250 000 private forest owners (cf. discussion in Appelstrand 2007, pp.195 ff).

The decision to start afresh and not use the State Forest Directorate as a base for the new organisation was strategic. However, the forestry boards were not completely from the beginning, but incorporated both staff and working methods from existing county "hushållningssällskap" (agricultural societies), a kind of semi-public advisory organisation, also engaged in reforestation of degraded forest and wasteland, and in counselling landowners on timber affairs. After a few years with a coercive policy, the Forestry Boards opted for the same strategy the societies had followed, i.e. counselling and

motivating the landowners to manage and improve their forest. This policy was explicitly mentioned in the government proposition for a new law in 1923[3]. While the 18th century forest guards had been loathed, the 20th century silviculture advisers were welcomed in most rural homes. This was facilitated by advising on management practices, particularly felling, and by initially being lenient about law enforcement. The strategy has been criticised, but considering past records, was a wise policy. The boards strove to place staff in their own home regions, which ensured familiarity with local conditions and enhanced their acceptance among the forest owners. Further insights into that process are provided by Stjernquist (1973).

The Forestry Boards were financed through a duty levied on all fellings, related to the market stump value.[4] The forest owner had to declare all fellings for sale in his regular income-tax return, and paid normal income tax and a special duty allocated for the Forestry Boards. The size of the duty varied, but was originally 1.3% of stumpage, to be compared with levels in the 1980s discussed below. In 1925, a coordinating body was established to ensure all Forestry Boards followed the same standards: in 1941, this was upgraded to the National Board of Forestry[5]. In 2006, the individual county boards were brought into a single organisation, the Swedish Forest Agency.

During this time, Sweden was considered mature for a system-based on actual income from fellings i.e. taxation of income from forestry. This required that timber sales were regularly accounted for and not hidden away from the taxman. The tax based on stumpage value rather than total sales, was advantageous for peasant owners, as they could do the felling themselves and the additional income was not taxed. Neighbouring Finland had similarly low levels of corruption, but chose to levy the tax on the calculated productive capacity of the forestland instead of on actual income, and maintained this system until the late 1900s.

2.3 A FULL SET OF FORESTRY LAWS: 1923

Once resistance to legislation was broken, the advocates of more active national forest legislation continued to push their ambitions further. In 1911, another parliamentary commission started work identifying three levels of ambition for legislation:

[3] Prop. 1923:104
[4] SFS 1912:274. Initially (SFS 1903:79) a tax was levied on exports only.
[5] Prop 1941:94.

Regeneration laws, ensuring forestland remains in a productive state. This was achieved by the 1903 Act.

Laws protecting growing forest and setting lower diameter limits to logging. This became the next immediate goal.

Laws requiring rational and sustainable silviculture. This was proposed in 1923, but was rejected.

In the course of its work, the commission authorised local forest inventories and made nationwide estimates of the state of forest resources. The results highlighted over-cutting, which threatened long-term timber supply.

The commission was about to present its recommendations, when the Government was prompted into immediate action by the ongoing economic crisis precipitated by the protracted World War I (1914-1918). Fuel-wood cutting had increased sharply as the import of coal was cut off, and growing forest stands were widely ravaged (cf. Ekelund and Hamilton 2001, p.37 ff.). The response was a temporary law[6] (1918) banning all cutting of growing forest, except for proper thinning, without explicit permit of the Forestry Board. Another paragraph aimed at curbing speculation and forbade resale of properties within five years of acquisition. This regulation was modified in 1938[7], when logging of more than 2% of a property within 5 years of acquisition was banned, without Board authorisation. Finally, the Forestry Boards were permitted to immediately forbid logging without first bringing the issue to a legal court (Enander 2001 p79; Appelstrand 2007 p.39). The laws were passed in Parliament without opposition.

As soon as post-war conditions had stabilised, the proposal for protecting growing forest was rementioned. The temporary law had been renewed annually, but resistance to making it permanent was notable. Ironically, the critical voices took the poor state of the forests as an argument against protection: as there was no old timber left to cut, they claimed, the owners would be denied their right to harvest if younger trees could not be felled. The issue was still whether property rights were to be upheld against the principles of sustainable production forestry; however, the five previous years of regulation rendered the idea of compelling regulation acceptable to a parliamentary majority.

[6] Prop 1918:441
[7] SFS 1938:392

The resulting 1923 Forestry Act[8] was a more complete piece of legislation than in 1903 and emphasised the key role of the Forestry Boards. The 1903 statement that "Private land must not be logged or treated after logging in such a manner, that the regeneration of forest is endangered", was reiterated with short definitions of forestland and the following new points:

Should the forest be left in an unsatisfactory state after logging, the owners were obliged to actively ensure its regeneration [by planting, sowing, etc.]

- The owner's obligation to ensure regeneration was extended to cases of storms, insect damage and other calamities.

- Immature forest could be thinned, but only for a better stand development (unless specially authorised).

- Felling on a property must not be so extensive that the continued supply of "household timber" was endangered.

- Land classified as "difficult to regenerate" was to be logged only after marking by the Forestry Boards.

However, the requirement of forest management for sustained yield, already proposed by the 1896 committee, was still resisted by small majority of MPs. A proposal to oblige forest companies and major private owners to have long-term silvicultural plans was rejected. The prohibition on felling within five years of a property acquisition, without Forestry Board permission, was not prolonged after 1923, but was temporarily reintroduced in 1938 (cf. Ekelund and Hamilton 2001 p. 39). In 1925, the 1906 prohibition on companies buying peasant land in the north was extended to the whole country, but by then company acquisitions had ceased to be a real issue, as the commercial boom had ended and stumpages were declining. The protection of forest difficult to regenerate was extended by the time-limited 1932 Lapland Act, which made marking by Forestry Board officials compulsory on all land in the northern submontane and montane zone.

The law set precedence for the style and coverage of future legislation (The legal paragraphs were broadly held, and terms were undefined and the Government was responsible for formulating concrete instructions. In practice, the Forestry Boards issued compelling instructions and recommendations that were more general for the forest owners. Thus, in

[8] SFS 1923:212

publications intended for practical use, interpretations of the law in practical terms were included, as was general advice on how to achieve the best result from silvicultural work. This principle was followed in all subsequent legislation.

2.4 THE NATIONAL FOREST INVENTORY AND OTHER DEVELOPMENTS

A major obstacle to the formulation of efficient forest policies has been the lack of reliable data on the state of the forests. By 1923, the principles of large-scale forest inventory had been scientifically developed, and a large-scale pilot inventory had been carried out in the county of Värmland. The Government authorised successive county inventories; in 1929 the entire country was covered[9]. Reliable estimates of growth and standing volumes were obtained for the first time, but acquiring information on felling quantities proved more difficult (and continues to be so even today). A second round of inventories was initiated in 1938, but were not completed until 1952, as war caused a standstill.

Meanwhile, as the Great Depression and then the path towards World War II dominated attention, forestry ceased to be an issue for two decades. The Forestry Boards became accepted and even appreciated by institutions; however, their work during this period was later severely criticised for not making full use of existing legislation, particularly regarding regeneration. The principles for thinning were established among forest owners, who realised a tangible benefit from it. Costly regeneration of logged-over stands was less popular. Furthermore, professionals considered selective logging a manageable way of ensuring sustainable forest production: retrospectively, they were found to be wrong. In the early 1950s, large areas of forest were neither fully stocked nor attained sufficient natural regeneration. Conversely, forestry and forest industry developed into well-established businesses of importance to the country's economy. The period of large-scale illicit logging was over. Companies, peasant owners, and public forest managers had established ways of working and collaborating. Economically rational forestry, primarily aimed at supplying a growing, internationally competitive industry with raw materials, was there to stay for the foreseeable future. Timber measurement was regulated by law in 1935[10], and far from being a mere technicality, an objective measurement system for timber was of fundamental importance for private forest owners negotiating with powerful buyer companies.

[9] A comprehensive report was published in SOU 1932:26
[10] SFS 1935:xx with subsequent updates

2.5 1948: SUSTAINABILITY AND PROFITABILITY

By the early 1940s, professionals advocating a more active forest policy found the time appropriate for advancing their positions. In 1942, the National Forestry Board was instructed to prepare for a revision in legislation. The goal was to be intensified management, a halt to property speculation, and adaptation to the new forestry and social conditions. It was still understood that focus was on combined agriculture and forestry households, to ensure their proper income and to maintain social stability in the countryside (cf. Appelstrand 2007, p. 49). A proposal for new legislation was presented by the Board in 1946, where principles of sustainability in economy and timber production were clearly stated. Economic sustainability implied that nobody could be forced into unprofitable silvicultural measures. The principle of production sustainability had a pointed formulation: management should aim at even timber extraction over time (Enander 2001).

Forest owners' obligations, as stated in previous legislation, were based on a moral duty towards the good of the nation. However, the complementary view, that forestry is a rational economic activity, had been advanced since the introduction of scientific forestry philosophy in Sweden. The profitability requirement placed the farmer-owner in focus: unless contributing to the total homestead economy, the owners would never take an interest in silviculture. In 1830, the founder of the Forest Institute (later to become the Royal College of Forestry), I.A. af Ström, clearly expressed such ideas in the opening clauses of the second edition of his textbook:

"With Forest Management, such measures are understood, whereby forest land is brought into condition to produce the mostly required kinds of forest and the most useful and largest sustained yield, and the most advantageous use…"

"The more one wants to follow the rules, the more time-consuming and costly the implementation. Wherefore one should always take into calculation the price of forest products in the locality where the forest is to be managed and the requirement of these products in that locality and the more or less advantageous market conditions, and thereafter, choose less or more expensive measures to be taken to bring the forest into higher and better yield."

The introduction of economic thinking into legislation allowed the issue of detailed instructions on the application of the new law, built on established principles of business administration (Pettersson 1950; Skogsstyrelsen 1949). This included that nobody was obliged to undertake clearly

unprofitable silvicultural measures. In the following debate, the issue still focussed on the rights of private ownership versus a national need to develop a major natural resource. However, the profitability clause appeased the opposition, and the law was passed in both chambers.

These were post-World War II years, and aspects of coordinated national planning were popular in Europe. The second novelty of the law, the principle of even yield over the years, reflected a concern over raw material supply to the industry, now rapidly recovering after the wartime slump. For the forestry companies, it caused no problems, but its application to private forestry required flexibility in its enforcement.

Regulations already present in the 1923 act were updated in the 1948 Act. With a few amendments, it remained valid until 1979 (for details refer to Table 1).

In these years, forthcoming data from the second national forest inventory indicated the state of the nation's forests was far from satisfactory. The Forestry Boards' extension work had resulted in better thinning regimes in growing forest, but too many stands were under stocked after repeated selective cutting and forest grazing that ruined the seedlings emerging in the clearings. Thus, a nation-wide restoration of the forests to full production capacity was set in force. In the wake of the war, it was broadly accepted that private property had to serve a common good, not only benefit its owners. The "Nordic model" in general sought to reconcile public and private interests, avoiding both nationalisation and extremes of individualistic behaviour. The gradual acceptance of the 1948 law among a majority of landowners allowed a more vigorous forest policy than before. Led by the State Forest Directorate and the companies, active regeneration measures (planting, soil preparation, sowing etc) were increased by a factor of four. During the following decade, the foundation for the current high level of forest production from fully stocked stands was laid.

2.6 DIVERGENT VIEWS AND NEW ACTORS IN POLICY MAKING

The post war period started with reconstruction – Sweden remained materially unscathed by the war and the economic boom accompanying the Korean War. After this, the yearly growth of forest industry was 5-6%, accompanied by slowly falling timber prices, making logging in parts of the inland unprofitable. However, development was possible because of rapid mechanization and rationalization of forest operations. A short boom in 1973-74 was followed by turbulence up to the early 1980s, and then good profitability, except during the 1990-93 recession (Enander 2003, pp38 ff).

The national inventory data (the inventory was by now continuous) showed that felling exceeded growth only for a short period in the mid 1970s, the only time in the 20th century. However, during the boom, many voices claimed the private forest owners were not sufficiently active in their management. In the early 1970s, the forest cluster interests had grown strong enough to cause a shift in priorities of forest policy, favouring the industry's well being before the interests of family forestry. Socially, this was declining in importance, as former subsistence farmers were recruited to the factories, and the number of full-time farming households sunk to 60 000, compared with the 250 000 forest holdings, in 2000.

The political left had always been suspicious of the private forest owners' capacity to manage their forests. A parliamentary investigation in 1925[11] probed the issue, but concluded that conditions were rapidly improving, due to the advisory work of the Forestry Boards (Appelstrand 2007, p. 44). The Social Democrat party and some trade unions had campaigned for a larger degree of "Society", i.e. State control, over forestry since the 1940s. In the early 1950s, trade union interests unsuccessfully advocated an outright socialisation of the private forests. In 1956, the former Minister of Finance, PE Sköld (Social Democrat) submitted a proposal to parliament for abandoning the profitability principle and the protection of growing forest, and to make thinning and felling of over-aged forest compulsory, all to mobilise more timber for the factories. For a long time, 'Industry capitalism' and 'trade union socialism' kept company in Sweden's economic policy. By this time, the forest owner associations had grown in strength and wanted deregulation, whereas, the trade unions advocated more regulation. In 1965, another parliament commission on forest policy was initiated, and in 1973, its proposals were delivered. The commission was deeply divided over the majority's proposals to introduce long-term (central) planning for the forest sector, to scrap the sustainability principle in favour of flexible forest exploitation in line with the business cycle, and to introducing a system of fees and subsidies to steer the timber market supply.

In 1973[12], the commission (majority) proposed that all Sweden ought to be subjected to one general management plan, regardless of ownership, and claimed the sustainability principle could be abandoned, at least as long as the business cycle was positive. However, such ideas were considered alien to the "Swedish way", and the whole report was discarded by the

[11] SOU 1925:12
[12] SOU 1973:14

Government. An immediate result was two amendments to the existing (1948) legislation, with no reference to the need for enhanced fellings:

Forestry had to show consideration for conservation and environmental aspects (1974[13]; see below).

The Forestry Board had to be informed in advance about all final fellings (1975)[14].

2.7 Sticks and carrots: forestry by regulation, 1979 and 1983

However, after further preparations by a new commission team, a completely revised Forestry Act was introduced in 1979[15]. The law introduced obligations of dubious economic advantage to the owner. The socio-political development in society had resulted in a shift in balance away from the interests of peasant landowners, about 5% of the total population, and towards the increasingly urban majority of workers and middle-class. The "national well-being", i.e. the forest industry, required that full production capacity of the national territory should be utilised.

In the 1979 Forestry Act, "a continuously high and valuable timber yield" was substituted for the previous goal of "a satisfactory economic gain and an even yield", making the individual owner's economic interest a secondary matter. To the 1948 obligation to thin was added:

- compulsory pre-commercial thinning and,
- compulsory reforestation of low-productive forest, including species rich, former grazing woodland

In 1983[16], the advocates of regulation managed to add:

- compulsory felling of mature forest: at least half of the area ready for final felling had to be felled and
- mandatory forest management plans.

The National Board of Forestry issued detailed instructions for the observation of the new provisions.

[13] SFS 1974:
[14] SFS 1975:
[15] SFS 1979:429
[16] SFS 1983:427

Why did a market economy society such as Sweden concede to accept this level of regulation? The answer may be found in the success of the post-war forestry model. Formal property rights were respected within the framework of complete regulation of the agricultural and forestry sectors and the silvicultural rules contained a high level of long-term economic rationality. As the average economic rotation of timber forest ranges from 80 years in the south to 150 years in the north, the recovery from the badly exploited forests of the 1903 Act to the present state is remarkable. Sweden's entire forest production capacity was now geared to one goal: that of maximum production. The restoration work initiated after 1948 was successful, and the age structure of the forest improved. With the exception of two shorter down periods, one in the late 1970s and another more serious in the early 1990s, output of both saw milling and pulp making has steadily increased.

From the beginning, subsidies, especially for regeneration of less profitable objects, were an important instrument in the work of the Forestry Boards; even though the forest owners contributed both to the general budget of the boards and to the subsidies through a "silvicultural fee" or tax levied on the timber sales[17]. In order to support self-employment among private owners, the basis for taxation was the standing value of the timber; logging income was exempt (see above). In the 1960s, the silvicultural fee was less than 0.1%.

In terms of total financing including subsidies, about 1/3 of the Forestry Board budget came from silvicultural tax, 1/3 from the state budget, 1/3 from fees for services provided. The total allocation for state subsidies to forestry (Figure 1), expressed as 1991 price index[18], remained fairly constant up to the late 1950s, with a short exception during the depression years 1933/34, when unemployment relief was channelled to large draining projects. In 1948, legislation regarding subsidies and a lending fund for silvicultural works was updated and made more efficient (Ekelund and Hamilton 2001, p55). From 1959, the subsidies were augmented, and the active intervention policy signalled by the 1979 Act led to an almost tenfold increase, paid for by a corresponding increase in the silvicultural fee.

[17] A detailed account is provided by Ekelund & Hamilton 2001, Appendix 1.
[18] Using the Statistics Sweden long-term price index.
http://www.scb.se/templates/tableOrChart____33837.asp. Budget allocations from Ekelund & Hamilton 2001 p. 250

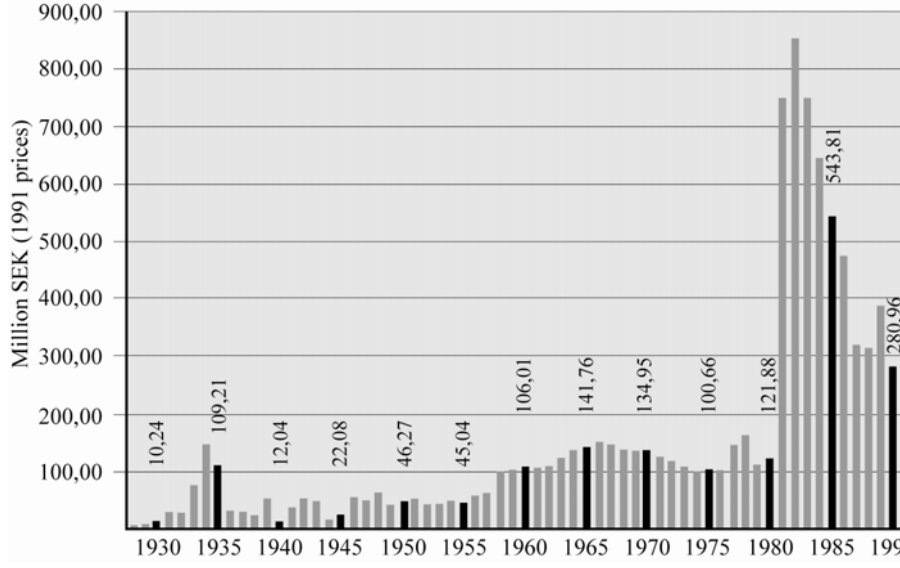

Figure 1. State allocation of subsidies to silviculture 1923-1991.

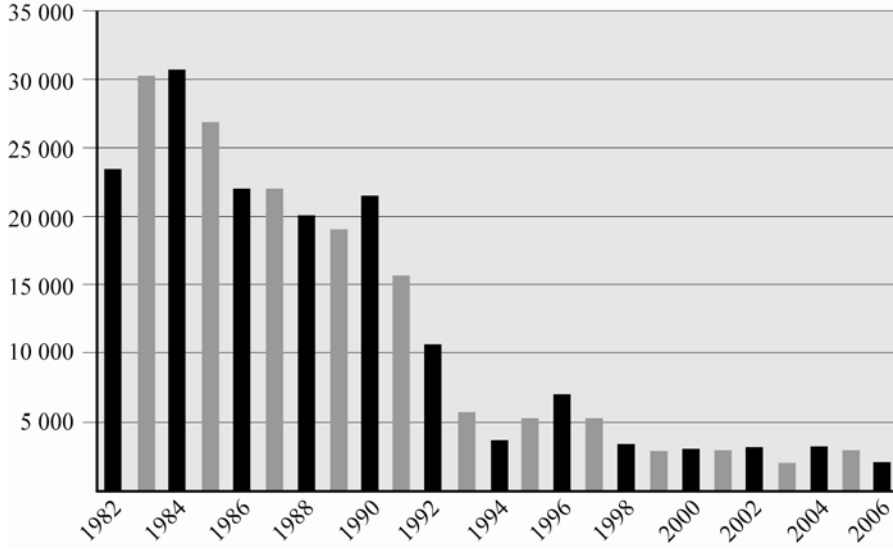

Figure 2. Number of written advice and recommendations to family forest owners by the Forestry Boards 1982-2006. Sources: Statistisk tidskrift, Statistisk årsbok, Skogsstatistisk årsbok

The Social Democrats campaigned for sizable deductions from felling revenue to be deposited in compulsory silvicultural accounts and used forregeneration costs, but this was abandoned along with the 1975 policy committee recommendations. Instead, the 1979 act was accompanied by an almost ten-fold increase in the silvicultural fee, which stabilised at 0.8% during the 1980s. The mobilised funds were initially directed to an intensive thinning campaign, and, to the regeneration of degraded and mountain forest and other less profitable objects, including initially to forest road construction. The funds also paid for the silvicultural assessment (ÖSI) and the establishment of seed orchards (Table 2). A large portion went to northern Sweden. As policy instruments, the subsidies were efficient, but with the increasing pressure for policy reform, the decision was made to abolish both the fee and the subsidies in the 1993 legislation, and allow owners to use their own money as they saw it fit.

Table 2. Allocations of support for silviculture and road building, and silvicultural fee levied 1975/76 to 1993/94

	Direct support	**ÖSI + seed**	**silv. fee**	**rate 0/00**
93/94	99	4		
92/93	90	50		
91/92	135	67	**phased out**	
90/91	241	67	425	8
89/90	244	67	424	8
88/99	255	67	424	8
87/88	294	72	431	8
86/87	231	56	426	8
85/86	333	49	425	8
84/85	364	46	419	8
83/84	435	33	347	6.5
82/83	450	26	262	5
81/82	368	21	295	5.5
80/81	205	10	229	4.5
79/80	…51+150	5	184	10
78/79	119		16	0.9
77/78	116		17	0.9
76/77	93		18	0.9
75/76	78		18	0.9

All data from Skogsstatistisk årsbok (Yearbook of forest statistics), pertinent years. Allocation amounts are not fully comparable over the years, as the base of statistics vary. In 1979/80, an extra allocation was made for support for thinning,

3. Towards deregulation and multi-purpose forest management

3.1 THE EMERGING ENVIRONMENTALISM

During the 19th century, the main legislation issues concerned property rights (discussed in Nylund and Ingemarson 2007) and logging regulation. Sustainable timber production was a concern of the initiators of the 1903 Forestry Act, and continued to dominate the "lawscape" up to 1983. While forestry was being geared for maximum production, a new concern was emerging in general society, environmentalism (cf. Enander 2007b, pp. 177 ff.).

Environmentalism has existed in Sweden since the beginning of the 20th century, ensuring nature preservation through national parks, reservations, and natural monuments. The movement was uncontroversial towards the industrial forestry as only small areas were set apart, the majority being located outside productive forest. Many professional foresters belonged to organisations promoting conservation and preservation. There was no protest against afforestation of the dunes and the Calluna heaths in the southwest, nor against the poor state of logged-over forests. However, the intensification of forestry, starting in the 1950s, slowly awakened articulate opposition. One opinion objected to the "spruce darkness"; the afforestation of marginal agricultural land created an unfamiliar landscape around settlements. The opposite was also criticised: the vast clear-cuts in Norrland sometimes covering several hundred hectares in one block. Efficient regeneration in cold zones was achieved through deep ploughing; this was criticised for destroying the land for reindeer and for trekkers. In other areas, spontaneous broadleaf regeneration in the newly tended regeneration areas was sprayed away with herbicides, causing black headlines in the press. The recent attention on DDT, and the regional problem of acid precipitation contributed to creating an atmosphere critical to forestry and forest industry. In addition to criticism specifically of spruce planting, clear-cutting, ploughing and chemicals became a general "green wave" negative opinion of industrial forestry in general, accompanying general social fermentation and spread of both green and socialist ideals during the 1960s and 1970s.

It took time for the forestry cluster to realise that the world was changing. The 'self-contentedness' is illustrated in the legal reform work of the 1970s in that none of the environmentalists' concerns was considered.. The 1974 obligation to consider conservation aspects would remained unenforced as long as 5§3 of the 1983 provisions, obliging any forest owner to restock low

productive areas with biologically interesting woodland, were enforced by the Forestry Boards, Appelstrand (2007, p 228) claims. However, the National Forestry Board included five pages on environmental consideration in its instructions, including suitable measures during final felling (Enander 2007b p.192). The practice of cutting very large tracts in one operation was abandoned, but the hottest issues of conserving key biotopes, often the "5§3 forests" and the remaining old growth, remained unaddressed until the end of the period. In 1981, Parliament even increased subsidies for replacing the low stocked stands.

Public opinion was changing rapidly, both nationally and internationally. In 1990[19], a far-reaching, new environmental policy was decided by Parliament, and developments until the present day (2008) are based on principles established at that time.

The literature, Appelstrand's (2007) thesis being an exception, focuses on national factors, but from a European perspective, the Swedish legal reforms paralleled similar processes in many European countries, and were driven by the same ideational forces. These came into expression in the 1992 Rio conference, where both the Convention on Biological Diversity (CBD) and other decisions had direct bearing on forestry, and resulted in a new awareness of concepts such as biodiversity and multiple-use forestry among Swedish politicians. Furthermore, at the European level, the EU (which Sweden joined in 1995) initiated a standing committee on forests in 1989. An update Forestry Action Plan was presented in 1992. With members from all Europe, a permanent Minister Conference for the protection of forests in Europe (MCPFE) was set up in 1990; it's second conference in Helsinki 1993 issued a later frequently quoted declaration, emphasising the importance of sustainability and multiple use, as well as representing a European response to the CBD requirements to conserve biodiversity. By 1993, a varied group of European countries (Croatia, Finland, Portugal, Slovakia, Spain and Switzerland) had revised their forestry legislation in the same direction as Sweden, and many more follow suit within the next years (Schmithüsen et al. 2000)

3.2 A REVERSAL OF POLICY: THE 1993 FORESTRY ACT

The forest policies up to the 1950s had considered the well being of the farmer population, and between 1960 and 1990 had served the interests of the industry and the industrial workers. Now, the forest policies considered "ordinary citizens", who were urban dwellers and used the forest for

[19] Prop. 1990/91:90

recreation, concerned about the long-term well being of the Planet. Structural changes in farming had decreased the number of farms from a quarter million in 1960 to less than 80 000 in 2000, and mechanization had substituted the contractor-machine operator for the timber jack-farmer, doing logging during the winter season. The stock and timber yield had increased since the first inventory in the 1920s (see below), and the fears of timber shortage for the industry of the 1970s had turned into a constant surplus over actual fellings. Furthermore, geopolitical changes around 1990 had made large amounts of timber from the Baltic countries and westernmost Russia accessible to the market. The private forest owners continued protest against the regulations in the silvicultural law, and the environmentalist protest against 'timber production at any cost' changed the opinions of all political parties. When the 1990 forestry committee, appointed by a Social Democrat government, delivered its report[20], the parliament had a non-socialist majority. A major change was advocated by all parties, but the Social Democrats wanted to retain a certain amount of regulation and compulsory management plans, and the Greens wanted more radical regulation in the field of conservation. In 1991, a centre-right government stepped in, more open to the farmers' wishes and generally critical to (excess) regulation. The resulting compromise[21], the 1993 Forestry Act, appeared as follows (cf. Appelstrand 2007, p 229 ff.):

1. The opening paragraph (the goal statement) introduced a new, general statement, "the forest is a national resource". It made the production goal of former legislation more vague, "a sustainably good yield", and stated a second goal of equal importance "while maintaining biological diversity". The existing reference to other "public interests" was retained. It appears strange that the legislators chose to word the conservation goal so narrowly, mentioning only biodiversity. One reason may be that conservation had previously been considered from aesthetic points of view, not even legislators are immune to the jargon of the day, and the strong emphasis in Rio on biodiversity. However, the wording of the government's missive to the Parliament[22] made it clear the intention was to include all aspects of environmental conservation, which were to be given as equal importance as the production goal. The consequent revised Forestry Board instructions and counsels went into considerable detail on suitable consideration-conservation

[20] SOU 1992:79
[21] SFS 1993:553
[22] Prop. 1992/93: 226. A law proposal in Sweden is always accompanied by an explanatory text, given much importance in Swedish jurisprudence when interpreting the law.

measures in practical silviculture, but as Appelstrand (2007) remarks, after reviewing the literature commenting on the 1993 act, no way of quantifying the environmental goal or actually balancing the two goals in conflicting situations was indicated.

2. The act was characterized by substantial deregulation, but not to the extent of abolishing fundamental obligations for ensuring regeneration and protecting growing forest. Compulsory cleaning and thinning, the obligation to fell mature forest, and to have a complete management plan were all abolished. Specific rules on maximal clearcut percentages, aimed at limiting exploitation after a property sale, replaced former detailed rules. Instead, the owner was given freedom to use management methods other than the cyclic final felling system.

3. The silvicultural fee (tax) was annulled and most subsidies were terminated. The role of the Forestry Boards was partly reformed and the organisation was reduced as both the silvicultural assessment (ÖSI) and the mandatory management plans were abolished. The Government's intention was that owners should freely use forestry expertise in making suitable management plans.

4. On environmental considerations, the Parliament decided, contrary to the committee, to follow the tradition of making goal statements in the law and leaving the concrete regulations to the National Board of Forestry. The only specific matters raised in the law were increased consideration on impediments, wetland forest and valuable broadleaf species, limitations of draining and fertilisation, and a compulsory report on environmental consequences of new silvicultural methods. The consequences of infringement were increased, compared to previous legislation, including a possibility, in extreme cases, of imprisonment.

However, the most important change was not in the wording of the new law, but in the general change of atmosphere. In most industrial countries, a new concept of the use of forestland and forest resources became established. Simultaneously, non-legal regulation of forestry, in the form of certification, raised environmental and social standards of forestry beyond legal requirements, which thus established minimum levels.

3.3 Evaluation and follow-up of the policy reform

As the reform was expected to influence the entire forestry sector, the National Forestry Board made a preliminary evaluation in 1997, and a major one in 2001 (Skogsstyrelsen 2002). The latter included a treatise on the

history of forest policy with special emphasis on the Forestry Boards (Ekelund & Hamilton 2001). A new commission was given the task of proposing possible changes to the legislation, and presented its final report in 2006[23]. The main conclusion was that the fear of the negative effects of deregulation was mostly unfounded and recommended only minor adjustments. After 2006, the government, once more non-socialist, delivered a proposition on forest policy to the parliament, making hardly any changes to the 1993 act, but calling for intensified silvicultural management aimed at increased production. This was to take effect within the present framework, but without subsidies or new coercive rules. The Forestry Boards, which had been reorganised and changed their English name to Swedish Forest Agency, were barred from competing with private firms, marking timber for felling, and operative silvicultural planning, etc. Contrary to current proposals from 1995[24], suggestions that the organisation's tasks should be transferred to the County administrations were rejected; instead, the Forest Agency remained as a separate authority as the practical tool for enforcing governmental policies.

During the decade up to 1993, regeneration, and cleaning and thinning improved: the latter two from unsatisfactory levels. There was concern the reform would lower standards. The SUS 2001 evaluation determined that during the first years after the reform, the percentage of successful regeneration had dropped from 81% to 74% since 1996, the final year of pre-reform regenerations. The main reason was in a temporary increase of reliance on natural regeneration without scarification. This trend soon reverted, as landowners realised the need for more active regeneration measures. In addition, increased reliance on natural regeneration was assumed to depend more on the down period in the business cycle after 1990 than on the relaxed rules. The 2006 commission report, based mainly on SUS 2001 and recent general statistics, concluded that, except for the initial drop in regeneration, variations in silvicultural treatments were caused by external factors and not by the change in legislation, and consequently recommended no changes.

The commission report also examined the achievement of environmental goals formulated during the early 1990s, and extended in a parliamentary decision on environmental goals in 1998. The goals provided guidelines for environmentally responsible silvicultural practices, more than the provisions

[23] SOU 2006:81 "Mervärdesskog", Forest for added value.
[24] SOU 1995:27

of the forestry law. The issue of conservation against production is discussed by Beland Lindahl (2008, pp. 42 ff.).

In 1998, minor changes were introduced into the 1993 legislation. Every forest owner was now obliged to have a formal description of forestry and environmental goals[25], a simple substitute for the previous mandatory management plans. The National Forestry Board was authorised[26] to issue prescriptions for permissible regeneration methods. Finally, the 1993 rules limiting the portion of a property to be clear-cut were refined, as a relative low number of blatantly non-sustainable property takeovers, exploitations and subsequent sales to insolvent owners, incapable of meeting regeneration costs, were brought to justice.

[25] SFS 1998:1538
[26] SFS 1998: 1540

4 Beyond mere legislation: the task of introducing a silvicultural philosophy – and changing it

Since the first Forestry Act in 1903, a policy of motivation and education rather than of coercion was employed to ensure private forest owners complied with the goals of legislation, with the regional Forestry Boards as key agents. Ekelund & Hamilton (2001) provide detailed statistics on the various activities and measures taken by the forestry boards. In terms of law enforcement, few cases were ever brought to court: up to 1948, the number for the entire country was 30 to 40 per year, after which, no statistics are provided, assumingly as legal actions were rare. The number of felling prohibitions varied with the business cycles, but ranged from about 150 per year to a peak of 450 in 1948, stabilising at less than 50 after 1960. Between 1980 and 1990, less than ten felling prohibitions were communicated annually: the total number of cases of (formal) legal prescriptions numbered less than 500 a year. All figures here and below should be related to the number of private (mostly peasant) holdings, being about 250 000, comprising around 10 million hectares.

The key message of the 1903 and subsequent Acts was that felling must be followed by regeneration. The Forestry Boards were to give individual advice, and when called for, make written agreements with the landowners on how to fulfil the regulations. During the first twelve years of board work, 1200 consultations resulting in agreed regeneration measures were made per year: during the next 24 years, the number almost doubled. For the period 1948 to 1978, the number of agreements varied widely, from over 20 000 in 1948 and slightly less in 1974 and 1975, to only a few thousand around 1960, the latter period being one of very low timber prices and economic problems for the entire sector. For the period 1980 to 1990, an annual mean of 13 000 regeneration agreements after formal consultation are recorded, 2000 agreements regarding restocking of unproductive stands, and 1000 regarding nature conservation.

From 1975, advance notification of intended fellings over half a hectare became compulsory. Ekelund and Hamilton (2001) provide data on action taken by the forestry boards in 1976, just one year after the passing of the law.

Notifications of 35 000 fellings of 208 000 ha, 7 700 notifications resulted in contact with the owner for counselling. Whereof, 1490 cases resulted in formal restrictions, out of these:

- 136 cases were motivated by nature conservation
- 253 cases were motivated by the low age of the forest
- 297 cases were motivated by concerns for regeneration
- 199 cases concerned protection of forest

The low frequency of formal action by the boards is a result of the continuous contact between silvicultural advisers and forest owners, during formal educational arrangements and personal contacts. A mean of 113 000 forest owners per year had some kind of contact with a board adviser. It is assumed that knowing about the requirements of the law, most owners contacted an adviser before submitting the notification. When management plans became compulsory in 1979, potential problems were dealt with during the planning work. Forest owners were eager to have management plans and in 1978, nearly 50% of the private forest had plans made by board staff. Therefore, when plans were made compulsory in 1979, they were already widely accepted management tools among private forest owners.

Public statistics quoted by Appelstrand (2007, p.237) provide a picture of the intervention of the boards during a ten-year period before 1993. Per year, 27 000 “advices and instructions” were formally communicated by the boards, but only 460 cases of coercive action and prohibitions. Conservation issues represented only a minor part of the “advice”, (about 2000 annually in the late 1980s), despite the prominent role these issues occupied in the public debate on forestry.

While felling and initial regeneration measures were closely monitored, the regeneration outcome can only be assessed in retrospective. The total area of sowing or planting increased from about 100 000 ha per year in the early 1950s to nearly 200 000 ha after 1980, showing no correlation with the varying number of regeneration agreements mentioned above. The annual clear-felling area varied between 200 00 and 300 000 ha for the entire post-war period; about one-third of which was left to natural regeneration. In the 1980s, the actively regenerated (planting, sowing) area was almost equal to that of clear-fellings. The national forest inventory has been recording regeneration success since 1975. From a low 40% fulfilling legal requirements, the success rate rose to 90% in 1992. The monitoring of silviculture was strengthened by a forceful tool in 1979, when the ÖSI, a total assessment of the silvicultural status of forest, was initiated. When it was abolished in 1993, about 90% of private land was covered. Based on ÖSI data, the Forestry Boards were able to locate stands where silvicultural work was required, and could notify the owners even where no direct legal infringement had (yet) taken place.

The incentive packages offered to the private forest owners comprised not only counselling and education, but also subsidies for active regeneration measures (soil preparation, sowing and planting), for road building and for draining (Table 2). Additionally, unemployed forest workers were paid by State funds to undertake extensive silvicultural work, particularly pre-commercial thinning, as a result, 30 000-70 000 ha per year were thinned. The fee levied on income for timber sales was successively raised over the years, partly financing the growing number of advisers, partly financing the subsidies, which were thus ultimately paid by the forest owners themselves. Over the period 1980 to 1991, when the whole system was abolished, annual subsidies totalled about 300 million SEK. Annual means of 100 000 ha of active regeneration and 1200 km of forest roads were partly financed from these funds. Subsidies were paid to both corporate and private owners, as both categories paid the same silvicultural fees; however, Ekelund and Hamilton (2001) conclude that private owners were clearly favoured.

A final evaluation of the forest policy of the 20th century can be based on the development of the standing and felled timber volumes. The standing volume was 1800 million m^3 in 1923/7, at the time of the first national inventory, and 3000 million m^3 in 2000. The total fellings were 50 million m^3 in 1927, 75 million in 2000, and around 90 in 2008: the total (including reserves and protected areas) stem growth exceeded fellings by 30 million. From that point of view, the forest policy has been a success.

Appelstrand (2007, p 217 ff) discusses the new policies and their consequences for the Forestry Boards. The centre-right government in power after 1991 wanted to strengthen the regulatory function of the boards and reduce their advisory function, partly to avoid criticism that the public authority was competing with private firms, providing services such as management plans, and marking for felling. In addition, providing advice to individual landowners was the most cost intensive part of the boards' work. In 1992, 59% of private forest owners had regular contact with an advisor, and the most prominent group was elderly, long-time owners who were not members of a Forest Owners' Association. Individual Board advice, other than concerning the legality of proposed silvicultural measures, was increasingly reduced. Consequently, in 2000, the number of individual owner contacts had dropped to 36%. Conversely, the advisory work of the Associations increased, but there are no comparable data at hand. Board campaigns directed to local forest owner communities had proved successful, with 90 000 participants in a competence-building campaign "Richer forest" in 1990-92. The recent conservation oriented campaign "Greener forest" engaged 130 000 owners, corresponding to half of all

holdings. ÖSI assessment was also discontinued after 1993, because the cost-benefit ratio was considered unsatisfactory, but by then, some 90% of the private forest areas had been covered, and the data were useful for addressing “problem spots” among private holdings.

The 1993 reform marked a period of reshaping of the organisation and work of the Forestry Board system, which will be discussed in a future report on Swedish forest policy after 1993.

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Swedish forest policy since 1990 – reforms and consequences

Jan-Erik Nylund
Dept. of Forest Products,
SLU – Swedish University of Agricultural Sciences
Box 7008
S-750 07 UPPSALA, Sweden
jan-erik.nylund@sprod.slu.se

Abstract

Similar to many other countries, particularly in Europe, Sweden has revised much of its legislation relating to forestry and environment since 1990. Of immediate relevance to the forest sector are the 1993 Forestry Act and consequent ordnances and regulations, and to forest property acquisition, forest income taxation, and the function of the Swedish Forest Agency. New environmental legislation has consequences for forest policy making, and voluntary certification was introduced The effects of these changes have been examined and analysed, the latest in a Government forest policy proposition to the Parliament in 2008. The present paper reviews the revised legislation and its consequences.

Contents

Introduction

From the late 1980s, the 200-yr-old forestry paradigm of management exclusively for sustained timber yield was challenged all over Europe. The current prominent concept of sustainability was originally established by foresters during the 18th century (Grober 2000), after seeing the possibilities of rational forest management rather than wanton exploitation. Sustainability was high in the agenda in Sweden's first forestry handbook (af Ström 1830), but it took over a century to translate these ideas into legislation. For most of the 20th century, efficient timber production was the objective in the forest countries of Central and Northern Europe, but societal change and growing environmental awareness created a new situation (Schmithüsen et al 2000, Humphreys 2004, Buttoud 2006). In an FAO review of Western European forest policy, Cirelli and Schmithüsen (2000) summarise:

> *"Generally, the content of most laws has become multi-purpose oriented and refers in particular to sustainable forest management, public participation, private forestry, Government support to forestry, integration of forestry and related activities, and protection against fires and the adverse effects from natural calamities"*.

Discussing Sweden, but speaking in terms applicable to the general process of change, Göran Sundström of the Stockholm Centre for Organisational Research (2005) analyses the policy change process in terms of 'government and governance':

> *"…causes of change have consisted of external shocks (governance) rather than vertical impulses canalised through the democratic hierarchal chain (government). The mobilisation has been more monocentric (government) than polycentric (governance). Organisational borders have been blurred (governance) rather than distinct (government). The causes of participation have been both voluntariness (governance) and coercion (government). Working process methods have principally been of authoritative 'command-and-control'-character (government), even though substantial learning with elements of deliberation and negotiations between equals (governance) also have been present to some extent. Finally, responsible politicians control strategies have resembled those of a 'meta governor'; rather than using detailed directives, rules and results requirements (government) the politicians have tried to control the process by forming basic structures, identities and meanings within the policy field (governance)"*.

Sweden is one of Europe's leading forestry nations in terms of forested area, timber production and export of forest products, but its internal forest policy processes are mainly presented in the Swedish language, many of which are public print (Commission reports, Government law propositions, communications and reports from the NBF - National Board of Forestry). In two previous papers (Nylund & Ingemarson 2007 Nylund 2009), forest tenure and silvicultural legislation in Sweden since the 17th century are reviewed. The present paper examines the developments in Swedish forest policy after 1990 in detail. However, a broader evaluation of the balancing of environmental and production objectives introduced in the 1993 Forestry act and subsequent legislation falls outside the scope of this review, which aims at describing the factual process without further analyses. The report also does not cover the public discourse on environmental objectives and targets nor the ways of assessing and balancing the conservation objective in relation to the production in the 1993 Forest Act – subjects planned for future reports. The theses of Appelstrand (2007) and Beland Lindahl (2008) provide a useful analysis of some of these issues

Major policy-related developments since 1990

A BRIEF OVERVIEW

The 1993 Forestry Act, preceded by the work of a Parliamentary Commission and commented on in the Government proposition to Parliament, represents a turning point in Swedish forest policy. It introduced environmental objectives as equally important as production, and marked a retreat from the far-reaching regulation of forest operations in both private and corporate forestland. The 1993 Forestry Act was accompanied by a major redefinition of the remit of the then National Board of Forestry (NFB, Skogsstyrelsen), responsible for law enforcement and the silvicultural extension system. Reorganisation followed in 2005, when the English name of organisation was changed into Swedish Forest Agency (SFA). The reform coincided with changes in taxation and property acquisition legislation and a number of laws with consequences for forestry were revised.

The national environmental legislation has been developed since the 1980s, and result in a new integrated environmental code (Miljöbalken) in 1998. Specific provisions for forestry were left to the NFB to debate. The year after, the Parliament adopted fifteen 'environmental quality objectives'. One of them, 'sustainable forests' was taken as a starting point for the specification of environmental goals for forestry. Achievement of these objectives was assessed in 2003, and, more thoroughly, in 2007. Concrete area targets for 'protected forest', i.e. various categories of reserves and areas for habitat protection and other purposes, and for voluntary reserves on private land, were set in connection with the 1993 Act, and new more ambitious targets were formulated by the SFA in 2007. A major update of national environmental policy is being prepared for presentation in 2009 or 2010.

While the EU's Strategy (Council resolution of 15 December 1998), with Sustainable Forest Management (SFM) as a guiding concept, recommended the member countries to prepare National Forest Programmes (NFP), Sweden, as a result of the 1993 policy decisions in Parliament, refrained from elaborating an action-oriented programme. Instead, the NFB issued National Forest Sector Goals, initially on its own initiative (1994/95 and 1998), and then, in 2005 after a lengthy (and partly stormy; cf Sundström 2005) process, with stakeholder participation , albeit with NFB having the final word on contested issues. A preliminary evaluation of goal fulfilment was presented in 2006.

The effects of the legal reform were followed-up through field inventories in 1998 (Skogsstyrelsen 1998a), but the Government forest policy proposition to Parliament contained only a few minor adjustments. A major evaluation (SUS 2001), including a broad range of assessments and studies, was published by NFB in 2001 and 2002, and was followed by a (minor policy) declaration by the Government in 2003. A Commission was given the task of preparing recommendations for a wider forest policy update, which was completed in 2006. Based on this, the Government presented a policy proposition to Parliament in March 2008. While making only minor adjustments in the legislation, the Government announced an objective of intensified timber production without compromising environmental ambitions.

Besides the policy evaluations, the existing practice of publishing hundred-year timber production forecasts was continued with one (Skogsstyrelsen 98a) in 1998, an interim update catering for the new biofuel market (Skogsstyrelsen 2004a) in 2003, and recently, Skogsstyrelsen 2008 08, all including a reference scenario and alternatives based on different management options.

The introduction of voluntary certification programmes added a new dimension to the concept of forestry governance: an FSC scheme for Sweden was introduced in 1998, and a PEFC alternative in 2001, the latter revised in 2006.

Regarding European and international forest and timber trade related policy, Sweden has held a low profile considering its position as a world class forest nation. These aspects are not included in the present study, but are reviewed by Andersson 2007.

THE 1993 FORESTRY ACT AND ITS ANTECEDENTS

Regeneration was the main concern in the first brief Forestry Act of 1903 and protection of growing forest was introduced in 1923. A full code covering the most relevant aspects of forest management was adopted in 1948, when economic sustainability was introduced as a guiding principle. The 1979 Forestry Act, including 1983 amendments and detailed management instructions issued by the National Board of Forestry (NBF), left forest owners with intensive timber production as the only option. The 1979/83 package set quantitative rules for regeneration, thinning, final felling (ages and areas), and even demanded restoration of unproductive stands, many of which were later identified as biodiversity nuclei. Management plans have been compulsory since 1975. Until then, public

policy related the development of the forest sector to the interests of the rural population - half of the forest land being in private, mainly farmer ownership, and the remaining public and corporate forest providing winter employment in areas with few employers. During the 1970s, timber supply in Sweden was strained, as little remained of the semi-natural old forests, and the systematic restoration work embarked on after World War II had resulted in well-growing but still young regenerations. For a few years, logging was higher than running growth and, as argued by Nylund (2009), the political focus successively changed from rural to industrial classes, and the long hegemony of the centre-left (Social Democrat Party and trade unions) found common interests with forest industry. Hence, the national objective of forestry became maximal timber production rather than economic viability of the countryside.

However, when the 1979/83 policies were introduced, they were already outdated in relation to the next paradigm shift. Environmentalism had been stronger since the 1970s, and in the USA, the battles over old growth forest were fought in the 80s (Chase 1995). In Sweden, the 1970s were called "the decade of confrontation" (Enander 2007, p 246 ff.). Excessive clear-cut areas, soil scarification, herbicides in regenerations, forest fertilisation, felling of old growth and near-timberline forest and acidification were hotly debated issues, and were followed by a broader critic of the basic tenets of the current forest policy. Yet, a parliamentary forest policy commission, chaired by the Director-General of the Swedish Environmental Protection Agency, presented its results in 1973 and did not even mention conservation issues. In 1975, a paragraph on general [environmental] consideration was amended to the current (1948) Forestry Act, but only in the government proposition in 1979, was it officially recognised that 'conflicts between conservation and forestry interest are getting more frequent' (quoted by Appelstrand 2007, p. 227). As the 1979/83-forest policy was being enforced, both national and global awareness that it was not politically sustainable increased.

In 1990, the political scenario had changed in several respects. In a domestic perspective, three factors were prominent:

- Successful restoration of the nation's forests to high productivity
- Environmentalism, continued decline in the number of forest farming units, and growth of urban population (a consequence of 'urban values')

- Continued resentment among private forest owners of the perceived 'straightjacket rule' of the 1979/83 legislation and accompanying Forestry Board instructions.

The dream of the 19th century foresters, that Sweden's forests would be restocked for sustainable timber production had been accomplished, but the current policy was not only criticised by forest owners. For example, logging in near-mountain forest caused local and European NGOs to threaten a boycott of Swedish forest products, and led to negative publicity abroad (Bäckström 2001). The general criticism caused the larger companies to adopt certification schemes that far exceeded legal requirements. In 1989, the Swedish University of Agricultural Sciences (SLU) initiated a panel on 'environmental adaptation' that included researchers, industry, forest owners' associations, and government authorities. This provided valuable input to the parliamentary forest policy commission that was set up in 1990 with the remit to formulate a new forest policy for the 21st century, and reported in 19921.

The report of the 1990 forest policy commission only briefly mentioned overseas developments, but forest laws were being revised throughout Eastern Europe because of the shift in political system and in Western Europe for ideational reasons. The EU created a Standing Committee on Forests in 1989, successively developing a Forestry Action plan (the first major revision in 1992). On a pan-European level, the Ministerial Conference on Protecting Forests in Europe held its first meeting in Strasbourg 1990, and at a second meeting in Helsinki 1993 a declaration containing three statements reflecting issues common to most policy revision in Europe was issued:

- principles on sustainable forest management
- principles on conservation of biodiversity
- a strategy for counteracting climate change.

Internationally, Rio Conference (1992), resulting i.a. in the Convention of Biological Diversity (CBD), and the formulation of Forest Principles, received wide attention and set the scene for future natural resources policy work.

There were no disagreements in the parliamentary committee over the basic policy change of putting the two goals, production and conservation, on an

[1] SOU 1992:76

equal basis; the only conflict concerned the degree of relaxation of the silvicultural prescriptions, where the Social Democrat representatives thought the committee was too 'liberal'. In line with the commission recommendations, a thoroughly revised Forestry Act was passed by Parliament in 19932. As a consequence, the Instructions to forest owners/managers issued by the NBF were also revised.

The most prominent changes were the following:

- An initial paragraph stating that timber production and biodiversity (to be understood as environmental conservation) were to be given equal importance. In the previous, 1979 Act, timber production was the only goal, albeit under consideration for the environment.

- Regulations on management were relaxed from the previous level leaving the owners with more freedom to chose silvicultural methods, and the compulsory management plans were abolished and replaced with less exacting documentation. In the instructions from the National Board of Forestry, the regulations changed from operative to goal-oriented. However while advice and compulsory instructions on conservation were elaborated and more demanding than previously.

- State subsidies and correspondingly the 'silvicultural fee' (a tax on logging income that was recycled as targeted subsidies) were abolished. The forestry board organisation (a central National Board of Forestry) and semi-autonomous regional boards in charge of legal enforcement, general advice

[2] The normal procedure for major legislation in Sweden starts with a commission appointed by the Government. It frequently includes a representative mix of Members of Parliament, top-level civil servants, major stakeholder interests, and consulting panels of experts. When issues are considered mainly technical, "one-person-commissions" may be appointed, such as the 2005 forest policy commission. The commission report, published in the official print series SOU, is then distributed for comment to pertinent authorities and stakeholder organisations, - and any citizen may submit a comment. Based on actual political preferences and any new input, the Government prepares a law proposition to the Parliament. Besides the proposed legal text, this normally comprises a lengthy introduction based on the report that provides a general background and principal targets, and motivates and explains the specific legal text, which in Swedish practice is kept brief. The Parliament then considers the proposition in a committee, agreeing on or modifying the legal text, after which there is a vote in a plenary session. Once the final act is approved, the Government may issue complementary ordnance, and/or an appropriate authority (e.g. the National Board of Forestry) issues operative instructions and general advice.

and specific services, was reduced in size, and private management consultancies were encouraged.

- The NBF extension service made strong efforts to introduce principles of "green management" among forest owners. Furthermore, the Parliament declared a long term (30-year) policy to reserve 5% of productive forest all over the country for free development.

- More importantly than the specific changes, all stakeholders had an impression of a new paradigm for forest management being introduced, concurrent with global developments towards more broadly understood sustainability and multifunctionality

ENVIRONMENTAL CONSIDERATION IN FORESTRY

During the 1970s, both the Swedish Environmental Protection Agency (EPA) and the National Forestry Board kept a low profile in conservation issues (Frisén 2001). In 1975, the Forestry Act was amended, obliging forest owners to pay attention to "the interests of nature and cultural conservation interests", but as Frisén highlights, the 1973 forest policy commission and the subsequent 1979 Forestry Act were in conflict with several conservation objectives, e.g.
the obligation to fell "over-aged" forest,
the obligation to restock "unproductive" forest, which could be old grazed mixed forest and other key biotopes,
government subsidies for replanting agricultural land, draining and fertilizing bogs and wetlands, construction of forest roads in road less land,
special subsidies to 'develop' untouched northern forests.

The Government proposition (1978/79:110) presenting the 1979 act to the Parliament noted that "conflicts between conservancy and forestry interests are getting more frequent … [because of] the public's growing environmental awareness … increasing demands on productivity … and changes in silvicultural and logging methods". Yet, the push for intensified management was given priority in the proposition. The 1983 amendments to the Forestry Act resulted in new Forestry Board instructions being issued, along with the introduction of some ambitious rules for conservation. However, in an evaluation, Eckerberg (1987) determined in 50% of the cases, environmental consideration at logging was below the minimum legal requirements, and that the measures taken were principally aesthetic in character (cf. discussion in Appelstrand 2007, p. 235 ff.). A Forestry Board evaluation of the period 1989-1991 recorded an improvement, but the focus was still on visual qualities, in which regard 90% of the sites qualified, and

only 56% fulfilled the legal requirements regarding biological aspects (Ekelund and Hamilton 2001, p. 91).

Environmental legislation rapidly developed around 1990. The Government proposition 1987/88:85 declared that all sectors in society had responsibility for its own nature and environmental conservation; prop. 1990/91:90 stated maintenance of species and environment diversity to be of prime importance to the conservation work (including provisions for biotope protection); and, prop 1993/94:30 reflected on the CBD agreement in the form of a national strategy for CBD work. The formulations in the first paragraph of the 1993 Forestry Act ('biodiversity' where 'environmental consideration' could be expected) should probably be understood in light of the previous one-sided emphasis on aesthetic aspects, and of the CBD process. In 1993, it was also agreed by the EPA to allow NBF to handle issues related to biotope protection in the forest. A revised set of Board rules and instructions was issued regarding 'general environmental consideration' in production forest. In 1995, the EPA presented biodiversity actions plans, and in 1996, the NBF presented their biodiversity actions plans, these were followed by a Government proposition 1997.3

To handle the reservation targets expressed in relation to the 1993 Act, the existing commission on environmental conservation was given an additional remit in 1995 (reported in SOU 1997:97), which included among other things to formulate specific environmental objectives. This was followed up by a special assessment, SOU 1998:95, sorting out technicalities, various forms of biotope protection, etc.

In 1998, the Government presented a revised set of environmental legislation, "Miljöbalken" (prop. 1997/98:45). Miljöbalken did not enter into details concerning forestry, but established general principles only, and left the regulative work to the NBF. The same year, a set of fifteen national environmental objectives was passed by the Parliament (prop. 1997/98:145). One of these, "Living forests", became a platform for environmental work in forestry. An additional objective, specifically mentioning biodiversity, was introduced in 2003. The work on environmental goals has continued; the latest major input was the Government proposition4 in 2005 named "Swedish environmental targets". This work was evaluated and presented in 2006 (Skogsstyrelsen 2007), and is discussed in the next section.

[3] Prop.1996/97:75
[4] Prop. 2004/05:150

TAXATION OF FOREST INCOME

Taxation and accounting rules are easily forgotten when forest policy is discussed. Yet, for family forestry, whether farms which have been handed over from generation to generation, or smaller properties managed by non-farming owners, property and inheritance taxes and taxes on forest income are extremely important in determining long and short term business behaviour. The 2001 policy evaluation, SUS 2001 (see below), reviewed past and present forestry taxation (Skogsstyrelsen 2002, Ch. 4.3). The present account is based on that report.

Depreciation of land purchase. The owner may write off part of the price paid for forestland: 50% for a private person, 25% for a legal person. When timber is sold, 50% of stumpage income or 30% of felled timber may be deducted from the proceeds. If property is acquired as a part of areal rationalisation (consolidation into larger property or management units), twice the amount may be deducted during the first 5 years. However, when a property is sold, its acquisition price is correspondingly reduced by the amount. This arrangement compensates for the forest owner being unable to write off the cost of the property in the way another producer can write off costs for buildings and machinery. The system favours the private owner and provides a disincentive to frequently changing ownership. The present rules were introduced in 1991, and facilitated real estate affairs in the forest, whereas, the previous rules took the starting point that farms with forestland were passed on from generation to generation.

Forestry account. Since the beginning of the 1950s, private owners may deposit part of the forest revenues in a particular account, the income being taxable only when withdrawn. Since 1992, 60% of stumpage and 40% of other revenues may be deposited, and withdrawal must take place within 10 years. The purpose is to distribute the proceeds between the years, and is particularly important for smaller holdings with long intervals between final felling. For revenues related to calamities (storm, etc.), the rules are more generous.

Accounting reform and tax reductions. A major tax reform in 1991 provided lower rates of taxation and flexible (accounting) principles for forest income. . Further reforms in 1994 made the conditions for private firms similar to those already applying to stockholding companies. These rules also applied to forest enterprises including private properties.

Property sales, gifts, and inheritance. A property is not considered ‘sold’ when transferred as inheritance or gift, and consequently no taxation of

possible capital gains is incurred. In 2005, all gift or inheritance taxes in Sweden were abolished, reducing the need for tax planning in relation to inheritance The tax rate on capital gains is lower than on proceeds from forest operations. This reduces the attractiveness of felling before selling a property. Prices paid for forest properties are closely related to the value of the total standing stock.

Wealth tax. Working capital is not liable to wealth tax; this also applies to capital invested in agriculture and forestry. In consequence, forestland is an attractive investment opportunity, even if the proceeds from the forest operations provide a modest immediate return.

The policy evaluation report, SUS 2001 (Skogsstyrelsen 2002; see below), discusses the consequences of these reforms in detail, but is unable to demonstrate increased logging volumes or farming forest owner incomes. However, all the combined changes provide incentives to stable ownership, areal rationalisation, and economically rational management. Prices paid for forestland have steadily increased over the 2000s. Investment in forestland by high-income, non-traditional forest owners is attractive, albeit less so because of high prices at the end of the period.

ACQUISITION OF FORESTLAND

Modern ownership concepts, referring to all kinds of forest and agricultural land, were introduced stepwise, definitely so in 1805 (Nylund and Ingemarson 2007). For a century, landed properties could be freely sold by and to any physical or legal person. As forestland became increasingly valuable, company acquisitions escalated at the end of the 19th century, threatening to create a landless rural proletariat in some areas, a situation contrary to what the Government had tried to create through systematic settlement of the forested North. In 1906, companies were prevented from buying land owned by physical persons in the North: in 1923, this rule was applied to the whole country (legal persons were and continue to be free to acquire land from each other, and to exchange land with private owners in order to rationalise management). In 1945, further restrictions were introduced to secure that productive land remained in the ownership of the farmers: in 1955, 1965 and 1979 legal provisions were accommodated to favour agricultural rationalisation.

National agricultural policies were thoroughly revised by Parliament in 1990, leading to a market economy with a minimum of government interference. At the same time, the forest policy was subject to revision, and the property acquisition legislation was considered ready for reform. Any

agricultural or forest property deal still required authorisation by the competent authority, but the rules were relaxed. The "company ban" was maintained, but relaxed to the extent that a woodworking company could now acquire forest to ensure its own local timber supply. Private buyers were given more freedom in sparsely settled regions: permits could be conceded if the buyer had been resident in the municipality for at least six months before the acquisition, or made a commitment to take residence on the property within a year after the acquisition and remain resident for five years.

This resulted in a category of new owners with scant knowledge of forestry, which considered the land as an investment free from capital tax. Even worse, unscrupulous buyers were reported to illegally fell most of the forest, ignoring regeneration, and reselling the property before legal action could be taken. Neither past nor present (1993) legislation was designed to cope with such a situation. The 1998 forest policy evaluation estimated that about one tenth of all open market acquisitions, or 100–150 cases per year, were of an exploitative character (Prop. 2004/5:53).

As a consequence, in 2005, the conditions for acquisition permissions were again tightened, requiring one year of residence before acquisition. The other possibility, a commitment to reside on the property, was substituted for the statement: 'if the buyer can make it credible that he will take permanent residence on the property, or that the acquisition will favour long-term employment in the area'.

From the forestry perspective, the consequence was an increased impetus in the long ongoing development towards a more diversified ownership. In area terms, destructive logging of newly acquired properties was not a major problem, but was considered highly offensive to land stewardship morality. The 2005 reform has not yet been evaluated in this respect, but is perceived as efficient. For purposeful offenders, the sanctions of the 1993 Forestry Act, including up to six months in prison, are judged efficient.

INSTITUTIONAL REARRANGEMENT: THE NATIONAL BOARD OF FORESTRY, THE STATE FOREST SERVICE, AND COMPANY FOREST OWNERSHIP

As detailed by Nylund (2009), an organisation for law enforcement and extension was established in connection with the 1903 Forestry Act. This consisted of County Forestry Boards (Skogsvårdsstyrelse) and, later, a coordinating National Board of Forestry (Skogsstyrelsen). The Board organisation combined several functions: elaboration of instructions to forest owners on law application; pure law enforcement work, including

compulsory management recommendations (lagråd) to owners; information and counselling work; administration of state subsidies; and, services-on-demand, such as timber marking and management planning at (affordable) fees. The period from 1979 to 1992 marked the zenith of the Board work, with heavy obligations on forest owners, compulsory management plans, and large subsidies to operations. The management of state forestland, about 30% of the productive area, mostly in the North, was entrusted to a business-oriented State Forest Service (Domänverket), managing its own revenue and paying the profit to the Treasury.

Many observers (Stiernquist 1973, Ekelund and Hamilton 2001) consider the Board system a key contributor to the success of the Swedish forestry model. When the Government formulated the terms of reference for the 1990 Forest Policy Commission, it foresaw a need to reformulate both the remit and structure of the Forestry Board organisation. Thus, the commission produced a separate report5, proposing a number of changes. Some of these changes were implemented immediately, but the report laid a foundation for a continuing reform process, culminating in a new administrative structure in 2005, and a new English name, the Swedish Forest Agency. The immediate reform resulted in a shrinking of the organisation and reduced individual counselling. In 1997, the 24 county boards were amalgamated into 11 regional boards; staffing was reduced, and the amount of individual counselling dropped. The budget was cut with one third, and the number of employees was reduced from 3000 to 1000.

Meanwhile, the management of the state forests passed through a turbulent period, because of political disagreements and shifting Parliament majorities – an exception to the rule of (relative) broad majorities for fundamental policy shifts. The State Forest Service was initially fused with the state-owned industry, Assi, into a public but state-owned company, AssiDomän. Later, its industry assets were separated and privatised on the Stock Exchange, and the land was transferred to a new state-owned company, Sveaskog. A large amount of low productive land rested heavy on Sveaskog's accounts; consequently, wide tracts were transferred to the National Property Board, now managing about 14% of Sweden's total land, much of it mountain wilderness, but also including 1.1 M ha productive forest. Sveaskog currently owns around 3.5 M ha of productive forest. The State currently has no investment in the pulp & paper industry, but has minority ownership in saw milling (Setra). Sveaskog operates as any corporate owner, assumes special responsibility for sustainable management

[5] SOU 1992:111

of the land, and is obliged to sell land to private owners in need of rationalising their holdings. The whole process was later bitterly criticised by the public opinion as short-sighted, and for the lack of cooperation between political actors. For the establishment of forest reservations, land compensation may now have to be bought from Sveaskog at market value, while strategic land reserves could at the beginning of the reshuffling have been set apart from the State Forest Service that operated without such restrictions.

During the same period, the (private) forest industry underwent rapid structural change, and resulted in only a few big corporate landowners. Stora, merged with Finnish Enso, and transferred its Swedish forestland (1.6 M ha) to a separate management company, Bergvik, also comprising of the much smaller lands (0.3 M ha) from the Korsnäs company. SCA owned 1.6 Mha and Holmen 1.0 M ha. These three corporate owners operated with the restrictions set by national legislation, shareholder interest, and global markets. Furthermore, Sveaskog was required to operate as a model actor. Hence, the private forest holdings, accounting for half of the land and two-thirds of the timber production, were the principal object of public forest policy. Ongoing developments in private ownership structure are discussed by Nylund and Ingemarson (2007).

CERTIFICATION OF FOREST

The appearance of voluntary standards for sustainable forest management, "forest certification", adds a new dimension to forest policy, and illustrates the distinction between policy and governance. The objective of certification is to set standards higher than those judged in the political process as reasonable for all forest owners. During the certification processes, state agencies and political actors are intentionally excluded, and negotiations over national standards offer a new discourse platform for previously opposed parties, environmental NGOs and the 'forest sector'

The process in Sweden up to 2002is analysed by Boström (2002, 2003), with emphasis on FSC. Two years later, a critical report (FERN 2004) compared the different existing systems on a worldwide scale. In a recent paper, Schlüter et al (2009) discuss the Swedish certification process from a governance perspective.

After preliminary work, a constellation of the major forest companies, large wood consumers such as IKEA, the major environmental NGOs, the Forest Owners' Associations, and the Forest and Forest Industries Unions, agreed on a certification model based on FSC. A preliminary standard was launched

in 1996. Other stakeholders joined, and in 1998, the first national standard in the world was launched. Currently, 10 MHa, 46% of productive forestland, is certified under FSC.

However, neither the Forest Owners Associations (FOA) nor Greenpeace joined. The FOA considered the procedural rules of FSC unwieldy for small owners, and instead joined the competing PEFC system, developed by forest owners themselves. The actual difference in standards in Southern Sweden is minor, although PEFC is less stringent in the north (FERN 2004). The FSC concept was first designed to suit actors with wide holdings, and as FSC has more market recognition than PEFC, co-association arrangements between FSC and PEFC are currently being developed for small owners, Currently, 7.7 MHa are certified under FSC, and due to difficulties with FSC procedures, Sveaskog offers "umbrella certification" under FSC for small owners.

However, the adaptation of certification systems involves compromises between different stakeholder groups. The FERN report (2004) criticises all schemes, except FSC, for being partisan in principle; i.e. set up and defined by forestry actors rather than by independent organisations. On top of this, there is a disagreement in Sweden over both systems, as environmental interests consider the standards weak; complaints have also been filed due to unsatisfactory observance by corporate forest owners (SSNC 2008). In May 2008, SSNC decided to formally leave the FSC board, although remains a member of the organisation.

In the current discourse, certification is claimed to be a market driven process, in contrast with legal regulation that is slow and subject to political compromises (Nylund & Ingemarson 2007). However, the real driving forces can be questioned. FSC was not created as a response to market demands, but as a means for environmental NGOs to gain influence in a process previously monopolised by the political system (government, parliament, political parties). The system was successful because the political system was by-passed. However, markets were not consulted, rather the industry and NGO stakeholders jointly felt a need to market the system and make certification known among customers. Under domestic Swedish conditions, where such a large proportion of the forest is certified, certification does not make a product more competitive, but is a tool for enhancing corporate credibility in public discourse and policy making (a point stressed by Boström 2002). The NGOs, on the other hand, face a difficult choice if dissatisfied with actual observance of the certification rules. As certification is accepted and expected by the consumers,

withdrawal from the regulating bodies may only reduce their influence on standards and enforcement. Protests that are too vocal in a purist spirit would only damage the system and make forest owners reduce their ambitions to match the legal minimum standards.

Present developments tend to make certification a first link in a chain of custody. The final customer should be assured that a product is made from legally cut, certified wood, environmentally friendly, produced under satisfactory labour standards, honestly marketed, technically safe, etc.

Evaluations and ongoing policy processes

FORMAL EVALUATIONS

Production
The reorientation of the forest policy was seen by all parties as an experiment, and the government proposition[6] foresaw close monitoring and evaluation. A first report was prepared by the National Board of Forestry in 1998 (Skogsstyrelsen 1998a) and presented assessments of various silvicultural parameters related to regeneration, felling and environmental consideration. This report contained a timber production forecast under two different scenarios. However, the report stated that the introduction of the new policy had already been anticipated by forest owners; therefore, the baseline for comparison already reflected changing practices. Furthermore, the reforms coincided with a notable low in the business cycle, which influenced owner behaviour more strongly than the reform package. A policy reversal or other changes were not recommended. In a subsequent proposition[7] to the Parliament, the Government agreed to make only minor adjustments in the 1993 Act.

In 2001, the National Board of Forestry presented a new evaluation, called SUS 2001 (Skogsstyrelsen 2002), this time examining all aspects of forest policy and not only the effect of the 1993 Act on forestry operations. The findings of this report are presented and discussed in the concluding section of this report. The Government's response was presented in a report to Parliament[8], again leaving the policy unchanged. The observations of SUS 2001, with relevant updates, were used by the 2004 forest policy commission, which reported on the Forestry Board's continued reorganisation[9] in 2005, with a main report in 2006[10].

Environment
The 1993 Forestry Act clearly stated environmental goals were of equal importance to timber production, but concrete targets for implementation and evaluation were lacking. Board instructions and a program for public and voluntary private reservations were issued, but much of the 1990s were required for formulating concrete environmental targets for Sweden's

[6] Prop. 1992/93:226
[7] Prop. 1997/98:158
[8] Skr. 2003/04:39
[9] SOU 2005:39
[10] SOU 2006:81

environmental policy. A revised environmental legislation and specific national objectives were formulated around 1998. One of the latter, "Living" or "sustainable forests", was made a Leitmotif for further work. To date, two formal evaluations have been presented. One is a relatively deep analysis (Skogsstyrelsen 2007) in which a series of quantitative targets are examined, and the prospects of fulfilling them discussed. The most critical and controversial issue concerns the quantitative targets and strategies for establishing forest reserves managed exclusively or mainly for environmental purposes. However, the report recommends no basic policy changes.

THE GOVERNMENT FOREST POLICY PROPOSITION 2008: A NATIONAL FORESTRY PROGRAMME?

The political actors (i.e. Government, Parliament and political parties) did not wish to elaborate further on forest policy goals beyond the unifying formulations in the 1992 commission report2 (Sundström 2005), most likely as such initiatives would have revealed diverging positions that were difficult to reconcile. However, in 1994/95 and 1998, the National Board of Forestry presented two such documents on its own initiative. Meanwhile, the European Union was elaborating a Forestry Action Plan. A main component in this work was a remit from the Commission to all member countries to elaborate National Forest Programmes and expected to implement principles such as multifunctionality and sustainable management. Such a document was supposed to be elaborated in a participatory manner. In 2002, an advisory 'National forest sector council' was formed, with major stakeholder groups represented, and a document more elaborate than the previous ones was published (Skogsstyrelsen 2005: for a detailed account of the policy formulation process, see Sjöberg 2005). The three documents of 1994/95, 1998, and 2005 set up concrete goals for silviculture and management-related work, but made no analysis of means required to reach them, nor set quantitative targets for timber productionor discussed the wood using industry and its provision with timber. The majority of the goals formulated cover environmental consideration and multifunctionality. The timber productions forecasts (e.g. Skogsstyrelsen 2008) indicate differences between management alternatives are relatively small; in an open and market-driven economy such as Sweden, both political and commercial actors appeared to agree that no special production policy was required. An interim assessment of goal accomplishment was published as a Forest Agency working paper in 2006 (Skogsstyrelsen 2006).

However, global attention on climate change and the peak oil discussion resulted in renewed attention to Sweden's potential for forest fuel

production. Up to 2007, the market for sawn goods, pulp, and paper was strong. The 2008 timber production forecast (Skogsstyrelsen 2008) calculated with a stable production level for the first half of the 21st century and only a minor increase thereafter. In 2008, the Government presented a forest policy proposition11, based on the 1996 commission report9. As with previous minor propositions, it upheld the basic tenets of the 1993 reform, proposed minor adjustments in the legal code, and advocated ambitious long-term targets for timber production thorough intensified silviculture, albeit without sacrificing environmental and social values. The proposition can be seen as a new policy initiative. The Swedish Forest Agency and some research actors were given remits regarding concrete intensified management issues, although no action plan or budgets for reaching the new goals were presented. In the authors' opinion, the most striking feature is its failure to address the question of how to mobilise the private forest owners, a group that is rapidly changing socially, and is notably affected by the drastic cuts in the Forest Agency extension services. As with all previous policy making, the proposition does not deal with the forest industry.

In these regards, this policy document, just as previous ones, contrasts strongly with Finland's operational National Forest Programmes, prepared by wide stakeholder participation and with the status of Government Resolutions (Anon. 2008), and unlike in Finland (Niskanen et al. 2008), the forest industry's development is not considered in any forest policy document. In a report to the EU commission in 2004 (Skogsstyrelsen 2004 b), it was argued that the policy processes including commission reports, government propositions and the Sector Goal formulation was the Swedish way of establishing a National Forest Programme. Formally, neither the Sector Goals nor the 2008 Government proposition appear to serve as such. However, for Sweden, being a top performer together with Finland, the lack of a NFP does not appear to have hindered the development of the forest sector in the country.

The Forest Agency, in collaboration with the Environmental Protection Agency, published a much-debated working paper in 2005, which set out ambitious targets for protected forest. This strategy was considered a proposal on how to attain the overarching goals previously formulated, and was considerably more ambitious than the now over ten-year-old targets presented by the 1990 forestry commission.

[11] Prop. 2007/08:108

Consequences and forecasts

TIMBER PRODUCTION FORECASTS

The Swedish Forest Agency and the National Forest Inventory at SLU regularly make long-term forest production forecasts based on simulations (Hugin software) of a large number of existing stands. The latest, SKA 08 (Skogsstyrelsen 2008) covers ten decades up to 2110 and has four main management alternatives and some sub-scenarios. The Reference (R) scenario is based on the 1993 Forestry Act and observed forest owner behaviour i.e. the level of general environmental consideration is high. The Environment (E) scenario differs in the larger areas of forest reserves and 'land managed with special consideration'. The Production (P) scenario assumes the measures presented in the 2008 proposition are realised, allowing for intensive management on a minor part of the forestland, and the Environment & Production (E&P) scenario combines E and P scenarios into a consistent model.

With R, total growth would be 111-114 million m3/year for the 2010-2030, assuming 10% of the productive forest under protection, and consequently unavailable for commercial logging. Under E, total growth would be the same, but with 20% unavailable, in reserves. After 2030, growth would start increasing, above all due to climate change, which in most of Sweden favours timber production. Under P, growth would further increase, initially only marginally, but with 12 M m3 after 2030, stabilising at 20 M m3 after 2060. Therefore, intensified production would compensate for all existing and proposed reserves, etc, but not yield more than total exploitation of all forest and no intensification of management. Up to 2039, the logging potential (taking reservates and age structure into account) would be 90 M m3 with scenario R and 85 M m3 with E, after which is would increase. With scenario E, 1 M ha are supposed to be "managed with special consideration", producing 5 M m3 annually during the decade 2010-2019.in 2110. The difference in logging potential between scenarios E (min.) and P (max.) after 50 years would be 27 M m3 annually. Assuming full use of the logging potential, the standing stock on productive land (~1800 M m3 in 1926, 2140 M m3 in 1953: quoted in SUS 2001) would, despite the high projected logging intensity, increase from 3100 M m3 in 2010 to 4500–5300 M m3 a century later. For the first two decades, this increase would take place mainly in protected forest, etc., but then stabilise due to accelerating natural drain (trees dying from old age). Spruce would increase at the cost of pine, particularly in the South. Broadleaf tree admixture increases under all scenarios.

After fifty years, the differences between production and reserved forest would be accentuated. With scenario P, standing stock in the production forest increases, but with almost no forest older than 100 years, a negative consequences for biodiversity. This would place demands on management and require a landscape perspective when establishing reserves. With scenario E, another 500 000 ha are calculated to be set aside as reserves and other conservation When and where this is done has consequences for the calculations. In the report, this is supposed to be done rapidly and cover the remaining old growth forest. A long-term estimate requires about 2 MHa forest (slightly less than 10%) to be set apart from commercial production: half of the area totally reserved, and the remainder managed with restrictions. With the current debate on 'continuity management', i.e. without clear felling, the study, based on available data, considers 50% of long-term logging potential would be lost compared to current clear-felling (with or without seed trees) practices.

The report underlines the lack of reliable information on management practices for protected forest and stresses the necessity for large investments over a long period to reach the P scenario target of an extra 20 M m3. The Government proposition 2008/08:108 does not discuss means of attaining the long-term goal of 25-50% increase in logging in ten to fifty years (section 6.2).

FOREST MANAGEMENT

The SKA 08 forecast (Skogstyrelsen 2008) takes actual, i.e. post-reform private, corporate and public management practices as a starting point for its modelling work. The reference scenario figures do not differ from the previous forecast, SKA99; the difference lies in the alternative scenarios, the presumptions of which reflect current policy processes. However, did the reforms change owner behaviour? This was followed closely through the Forest Agency's (then the Forestry Boards') field inventories in an exercise called Polytax. The broad reporting in SUS 2001 (Skogsstyrelsen 2002) provides the most recent data on the effects of the new policy. However, observed changes may not have only been caused by the legal and institutional reforms. First, the pre-reform baseline may be misleading, as forest owners adapt their management to contemporary developments such as multifunctionality and more broadly understood sustainability, Furthermore, the early 1990s were marked by a deep recession, particularly notable in Sweden and Finland. This was interpreted in the SUS report as the main reason for less efficient regeneration practices: deregulation was considered to have a minor role. In addition, in the Russo-Baltic neighbourhood, the breakdown of the communist political order, and central

economic planning changed timber market conditions. As the business cycle in the later 1990s turned into one of the longest booms of the post-war period, markets and timber prices started to recover, boosted by the emerging biofuel market. Meanwhile, the ideational landscape was changing, causing widespread acceptance of (some) conservationist ideas originally perceived as radical. The findings of SUS 2001, in relevant cases with updated information, were as follows:

- Ownership: while the number of holdings did not change much between 1990 and 2000, the number of holdings with non-resident owners rose from 22 to 34%: in 1990, 34% had more than one owner and 41% in 2000. These changes were due to general social processes, and a growing, but in absolute numbers relatively small, number of property acquisitions had wealth management as an important motive (Ingemarson 2004).

- Employment: Rationalisation characterises the entire period after 1950. In 1975, 32 M work hours were reported in public and corporate forest management, with 10.3 M in 1992 and 5.7 M in 1999; simultaneously, output has increased. Contractors are taking over traditional forest workers, but their own increasing efficiency makes the increase small – 7.15 M work hours in 1993, 8.86 M in 1999. However, machine occupation per year increased from 1600 hours per unit in 1993 to 2400 in 1998. This development is considered independent of the reform work.

- Management plans. When management plans were made compulsory in 1983, half of the private forest owners already had one. In 1993, the obligation was cancelled. As SUS 1998 revealed that half of the owners lacked an updated plan, a compromise between the old style plan and the deregulation philosophy was introduced: 'SMÖR', a basic documentation of timber and environmental resources of the holding. 'Green management plans' were devised by the Forestry Boards as a commissioned service. In 2006, SOU 1996:81 recommended the obligation to be cancelled, repeating the motivation of the Forest Agency, that SMÖR was too shallow a document, while a full management plan was considered too costly an obligation for smaller owners, larger owners would have one anyhow. No data were presented on the actual share of owners having either document. All obligations were removed in 2008.

- Standing stock, growth and logging: In the period covered by SUS 2001, the total standing stock (outside reserves) increased by 85 M m3 over 9 years, while new reserves withdraw 0.5 MHa from production. The mean stock per ha in production forest rose by 5%, from 119 to 125 m3/ha. The area of 'old' forest (>120 years) had declined up to 1990, due to the obligation to log. Ten years later, there was an increase from 2.9 Mha to 3.2

Mha. About 200 000 ha were logged annually, with no notable changes from 1990 to 2000. However, the size of the logging sites was reduced; the number of areas larger than 20 ha was reduced from 35% in 1980 to less than 10% in 2000; the trend started well before the policy reforms. Felling in submontane forest was drastically reduced over the ten-year period 1990-2000. The relaxation of rules regulating minimum ages and proportions of holdings to be clear felled appeared to have no effect on owner behaviour. Over a longer period, the annual logging volume increased by 35% between 1990 and 2007 , to 92 M m3 (Skogsstyrelsen 2007). This reflects both market situation and larger logging potentials. Despite this increase, standing stock continued to increase and the potential will remain stable for some decades.

- Environmental consideration at clear felling. In 1990, 52% of all logging/regeneration sites did not meet the standards set by the Forestry Board. Despite stricter criteria, only 19% were substandard in the 1990/2000 inventory.

- Regeneration success. During the years of economic downturn after 1990, natural regeneration (seed trees, soil preparation) was relied on even if not biologically suitable and replanting was delayed. However, when SUS 2001 was published, regeneration through plantation was increasing, reaching 130 000 ha/year: later controls (reported in SOU 2006:81) verified that owner behaviour in this respect was satisfactory. However, an assessment of seedling density revealed 80% of the regenerated area was satisfactory in the early 1990s, compared with only 40% in the 70s, after which, a minor decline was observed, a result of the economically motivated omissions a few years earlier.

- Cleaning and thinning. The subject of a long running debate in Sweden, cleaning and pre-commercial thinning increased steadily from the 1950s and 1980s, but dropped dramatically to previous levels with deregulation; thereafter, remaining on a level too low for optimal stand productivity, according to the written standard. However, SUS (p. 146) states that the present level corresponds to the owners' own standards, and that the previous high levels were achieved through intensive counselling combined with state subsidies. With increasing biofuel prices and new technology, pre-commercial thinning is less costly, and consequently more frequent. The areas of (commercial) thinning have remained constant over a longer period, but in 2000, 700 000 ha were considered overstocked. Hardwoods and dead trees were left after thinning to a higher extent than before, favouring biodiversity.

- Road construction. Subsidies and participation by Forestry Board professionals supported a wide network of forest roads that were established by joint efforts (a mean of 13 participants per project in 1990). Around 2000 and as incentives were cancelled, the projects became single-owner activities: road penetration is generally satisfactory, but too high from a conservation perspective.

- Forest fertilisation. This activity reached a peak around 1990, and then dropped to only 20% of the previous level, mainly a result of environmental concern. At the same time, nitrogen deposition stopped increasing, although in the South West of the country, where deposition was heaviest, many stands show signs of nitrogen saturation.

- No negative consequences of the deregulation on management or timber production have been recorded. However, attitudes in both society and among forest owners have changed to becoming a driving force rather than an effect of the reforms. In an enquiry by the SUS study, 85% of (private) forest owners wanted to manage their land in ways favourable for biodiversity, 50% wanted to map their own conservation objects, and 22% would consider making voluntary reserves without compensation. Ingemarson (2004) studied owners according to management objectives, and determined that 70% had a positive attitude to conservation objectives, as formulated by the study.

While hunters' interests and game management were not an aspect of the SUS evaluation, the high level of elk and roe deer damage on regeneration and saplings was noted. This was repeated in the Government proposition 2007/08:108. Certification rules also demand control of browsers to secure natural regeneration of several broadleaf species as well as herbs. SUS 2001 notes (p.141) that current legislation and authorities have no tools to balance the interests of forestry and hunting; this is particularly so as hunters and owners show a large overlap.

Conclusions

The reform process was a result of a general paradigm shift in society, and was supported by most actors. The broadening of the concept of sustainability and the abandoning of a management concept exclusively focusing on maximal production of industrial raw material were global processes. The gradual shift from government to governance, prominent in the discourse but outside the scope of this paper (Sjöberg 2005), can be seen as a process of societal change, not as the result of specific policies.

In three respects disagreement among key actors occurred. The first concerned the degree of relaxation of management regulation, where the political centre-left feared that the reform would seriously affect regeneration and pre-commercial thinning among private forest owners. Far-reaching regulation had been on the agenda since the 1950s. For half a century, the centre-left had cooperated with Sweden's large companies to create a strong industry sector, and its concern that deregulation would weaken the forest industry's supply of feedstuff was genuine. Hence, the effects of the reform were watched closely, although no long-term negative effects have been noted. However, the reduction of the Forest Agency's advisory services led to profound changes in the technical support to private forest owners, and has yet to be analysed.

Secondly, there is an ongoing, (mostly) low-key conflict between forest companies and the environmental movement regarding the extent of "general consideration" in production forest. Company people claim, in informal communication, that up to 10% of the volume production is 'sacrificed' to make their operations conform to legal and certification standards, while environmental organisations (e.g. FERN 2004) are highly critical of company performance. While all parties accept the general objectives of sustainability and multifunctionality, the quantification is a matter of values and opinions. The political system has been wary of presenting any kind of instrument to assess the balance between production and conservation stated in §1 if the 1993 Forest Act. The author considered the political actors are content to see the negotiated standards of forest certification setting the de facto norm for environmental and other considerations in production forest.

The third area of disagreement concerns the amount and type of production forest to be set-aside for environmental purposes. While the 1990 parliamentary commission set a target of 5% of the productive area to be protected under various schemes, the Forest Agency has later advocated a doubling of this, and calculates the SKA2008 forecast with 10% in the

standard scenario and 20% in the “Environmental” scenario. The industry claims that at these levels, and particularly if new protection areas are concentrated in mature forest and not spread over all age classes, this would strongly affect logging opportunities.. This paper does not further consider these issues, only draws attention to the conflicting opinions.

However, after 1990, the sharp reorientation of policies, from high-regulation-low-environmental-concern to the opposite, passed with no complications, besides value-based conservation issues. The first years after the Forestry Act reform represented a ‘bust’ period for forest industry, followed by more than decade of boom, with increasing timber demand, market conditions appear more important to forest owner behaviour than changes in silvicultural legislation.

The “new” policies launched in 2008 considered ways of stimulating timber production without sacrificing environmental values, and should be seen as a response to the growing demand for timber during the previous decade, supported by a rapidly growing forest biofuel market. It remains to be seen whether the present crisis, particularly affecting pulp and paper industry in neighbouring Finland, will have long-term effects on timber demand. A Finnish forecast (Niskanen et al., 2008) suggests that industry may change but forest produce will have a steady demand in the future. In one respect, the political field has changed. The centre-left of 1950 to 1990 favoured production and industrial development, leaving rural policies and the emerging green movement to non-socialist parties. Today, the Green, Social Democrat, and radical Left parties are united on a relatively radical environmental platform, while the centre-right parties place heavier stress on both industrial and rural development. The message from the Forest Agency’s timber production forecasts (Skogsstyrelsen 2004a, 2008) is the slowness with which different policy options affect future logging opportunities. Ownership structure and non-timber forest use may change, and the extent of reservations may increase or remain unchanged, but the basic resource, the growing forest, remains after a century of dedicated restoration work and owner education.

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Consequences of policy alternatives as modelled by SKA 08

Jan-Erik Nylund
Dept. of Forest Products, Swedish University of Agricultural Sciences
PO Box 7008, 75007 Uppsala
jan-erik.nylund@sprod.slu.se

Abstract

Forest policy making is a process, making compromises of conflicting interests and political ambitions. However, the outcome in terms of i.e. timber production tends to be a guesswork. In Sweden, forecasting tools based on national inventory data and detailed simulations make hundred-year forecasts of policy alternatives possible. A case is presented where the governments ambitious policy of fomenting wood production for sawmilling, pulpwood and biofuel is contrasted with an equally ambition action proposal to reach general environmental objectives formulated by parliament. A realistic scenario to implement both policies proved to differ very little from the, by itself quite ambitious, business-as-usual scenario, but would have a notable impact on the forest landscape. Yet, the past 50 years' management sets a general trend of increasing potential cut and standing stock, regardless of policy alternative examined. The analysis underlines that policy needs a hard factual base but cannot be separated from political values. The role of changed perceptions of forestry in society is also discussed.

***Key words**:* forest policy analysis; consequence analysis; forecasting

Contents

Introduction

Policy decisions are a result of political processes, where both value-based arguments and material interests are taken into account. In forestry, a policy decision will have a material outcome in the form of timber production. Regional and national modelling can illustrate the consequences of policy alternatives – and may show ways how to balance seemingly opposed interests.

Sweden got its first modern forestry act and a forest agency structure to enforce the forest policy in 1903. Based on the gloomy picture of state of the nation's forest presented by the 2nd national inventory after 1950, the restoration of the forests started only after World War II, culminating in stringent demands on owners in legislation of 1979 and 1983. The policy was successful in terms of timber production. In 1950, the total felling was about v50 mi m^3; in 2007, 94 mi m^3 (cf. Nylund 2009). In 1993, a new act put environment and production on an equal footing, yet without defining environmental goals for forestry Such goals were later formulated by the Forest Agency based on general environmental objectives formulated by Parliament , and much of the counselling of it's agents had 'greener management' as a goal. The new policies are analysed in detail in Nylund (2010). For the next ten years, the Forest Agency made a determined effort to teach forest owners 'green management, and to expand the area of forest under various categories of protection, but a few years ago, it realised that more forceful policies were required if biodiversity and other targets were to be reached. - The 1993 relaxation of coercive management policies had a base in the high level of allowable cutting, but ten years later, the rapidly growing use of biofuel, and good prospects of the forest industry caused the government to present a new policy emphasising production, yet with good environmental standards and without reintroducing detailed management regulation.

The National Forest Inventory, operated by the Swedish University of Agricultural Sciences (SLU) in close cooperation with the Forest Agency allows fore continuous monitoring of the development of the forest resources, and provides a basis for long-term forecasting. The present paper comments the results of the 2008 policy consequence analysis made by Swedish Forest Agency and the National Forest Inventory (Skogsstyrelsen 2008) and presents some questions on the further development, as several assumptions of the 20th century's policy seems to become outdated.

Methods

In a regular update of the 100-year timber production forecast, the Forest Agency and SLU's forecasting team modelled the consequences of four alternative policies (Skogsstyrelsen 2008):

Reference: Extrapolating today's actual management, assuming no dramatic change in forest owner or market behaviour The policy implies a relatively high standard of "general environmental consideration" in management of production forest.

Environment: The Forest Agency's own estimate of the means necessary to reach the Parliament's general environmental objectives regarding forestlands. Most notably, the scenario sets aside 2 mi ha for strict protection and management primarily for environmental purposes. In the simulation, specific 'stands' were identified for protection on a national basis in line with general criteria.

Production: The 2008 policy decision to intensify timber production without compromising present environmental standards was translated into a number of simulated practices, such as fertilisation, genetic improvement, intensively managed plantations on abandoned farmland, etc.

A compromise, where intensified management was applied to the remaining production land, but also the necessary cutting in protected areas was taken into account.

The modelling was performed using the "*Hugin"* package, which treats every test plot in the national inventory as a single stand, simulating its proper management in ten-year-periods.

Results of the consequence analysis

Regardless of policy, both allowable cutting (Fig.1) and standing stock (Fig. 2) will continue to increase, due to 60 years of improved silviculture. With 'business as usual', over the next 20 years allowable cuts will be marginally (3 mi m^3) higher than today. Under the 'Environment' scenario they will be reduced by 5 mi m^3/year due to the transfer of old forest to reservations, while intensified management adds 2 mi m^3. After that, differences accelerate. In 100 years, growth will be over 50% higher under the reference scenario. Under the 'Environment' scenario, allowable cutting would be 10 mi m^3 less after 50 years and 15 mi m^3 after 100 years. Under the 'Production' scenario, it would increase by 15 and 20 mi m^3 after 50 and 100 years, respectively. In relation to today's level, 90 mi m^3, the gap between the minimum and maximum scenarios is striking; 35 mi m^3, after 100 years.

The 'compromise' alternative differs little from the 'Reference' or business as usual, but requires larger investments.

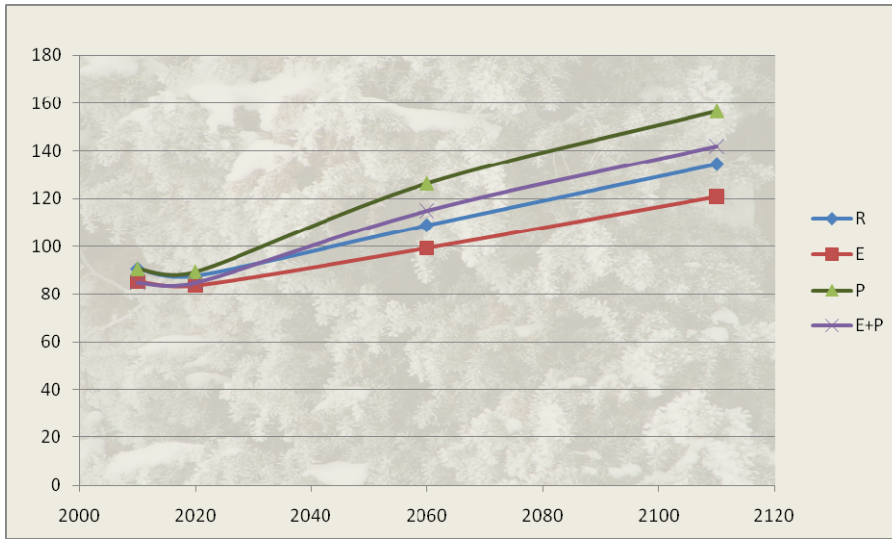

Fig.1. Allowable annual cutting forecast under four scenarios (see the text); million m^3 over 100 years. R: Reference: E; Environment; P: Production; E+P:combining Environment and Production.

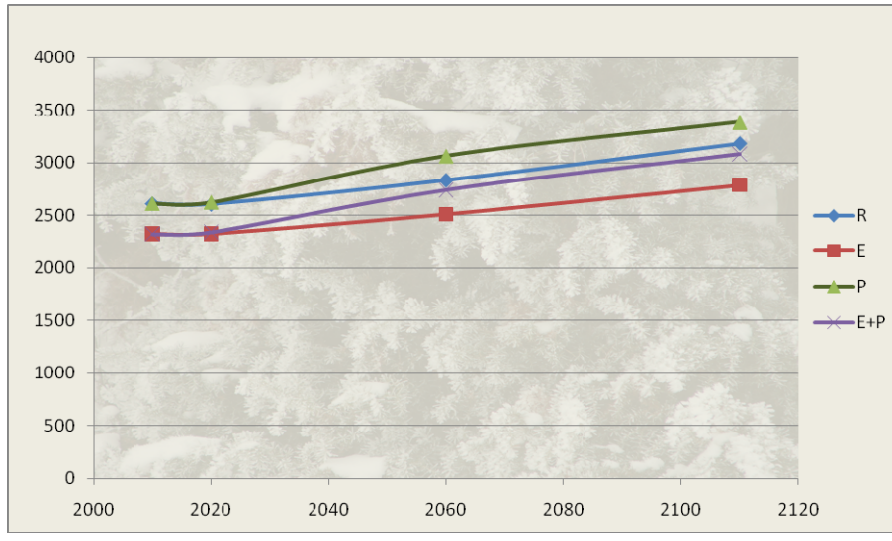

Fig. 2. Standing stock under four scenarios (see the text), million m^3, over 100 years. R: Reference: E; Environment; P: Production; E+P:combining Environment and Production.

Discussion

BASIC VALUES, COMPROMISES AND RESULTS

The environment scenario expresses values questioning the idea of maximising timber production in the country, and would result in some 10% of the area (including previously protected land) taken out of production-oriented management. Whether even this degree of protection would be enough to ensure the parliament's biodiversity goal would be sufficient cannot be said, but at least a price tag can be set in terms of 'lost' cubic meters of timber. Choosing this policy is clearly a matter of values, questioning the maximum-production philosophy.

The production scenario assumes, besides market opportunities and acceptable prices for a long time to come, that a reasonable level of environmental consideration can be maintained even under an intensified management regime. The promoters of such a policy are satisfied with today's environmental ambitions (which are quite ambitious when it comes to production forest), but also put a high value on increased raw material availability for forest and energy industries. They are also willing to pay a price right now in the form of making management more capital intensive.
While compromise has been a characteristic of Swedish forest policy in the past, the present compromise scenario brings up some consequences not enough discussed in the national discourse. It satisfies the conservationists' primary target of protected forest, but the intensified management of the remaining 90% of the land may lead to unacceptable sacrifices for both biodiversity, recreation, visual landscape and reindeer herding. On the other hand, industrial and private owners have to work harder and spend more money, if they wish to keep production on more or less the same level as the business-as-usual scenario. How to strike a correct balance? Is the loss under the reference scenario larger than the combined gain through conservation and loss due to intensification? The scenario seems to invite value conflicts both within and between stakeholder camps.

ASSUMPTIONS AND PRECONDITIONS FOR FUTURE POLICY MAKING

The recent state of the forests in the country, and thereby the reference scenario, reflects a relative political unity in forest policy over the last century, as well as some basic assumptions regarding markets and prices. Interestingly, they represent the visions of professional foresters all around Europe during the 19th century, but became viable due to the technical and economic development during the 20th. High, sustainable timber production

for the forest industry has been the leading theme. Economic gain and other owner objectives have been secondary. The restoration of the nation's forest to full production capacity has been seen as a civic obligation. Setting aside forest for conservation purposes has been seen as a loss of potential income for the country. In contrast with densely populated Central Europe, there has been enough semi-natural forest for recreation purposes, and conflicts over forest land use have been few, and mostly limited to reindeer herding in the North. Yet, looking into the future, two changes in Nordic society challenge these assumptions.

Firstly, the Nordic forest industry is becoming transnational, and is rationalising its domestic production without regard to the interests of the home region or country. As a consequence, it can no longer be expected that forest owners or policy makers in general to will be willing to give top priority to raw material production for the industry, at the expense of other interests. The owners increasingly wish to act according to their own priorities, even if this does not mean maximum timber production, - and a growing number do so; anyhow, for the majority of small-scale owners(50% of the forest area) forest income represents a minor part of the family budget.(Ingemarson 2004).

Secondly, as management is intensified, the forest landscape is successively changing away from the semi-natural condition favoured for recreation, hunting, mushroom and berry collection, etc. The political support from a predominantly urban population for using most of the forestland primarily for timber production can be expected to wither.

Thus, it may prove that even the reference scenario builds on unrealistic assumptions regarding the management of 50% of the forestland. But, at least for the present rotation, the forecast shows that yield and stock will increase or at least not decline. If anything, the forecasts underline the long time perspective in cold and temperate region forestry. Hardly any news for the forestry professionals, but possibly more so for politicians with mandate periods of four-five years.

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