



New legal minimum ages for final felling

Consequences and forest owner attitudes in the county of Västerbotten

Martin Lindskog

Arbetsrapport 36 1998

SVERIGES LANTBRUKSUNIVERSITET
Institutionen för skoglig resurshushållning
och geomatik
S-901 83 UMEÅ
Tfn: 090-786 58 25 Fax: 090-14 19 15, 77 81 16

ISSN 1401-1204
ISRN SLU-SRG-AR--36--SE



New legal minimum ages for final felling

Consequences and forest owner attitudes in the county of Västerbotten

Martin Lindskog

Arbetsrapport 36 1998

Master thesis in forest management

Supervisors: Sören Holm, Swedish University of Agricultural Sciences

KG Nilsson and Ove Jansson, County Forestry Board

SVERIGES LANTBRUKSUNIVERSITET
Institutionen för skoglig resurshushållning
och geomatik
S-901 83 UMEÅ
Tfn: 090-786 58 25 Fax: 090-14 19 15, 77 81 16

ISSN 1401-1204
ISRN SLU-SRG-AR--36--SE

Table of contents

	Page
Abstract	3
1. Introduction	4
1.1 General background	4
1.2 "Forest for the future"	4
1.3 "Forest policies at the prospect of the 21st century"	6
1.4 General Forest Inventory	7
1.5 14§ Felling notification	7
1.6 16§ Application for felling permission	8
2. Purpose of this thesis	9
3. Material and methods	9
3.1 Sampling	10
3.2 Data collection	10
3.3 Populations and samples	12
3.4 Estimation procedures	16
4. Results of the study of the felling reports	17
5. Results of the attitude research	22
5.1 Results of the attitude research privately owned land	22
5.2 Results of the attitude research company owned land	31
6. Discussion	32
Acknowledgements	35
References	36
Appendix 1 14§ Felling notification	
Appendix 2 16§ Application for felling permission	
Appendix 3 Attitude research private forest owners	
Appendix 4 Attitude research companies	
Appendix 5 Question form, sent to companies, considering age and site index	

Abstract

The Forestry Act was altered in Sweden the 1st of January 1994, replacing the 1980 forest legislation. Several deregulations were made and one of them was the lowering of the legal minimum age (LMA) for final felling.

The authorities naturally show interest in the effects of the new legislation, and the present thesis is a contribution in this respect. The work was initiated and commissioned by the County Forestry Board of Västerbotten in November 1996.

The main purpose was to study the behaviour of forest owners with respect to the new LMA, but a more general attitude research about the LMA was included as well. The issues were studied for eight (of sixteen) County Ranger Districts in the county of Västerbotten. Forest owners were classified as private or companies and as inland or coastal.

The results are based on a sample of about 40 final fellings from each of the two owner categories and each district. In a subset, the forests cut were aged between the old and the new LMA, and the corresponding set of forest owners constitutes the sample for the the attitude research.

The estimated percentage in area of the final fellings that falls between the present and the former LMA is marked but varies considerably between owner categories and especially between districts within category. The estimated percentage varies between 0 % and 60 % over all districts and owner categories. Averaged over districts the percentage varies between 17 % and 25 % for the four categories. The highest figure was obtained for coastal private forest owners, while the other three categories showed similar values. Noteworthy is the large and significant differences between the districts, for each of the four categories.

The results of the attitude research indicates that roughly 50 % of the respondents were not aware of the lowering of the LMA and 75 % of the respondents were not aware of that the stand they cut were below the old LMA.

Seemingly, inland private owners are more aware of the changes in the law. It appears that they act more like the legislator intended. An explanation to this could be a good communication with the County Ranger Districts. In general terms a better communication between forest owners and the authorities would improve the implementation of the forestry legislation.

Key words: Swedish Forestry Act, Legal Minimum Age, attitude research, final felling, forest owner categories, legislator, Västerbotten.

1. Introduction

In 1994, the directives in the Swedish Forestry Act were changed. One alteration that has been debated since then was the lowering of the legal minimum age (LMA) for final felling.

In this chapter some considerations of the legislator when proposing the new law are presented. The reasons behind the former directives, valid since 1980, are also given. Also is presented the survey named the General Forest Inventory (GFI), producing data usually used for forest decisions by forest owners, and closely connected to the application of the earlier law. Finally, the routines preceding a final felling are described, since they play an important role in the process.

1.1 General background

In the previous forestry legislation, valid until 1994, the LMA for final felling in the county of Västerbotten varied between 90 and 130 years of age, depending on the site index of the stand. (Age is defined as basal area weighted total age). In the prevailing forestry legislation the corresponding LMA vary between 65 and 100 years. The higher the site index the lower is the LMA.

Facing the new directives the legislator was of the opinion that: "We believe, in addition, that forest owners in general will not clear cut until the financial outcome is optimal, which means that they will not cut stands younger than permitted today" (Swedish government official report 1992:76, Main report, page 192).

Each of the two laws was preceded by a commission. The two commissions had reached different conclusions. The former of the two was called "Forest for the future", which lead to the preparatory work Swedish government official report 1978/79:110, and the latter was called "Forest policies at the prospect of the 21st century", which lead to the preparatory work Swedish government official report 1992:76.

1.2 "Forest for the future"

The commission "Forest for the future" reached the conclusion that the need of timber exceeded the volume increment (Swedish government official report 1978/79:110, "General outlines for forest policies ...", page 10). This idea governed all the conclusions and recommendations produced by the commission. Large efforts were judged necessary to create and maintain a sustainable forestry.

Three different scenarios for the coming century were studied. The one finally recommended by the commission was based on the belief that the forest industry would use 90 % of its capacity during the 1980's, implying a total annual cutting of 80 millions m³sk.

To reach that goal, 50 % of the swamp forest area had to be ditched and 25 % of the mire area had to be both ditched and fertilised. In addition, the annual fertilisation on forest land would increase from 150 000 to 450 000 hectares.

Import timber was expected to be expensive and therefore insignificant. Improved methods for harvesting timber and stumps would increase the total timber resources by 7 to 8 millions m³sk annually above the 80 millions m³sk (Swedish government official report 1978/79:110, page 18-19).

Rules were introduced on an estate level for rationing purposes. The reason was to maintain a high timber production potential for the beginning of the next century, when otherwise a timber shortage was foreseen.

With the same intention the commission expressed its wishes that the cuttings should be even over years by rationing (Swedish government official report 1978/79:110, page 45)

About the LMA, the commission states: "Concerning the protection of the growing forest the commission suggests a rule that directly is connected to the interest in maintaining a high timber supply. The commission notes that if it is desired to reach a timber production as large as possible, a stand should be kept growing until the highest mean annual volume production is achieved. Consequently a stand should not be clear cut as long as the annual increment exceeds the current mean production." (Swedish government official report 1978/79:110, page 44). However, the commission found this wording to be unreasonable due to the capital costs and risks for damages forest owners could suffer from. Hence, the text was modified to: "Forests are not allowed to be clear cut until they have reached such an age that only a slight increment of its mean production can be achieved, provided the forest is left standing. The mean production is defined as the annual mean growth from the formation of the stand" (Swedish government official report 1978/79:110, page 3)

To facilitate for forest owners to co-operate and to make an efficient and economical forestry possible the "General Forest Inventory (GFI)" was implemented (Swedish government official report 1978/79:110, page 81). The GFI is described below (Chap. 1.4).

However, in the early 1980's, low cutting activity led to supply problems for the forest industry. This led to a compulsory cutting of mature stands from 1983, until 1994.

1.3 "Forest policies at the prospect of the 21st century"

The future prospects predicted in "Forest policies at the prospect of the 21st century" differed from those in "Forest for the future". The expected timber shortage, predicted in the 1970's, did not seem plausible any more. There were mainly three reasons for that:

- * The so-called 5&3-forests (wounded or low-productive stands) had been cut and been replaced by well-growing forests.
- * The use of scarification had increased, which gave better regenerations.
- * A better forest hygiene lead to fewer insect damages.

The highest possible sustainable annual cutting level in Sweden was estimated to be 95 millions m³sk.

The legislator predicted: "The market situation that can be seen in short prospectives and the abundant supply of cutting mature timber will probably lead to a further weak price development for timber in the immediate future." (Swedish government official report 1992:76, Main report, page 107).

The authorities influence on forestry by regulations and economical support were to be less important than before. A deregulation and simplification would make it possible for forest owners to practise a diversity of silvicultural methods to a larger extent than previously. For example, the selection system method would be accepted and would lead to a better fulfilment of the environmental goals stated by the new directives.

The commission proposed a complete elimination of a legal minimum age for final felling. It was motivated by "...during the early 1980's the cuttings were also below the forest industry need of raw material... By our judgement of the future it is clear that we, within surveyable range, rather will have a major timber surplus in the country, which will imply that forests will be cut at higher ages. For the society as a whole, a few departures, with cuttings in younger ages will not have any major importance. Our opinion is, in addition, that forest owners in general will not clear cut the forest until the financial outcome is optimal, which means that they will not cut forests younger than what is allowed today. If a shortage would arise in some regions, prices would raise in these areas which in turn will regulate the demand. Timber could be transported between regions like today, and a certain import can also occur." (Swedish government official report 1992:76, Main report, page 192).

However, the legislator did not follow the recommendations of the commission completely. The LMA rule was kept, but the limits were lowered.

The altered law was promulgated the 1st of January 1994.

1.4 The General Forest Inventory ("Översiktlig Skogs Inventering, ÖSI")

The survey called the General Forest Inventory (GFI) was carried through in Sweden 1979-1993, mainly on land not belonging to companies. In the county of Västerbotten 85 % of the private owned forests were inventoried by this survey. This percentage is negligibly higher than for Sweden as a total. (Swedish government official report 1992:76, Main report, page 223).

The purpose of the inventory was to facilitate co-operation between forest owners to make a rational forestry possible. Parcel rationalisations of estates, carried out at the same time, took a long time and while awaiting results from that, the GFI seemed to be a mean for a rational forestry. The GFI was also seen as a complement to the National Forest Inventory ("Riksskogstaxeringen"), by covering larger areas or specific parts of counties, than does the NFI (Swedish government official report 1978/79:110, page 31).

According to the 1983 addition to the forest law, forest owners had to present detailed management forest plans, for which the GFI inventory could make a base. Companies could also use the GFI results as a tool in their planning. The County Forestry Boards planning of activities was also improved by the GFI.

One effect of the inventory was that "The silvicultural and cutting activities in inventoried parts are higher, within five years from the inventory, than in other parts." (Swedish government official report 1992:76, Main report, page 80).

The GFI ceased in 1993 as the legislator thought that it was unrational that both authorities and forest owners made similar inventories (this occurred frequently). At the same time the requirements on the management plans were much reduced. The authorities' needs of essential, but less detailed information, was to be provided by the forest owners, as a compensation for education and advice they could get from the County Forestry Boards.

1.5 14§ Felling notification

Due to the directives in 14 § of the Forestry Act, it is compulsory to report a final felling in advance. It is stated in the 14§ : "A notification has to be presented at least six weeks before a final felling, if the felling exceeds 0.5 hectares".

In this notification, the forest owner also has to specify his plans for satisfying nature- and culture-preservation interests in connection to the harvesting (Appendix 1).

The County Forestry Boards have possibilities to put different restrictions on the felling, for example saving forests in wet hollows.

1.6 16§ Application for felling permission

For fellings in forest areas difficult to regenerate (Figure 1.1) it is stated in the 16§, 1st line: "In forest areas difficult to regenerate or in protective forests, felling is not permitted without a permission given by the County Forestry Board". Thus, forest owners have to send an application concerning the cutting, and are not allowed to cut until the permission by the County Forestry Board is given (Appendix 2). (The 16§ includes all kinds of cuttings, not only final fellings.)

If the County Forestry Board finds it necessary, the application is also treated by the County Administration Board (Länsstyrelsen), which investigates the suitability of the cutting proposed. As an example, if a felling is planned to cross a mire containing high nature values, the County Administration Board could be consulted.

To ensure that required regeneration really is executed, the County Forestry Board can demand security before the permission is given and can also decide on measures to limit or minimise nature disturbances.

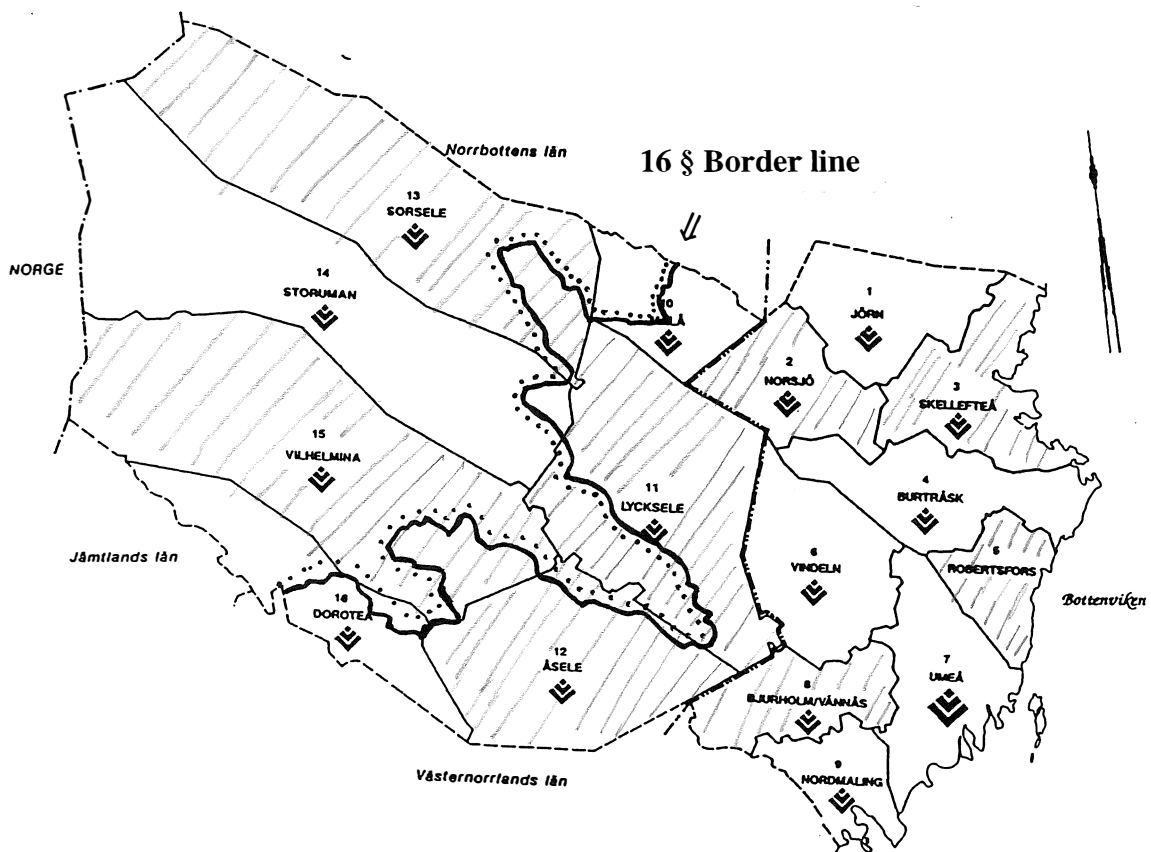


Figure 1.1 Map of Västerbotten and districts included in the study (////)

West of the 16 § border line application for felling permission is required. East of it 14§ notification is sufficient

2. Purpose of this thesis

Suspicion arose that forest owners did not act as the legislator thought they should. Recall the legislator was of the opinion that: "We believe, in addition, that forest owners in general will not clear cut until the financial outcome is optimal, which means that they will not cut stands younger than permitted today" (Swedish government official report 1992:76, Main report, page 192).

The purpose of this thesis is to study the real behaviour of forest owners with respect to the LMA. Special attention is to be paid to any differences between different forest owner categories (private owners/companies and owners from coastal regions/inland).

The first objective is to estimate the proportion of stands final felled in 1995, that are permitted to be final felled in the present legislation, but were not in the former.

The second objective is to perform an attitude research to find the motives and backgrounds of the forest owners acting. The study is restricted to those owners having reported final fellings aged between the former and the present LMA.

The result of this attitude research is to be compared with the legislator's idea of how the forest owners would act. A crucial question is if the forest owners in general have the knowledge necessary to fulfil the goals that are implicitly given in the new forestry legislation.

The study is restricted to a selected set of County Ranger Districts in the county of Västerbotten, Sweden (Figure 1.1).

3. Material and methods

In the study of the ages of the final fellings, the population consists of all stands reported for final felling in 1995, either as a notification (14 §) or as an application (16 §), for eight County Ranger Districts (Figure 1.1). Reports were sampled from authority registers (Chap. 3.1).

In the attitude research the population consists of forest owners who has reported a final felling (1995) and where the stand age is between the former and the present LMA. In principle, a subset of the age study sample was used. The attitude research was accomplished by telephone interviews (Appendix 3 and 4).

It should be observed that the attitude research does not cover *all* forest owners, but only those who has utilised the new lower LMA.

3.1 Sampling

The *districts* included in this thesis were selected subjectively by me and my supervisor at the County Forestry Board, Mr. Karl-Georg Nilsson. The districts were chosen to represent both coastal regions (called coastland below) and inland.

The sampling of *final felling reports* was made as a systematic sample from sequentially ordered diary numbers, separately for each district. The sampling fraction was chosen to give an expected sample size of 40 reports per district and owner category (private/company).

To perform this, the two kinds of reports, the felling notifications (14 §) and the applications for felling permission (16 §) was, for each district, aggregated into one single sequence. (The felling notifications are stored per district by the authorities, but the felling permissions are stored per county.)

It should be observed that a report (notification or application) quite often concerns more than one stand to be cut. This implies that the number of *stands* sampled exceeds 40 per district and category. Statistically, this kind of sampling method is called cluster sampling (Bondesson 1994, "Samplingteknikens grunder", page 53).

For the *attitude research* the subset of forest owners who had reported stands to be cut 1995 was taken. The subset was defined as those cases where at least one stand age was between the former and the present LMA. However, some of cases were excluded for different reasons. These are:

- * Cases where only a part of a stand has been reported. The reason for exclusion was to minimise the risk of ending up in a discussion with the forest owner about the age of the part reported.
- * Reports with data or map uncertainties.
- * Stands that were younger than the present LMA (for example, severely damaged stands). These stands are likely to get felling permission due to the exceptions mentioned in 10§, Forestry Act, 1993:553.

3.2 Data collection

The reports contain data about forest owner, estate identification, the total area to be cut and a map of the cutting area. Also, in most cases a compartment identification, but nothing is mentioned about the stand age. Guided by this information the stands were sought in the GFI material. The GFI material is found at the County (Västerbotten) Forestry Board, Umeå, Sweden. From the GFI material, information about the stand basal area weighted mean age was obtained, adjusted to the calendar year 1995. The site index of the compartment was also recorded in the GFI.

In some cases GFI data was lacking. Then the information needed was sought in the "Skifteslagsinventeringen" (or "Inventering av samverkansområden"), which is an inventory from the 1970's, preceding, but similar to the GFI.

When none of the two inventories had been performed, the stand was cancelled. No substitution was made.

To check that the stand in the felling notifications (14 §) or the applications for felling permission (16 §) were the same as the stand in the GFI material, the maps were compared. The maps attached by the landowner to the felling notification (14 §) or the applications for felling permission (16 §) and the map attached to the GFI material should be identical.

The same kind of matching check between the GFI and the felling notification (felling permission) was performed for other data, e.g., the name of the forest owner.

The procedure for the company forests was different. Copies of felling notifications (14 §) and applications for felling permission (16 §) were sent to the companies which filled in the information needed. (Unfortunately they were asked to report breast height age instead of total age (Appendix 5), but the mistake has been corrected by adding an age till breast height, following the recommendation given in 10 §, Forestry Act, 1993:553)

In the felling notifications (14 §) and applications for felling permission (16 §) the total cutting area is presented. Cutting area is not given for each single stand in case the cutting covers more than one stand or parts thereof. Therefore the cutting area of a stand had to be approximated. In these cases the total cutting area has, in principle, been divided equally between the stands (not proportional to stand areas). There are two exceptions from this rule; the first when there were no doubts an entire stand was cut; and the second when it turned out that the equally divided area between the stands exceeded one stand area (mentioned in the GFI files). Then the quota was divided again and equally portioned on the remaining stands. The procedure was repeated until reasonable figures were obtained.

Data for the attitude research was obtained by telephoning to those forest owners who had presented felling reports for stand ages between the former and the present LMA. Different questions were posed to the private owners and to the companies. Within each owner category, the same questions were posed to all owners and the same explanations to the questions were given (Appendix 3 and 4).

3.3 Populations and samples

This thesis is valid for 8 of the 16 districts (Figure 1.1) of Västerbotten 1995.

Table 3.1 Data about the population and the sample. Privately owned land, coastland

Total sample area = Total area of sampled felling reports, excluding missing value cases. Basis for the estimations.

No value = When no inventory had been performed and no data was obtained (missing value cases).

District	Population				Sample				
	Total cutting reports (14§)	Total area (14§)	Total cutting applications (16§)	Total area (16§)	Number of reports (no value)	Total sample area (14§)	No value (14§) Excluded from total area	Total sample area (16§)	No value (16§) Excluded from total area
	(reports)	(hectares)	(applications)	(hectares)	(reports)	(hectares)	(hectares)	(hectares)	(hectares)
Norsjö (2)	182	732.2	0	0	27 (6)	109.9	22.8	0	0
Skellefteå (3)	735	3104.8	0	0	42 (7)	140.4	21.3	0	0
Robertsfors (5)	190	793.1	0	0	40 (0)	180,6	0	0	0
Bjurholm/Vännäs (8)	255	929.7	0	0	46 (2)	218.7	11	0	0
Totals coastland	1362	5559.8	0	0	155 (15)	649.6	55.1	0	0

Table 3.2 Data about the population and the sample. Privately owned land, inland

Total sample area = Total area of sampled felling reports, excluding missing value cases. Basis for the estimations.

No value = When no inventory had been performed and no data was obtained (missing value cases).

District	Population				Sample				
	Total cutting reports (14§)	Total area (14§)	Total cutting applications (16§)	Total area (16§)	Number of reports (no value)	Total sample area (14§)	No value (14§) Excluded from total area	Total sample area (16§)	No value (16§) Excluded from total area
	(reports)	(hectares)	(applications)	(hectares)	(reports)	(hectares)	(hectares)	(hectares)	(hectares)
Lycksele (11)	178	857.8	54	425.4	43 (2)	186.4	30	79	7.5
Åsele (12)	104	855.2	20	73.9	38 (5)	294.8	25	28.2	0.5
Sorsele(13)	54	524.5	83	713.3	35 (10)	103.7	226.1	163.2	52.8
Vilhelmina (15)	40	313.1	186	1944.9	38 (9)	51.7	24.6	291.3	89.2
Totals inland	376	2550.6	343	3157.5	154 (26)	636.6	305.7	561.7	149.5

Table 3.3 Data about the population and the sample. Company owned land, coastland

Total sample area = Total area of sampled felling reports, excluding missing value cases. Basis for the estimations.

No value = When no inventory had been performed and no data was obtained (missing value cases).

District	Population				Sample				
	Total cutting reports (14§) (reports)	Total area (14§) (hectares)	Total cutting applications (16§) (applications)	Total area (16§) (hectares)	Number of reports (no value) (reports)	Total sample area (14§) (hectares)	No value (14§) Excluded from total area (hectares)	Total sample area (16§) (hectares)	No value (16§) Excluded from total area (hectares)
Norsjö (2)	33	730.0	0	0	28 (3)	617.3	112.7	0	0
Skellefteå (3)	48	562.9	0	0	7 (41)	49.6	513.3	0	0
Robertsfors (5)	15	304.6	0	0	12 (3)	245.5	59.1	0	0
Bjurholm/Vännäs (8)	76	1687.8	0	0	38 (2)	960.7	55.6	0	0
Totals coastland	172	3285.3	0	0	85 (49)	1873.1	740.7	0	0

Table 3.4 Data about the population and the sample. Company owned land, inland

Total sample area = Total area of sampled felling reports, excluding missing value cases. Basis for the estimations.

No value = When no inventory had been performed and no data was obtained (missing value cases).

District	Population				Sample				
	Total cutting reports (14§) (reports)	Total area (14§) (hectares)	Total cutting applications (16§) (applications)	Total area (16§) (hectares)	Number of reports (no value) (reports)	Total sample area (14§) (hectares)	No value (14§) Excluded from total area (hectares)	Total sample area (16§) (hectares)	No value (16§) Excluded from total area (hectares)
Lycksele (11)	209	4737.3	10	182	41 (1)	846.4	2.2	21	0
Åsele (12)	120	2740.0	9	122.4	31 (3)	611.5	111	64.9	0
Sorsele(13)	18	324.8	15	359.7	31 (1)	324.8	0	335.7	24
Vilhelmina (15)	19	395.7	42	895	29 (1)	196.7	0	400.1	32.3
Totals inland	366	8197.8	75	1559.1	132 (6)	1979.4	113.2	821.7	56.3

3.4 Estimation procedures

For the felling report study, population totals Y per district (areas, numbers of stands) have been estimated according to the formula

$$(1) \quad \hat{Y} = \frac{N}{n} \cdot \sum_{i=1}^n y_i$$

where N = total number of reports from the district,
 n = effective number of reports in the sample and
 y_i = the value (area, number stands) of the i th sampled report.

The simplicity of the formula is due to the sampling method, being systematic. No separate attempt has been used to study the missing data cases, called “no value” in the thesis. The number n of reports equals the number of reports excluding missing data cases.

Both the total Y and the observed values y can be applied to specific age classes as well (e.g., area or number within an age class).

Population proportions P , e.g., proportion area in a given age class, are estimated by taking ratios of estimators,

$$(2) \quad \hat{P} = \hat{Y} / \hat{X}$$

where both \hat{Y} and \hat{X} are defined by (1), where \hat{Y} estimates the numerator Y and \hat{X} the denominator X of the true proportion $P = Y/X$.

For aggregated populations, like inland private owners, the estimators (1) are summed over the districts. For the ratio estimators (2) the summation is made numerator and denominator separately, before division (the districts are statistical strata).

Since the sampling is systematic, no stringent standard error can be calculated. However, some standard errors are still calculated, and then as if the sampling method were “simple random sampling”. Since the order in the authority registers are likely to be independent of the characteristics studied, the standard errors calculated should be reliable. No formula is presented here, but see, e.g., Des Raj (1968), page 128.

For testing if there are any true differences between categories (e.g., districts or forest owners) with respect to different variables (answers on questions) the χ^2 -test has been used throughout (see, for example, Wonnacott & Wonnacott 1990, chapter 9 and 17). It should here be noted that true differences are difficult to prove in cases of few observations. Critical values for the 5 % level of significance are 3.84 (1 *df*), 5.99 (2 *df*) and 7.81 (3 *df*), which are the only ones occurring here.

4. Results of the study of the felling reports.

In table 4.1 the values for each district have been summarised into different owner categories. χ^2 -tests have been performed to indicate if differences between the owner categories exist.

Reports = 14§ felling notification + 16§ application for felling permission.

Table 4.1 Owner categories, summarised

Owner category	Reports, with stands aged between the LMA 1980 & 1994 (reports)	Number of reports (no value) (reports)	Reports, with stands aged below the LMA 1994 (reports)
Privately owned land, coastland	69	155 (15)	29
Privately owned land, inland	37	154 (26)	19
Company owned coastland	18	85 (49)	0
Company owned inland	34	132 (6)	1
Total	158	521 (96)	49

Significant differences between the owner categories were proved (with respect to the proportion of reports between the former and the present LMA and below the present LMA). ($\chi^2_{\text{between}} = 37.1$ with 3 df and $\chi^2_{\text{below}} = 55.0$ with 3 df)

Significant differences between private inland and coastland forest owners were proved ($\chi^2_{\text{between}} = 20.2$ with 1 df) and between private forest owners and companies ($\chi^2_{\text{between}} = 14.6$ with 1 df). However, no significant difference was proved between companies coastland and company inland ($\chi^2_{\text{between}} = 0.64$ with 1 df).

The most interesting values following are the estimated percentages of the area aged between the former and the present legal minimum age (LMA) for final felling and the estimated percentages of the area aged below the present LMA. The percentages are presented in table 4.2-4.5, for each of the four categories (in table 4.2, the most interesting values are 24.5 % and 6.1 %, which are marked by ↑ below). The calculation of the percentage is presented above (Chap. 3.4).

Table 4.2 Privately owned land, coastland

District	Stands aged between the LMA 1980 & 1994 (stands)	Area of the sampled stands aged between the LMA 1980 & 1994 (hectares)	Percentage of the area, aged between the LMA 1980 & 1994 (percent)	Standard error of the area estimate (percent)	Stands aged below the LMA 1994 (stands)	Area of the sampled stands aged below the LMA 1994 (hectares)	Percentage of the area, aged below the LMA 1994 (percent)	Standard error of the area estimate (percent)
Norsjö (2)	9	22.8	20.7 %	7.4 %	2	1.5	1.4 %	0.9 %
Skellefteå (3)	28	68.55	48.8 %	7.1 %	12	18.9	13.5 %	4.8 %
Robertsfors (5)	15	28.4	15.7 %	5.6 %	2	2	1.1 %	0.7 %
Bjurholm/Vännäs (8)	17	39.3	18.0 %	4.7 %	13	17.2	7.9 %	3.4 %
Totals coastland	69	159.05	24.5 %	4.1 %	29	39.6	6.1 %	2.1 %

The difference between the districts concerning the relative number of stands aged between the former and the present LMA is significant. The difference between the districts is also significant concerning the relative number of stands below the present LMA.

$$(\chi^2_{\text{between}} = 8.36 \text{ with } 3 \text{ df and } \chi^2_{\text{below}} = 9.17 \text{ with } 3 \text{ df})$$

Table 4.3 Privately owned inland

District	Stands aged between the LMA 1980 & 1994 (stands)	Area of the stands aged between the LMA 1980 & 1994 (hectares)	Percentage of the area, aged between the LMA 1980 & 1994 (percent)	Standard error of the area estimate (percent)	Stands aged below the LMA 1994 (stands)	Area of the stands aged below the LMA 1994 (hectares)	Percentage of the area, aged below the LMA 1994 (percent)	Standard error of the area estimate (percent)
Lycksele (11)	6	26.3	9.9 %	4.6 %	9	24.8	9.3 %	3.6 %
Åsele (12)	11	90.2	27.9 %	7.3 %	3	4.6	1.4 %	0.9 %
Sorsele (13)	14	62.95	23.6 %	7.8 %	4	13.1	4.9 %	2.8 %
Vilhelmina (15)	6	39.7	11.6 %	4.7 %	3	4.8	1.4 %	0.9 %
Totals inland	37	219.15	18.3 %	3.0 %	19	47.3	3.9 %	2.1 %

↑

↑

The difference between the districts concerning the relative number of stands aged between the former and the present LMA is significant. The difference between the districts is not significant concerning the number of stands below the present LMA.

($\chi^2_{\text{between}} = 8.53$ with 3 df and $\chi^2_{\text{below}} = 3.16$ with 3 df)

Table 4.4 Company owned land, coastland

District	Stands aged between the LMA 1980 & 1994 (stands)	Area of the stands aged between the LMA 1980 & 1994 (hectares)	Percentage of the area, aged between the LMA 1980 & 1994 (percent)	Standard error of the area estimate (percent)	Stands aged below the LMA 1994 (stands)	Area of the stands aged below the LMA 1994 (hectares)	Percentage of the area, aged below the LMA 1994 (percent)	Standard error of the area estimate (percent)
Norsjö (2)	9	192.2	31.1 %	3.7 %	0	0	0 %	0 %
Skellefteå (3)	0	0	0 %	0 %	0	0	0 %	0 %
Robertsfors (5)	8	146.0	59.5 %	7.3 %	0	0	0 %	0 %
Bjurholm/Vännäs (8)	1	15	1.6 %	1.1 %	0	0	0 %	0 %
Totals coastland	18	353.2	18.9 %	1.5 %	0	0	0 %	0 %

The difference between the districts concerning the relative number of stands aged between the former and the present LMA is significant.
 ($\chi^2_{\text{between}} = 24.4$ with 3 df)

Table 4.5 Company owned land, inland

District	Stands aged between the LMA 1980 & 1994 (stands)	Area of the stands aged between the LMA 1980 & 1994 (hectares)	Percentage of the area, aged between the LMA 1980 & 1994 (percent)	Standard error of the area estimate (percent)	Stands aged below the LMA 1994 (stands)	Area of the stands aged below the LMA 1994 (hectares)	Percentage of the area, aged below the LMA 1994 (percent)	Standard error of the area estimate (percent)
Lycksele (11)	21	312.2	36.0 %	7.2 %	1	6.25	0.7 %	0.7 %
Åsele (12)	1	6	0.9 %	0.8 %	0	0	0 %	0 %
Sorsele(13)	11	148.5	22.5 %	1.5 %	0	0	0 %	0 %
Vilhelmina (15)	1	17	2.8 %	2.1 %	0	0	0 %	0 %
Totals inland	34	483.7	17.3 %	4.2 %	1	6.25	0.2 %	0.3 %

The difference between the districts concerning the relative number of stands aged between the former and the present LMA is significant. The difference between the districts is not significant concerning the number of stands below the present LMA.

($\chi^2_{\text{between}} = 20.2$ with 3 df and $\chi^2_{\text{below}} = 1.6$ with 3 df)

5. Results of the attitude research

People included in the attitude research were those having cut stands aged between the former and the present LMA, with some exceptions (Chap. 3.1)

The most interesting results of the attitude research are presented in figures (others only in current text) (Appendix 3).

5.1 Results of the attitude research, privately owned land

The persons contacted, have been interested in participating, with one simple exception.

Table 5.1 Sample attitude research. Number of persons interviewed

Coastland			
District	Sample size (persons)	No answers (persons)	Respondents (persons)
Norsjö (2)	3	0	3
Skellefteå (3)	11	0	11
Robertsfors (5)	7	1	6
Bjurholm/Vännäs (8)	4	0	4
Total coastland	25	1	24
Inland			
District	Sample size (people)	No answers (people)	Respondents (people)
Lycksele(11)	3	1	2
Asele (12)	5	1	4
Sorsele (13)	5	0	5
Vilhelmina (15)	5	1	4
Total inland	18	3	15

The first three questions directly concerns the LMA and the knowledge of the lowering of the LMA in the new legislation.

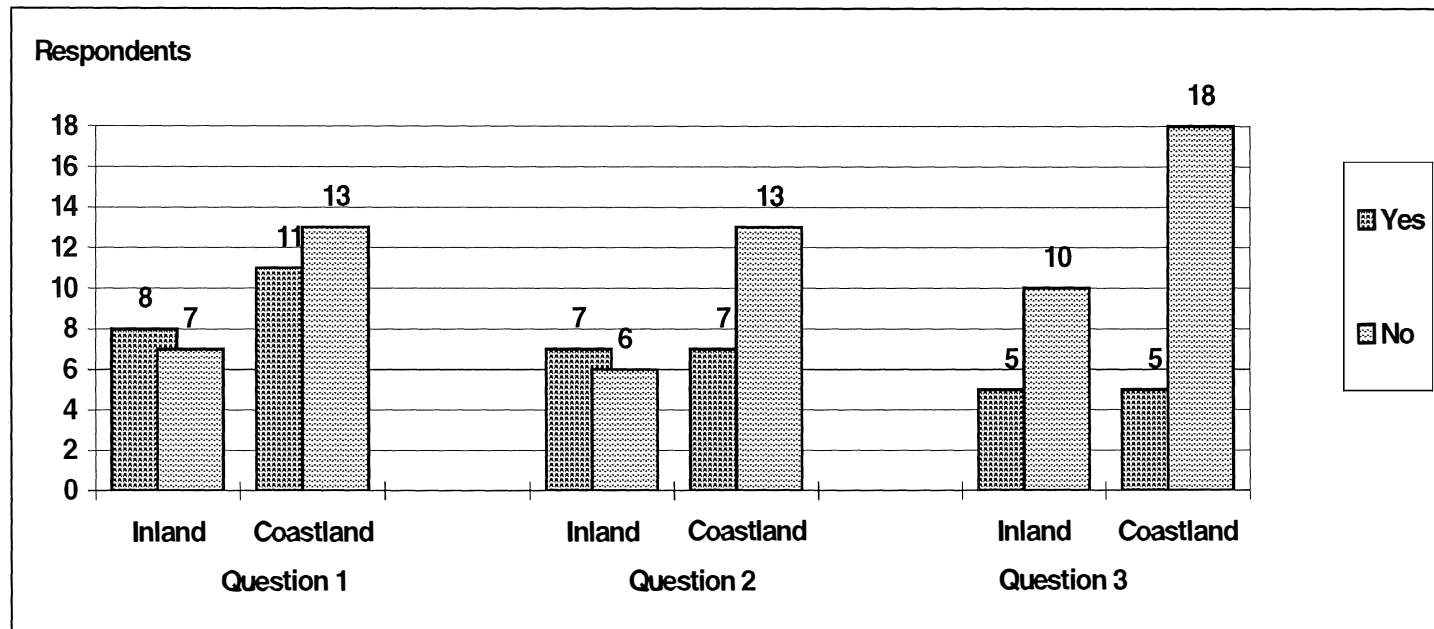


Figure 5.1

Question 1: Were you aware of the lowering of the LMA in the “new” law ?

Question 2: Do you think the lowering, in general, is a good thing ?

Question 3: Were you aware the stand age was between the former and the present LMA ?

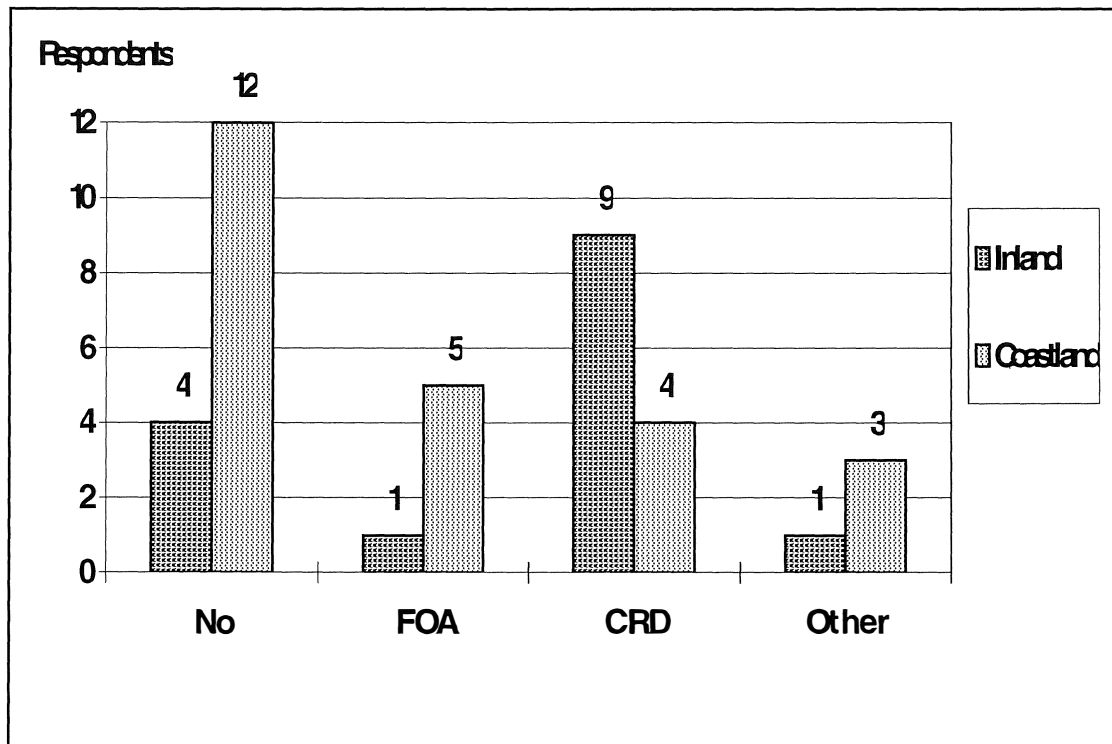
None of the questions showed significant difference between the coastland and inland responses.

($\chi^2_{\text{question 1}} = 0.21$ with 1 *df*, $\chi^2_{\text{question 2}} = 1.15$ with 1 *df* and $\chi^2_{\text{question 3}} = 0.63$ with 1 *df*)

Question 4: Do you possess a management plan ?

Everyone had a management plan.

The fifth question concerns the forest owners degree of advice taken from institutions and companies.



FOA = Forest owners' association
CRD = County Ranger District

Figure 5.2

Question 5: Has anyone helped you to select the stand ?

No significant difference between the coastland and inland responses was found by the χ^2 -test (no help against any help) ($\chi^2_{\text{question 5}} = 2.08$ with 1 df).

However, the difference between coastland and inland forest owners concerning the frequency of advice taken by FOA or CRD is almost significant by the Fisher's exact test (p-value 0.057) (Bickel, P.J. and Doksum, K.A. 1977 "Mathematical Statistics. Basic Ideas and Selected Topics", page 324).

In the sixth question the persons were asked to give two reasons for cutting the stand. Their answers have then been sorted in economical and forestrial reasons.

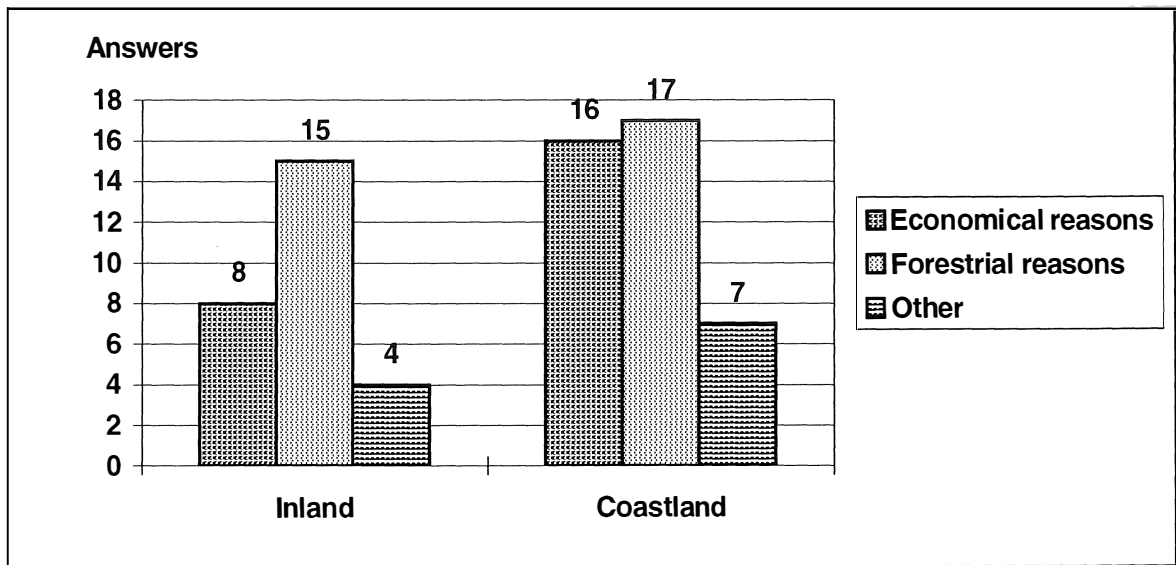


Figure 5.3

Question 6: Why did you cut the stand ?

No significant difference between the coastland and inland responses was found by the χ^2 -test. ($\chi^2_{\text{question 6}} = 1.13$ with 2 df)

Question 7: Did you have possibilities to final fell another stand, than the one you actually final felled ?

32 respondents responded that they had possibilities to cut other stands. 7 answered that they did not have any choice.

In the eighth question the persons were asked what action to take if the legislation had not been changed.

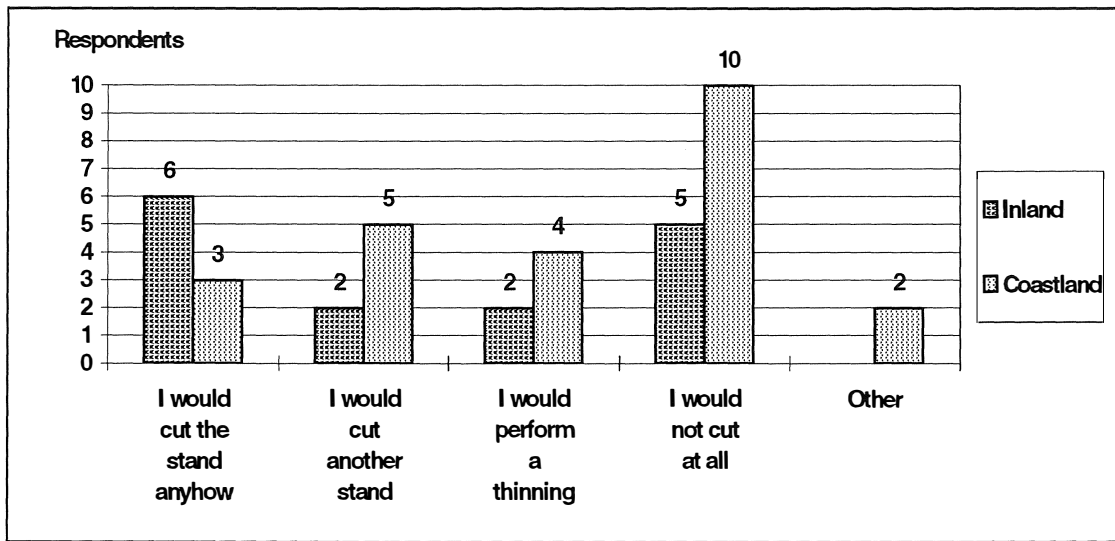


Figure 5.4

Question 8: How would you have acted if the law had not been changed ?

No test performed because of small samples in each group.

Question 9 directly concerns the idea of the legislator that forest owners would not final fell younger stands due to maximisation of timber production.

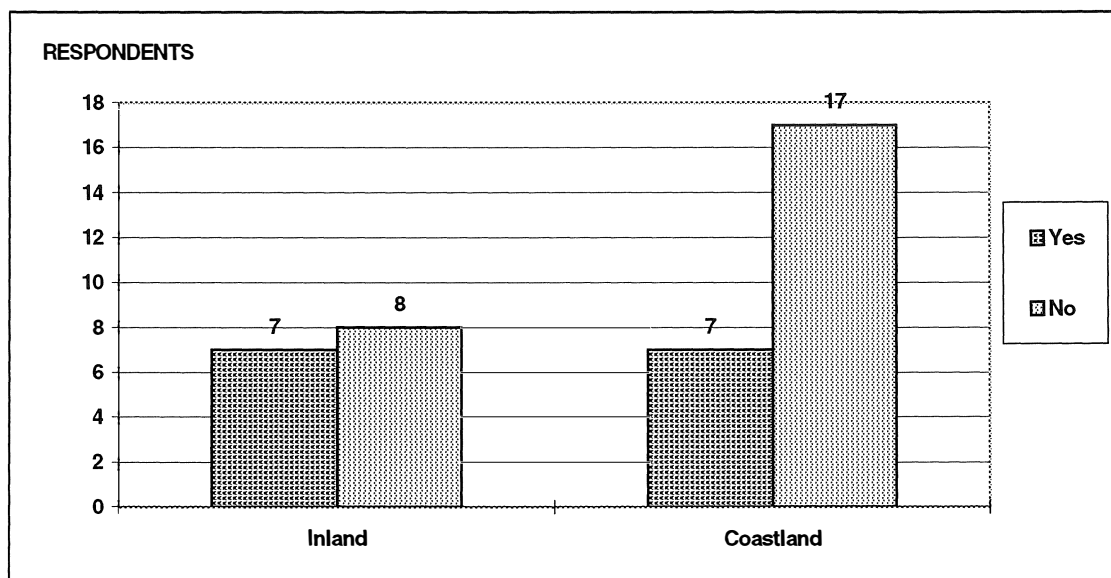


Figure 5.5

Question 9: While choosing stand to be cut, have you been reasoning in terms of maximisation of timber production ?

No significant difference between the coastland and inland responses was found by the χ^2 -test. ($\chi^2_{\text{question 9}} = 1.23$ with 1 df)

Question 10: How many years have you owned the estate ?

50 % had owned their estate less than 10 years and the rest more than 10 years.

Question 11: How many hectares are included in your estate ?

The mean in the coastal region was 124.8 hectares and in the inland the corresponding value was 258.7 hectares.

Question 12: What is the distance from your resident to the estate ?

The mean distance in the coastal region was 27 kilometres (Standard error 1.70) and in the inland the corresponding distance was 159 kilometres (Standard error 6.04).

Question 13: Do you gain a majority of your incomes from forestry ?

Only 4 of 39 respondents claimed that they received more than 50 % of their income from forestry.

The combination of question 1 and the distance to the estate, would show the difference between persons living near their estate and persons living farther away.

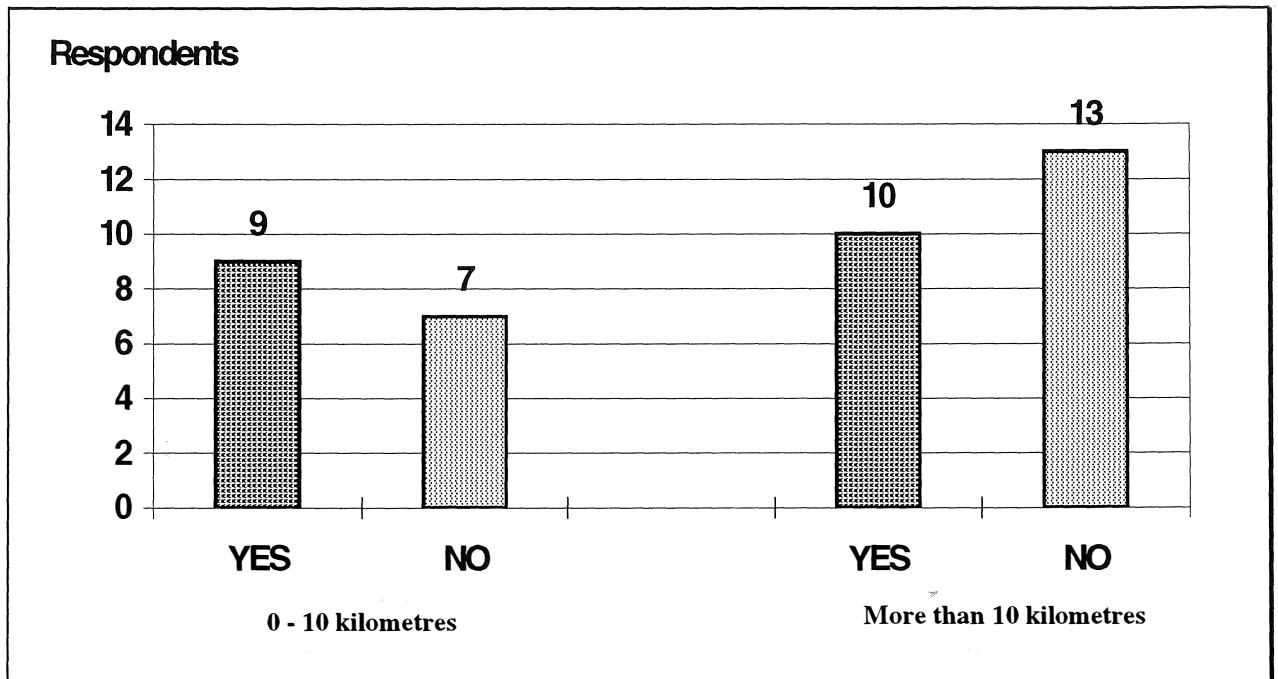


Figure 5.6

Question 1: Were you aware of the lowering of the LMA in the “new” law ?

No significant difference between the coastland and inland responses was found by the χ^2 -test. ($\chi^2_{\text{question 1}} = 0.62$ with 1 df)

The combination of question 5 and the distance to the estate, would show the difference between persons living near their estate and persons living farther away.

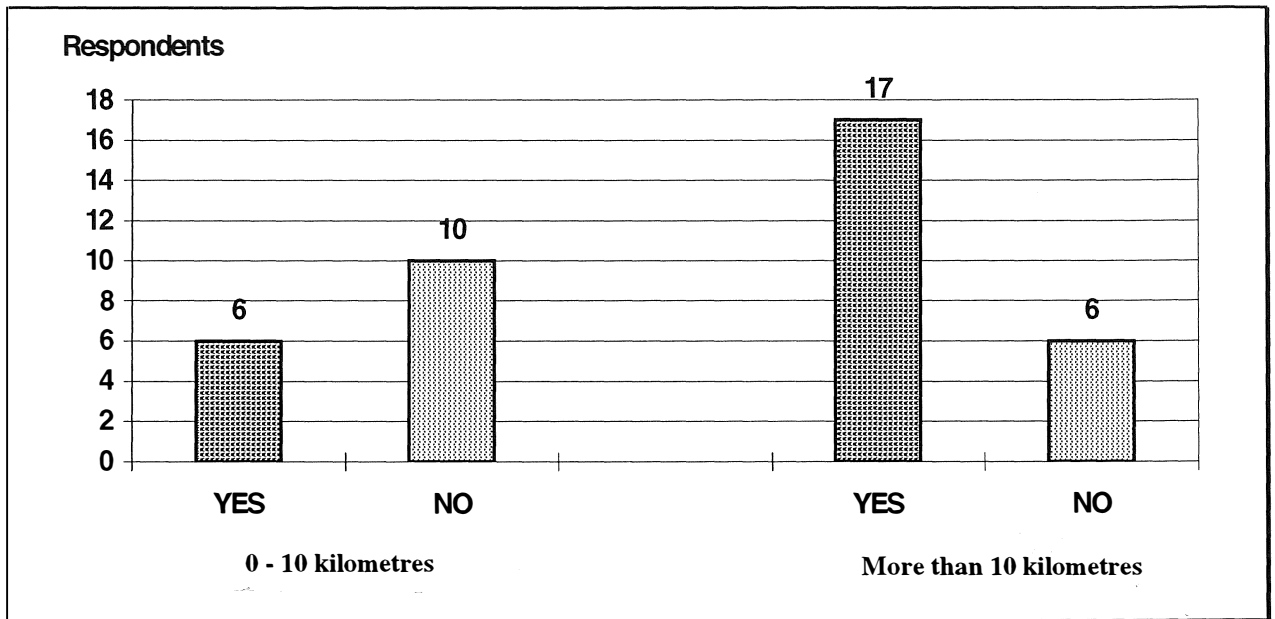


Figure 5.7

Question 5: Has anyone helped you to select the stand ?

Significant difference between the two groups was found by the χ^2 -test.

($\chi^2_{\text{question 5}} = 5.17$ with 1 df)

The combination of question 9 and the time the owners have owned their estate is presented below. The diagram directly connects to the legislator's idea that forest owners would not final fell younger stands, than permitted before, due to maximisation of timber production.

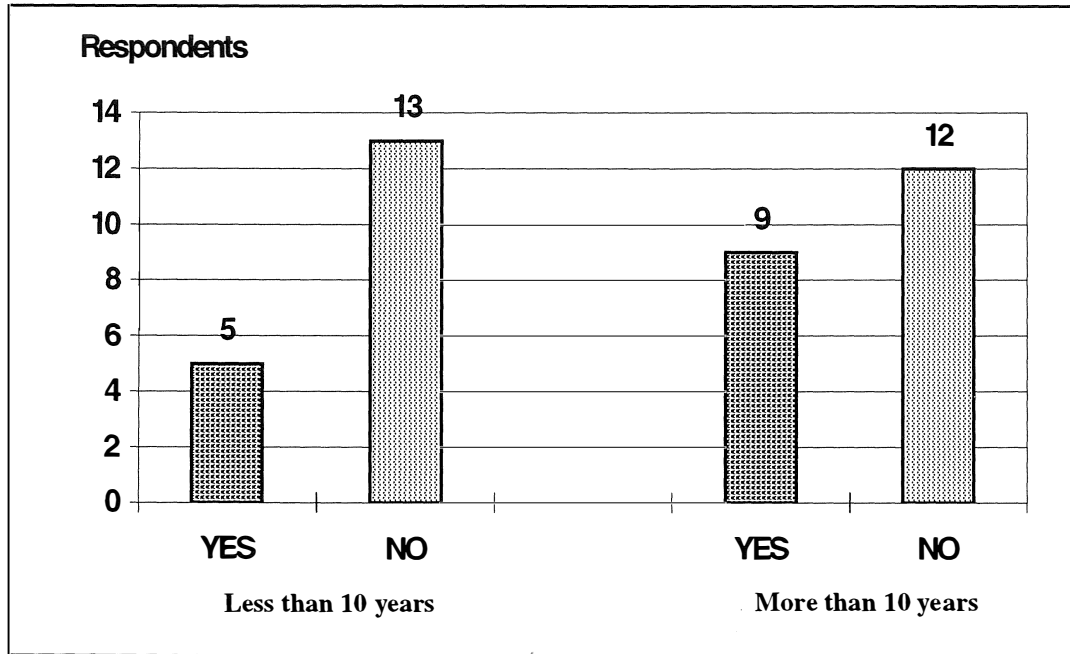


Figure 5.8

Question 9: While choosing stand to be cut, have you been reasoning in terms of maximisation of timber production ?

No significant difference between the two groups was found by the χ^2 -test.

($\chi^2_{\text{question 9}} = 0.96$ with 1 df)

5.2 Results attitude research, company owned land

Table 5.2 Sample attitude research

		Coastland	
District	Sample size (persons)	No answers (persons)	Respondents (persons)
Norsjö (2)	2	0	2
Skellefteå (3)	0	0	0
Robertsfors (5)	1	0	1
Bjurholm/Vännäs (8)	1	0	1
Total coastland	4	0	4
		Inland	
District	Sample size (persons)	No answers (persons)	Respondents (persons)
Lycksele(11)	3	0	3
Asele (12)	1	0	1
Sorsele (13)	2	0	2
Vilhelmina (15)	1	0	1
Total inland	7	0	7

The reason why few people were questioned in the attitude research for the companies was that several felling notifications or applications for felling permission was signed by the same person, working at the company in question. Therefore one can not draw any major conclusions about this owner category in the attitude research, which contained different questions than the ones posed to the private owners (Appendix 4).

However, the following can be said:

- * All the officials were aware of the lowering of the LMA.
- * 7 of the 11 were positive to the lowering of the LMA.
- * 7 of 11 would not have cut at all, if the law had not been changed.
- * The most common reason to cut the stand was that another felling was performed nearby (32 %).
- * 10 of 11 thought that the company, in general, did not cut younger forest now than before.
- * 5 of 11 thought that timber, bought from private owners, tended to come from forests younger than before.

6. Discussion

The survey indicates that forests, younger than the former LMA, have been final felled quite frequently (Table 4.1-4.5).

Even if the legislator did not quantify his beliefs, it seems evident that the amount of final fellings below the former LMA has been higher than the legislator had expected (in Västerbotten). It is also clear there are differences between the districts (and owner categories, Table 4.1-4.5) in this respect.

Strictly, the present investigation gives no answer to the question whether a low felling age have been applied before the 1994 changes. However, only about 25% of the forest owners having cut below the former LMA pretend they would have applied for felling permission under the previous law (Figure 5.4). Thus, it is likely that a real change in final felling pattern has been established.

It can also be argued that the high timber prices in 1995 could have caused the forest owners to cut more than usual, which would have forced them to cut younger stands than otherwise. Against this argument can be pointed out that very few forest owners explained the final felling (below the LMA) by the high prices.

The legislator's belief was based on an assumption that the forest owners would not cut before it is economically optimal. Disregarding some vagueness about optimality here (due to interest rate, prices and so on), one or several of the following statements has to be true:

1. Forest owners do not manage their forests economically sound.
2. The new LMA is a more desirable age limit for final felling than the former one.
3. The legislator is not familiar with the decision process of the forest owners.

The second statement is of technical nature. It could be studied numerically through forest forecasts, price lists, rate of interest and so forth. No investigation has been performed here, it would go too far. If the statement were true, there would be nothing more to discuss, why it is assumed the statement is false.

If the first statement is true, private forest owners would have much to gain from economical training and advice. This is indicated in the attitude research, where less than 50 % have even reasoned in terms of maximising the timber production. If the forest policies are to be successful, forest owners has to be incited to a closer and more active communication with the County Ranger Districts (and possibly with other institutions), so that the legislation can be implemented as intended.

The truth of the third statement would indicate that the County Ranger Districts (and perhaps also other institutions) should be more active in their communications towards private forest owners.

Thus, neglecting the second statement, the discrepancy between the legislators belief and the reality seems to stem from a (mutual) communication problem. This could also to some extent be seen from the attitude research performed here. There are evident differences in attitudes and authority contacts between districts. These differences are discussed below, even if not always significant, starting with the private owners.

Differences coastland and inland

The difference between inland and coastland is noticeable (e.g., Figure 5.2) The seemingly higher degree of contact in the inland is probably a consequence of the higher amount of fellings requiring felling permissions (§16). Moreover, a relatively higher number of forest owners in the inland state the final felling was motivated by economical reasoning (Figure 5.5 and Figure 5.1 question 1 and 3), which also might reflect a higher degree of consciousness about the legislators intentions. This difference is also supported by Figure 5.1 which shows that coastland forest owners are less aware of the lowering of the LMA (question 1).

Differences between people living near and farther away from their estate

The legislator predicted a future risk for extensive silvicultural measures on estates owned by people not living on the estate (Swedish government official report 1992:76, Main report, page 93). The attitude research supports this statement. People living far away were less aware of the lowering of the LMA (Figure 5.6). However, these forest owners more frequently received help from other people in their choice of stand for final felling (Figure 5.7). This might indicate that this group could be more interested in getting advice by for example the County Ranger District.

Differences between people and the time they have owned the estate.

Forest owners that have owned the estate more than 10 years have thought more in terms of optimisation than people that have owned their estates for a shorter time (Figure 5.8). An explanation to this could be a good communication with the County Ranger District, knowledge about their estate and a wish to preserve a family property.

Companies

The attitude research was badly adopted for the companies. Few people were questioned and the questions posed were not comparable to the ones posed to private owners. However, one significant difference between private forest owners and companies was the reason why the stand had been cut. 32 % of the company employees answered that the primary reason to cut the stand was that another felling was performed nearby. The corresponding figure for private forest owners was only 4.5 %.

Imperfections

The use of the GFI, in the investigation, as a data source can be criticised. Such criticism could be that the GFI does not give unbiased age estimations and the fact that the inventory was performed more than ten years ago. However, the purpose of this thesis is not to obtain an estimation of the forests true final felling age.

The reason the GFI was chosen as a data source was mainly the fact that many forest owners use the GFI information to make final felling decisions on their estate.

Moreover, it has to be stressed that the results of the attitude research are not valid for the whole population of forest owners, but only for the special group of forest owners considered. The sample consist of the people that final felled stands below the former LMA. The belief was that the group would have considered the new forest policies more than other groups, but less than 50 % were aware of the lowering of the LMA and 75 % that the stand felled was aged between the former and the present LMA (Figure 5.1).

Conclusion

The legislator was of the opinion that a very regulated legislation would lead to passive forest owners (Swedish government official report 1992:76, page 288-289), but the question is if the liberation of the present law has lead to more active forest owners. This thesis indicates that some forest owners, in spite of the deregulations, still are fairly passive.

My suggestion to make the forest owners more active and more aware of their property is a reintroduction of a compulsory to have management plans. The suggestion is supported by the preparatory works (Swedish government official report 1992:76, Main report, page 81), which states that the silvicultural activity is higher on estates with a new management plan than on these with obsolete plans.

The management plan do not have to be very detailed, but detailed enough to list the current silvicultural measures on the estate. This would create possibilities in accelerating the competence of forest owners by contacts with the County Forestry Boards. Hereby the mutual communication between forest owners and the authorities can be improved, to the benefit of both.

Acknowledgements

This thesis has been done at jägmästarlinjen, at the department of forest resource management and geomatics of the Swedish university of agricultural sciences (SLU), Umeå. The thesis was initiated by the County Forestry Board (Västerbotten), who also has financed the thesis. Thanks to my supervisors, Assistant professor Sören Holm (SLU) and Mr. Karl-Georg Nilsson and Mr. Ove Jansson at the County Forestry Board (Umeå), for all kinds of support, comments on the text and continuous supervision. Thanks also to Assar Ernstsson, County Forestry Board (Lycksele) and to the companies and all private owners that provided needed information.

Umeå 980325

Martin Lindskog

References

Bickel, P.J. and Doksum, K.A. 1977. "Mathematical Statistics. Basic Ideas and Selected Topics". Prentice Hall, New Jersey. 492 pages.

Bondesson, L. 1994. "*Samplingteknikens grunder*". Sveriges Lantbruksuniversitet, Skogsvetenskapliga fakulteten. 118 pages. Umeå, Sweden.

Des Raj 1968, "Sampling theory". McGraw-Hill. 302 pages.

Swedish government official report 1978/79:110 "General outlines for forest policies etc." ("Riktlinjer för skogspolitiken, m.m")

Swedish government official report 1992:76 "Forest policies at the prospect of the 21st century" ("Skogspolitiken inför 2000-talet")

Wonnacott & Wonnacott 1990, 5th edition. "Introduction to statistics". John Wiley & sons. 711 pages



B och G. Föryngringsavverkning med hänsyn.

C. Avverkning för annat ändamål än virkesproduktion.

D. Användning av utländska trädslag.

E. Skyddsdikning.

Inkom SVS, datum

Dnr

A. ALLMÄNNA UPPGIFTER

Fastighet, namn och reg.nr.	
Kommun	Socken
Tel. bostad	Tel. arbete

Markägare, Namn och adress

Ev.ombud, namn och tel.nr.

Föryngringsavverkning om minst 0,5 hektar skall enligt 14 § skogsvårdslagen anmälas till skogsvårdsstyrelsen senast sex veckor innan avverkningen påbörjas. I en hänsynsredovisning skall anges vad som planeras för att tillgodose naturvårdens och kulturmiljövårdens intressen i samband med avverkningen. Avverkning för annat ändamål än virkesproduktion om minst 0,5 hektar samt skyddsdikning skall också anmälas senast sex veckor i förväg. Anmälan behöver dock inte göras när mark skall användas för annan väg än skogsbilväg, kraftledning eller täktverksamhet där tillstånd erhållits av länsstyrelsen. Vidare skall användning av utländska trädslag anmälas i förväg om arealen uppgår till minst 0,5 hektar.

Denna blankett har utformats för att vara ett stöd vid anmälan. Rubrikerna i hänsynsredovisningen (blankettens baksida) återfinns i Skogsstyrelsens föreskrifter till 30 § skogsvårdslagen, där det närmare anges vilken hänsyn man är skyldig att ta. Om utrymmet inte räcker till kan anmälan kompletteras på ett annat papper. Kartskissen kan ersättas av kopia av ekonomisk karta, skogskarta eller liknande.

B. FÖRYNGRINGSAVVERKNING

Avd nr.	Planerad avverkning, ha	Föryngringsåtgärder		Övrigt
		Plantering, ha	Naturlig föryngring, ha	

C. AVVERKNING FÖR ANNAT ÄNDAMÅL

Planerad avverkning, ha	Ändamål	Omläggningsår

D. ANVÄNDNING AV UTLÄNDSKA TRÄDSLAG

Trädslag	Areal, ha

E. SKYDDSDIKNING

Areal, ha

F. KARTSKISS

Läge kartblad/bild																
X =																
Y =																
Nr																
<table border="1" style="width: 100px; height: 100px;"> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>																
Ifylls av SVS																

SKOGSVÅRDSSTYRELSENS NOTERINGAR

Text

ANMÄLAN OM

- B och G. Tillstånd till förnygringsavverkning med hänsyn i svårförnygrad skog eller skyddsskog
 C. Tillstånd till avverkning för annat ändamål än virkesproduktion
 D. Användning av utländska trädslag
 E. Skyddsdikning.

Inkom SVS, datum

Önr

A. ALLMÄNNA UPPGIFTER

Fastighet, namn och reg.nr.	
Kommun	Socken
Tel. bostad	Tel. arbete

Markägare, namn och adress

Ev.ombud, namn och tel.nr.

I svårförnygrad skog och skyddsskog får enligt 16 § skogsförvaltningslagen avverkning inte ske utan skogsförvaltningsstyrelsens tillstånd. Tillstånd behövs inte för röjning eller gallring som främjar skogens utveckling. I en hänsynsredovisning skall anges vad som planeras för att tillgodose naturvårdens, kulturmiljövårdens och rennäringens intressen i samband med avverkningen. Till ansökan inom renskötselns året-runt-marker skall sökanden där samrådsskyldighet föreligger föga bevis om att berörd sameby beretts tillfälle till samråd. Skyddsdikning skall enligt Skogsförvaltningsstyrelsens föreskrifter till 14 § skogsförvaltningslagen anmälas senast sex veckor i förväg. Vidare skall användning av utländska trädslag anmälas i förväg om arealen uppgår till minst 0,5 hektar.

Denna blankett har utformats för att vara ett stöd vid ansökan och anmälan. Rubrikerna i hänsynsredovisningen (blankettens baksida) återfinns i Skogsförvaltningsstyrelsens föreskrifter till 30 § samt i 31 § skogsförvaltningslagen, där det närmare anges vilken hänsyn man är skyldig att ta. Om utrymmet inte räcker till kan anmälan kompletteras på ett annat papper. Kartskissen kan ersättas av kopia av ekonomisk karta, skogskarta eller liknande.

B. FÖRYNGRINGSÄVVERKNING

Avd nr.	Planerad avverkning			Förnygringsåtgärder							Övrigt	
	Areal, ha	Bonitet H 100	Höjd över havet, m	Hyggesrensning, ha	Markberedning, ha	Plantering, ha	Trädslag	Antal plantor per ha	Naturlig förnygring, ha	Antal fröträd/skärpträd per ha		

C. ÄVVERKNING FÖR ANNAT ÄNDAMÅL

Planerad avverkning, ha	Ändamål	Omlägningsår

D. ANVÄNDNING AV UTLÄNDSKA TRÄDSLÄG

Trädslag	Areal, ha

E. SKYDDSDIKNING

Areal, ha

F. KARTSKISS

Läge kartblad/bild
X =
Y =
Nr

↑

Ifylls av SVS

SKOGSFÖRVALTNINGSSTYRELSENS NOTERINGAR

Text

Attitydundersökning examensarbete 1997, småskogsbruket

Ha framför mig: LSÅ 7994, introduktion, frågeformulär, anmälan

Uppgifter om brukningsenheten

Diarienummer

Distrikt

SI

Ålder 1995

Kontaktad person

Tänkt samtal

Martin Lindskog

Jag är studerande vid Jägmästarlinjen och gör f.n examensarbete. Examensarbetet gör jag åt Skogsvårdsstyrelsen, AC-län och är en utvärdering av skogsvårdslagen som började gälla 1994. Går det bra att jag ställer några frågor?

Vad gäller det ?

Jag vill betona att era uppgifter kommer inte att kunna särskiljas ur mängden, utan kommer bara redovisas som medelvärden.

Jag har en kopia av er anmälan/ansökan framför mig som ni lämnade in x/x 1995 och gällde en avverkning om x ha på området x och det är om detta område jag vill fråga om.

Varför det ?

Nya skogsvårdslagen sänkte lägsta slutavverkningsålder och åldern på denna avdelning ligger i spannet mellan den lägsta slutålder som gällde förut och den som gäller nu. Gå till FRÅGOR

FRÅGOR

- ** Kände ni till sänkningen av de lägsta slutavverkningsåldrarna ?
Ja Nej Annat
- ** Tycker ni det är bra att de lägsta slutavverkningsåldrarna sänkts ?
Ja Nej Annat
- ** Att er huggna avdelnings ålder var mellan förra och nuvarande LSÅ ?
Ja Nej Annat
- ** Har ni grundat ert val av slutavverkning med en skogsbruksplan med åldersuppskattning ?
Ja Nej Annat
- ** Har någon bistått er i ert val av avdelning ?
-Skogsägarföreningen
-Skogsvårdsstyrelsen
-Släkting eller vänner
-Annan
- ** Vilken var den främsta anledningen till att ni avverkade aktuellt bestånd ?
-Efterfrågad kvalitet från småsågar i området
-Rådande högkonjunktur
-Ny traktor eller annan investering
-I samband med annan avverkning, ekonomiskt enda möjliga
-Möjligheten nya lagen gav
-Skada av något slag ?
-Generationskifte ?
-Fastighetsköp/tillskottsförvärv ?
-Bäst inom fastigheten
-Bättre föryngring
-Lågproducerande skog, fel trädslag
-Övrigt
- ** Ytterligare orskaker till ert val av avdelning ?
- ** Fanns andra slutavverkningsbara avdelningar i er ägo vid tidpunkten ?
Ja Nej Annat

** Hur hade ni handlat om lagen inte hade ändrats dvs. om de lägsta slutavverkningsåldrarna inte sänkts ?

- Avverkat annan slutavverkningsbar avdelning
- Gallrat
- Skaffat pengar på annat vis exv. banklån.
- Inte avverkat alls
- Annat

** Har ni resonerat om maximering av virkesproduktionen, vid val av slutavverkningsavdelning ?

Ja Nej Annat

** Hur länge har ni ägt fastigheten (10 årsintervall) ?

** Brukningsenhetens storlek, totalt (produktiv skogsmark) ?

** Vilket avstånd har ni till brukningsenheten (antal mil) ?

** Får ni era inkomster, främst från skogen(> 50 %), gällande inkomståret 1995 ?

** Övrigt

Appendix 4

Attitydundersökning examensarbete 1997, storskogsbruket

Ha framför mig: LSÅ 7994, introduktion, frågeformulär, anmälan

Uppgifter om bruksenheten

Diarienummer

Distrikt

SI

Ålder 1995

Kontaktad person

Tänkt samtal

Martin Lindskog

Jag är studerande vid Jägmästarlinjen och gör f.n examensarbete. Examensarbetet gör jag åt Skogsvårstyrelsen, AC-län och är en utvärdering av skogsvårdslagen som började gälla 1994. Går det bra att jag ställer några frågor?

Vad gäller det ?

Jag vill betona att era uppgifter kommer inte att kunna särskiljas ur mängden, utan kommer bara redovisas som medelvärden.

Jag har en kopia av er anmälan/ansökan framför mig som ni lämnade in x/x 1995 och gällde en avverkning om x ha på området x och det är om detta område jag vill fråga om.

Varför det ?

Nya skogsvårdslagen sänkte lägsta slutavverkningsålder och åldern på denna avdelning ligger i spannet mellan den lägsta slutålder som gällde förut och den som gäller nu. Gå till FRÅGOR

FRÅGOR

** Kände ni till sänkningen av de lägsta slutavverkningsåldrarna ?

Ja Nej Annat

** Tycker ni det är bra att de lägsta slutåldrarna sänkts ?

Ja Nej Annat

** Vilken urvalssystematik använde ni er av för val av bestånd ?

** Vilken skulle den främsta anledningen till vara till att ni skulle avverka ett bestånd, vars ålder var mellan förra och nuvarande LSÅ ?

- Efterfrågad kvalitet
- Rådande högkonjunktur
- Ny traktor eller annan investering
- I samband med annan avverkning, ekonomiskt enda möjliga alternativet
- Möjligheten nya lagen gav
- Skada av något slag
- Generationskifte
- Fastighetsköp/tillskottsförvärv
- Bäst inom fastigheten
- Bättre föryngring
- Lågproducerande skog, fel trädslag
- Övrigt

** Ytterligare orskaker till ert val av avdelning ?

** Hur hade ni handlat om lagen inte hade ändrats dvs. om lägsta slutavverkningsålder inte sänkts ?

- Avverkat annan slutavverkningsbar avdelning
- Gallrat
- Skaffat pengar på annat vis exv. banklån.
- Inte avverkat alls
- Annat

** Hur tror ni att "nya" Skogsvårdslagen påverkat ålderstrukturen på huggningarna på:

A: Ert eget markinnehav

B: De rotposter ni köpt

** Tror du att "nya" Skogsvårdslagens möjligheter att hugga yngre skog leder till att äldre skog sparas ?

Appendix 5

Till bolag i Västerbottens län

Umeå 970424

Jag heter Martin Lindskog och gör f.n examensarbete på Jägmästarlinjen för Skogsvårdsstyrelsen i Västerbottens län. Handledare är Sören Holm, SLU, Umeå och K-G Nilsson, Skogsvårdsstyrelsen, Umeå.

Examensarbetet

Examensarbetet är en attitydundersökning som går ut på att undersöka hur valet av föryngringsavverkade bestånd påverkats av de möjligheter nya skogsvårdslagen ger att avverka yngre skog. Jag kommer i ett senare skede att utföra själva attitydundersökningen, som inriktas mot spannet mellan de tidigare lägsta slutavverkningsåldrarna och nu rådande skyddsåldrar. Eftersom det är en attitydundersökning är det inte av betydelse om den tilltänkta avverkningen utförts eller inte, de icke utförda ingår alltså också.

Som grund för den senare attitydundersökningen har jag slumpat ut avverkningsanmälningar/tillståndsansökningar inlämnade till Skogsvårdsstyrelsen under 1995 och i detta urval har Er bifogade anmälan/tillståndsansökning kommit med. Det bör påpekas att uppgifterna behandlas konfidentiellt och att Er avverkning inte kommer att redovisas separat.

Undantag

I de fall någon skogsvårdstyrelsetjänsteman angivit ålder, så vill jag ändå veta den ålder ni har "använt".

Om jag, av misstag, skickat med en väglinjeavverkning kan ni bortse från denna.

Jag önskar följande uppgifter av Er:

- * Aktuella avdelningars brösthöjdsålder 1995 ? Om flera avdelningar ingår i anmälan ange respektive avdelnings brösthöjdsålder.
- * Aktuella avdelningars H100. Samma som ovan vid fler avdelningar.
- * Källorna för era angivna data ovan. I första hand ser jag helst att ni hämtar uppgifterna ur ert avdelningsregister och i andra hand att ni hämtar ur ert eget minne.

Svaren, för respektive uppgift kan ni skriva på bifogad kopia av anmälingen/ansökningen. Jag vill ha uppgifterna så snart som möjligt, dock senast 20/5 1997.

Tack på förhand !

Frågor: Martin Lindskog 090/108307, SVS Umeå (mkt. sporadiskt
 Box 284 28/4-30/5)
 90106 Umeå 090/199568, hemtelefon

Bilagor: stycken anmälningar och stycken ansökningar

Serien Arbetsrapporter utges i första hand för institutionens eget behov av viss dokumentation. Rapporterna är indelade i följande grupper: Riksskogstaxeringen, Planering och inventering, Biometri, Fjärranalys, Kompendier och undervisningsmaterial, Examensarbeten samt Internationellt. Författarna svarar själva för rapporternas vetenskapliga innehåll.

Riksskogstaxeringen:

- 1995 1 Kempe, G. Hjälpmedel för bestämning av slutenhet i plant- och ungskog. ISRN SLU-SRG-AR--1--SE
- 2 Riksskogstaxeringen och Ståndortskarteringen vid regional miljöövervakning. - metoder för att förbättra upplösningen vid inventering i skogliga avrinningsområden. ISRN SLU-SRG-AR--2--SE.
- 1997 23 Lundström, A., Nilsson, P. & Ståhl, G. Certifieringens konsekvenser för möjliga uttag av industri- och energived. - En pilotstudie. ISRN SLU-SRG-AR--23--SE.
- 24 Fridman, J. & Walheim, M. Död ved i Sverige. - Statistik från Riksskogstaxeringen. ISRN SLU-SRG-AR--24--SE.
- 1998 30 Fridman, J., Kihlblom, D. & Söderberg, U. Förslag till miljöindexsystem för naturtypen skog. ISRN SLU-SRG-AR--30--SE.
- 34 Löfgren, P. Skogsmark, samt träd- och buskmark inom fjällområdet. En skattning av arealer enligt internationella ägoslagsdefinitioner. ISRN SLU-SRG-AR--34--SE.

Planering och inventering:

- 1995 3 Holmgren, P. & Thuresson, T. Skoglig planering på amerikanska västkusten - intryck från en studieresa till Oregon, Washington och British Columbia 1-14 augusti 1995. ISRN SLU-SRG-AR--3--SE.
- 4 Ståhl, G. The Transect Relascope - An Instrument for the Quantification of Coarse Woody Debris. ISRN SLU-SRG-AR--4--SE.
- 1996 15 van Kerkvoorde, M. A sequential approach in mathematical programming to include spatial aspects of biodiversity in long range forest management planning. ISRN SLU-SRG-AR--15--SE.
- 1997 18 Christoffersson, P & Jonsson, P. Avdelningsfri inventering - tillvägagångssätt och tidsåtgång. ISRN SLU-SRG-AR--18--SE.
- 19 Ståhl, G., Ringvall, A. & Lämås, T. Guided transect sampling - An outline of the principle. ISRN SLU-SRG-AR--19--SE.
- 25 Lämås, T. & Ståhl, G. Skattning av tillstånd och förändringar genom inventerings simulering - En handledning till programpaketet "NVSIM". ISRN SLU-SRG-AR--25--SE

- 26 Lämås, T. & Ståhl, G. Om dektekering av förändringar av populationer i begränsade områden. ISRN SLU-SRG-AR--26--SE

Biometri:

- 1997 22 Ali, Abdul Aziz. Describing Tree Size Diversity. ISRN SLU-SRG-AR--22--SE.

Fjärranalys:

- 1997 28. Hagner, O. Satellitfjärranalys för skogsföretag. ISRN SLU-SRG-AR--28--SE.
29. Hagner, O. Textur i flygbilder för skattning av beståndsegenskaper. ISRN SLU-SRG-AR--29--SE.
- 1998 32. Dahlberg, U., Bergstedt, J. & Pettersson, A. Fältinstruktion för och erfarenheter från vegetationsinventering i Abisko, sommaren 1997. ISRN SLU-SRG-AR--32--SE.

Kompendier och undervisningsmaterial:

- 1996 14 Holm, S. & Thuresson, T. samt jägm.studenter kurs 92/96. En analys av skogstillståndet samt några alternativa avverkningsberäkningar för en del av Östads säteri. ISRN SLU-SRG-AR--14--SE.
- 21 Holm, S. & Thuresson, T. samt jägm.studenter kurs 93/97. En analys av skogstillståndet samt några alternativa avverkningsberäkningar för en stor del av Östads säteri. ISRN SLU-SRG-AR--21--SE.

Examensarbeten:

- 1995 5 Törnquist, K. Ekologisk landskapsplanering i svenskt skogsbruk - hur började det?. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--5--SE.
- 1996 6 Persson, S. & Segner, U. Aspekter kring datakvaliténs betydelse för den kortsiktiga planeringen. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--6--SE.
- 7 Henriksson, L. The thinning quotient - a relevant description of a thinning? Gallringskvot - en tillförlitlig beskrivning av en gallring? Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--7--SE.
- 8 Ranvald, C. Sortimentinriktad avverkning. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--8--SE.
- 9 Olofsson, C. Mångbruk i ett landskapsperspektiv - En fallstudie på MoDo Skog AB, Örnsköldsviks förvaltning. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--9--SE.

- 10 Andersson, H. Taper curve functions and quality estimation for Common Oak (*Quercus Robur L.*) in Sweden. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--10--SE.
- 11 Djurberg, H. Den skogliga informationens roll i ett kundanpassat virkesflöde. - En bakgrundsstudie samt simulering av inventeringsmetoders inverkan på noggrannhet i leveransprognoser till sågverk. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--11--SE.
- 12 Bredberg, J. Skattning av ålder och andra beståndsvariabler - en fallstudie baserad på MoDo:s indelningsrutiner. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--12--SE.
- 13 Gunnarsson, F. On the potential of Kriging for forest management planning. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--13--SE.
- 16 Tormalm, K. Implementering av FSC-certifiering av mindre enskilda markägares skogsbruk. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--16--SE.
- 1997 17 Engberg, M. Naturvärden i skog lämnad vid slutavverkning. - En inventering av upp till 35 år gamla föryngringsytor på Sundsvalls arbetsomsåde, SCA. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN-SRG-AR--17--SE.
- 20 Cedervind, J. GPS under krontak i skog. Examensarbete i ämnet skogsuppskattning och skogsindelning. ISRN SLU-SRG-AR--20--SE.
- 27 Karlsson, A. En studie av tre inventeringsmetoder i slutavverkningsbestånd. Examensarbete. ISRN SLU-SRG-AR--27--SE.
- 1998 31 Bendz, J. SÖDRAs gröna skogsbruksplaner. En uppföljning relaterad till SÖDRAs miljömål, FSC's kriterier och svensk skogspolitik. Examensarbete. ISRN SLU-SRG-AR--31--SE.
- 33 Jonsson, Ö. Trädsikt och ståndortsförhållanden i strandskog. - En studie av tre bäckar i Västerbotten. Examensarbete. ISRN SLU-SRG-AR--33--SE.
- 35 Claesson, S. Thinning response functions for single trees of Common oak (*Quercus Robur L.*) Examensarbete. ISRN SLU-SRG-AR--35--SE.
- 36 Lindskog, M. New legal minimum ages for final felling. Consequences and forest owner attitudes in the county of Västerbotten. Examensarbete. ISRN SLU-SRG-AR--36--SE.