Fellings and protection of natural values in protected forests

When cutting down the forest in the protected areas, will protected natural values remain?

Report of the National Audit Office to the Riigikogu Tallinn, 2 March 2023

Fellings and protection of natural values in protected forests

When cutting down the forest in the protected areas, will protected natural values remain?

Summary of audit results

According to the National Audit Office, the Ministry of the Environment has not organised the protection of protected forests in such a way as to ensure the preservation of the natural values of these forests.

In order to ensure the preservation of the natural values in these forests, the Ministry of the Environment needs to significantly improve the clarity, adequacy and timeliness of data concerning the field. There is currently no reliable overview of how much forest is under protection. It is also not known to what extent the protected forests have been cut, because the Ministry and the Environmental Board do not collect this information. At the same time, this information would be important to assess the impact of fellings on the protected forests.

The Environmental Board has allowed fellings in the protected areas without knowing how much the fellings that have already taken place have combined to affect the protection objectives. The expert work ordered during the audit (ten cases were analysed) showed that the natural values of limited management zones and special conservation areas have been damaged in the observed cases.

In an audit published 15 years ago[1], the National Audit Office already led attention to the fact that the protection of forest habitats in need of nature conservation has not been organised in a way that would ensure their favourable condition. Most of the issues raised at the time are still unresolved.

For your information

Natural value is a collective term that denotes a plant, animal, bird, or other species that is either rare or plays an ecologically important role, as well as their **habitats** (the set of natural conditions required for the species to live in that place), forest habitat types (western Taïga, bog woodland etc.) or also a landscape that is aesthetically pleasing to humans.

Every protected forest is protected to preserve certain natural values.

The European Union Nature Directive aims to protect endangered and rare habitats and species across Europe. For their protection, the network of Natura 2000 areas of the European Union (so-called **Natura areas**) has been created.

Main audit observations

It is unclear how much forest is under protection. The data on the surface area of the protected forests displayed to the public by the Environment Agency do not give a clear or adequate picture. In order to clarify the extent of the error, it would be necessary to thoroughly analyse the map data and agree on a methodology for finding the surface area. In the administrative area of the Ministry of the Environment, there is no agreement on which definition of "forest" should be the basis of data analysis. The data in the Estonian Nature Information System can be

[1] Protection of valuable forest habitats in the Natura 2000 network areas. Report of the National Audit Office of Estonia to the Riigikogu, 28/05/2008

interpreted in different ways, which in turn makes it easy to make mistakes in the data analysis and show the surface areas of forests differently.

Since the effects of forest management are not sufficiently described or evaluated in the conservation regulations and protection management plans, the Environmental Board does not have all the necessary information to decide whether felling damages natural values. Not all protected areas have protection management plans. The Ministry of the Environment considers the Statistical Forest Inventory (SMI) data to be sufficient both for the general organisation of forestry and for the organisation of forest protection, but these data reflect the situation two years ago and do not provide information about felling of the protected forests.

Conservation regulations have been amended to allow clear cutting of up to two hectares in limited management zones. (In 2022, clear cutting was permitted in 173 of the 189 limited management zones of a protected area with forest[2].) As a result, it is allowed to clear large areas in forests that are close to each other with different felling techniques, and it is possible to manage forests in the limited management zone that is under protection in a similar way to forests that are not under protection. Direct information about how fellings affect the ecosystem of the protected forest is not collected as part of environmental monitoring, during the preparation of protection rules or protection management plans. It is also not analysed when approving felling permits in protected areas.

Environmental monitoring data show the deterioration of the condition of several plant, animal and other species in the protected forests, but the Environment Agency and the Environmental Board have not found out the reasons for the deterioration. Since the relationship between deforestation and deterioration has not been evaluated, the Ministry of the Environment did not see sufficient justification for limiting felling in protected areas until the initiation of the European Union's infringement procedures.

The fact that the felling permits have been given in conflict with the protection objectives also contributes to the deterioration[3], and the permits do not set the necessary restrictions for the protection of the species or habitat. The cases analysed in the expert work show mistakes, the repetition of which is not excluded in other cases when it is desired to cut the protected forest.

The surface area objectives for taking **Natura habitats under protection have been met in Estonia, but the condition of the old forest as a habitat is poor or insufficient.** According to the assessment of both the European and Estonian Environment Agency, large-scale clear-cutting affects the biodiversity of forests the most, and in the case of Estonia, it is noted that both the total surface area and volume of felling has consistently increased in the last decade.

[2] 2021 data.

[3] Here and in the future, the word "felling permit" is used instead of "forest notification" for the sake of clarity.

Natura's private forest subsidies should compensate for the restrictions on felling and thereby help to ensure protection, but their payment currently does not depend on whether and how much forest is left in the protected area. The subsidy is also paid for clearcut areas, and the preservation of the habitat is not a prerequisite for the payment of the subsidy. Although the purpose of the subsidy should be to compensate for lost income, the level of subsidising does not depend on how much income can be obtained from the forest.

The methodology used in the transfer of lands with nature conservation restrictions to the state is not clear and creates an unequal situation for the transferors of the land. In order to maintain a balance between the interests of nature conservation and the private owner's forest management, an opportunity has been created to transfer nature conservation lands to the state, but the criteria for the transaction with the state are not clear, and the parties are not clear about the circumstances that are taken into account when calculating the purchase price when the sale price is formed.

What did we recommend as a result of the audit?

In order to ensure better information about protected forests and felling there, and to achieve good condition of these forests, the National Audit Office recommends:

- create an application for the Forest Register to record felling in protected areas and the ability to search for data by both the protected areas and their protection regimes. In addition to the Estonian Nature Information System, data from the Estonian Topographic Database should be used in the statistics of the surface area of forests in protected areas;
- develop the Forest Register in such a way that the forest owner submits a report on the realisation of felling permits. If there are restrictions, conditions or recommendations on felling in the felling permit, it would be important to request an overview of their implementation.
- to ensure that before approving a felling permit in a protected forest, the impact of felling on natural values is assessed, planning of felling takes place in protected areas considering the entire area, and the cumulative impact of felling is taken into account when granting felling permits;
- analyse the impact of clear cutting on the ecosystem of protected forests and, if necessary, allow these forests to be managed as a selection forest.

The answer of the Minister of the Environment and the Director General of the Environmental Board to the National Audit Office: in order to get a more accurate overview of the activities that took place in the protected areas (including to evaluate the impact of Natura and the effectiveness of protection), it is necessary to create data collection solutions. Risk points are the uneven quality of the data, the increase in bureaucracy and the emergence of additional costs.

The Ministry of the Environment has prepared an amendment to the Nature Conservation Act, which will simplify the assessment of the

effects of Natura. In addition, the Environmental Board plans to prepare a protection management plan for Natura 2000 forest habitats and to analyse the cumulative impact of felling and standard situations within the framework of its strategic environmental impact assessment. Proposals related to the spatial planning of felling and selection forestry need a more detailed analysis, and this can be done in 2023.

Table of contents

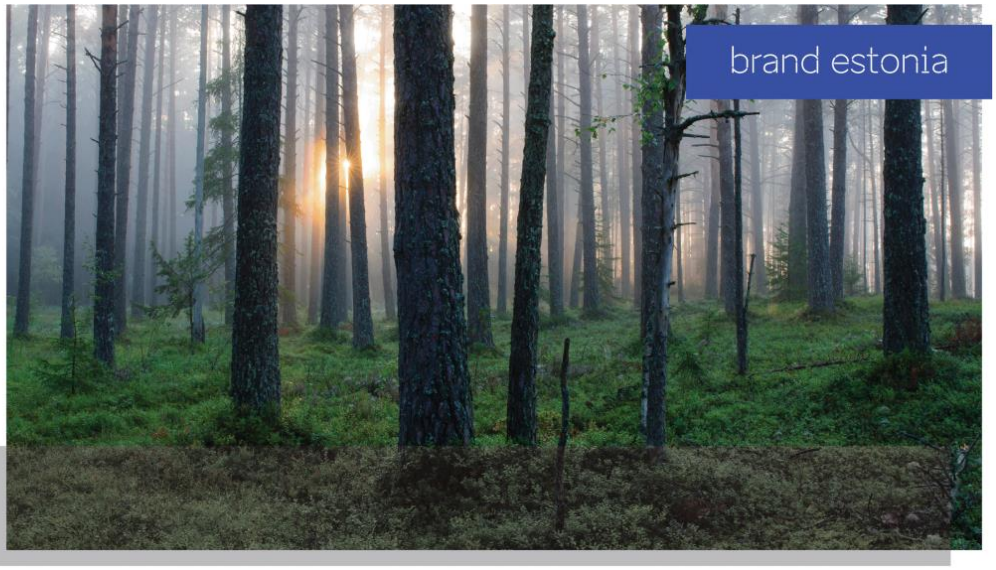
Overview of the area

What is a forest?

When talking about the forest, the parties may not understand each other, because "forest" has different meanings

1. Although the concept of forest seems to be clear, different parties mean different phenomena when talking about forest. The forest gives wood, mushrooms, berries, and plants. In addition, peace of mind, health[4], clean air and much more (so-called ecosystem services[5]). It is not clear to everyone which forest must be protected and why. This leads to confusion in the interpretation of the data and misunderstandings. One and the same forest landscape (for example, the pine stand in the photo in Figure 1) can be described in at least three ways – through legal, ecological and cultural (cognitive) meaning.

Figure 1. Different views toward the forest



LEGAL VIEW

The stand element (i.e. pines) has reached the cutting age according to the forest management regulations (90 years in this habitat site) and the forest is mature for regeneration, i.e. the forest can be cut.

ECOLOGICAL VIEW

The forest community has been able to grow long enough. A network of relationships between species has developed, and species that cannot live in the younger forest have joined the community. Considering that the natural lifespan of a pine tree is over 300 years, the trees in the image are approaching middle age.

CULTURAL VIEW

The forest is part of the historical cultural heritage and part of the national culture. The forest has traditionally been sacred, and the attitude towards the forest has been formed over generations. The forest is not only a source of resources, but also a place of tranquility and solitude. The forest also has value in itself.

Photo source: Sven Saček, photo editing: Madis Kats

[4] Estonian Human Development Report 2019/2020.

[5] In order to better understand nature, its importance and the need for protection from an economic aspect, nature (or the ecosystem) began to be described through the so-called service provider's view. This makes it possible to evaluate in economic terms what natural systems do for humanity, and to consider in monetary terms, for example, the ability of forests to reduce noise or air pollution, clean surface water, provide aesthetic and spiritual well-being. Ecosystem services have their own classification; read more here.

The impact of forestry activities on ecosystem services has been determined by the Ministry of the Environment in the Forestry Development Plan 2030's baseline survey (the FDP 2030's baseline survey, survey annexes (Annex 3)).

Forest in legal sense

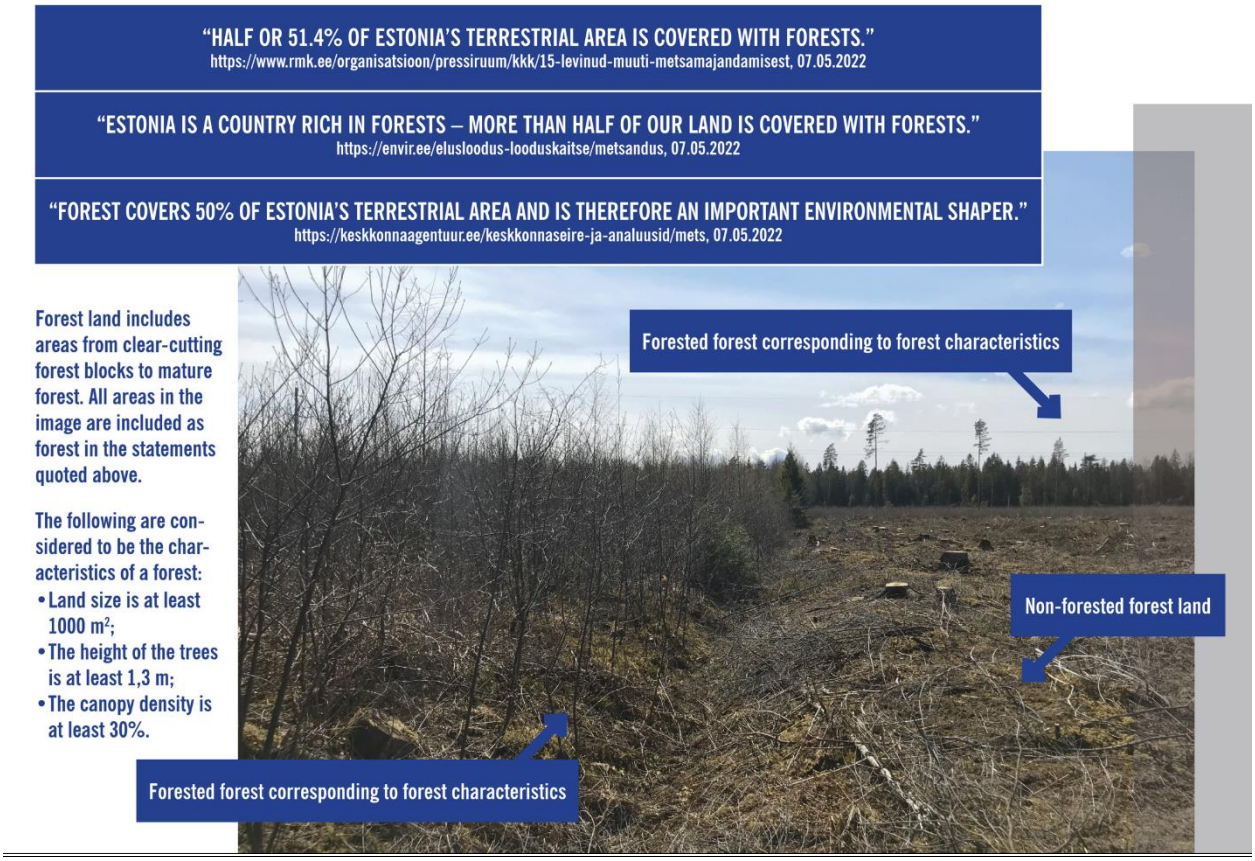
2. According to Statistics Estonia[6], Estonia's forest cover is 51.3%. Information can be found on the websites of the authorities that more than half of Estonia's territory is covered by forest, and 14.2% of it is strictly protected[7]. It is important to know what is meant by this forest, and which criteria it meets.

Land cadastre – the country's main register, which reflects, among other things, the purpose of land use, for example forest land, agricultural land, or residential land.

Areas that were or are still covered with trees are considered forest land. Shrubs and bogs under them are not included.

3. According to the Forest Act, a forest is a land area that is registered as forest land in the land cadastre or has a size of at least 1,000 m^2, where trees grow 1.3 m high and the canopy density (i.e. rate of closeness) is at least 30%. In most cases, trees that have started to grow after clear cutting, depending on the species, reach this height in about five years.[8] See Figure 2 for explanation.

Figure 2. All land in the image counts as forest, as all forest land is equated to forest



Source: National Audit Office based on the Forest Act, photo editing by Madis Kats

[6] Forestry statistics.

[7] At the end of the preparation of the report, the surface area of the strictly protected areas increased, amounting to 17.6%. The increase in areas was mainly due to the temporary protection restriction of forest habitats. This part is not reflected in the National Audit Office's analysis.

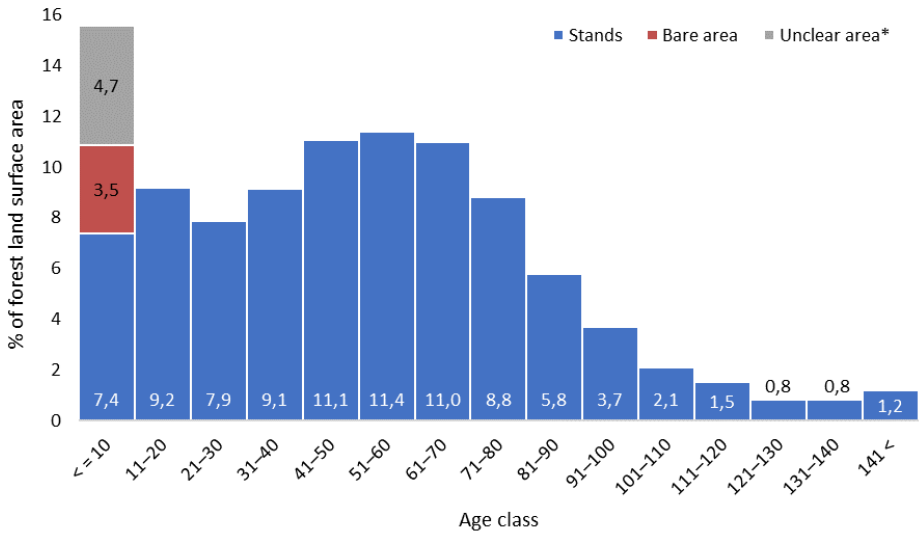
[8] A forest is considered regenerated if the tree species specified in Annex 2 of Regulation No. 88 of the Minister of the Environment of 27/12/2006 "Forest Management Rules" (Baltic pine (Pinus sylvestris), European spruce (Picea abies), European white birch (Betula pendula) and Downy birch (Betula pubescens), Eurasian aspen (Populus tremula), European black alder (Alnus glutinosa)) grow in the area.

Forest development class is a concept that characterises the development stage and relative age of a stand in forestry. There are seven development classes:

- bare area,
- unclear area (where there is not yet or not enough main tree species),
- young growth,
- pole stand,
- middle aged,
- maturing and
- mature forest.

4. There are 2.3 million hectares of so-called legal forest, i.e. forest land.[9] Forest land is divided into different forest development classes and age classes. A large share of the area of Estonian forest land is the youngest class, where the trees have not yet started to grow back, i.e. the forest is not regenerated (i.e. bare and unclear areas) or trees that meet the criteria for regeneration[10] are on average up to ten years old (see Figure 3)[11].

Figure 3. Age distribution of forest land (%)*



* The percentage of the area of bare and unclear areas has been added to the figure for the youngest age class to reflect the total forest land. Bare and unclear areas are not included in the stands, and a significant part of the actual forest land would be left out of the figure. After clear cutting and the establishment of a forest culture, or after leaving the felling block for natural regeneration, it is not immediately a young forest, but an uncleared area, so the vegetation growing there is also not considered as a stand. The figure was prepared based on the data tables of the "Forests 2019" yearbook published by the Environment Agency.

** An unclear area is forest land where there is no (yet) stand corresponding to forest characteristics.

Source: Based on the Environment Agency's Statistical Forest Inventory (SMI) 2019

5. Regardless of how much is cut and what the age structure of the forests is or how many bare areas there are, according to statistical data, Estonia is a country rich in forests. Based on these numbers, it is not possible to make comprehensive conclusions about the ecological condition of the forests (including protected ones).

Forest in ecological sense

6. The ecological meaning of the forest is based on the natural processes taking place in the forest. Time is needed for the recovery or development of a forest ecosystem, and the main elements that determine the functioning of this system are the composition and abundance of the biota, the network of relationships between different species and its

For your information

The need to **define the concept of forest more clearly** is indicated in the report on identifying the expectations of interest groups made during the preparation of the forestry development plan: "In order to reach an agreement on how to use the forest, it is necessary to agree on how to name things. Criticism from different groups primarily concerns the current concept of forest and forest land, as well as forest types, stages of development, etc. (clear cut area, scrub, bog woodland)."

Source: https://envir.ee/MAKKSHmaterjalid

An area considered a forest based on the Forest Act may not be ecologically valuable

[9] Forestry statistics.

[10] According to the forest management regulations (Regulation No. 88 of the Minister of the Environment of 27.12.2006), a forest is considered regenerated if at least 1,500 European pines or oaks with a height of 0.5 m or higher, 1,000 spruces with a height of 0.5 m or higher, or 1,500 other trees with a height of at least 1 m grow on a hectare, which the regulation allows to be taken into account when regenerating.

[11] Environment Agency, SMI 2019. The calculations reflect the situation of the five years prior to publication.

functioning, the presence of suitable habitats for different species, the coherence and size of the areas, diversity, etc. The purpose set by the Forest Act is to be economical in forest management, protecting the ecosystem.[12]

For your information

The ecological value and economic value of the forest do not meet the same criteria. The phrase "rotting forests" represents lost revenue in economic terms, but represents an ecologically valuable stage of development in the forest. A dead and fallen tree in the forest (dead wood) is ecologically of great value, as it is a habitat for nearly 40% of endangered species.

7. According to legislation in the field of forestry, the bare area created in place of western Taïga is one of the development classes of the forest, but from an ecological point of view, it is a change of communities and the damage and loss of rare species and habitats. It is not possible to say exactly how many of Estonia's forests (including protected ones) are in good ecological condition.

Organisation of forests protection

8. Forests are protected in order to maintain their ecologically favourable condition (including the favourable condition of species and habitats), among other things, so that the forest continues to provide ecosystem services necessary for society. On the basis of the Nature Conservation Act, a system of Estonian protected areas has been created (see Table 1), which includes species and habitats considered important both in Estonia and in the European Union.

For your information

A forest that has grown undisturbed over a long period of time develops species richness and processes that are not yet present in younger forests. Therefore, older forests that have been able to develop undisturbed for a long time and rare species that grow in them and are demanding in terms of their living conditions are particularly valuable in the forest ecosystem.

Nature conservation is essentially the protection of a network of life forms. The more species and relationships there are, the more stable the system is.

9. Most of Estonia's nationally protected areas are also Natura areas of European importance[14], but new special conservation areas protecting only Natura species and habitats have also been created. A total of ten of the forest habitat types specified in the European Union Nature Directive occur in Estonia[15]. The state must keep records of forest habitats both in the European Commission's database and in the Estonian Nature Information System (EELIS). If any forest habitat disappears as a result of felling, information about it must also reach the European Union Natura standard database[16]. In addition to the areas protected by the Nature Conservation Act, key habitats have also been created for the protection of forests, which are protected on the basis of the Forest Act (see paragraph 142).

For your information

The biodiversity strategy of the European Union emphasises that nature is in a crisis situation due to the loss of species, and this also leads to a crisis in the economy, and in people's physical and mental health.

The health of ecosystems and people are interconnected, and the protection of nature is critically important. Species impoverishment is having serious consequences for the functioning of ecosystems and the sustainability of human society.[13]

10. Protected areas are divided into protection regimes of different strictness: strict nature reserve, special management zone (natural and maintainable ones), and limited management zone (see Table 1 and Figure 4 for explanation). In each zone, in turn, it is determined which species, parts of the landscape or forest habitats the restrictions are created to protect. In the case of the Natura areas, habitat types or protected species specified in the Nature and Bird Directives are also

[12] The purpose of the Forest Act is described in § 2: "The purpose of this law is to ensure the protection and sustainable management of the forest as an ecosystem."

[13] Biodiversity Strategy of the European Union. 2021.

[14] Designation as Natura areas, i.e. nature areas and bird sanctuaries, is based on the so-called Bird Directive and Nature Directive of the European Union (2009/147/EC and 92/43/EEC).

[15] The endangered and rare habitats across Europe described in the European Union Habitats Directive, which the Member State is obliged to keep in good condition and to notify the European Commission periodically (with an interval of 6 years) about the condition of the habitats. Some of them are of primary importance, i.e. they need special protection due to the danger of destruction. In Estonia, such habitats are western Taïga (9010*), old broad-leaved forests (9020*), forests of slopes, screes and ravines (9180*), bog woodlands (91D*), alluvial forests (91E0*), deciduous swamp woods (9080*).

[16] https://natura2000.eea.europa.eu/

added as a reason for protection. Thus, one protected area can have several reasons why the area is protected. Preservation of EU forest habitats is a protection objective in 335 protected areas.

Table 1. List of protected areas (objects) and the zones with different levels of strictness in them[17] and their number (as of 1 January 2022)

Type of natural object under protection		Number of objects	Protection regime			Other protective order
			Strict nature reserve	Special management zone	Limited management zone	
Protected area	Nature reserve	230	x	x	x	
	Landscape protection area	151		x	x	
	National park	6	x	x	x	
Special conservation area		315				x
Permanent habitat		1,811		x	x	
Single object of nature under protection		1,089			x	
Object under protection at the municipal level		23			x	

Source: Environmental Board, Nature Conservation Act

11. The felling restrictions of the different protection regimes are illustrated in Figure 4. (The surface area numbers presented in the figure reflect the surface area of forest land in existing protected areas. The calculation does not include the surface area of the areas in the plotting phase, as the National Audit Office could not be convinced of the accuracy of these data. See explanation from paragraph 27.)

[17] Reigo Roasto, Uku Tampere (ed.). Estonian nature conservation 2020. Environment Agency, Tallinn, 2020

Figure 4. Zones of protected areas, their surface area (only existing, not planned areas are taken into account) and admissibility of felling

Source: The National Audit Office on the basis of the Nature Conservation Act and the Environment Agency's data (forest surface areas of the zones based on the Estonian Topographic Database (ETD) as of 01/01/2021), photo editing by Madis Kats

12. Protected areas and the rules based on each area are approved by the Government of the Republic with the conservation regulation, in the case of special conservation areas, the government approves their list, and the rules follow from the Nature Conservation Act. Necessary, permitted and prohibited activities for the realisation of the objectives set by the conservation regulation are described in the protection management plan.

13. The task of protecting forests is assigned to the Ministry of the Environment, which must ensure the sustainable and balanced use of nature – taking raw materials from the forest should not threaten species richness or damage the forest ecosystem; species and habitats should be in a favourable condition[18] and all ecosystem services guaranteed. For this purpose, a forestry and nature conservation policy must be developed, long-term strategic plans must be drawn up, and it must be known whether the objectives have been met.

[18] Nature Conservation Act.

14. The Environmental Board has been given an organising role in nature protection as the manager of the protected area – to plan and implement the protection of natural objects, evaluate the effectiveness of protection and make proposals to change the rules of nature conservation in order to ensure better protection of forests. Among other things, the task of the Environmental Board is to organise activities related to forest management, regeneration and protection of the diversity of forest life, to issue felling permits, to organise the protection of precious habitats.[19]

The term "strictly protected" does not mean that these areas are not cut or have not been cut in the past

15. Like the term "forest", the term "strict protection" has different meanings. For example, according to the data of the Statistical Forest Inventory (SMI), 14.2% of Estonia's territory is under strict protection.[20] It includes both natural and maintainable special management zones (including plotted ones), strict nature reserves and key habitats. However, the International Union for the Conservation of Nature Resources (IUCN) considers a forest to be strictly protected only if it is not felled and is allowed to grow naturally. Considering that most of the strictly protected forests in Estonia are maintainable special management zones (see Figure 4), according to the IUCN's definition, there are many times less strictly protected forests in Estonia.

Rules for felling of the protected forests

16. In protected areas where cutting is carried out (special conservation areas, limited management zones, maintained special management zones), cutting activities must be carried out in accordance with the rules of the Forest Act and its statutory acts. In addition, the Nature Conservation Act generally and the conservation regulations generally determine more precisely whether, where and how much can be cut in protected areas based on the rules of the Forest Act. In the Forest Act, the so-called harvesting maturity of trees, i.e. the most economically profitable age and size, when felling can be done is agreed upon (see Figure 5).[21]

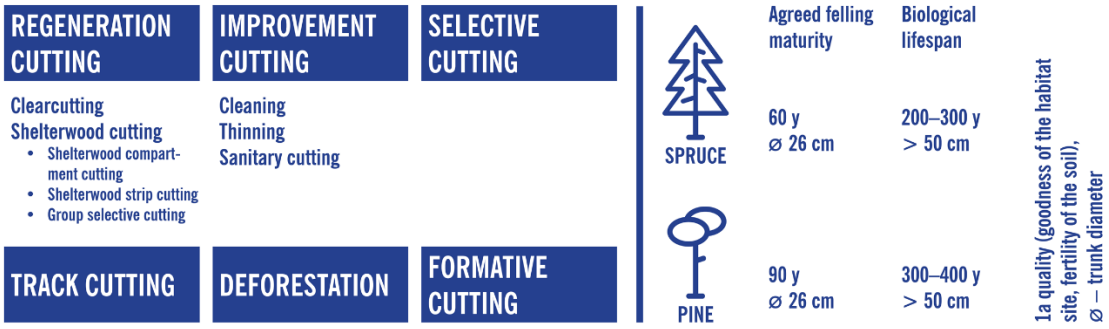
17. According to the Nature Conservation Act, clear cutting is prohibited in limited management zones, unless exceptions have been made by the conservation regulation. In the special management zones, felling is done under the name of formative cutting, which is a general name for all types of felling. Design cutting can therefore mean deforestation, clear cutting, group selective cutting, etc.

[19] Regulation No. 47 of the Minister of the Environment of 30/09/2020 „Statute of the Environmental Board"; Nature Conservation Act, § 22.

[20] SMI 2020 data.

[21] The problem described by the Environmental Board in the Forestry Development Plan Working Group's document: When determining the cutting age, the ecological importance of certain tree species is not taken into account. For example, the cutting age of an aspen according to forest management rules is between 30 and 50 years, depending on the quality (i.e. the goodness of the habitat site). From an economic point of view, this is an expedient cutting age (due to the development of trunk rot), but old aspens are important as a living environment for several species (e.g. flying squirrels need cavities for nest building, the age of a suitable nesting tree is between 65 and 110 years; certain fungi and lichens need as a substrate the bark of those aspens the age of which begins from 90–100 years). Aspen provides habitat for at least 2,000 species during its natural life span.

Figure 5. Types of fellings and cutting maturity criteria for the example of pine and spruce in the most fertile* forest



* The agreed cutting maturity given in the figure applies to the stand. As a stand, trees may not last as long as individual trees can live.

Source: National Audit Office based on the Forest Act, design by Madis Kats

Forest Register – the register created on the basis of the Forest Act and in which records are kept of the location, surface area, reserves, condition and use of forests growing in Estonia.

The register contains forest inventory data, data on felling permits (or forest notifications) and data on field work, forest regeneration and forest protection expertise.

The right to process data in the Forest Register belongs to the Environment Agency, Environmental Board, and
- at the IT centre of the Ministry.

For your information

If managed as a selection forest, the natural forest community changes the least and is most sustainable for the forest. In this way, the forest is kept close to nature, i.e. trees are selectively cut in the growing forest, doing it every few years; tree species specific to the habitat site grow in the forest; drainage and fertilisation are generally avoided[23]; tall forest is maintained consistently.

Due to deforestation in the Natura areas, the European Commission has initiated infringement procedures against Estonia

18. Decisions on permitting felling are made by the Environmental Board through the Forest Register[22]. The register makes it possible to apply for a felling permit (officially named "forest notification") and informs the public about issued permits. The register does not contain information on whether and when the work authorised by the felling permit has been carried out. When issuing a felling permit, the Environmental Board must be convinced that the felling will not damage the natural values of Natura and other protected areas.

19. An important principle that must be adhered to when cutting protected areas as well as commercial forests is sustainability – according to the Forest Act, this must be the basis of the entire Estonian forest policy.[24] From an ecological point of view, when taking wood from the forest, different life forms, their living environment (soil, water, etc.) and ecosystems must be preserved. So far, the meaning of "sustainability" has not been clearly defined, and it has not been assessed whether the current felling volumes and methods (including in protected forests) comply with the principle of sustainability.

20. The purpose of the EU nature conservation rules is to ensure the favourable condition of Natura areas that are important for Europe as a whole. On 09/06/2021, the European Commission initiated an infringement procedure against Estonia, because Estonia does not assess whether felling will have a negative impact on the Natura area, and the country's conservation regulations often contain provisions on felling and other economic activities without assessing the effects of these activities.[25] According to the calculations of the Ministry of the

[22] National Register of Forest Resource Accounting.

[23] Fertilisation of forests is not allowed in Estonia.

[24] The purpose of the Forest Act is to ensure the protection and sustainable management of the forest as an ecosystem (§ 2). The draft of the Forestry Development Plan until 2030 considers sustainability as the principle according to which sustainable forest management ensures biodiversity, forest productivity, regeneration capacity and vitality, as well as versatile forest use that satisfies ecological, economic, social and cultural needs. The same principle is also stated in the 1993 (Helsinki) resolution of Pan-European (Forest Europe) forest protection: https://foresteurope.org/workstreams/sustainable-forest-management/

[25] Notice of the European Commission's infringement procedures.

Environment, if Estonia does not eliminate the infringement, it may result in a penalty of up to 24.6 million euros. Due to the pressure of infringement proceedings, the Environmental Board decided in February 2022 to temporarily (for 28 months) stop all felling in the Natura forest habitats located in restricted zones.

For your information

Already in 2008, the National Audit Office recommended to the Ministry of the Environment to

1) ensure that in the case of felling that takes place in Natura areas or in their vicinity, the impact on the habitats is assessed and only activities that do not lead to deterioration of the habitats condition are allowed;

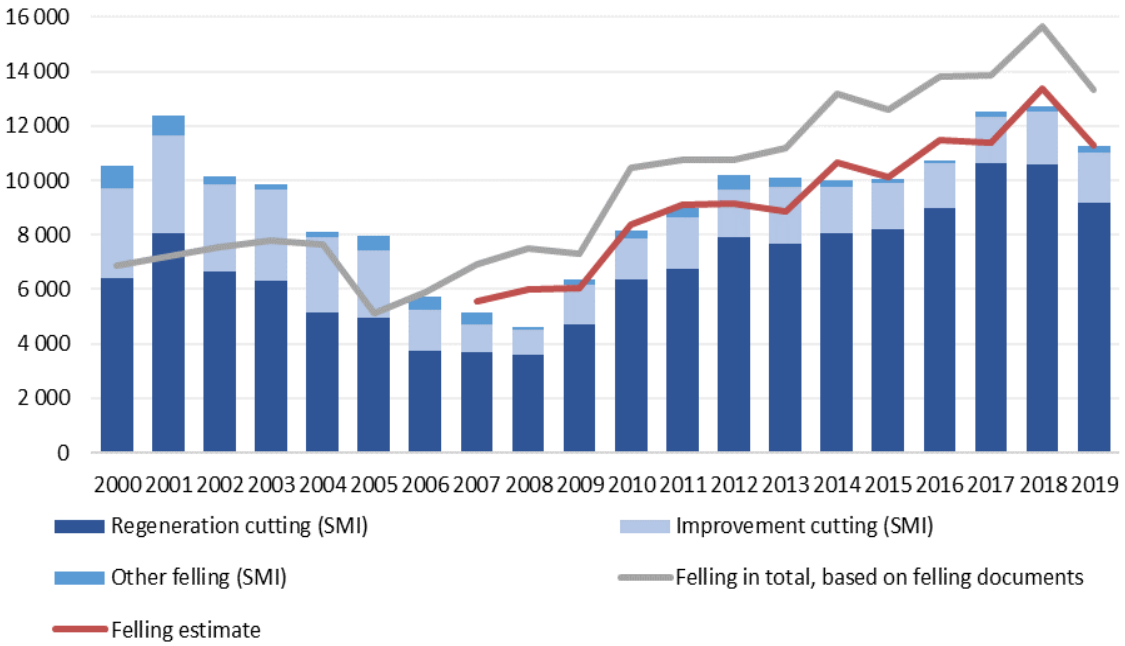
2) change the laws in such a way that they are in line with the European Union's Nature Directive, and consider the possibility of using a simplified assessment compared to the environmental impact assessment.

21. The National Audit Office drew the attention of the Ministry of the Environment to the errors that led to the infringement procedures already in the 2008 audit concerning the Natura forest areas[26], indicating that Estonia has failed to fulfil its substantial obligation regarding the protection of Natura areas and forest habitats, and the organisation of protected areas does not guarantee the favourable condition of valuable forest habitats. At the time, the National Audit Office found that the Ministry of the Environment has interpreted the Nature Directive incorrectly, considering the favourable condition only within protected areas, but this must be taken into account in the country as a whole.

Balance between deforestation and conservation

22. Felling volumes, including those in protected areas, have increased (see Figure 6, which characterises the increase in felling volumes and the main felling method – the share of clear cutting (regeneration cutting) among fellings.

Figure 6. Felling volume in 2000–2019. The figure compares three indicators – felling data from the Statistical Forest Inventory (SMI) (columns), volume given on the basis of issued felling permits (actual felling volumes in the case of the State Forest Management Centre (RMK)) (grey line) and felling volume estimate found on the basis of expert assessment, in which clear cuttings determined by felling permits are from verified satellite photos (red line)



Source: Environment Agency

[26] Protection of valuable forest habitats in the Natura 2000 network areas. Report of the National Audit Office of Estonia to the Riigikogu, 2008

23. The increasing trend of felling volumes and the predominant use of clear cutting has caused a clash of economic, ecological and cultural interests.[27] The preparation of a new development plan for forestry has been delayed, and there is no broad-based social agreement on the development of forestry.

24. Environmental associations blame the Ministry of the Environment[28] for underestimating the ecosystem and cultural heritage and have found that the ministry has not fulfilled its main task of protecting the forest – it has not kept the right balance between protecting the biosphere and using the forest as raw material. However, according to the assessment of the Estonian forestry and wood industry, the ministry is guilty of harming their economic interests, deteriorating the quality of wood in the forests, and being overly enthusiastic about nature conservation.[29]

25. In the following parts of the report, the following problems are covered in more depth:

- data regarding the area of protected areas and felling information are not clear;
- it is not known how much the felling has damaged the ecological condition of the protected forests;
- expert work showed that simplifying the conditions for felling of the protected areas has resulted in damage to the natural values;
- making mistakes from the planning of taking under protection to the issuing of felling permits has in certain cases led to damage to the natural values of the protected forests;
- The Natura's forest subsidy system is not related to the preservation of natural values, but allows to pay the subsidy also to areas from which income has already been earned and natural values have disappeared;
- the process of transferring lands with nature conservation restrictions to the state does not guarantee transparency and allows unequal treatment.

For your information

The expert group of the Stockholm Environmental Institute prepared an analysis of the impact of the scenarios presented in the first version of the forestry development plan on behalf of the Ministry of the Environment, in which, among other things, the impact of different felling volumes on climate targets and the preservation of biodiversity goals was evaluated. Among others, the expert group made the following recommendations:

- the volume of felling should not exceed 8 million solid cubic metres/year, then a balance between economic, social, ecological and cultural needs would be ensured and the risks that felling entails would be mitigated;
- the forest may be cut within the limits of regeneration capacity, i.e. it is cut to the extent that the general reserve does not decrease;
- non-timber forest products and services must be preserved and increased;
- the surface area of protected forest and forest with protective functions (e.g. the forest around the settlement) remains the same.

The Ministry of the Environment did not accept the conclusions made in the expert work (first of all) about the felling volumes.

Kaja Peterson et al. Analysis of the impact of development scenarios of the Forestry Development Plan 2030. SEI Tallinn, 2019

[27] As part of the preparation of the "Forestry Development Plan until 2030", the Ministry of the Environment has prepared an overview document "Forest conflict", which reflects the problem of conflicting interests of different interest groups and the delay with the preparation of the forestry development plan.

[28] In the documents for the preparation of the Forestry Development Plan, the views of interest groups, researchers and authorities and descriptions of problems in various fields are reflected. One can get acquainted with the materials on the website of the Ministry of the Environment.

[29] The forest industry criticises the Forestry Development Plan. Postimees. Maaelu, 21/01/2021.

Knowledge of the protected forest's surface area and fellings

26. The National Audit Office assessed whether the Ministry of the Environment has correct and up-to-date information on the surface areas of different regimes of protected areas and how much felling has been done in different protected areas.

Information about the surface area of the protected forests is misleading

27. The Environment Agency has divided forests according to their management into three categories:

- strictly protected forests (forests with different protection regimes where economic activity is prohibited);
- protection forests[30] (economic activity with nature conservation restrictions);
- commercial forests (economic activity within the limits set by the Forest Act).

28. Managed forests include commercial forests and protection forests.

29. According to the SMI 2020 data, there are a total of 345,700 ha of strictly protected forests in Estonia, and 277,600 ha of forests with economic restrictions (that is, the protected areas where felling is permitted for economic purposes).[31] The surface area of the strictly protected forests is presented as aggregate numbers, and more detailed information about the surface areas of different protection regimes is not presented. The same applies to forests with economic restrictions (see Annex B, Table 1). The area of strictly protected areas is one of the direct criteria on the basis of which to evaluate the success of the state's nature protection.[32] Knowing the exact area of the special management zones is important, as it depends on whether or not felling restrictions will be imposed on forest habitats in the limited management zones.[33]

---

[30] Although the concept of the protection forests was removed from the laws in 2009, the Environment Agency still uses it when preparing statistical reviews and filling it with content as follows: "The protection forests are forests where management activities are limited, but not prohibited, and the severity of the restriction can be very different. A forest under strict protection is forest land where all economic activities are prohibited. By combining strictly protected forests and protection forests, we get protected forests." ("Forests 2019" yearbook." Environment Agency, 2020).

[31] The SMI 2020 data have been used, which are larger than the SMI 2019 surface area data and the strictly protected areas given in the forestry's draft development plan.

[32] One of the indicators of target No. 2 of the Nature Conservation Development Plan (until 2020) "The favourable condition of species and habitats and the diversity of landscapes is ensured, and the habitats function as a single ecological network" is "The proportion of strictly protected typologically representative forests from the area of forest land."

[33] According to the "Instructions for the organisation and management of value-based protection of forests" of the Environmental Board, a felling restriction is set for the area, among other things, if the total area of forests in the special management zone of the protected area is smaller than the total area of the forest habitat types, which are the objective of the corresponding nature area in the Natura standard database.

30. The National Audit Office wanted to know how the Environment Agency has calculated the aggregate surface areas of strictly protected forests and protection forests, i.e. how many existing and proposed strict nature reserves, special management zones, limited management zones, key habitats, etc. are in the forests and how they are divided between the state and other landowners. The National Audit Office also wanted to know whether and how much felling has been done in these areas. Area data was requested from the Environment Agency and the Estonian Topographic Database (ETD)[34] as well as calculated according to the SMI[35] (see the structure of the request and the answers in Annex B).

31. The National Audit Office did not get any clarification about the accuracy of the surface areas of protected areas during the audit. The Environment Agency had to correct the data submitted to the National Audit Office several times, and the cross-checking of the data with the Environmental Board and the Land Board caused even more confusion with the data – sometimes the surface area numbers differed by multiples. During the audit, it became apparent that a simple question about area data can receive answers differing multiple times, and when using the data of the so-called basic database of the state nature conservation – the Estonian Nature Information System (EELIS) – it is easy to get lost in the data analysis.

32. From the data submitted to the National Audit Office and the explanations of the authorities, it appeared that:

- **the surface areas of the strictly protected areas are overestimated due to the overlapping of areas with different protection regimes;**
- **The SMI methodology does not allow providing detailed surface area data by zone of protected areas, and if it is done, misleading results are reached;**
- **the authorities responsible for data processing lack clarity as to which definition of "forest" should be the basis of data analysis, and this allows forest surface areas to be shown differently;**
- **there is no agreed method for processing the data in the Estonian Nature Information System so that the numbers reflecting the surface area of the protected forests are reliable and the calculations can be repeated if necessary.**

33. Overestimation of the surface areas is possible because the protected areas often overlap. For example, the same location can be a limited management zone of a nature reserve, a key habitat, a special management zone of a permanent habitat of a species, etc. At the same

For your information

The National Audit Office identified questionable issues and errors in the data provided by the Environment Agency first. For example, the calculation included areas that do not actually exist – more than 4,000 ha of the proposed strict nature reserves.

Secondly, the data submitted to the National Audit Office differed from the area data provided in the "Forests 2019" yearbook (area of strict nature reserves and special management zones by more than 7,300 ha, area of limited management zones of permanent habitats by more than 9,400 and area of special conservation areas by more than 8,000 ha).

The data on the area of strictly protected forests provided by the Environment Agency also differed from the data provided by the State Forest Management Centre, as the calculation of strictly protected areas is based on a different methodology.

For your information

The data of the State Forest Management Centre (RMK) and the Environment Agency differ on the surface area of strictly protected forests. According to the RMK's data, there are more strictly protected forests than the Environment Agency's data show. The RMK also includes those areas that are not reflected in the Environment Agency's calculations as strictly protected areas. These areas are:

- areas with twig nests (400 ha);
- Natura areas in the limited management zones (35,441 ha);
- lekking grounds (283 ha) of western capercaillie (Tetrao urogallus), which remain on the Rail Baltic route;
- natural sanctuaries (71 ha).

The data of the RMK and the Environment Agency are not comparable, because the RMK's calculation is methodologically different – not based on the Estonian Topographic Database (ETD), but based on the forest allotments of land units.

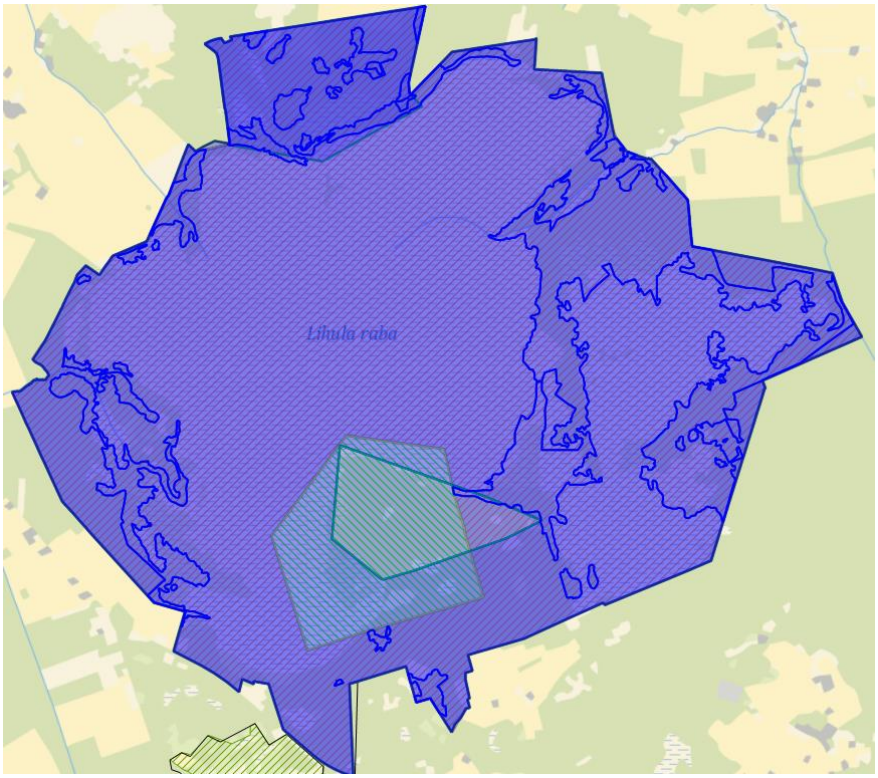
[34] The Estonian Topographic Database (ETD) is a geoinformation system belonging to the state information system, which is the basis for the creation of the basic map of Estonia, the hybrid map of map applications, and other maps.

[35] Statistical forest inventory (SMI) – a selection survey, during which statistical generalisations are made about the forests of Estonia on the basis of the information collected in the forests. The overview is given of the situation two years ago and reflects five-year averages. The SMI is the country's main source of information on the condition of forests. More detailed information about the method can be found in the "Statistical forest" collection.

time, planned zones can also be located in these areas, either to change the existing zone or to additionally create new ones.

34. If several proposals for the establishment of a protected area have been made, all areas are also included as separate map layers in EELIS as planned protected areas. There are many options for how different areas can overlap (see example in Figure 736). In the data analysis, it is important and has a direct impact on the results, in which way the overlapping of the areas is eliminated, so that one area is not counted multiple times. In the case of the SMI, the relative error resulting from the SMI methodology is added to the above aspect, which in turn affects the results.

Figure 7. Overlapping of protected areas on the example of the Lihula Landscape Conservation Area. The existing landscape protection area and three planned protected areas overlap in the area. The existing Lihula Landscape Conservation Area will be converted into a nature reserve, and the proposed special management zone of the nature reserve of the forest deficits and the forest habitats' nature reserve intended to protect forest habitats initiated due to EU infringement procedures will also be located in the area.



Source: Estonian Nature Information System

For your information

the methodology for avoiding double counting of different areas, i.e. what should be the sequence of layers in the Estonian Nature Information System, is described in the "Forests 2019" yearbook. According to this methodology, the surface area statistics of the protected forests have been prepared in Chapter 9 of the yearbook.

However, when responding to the request of the National Audit Office, the Environment Agency did not use the described methodology.[37]

35. For example, based on the data of the EELIS database, it can be concluded that more strict nature reserves are being planned in Estonia on the extent of 2,032 hectares. In fact, however, there will be no more strict

[36] At the end of the audit, the conservation regulation of the Lihula Nature Reserve was established, and by the time the audit is made public, it is no longer a proposed protected area. However, the given example illustrates the nature of the ongoing problem with overlapping protected areas.

[37] After studying the audit results, the Environment Agency changed the description of its methodology in the next "Forest 2020 yearbook." The description of the methodology is similar to the one used in preparing the data request forwarded to the National Audit Office."

nature reserves, as the plan is to reduce their surface area by more than 1/3 instead. Strict nature reserves of the Vilsandi National Park and Endla Nature Reserve will mostly be special management zones and limited management zones.[38] Therefore, there are several different data layers in the database for one area: an existing strict nature reserve, a proposed strict nature reserve, and a proposed special management zone or limited management zone.

36. Among other things, the Land Board analysed for the National Audit Office how many of the proposed special management zones are located in the already existing special management zone according to the ETD (in other words, how many of the existing special management zones are also proposed special management zones) and how many more are planned to be created additionally. Although the Environment Agency confirmed to the National Audit Office that **there are 35,811 ha of proposed target protection zones in Estonian forest areas (according to the SMI, 44,433 ha)[39]** and thus these land areas are also included in the calculation of strict protection, the analysis of the Land Board revealed that **the actual area of the new special management zones** is *approx.* 10 times smaller, i.e. **3,600 ha (ETD)**.

37. The Environmental Board, which organises the taking of areas under protection, in turn analysed the areas of the new special management zones, confirmed the smaller area numbers and explained that 96% of the proposed target protection zones are located in the areas of already existing special management zones, i.e. it is a matter of changing the existing areas, which is why the entire area is included in the calculation of the plotted areas.

38. According to the Environment Agency, the National Audit Office should not have asked for detailed data on the areas of the zones based on the SMI, because the SMI is not suitable for evaluating the detailed distribution of the zones of strictly protected forests (i.e. for finding the surface areas). On the other hand, the Environment Agency is of the opinion that, in a request with such a level of detail, the requester has to:

- define first, on the basis of which definition of "forest" the information is requested, i.e. forest in a broader or narrower sense[40];

For your information

At the end of the audit, the Environment Agency stated that, based on the SMI, the surface area data of the protected areas should not have been submitted to the National Audit Office.

The SMI method allows presenting the sum of the zones of the protected areas, but not the ones that can be added; the numbers given by zone are misleading. The SMI area data depends on how many sample plots fall into an area, and the smaller the area (e.g. strict nature reserve, key habitat), the greater the relative error.

The Environment Agency also pointed out that the ETD and SMI surface area data cannot be compared, as they treat different areas as forests. For example, the SMI area calculation partially includes bogs, which are not counted as forest in the ETD calculation.

[38] According to the Environmental Board's explanations, the Linnusaare Strict Nature Reserve of the Endla Nature Reserve will be abolished and the Linnusaare special management zone will be created in its place, which will be subject to a movement restriction. The current strict nature reserve does not meet the conditions of a strict nature reserve, as the infrastructure necessary for hydrometeorological monitoring is located in the area. In Vilsandi National Park, according to the new conservation regulation, it is planned to create four strict nature reserves instead of the previous five: Laevarahu, Lõuna-Vaika, Nootamaa ja Innarahu. The Metsa permanent observation area's strict nature reserve on Vilsandi Island has been changed to the Jänese special management zone in order to preserve the complex environmental monitoring area.

[39] See Annex B

[40] In the ETD, it is possible to find forest areas in the following two categories:

1) woody vegetation, i.e. the growth area of woody plants, which also includes shrubs, groves, hedges and where the canopy density (i.e. rate of closeness) is less than 30%;

2) "forest" in the narrower sense, i.e. the area where the canopy density of woody plants is at least 30%, but it also includes clear cut areas and young growths. See information about the ETD's forest definition here.

For your information

The National Audit Office organised a meeting of the focus group with the participation of the Ministry of the Environment, Environmental Board, Environment Agency, Land Board, and the State Forest Management Centre, in order to get an answer to the question of which source provides correct and up-to-date information on how much forest there is in Estonia's protected areas with different protection regimes and how much has

- provide the exact data processing methodology to avoid double counting, i.e. which EELIS map layer, in which order and with which cutting to cut, with which method to exclude overlap of areas.

39. The National Audit Office considers that the basic principles of forest statistics must be available at the Environment Agency itself, the basic concepts must be defined, and this cannot be expected from the person making the data request. First, it must be unambiguous and clear for all parties, according to which criteria "forest" is defined. Secondly, the principles of data collection, handling and analysis must be transparent and clear to everyone, so that the surface area data and other analysis related to the topic are reliable. Thirdly, the National Audit Office considers that the calculation of the surface area of the areas should be based on the most accurate map data, including the ETD.

The data submitted to the European Commission about forest habitats in the Natura standard database do not correspond to reality

40. The National Audit Office also wanted to know whether the state updates the data submitted to the European Environment Agency about forest habitats located in Natura areas in the Natura standard database[41]. This database gathers information on forest habitats protected under the Nature Directive and is one of the basic databases for statistical reports for the European Commission.

41. In order to find this out, the Environment Agency took extracts from the Natura standard database and EELIS about the areas of forest habitats in natural areas. It turned out that in the standard database the surface area of the areas is estimated to be both larger and smaller. There are more than 29,000 ha of differences in total. For example, the European Environment Agency has been informed that there are 7,338 ha of old broad-leaved forests in Estonia, but according to the latest data (EELIS), they are about 1/4 less – 5,603 ha. The surface area of western Taïga in need of protection is actually more than we have reported to the standard database (see Table 2).

Table 2. The surface areas of forest habitats in Natura nature areas compared to the Natura standard database and the Estonian Nature Information System (EELIS) (extract of 21/02/2022)

Forest habitat type	Total areas where forest habitats occur			Total surface area of forest habitats (ha)		
	Natura standard database	EELIS	The difference between Natura database's data compared to EELIS	Natura standard database	EELIS	The difference between Natura database's data compared to EELIS
Western Taïga (9010*)	269	305	–36	57,948	67,441	–9,493
Fennoscandian hemiboreal natural old broad-leaved deciduous forests (9020*)	117	132	–15	7,338	5,603	1,735
Fennoscandian herb-rich forests with Picea abies (9050)	151	156	–5	7,411	6,346	1,065
Coniferous forests on, or connected	37	40	–3	3,278	2,496	782

[41] Natura standard database.

to, glaciofluvial eskers (9060)						
Fennoscandian wooded pastures (9070)	72	100	–28	2,124	3,616	–1,492
Fennoscandian deciduous swamp woods (9080*)	219	251	–32	36,577	40,604	–4,027
Tilio-Acerion forests of slopes, screes and ravines (glint forests) (9180*)	21	22	–1	408	472	–64
Bog woodlands (91D0*)	153	165	–12	39,244	49,186	–9,942
Alluvial forests (91E0*)	21	24	–3	3,277	3,837	–560
Riparian mixed forests (91F0)	9	12	–3	714	682	32
TOTAL	**1,069**	**1,207**	**–138**	**158,319**	**180,283**	**–21,964**

* Particularly endangered forest habitats.

Source: Environment Agency

42. Based on the information in the Natura standard database, a decision is made, among other things, on whether to permit the felling of forest habitats in limited management zones.[42] The standard database is also a source of information for the European Commission about how many forest habitats there are and where they are located. Although the National Audit Office had indicated the need to organise the basic data of the forest habitats of the Nature Directive already 15 years ago, it has not been done so far, and the data has not been updated after the prescribed time. The Ministry of the Environment and the Environmental Board use these data despite the shortcomings.

There is no up-to-date information on deforestation

It is not known exactly how much has actually been cut in the protected areas – the estimates given are statistical generalisations and reflect the situation two or more years ago

43. The state must have up-to-date and correct information about deforestation in order to analyse the impact of deforestation. The state does not collect such information about different zones of the protected forests. Felling information is currently available in some form from four sources:

- felling information, which the Environment Agency collects via the SMI, and which provides an overview of the situation 1–6 years ago[43], is a statistical generalisation. In this dataset, felling information is not presented by regimes of protected areas, but for forests in general. The error of the estimates increases as the investigated surface areas decrease (e.g. the surface area of strict nature reserves or key habitats is so small that the error of the estimate can be 100% or more). The Environment Agency compiled the felling information

[42] Guidelines for the organisation and management of value-based protection of forests. Explanatory memorandum. Environmental Board, 2016.

[43] The "Forests 2019" collection, published in 2020, reflects the aggregated results of the data collected between 2013 and 2018.

requested by the National Audit Office (see Annex B), but later recognised it as incorrect;

- the Forest Register contains information about issued felling permits; among other things, felling types, felling volumes, and surface areas are recorded there. However, there is no information on whether, when, and to what extent felling has actually been done as promised. If we want to know, for example, how many bare areas have been created in the protected area, we cannot draw direct conclusions based on the information on felling permits – bare areas can also be created by combining different fellings, which are never reflected in the statistics as clear cutting (see details in paragraphs 125–128, sanitary cutting[44] and bare areas created as a result of other types of felling).

  Finding the necessary felling information is also hindered by the insufficient functionality of the Forest Register – search engines do not allow data sorting or searching for felling permits by protected areas, dates, protection regimes, etc. In order to get more detailed information, an information request has to be submitted to the Environmental Board or open data must be used. Therefore, the possibilities of interested parties to find the necessary felling information are limited;

- Map information about forest changes created using the lidar survey flights of the Land Board (see Figure 8). The data are also partially outdated (up to four years) due to low flight frequency;

- The Environment Agency also has forest loss information at its disposal, which is compiled every year based on satellite images ordered from the Tartu Observatory, and on the basis of which the Environment Agency estimates, among other things, the surface area of clearcut areas. The data reach the Environment Agency yearly in March and are published together with the SMI's results in a generalised form, not by protection regime.

For your information

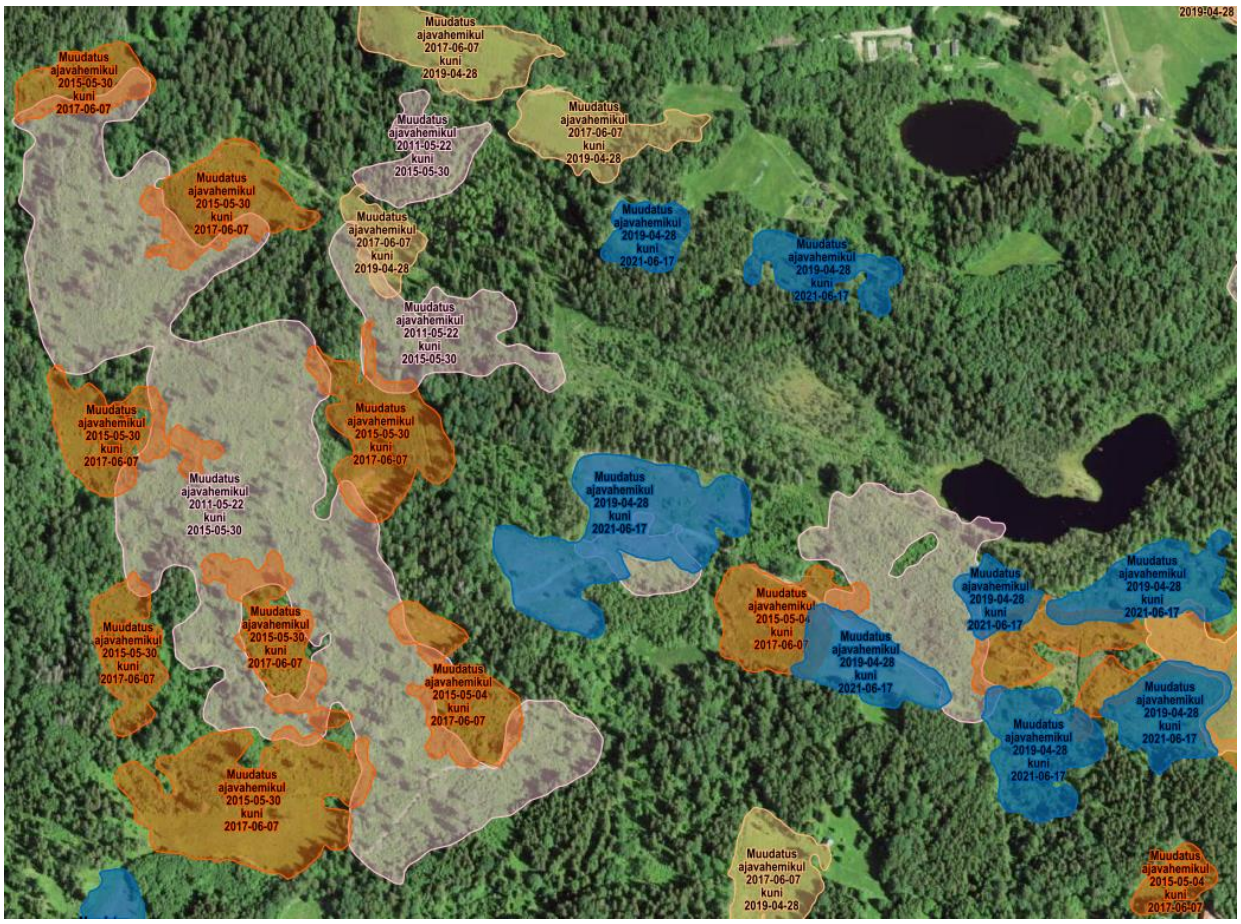
The Environment Agency has analysed felling in the forest habitats of the European Union and found that the state has allowed felling in the forest habitats that need the most protection – forests of the western Taïga type.

Such an analysis has not been done in the protected areas as a whole.

See the Environment Agency's report "Overview of the condition of the Habitats Directive's forest habitats (2013–2018) based on habitat inventories and monitoring data" (2019).

[44] Sanitary cutting is done to remove trees that are a source of infection or breeding pests, or to cut dying or dead trees for use as timber, as long as this does not threaten biodiversity.

Figure 8. The Forest Change Map created on the basis of lidar survey data of the Land Board, where it is possible to see the bare areas created in a Natura area – in the forests of the limited management zone of the Haanja Nature Park – between 2013 and 2021. Different colours on the map indicate the time period when the forest change has taken place



Source: Land Board

The clear cutting statistics do not show the actual bare areas created in the forest

For your information

although the Forest Change Map does not reflect the most recent data (in one year, information is not collected for the whole of Estonia, but only for ¼ of the territory) and the methodology for creating the map does not allow to guarantee absolute accuracy, it is the best map application available to the public for bare areas and, according to the Environment Agency, also appropriate to use.

44. The Land Board analysed forest changes in different zones of protected areas for the National Audit Office. It was identified that the largest bare areas are located in limited management zones, special management zones and coastal areas (see Table 3). In the special management zones, which are under strict protection, bare areas have arisen for several reasons:

- **areas were designated under strict protection after felling** (e.g. areas intended for the protection of fresh boreal forests and fresh boreo-nemoral forests[45], designation of cut limited management zones or other areas as special management zones);
- design felling (including clear felling) has been carried out in the special management zones for the purposes of nature conservation,

[45] The Government of the Republic established new nature reserves with regulation no. 11 of 26/02/2019 "Establishment of nature reserves and the conservation regulation for the protection of fresh boreal forests and fresh boreo-nemoral forests." A significant part of these areas had already been cut. It was decided to designate the cut areas as strictly protected with a future perspective in mind – the areas are suitable and sufficiently extensive habitat sites of old fresh boreal forests and fresh boreo-nemoral forests and will restore their ecological value within the next 80–100 years.

for example for the purpose of restoring the habitat of the species, restoring swamp communities. The analysis of the Land Board based on the data provided by the RMK shows that **a total of approx. 849 ha** of forest land of the special management zones has been **cleared as a result of this type of felling,[46] i.e. 18%** of the area of the bare areas created in the special management zones shown in Table 3;

- bare areas have arisen due to natural causes (e.g. wind break), but the proportion of these areas is small.[47]

45. The data that the Environment Agency forwarded to the National Audit Office and that reflected clear cutting and deforestation in protected areas were many times smaller than the analysis of the Forest Change Map showed (see Table 3). This refers to the fact that bare areas are created in the forest not only as a result of clear-cutting, but also due to other types of felling (e.g. sanitary cutting) and due to the combination of different types of felling, which, however, is not included in the clear-cutting statistics[48] and this must be taken into account when making forest statistics.

For your information

In forest statistics, a map of "forest areas that have become bare" is used to determine the areas of clear cutting, which is prepared by the Tartu Observatory based on satellite images and which is compared with the areas specified in the felling permits allowing clear cutting.

Source: Environment Agency, Forests 2019 (Chapter 3)

For your information

large bare areas are created by combining different types of felling. The picture shows an example of an area of 5.4 ha that has been created on a land unit located in the Tuhala Nature Reserve. 1.9 ha of this is reflected in clear-cutting statistics.

Table 3. Forest changes in protected area zones in 2014–2020*

Type of natural object under protection	Bare areas created in 2014–2020 (Land Board, ha)	According to the Environment Agency, clear cutting and deforestation in 2014–2020 (ha)
Strict nature reserves	13	0
Special management zones	4,738	803
Special management zones for permanent habitats	554	84
Limited management zones	5,320	1,266
Special conservation area	1,013	74
Limited management zones of permanent habitats	884	278
Coastal limited management zone	640	5
Shore limited management zone	19,922	5,514

* The data partly reflects the situation four years ago, and in reality the area of bare areas is larger.

Source: Environment Agency, Land Board

[46] See Annex B for the data provided by the State Forestry Management Centre in the area of nature conservation works carried out in special management zones.

[47] According to the Environment Agency, bare areas have been created on a small scale for natural reasons ("Overview of the condition of the Habitats Directive's forest habitats (2013–2018) based on habitat inventories and monitoring data". Environment Agency, Department of Wildlife, 2019).

[48] The Environment Agency used the same methodology for the fellings assessment as described in the SMI 2019 yearbook, Section 116, Chapter "Origin of felling data." A map of "forest areas that have become bare" has been used to assess clear cutting, which was prepared by the Tartu Observatory based on satellite images at different times and which is compared with the areas indicated on clear-cutting permits.

46. The Ministry of the Environment and the Agency have explained to the National Audit Office that it is best to use the SMI, which, according to the Ministry, is a methodologically reliable data set and gives a generally correct picture for making state decisions and future plans for forestry and nature conservation. The fact that the data is not up-to-date, but with a gap of two years, does not interfere with decision-making or forest management in the protected areas, in the opinion of the Ministry of the Environment or the Environment Agency. According to the Environmental Board, it is not tasked with assessing the effects of felling in protected areas. The information needed to make felling decisions is obtained in the process of issuing felling permits (read more about the summary of the focus group in Annex B).

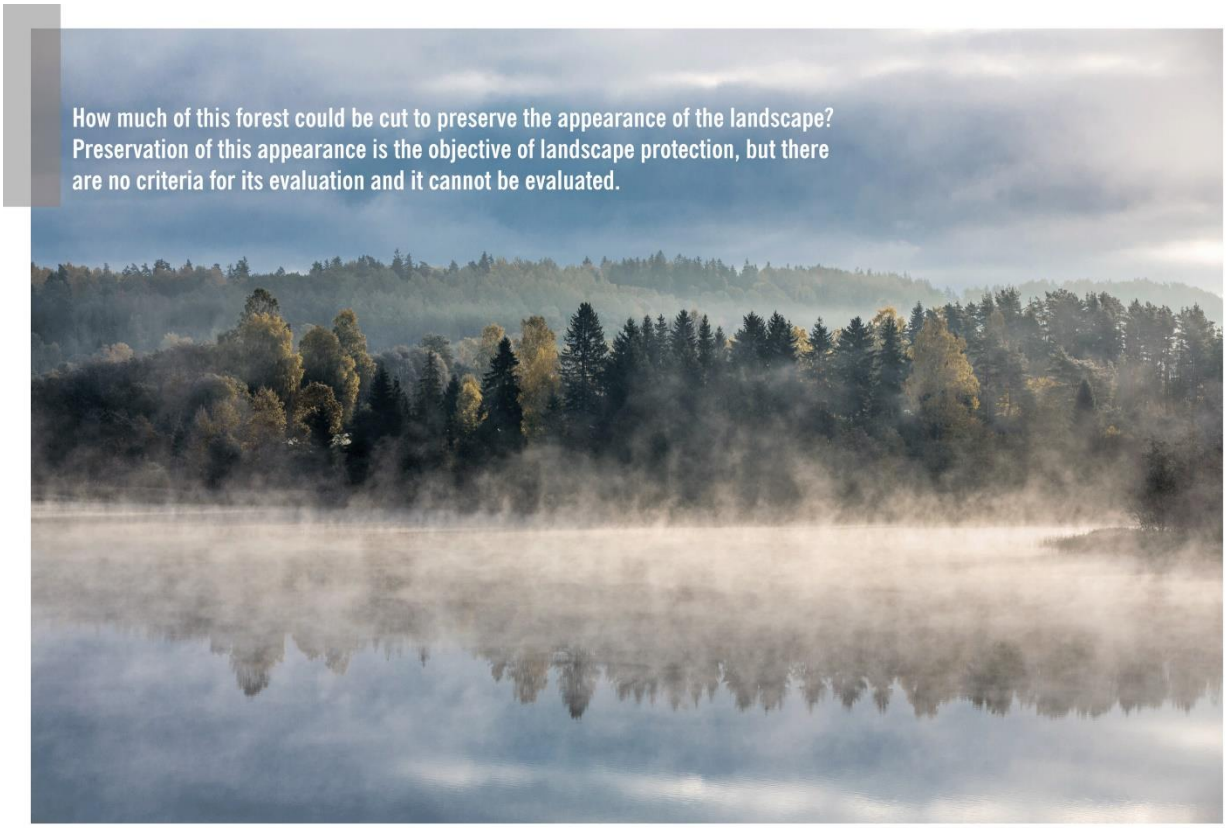
47. According to the Environmental Board's evaluation, it is not necessary to know how much has been cut in one or another zone in a certain period of time, neither for issuing felling permits nor for managing the protected area. The Environmental Board has not analysed whether the felling has a cumulative effect and whether the objectives of the protected area have been damaged, because according to the board, such an obligation has not been imposed on them. The Environmental Board considers maintaining the appearance of the landscape to be particularly difficult, as it largely boils down to aesthetics, i.e. the protection of beauty. However, beauty is in the eye of the beholder, and the profession has no measurable criteria for evaluating it (see Figure 9).

48. According to the Ministry of the Environment, the available felling information is also sufficient because the felling volume of 15 million m^3 per year according to the Forestry Development Plan valid until 2020 has never been reached, and therefore there has been no reason to assess the necessity of stopping fellings. The obligation to collect felling information better does not come from the conservation regulations either. They do not create opportunities or rules on how to comprehensively, at a long date and spatially plan felling activities and thereby avoid the negative interaction of felling on different allotments in limited management zones. Therefore, the Environmental Board considers it justified to make felling decisions based on small units, or allotments.

Allotment – a stand that is uniform in terms of composition, age, height, reserve and habitat site type, where the same type of felling can also be used.

49. According to the RMK, there is also no mechanism in the legislation that would allow fellings to be slowed down even if limits were set for the cumulative volumes of felling in the limited management zones. If an assessment of cumulative felling volume were necessary, faster, more accurate and more up-to-date data should also be available.

Figure 9. According to the Environmental Board, the appearance of the landscape and its preservation cannot be assessed. The photo was taken in the Otepää Nature Park, where the protection objectives are, among other things, the protection of the landscape, the protection of the landscape of environmental and cultural value, the preservation of the scenic beauty of the landscape, and the preservation of the diversity of communities



Source: Photo by Arne Ader, photo editing by Madis Kats

Open data in forestry are data collected by the state that is freely available for everyone to use, reuse and share. The open data used in forestry are data from the national satellite data centre ESTHub, the Forest Register, the Estonian Nature Information System (EELIS), and the geoportal of the Land Board.

https://avaandmed.eesti.ee/datasets?emsId=17&emsId=16&page=2

50. Although, according to the Ministry of Environment, there is no direct need for better felling information, the ministry has tried to improve forest information through remote monitoring. 2018 started with a project[49], the purpose of which was to create an information technology solution in two years, which would enable the preparation of raster maps of the species and height of Estonian woody vegetation, forest reserves and clear cutting on the basis of satellite and lidar data. There was an expectation that by 2020, regularly updated information about forest resources will be ready once a year.

51. According to the Environment Agency, the result did not meet expectations, and it is not possible to predict the completion time of the solution. Since the state does not have felling information, non-governmental organisations and interest groups try to prepare more recent analyses themselves based on open data. However, the Ministry of the Environment considers this situation problematic, as the reliability of the analyses made on the surface of open data is not guaranteed.

[49] The project "Estimating forest resources using remote sensing methods", cost of 420,347 euros.

For your information

NGOs have made several analyses of the volume of felling in protected areas, for example:

- In a survey by the Estonian Fund for Nature and Estwatch and
- In the complaint submitted to the European Commission about the fellings of the Estonian Natura areas.

According to the Ministry of the Environment, this tendency is problematic, as the correctness of the numbers presented may not be guaranteed.

52. **In the opinion of the National Audit Office,** it is important to create assumptions that would allow for a broader assessment of the effects of felling, including the achievement of the protection objectives and the impact of the European Union Habitats Directive on forest habitats. The administrator of the protected area must, among other things, assess the effectiveness of the protection[50], which includes knowledge of fellings and their interactions, and being able to analyse whether and to what extent fellings affect or harm the protection objectives. Whatever the objective is: to preserve the look of the landscape, the habitat of a species or communities. The Environment Agency has not ensured that the methodology of providing data on the fellings of the protected areas is clear and transparent and enables interested parties to receive relevant and reliable information.

53. **Recommendations of the National Audit Office to the Minister of the Environment:**

- In order to get up-to-date information about the use of the protection forests, arrange for the Forest Register to be changed in such a way that the forest owner submits a report on the realisation of felling permits – the time of felling, the amount of wood cut, the size of the cut area. If there are restrictions, conditions or recommendations on felling in the felling permit, request an overview of their implementation.
- In order to simplify and speed up the availability of felling information to interested parties, make public the part of the forest register search engine that is currently restricted for official use. In addition, to create data extracts in the search engine, it is possible to search for data both by protected areas and by their protection regimes.
- In order to ensure more accurate data on the statistics of the surface areas of the protected areas, use the data of the Estonian Topographic Database (ETD) in calculating the surface areas of the protected forests, and not the generalised estimates of the Statistical Forest Inventory (SMI).
- In order to ensure that the European Commission is presented with data that correspond to reality, update the data (including on forest habitats) in the European Union's Natura standard database.

Response of the Minister of the Environment:

- We believe that the creation of various additional data collection solutions is necessary in order to obtain a more accurate overview of the activities that took place in the protected areas. Among other things, it enables assessments of the relevant impact of Natura and assessments of protection effectiveness to be carried out more efficiently than before. An important risk point, when using the proposed solution, is the uneven quality of the data, the increase in bureaucracy and the costs associated with the implementation of the

[50] Regulation No. 47 of the Minister of the Environment No. 47 of 30/09/2020 "Statute of the Environmental Board".

proposal. We can provide an overview of the possible solutions, accompanying effects and the schedule for the implementation of possible negotiable activities by the end of the first quarter of 2023.

- Already today, the search engine makes it possible to make the majority of requests of interest and interested parties have done so. For public and bulk requests, there is the WFS service that allows for both protected area and regime-by-mode requests. All information is also available on nature conservation restrictions (movement restrictions, protected areas, zones, etc.). Currently, the official information is the cause of the damage, the way the notification was received, the status of the notification, and the method of the procedure. The further development of the Forest Register's request system is undoubtedly possible, and we can consider it more precisely in future development projects if there is justified public interest.

- Areas of protected areas are based on EELIS, but statistics on protected areas are currently largely based on the ETD data. The SMI data is used for more general statements – all-Estonian calculations or in cases where there is no specific basic dataset. By the end of the first quarter of 2023, the Ministry of the Environment, together with the Environment Agency, will additionally review which statistical data of the basic data it is possible to change.

- The data will be updated during 2023.

The National Audit Office's comment regarding the use of the WFS service: The WFS service requires the user to have specific knowledge and data analysis skills, including the ability to use geoinformation systems. The National Audit Office's recommendation is aimed at creating greater functionalities of the Forest Register's search engine, so that it can be used, for example, by research institutions, the public, and interest groups.

54. Recommendations of the National Audit Office to the Director General of the Environment Agency:

- Change the software solution of the Estonian Nature Information System (EELIS) in such a way that it will be possible to extract data from the system as easily as possible by regimes of protected areas without overlapping. Ensure that applications intended for publicity and official use of EELIS contain correct and up-to-date data.

- In order to get the right information about the surface areas of the protected areas and to clearly distinguish areas with legal protection from those that are still planned to be protected, to distinguish the surface area data of existing or valid protected areas, special conservation areas and permanent habitats with different protection regimes from areas that are still being plotted. Report both surface areas separately in national statistics.

- In order to ensure that officials, the public and scientific institutions have up-to-date information about the extent of felling in the protected areas, regularly analyse and publish felling information by different regimes of the protected areas. When providing an

overview, use the most recent satellite data (with the help of the Land Board's ESTHub or Tartu Observatory) and/or the Land Board's lidar data.

- To make public the basic data and the data processing methodology of the expert assessment of felling volumes compiled on the basis of Tartu Observatory's satellite images.

Response of the Director General of the Environment Agency:

- The current legal framework allows for the establishment of double protection in areas. Since EELIS contains data on all protected areas, overlapping of data is inevitable. There are no plans to develop the mentioned software solution into EELIS. However, the Environment Agency is currently working on an analytical project related to the data of the EELIS database, during which various outputs intended for both the publicity and official use will be prepared. Including the statistics of the protected areas and their protection regimes, where overlaps between protection regimes have been removed. This ensures that statistics prepared on the basis of the same methodology are constantly available to everyone, and the results do not depend on specialists who may have different knowledge regarding the content and methodology of the datasets. Time of implementation: the first results will be completed during this year (2022). Work is expected to continue in the years 2023–2024.

- On the basis of the lidar data of the Tartu Observatory and the Land Board, it is possible to assess, in particular, areas that have become bare (clear cutting, deforestation, disturbances). Other types of felling are also carried out in the protected areas (formative cutting, severance cutting, sanitary cutting, selective cutting), which are almost impossible to estimate based on these data sources. The analyses are based on the most recent available data. The Environment Agency analyses the compilation of statistics on felling in the protected areas.

  Comment of the National Audit Office: since bare areas in forests also occur as a result of other types of felling, it is important that the methodology used provides an overview of all types of felling and also other circumstances that cause bare areas to occur.

- Both the map layers and the description of the methodology have been distributed to all interested persons. We are considering various options for publishing it.

Knowledge of the condition of the protected forests and the impact of felling

The impact of felling on the ecological condition of forests is not assessed

55. The work of the Ministry of the Environment and its subsidiaries, the Environmental Board and the Environment Agency must provide information on the condition of the forest ecosystem, whether the protection has been effective and the use of forests sustainable. Also, information on how felling in the protected forests affects the Natura

For your information

The following protected areas were analysed in a survey conducted by the Estonian Naturalists' Society (ELUS) commissioned by the National Audit Office:

- the Nabala-Tuhala Nature Reserve and Lahemaa National Park in northern Estonia;
- the Läänemaa Suursoo Landscape Conservation Area and Nõva Nature Reserve in northwestern Estonia;
- the Prählamäe forest drainage object in the neighbourhood of the Pihla-Kaibaldi Nature Reserve on Hiiumaa Island;
- On Saaremaa Island, habitat site KLO9311583 of yew tree (Taxus baccata);
- the Sirtsi Nature Reserve in northeastern Estonia;
- the Otepää Nature Park in southern Estonia;
- Massumetsa Nature Reserve and Kõveri-Ilvese permanent habitat of western capercaillie in southwestern Estonia.

Source: Cases of damage to the natural values. Summary of expert work. Estonian Naturalists' Society, 2021 (see the summary in Annex C and the full text on the website of the National Audit Office).

An overview of the impact of felling on the ecological condition of the protected forests is incomplete

forest habitat types of the European Union, protected species and their habitats.

56. In order to organise protection better, it is necessary to know how much can be cut without jeopardising the achievement of the protection objectives of the protected area, and what should be the rules for felling in protected areas so that nature protection in forests would be effective. The National Audit Office analysed whether the work of the Ministry of the Environment, the Environmental Board and the Environment Agency in creating an overview of the ecological condition of the forest has been effective.

57. The National Audit Office examined together with the Estonian Naturalists' Society (ELUS) ten cases reported in the media, in which scientists or conservationists had determined that natural values had been damaged due to felling. The purpose of the analysis was to assess the circumstances and causes of the problems.

58. The National Audit Office analysed the causes of the situation, at which decision-making stage and which errors occurred, and which deficiencies they indicate in the nature conservation organisation. It turned out that mistakes are made in the protection management of forests at every stage, from taking them under protection to allowing fellings (see the summary of the expert work in Annex C, the full text at www.riigikontroll.ee). Examples of the described expert work are given to explain the problems discussed below (paragraphs 72–138).

59. According to the Environment Agency, there is no cohesive overview of the impact of felling on the ecological condition of protected forests, and the collection of this information has not been deemed necessary.[51] The Environmental Board explained that it is hindered by the lack of a social agreement when assessing the impact, which is why it is not known what ecological condition must be achieved in the forests. Therefore, it is also not possible to develop criteria/metrics on the basis of which to evaluate the impact.

60. In response to the question of where to get information about the ecological condition of forests, the Ministry of the Environment recommended investigating activities during which the condition of an area or species is assessed.[52] However, none of these activities provide a complete overview of the impact of felling on the natural values. The activities include:

- preparing or updating the protection management plan of a protected area or special conservation area;
- updating the conservation regulation;
- drawing up or updating the action plan for the conservation of the species;

[51] Assessment of the state of the forest ecosystem based on long-term national monitoring. Environment Agency, 2019.

[52] Response of the Ministry of the Environment of 16/04/2021 to the National Audit Office's question where to find information about the ecological condition of forests.

- monitoring of wildlife, including various protected species related to the forest;
- evaluation of the red list of species;
- report to the European Commission according to Article 17 of the Habitats Directive and Article 12 of the Birds Directive;
- the change in the distribution of species is also monitored through distribution atlas compilation projects ("Distribution atlas of brooding birds 2018", "Estonian plant distribution atlas 2020", "Day butterfly atlas 2019" etc.).

Environmental monitoring does not assess why the condition of species living in the forest has changed

61. In a survey by the Environment Agency[53] it has been noted that Estonian national monitoring does show changes in the condition of so-called indicator species over time, but in no case is this data collected in order to assess the impact of felling activity or volume on the forest ecosystem. If during the monitoring it becomes clear that the condition of the species has deteriorated, then the monitorers do not have the task of pointing out the causes of the deterioration (e.g. felling).

62. The Environmental Board explained that it is not always possible to determine the reasons for the change in the ecological state of the forest with local observation (e.g. the impact of mines). The SMI provides an overview of the wood reserves of Estonian forests and an estimate of the natural forest's surface area, but does not assess the impact of forest management on the forest as an ecosystem. The SMI methodology is not designed to relate changes to a specific location.

63. The lack of a cohesive overview of the condition of the forests has been known to the Ministry of the Environment for a long time. It has also been stated in the basic survey of the forestry development plan that assessment and survey of the condition of Estonian forests does not provide sufficient information, based on which to assess the multifunctional condition of forests and whether forest management is organised economically.[54]

64. According to the analysis of biological diversity indicators commissioned by the Environment Agency, the general condition of forests is stable or slightly improved, but the condition of forests with high biodiversity has deteriorated. The purpose of the analysis was to assess whether the selected methodologies are suitable for assessing the condition of the forest ecosystem.[55] The work also states the need to analyse monitoring data and harmonise indicators.[56] The Environmental Board confirmed that it has started the creation of a system for evaluating the effectiveness of protection.

[53] Assessment of the state of the forest ecosystem based on long-term national monitoring. Environment Agency, 2019.

[54] "Estonia's Forestry Development Plan until the year 2030" basic research report. 2018. University of Tartu, Estonian University of Life Sciences.

[55] Jaan Liira. Analysis of biodiversity indicators based on different forest monitoring schemes (the SMI and Natura2000 forest habitats). Report. 2020.

[56] Ibid.

Monitoring of the species living in forests indicates deterioration of the condition of the forests

For your information

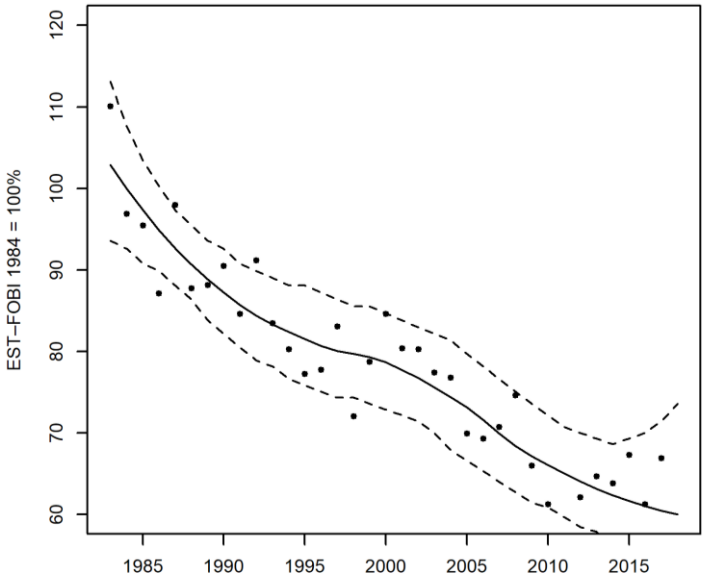
Only one third of Estonian lichen species can live in intensively managed forests.

Source: Piret Lõhmus, Asko Lõhmus. The Potential of Production Forests for Sustaining Lichen Diversity: A Perspective on Sustainable Forest Management. Forests 2019, Volume 10, Issue 12

65. Indirectly, the state of forests can be assessed by monitoring the changes in the situation of the monitored species. Based on species monitoring, it appears that the situation of the forest ecosystem has not improved, and the situation has worsened in terms of several indicators:[57]

- between 1993 and 2017, the occurrence of mechanical damage to pines and spruces, which may be caused by felling, increased;
- between 1983 and 2018, the number of forest birds decreased (see Figure 10);
- out of ten Natura forest habitat types protected in Estonia, the condition of two is poor (western Taïga and deciduous swamp woods), the condition of six is insufficient and the condition of only two is good (see Table 4).[58]

Figure 10. The Estonian forest bird composite index[59] shows the decline of forest birds between 1983 and 2018*



* The combined index covers 51 bird species. The points in the figure represent the mean of forest bird abundance for the corresponding year, the dashed lines the 95% confidence interval of the trend, and the solid line the smoothed trend.[60]

Source: Environment Agency

66. An important reason for the decrease in the numerosity of forest birds can be the decrease in habitats, as also indicated in the study of the

[57] Assessment of the state of the forest ecosystem based on long-term national monitoring. Environment Agency, 2019.

[58] Ibid.

[59] Composite index Est-FOBI.

[60] Assessment of the state of the forest ecosystem based on long-term national monitoring. Environment Agency, 2019.

abundance of forest birds in Estonia.[61] Forest bird habitats are mostly lost as a result of felling.[62]

67. Between 2007 and 2019, the number of three-toed woodpeckers nesting in protected areas and untouched forests decreased by an average of 4.8% per year, i.e. within ten years, the Estonian population decreased by approximately half. As the three-toed woodpecker is more selective about its habitat than other woodpeckers, preferring old spruce stands, its decrease in numbers indicates a deterioration in their situation.[63]

68. Large-scale clear cutting has the greatest impact on the decrease of forest biodiversity, as stated in the Environment Agency's nature conservation yearbook. It also notes that the total surface area and volume of fellings has consistently increased over the last decade.[64]

69. Also, according to the basic survey of the forestry development plan[65], clear-cut forestry is a big problem, as it does not guarantee the viability of all forest species, even in strictly protected areas and preserved trees. The main problem with intensive clear cutting is the development of a uniform stand and the impoverishment of managed forest landscapes.[66]

For your information

the Eurasian three-toed woodpecker is the most spruce-loving of the woodpeckers. Due to its ability to eat bark beetles, it can significantly influence their population. The decline in the number of the three-toed woodpecker contributes to the spread of the bark beetles.

Source: Rein Nellis. The three-toed woodpecker could

More than half of the forests under strict protection are younger than 60 years

For your information

in western Taïga, 2,000 or more mushroom species grow per hectare, while in a mature forest plantation, approximately 20% less. In the natural forest, there is no problem of Heterobasidion (pest fungus), which is a common concern in forest plantations. The reason is seen as a lack of natural balance, which allows pathogens to spread.

Source: Kristina Traks. Is there too little, too much or enough forest in Estonia? – Eesti Mets, March 2021

70. In Estonia, there is little primeval forest that has never been managed, therefore during the establishment of protected areas over time, clear cut areas and young forests have also been taken under protection (see Figure 11). In 2016, it was estimated that, together with the areas that were planned to be protected (so-called plotted areas), by 2020, 37% of the strictly protected forests will be at least 100 years old, and by 2030, 48%.[67] The regeneration of a species-rich forest takes decades, provided that the development of the forest is not disturbed and the surface area under protection is sufficient.

71. If it is assumed that the forest is not felled in these areas, it will take almost another 20 years before at least half of the strictly protected forests are old enough for a species-rich community to develop there.[68] Felling depends primarily on whether these areas are in a special management zone or a limited management zone. In the case of a limited management zone, felling is not excluded (see also paragraph 96).

[61] Renno Nellis, Veljo Volke. Changes in the abundance of forest birds in the period 1983–2018. – Hirundo 2019, 32 (1), 63–80.

[62] Asko Lõhmus. The primary impact of clear cuttings and severance cuttings on breeding birds. – Hirundo 2021, 34 (2), 1–19.

[63] Rein Nellis. The three-toed woodpecker could help against the spruce bark beetle Environment Agency, 16/04/2020.

[64] Estonian nature conservation in 2020. Environment Agency. Page 147.

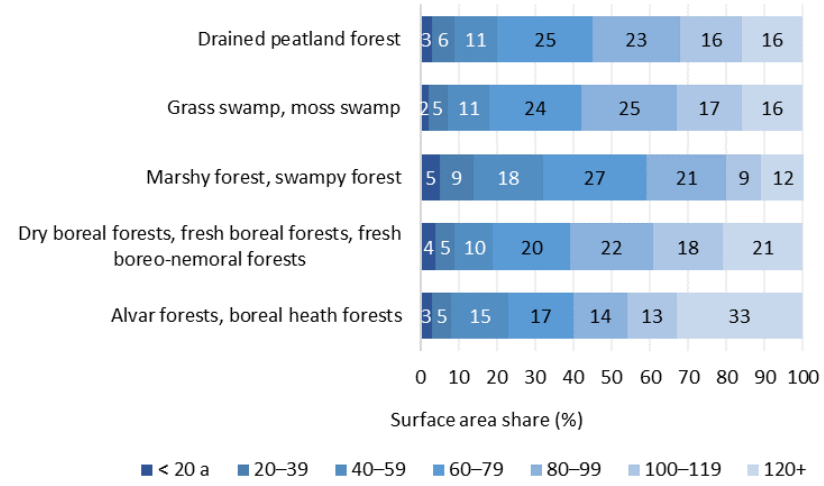
[65] "Estonia's Forestry Development Plan until the year 2030" basic research report. University of Tartu, Estonian University of Life Sciences, 2018.

[66] Ibid.

[67] Asko Lõhmus. Typological analysis of strictly protected forests in Estonia. Report. Ministry of the Environment, 2016.

[68] Ibid.

Figure 11. Distribution of the entity of strictly protected forests according to the age of the dominant tree front (current age) as of November 2015*



* The figure's dataset is based on the following: 198,988 ha of surveyed forest land (excluding 42 ha of stands).

Source: Asko Lõhmus. Typological analysis of strictly protected forests in Estonia. Report. Ministry of the Environment, 2016.

72. The establishment of the Massumetsa Nature Reserve illustrates how valuable forest is felled before being taken under protection and how it is taken under protection after it has been felled. The Environmental Board planned to establish a large protected area in the Ännikse, Jäärumetsa and Massumetsa regions. In 2007, when the Ännikse Nature Reserve and the Jäärumetsa Nature Reserve (NR) were established, the Massumetsa's temporary conservation, established for the creation of the reserve, ended and fellings began there. In 2019, the Massumetsa NR was established to cover forest deficits, which is a special management zone throughout. There, nearly 30% of the forest is younger than 40 years. Figure 12 shows (lighter spots in the green hatched zone) that, already in 2017, a large part of the future protected area was clearcut.[69] Only 4.8% of forest in the Massumetsa protected area is more than 100 years old, and 16.7% is older than 80 years.[70]

The forest deficit is the deficit of the strictly protected forest necessary for the survival of the forest's biodiversity.

73. The Environmental Board explained that the Massumetsa NR was established to cover the forest deficits of the fresh boreal forests and fresh boreo-nemoral forests, and the cut areas located there were deliberately taken under strict protection, because there were no better ones.[71] The Environmental Board noted that the size of the area is also important when creating forest reserves – in the case of an area of less than 100 ha, the effects of neighbouring areas are too massive. Therefore, it was

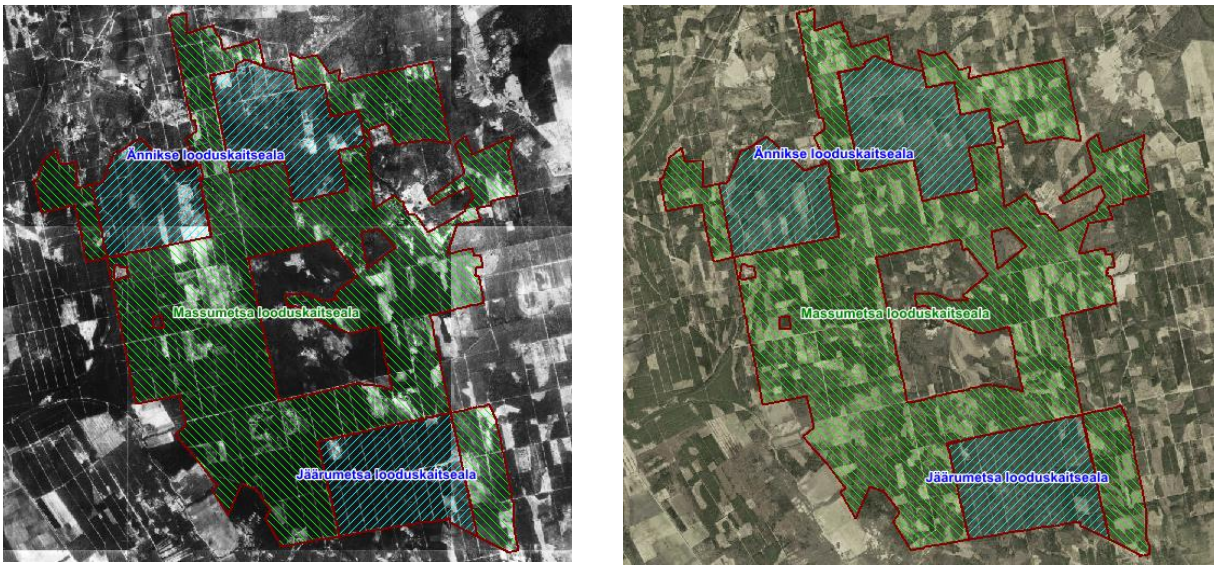
[69] Cases of damage to the natural values. Summary of expert work. Estonian Naturalists' Society, 2021 (see the summary in Annex C and the full text on the website of the National Audit Office).

[70] Assessment of the natural value status of protected fresh boreo-nemoral forests and fresh boreal forests. (Environmental Investment Centre's project No. 16288.) Report. Tartu, 2021.

[71] Asko Lõhmus, Anneli Palo. Possibilities to fulfil the needs of strict protection of fresh boreo-nemoral forests in Estonia. Report to the Environmental Board. 2017.

inevitable that there were also younger forests between cohesive habitat site types.

Figure 12. Establishment of the Massumetsa protected area*



* The first photo is from the turn of the century, the second from 2017. The Ännikse and Jäärumetsa protected areas with blue hatching were established in 2006, and the Massumetsa protected area with green hatching was established in 2019. Darker areas are forest and lighter are bare areas. When comparing the maps, it can be seen that in 2017 there is much less forest in the territory of the future Massumetsa protected area than on the map at the turn of the century.

Source: Environmental register, 2021

74. According to the National Audit Office, the Ministry of the Environment, the Environmental Board and the Environment Agency have not created an overview of the condition of the forest ecosystem and the impact of felling on it.

Felling of Natura forest habitats continued, although their overall condition was assessed as poor

75. The purpose of Natura areas is to preserve or, if necessary, restore the favourable status of endangered species and habitats across Europe. In the case of forest habitats, the biggest possible impact is forest felling, as the habitat is destroyed in the case of clear cutting, for example. The European Environment Agency also sees deforestation and drainage as the main causes of the unfavourable condition of forest habitats.[72] Therefore, before approving a felling permit, the authority should always make sure that the impact of felling on the condition of the forest has been assessed and that there is no risk of damaging a Natura area.

Forests of high ecological value, which are most in need of protection and the condition of which remained insufficient, were allowed to be cut even in the protected areas

76. The state of Natura's forest habitats is assessed on the basis of four different criteria – range (natural area where the forest habitat spreads), surface area, structure and functions (general ecological condition of the habitat, ecological functioning, sufficient presence of species, etc.) and future prospects (what the condition of the forest habitat will be in the

[72] State of nature in the EU. Results from reporting under the nature directives 2013–2018. European Environment Agency report. 10/2020.

future). Each indicator is given a separate condition assessment (see Table 4).

Table 4. Assessment of the condition of Natura forest habitats 2019

Nature Directive code	Description	Range	Surface area	Structure and functions	Future	General assessment 2019	Trend 2019
9010*	Western Taïga	Favourable	Insufficient	Poor	Insufficient	Poor	Unknown
9020*	Fennoscandian hemiboreal natural old broad-leaved deciduous forests	Favourable	Insufficient	Insufficient	Insufficient	Insufficient	Deteriorating
9050	Fennoscandian herb-rich forests with Picea abies	Favourable	Insufficient	Insufficient	Insufficient	Insufficient	Deteriorating
9060	Coniferous forests on glaciofluvial eskers	Favourable	Insufficient	Insufficient	Insufficient	Insufficient	Deteriorating
2180	Forested dunes	Favourable	Favourable	Insufficient	Insufficient	Insufficient	Deteriorating
9080*	Fennoscandian deciduous swamp woods	Favourable	Favourable	Poor	Insufficient	Poor	Stable
9180*	Glint forests	Favourable	Favourable	Favourable	Favourable	Favourable	Stable
91D0*	Bog woodlands	Favourable	Favourable	Insufficient	Insufficient	Insufficient	Stable
91E0*	Alluvial forests	Favourable	Favourable	Favourable	Favourable	Favourable	Stable
91F0	Riparian mixed forests	Favourable	Insufficient	Insufficient	Favourable	Insufficient	Unknown

* Priority types.

Source: Ministry of the Environment

77. The Environment Agency prepared an overview of the condition of forest habitats[73], in which, in addition to the habitats located in Natura areas, those located outside Natura areas were also studied. The review reveals that based on the forest habitat monitoring 2013–2018 sample, the general condition of all forest habitats was assessed as poor, and a negative trend was noted in the general condition of the western Taïga and bog woodlands.

[73] Overview of the condition of the Habitats Directive's forest habitats (2013–2018) based on habitat inventories and monitoring data. Environment Agency, 2019.

For your information

In 2018, the National Audit Office prepared a request for the Environment Agency with the question of what are the relations between deforestation and the condition of the forest ecosystem.

The Environment Agency responded, among other things, that the national monitoring system is not structured in such a way that an answer can be given. In addition, the Environment Agency prepared an overview of the status of the Habitats Directive's forest habitats in the years 2013–2018 based on habitat inventories and monitoring data. The review found that western Taïga of high ecological value is cut the most, and the regime of special conservation areas and limited management zones does not ensure the preservation of forest habitats.

For your information

On 4 February 2022, due to the infringement procedures initiated by the European Commission, the Environmental Board temporarily suspended the issuance of felling permits in the forest habitats located in the protected areas.

When felling is allowed in the Natura areas, its impact is not assessed

78. The condition of the forest habitats is affected by the loss of forests mainly due to felling and natural disturbances (windbreak, fires, etc.). According to the analysis of forest loss satellite monitoring, 3,589 ha of forest has been lost in the Natura forest habitats between 2013 and 2018. In protected areas, 1034 ha of forest habitats have been destroyed in six years. The western Taïga has disappeared the most.[74]

79. The analysis of felling permits (clear cutting and deforestation) showed that the clear cutting and deforestation permits (without overlapping) were issued for a total of 3,582 hectares in protected areas between 2013 and 2018.[75] Since 2015, the issuance of felling permits and the loss of forest habitats have increased significantly.[76]

80. An important reason for the loss of forest habitats in Natura areas is felling, but it must be taken into account that some felling permits remain unused.[77] In addition to felling, the reasons for the poor condition of the forest habitats are also so-called historical, dating back to the establishment of Natura areas. At that time, there were not enough old and coherent forests in good condition to be included in the Natura areas. It was also a problem that the areas were registered as forest habitats based on inaccurate map information, and the condition of the forest habitat could not be checked during the field work.

81. For example, out of 60 sites reviewed during the 2018 forest habitat assessment, 12 were found to not meet the criteria for forest habitat, and 10 sites were found to be registered as some other habitat type.[78]

82. In all the cases selected for the survey commissioned by the National Audit Office, the environmental impact had not been assessed when felling was permitted in Natura areas: In the Nabala-Tuhala Nature Reserve, Otepää Nature Park, Lahemaa National Park, Sirtsi Nature Reserve, Nõva Landscape Conservation Area, Kõveri-Ilvese region's Luitemaa Natura Area, Pihla-Kaibaldi Nature Reserve in the part directly adjacent to the Natura Area (see also paragraphs 96, 110, 112, 117, 128, 130, 136, 160, 163). The Environmental Board explained that the possibility of felling has been assessed during the establishment of the conservation regulations, and the effect of felling is also considered when approving felling permits.

83. The National Audit Office does not agree with the Environmental Board's explanation, as no substantive assessment took place. The European Commission also does not consider the current practice of impact assessment to be sufficient. According to justifications of the infringement procedures initiated against Estonia, the Estonian state has allowed felling in protected areas, without knowing whether it will damage the natural values. The European Commission evaluated the conservation regulations of 217 protected areas in the Natura areas, which

[74] Ibid.

[75] Overview of the condition of the Habitats Directive's forest habitats (2013–2018) based on habitat inventories and monitoring data. Environment Agency, 2019.

[76] Ibid.

[77] Ibid.

[78] Anneli Palo. Nature diversity monitoring program. Monitoring of forest habitats of the Habitats Directive. 2018.

For your information

According to the Nature Directive of the European Union, it is stipulated that for all activities that may damage the values protected in the Natura areas, their effects must be assessed. If a harmful effect cannot be excluded, such felling must not be permitted.

§ 32 of the Nature Conservation Act prohibits felling in the special conservation area if it can damage the structure and functions of the protected habitat and endanger the preservation of species typical of the habitat. If it is possible to organise felling, then, according to § 32 of the Nature Conservation Act, the terms and conditions must be set (e.g. the time of felling).

allow the felling of forests for economic reasons, without knowing how this affects the ecosystem of the area being cut.

84. The European Commission states in its notice of infringement procedures[79], that the Estonian legislation (including the conservation regulations) that regulates what is happening in Natura areas often contains sections on forest felling and other economic activities that can damage the protected area and to which the provisions of the Habitats Directive and the Strategic Environmental Impact Assessment Directive should therefore be applied.

85. On 4 February 2022, felling in the Natura habitats was suspended for up to 28 months, until a procedure for assessing the impact of felling in these locations is developed. The Ministry of the Environment explained that the plan is to amend the Nature Protection Act and prohibit felling of forest habitats in Natura areas for economic purposes. The National Audit Office is of the opinion that it is necessary to analyse whether stopping the felling only in habitats is sufficient to achieve a good condition, because according to the Nature Directive, the entire Natura area must be protected.

For the Ministry of the Environment, it is not clear how much, where and how the habitats and species listed in the European Union's Nature Directive and the Birds Directive should be protected

86. According to the explanation of the Ministry of the Environment and the Environmental Board, the Nature Directive does not oblige to protect forest habitats throughout the country, since there is a sufficient number of areas in the special management zones (where fellings are mostly prohibited) to meet the requirements of the directive. The Ministry of the Environment is of the opinion that it will only become clear in the course of further infringement procedures whether Estonia should assess the impact of felling in all protected forest habitats or Natura areas more broadly. This, in turn, depends on how extensively felling must be limited in the future and how difficult it will be to assess the impact of felling in the Natura areas.

87. Neither the Ministry of the Environment nor the Environmental Board agree with the view that the state has not assessed the impact of felling on the condition of the forest habitats and the area as a whole. According to them, the impact of felling has essentially been assessed as part of the drawing up the conservation regulations, although this was not done in accordance with the environmental impact assessment procedures. Corresponding valuation reports have not been submitted to the National Audit Office.

88. **In the opinion of the National Audit Office,** for the sake of clarity, it is necessary for the Ministry of the Environment and the Environmental Board to clearly define where and what exactly must be protected in Natura areas. So far, environmental impact assessments have not been carried out for the felling of Natura areas, and there is no understanding whether the impact should be assessed for each area separately or for a larger area.

89. **The National Audit Office's recommendation to the Minister of the Environment:** in order to contribute to the achievement of a favourable condition of Natura habitats of pan-European importance, analyse what measures are sufficient to ensure the good condition of the

[79] June anti-infringement package: key decisions. European Commission – Decisions on infringements. 09/06/2021.

forest habitats in Natura areas. If necessary, initiate changes to legislation.

Response of the Minister of the Environment: The Ministry of the Environment cannot agree with the assessment that there is no clarity where and what should be protected in the Natura areas. The protection objectives of each area are fixed, and there are also documents that plan activities to achieve these goals (conservation regulations, protection management plans and action plans, manuals). But we can agree that the dataset used to make decisions could always be more comprehensive and versatile. To this end, we are planning further surveys and inventories on an ongoing basis and have initiated a wider process to review and improve the Protection Performance Assessment System.

The Ministry of the Environment has initiated a draft amendment to the Nature Protection Act, according to which all fellings for economic purposes will be prohibited in the forest habitats of Annex I of the Nature Directive that remain in Natura areas. The current wording of the draft is as follows: "Felling is prohibited in the limited management zone of the protected area and permanent habitat of the Natura 2000 network and in the special conservation area, with the exception of felling to avoid a direct threat to human life and property, formative cutting to achieve the protection objective, and felling in the case provided for in § 40 (2) of the Forest Act to prevent forest damage and to prevent its spread, in the following forest habitat types specified in Annex I of Council Directive 92/43/EEC: dune forests, western Taïga, old broad-leaved forests, spruce stands rich in grasses, coniferous forests on glaciofluvial eskers, deciduous swamp woods, forests of slopes, screes and ravines, bog woodlands, alluvial forests and riparian mixed forests." In addition, we are preparing a separate protection management plan for the forest habitats in the so-called Natura 2000 areas, which summarises the corresponding protection objectives of Natura areas and also their impact factors. An EIA will be prepared for this plan to determine the effects. This answers the question to what extent activities outside habitats are permitted and whether and what additional regulations are necessary. The plan will be completed by the end of 2023.

Comment of the National Audit Office: During the audit, the Ministry of the Environment explained that conservation activities should be planned in the Natura habitat, and not in the Natura area as a whole. Based on the EU Nature Directive and the decisions of the European Court of Justice, the obligation to protect applies to the entire Natura area, unless it is proven by inventories that there is no habitat in the area or that it does not affect the protection of the area's habitat. Since the locations of the habitats are not all known and the inventories have mostly been made only in special management zones, it is important to ensure protection throughout the entire Natura area by making felling decisions based only on the inventory data or by assessing separately for each decision whether felling can damage the habitat or the species.

90. **Recommendation of the National Audit Office to the Director General of the Environmental Board:** to make sure that the impact of felling on the natural values of a specific allotment has been assessed at some stage of the procedure before confirming the felling permit.

Response of the Director General of the Environmental Board: In protected areas, the Environmental Board issues a forest notification as a discretionary decision. This process assesses how the proposed felling will affect conservation values, and if there is a negative impact, felling will not be permitted. Thus, we have assessed the impact of felling in the protected areas. We admit that the discretionary decision does not meet the requirements of the EIA/ESP process established in the current legal space, but it would also be disproportionately burdensome for both the landowner and the Environmental Board for the purpose of one forest notification.

The Ministry of the Environment is preparing to supplement and amend the regulations of the Nature Conservation Act (hereafter NCA) and the Environmental Impact Assessment and Environmental Management System Act (hereafter EIAEMSA), which will result in the possibility of a separate Natura impact assessment. The Natura impact assessment procedure (preliminary assessment, appropriate assessment, making an exception) will be included in the Nature Conservation Act. This simplifies the impact assessment for the Natura 2000 sites.

In parallel, the Environmental Board is preparing a protection management plan for the Natura 2000 forest habitats by the end of 2023, which includes a description of protective measures and implementation principles for forest management in protected areas. The strategic environmental impacts assessment is carried out on the protection management plan, within the framework of which the cumulative impact of standard situations and fellings is assessed, which would not be possible by the assessment of individual notifications. At the same time, we have taken into account that in more specific cases the impact must still be assessed in the forest notification procedure as part of the Natura impact assessment.

On 7 February 2022, the Environmental Board submitted a proposal in accordance with § 8 of the NCA by letter No. 7-4/22/2442 for the strict protection of the forest habitat types of Directive 92/43/EEC located in the limited management zones of protected areas and permanent habitats in Natura 2000 areas. In essence, this means that no forest habitat can be directly damaged in the Natura area today. This does not exclude indirect effects that may result from felling in the vicinity of habitats, which may be accompanied by an edge effect and loss of coherence, but we find that these effects are not so extensive and intense, and would be accompanied by partial or complete irreversible destruction of forest habitats. According to the opinion of the Supreme Court (administrative case 3-17-740/46), every activity whose intensity and extent of harmful effects is very small should not be treated as damage to the protected habitat, which cannot be allowed by the administrator of the natural object. A negative impact on the cohesiveness of the site must be avoided.

Considering today's measures implemented for the protection of forest habitats (zoning of forest habitats in the special management zone, the mentioned proposal for protection), we consider that possible significant impacts have been minimised.

Comment of the National Audit Office: In the opinion of the National Audit Office, the currently valid measures are not sufficient, and until now, the impact of the felling of protection forests on the condition of the

habitat has not been determined (see paragraphs 59–63). The decision of the Supreme Court referred to by the Ministry of the Environment also emphasised that the impacts should be assessed before the decision to cut is made.

91. **Recommendation of the National Audit Office to the Director General of the Environment Agency:** Assess the impact of forest felling on the condition of protected forests within the framework of environmental monitoring. Also develop indicators to monitor the long-term impact of felling on forest communities. This allows decision-makers to be given the necessary information to assess the success of nature conservation activities in protected areas and to take into account the impact of fellings in environmental protection and fellings planning.

Response of the Director General of the Environment Agency: Monitoring consists of long-term monitoring of different species and habitats. Based on this dataset, various analyses can be made and causal relationships of trends can be looked for. Since the annual monitoring sample for different habitats is small, it does not make sense to prepare such an analysis every year, but it can be performed if there is a sufficient data set – for example, at the end of the monitoring cycle (6 years). The so-called third monitoring cycle is currently underway. I agree that it is necessary to deal more vigorously with the development of indicators. The purpose of the monitoring is currently to assess the all-Estonian condition, the use of monitoring data in the planning of fellings in a specific location is not very informative at the moment, but more general policy-making can be done based on the monitoring data.

National environmental monitoring is primarily focused on obtaining a general overview of the condition of the country's environment (so-called background monitoring) and its long-term changes on the basis of certain selected indicators, in order to ensure long-term time series based on the same methodology, which provide background data for the interpretation of shorter-term changes, including the explanation of the extent and significance of various disturbances and human impact.

Clarifying the causes of the deterioration of the environment condition requires an analysis based on specific methodology and research principles. In most cases, it also requires years of data collection, including the factors with which the relationships are to be evaluated, so as not to draw erroneous conclusions based on individual, non-representative data. Without such a long-term data set and the analysis of various influencing factors, the person performing the monitoring work would say the reason for the deterioration of the condition based on personal opinion, which is subjective and not scientifically verifiable. We agree with the part of the recommendation that it is necessary to develop indicators/methodology to assess the long-term impact of felling on forest communities. We also agree that with the discussion of the problem of felling in the public debate, the need for such data collection and analysis by the state has been emerging more and more. At the same time, it requires consideration in cooperation with the Ministry of the Environment, in what form this monitoring should be carried out and where it is possible to find funding for additional monitoring. In cooperation with the Ministry of the Environment, we are already considering expanding the scope of the Environmental Monitoring Act to

include monitoring of pressure factors and resource monitoring (e.g. monitoring of fish stocks, game monitoring, etc.).

Purpose and protection of limited management zones

The natural values have been damaged in the limited management zones

92. According to the European Union Nature Directive, the favourable condition of the habitats must be ensured, and this must also be the basis for organising felling in the forest habitats. The Forest Act primarily deals with the regulation of forest management; the regulation of forest protection is left to the Nature Conservation Act. There are no special provisions for forest management in the protected areas in the Forest Act. If the Forest Act simplifies the organisation of felling in so-called normal forests, the requirements for felling protected areas will also be simplified.

93. The Forest Act has been amended several times since 2007, when it came into force. Until 01/01/2009, according to the Forest Act, forests were divided into conservation, protection and commercial forests, the purpose of which were to preserve natural objects, protect the environment and obtain economic income, respectively. As of 2009, the concepts of protection forests, conservation forest and commercial forest were abolished, and the provision of nature conservation restrictions was left in the Nature Conservation Act.

For your information

The conservation regulations are established when the protected area is created. In these documents, the long-term protection objectives are formulated.

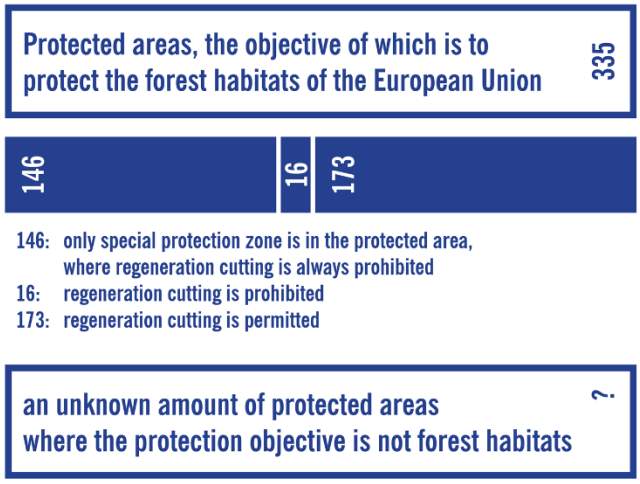
94. As a result of the amendments to the Forest Act, there is no significant difference in the management of the normal commercial forest and the forest in the limited management zone of the protected area. According to § 31 of the Nature Conservation Act, clear cutting is prohibited in the limited management zone, but there is an opportunity to allow clear cutting under the conservation regulations.

The natural values have been damaged in the limited management zone

95. The natural resources in the target protection zones of the nature reserves are not considered as a consumption reserve and no economic activity takes place there.[80] The prohibition of the Nature Conservation Act not to carry out clear cutting in the limited management zones of protected areas has not always been able to protect the forest habitats belonging to the latter. In many cases, the restrictions based on the objectives of the protected area have not been set by the conservation regulations on the limited management zone of the nature reserve (see also Figure 13).

[80] Nature Conservation Act, § 30.

Figure 13. Allowing clear cutting in protected areas



Source: National Audit Office of the Environmental Board based on data of 15/11/2021, design by Madis Kats

96. Examples of how forest felling has damaged protected values in the limited management zone:[81]

- In the Natura forest habitats of the limited management zones of the Otepää Nature Park, a total of 115 ha were cut in the years 2014–2019 according to the Forest Change Map layers of the Land Board. In the case of these fellings, no restrictions were set in the habitats of the protected species (e.g. on the type or extent of felling);

- 19.8% of the forests in the limited management zone of the Nabala-Tuhala Nature Reserve's[82] have been clearcut in the last ten years[83] (see Figure 14). Some of the fellings had already taken place earlier, but the fellings did not end with the establishment of the protected area in 2014. The total surface area of the largest area clearcut by different methods in the limited management zone is 55 ha (the total surface area of the bordering felling blocks). Creating such a large bare area is against the protection objective of the forest habitats, as the former habitats and biota will not recover even within decades.

97. The Environmental Board explained that the habitats that form larger ranges and conservation of which is prospective are zoned in the special management zone. Generally, smaller and separate habitat fragments are left in the limited management zones, the protection of which does not have such an effect. The goal of the Environmental Board has not been the preservation of all habitat patches in limited management zones, which is why forest habitats have not been set as the protection objectives for limited management zones. According to the Environmental Board, in the case of limited management zones, it is more important to preserve

[81] Descriptions of cases of damage to nature conservation values. Expert work. Estonian Naturalists' Society, 2021.

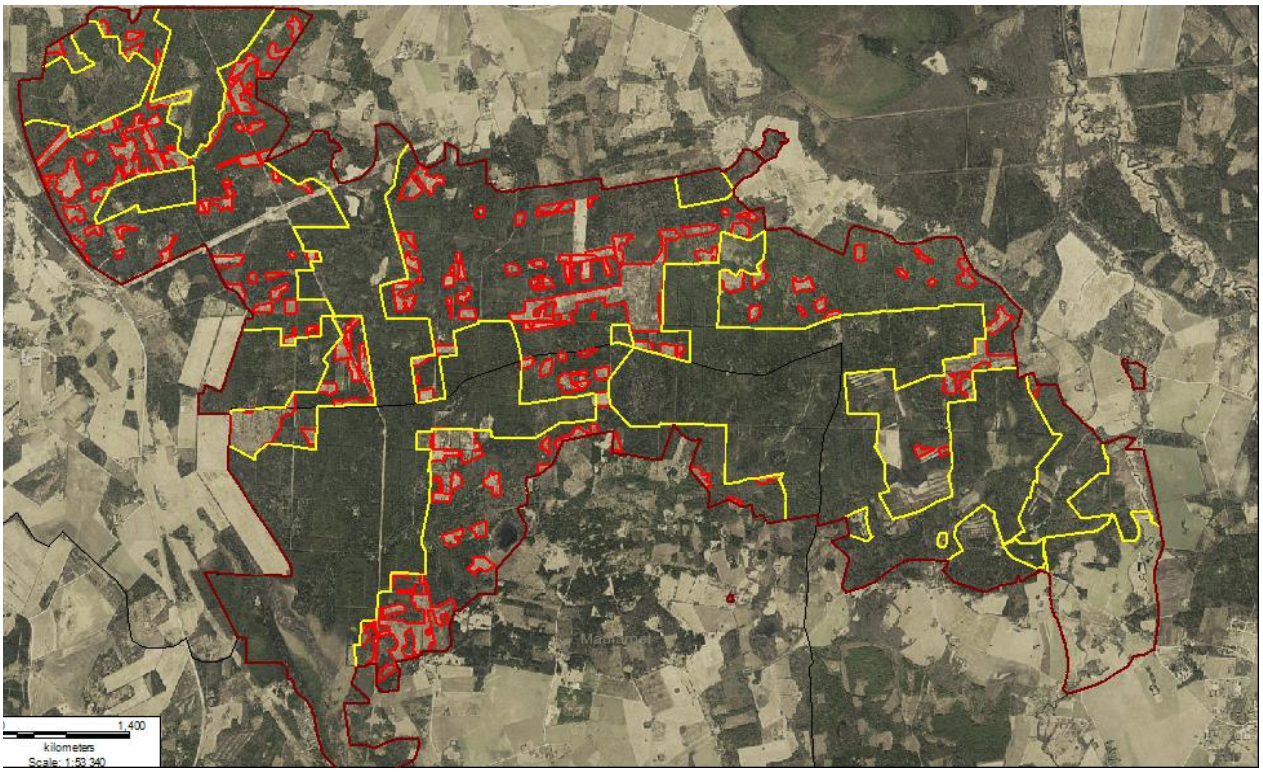
[82] The size of the protected area is 4,628.7 ha, of which 2,147.8 ha is the special management zone and 2,480.9 ha is the limited management zone.

[83] The protected area was established in 2014, but a temporary felling ban was already in effect before that.

the appearance of the landscape and the species, structural and age diversity of the forest community.

98. Limited management zones are an important buffer in the protection of special management zones, and therefore large-scale fellings are not justified there. Extensive fellings in the limited management zone also begin to affect the condition of the special management zone if bare areas are immediately adjacent to it (see Figure 14).[84] In order to preserve the protected values, when planning fellings, it is important to avoid felling in blocks close to each other at the same time.

Figure 14. Cleacut areas in the limited management zone of the Nabala-Tuhala Nature Reserve*



* The clearcut area is marked with a red outline. The yellow line is the special management zone and the brown line is the boundary of the protected area. You can see the number of cut areas and the fact that a large part of them are located close to each other.

Source: The basic map of the Land Board

When the conservation regulations were changed, felling restrictions were eased

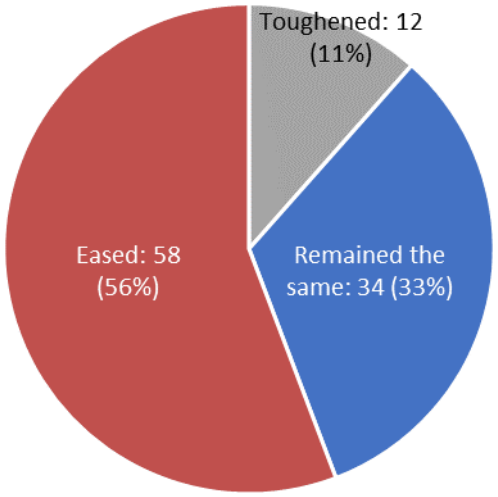
99. After the amendment of the Forest Act, the conservation regulations have been changed, allowing more lenient felling conditions. In the only survey to date of changes in the conservation regulations, it was found that 56% of the conservation regulations have been changed to allow forest felling where it was not allowed before.[85] The survey included 104 Natura forest habitats' conservation regulations that had been amended between 2011 and 2020 or that had been adopted after 2010 (in this case they were compared with the so-called standard conditions). The

[84] "Estonia's Forestry Development Plan until the year 2030" basic research report. Estonian University of Life Sciences, University of Tartu, 2018.

[85] How well are protected forests of high natural value maintained? Changes in felling activities and felling restrictions of protected forest habitats belonging to the Natura 2000 network. Estonian Fund for Nature, Estwatch, 2021.

remaining 144 conservation regulations were excluded from the survey because they were not changed between 2011 and 2020 (see Figure 15).

Figure 15. Natural areas with forest habitats, in which the conservation regulations have changed or where felling restrictions have remained the same compared to the previous regulation or the 2010 standard conditions



Source: How well are protected forests of high natural value maintained? Changes in felling activities and felling restrictions of protected forest habitats belonging to the Natura 2000 network. Estonian Fund for Nature, Estwatch, 2021

100. The conservation regulations of Otepää Nature Park and Lahemaa National Park, included in the survey commissioned by the National Audit Office, were also changed and the ban on clear cutting was abolished.[86] The Environmental Board explained that in response to the wishes of the owners of private forests, felling restrictions have been eased in several places in the limited management zone, but at the same time, several areas of the limited management zone have been included in the special management zone, and the maturity age of clear cutting in the limited management zone has been raised and the surface areal limit has been set. The National Audit Office notes that, despite this, it is possible to cut habitats that are in the limited management zone.

Management as a selection forest is not common

101. Instead of clear cutting, it is possible to manage protected forests using selection forestry techniques, which have a lower impact on the ecosystem.[87] Selective felling is described in the Forest Act as a felling method suitable for selection forestry, in which individual trees or small tree selections are felled, the diameter of which can be up to half the height of the stand. In a forest managed with the selection forestry techniques, the trees are of different ages (see Figure 16).

[86] Descriptions of cases of damage to nature conservation values. Expert work. Estonian Naturalists' Society, 2021.

[87] Olavi Laiho, Erkki Lähde, Timo Pukkala. Uneven- vs even-aged management in Finnish boreal forests. Forestry, Vol. 84, No. 5, 2011. doi:10.1093/forestry/cpr032

For your information

selection forestry is the continuous replacement of cut or sheared trees with new trees that are natural to the habitat site.

Source: Forest Act, § 28 (8)

102. In Central Europe, selection forests, as an opportunity for close-to-natural forestry that avoids clear cutting, have gained great popularity in recent decades, but in 2002, knowledge about this was still scarce in Estonia.[88] The situation has not changed much. In Estonia, selective fellings account for 3% of all fellings, and there are many unsolved issues.[89] For example, failed selective logging can contribute to storm damage. Also, when managing as a selection forest, the amount of wood that can be obtained at one time is small, and therefore the income from one felling is also lower. At the same time, since in the case of a selection forest it is possible to repeatedly cut the same forest felling block over a long period of time, it guarantees a constant income for the forest owner. A survey based on long-term data of forests in southern Finland showed that more wood is obtained from selection forests.[90]

Figure 16. A forest in Võrumaa that has been managed as a selection forest for decades

Photo: National Audit Office

For your information

According to the conservation regulations of the **Otepää Nature Park**, it is allowed to manage the forest only as a selection forest in the coniferous forests on, or connected to, eskers and moraine piles.

103. The requirement of selection forestry rarely appears in the conservation regulations of nature reserves. The Environmental Board indicated that they treat the ban on clear cutting essentially as selection forestry. clear cutting is prohibited in 16 out of 189 limited management zones of the protected area with forest communities. In addition, clear cutting is prohibited in 146 protected areas with only a special management zone (see Figure 13).

104. With selection forestry techniques, the private forest owner can also earn income by managing the selection forest. Bringing the concept of selection forestry into the Forest Act creates the possibility to make management as a selection forest a condition, for example, in the conservation regulations of protected forests, but this is still not common and there are no encouraging activities to subsidise the selection forest (e.g. information campaigns, information days, mentoring).

105. **According to the National Audit Office,** as a result of the easing of protection conditions, the limited management zones have not been able to function as buffer zones protecting the special management zone. If the forests in the limited management zones were managed more

[88] Hardi Tullus. Are selective fellings and selection forests suitable for Estonia? – Eesti Mets, No. 3, 2002.

[89] Liina Remm, Liis Kuresoo, Mihkel Rünkla (compilers). Guide to selection forestry 2020.

[90] Olavi Laiho, Erkki Lähde, Timo Pukkala. Uneven- vs even-aged management in Finnish boreal forests. Forestry, Vol. 84, No. 5, 2011. doi:10.1093/forestry/cpr032

economically, there would be no need to constantly increase the surface area of the special management zone.

106. **Recommendations of the National Audit Office to the Minister of the Environment:** In order to motivate forest owners to manage naturally valuable forests as selection forests,

- carry out surveys to develop the most suitable selection forestry techniques in the Estonian areas;
- develop subsidy measures that would encourage forest management as a selection forest.

Response of the Minister of the Environment:

- When developing selection forestry techniques, it is necessary to make sure whether, under which conditions and in which types of forest habitat sites the use of selection forestry techniques works in the best way. Even today, the Forest Act allows forests to be managed as selection forests, using selective cutting, but for various reasons forest owners have used it little. Among other things, the Forestry Act was amended in 2017 to encourage the use of alternative felling types to clear cutting – i.e. shelterwood cutting and selective cutting – by easing the restrictions on them. At the Estonian University of Life Sciences, the possibilities of using selection forestry in modern conditions have already been partially studied, but the development of the most suitable selection forestry techniques still requires time- and resource-intensive surveys. Surveys concerning selection forestry have been launched, among others, by the RMK. Surveys concerning selection forestry and finding out the conditions for the use of selection forestry have been included in the "Forestry Development Plan until 2030" draft.
- The Ministry of the Environment basically agrees with the proposal. Carrying out additional surveys is always possible if there are sufficient funds. It is also possible, if funds are available, to implement additional subsidy measures in places where it is effective. We explain that the Ministry of the Environment has launched the LIFE IP project, one of the objectives of which is the analysis of the current state of the private forest subsidies system and the development of possible changes/improvements. The "Forestry Development Plan until 2030" draft also states: "Research projects will be initiated to find out the impact of selective cutting on the forest ecosystem, and wider implementation will be encouraged among forest owners who aim to manage their forests as a selection forest (among other things, legislation will be amended and ways to collect and analyse statistics will be developed)."

Fellings in the protected forests

Errors in the establishment of the protected areas have allowed large-scale fellings

For your information

protected areas are areas that are kept untouched by human activity or are used according to special requirements and where nature is preserved, protected, restored, studied or introduced (Nature Conservation Act, § 4).

These tasks are also related to several international obligations arising from the European Union's Nature Directive and the Birds Directive and the Convention on Biological Diversity.

107. Protected areas must be established in such a way that all natural values are inventoried and there is enough information to organise protection as well as to plan suitable fellings in the managed part of the limited management zone. An overview of the establishment and organisation of protected areas is given in Figure 17, and the protection measures are in the table in Annex A.

Figure 17. Creation and management of the protected area

Source: National Audit Office, design by Madis Kats

Failure to take environmental considerations into account when establishing a protected area leads to damage to the natural values

108. During the establishment of protected areas, experts are ordered to draw up inventories and opinions, in which the natural values of the investigated area are identified and recommendations are given for the organization of protection. The analysis of the National Audit Office showed that, when the opinion of environmental experts is not taken into account, it is not always essentially justified why the area was refused to be taken under protection.

109. For example, the Environmental Board deleted the proposal for protection of the Kõveri-Ilvese region already entered in the environmental register. It was based on a letter from the Deputy Chancellor of the Ministry of the Environment[91]. Nature Conservation Act §§ 8 and 9, which regulate the procedure for the proposal to be taken under protection, do not provide for the possibility of deleting such a

[91] Marku Lamp. Letter No. 1-4/19/3547 to the Environment Agency, Environmental Board, State Forest Management Centre. 21/06/2019.

proposal from the register. Based on the letter, the size of the protected area was reduced to 1,039 hectares, which was seven times smaller than the experts' proposal. The Environmental Board did not sufficiently justify not taking into account the experts' opinion. The decision was followed by drainage works and fellings in the unprotected area, thereby harming the population of a protected species of category II – western capercaillie.

110. Failure to consider the opinion of experts was not justified in the following cases either[92]:

- In the Nabala-Tuhala conservation regulation, felllings are allowed in larger areas than the experts recommended, clear cutting can be 2 ha instead of 1 ha, and shelterwood cutting can be 5 ha. Also, the Nabala-Tuhala conservation regulation does not address the cumulative impact of fellings. The Environmental Board stated that the clear cutting area was increased as a result of the public discussion of the conservation regulation, because the forest owners wanted to cut more.

- The expert assessment recommended in Otepää Nature Park[93] to prohibit clear cutting in the limited management zones, but this recommendation was not taken into account. The Environmental Board's preliminary assessment of the conservation regulation also showed that, in the case of clear cutting, the cutting speed of old forests depends on the size of the permitted felling block, but it was found that there is still enough old forest in the limited management zone.[94] In the analysis of the Environmental Board after the establishment of the conservation regulation, it is noted that in 2017, about 90 ha of old forest habitats were destroyed in Otepää Nature Park as a result of clear cutting (including strip felling and the last stage of gradual felling).[95]

Delay with the establishment of a protected area leaves valuable areas unprotected

111. If the protection of natural values is justified, then their protection must be organised[96], for this purpose, for example, a nature reserve or landscape conservation area or a permanent habitat can be established. Many problems are related to the long delay in the establishment of the protected area. If the protected area is not established, there is no conservation regulation or protection management plan, and therefore the risk of errors is greater.

[92] Descriptions of cases of damage to nature conservation values. Expert work. Estonian Naturalists' Society, 2021.

[93] Eerik Leibak and Uudo Timm. Expert assessment of the draft conservation regulation and zoning of the Otepää Nature Park. 2011.

[94] Tarmo Evestus. Analysis of the forest management of the draft conservation regulation of Otepää Nature Park and the preservation of the proportion of old forest according to the Forest Register. 2015.

[95] Tarmo Evestus. Fellings in the Otepää Nature Park in the light of a new conservation regulation. 2018.

[96] Nature Conservation Act, § 8 (5).

112. Examples of cases where the delay in organising protection has caused the deterioration of the protected area condition[97]:

- For example, the action plan for the protection of category II protected species – yew trees – was not approved for a long time[98] and the establishment of a permanent residence in Saaremaa lasted more than ten years. Since the felling permit was mistakenly approved not by an official, but by a computer program, felling was allowed in the permanent habitat of the yew tree without setting any conditions. Approximately 100 yew trees were destroyed as a result of felling. The fact that there was no action plan for the protection of the species and no permanent habitat had been established probably contributed to the error.[99]

- On the Ülejõe land unit (Nabala-Tuhala NR), a felling permit was mistakenly approved without restrictions, even though there is a Natura area there. In the cover letter of the felling permit, the presence of habitat type 9050 (herb-rich spruce stands) is not considered a protection objective, and it was stated about allotment No. 5 located in the nature area as follows: "Forest habitat types specified in Annex I of the EC Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora have not been inventoried in the felled area." This information is not correct, as the habitat type 9050 is indicated on allotments No. 4 and 5 in the environmental register. Also, the cover letter of the issued felling permit did not state that the area contains the lady's-slipper orchid (Cypripedium calceolus) being a protection objective. As a result of felling, the light conditions have changed and there is a risk that the lady's-slipper orchid habitat will be destroyed.[100]

- The delay in updating the action plan has also worsened the situation of the natural values. In the Prähklamäe region, which is located right next to the Pihla-Kaibaldi Nature Reserve, an action plan for the protection and management of mink was in force between 2010 and 2014. The action plan has not been updated. The lack of an action plan affected the approval of a large-scale drainage project in the area on 600 hectares, where an old forest that had not been managed for nearly 80 years grew. Drainage was accompanied by felling in 2019–2020 and a change in the water regime of the Pihla-Kaibaldi protected forests in the Natura area, which worsened the mink's food base.

Protection management plans for nature reserves are often missing

113. If the scope of the protection zones is defined by the conservation regulation and the validity of the restrictions is determined by zones[101], then the protection management plan is an action plan that must contain the general description of the protected area, a description of natural

[97] Descriptions of cases of damage to nature conservation values. Expert work. Estonian Naturalists' Society, 2021.

[98] The yew tree protection action plan was approved on 22/12/2021.

[99] Descriptions of cases of damage to nature conservation values. Expert work. Estonian Naturalists' Society, 2021.

[100] Ibid.

[101] Nature Conservation Act, § 12 (2).

values, the factors affecting them, and a list of protection management activities.[102]

114. Stakeholders (e.g. local people, the RMK) are involved in the preparation of the protection management plan and external experts may be also involved. Sometimes protection management plans are made based on existing data, but additional inventories are also ordered to find out the location and condition of natural values. The Environmental Board approves the protection management plan for three to ten years.[103]

115. Valid protection management plans exist in 647 areas out of a total of 962 protected areas[104], i.e. 68% of the surface area of the protected areas. According to the Environment Agency, there are no plans to make protection management plans for areas where active protection management measures are not necessary.[105] Some areas do not have a plan because they are areas with one zone (special management zone only) or water bodies (special conservation areas) where there is no need for management. The Environmental Board confirms that, by the end of 2023, it is planned to prepare protection management plans for all nature areas and bird sanctuaries.

116. If there is no protection management plan, there is a risk that the data of the protected values have not been analysed with sufficient depth, nor have protection activities been planned. For example, the Nabala-Tuhala NR was created in 2014, but the preparation of the protection management plan was started only in 2021, and it was completed in 2022. If there is no protection management plan, conservation organisers and felling permit approvers need to thoroughly analyse the available data for each individual decision, as they have not been cohesively thought out.

For your information

the following can be added to the felling permit:

- **mandatory management restriction** (i.e. cutting ban). It is set if the species or habitat type is named as a protection objective or the total surface area of forests in the special management zone of the protected area is smaller than the total surface area of the forest habitat types set as the objective in the Natura standard database;
- **a mandatory management condition** (condition under which cutting is permitted, e.g. an uncut buffer area must be left around the nest tree). It is set if the protected species is not listed as a protection objective;
- **management recommendation** (advice, the implementation of which is not mandatory, but which significantly helps to reduce the damage). It is submitted, for example, if the site is unrepresentative or it is clear that felling does not harm the habitat of the species.

117. In some analysed cases, although the protection management plan exists, but it does not contain all the necessary information. For example, in the protection management plans of Lahemaa National Park, Otepää Nature Park and Sirtsi Nature Reserve, the impact of felling on the protected species and habitats has not been dealt with in sufficient detail, nor has the necessary information been provided, based on which decisions on felling permits must be made.

118. The delay in the implementation of the action plan of the protection management plan can also be a problem. For example, the 2016–2025 protection management plan of the Läänemaa Suursoo Landscape Conservation Area sets the goal of zoning all Natura forest habitats in the special protection zone, but this had not yet been done by 2021. Since the 200-year-old pines growing in the limited management zone of Pillijärv Lake had not been zoned into the special protection zone, they lacked

[102] Regulation of the Minister of the Environment of 20/10/2009 "Procedure for preparing and approving the protection management plan and appointing the approver of the protection management plan."

[103] Regulation of the Minister of the Environment of 20/10/2009 "Procedure for preparing and approving the protection management plan and appointing the approver of the protection management plan."

[104] Including those where forest habitats are not a protection objective.

[105] Protection of Estonian nature in 2020. - Diversity of Estonian nature. Environment Agency, 2020.

protection and the trees were felled during road repairs, even though they were also located in the coastal protection zone.

119. **According to the National Audit Office's assessment**, the analysed cases show that the Environmental Board's delay in organising protection (including the slow preparation of protection management plans) can lead to damage to the natural values. It is reprehensible that no justification is provided as to why the suggestions of environmental experts are not taken into account, when establishing protected areas.

Felling permit decisions leave forest habitats unprotected

120. Since the situation of protected forests is different, the legislation does not provide a clear answer for the processing of felling permits as to whether felling may be allowed. Therefore, in order to protect nature conservation values, the Environmental Board must make a decision that takes into account the special features of the given area.

121. In 2016, the Environmental Board developed a guideline to officials approving felling permits to better interpret the requirements of the Nature Conservation Act and the Forest Act. "Guidelines for the organisation and management of value-based protection of forests"[106] specify how to organise felling when the protected values are indicated in the conservation regulation or are not indicated, or also in case there are no more protected values. By following the guidelines, it is possible to set restrictions that are necessary to achieve the protection objectives.

122. In case the habitat type is not a protection objective of the area, the instruction stipulates that a proposal must be made to add the habitat type to the protection objectives of the area and the issuing of an administrative act must be suspended.[107] When approving felling permits, the natural values for which information is available, but which have not yet been officially described in the conservation regulation, must also be taken into account. If the value implies a complete prohibition of felling outside the protected area due to species protection restrictions, a proposal must be made to place the area under protection.

123. The survey commissioned by the National Audit Office showed that in some cases the "Guidelines for the organisation and management of value-based protection of forests" have not been taken into account and forests with natural values have been cut. The following describes several cases in which damage to nature could have been avoided by using the right of discretion.

The combined effect of different fellings creates large bare areas

124. When planning fellings, it is necessary to take into account the adjacent allotments in both normal and protected forests. If the forest is cut on adjacent allotments only a few years apart, the result can be several tens of hectares of bare area where the biota has been destroyed.

[106] Guidelines for the organisation and management of value-based protection of forests. 2016 explanatory memorandum of the Environmental Board.

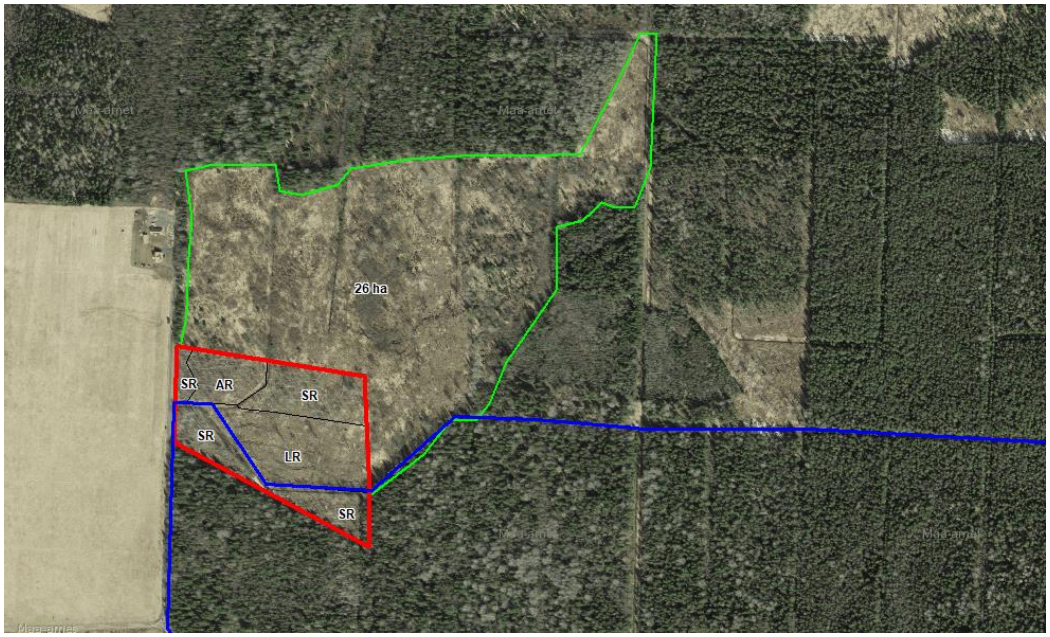
[107] Ibid., p. 7.

Gradual felling is a subtype of shelterwood cutting, in which trees are felled scattered on the felling block over a few decades.

125. In the cases analysed by the National Audit Office, it was found that clear cutting is carried out in the amount allowed in the conservation regulations, and that the adjacent allotment is cut by gradual felling. In some cases, it is considered necessary to perform sanitary cutting right next to it. Since fellings are not planned taking into account the entire protected area, i.e. spatially, large bare areas are created despite the fact that all felling permits are issued in accordance with the law. In the event of such extensive felling, the former community will not recover in the same form for several decades.

126. For example, in the limited management zone of the Nabala-Tuhala Nature Reserve, it is allowed to clear cut with the consent of the manager of the protected area in a felling block of up to 2 ha. On the Ülejõe land unit of the Nabala-Tuhala NR, a total of 5.4 ha was cut, of which 1.9 ha was clear-cut, 2.8 ha was cut by sanitary cutting and 0.7 ha was cut by gradual felling. Performed sanitary cutting and gradual felling look almost the same as clear cutting.108 The Ülejõgi land unit has a total surface area of 26 ha of adjacent clear cuttings and previous fellings that create open landscape (see Figure 18).

Figure 18. Felling species used on the Ülejõe land unit (red line)* based on the public Forest Register



* LR – clear cutting, SR – sanitary cutting, AR – gradual felling. The total surface area of joining and open felling areas is already 26 ha (green line) in the limited management zone of the Nabala-Tuhala Nature Reserve at this place. Sanitary cutting was partially done in the Natura area (blue line).

Source: The survey commissioned by the National Audit Office "Descriptions of cases of damage to nature conservation values. Expert work" (Estonian Naturalists' Society, 2021) , Land Board

[108] Descriptions of cases of damage to nature conservation values. Expert work. Estonian Naturalists' Society, 2021.

For your information

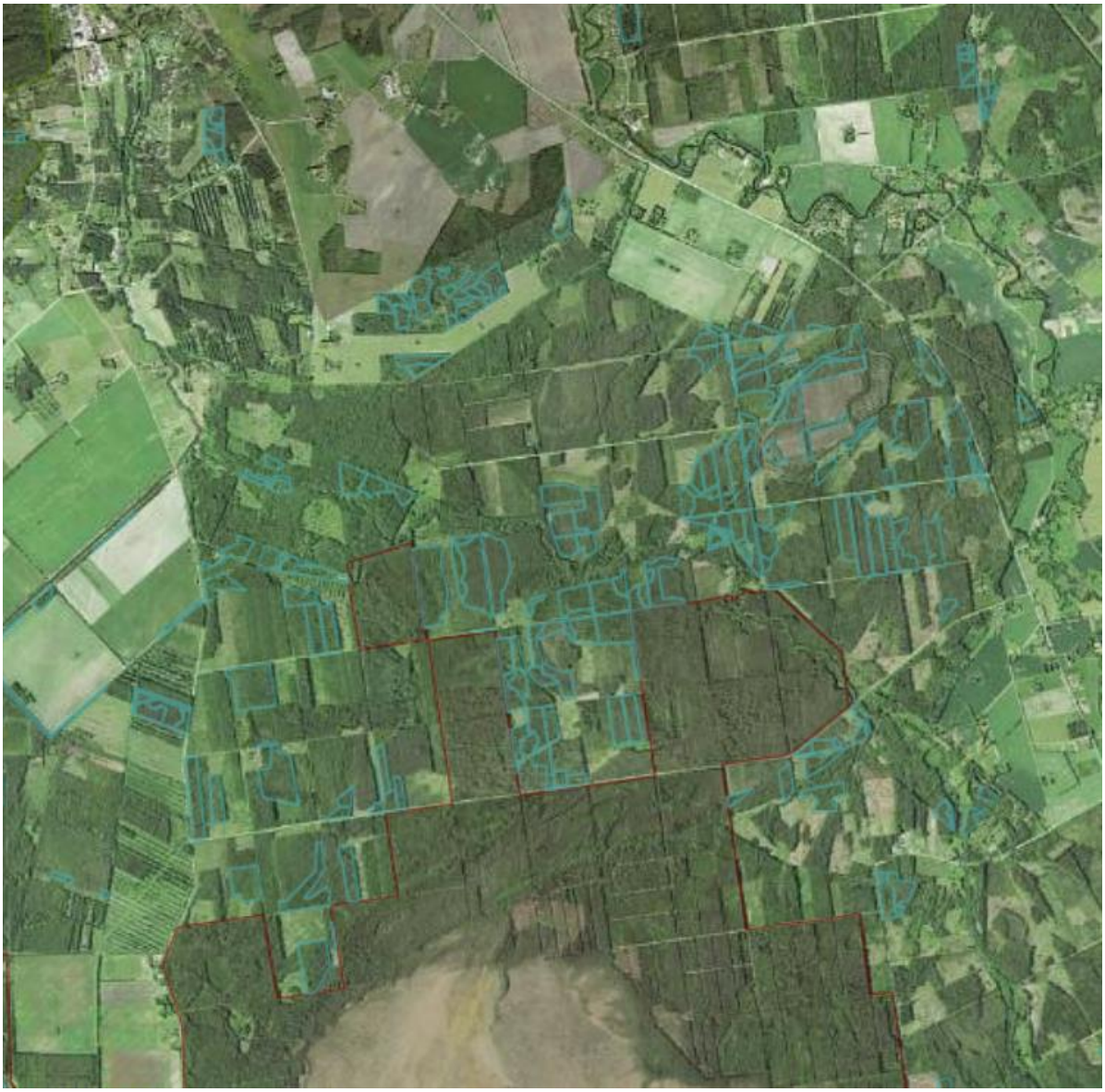
In the Kõveri-Ilvese region, experts estimate that the combined effect of felling is so great that as a result, the entire forest population of western capercaillie in the Luitemaa Natura bird sanctuary may be destroyed.

Source: Descriptions of cases of damage to nature conservation values. Expert work (Estonian Naturalists' Society, 2021)

127. The combined effect of felling was also not taken into account in the population of a species of category II – western capercaillie – in the Kõveri-Ilvese region, although a comprehensive expert survey had been completed, which described the negative combined effect and offered mitigation measures. Extensive felling and drainage damaged the habitat of the protected species. In the region, it is expected that the construction of Rail Baltic will have a significant additional harmful effect on the population of western capercaillie.

128. Felling permits were issued in the immediate vicinity of the Luitemaa NR's Natura habitat, located in the neighbourhood of the Kõveri-Ilvese region, without considering their cumulative impact. Since it is no longer necessary to leave a 100 m separation strip between allotments as before, large cut areas will soon appear in this region (see Figure 19).

Figure 19. Felling permits are valid around the Luitemaa Nature Reserve's Natura habitat as of 15/05/2021



Valid felling permits as of 15/05/2021 are outlined in light blue. The implementation of all felling permits will result in large bare areas. The Luitemaa Nature Reserve is surrounded by a dark red outline.

Source: Extract from the Forest Register, 16/06/2021

The fellings were allowed contrary to the protection objectives

129. If an application is submitted for the felling in protected areas, the Environmental Board, which processes the application, must make sure that the felling does not endanger the natural values.[109] If this threatens the achievement of the protection objectives, a felling must be prohibited or the conditions under which the felling can be permitted must be specified.

130. Examples of cases where the necessary restrictions were not set when approving felling permits[110]:

- In the limited management zone of the Otepää Nature Park, permission was granted to clear cut in the habitat of the species of category II being a protection objective – the three-toed woodpecker. Clear cutting destroys the three-toed woodpecker's habitat and harms its population. According to the Environmental Board's explanation, in some cases it was the liquidation of storm damage.
- A restriction was set on track cutting in the Natura area of the Sirtsi Nature Reserve, that the nesting trees of the flying squirrel may not be cut, but this was not enough to prevent disturbance. Track cutting created the so-called edge effect, which increases the risk of the flying squirrels falling prey to predators. In some places, the trees growing right next to the nest tree were also cut. The consequence is that some flying squirrels abandoned their nesting tree and there is a risk that other nesting sites will also disappear.
- In Tänavjärve Lake's special protection zone and Pillijärve Lake's special management zone of Läänemaa Suursoo area, a permit was approved for track cutting for the repair of the road directly on the shore of the lake, although any economic activity is prohibited in the special protection zone and the area in the restriction zone was also in the shore protection zone, where felling is also prohibited. The trees that protected the shore were cut down, in violation of both the Nature Conservation Act and the Water Act, and the shore is threatened by erosion.
- In the Lahemaa National Park, several felling permits were coordinated without setting recommendations for the habitat of a species of category II – the three-toed woodpecker. In the felling permit, it should have been mentioned that three-toed woodpeckers live on the allotment, so that the felling organiser could have taken the needs of the species into account. Felling permits were not in direct conflict with the conservation regulation but did not sufficiently take into account the needs of the species being a protection objective. The Environmental Board noted that, in some cases, older felling permits were involved, and the habitats were entered into the environmental register only after clear cutting.

Recommendations for felling permits were not met

131. If the data in the environmental register is outdated, of poor quality or contradicts the data in other registers and it is not certain whether protected natural values actually exist in the area or not, the

[109] Guidelines for the organisation and management of value-based protection of forests. Explanatory memorandum. Environmental Board, 2016.

[110] Descriptions of cases of damage to nature conservation values. Expert work. Estonian Naturalists' Society, 2021.

For your information

An important part in the protection of forest species is up to private owners.

The management recommendations of the felling permit describe the conditions that ensure the protection of the species located in the respective forest reserve or the good condition of the habitat. Complying with the recommendations is optional for the owner, and they are mostly not implemented due to economic

Environmental Board cannot, according to its instructions, prohibit felling, but must refer to the requirements of the Nature Protection Act and present economic conditions as recommendations, leaving responsibility for the preservation of the values to the applicant.[111] The recommendations let the forest owner know how the felling can be organised in such a way that the damage to the natural values is as small as possible. Compliance with recommendations is not checked.

132. In the forest block KD 100 located in Pärnu County, the Environmental Board recommended to leave more preserved trees and not to cut closer than 60 m from the tree inhabited by the species in order to protect species of category III – northern firmoss (Huperzia selago) and lichenised fungi (Thelotrema). It was a suggestion and it was ignored. As a result of felling, the entire habitat was destroyed.[112]

133. Also for forest block LS019 in Pärnu County, a recommendation was made not to do clear cutting in the habitat of a species of protection category III – the lichen Lobaria pulmonaria and to preserve all trees on which the lichen grows. The recommendation was not followed and all specimens of the species and the entire population were destroyed as a result of felling. At the same time, § 55 of the Nature Conservation Act prohibits damage to specimens of mushroom species of protection category III outside the protected areas to the extent that it threatens the preservation of the species in this habitat.[113]

134. **According to the National Audit Office**, it does not work if the conditions are set as recommendations, the fulfilment of which depends on the preservation of the natural value or the prevention of damage. If the objective is to preserve the natural values, such conditions should be formulated as obligations.

Felling for nature conservation purposes is permitted in the special protection zone

135. Special protection zones are areas with a strict protection regime, and special care must be taken when operating there. Felling is prohibited in special protection zones, but community formation is allowed based on the protection objective.[114]

136. The RMK made formative felling in the Mustjärve and Peraküla special protection zones of the Nõva NR to make the planted cultural stands more natural. Forested dune habitat (type 2180) was subjected to group cutting and severance cutting, totalling 109 ha.

[111] Guidelines for the organisation and management of value-based protection of forests. Explanatory memorandum. Environmental Board, 2016.

[112] Descriptions of cases of damage to nature conservation values. Expert work. Estonian Naturalists' Society, 2021.

[113] Ibid.

[114] Nature Conservation Act, § 30.

Figure 20. Forest machines have damaged the surface of forested dunes (habitat type 2180) in the target protection zone of the Nõva Nature Reserve, which is under strict protection

Source: Environment Agency

137. In the target protection zone of the Nõva Nature Reserve, the Environmental Board relaxed the felling conditions by letter, even though there are protected species[115], which are threatened by felling. The Environmental Board gave permission to carry out forest works until the end of March, although the conservation regulation prohibits the presence of people in the Mustjärv Lake's special protection zone between 1 February and 31 July. During the work, the forestry machinery damaged the easily damaged surface of the forested dunes (2180) of the Natura habitat type, as the ground was not frozen (see Figure 20).

138. The Environmental Board's changes were coordinated by letter, not with a change in the felling permit, therefore they are not reflected in the Forest Register. The Environmental Board explained that the Forest

[115] The habitats of the western capercaillie (protection category II) and the mistle thrush (Turdus viscivorus), European nightjar (Caprimulgus europaeus), stock dove (Columba oenas), Eurasian hobby (Falco subbuteo) and black grouse (Tetrao tetrix) (protection category III) and the habitat of the common club moss (Lycopodium clavatum) (protection category III).

Register does not allow to change felling permits and it was not practical to issue new felling permits.[116]

139. **According to the National Audit Office,** if the combined effect of felling is not taken into account, there is a high risk that large bare areas will be created in protected forests and natural values will be damaged. In areas with known natural values, when organising fellings, it should be ensured that the damage to the natural values is minimal. Given the loss of biodiversity, new areas may need to be taken under protection.

140. The cases analysed by the National Audit Office show that it is not possible to organise the protection of important natural values only with voluntary recommendations, but limitations and conditions must also be set.

141. In several of the cases described above, the natural values were also destroyed because mistakes were made when issuing felling permits. According to the National Audit Office, many problems would be avoided if the goal of preserving the good condition of forest communities is kept in mind when making decisions.

Key habitats without a contract are unprotected

142. In addition to protected areas and the Natura network, key habitats (KH) have been established in managed forests, the surface area of which is only a few hectares in size, for the protection of valuable forest habitats and species. An original or rare forest community grows there, there are landscape features indicating special conditions (e.g. groups or a lot of dead wood) or there are rare characteristic species indicating special living conditions, which are often not found in managed forests. The KH areas are very important refuges for endangered species when felling occurs in the neighbourhood. These areas contribute to wildlife cohesion by allowing species to re-disperse after disturbance. Because the KH areas are small in surface area, they place less burden on private owners than large protected areas.

Key habitat – an area where there is a high probability of occurrence of narrowly adapted, endangered, vulnerable or rare species.

143. The KHs were mainly inventoried in 1999–2000. There are a total of 31,691 ha of the KH areas, 83% of which are located on state land.[117] All inventoried areas with the KH characteristics are entered in the environmental register, from where the data is transferred to the Forest Register.

For your information

in the years 2007–2014, a total of 2,144,375 euros were paid as the subsidy for the key habitats totalling 344.22 ha.

144. On private lands, 2,348 areas with the KH characteristics have been inventoried so far (see Figure 21), for the protection of 301 of which a notarial agreement valid for 20 years has been signed between the Private Forest Centre and the forest owner. According to the contract, compensation is paid to the forest owner every year for not felling the forest there. The average compensation amount is 364 euros per ha annually.[118] In these KHs, one may not do anything that could damage natural values (e.g. felling, removal of dead wood, or making fires). All

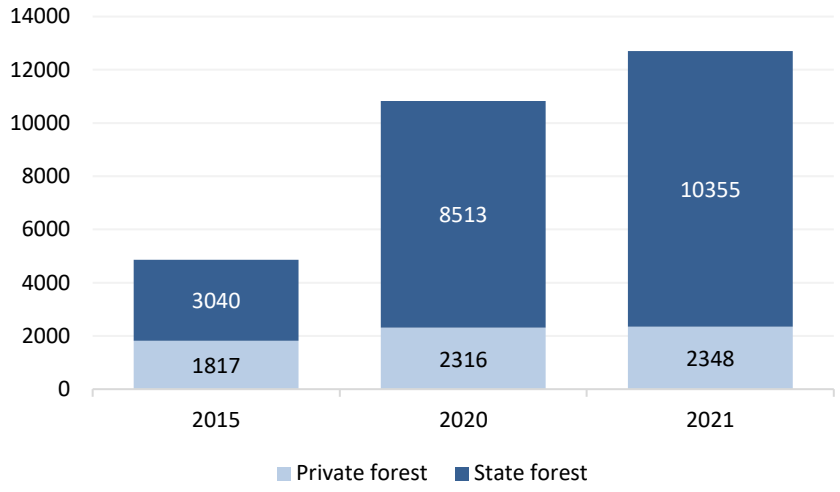
[116] Reply letter No. 13-18/21/5995-3 of the Environmental Board of 23/04/2021 to the request of MTÜ Roheline Läänemaa of 13/04/2021.

[117] 2021 data.

[118] Kertu Kekk. The state provided more money for the protection of key habitats. Maaleht, 28/03/2019.

contracted KH areas are inspected annually in the wild. Felling is not restricted in the areas with the KH characteristics located on previously inventoried private land without a contract. The KH contracts are not concluded on state lands – the RMK must stop felling in the area immediately after it is entered in the register, and the KHs located there are subject to the same restrictions as the KHs on private land with a contract.

Figure 21. Key habitats (KH) in private and state forests in 2015, 2020 and 2021



Source: based on the data of the Environmental Board

Establishment of new key habitats in private forests has stalled

145. Private land is not inventoried on the KH, as this requires the permission of the private owner. Since there have been no inventories of private lands in recent years, it is not known exactly how many areas with the KH characteristics still exist in nature, for the protection of which a contract has not yet been concluded. If a private owner finds an area with the KH characteristics in his/her forest outside the nature conservation area or Natura areas, he/she can inform the Environmental Board and make a proposal to establish a KH and conclude a contract.

For your information

In 2000–2001, 3,652 new key habitats were created on state land as a result of the inventories of the Estonian Naturalists' Society and the State Forest Management Centre.

146. Due to data protection rules, the Private Forest Centre that signs the KH contracts cannot inform forest owners about the KH located on their land, as they do not have the landowners' contact information. The Environmental Board also did not previously inform private owners about the existence of the KH, but, starting from 2021, letters have been sent directly to forest owners. The Environmental Board has also informed about the possibility of concluding the KH contracts through the media, but this has not significantly increased the interest of private forest owners in the contracts. The Environmental Board informs the forest owner about the KH previously inventoried, but having no contract, if the owner submits an application for a felling permit. In this case, the forest owner is proposed to conclude the KH contract. If the owner is not interested in the contract, the felling permit is approved.

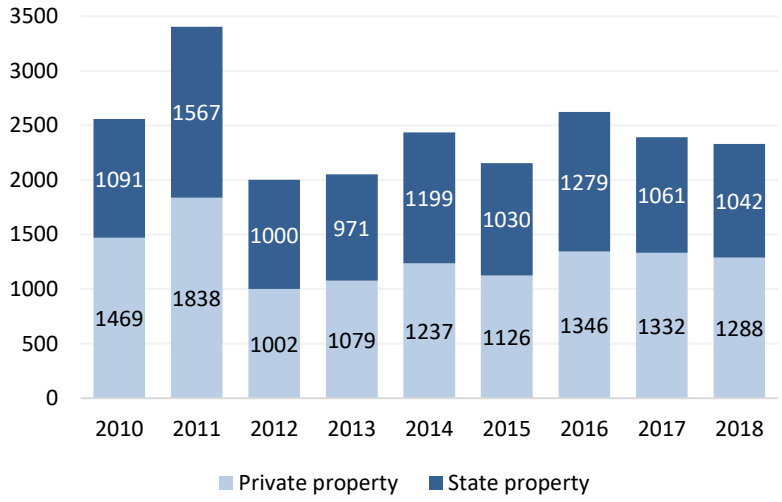
In the protected areas, the areas with the features of the inventoried key habitat are unprotected

147. The KH areas inventoried but without the contract can be located both in the special protection zone and the limited management zone of protected areas. In these areas, no contract is signed with the forest owners, as it is assumed that the natural values of the protected areas are not at risk. That is why the Environmental Board does not notify the

forest owner who requests permission to cut in the limited management zone of the protected area in an area with the KH characteristics. Paradoxically, areas with inventoried the KH characteristics located in protected areas are at greater risk than non-contracted areas with the KH characteristics on private lands in commercial forests.

148. Based on the only known survey of the condition of the KH areas, in 2010–2018, 21,956 ha of forest were destroyed, where an area with the KH characteristics had not yet been inventoried. Of this, 10,241 ha were in the state forest and 11,716 ha were in the private forest. Based on the previous experience of the Estonian Nature Foundation, about 35% of these 21,956 hectares would have met the KH characteristics after the inventories. The fund found that, based on the Forest Register data, 2,349 ha of the areas inventoried with the KH characteristics were destroyed in 2018–2019[119] (see Figure 22).

Figure 22. Assessment of the Estonian Fund for Nature on the destruction of areas with the characteristics of inventoried key habitats in the years 2010–2018, ha



Source: Estonian Fund for Nature

For your information

In Sweden, key habitats are considered a natural part of the forest owner's responsibility.

Source: Lena Gustafsson, Karin Perhans 2010. Biodiversity conservation in Swedish forests: ways forward for a 30-year old multi-scale-approach. Ambio 30, 546–554

149. **In the opinion of the National Audit Office**, the Environmental Board should introduce the KH as a nature protection measure to landowners in order to sign more contracts if possible. The KHs should not be destroyed just because the forest owner is not aware of them.

150. Since the Environmental Board does not inform the private forest owners about the area with the KH characteristics located on their land, provided that the natural values are protected in the protected area, then the natural values in these areas are at risk.

151. **Recommendations of the National Audit Office to the Minister of the Environment:**

In order to prevent the creation of large bare areas and damage to the natural values the in protected forests,

[119] Where do our old forests, rich in life, go? Destruction of unmapped key habitats in the state forest in 2010–2019. Estonian Fund for Nature, 2021, pp. 13–17.

- A. consider amending the Forest Act so that
  - 1. the age for considering a forest to be regenerated would increase;
  - 2. when issuing felling permits, the cumulative effect of felling of adjacent blocks would be taken into account;
- B. consider amending the Nature Conservation Act so that
  - 1. it would be ensured that the whole area would be taken into account when planning fellings, i.e. spatial planning;
  - 2. the impact of clear cutting on the ecosystem of protected forests (including nature reserves and landscape conservation areas, special conservation areas, national parks) would be analysed;
  - 3. when issuing felling permits for protected forests, approved protection management plans containing information on the location of the natural values and the impact of felling, as well as a list of protection management activities, would be a prerequisite.
- C. Establish conditions to support the preservation of the natural values (including preserving as much of the subsequent growth and understory vegetation as possible, regardless of the type of felling, limiting the use of heavy machinery and harmonising the requirements of the state and private forests to avoid felling during the spring breeding season).
- D. In order to avoid damage to natural values in the protected forests, key habitat contracts should also be concluded on nature reserves, but compensation should be paid for the same area only on the basis of one contract.
- E. Develop the functionality of the Forest Register to be able to reflect changes in felling permits.

Response of the Minister of the Environment:

- A.1. According to the Ministry of the Environment, the proposal needs a more detailed analysis to clarify the nature of the problem to be solved by the proposed measure and the suitability of the measure. We can plan the activity in the 2023 work plan.
- A.2. According to the Ministry of the Environment, the proposal needs additional analysis, which will be done by the end of the first quarter of 2023. We would like to point out that to some extent this is already taken into account today (the general requirements of the Forest Act on the size of felled areas and the timely regeneration of forests and area-based restrictions). The obligation to consider the cumulative impact stems from the principles of the EIA, SEA and Natura assessment and is regulated by the Environmental Impact Assessment and Environmental Management System Act.

- B.1. According to the Ministry of the Environment, the proposal needs further discussion and clarification. It is also not clear from this report what was specifically meant and what should be additionally stipulated at the level of the law. Until now, "spatial planning" has been a tool of everyday protection management work.

- B.2. The Ministry of the Environment agrees with the proposal. When planning the protection procedure of each protected area, the impact of necessary and possible activities on the protected values in the area is considered. The problem is the lack of a clear understanding of the nature of selection forestry and related surveys and guidelines, which was already mentioned earlier in the proposal. As additional knowledge is obtained, it may be necessary to supplement the legislation.

- B.3. According to the Ministry of the Environment, the proposal needs additional clarification. The data on the location of natural values is managed in the EELIS database, where the data is continuously updated. Conservation management plans do not contain continuously updated data on the natural values, but they primarily plan the objectives and activities to achieve these latter. The realisation of the proposal may be possible in the future during the development of the EELIS database. Within this framework, it is planned, among other things, to review the existing IT solutions related to the protection management activities (including the protection management plans). A more detailed analysis of these topics will be reached in 2024. It remains unclear what is meant by the proposal that the protection management plan must include a forest management plan. Since the limited management zones include private forests to a greater extent, the question also arises whether the state should order forest management plans for all such areas in the future, and what would be the advantage of such a solution compared to the current one.

  Comment of the National Audit Office: The wording of the recommendation has been corrected – the protection management plan should include a list of the protection management activities.

- C. The Ministry of the Environment considers that further clarification of this proposal is necessary. In the case of protected natural objects, the conservation regulations also currently set a number of additional requirements to the strictures of the laws. Several preliminary works have been carried out for the development of additional regulations regarding the felling peace during the bird nesting period, including more detailed instructions for landowners, and the Environmental Board has revised its procedural practices.

- D. The Ministry of the Environment does not agree with the submitted proposal. We proceed from the logic that the natural values are protected in the protected areas on the basis of the regulations established there. The concept of key habitats is a measure supporting traditional nature conservation and was created to ensure the protection of natural values found in commercial forests, for which private forest owners can sign voluntary protection contracts.

- E. In the opinion of the Ministry of the Environment, the proposal needs to be specified, for the solution of which problem changes in forest notifications to the Forest Register are recommended.

152. Recommendations of the National Audit Office to the Director General of the Environmental Board:

- In order to avoid damage to the status of the network of protected areas of pan-European importance, consider formulating activities that prevent damage to the condition of a habitat or species as an obligation in the felling permit, rather than as recommendations.
- In order to prevent damage to natural values in protected forests due to errors, train officials who issue felling permits.
- In order for the supervisor and the local residents to have information about the works being carried out, information on fellings for protection management should be added to the Forest Register.
- In order to prevent the destruction of naturally valuable areas as a result of felling, to inform private forest owners about the inventoried areas with characteristics of a key habitat located on their land and to make a proposal to conclude an contract.

Response of the Director General of the Environmental Board:

- When processing forest notifications, the Environmental Board has followed the current legislation in setting additional conditions for felling activities, and the Environmental Board can only set conditions (obligations) if the current legislation allows it. If it is not possible to set conditions due to legislation, the Environmental Board has given forest owners recommendations for better protection of the natural values. We support the National Audit Office's proposal to make the legislation clearer and stronger in this regard.

  Comment of the National Audit Office: The National Audit Office is of the opinion that the legislation currently in force also allows deciding on the setting of the necessary obligation; this if the impact of felling has been assessed.

- The Environment Agency has continuously and annually trained its own officials for better protection of the natural values with the existing scarce training resources (160 euros per person annually). For example, both this year [2022] and last year, wildlife officials have received training on forest habitats according to the Habitats Directive (trainers Anneli Palo (Metsamutt OÜ) and Aivar Hallang (OÜ Metsaruum)), and every year officials who have a key habitat expert's certificate are given repeated training on key habitats, where recognised species experts are trainers either. In addition, there are internal trainings where the institution's own experts conduct trainings.
- Through the public view of the Forest Register, this is possible already today, by adding the corresponding information to the "Decision explanation" box in the forest notification. However, this

requires the addition of relevant information before the forest notification is approved. After confirming the forest notification, it is no longer possible to change the "Decision explanation" box. In the case reported in the inspection report, from which the given recommendation derives, the conditions of the forest notification were changed in the Nõva Nature Reserve after the forest notification was approved. As far as the Environmental Board is aware, the RMK had installed relevant information boards for the purpose of felling, so there was information about the purpose of the felling on site. The Environmental Board makes a proposal (as the recommendation to the Minister in paragraph 151 of the inspection report) for the development of the Forest Register, so that it is possible to add additional information to the forest register even after the approval of the forest notification.

- The recommendation remains a bit incomprehensible to the Environmental Board, as in paragraph 146 of the inspection report there is a section "*The Environmental Board also did not previously inform private owners about the existence of the KH, but, starting from 2021, letters have been sent directly to forest owners. The Environmental Board has also informed about the possibility of concluding the KH contracts through the media, but this has not significantly increased the interest of private forest owners in the contracts. The Environmental Board informs the forest owner about the KH previously inventoried, but having no contract, if the owner submits an application for a felling permit. In this case, the forest owner is proposed to conclude the KH contract. If the owner is not interested in the contract, the felling permit is approved."* The Environmental Board confirms once again that the private landowners have been informed about key habitats located on the lands of the private owners without a protection contract, both during the processing of the forest notification, as direct mails by letter and as social media posts, and proposals have been made and will continue to be made in the future to conclude protection contracts. The Environmental Board has been more active in informing private landowners since 2019, when the state allocated additional funds for the conclusion of new KH protection contracts, but, before 2019, unfortunately, there was a period when the funds were only sufficient to make payments for existing KH contracts and it was not possible to conclude new contracts.

European money for the protection of natural values considered important in Europe – the Natura forest subsidies

The Natura forest subsidy is distributed on the basis of the European Union Common Agricultural Policy Implementation Act – through Measure 12 of the Estonian Rural Development Plan 2014–2020 entitled "Subsidies according to Natura 2000 and Water Framework Directive" (activity type "Natura 2000 subsidy to private forest land").

The payment of the subsidy is organised by the Private Forest Centre, paid out by the Agricultural Registers and Information Agency, so all private forest owners whose forest is in the restricted or special protection zone of a Natura area, as well as in areas with a special protection zone located outside the Natura area, can apply for the subsidy.

Quality – an indicator of soil fertility and the goodness of the habitat site. Divided into seven classes. The most fertile soil, which ensures the rapid growth of trees, is marked with the number 1a (e.g. a forest grown on fertile farmland). The poorest soil and the slowest growth is a forest with a quality of 5a (bog woodland).i

Areas from which economic income has already been earned are also subsidised, and the subsidy rates do not take into account the amount of possible income

153. The payment of the Natura forest subsidy must help preserve the forest habitats located in these areas and their good condition. According to the regulation regulating the payment of the subsidy[120], the subsidy is paid for compliance with nature protection restrictions, and the subsidy compensates for the income lost from the forest due to the restrictions.

154. Potentially lost income in different types of forests differs many times, as the actual income from forests depends on the type of soil and which trees grow on it – i.e. the quality, age of the stand and the type of forest, etc. For example, in the case of bog pine stand, where tree growth is stunted, no forestry income is earned from the wood. A spruce stand growing on fertile soil is one of the biggest sources of potential income for the forest manager (see Figure 23).

Figure 23. Examples of forest areas with different potential economic returns. A high spruce stand of estimated 1st quality, where economic benefits are high. Bog pine stand with the lowest (5a) quality, with no potential for economic profitability

Photos: Ireen Trummer and Arne Ader, photo editing by Madis Kats

[120] Regulation No. 39 of the Minister of Rural Affairs of 22/04/2015 "Natura 2000 private forest land subsidy" aims to pay the subsidy as follows: The subsidy is provided for compliance with nature conservation restrictions within one calendar year on private forest land located in the Natura 2000 network area or in the target protection zone of the protected nature object specified in paragraph 1 or 4 of § 4 (1) of the Nature Conservation Act.

155. According to Estonian rules, 110 euros per hectare annually is paid for the forest area located in Natura areas and outside them in the special protection zone; in the limited management zone, special conservation area and plotted area up to 60 euros per hectare annually. Areas considered eligible for the subsidy are as follows:

- which is entered in the environmental register as forest land of at least 0.30 hectares;
- where there are trees with a height of at least 1.3 m and the canopy density (i.e. rate of closeness) is at least 30%;
- where there is no forest corresponding to the forest characteristics, because there has been felling or the trees have died as a result of a natural disaster.

156. The payment of the subsidy does not therefore depend on whether and how much forest remains in the Natura area and whether and how much potential income could be earned from the subsidised forest area. Also, the payment of the subsidies does not depend on whether the habitats have been preserved.

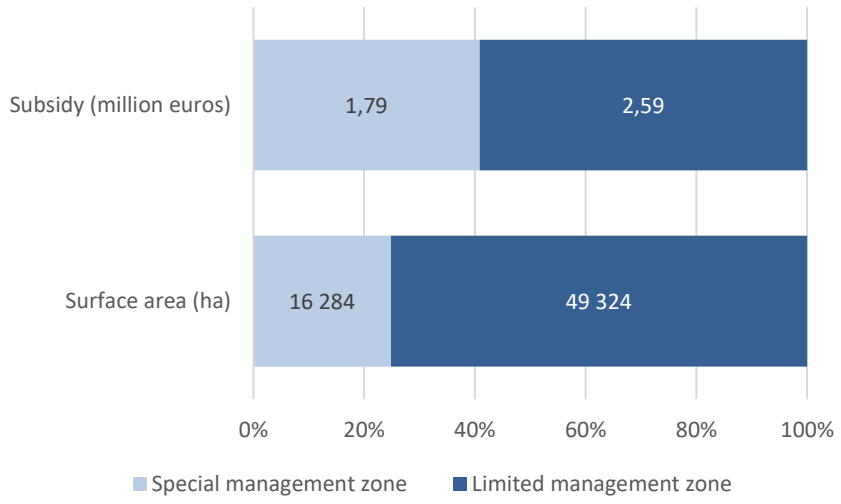
157. According to the data of the Estonian Private Forest Centre, a total of 4.38 million euros was paid in 2020 as the Natura subsidy. 2.59 million euros were paid for the limited management zone and 1.79 million euros for the special protection zone. In terms of surface area, the subsidies were paid for a total of 65,609 hectares (see Figure 24).

The largest recipients of the Natura subsidies in 2020

Receiver's name	Total amount, €
Tornator Eesti OÜ	162,306.24
Metsamaa-halduse AS	147,752.72
OÜ Metsagrupp	75,296.90
OÜ Valga Puu	59,947.67
Metsatervenduse OÜ	46,623.48
OÜ Landeker	43,548.88
Eesti Metsafond OÜ	36,546.57
Södra Metsad OÜ	32,809.52
Haanja Forests OÜ	32,476.97
OÜ Leheris	31,282.37
AS A & P Mets	28,718.64
AS Taanimets	21,943.96
Askersund Trading OÜ	21,504.63
AS Miskort	20,771.23
Ingka Investments Estonia OÜ	19,211.04
AS Silikaat	18,617.50
OÜ Vaseten	17,256.20
Amest Haldus OÜ	16,468.82
Karmen Kaukver	15,433.00
OÜ Karo Mets	14,580.31
Eva Roostar	14,150.40
AS Vestman Forest Fund	13,824.66
Sca Rannametsad OÜ	13,572.26
Mapomets OÜ	13,023.28
Miranda Klaij	12,900.45
Trinus Haitjema	12,817.14
OÜ Hartiston Kinnisvara	12,767.97
Silma LK Saunja SA	12,566.56
AS Roger Puit	12,087.81

Source: Agricultural Registers and Information Board

Figure 24. Distribution of the subsidies based on surface area



Source: National Audit Office based on the data of Private Forest Centre

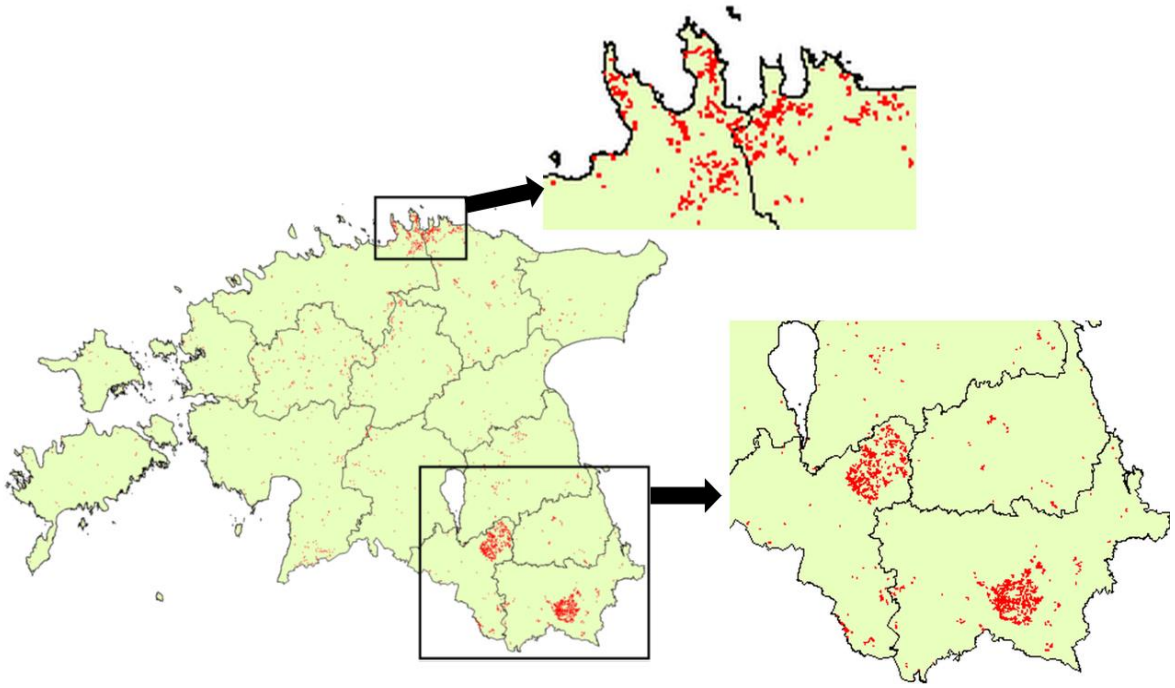
158. A total of 4,931 landowners received the subsidy. The smallest subsidy amount paid out to one owner was 15.76 euros, and the largest was 162,306 euros. 0.8% of the owners receive approx. 25% of the subsidies. The 30 largest beneficiaries are forestry companies (26) and four private individuals.

The subsidy is also paid for clearcut areas

159. At the request of the National Audit Office, the Land Board analysed how many of the areas eligible for the subsidy have remained bare. In 2021, forest areas with at least 3,831 ha of bare areas were considered eligible for the subsidy[121], of which an estimated 544 ha or 14% were some of the European Union's Natura forest habitats, which should have been preserved on the basis of the Nature Directive. Of the forest habitats, in about half of the cases, i.e. at least 244 ha, the habitats cut in western Taïga are considered eligible for the subsidy.

160. Figure 25 shows an overview map of the forest areas that have remained bare and that are considered eligible for the subsidy. Although there are these areas all over Estonia, three regions of protected areas stand out, where the Natura forest subsidies have been paid for bare areas – Lahemaa National Park, Otepää and Haanja Nature Park.

Figure 25. Areas designated as eligible for the Natura forest subsidy that have remained bare in the years 2012-2020*



* Areas marked in red on the map for which the Natura forest subsidies have been paid and where forest change has been detected. Since the map is partially out of date by up to four years, there are more such areas by now.

Source: Land Board

For your information

The purpose of the limited management zone of the heritage landscape of the Haanja Nature Park is to preserve the diversity of nature and the appearance of the landscape, to protect protected species and their habitats and maintain agricultural land use and settlement structure.

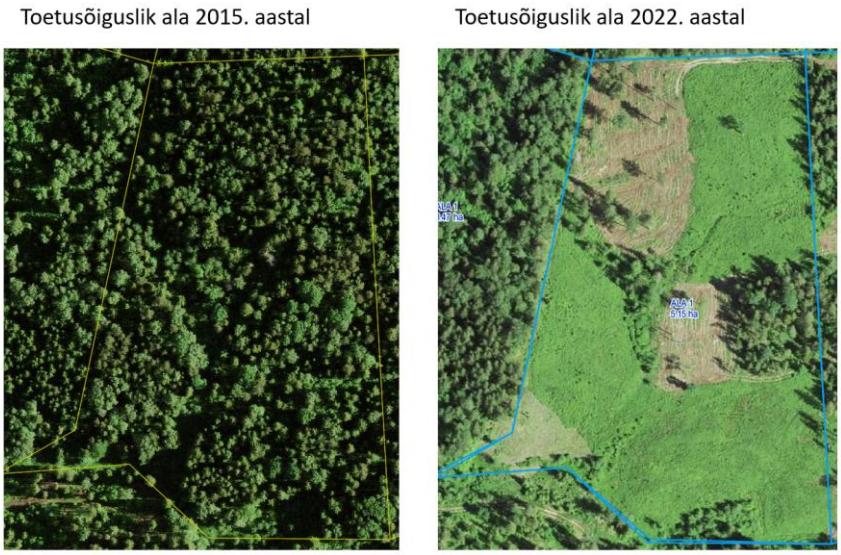
161. The National Audit Office analysed in more detail the eligible areas from which economic income has already been earned. Figure 26 shows as an example the cadastral unit located in the limited management zone of the heritage landscape in Haanja Nature Park in 2015 and 2021. According to the Forest Register, clear-cutting permits have been issued for the area in 2015 and 2017, and the orthophoto confirms that the felling has been done. The Natura forest subsidy has been paid for this area, and the area is also eligible for the subsidies in the next period.[122]

[121] The number presented also includes areas where the forest has also changed due to storm damage. According to the Land Board, the share of such areas is marginal and it is mostly forests lost due to felling.

[122] Source: map of eligible areas on the map server of the Land Board.

162. According to the explanations of the Ministry of the Environment, in the case of the cadastral unit shown in Figure 26, the need to compensate for the loss of income and the payment of the subsidy are fully justified. According to the Ministry, considering the size of the cadastral unit, in the commercial forest, the clear-cutting area could be the size of an entire cadastral unit, and the landowner would receive his income by cutting in one go, but in the case in question, the landowner has had to clear-cut twice – that is, had to cut less at once and over a longer period of time, and this has probably resulted in the landowner's additional costs.

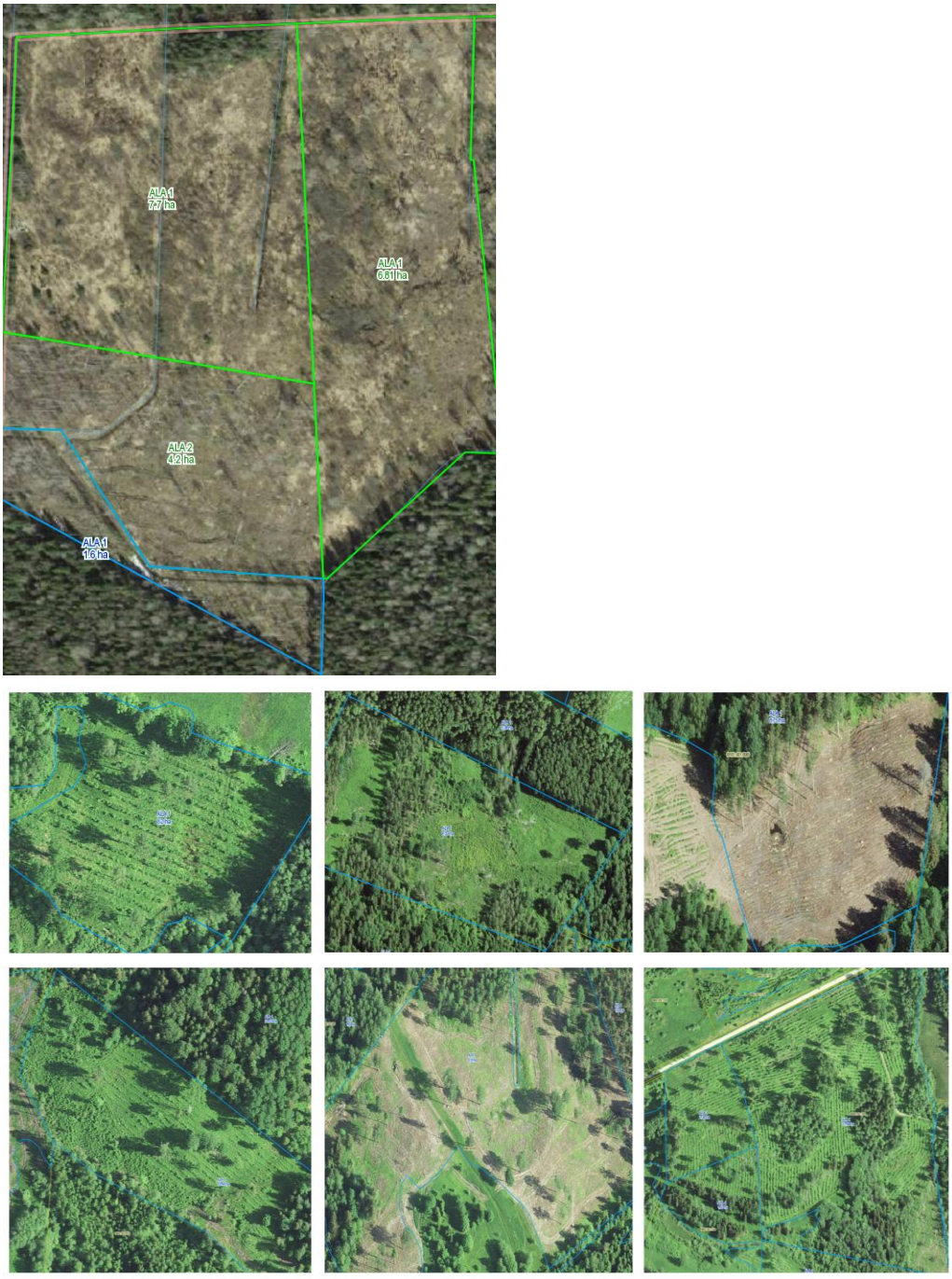
Figure 26. A cadastral unit that has received the subsidy and continues to be eligible for the subsidy, from which income has been earned



Source: Land Board

163. Figure 27 shows some examples of forest areas where forestry income has already been earned in 2018–2020, but which are still considered eligible for the subsidy.

Figure 27. Areas considered eligible for the subsidy, from which income has already been earned



The felling in the Nabala-Tuhala Nature Reserve, where several Natura forest habitats were destroyed, is covered in the report (read more in paragraph 126 and Annex C).

Source: Land Board

164. According to the confirmation of the Ministry of Environment and the Ministry of Rural Affairs, in the case of payment of Natura subsidies, it is assessed whether nature protection restrictions have been observed. It was explained to the National Audit Office that if the Environmental Board has identified a violation in the area (felling without a permit, disregarding the conditions of the felling permit, etc.), the subsidy will

not be paid. If the forest areas have been felled on the basis of a valid felling permit and in the manner permitted by it, then, in the opinion of the ministries, the payment of the subsidy is justified. In these cases, the subsidy payer is entitled to assume that during the issuance of felling permits, the substantive compliance of the fellings is assessed and, according to the Ministry of Rural Affairs, the authorised fellings were done legally correctly, i.e. in accordance with the conservation regulations.

165. The National Audit Office finds that the given justifications cannot be considered correct. In the infringement procedures initiated by the European Commission regarding the authorisation of felling of the Natura areas, it has been pointed out that the effects of the planned felling have not been assessed by the state, and thus it is not guaranteed that the felling permits have been issued in accordance with the principles of the Nature Directive. It is known that for this reason the Environmental Board has stopped fellings in the forest habitats located in the limited management zone and has started to improve the situation.

166. **According to the National Audit Office,** the payment of the Natura subsidies does not fulfil their purposes due to the shortcomings described above. In the case of the clearcut areas, it cannot be claimed that the general purpose of the payment of the subsidy has been met – to ensure the preservation of viable populations and habitats of all natural forest species of Estonia.[123]

Who should pay for maintaining the ecosystem?

The Constitution does not require compensation for any restriction of ownership imposed on a person in the general interest. Also, there is no requirement from the Constitution that in the case of an obligation to pay compensation, the compensation should be complete and immediate.

"Protecting nature is a task arising from the country's constitution and also everyone's responsibility. § 5 of the Constitution states that Estonia's natural resources are national wealth, which must be used sparingly. According to § 53 of the Constitution, everyone has a duty to preserve the living and natural environment and to compensate for

167. Representative bodies of private forest owners and the wood industry have pointed out in the media that nature is protected too much and too strictly, and that the current compensations for nature conservation restrictions do not compensate forest owners for the lost income due to nature conservation restrictions. Referring to the Constitution, the Supreme Court has taken the position that the introduction of nature conservation restrictions is justified by a strong general interest and the obligation of a person to tolerate these restrictions is generally high, and full compensation of lost income cannot be expected.

168. The ongoing debate shows that there is no clarity on the question of **what** the legitimate expectations of the property owner with a forest **are** to use the forest as a natural resource and the obligation to tolerate nature conservation restrictions in the light of the Constitution.

169. **Recommendations of the National Audit Office to the Minister of the Environment:** In order for the Natura forest subsidies to be a means of ensuring the preservation of forest areas in ecologically good condition, consideration should be given to designing support measures in a way that

- would take into account the quality of the forest area and the potential revenue in reality;
- would not allow the subsidy to be paid for areas from which economic income has been earned, and would also take into account

[123] Regulation No. 39 of the Minister of Rural Affairs of 22/04/2015 "Subsidy of Natura 2000 private forest land" and explanatory memorandum.

the age of the forests. That is, it is not justified to pay the subsidy for the areas from which the opportunity to potentially earn will come decades later;

- would support forest owners who choose the principles of selection forestry when managing the forest.

Response of the Minister of the Environment: We explain that the Ministry of the Environment has launched the LIFE IP project, one of the purposes of which is the analysis of the current state of the private forest subsidies system and the development of possible changes/improvements. Corresponding proposals will be developed in the first half of 2025. It should be taken into account that the payment of the subsidies can be based on easily available data and the management of the system cannot lead to a significant increase in administrative costs.

Transfer of conservation lands to the state

170. In order to maintain a balance between nature conservation and the forest economic interests of the private owner, it is important in the organisation of nature conservation that in areas with strict economic restrictions, the landowner has the opportunity to receive compensation for his/her lost income. For this mechanism, the state has offered the possibility to buy land with nature conservation restrictions from private owners. It is important that the transaction with the state is transparent, the rules of the transaction are clear, and the landowner can make sure that the transaction takes place on the right basis. During the audit, it became clear that this is not always the case.

The price of land depends on the skill of negotiation

171. The National Audit Office made an overview of the transfer of lands with nature protection restrictions to the state in order to find out how many restricted lands have been sold to the state, for what sums the land has been acquired, and whether the price of the land sale has developed logically and transparently, and what problems have arisen.

172. The Nature Conservation Act establishes the principle that the state acquires such land by agreement with the owner of the immovable property for a fee that corresponds to the value of the immovable property. It is possible to choose between two methodologies to find the value of the property[124] – about forested land and non-forested land. In the case of forested land, the value of the land for sale is found by adding together the price of the land and the value of the trees (stand) growing there. In turn, the value of the stand is found through several components. In the case of a deforested property, the value of land is found using the comparison method of transactions made with similar objects (see Figure 28).

For your information

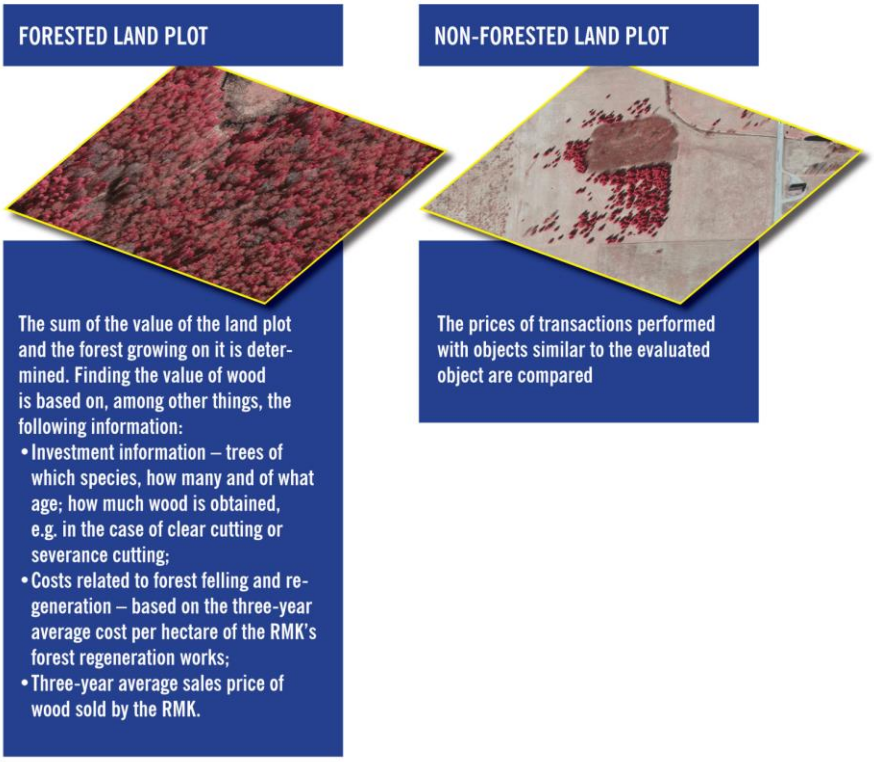
The term "forest" in the context of land sales does not always mean the same "forest", which is a forest according to the Forest Act. The "forest" of the land sale is not considered to be forested land if the land unit is located in a perspective area in light of real estate development (in a densely populated area, near it, or near a water body).

This kind of approach is used in order to proceed from the interests of a private person, from the most economically profitable use of the property.

[124] Government of the Republic Regulation no. 242 'The procedure for the acquisition of immovables containing protected natural objects by the state and for proceedings regarding proposals and the criteria on the basis of which the use of an immovable for its

173. According to the Environmental Board, land units that are predominantly (more than 50%) land with intended purpose "forest land" in the land cadastre and have the characteristics of a forest in accordance with the Forest Act are considered to be forested land. The regulation governing land sales states that in the case of these forested lands, if the value of the growing forest is not of significant importance when determining the value of the real estate with forests, and based on the market situation of the region, the tax price of the land does not reflect the market price of that region, the state representative may order an extraordinary appraisal to determine the value of the real estate. According to the interpretation of the Environmental Board, the value of the growing forest is not important if the immovable property is of greater value if it is evaluated from the perspective of real estate development and the valuation methodology of non-forested land is applied.

Figure 28. Determining the price of land when transferring land with nature conservation restrictions to the state



* RMK – State Forest Management Centre

Source: National Audit Office, design by Madis Kats

174. The National Audit Office analysed the sale of land to the state in 2018–2020 (see Table 5).

intended purposes is deemed to be significantly hindered by the protection regime, and the procedure and basis for determination of the value of an immovable' of 8 July 2004

Table 5. The amount, surface area and price of lands transferred to the state in 2018–2020

Land transferred to the state	2018	2019	2020	Total
Surface area of land acquired by the state (ha)	145	317	264	726
Number of cadastral units sold	30	38	29	97
Average price per 1 ha (in euros)	5,600	9,371	10,960	
Total cost of acquired lands (in euros)	811,969	2,973,173	2,889,374	6.7 million

Source: State Forest Management Centre, Ministry of the Environment

175. The price of selling land to the state depends on several aspects – the valuation methodology of the land chosen by the state, the value of the stand in the case of forested land, and the negotiation skills of the landowner are also important. The state, for example, paid between 1,316 and 7,287 euros for 1 hectare of forested land. 135,382 euros per hectare on the non-forested immovable property. The most valuable of the cases analysed by the National Audit Office was the landscape in the limited management zone, the price of 1 hectare of which was 1,191,617 euros.

A smart and persistent negotiator will get a better price for his or her land

176. The National Audit Office analysed 20 cases of land transfer between 2018 and 2020 and identified several problems:

- The reasons for the choice, why it is considered appropriate to use the non-forested land valuation methodology for forested land, are not always clearly understood (Example 4).
- In the case of cases of non-forested land, the room for price negotiations is wide and depends on the land owner's ability and ability to involve additional appraisers and legal advisors. In negotiations, it is possible for the landowner to achieve (in the light of the cases analysed by the National Audit Office) up to 460% higher price compared to the state's initial offer.

  There is no clarity on how to assess the value of the land if it is located in a good area in terms of real estate development, and how to take into account the conditions that the municipality may foresee in the future with a general or detailed spatial plan. For example, if the plot of land for sale is located in a green area according to the general spatial plan, how to predict during the assessment of the land unit whether the municipality will grant the right to build there in the future and under what conditions. The analysed cases showed that they are determined on a case-by-case basis and the value of the land may be found on the surface of hypothetical assumptions that do not derive from legislation (see Examples 1, 2, 4).
- When determining the value of forested land, the aspects of the price formation of the stand are not transparent in the methodology, and the owner who sells the land to the state cannot make sure whether the basis of the transaction evaluation allows the owner to get a price appropriate to the value of the land, since the valuation methodology of forested land provides to take into account the three-year average

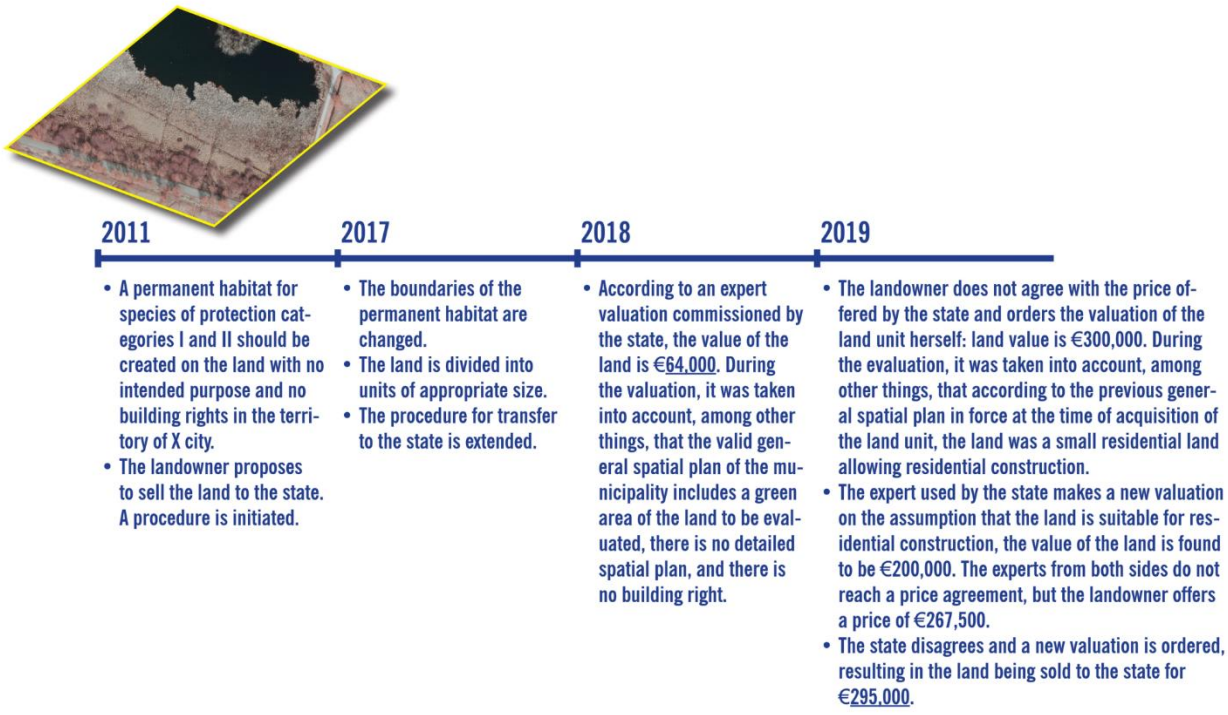
sales prices of the RMK. Information on the development of sales prices is not available to the public (see Example 5).

177. The described situations are illustrated by the following examples.

178. **Example 1**. Land unit on the bank of a water body, on alluvial drained peatland, in the city. Intended purpose of the land unit – 100% non-purpose land. The only reason why the right to transfer it to the state applied to the land unit was the fact that the land unit was located in the city (the rules in force at the time of the proceedings provided for such a possibility, even if no substantive restrictions were set by nature conservation).

179. In the general spatial plan of the municipality, there was a green area during the land sale process. The state's initial offer for the property was 64,000 euros, as a result of negotiations and several additional evaluations, the state and the landowner agreed on a sale price of 295,000 euros (see Figure 29).

Figure 29. Price formation when finding the value of a land unit



Source: National Audit Office, design by Madis Kats

For your information

The granting of building rights is at the discretion of the municipality.

The Supreme Court has come to the position that the applicant for the initiation of a detailed spatial plan cannot have the expectation that the detailed spatial plan initiated in the proposed manner will also be established. This is especially so in situations where it is desired to change the purpose of land use with the detailed spatial plan, which has already been agreed upon with the general spatial plan.

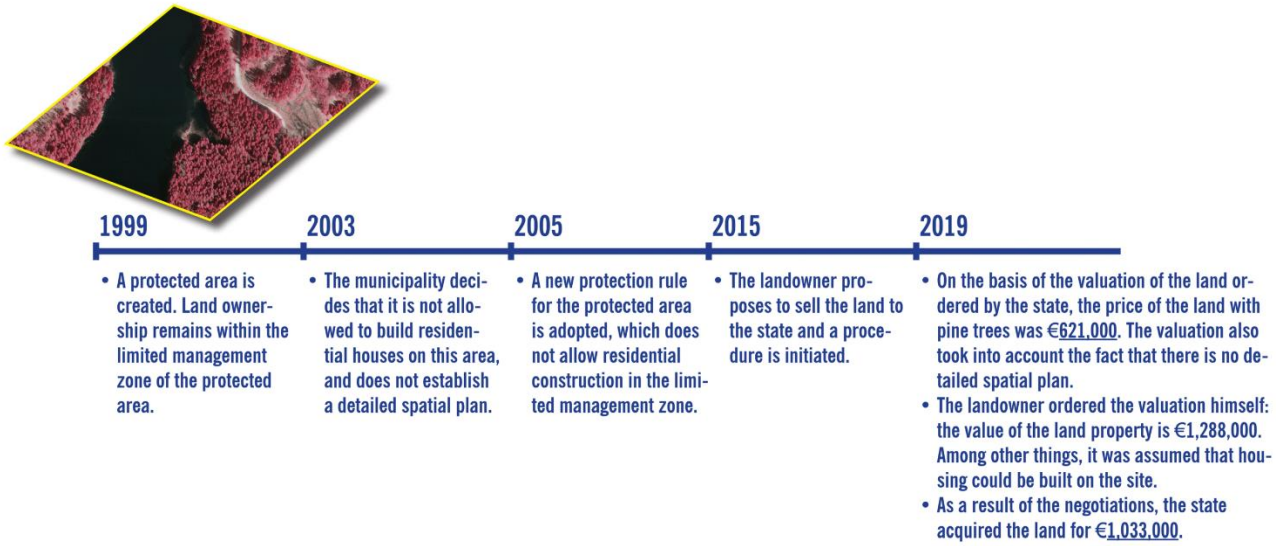
180. The 460% difference between the state's initial offer and the final agreement price arose because the state did not immediately have clarity on the basis of which assumption the value of the land unit should be assessed. The state proceeded from the assumption that it is non-purpose land that cannot be built on, and nature conservation restrictions did not set new substantive restrictions on the land.

181. However, the assessment ordered by the landowner was based on the hypothetical decision of the municipality to determine the building right – the municipality would have allowed construction on the area if there

were no restrictions associated with permanent residence. The appraiser did not have any confirmation in this regard from the municipality. During the procedure, the state agreed to change the valuation assumptions in such a fundamental way.

182. **Example 2.** Two land units are located on the bank of the water body in the limited management zone of the landscape conservation area, totalling 4.79 ha. Non-purpose land, which was also a green area in the general spatial plan of the municipality. The detailed spatial plan was initiated to change the general spatial plan and build residential buildings, which did not receive the approval of the municipality in 2003. In 2015, the landowner proposed to the state to buy out the land. When finding the value of the land unit, the assumption was made that the municipality would have allowed four houses to be built on the area, according to the landowner's wishes. The value of the land was found based on hypothetical assumptions, what the municipality's decision would have been. The landowner did not agree with the offered price, and according to the second valuation report ordered by them, the value of land was found to be about 150% higher compared to the original one (see Figure 30).

Figure 30. The process of transfer of a land unit



Source: National Audit Office, design by Madis Kats

183. **Example 3**. A land unit with intended purpose “profit yielding land”, where the target protection zone of the permanent habitats of the species of protection categories I and II is located. Approximately half of the land unit has a habitat with an inventoried semi-natural community, which can be used according to the intended purpose of the land unit (e.g. mowing, animal grazing). There is also a mineral deposit on the land, where there is no permit for mining, and it is not known how long the process of issuing a mining permit will take and what the terms and conditions of the permit will be. The landowner proposes to the state to transfer the land unit for 2,200,000 euros, assuming that no additional environmental impact assessments or surveys are needed during the permit procedure, and that the permit will be issued in one year and the mineral resources will be mined in five years. The state makes an offer in the amount of

For your information

A complaint reached the Supreme Court, where OÜ Rohe Invest requested to recognise the procedure for acquiring a protected natural object to the state as unconstitutional and pointed out that the price offer of the Environmental Board does not correspond to the market value of the cadastral unit. OÜ Rohe Invest also wanted to oblige the Environmental Board to organise the procedure for the acquisition of a cadastral unit in such a way that it is based on the market value of the cadastral unit.

The Supreme Court did not form a position on this issue, and legal clarity is still lacking.

The decision of the Supreme Court can be found here: https://www.riigikohus.ee/et/lahendid?asjaNr=5-21-3/11

1,300,000 euros, assuming that the processing of the permit will last three years and the mining will last seven years. As a result of the negotiations, the land unit was finally transferred to the state for 1,630,000 euros.

184. **Example 4.** Land with intended purpose “profit yielding land”, which was the core area of the green network in the general spatial plan of the municipality. The building right has not been granted to the land unit, but the property is located in a high-potential area in terms of real-estate development. Although the land area corresponded to all the characteristics of a forest and there was no perspective of the creation of building rights, the state chose a valuation methodology that assumed the situation where the property is built on as a prerequisite for finding the value. Assessed in this way, the sale price of the property with 4.2 ha of forest was 88,000 euros (three years later, the market value of the stand of this property was approx. 29,000 euros[125]).

185. **Example 5.** A land unit with a surface area of 35.21 ha located in the special protection zone of the flying squirrel's permanent habitat. In 2017, the landowner proposed to transfer the land to the state. During the procedure, the landowner wanted to receive information about the methodology for finding the value of the land to be transferred. The owner also wanted to know what the price of aspen wood was fixed in the RMK's aspen wood sale duration contracts with AS Estonian Cell, how it affected the amount offered to him by the state and whether what he was offered corresponded to the market prices at the time of determining the value of the land. The landowner appealed to the state several times, but no clarity was obtained regarding the development of the prices, the prices fixed in the duration contracts were not disclosed to the landowner. Since the landowner did not have enough transparency in the transfer process, and in their opinion, the transaction with the state was not fair in terms of remuneration, they reduced the surface area of the land to be transferred to the state to 8.73 hectares.

186. **The National Audit Office finds** that the methodology used in the transfer of nature conservation lands to the state is not clear and creates an unequal situation for the transferors of the land. There are also no clear principles on how to take into account during the assessment of a land unit whether the municipality will change the spatial plan in the future and grant the land unit the building right. For example, if the plot of land for sale is located in a green area according to the general spatial plan, how to predict during the assessment whether the municipality will grant the right to build there in the future and under what conditions.

187. **In conclusion,** in the analysed cases, it has been unclear, based on which it has been assessed, what the municipality's decision on the granting of building rights could turn out to be. On the other hand, it is also an important assumption that all information regarding the sale of the property should be transparent and known to the landowner.

188. The definition of "forested immovable property" is not clearly defined enough, and its use in practice needs more precise rules to avoid a situation where the concept of forest is defined differently in each

[125] To find the value of the stand, the Environmental Board's price calculator for determining the compensation for a key habitat was used.

individual case, thereby creating a precondition for unequal treatment of landowners.

189. Recommendations of the National Audit Office to the Minister of the Environment:

- In order to ensure equal treatment of landowners and transparency in the assessment of land value, specify the Government of the Republic Regulation No. 242 “The procedure for the acquisition of immovables containing protected natural objects by the state and for proceedings regarding proposals, and the criteria on the basis of which the use of an immovable for its intended purposes is deemed to be significantly hindered by the protection regime, and the procedure and basis for determination of the value of an immovable” of 8 July 2004 in the following aspects:
  - Specify the criteria for considering the aspects arising from the general spatial plan of the municipality with regard to possible building rights. Create clear rules on what assumptions to set for real estate appraisers in such cases;
  - Specify the regulation in which cases to apply the valuation methodology of non-forested property for those properties that meet the characteristics of a forest.
- In order to ensure maximum transparency and clarity in the formation of the transaction price, disclose all the circumstances that the state takes into account when calculating the price of land purchase

Response of the Minister of the Environment: The Ministry of the Environment has started a review of the regulations of the Government of the Republic Regulation No. 242 “The procedure for the acquisition of immovables containing protected natural objects by the state and for proceedings regarding proposals, and the criteria on the basis of which the use of an immovable for its intended purposes is deemed to be significantly hindered by the protection regime, and the procedure and basis for determination of the value of an immovable” of 8 July 2004, in order to make changes if necessary. We can analyse the proposals of the National Audit Office in more detail during this process. We plan to submit the draft amendment to the regulation to the Government of the Republic in the first quarter of 2023.

/signed digitally/

Ines Metsalu-Nurminen
Director of Audit at the Audit Department

Recommendations of the National Audit Office and responses of the auditees

On the basis of the audit, the National Audit Office gave several recommendations to the Ministry of the Environment, the Environmental Board and the Environment Agency. In August 2022, the Minister of the Environment, the Director General of the Environmental Board and the Director General of the Environment Agency sent their response to the recommendations of the National Audit Office.

General comments regarding the audit report

General remarks of the Ministry of the Environment

In addition to the specific proposals made to the Ministry of the Environment, we would like to draw attention to the statements in the inspection report, which in our opinion are not correct:

The first section of the summary of the inspection report states that "*in the opinion of the National Audit Office, the Ministry of the Environment has not ensured that the natural values of protected forests are preserved and that fellings do not damage them." In particular, the natural values of limited management zones and special conservation areas have been damaged due to felling and, among other things, extensive bare areas have been created.* The Ministry of the Environment cannot agree with such a generalised assessment. The Ministry of the Environment and the Environmental Board are based on the protection objectives of a specific object when planning the boundaries and protection order of all protected natural objects and permitting activities. The values that are protected and the activities necessary to ensure their preservation or to improve their condition and the possible protection procedure are therefore also different – the areas preserved through natural development or values for which separate activities must be carried out to improve their condition are zoned into special protection zones with a stricter regime. Areas are zoned into limited management zones, in which it is possible to carry out several economic activities, but this is subject to compliance with various additional conditions. In other words, the organisation of protection, in addition to general principles, is always related to decisions related to a specific place. Bare areas are also created naturally, and their creation and existence in protected areas is not necessarily related to the recognition that, as a result, the natural values being the protection objective have been damaged.

Comment of the National Audit Office: The text has been changed.

Section II of the summary of the inspection report states that "*since the impact of the fellings on the forest ecosystem is not evaluated, it makes the protection of the natural values of the forest specious."* According to the Ministry of the Environment, this is too much of a generalisation. In strictly protected special protection zones and strict nature reserves, where felling is prohibited, it can certainly not be said that forest protection would be specious.

Comment of the National Audit Office: The text has been changed.

Section III of the summary of the inspection report states that *the National Audit Office already led attention 15 years ago to the fact that the protection of forest habitats in need of nature conservation has not been organised in a way that would ensure their favourable condition. There was no information on the actual locations of the habitats, areas suitable for protection were left under protection without justifications, there were no protection management plans, the impact of fellings on forest habitats was not assessed, and habitats in the limited management zones were threatened by felling. Most of the problems raised at that time are still unsolved, and the risks mentioned have materialised.* The Ministry of the Environment cannot accept the statement that the problems are unresolved. Solving the various problems raised has been actively dealt with – wide-ranging inventories have been carried out, the protection needs of various conservation values are always analysed within the framework of expert assessments, a large part of the protected areas have by now received protection management plans, various areas have been extensively zoned from limited management zones to special protection zones. At the same time, we admit that, in the conditions of a limited budget, many nature conservation activities have been underfunded, and with the availability of additional funding, several issues could be solved more promptly.

Paragraph 9 of the inspection report states that *the state must keep records of forest habitats both in the European Commission's database and in the Estonian Nature Information System (EELIS). If any forest habitat disappears as a result of felling, information about it must also reach the European Union Natura standard database.* We clarify that we are not obliged to provide the European Commission with information about the felling of every single habitat patch via the standard database. The standard database shows the total surface area of the habitat. We believe that this is not a correct statement, because in fact we keep records for the EU not only in the standard database, but also for the whole of Estonia with habitat directive reports. Reference No. 16 is only related to the Natura 2000 areas. Rather, you should refer to (and also use in the sentence) the report of Article 17 of the Habitats Directive (92/43/EEC): http://cdr.eionet.europa.eu/Converters/run_conversion?file=ee/eu/art17/envxtxasa/EE_habitats_reports20190725-083848.xml&conv=589&source=remote.

Comment of the National Audit Office: The National Audit Office emphasised in the report that the data in the standard database has not been updated. Regardless of what other channels and obligations the state has for providing data, the state's obligations regarding the standard database have not been met.

Footnote 15 of paragraph 9 of the inspection report states that "*the endangered and rare habitats across Europe described in the European Union Habitats Directive, which the Member State is obliged to keep in good condition and to notify the European Commission periodically (with an interval of 6 years) about the condition of the habitats." Some of them are of primary importance, i.e. they need special protection due to the danger of destruction. In Estonia, these are western Taïga (9010*), old broad-leaved forests (9020*), forests of slopes, screes and ravines (9180*), and bog woodlands (91D*).* We clarify that, in addition, the priority habitat types are also 9080* – Fennoscandian deciduous swamp woods, and 91E0* – alluvial forests.

Comment of the National Audit Office: The text has been updated.

Paragraph 12 of the inspection report states that "*protected areas and the rules based on each area are approved by the Government of the Republic with the conservation regulation, in the case of special conservation areas, the government approves their list, and the rules follow from the Nature Conservation Act."* We specify that the government approves not only the list of special conservation areas, but also the protection objectives (species and habitats) and boundaries of each special conservation area.

Paragraph 15 of the inspection report states that "*like the term "forest", the term "strict protection" has different meanings." For example, according to the data of the Statistical Forest Inventory (SMI), 14.2% of Estonia's territory is under strict protection. It includes both natural and maintainable special management zones (including plotted ones), strict nature reserves and key habitats. However, the International Union for the Conservation of Nature Resources (IUCN) considers a forest to be strictly protected only if it is not felled and is allowed to grow naturally. Considering that most of the strictly protected forests in Estonia are maintainable special management zones (see Figure 4), according to the IUCN's definition, there are many times less strictly protected forests in Estonia.* We would also like to draw your attention to the fact that a document by the European Commission has been developed by now, which provides guidelines on how the EC defines strict protection. https://ec.europa.eu/environment/publications/criteria-and-guidance-protected-areas-designations-staff-working-document_en.

Paragraph 20 of the inspection report states that *the purpose of the EU nature conservation rules is to ensure the favourable condition of Natura areas that are important for Europe as a whole.* Please note that the Habitats Directive's purpose is not to ensure the favourable condition of Natura areas, but the favourable condition of species and habitat types listed in the directive. The purpose of the Natura network is to preserve or, if necessary, restore the favourable conservation status of the relevant natural habitat types and habitats of species in their range.

Comment of the National Audit Office: The text wording has been corrected. Although the purpose is to achieve and maintain a favourable condition of habitats and species, the assumption is that Natura areas (which make up the network) have been established for this purpose and in such a way as to ensure this objective. The problem is that the condition of certain forest habitats and species remains poor.

Paragraph 26 of the inspection report states that "*Estonia has interpreted the Nature Directive incorrectly, considering the favourable condition only within protected areas, but this must be taken into account in the country as a whole, also in the case of forest habitats located in commercial forests."* The Ministry of the Environment does not agree with the fact that we have considered the favourable condition only within the protected area. In the report of the Habitats Directive, the total area of the habitat type in Estonia is treated as a favourable reference area, not only in protected areas, i.e., in the report of the Habitats Directive, the condition of habitat types and species is reported across Estonia, not only for the protected areas.

Comment of the National Audit Office: In its letter, the Ministry of the Environment has referred to paragraph 21, which describes the conclusions of the National Audit Office's audit 15 years ago. As you know, there are more criteria for a favourable condition than just an area indicator, on the other hand, the report also refers to a substantive problem – forest habitats that are still in an unfavourable condition have been cut down both in commercial forests and in the restricted zones of protected areas and in special conservation areas.

Paragraph 29 of the inspection report states that knowing the exact area of the special management zones is important, as it depends on whether or not felling restrictions will be imposed on forest habitats in the limited management zones. We specify that the limitation of fellings in the forest habitats of the limited management zone does not depend on the area of the special protection zone. Forest habitats are also protected in special conservation areas. The area-based objectives are taken into account when planning the zoning of the area and updating the protection procedures.

Comment of the National Audit Office: Guidelines for issuing felling permits have been prepared for the officials of the Environmental Board, where the mentioned connection is stated (see paragraph 29).

Paragraph 41 of the inspection report states that the area of western Taïga in need of protection is actually more than we have reported to the standard database. We draw attention to the fact that both nature and the available data about it are constantly changing – additional inventories are taking place, among others, habitats may be reassessed, i.e. one forest habitat may change to another.

Table 2 of the inspection report also contains information about the wooded pastures (9070). Please note that habitat type 9070, wooded pastures, is more suitable to be treated together with semi-natural meadow communities, and not as a forest habitat. At the same time, type 2180 – forested dunes should be considered among forest habitat types.

Comment of the National Audit Office: Table 2 uses the classification given in the instructions for inventorying forest habitats of the Nature Directive.

Paragraph 42 of the inspection report states that "*although the National Audit Office had indicated the need to organise the basic data of the forest habitats of the Nature Directive already 15 years ago, it has not been done so far, and the data has not been updated after the prescribed time. Therefore, the Ministry of the Environment and the Environmental Board have knowingly used data that does not correspond to reality.* The Ministry of the Environment does not agree with the stated statement. The Environmental Board has constantly ordered surveys and inventories to clarify the data. For example, since 2015, inventories of more than 75,000 ha of forest habitats have been conducted in the protected areas.

Comment of the National Audit Office: The text has been changed. The audit showed that, despite the activities referred to in the comment, damage to the protection forests has not been ruled out, and the condition has not improved. The infringement procedures initiated by the European Commission also point to shortcomings.

Paragraph 71 of the inspection report states that "*if it is assumed that the forest is not felled in these areas, it will take almost another 20 years before at least half of the strictly protected forests are old enough for a species-rich community to develop there."* According to the Ministry of the Environment, it is important to specify that the community of a forest less than 100 years old can also be rich in species. Communities of different ages provide habitat for different species. In this case too, the objective is to increase the area of habitats for species that live in "old forests."

The source of Table 4 of the inspection report is indicated as the Environment Agency. Please note that it is not correct to call this a report of the Environment Agency. The Ministry of the Environment is responsible for the implementation of the Habitats Directive and the submission of the corresponding report.

Comment of the National Audit Office: the text has been corrected.

Paragraph 83 [now p. 84] of the inspection report refers to the European Commission's view that the provisions of the Strategic Environmental Assessment Directive should be applied to the conservation regulations. We point out that in the recent preliminary judgement of the European Court of Justice (C-300/20: Bund Naturschutz in Bayern; 22/02/2022) the European Court came to the conclusion that such a regulation, the purpose of which is nature and landscape conservation and which provides general prohibitions and permit obligations for this purpose, but which does not establish sufficiently detailed rules on the content, development and implementation of projects, does not fall within the scope of application of Directive 2001/42/EC. In Estonia, such regulations are conservation regulations, which also generally stipulate prohibition obligations for felling permits, but do not establish final, detailed criteria for the activity, which are established as a rule when exercising discretion during forest notification processing.

Comment of the National Audit Office: The interpretation of the cited judgment cannot be transferred to the Estonian situation in this way. An important role in the decision of the European Court was played by the fact that, firstly, the municipal regulation in question in the judgment contained only the provisions necessary to achieve the protection objectives, and secondly, the regulation did not contain general restrictions, but only a list of activities for which permission should be requested from the relevant nature conservation authority. It is premature to claim that the conservation regulations in force in Estonia are the same documents as the regulation mentioned in the judgment. During the infringement procedures, the European Commission has drawn attention to the fact that, in addition to a set of conservation rules, the Estonian conservation regulations also contain provisions on forest management, and these latter are not necessary to achieve the protection objectives. Thirdly, the conservation regulations usually also contain discretionary limits, based on which the Environmental Board can decide whether an activity should be allowed or prohibited. The Estonian conservation regulations are more precise than the regulations referred to in the judgment. The cited judgment does not analyse this, but it follows from the judgment that environmental impact assessment may be necessary in the German municipality in question at the level of granting a permit or at the level of some more precise document. Such a position taken by the Ministry of the Environment contradicts its own planned solution to eliminate the infringement of EU law – it is planned to draw up one protection management plan for all Natura forest reserves and carry out an environmental impact assessment on it. The Ministry of the Environment should assess whether such a general document, which does not proceed from the protection values located in each area and does not take into account the specifics of each area, can also qualify as a general document in the sense of the cited European Court decision.

Paragraph 84 [now p. 85] of the inspection report states that the National Audit Office is of the opinion that it is necessary to analyse whether stopping the felling only in habitats is sufficient to achieve a good condition, because according to the Nature Directive, the entire Natura area must be protected. Felling in the Natura area bordering the habitats (e.g. forest bird species protection areas) also adversely affects the condition of the habitat. According to the Ministry of the Environment, the wording in this form is inaccurate. We specify that the Nature Directive does not simply provide for the protection of a Natura site as such. Natura areas had to be chosen for the protection of the species and habitat types of the Nature Directive and Birds Directive, and the purpose of their establishment is to protect the habitat types and species set as the protection objective of the area.

Paragraph 85 [now p. 86] of the inspection report states that, according to the explanation of the Ministry of the Environment and the Environmental Board, the Nature Directive does not oblige to protect forest habitats throughout the country, since there is a sufficient number of areas in the special management zones (where fellings are mostly prohibited) to meet the requirements of the directive. The Ministry of the Environment is of the opinion that it will only become clear in the course of further infringement procedures whether Estonia should assess the impact of felling in all protected forest habitats or Natura areas more broadly. We specify that the nature directive obliges to achieve a favourable condition of habitat types. As we have already explained earlier, it is based on the existence of habitats in the country as a whole. However, this does not mean the protection of all habitat patches throughout the country as a whole – the European Commission has developed the corresponding criteria and the target levels of the so-called favourable condition have been agreed upon, which are taken into account in the reporting of Article 17 of the Habitats Directive. The Ministry of the Environment explains that the impact of felling must be assessed on the protection objectives of the Natura 2000 area and is not related to the course of the infringement procedures.

Paragraph 106 [now p. 105] of the inspection report states that, in the opinion of the National Audit Office, the relief of the protection conditions of the limited management zones is not justified, because in this case the limited management zone cannot function as a buffer protecting the special protection zone. If the forests in the limited management zones were managed more economically, there would be no need to constantly increase the surface area of the special management zone. According to the Ministry of the Environment, this statement remains vague. As we specified earlier in this report, different species need different communities, and the forests of the limited management zone do not replace the old communities that are developing naturally and their ecological function.

Paragraph 110 of the inspection report [now p. 109] states that, for example, the Vice-Chancellor of the Ministry of the Environment sent a letter to the Environmental Board regarding the Kõveri-Ilvese region with a message to delete the proposal for protection already entered in the environmental register, as it is not sufficiently justified. However, this decision was not within the competence of the Ministry of the Environment. We explain that the proposal for the establishment of the Kõveri-Ilvese permanent habitat of western capercaillie was made by the Environmental Board in 2019 based on a survey by the Estonian Ornithological Society (EOÜ). The purpose of the EOÜ survey was to find out the damage caused by the construction of Rail Baltic to the population of western capercaillie and to propose mitigation measures. The size of the area proposed by the Environmental Board was 7337 ha. In order to compensate for the direct impact on the two lekking grounds (254 ha), EOÜ proposed to take 8664 ha under protection. The Nature Conservation Act provides for the possibility that if the proposal does not meet the requirements of the law (e.g. insufficient reasons), it will not be implemented in this form and the proposal must be supplemented. As a result of the analyses, the specialists of the RMK and the Environmental Board came to the conclusion that it is justified to protect an area of 1039 ha from this proposed area (as 4 separate permanent habitats). It was not a typical process of creating permanent habitats of western capercaillie in the areas where birds lek and raise their offspring today, but envisioning possibilities for capercaillies to move to lekking grounds that will be destroyed or heavily affected in the future. The EIA of the Rail Baltic construction design documents had to form the final position, and specific compensation measures will be

determined during the coordination and approval of this document. Therefore, the statement of the National Audit Office, as if the decision of the Ministry of the Environment was not competent, is not correct.

Comment of the National Audit Office: The report wording has been elaborated.

Paragraph 117 [now p. 116] of the inspection report states that *if there is no protection management plan, there is a risk that the data of the protected values have not been analysed with sufficient depth, nor have protection activities been planned.* In our opinion, this statement is not correct. As mentioned above, the protection management plans have not been drawn up especially in such areas where the purpose is natural development and there are no active activities to achieve the protection objectives. In such cases, the data of the protected values have been analysed and protection activities have been planned in the preparation of the conservation regulation.

Comment of the National Audit Office: The National Audit Office maintains its position that a missing or superficial protection management plan is an obstacle to protection management. During the audit, the sampled examples did not have a conservation management plan in the Tuhala-Nabala protected area and yew trees, the protection management plans in Otepää and Lahemaa were not comprehensive enough.

Paragraph 120 [now p. 119] of the inspection report states that "*the intervention of the Ministry of the Environment in the decision to establish a protected area, which is within the competence of the Environmental Board, deserves disapproval*." Please note that on the basis of subsections 1 and 2 of § 10 of the Nature Conservation Act, decisions on establishment of protected areas fall within the competence of the Government of the Republic or the Minister of the Environment.

Comment of the National Audit Office: The wording has been elaborated.

Paragraph 150 of the inspection report [now p. 148] states that "*according to the estimation of the Estonian Fund for Nature, in the years 2010-2018, there were 21,956 ha of forest, which included an area with the KH characteristics that had not yet been inventoried*." We would like to draw your attention to the fact that the numbers presented here are probably so-called potential key habitats, the Ministry of the Environment was not contacted or consulted when compiling the database. The database prepared by Liis Kuresoo, head of the forest program of the Estonian Fund for Nature, is based on Annex 4 of the previous version of the guidelines for determining valuable habitats. The guidelines and the aforementioned annex were prepared in parallel with the above-ground KHs inventory that took place in 1999–2002. These criteria were then used to make the very first pre-selection. Before the fieldwork, more detailed data was used, including, for example, aerial photos, as well as the knowledge acquired during the inventory. According to experts, most of the pre-selected areas did not meet the KH criteria at the time – some of these areas were excluded using indirect methods and some during fieldwork. If the same database is referred to here, it is likely that most of the areas do not meet the actual KH criteria.

Comment of the National Audit Office: The National Audit Office admits that all areas with the KH characteristics found in the survey may not meet the KH criteria based on the results of the inventory. Since the mentioned survey is based on the best possible knowledge, based on the precautionary principle, these areas should be treated as a KH area until the inventory is carried out.

Paragraph 158 [now p. 156] of the inspection report states that "*the payment of subsidy does not therefore depend on whether and how much forest remains in the Natura area and whether and how much potential income could be earned from the subsidised forest area. Also, the payment of the subsidies does not depend on whether the habitats have been preserved.* We explain that according to EU Regulation 1305/2013, the subsidy can be paid for additional costs and lost income due to the implementation of the Birds Directive and the Habitats Directive. In Estonia, subsidy is paid for compliance with nature conservation restrictions, i.e. lost revenue. The subsidy rate is calculated for the average lost income per year. The simplified subsidy scheme is used so that the administrative costs of the subsidy do not exceed the limit of reasonableness.

Paragraph 168 [now p. 164] of the inspection report states that the justifications for the right to the subsidy described in paragraph 166 – if a felling permit has been granted, it is not contrary to the objectives of the European Union Nature Directive and Birds Directive – cannot be considered correct. A clear basis for such a conclusion is provided by the infringement procedures initiated by the European Commission, in which it is stated that the effects of the planned felling have not been assessed by the state, and it is not known whether the felling permit was issued on the right grounds. It is known that for this reason the Environmental Board has stopped fellings in the forest habitats located in the limited management zone. In the light of this decision, those fellings that have already been done in forest habitats cannot be considered to meet nature conservation requirements, and the continued financial support of these areas is not justified. We explain that the purpose of the private forest subsidy is to compensate for the restrictions established on the basis of the Nature Conservation Act, i.e. felling cannot be done in Natura 2000 areas in the manner specified in the Forest Act. Felling restrictions are set on the basis of § 31, Section 4, and § 32, Sections 3, 4, and 41 of the Nature Conservation Act and on the basis of the conservation regulations. Sustainable economic activity is permitted in the limited management zone, including restrictions on clear cutting, the size and shape of a felling block. For example, with the consent of the manager of the protected area, in the limited management zone permitted by the conservation regulations, shelterwood cutting of 2–5 ha or, in some cases, clear cutting of 0.5–1 ha as a felling block. Restrictions are also applied to the age and species composition of the forest and the time of felling, if it is necessary to preserve the community or the protected species belonging to it and to improve living conditions. As a rule, the collection and export of wood from unfrozen soil is prohibited or the ruler is given the option of permission if the soil allows it. Conditions are also set for preserving the natural balance of the landscape and community, the diversity of species and age: the species and age composition of the stand, which must remain after felling, is described, and if necessary, cutting ages are increased. For example, the share of forest over 60 years old in the habitat of western capercaillie must not be less than 50%, and between the felling blocks, stands over 60 years old must be left in a strip at least 100 m wide. Based on the restrictions, the average lost income has been calculated in the protected areas, and the subsidy rates have been established based on this.

Comment of the National Audit Office: In its response, the Ministry of the Environment has diverted attention from the content of the problem highlighted by the National Audit Office. The National Audit Office draws attention to the fact that the Natura forest subsidy should, first of all, contribute to ensuring the good condition of Natura habitats, i.e. protecting birdlife and habitats. Secondly, it should compensate for the lost revenue caused by the restrictions. However, the rules for the payment of the subsidies allow the subsidies to be paid also to those areas where species or habitats have been destroyed as a result of felling and income has been earned. In the case of the examples given by the National Audit Office (see paragraphs 161–162), no one has assessed whether the habitat has been damaged as a result of felling, although the area has been clearcut and there can no

longer be forest habitat there. Therefore, taking into account the described circumstances, it cannot be concluded that the payment of the Natura subsidies is justified and appropriate in essence.

The Audit Scope and Approach chapter on page 67 [now page 85] states: 4) compliance of the change in the protection regime (in case of easing) with the directives of the European Union (Habitat Directive, Nature Directive, Landscape Convention). We specify that the Habitats Directive and the Nature Directive are the same document, i.e. the Habitats Directive (92/43/EEC) has been translated into Estonian in two different ways.

Comment of the National Audit Office: The text has been changed.

General comments of the Environmental Board

In addition to the specific proposals made to the Environment Board, we would like to draw attention to the statements in the inspection report, which in our opinion are not correct:

Paragraph 47 of the inspection report states that, "*according to the Environmental Board, it is not necessary to know how much has been cut in one or another zone in a certain period of time, neither for issuing felling permits nor for managing the protected area."* The Environmental Board has not claimed that this information is not necessary, but explained that with today's legislation and the resulting forest notification procedure, operational felling information cannot be used when issuing a forest notification, because the decision-making bases are based on the current conservation regulations and the Forest Act (the decision is determined by the maturity age, the size of the felling block, forest regeneration criteria, etc.). If the legal space changes and there is a methodology for cumulative effects, operational felling information is necessary and the Environmental Board can take it into account when making its decisions. The RMK has also said in its comments (paragraph 49 of the inspection report) that *today "there is no mechanism in the legislation that would allow fellings to be slowed down even if limits were set for the cumulative volumes of felling in the limited management zones." If assessments of cumulative felling volume were necessary, faster, more accurate and more up-to-date data should also be available.*

Comment of the National Audit Office: The Environmental Board's documented justification for this is given in Annex B "Focus group meeting organised by the National Audit Office." If the position of the Environmental Board has changed in the meantime, it is a positive development.

Paragraph 83 [now p. 84] of the inspection report refers to the European Commission's view that the provisions of the Strategic Environmental Assessment Directive should be applied to the conservation regulations. We point out that in the recent preliminary judgement of the European Court of Justice (C-300/20: Bund Naturschutz in Bayern; 22/02/2022) the court came to the conclusion that such a regulation, the purpose of which is nature and landscape conservation and which provides general prohibitions and permit obligations for this purpose, but which does not establish sufficiently detailed rules on the content, development and implementation of projects, does not fall within the scope of application of Directive 2001/42.

The conservation regulations also generally stipulate prohibition obligations for felling permits, but do not establish final, detailed criteria for the activity, which are established as a rule when exercising discretion during forest notification processing. Such a position of the European Court is also justified and logical in the opinion of the Environmental Board, because the environmental impact cannot be assessed abstractly or on the basis of hypothetical assumptions. In order to assess the impact, it is necessary to know as precisely as possible the parameters characterising the planned activity, such as time, scope, location, etc., therefore it is not possible to do this essentially at the level of the conservation regulations, at least not with the level of detail required in assessing the effects of Natura. According to the decision of the European Court of Justice, an appropriate Natura impact assessment should contain full, precise and definitive views and conclusions that would dispel any scientifically justified doubts about the impact of the proposed works in the protected area in question (judgment in case C-304/05, paragraph 69).

Comment of the National Audit Office: See the explanation of the National Audit Office, why this decision does not apply to Estonia, in the same comment of the Ministry of the Environment.

Paragraph 84 [now p. 85] of the report states that the entire Natura area must be protected according to the Nature Directive. In paragraph 87 [now p 88], the conclusion is apparently reached that the Environmental Board lacks clarity on where and what must be protected in a Natura area, and as a result, the Environmental Board is also given a recommendation to assess the effects of felling on the natural values of a specific allotment each time.

We confirm that the Environmental Board has a clear understanding of where and what must be protected in a Natura area, and in this respect does not agree with the National Audit Office's conclusion. Rather, this discrepancy is due to the fact that the Environmental Board and the National Audit Office have different understandings of what the obligation to protect a Natura area essentially means. The approach of the National Audit Office, where "According to the Nature Directive, the entire Natura area must be protected" and "it is necessary to assess the effect of felling on the natural values of a specific allotment", is, in the opinion of the Environmental Board, inaccurate and misleading in the context of the Natura area protection obligations. Article 6 of the Nature Directive stipulates these obligations. In the communication of the European Commission "Organisation of the protection of Natura 2000 sites" (https://eur-lex.europa.eu/legal-content/ET/TXT/PDF/?uri=CELEX:52019XC0125(07)&from=ES) the content of this obligation is explained as follows – *Article 6, paragraph 2 of the Habitats Directive obliges the Natura area to prevent the deterioration of the natural habitats present condition there and the disturbance of such species for the protection of which the area has been designated. Disturbance of species must be avoided in cases where it has a significant impact on the objectives of the Habitats Directive. Habitat deterioration is considered a situation when the area of habitat type or species habitat in this area decreases, or when the functions and structure necessary for the long-term preservation of the protection status of the habitat or related species deteriorate compared to their initial (at the time of submission as a Natura site) or restored condition. Any event, activity or process that causes a long-term decrease in the population of a species in the area, a decrease in the range of the species or its threat, and a decrease in the size of the habitat used by the species is considered as disturbance of the species in the area.*

As can be concluded from this, the Nature Directive does not oblige to avoid any harmful impact on the habitats, but here it is also important to take into account the protection objectives of the area and the intensity and extent of the impact of the activity. We also emphasise here that the impact is assessed at the Natura area level, not at the level of a specific allotment. The Supreme Court reached the same position in the administrative case 3-17-740/46.

The statements and references in the report, which give the impression that any damage to habitats at the level of the forest allotment is a violation of the requirements of the directive, are false and presenting it in this form distorts the real nature of the problem.

Comment of the National Audit Office: The National Audit Office remains of the opinion that based on the Nature Directive and Birds Directive and their implementation guidelines, as well as relevant court rulings, forest habitats may not be damaged in the entire Natura area, unless it has been proven with inventories that there is no habitat in the area or that it does not affect the protection of the area's habitat. Since the locations of the habitats are not all known and the inventories have mostly been made only in special management zones, it is important to ensure protection throughout the entire Natura area by making felling decisions based only on the inventory data or by assessing separately for each decision whether felling can damage the habitat or the species. We would like to point out that the Ministry of the Environment, commenting on the same topic in paragraph 85, has explained that it expects more precise clarity on whether the effects of felling must be assessed in the Natura habitat or in the entire Natura area, from the decision of the infringement procedures.

Paragraph 95 of the inspection report states that *in many cases, the restrictions based on the objectives of the protected area have not been set by the conservation regulations on the limited management zone of the nature reserve, and it can be managed like a commercial forest.* The Environmental Board certainly does not agree with this statement, because the conservation regulations have always set restrictions on forest management compared to commercial forests. Even in cases where clear cutting is permitted according to the conservation regulations, restrictions have been set, for example, on the size of the felling block compared to commercial forest.

Comment of the National Audit Office: The text has been changed. During the audit, the National Audit Office found that there are often no or too few conditions attached to fellings in the limited management zone (see paragraphs 96–97).

Paragraph 99 of the inspection report points out, based on the survey by the Estonian Fund for Nature, that in the years 2011–2020, felling restrictions have been eased in most conservation regulations. According to the Environmental Board, such an assessment is not completely objective, because when making this analysis, the authors of the survey did not take into account changes in the zoning of the protected areas. Based on the data provided in the yearbooks entitled "Estonian Nature Conservation in 2015" and "Estonian Nature Protection in 2020", the area of special protection zones in protected areas has increased by approx. 70,000 ha in the comparable period. In the practice so far, we have increased the area of special protection zones precisely in the areas of forests, swamps and other similar communities that need strict protection. The protection order of the protected area is a whole, which is why we believe that in order to assess whether felling restrictions have become stricter or lenient, all changes concerning fellings must be taken into account. In addition, we point out that clear cutting is possible in 81 of the 430 protected areas – in the limited management zone of these protected areas. Mostly it is allowed only in gray alders and in some cases also in spruce stands.

Comment of the National Audit Office: The National Audit Office admits that rezoning to a special protection zone can improve the protection of the natural values, but this measure is not sufficient, as protection must also be ensured in limited management zones and special conservation areas. This is the case if habitats or species in need of protection are located in these areas, or if fellings may affect these habitats and/or species.

Paragraph 113 [now p. 112] of the inspection report states that the action plan for yew tree protection has not been approved. The Environmental Board points out that the action plan for the protection of the yew tree has been approved on 22/12/2021.

The statement made in paragraph 120 of the inspection report, as if decisions on the creation of a protected area fall within the competence of the Environmental Board, is inappropriate. On the basis of subsections 1 and 2 of § 10 of the NCA, decisions on establishment of protected areas fall within the competence of the Government of the Republic or the Minister of the Environment. Subsection 1 of § 9 of the NCA initiates and appoints the authority conducting the procedure, which is the Ministry of the Environment. Considering the guidelines of the Ministry of the Environment, the Environmental Board is the operator of the procedure and also performs the role of an expert as needed. It remains unclear on what basis the National Audit Office considers that the Environmental Board has this competence.

Comment of the National Audit Office: The text has been changed.

We thank you for the analysis and comments, and we hope that focusing on this area will allow us to get more resources for more science-based activities, because this is the only way to find a balance between biodiversity protection and society's expectations.

General comments of the Environment Agency

In addition, there are several erroneous conclusions and arbitrary interpretations in the statements of the National Audit Office (hereafter NAO). In the report, several concepts (for example, the expression "forest definition") are used in several different meanings, and various data collections and their contents are also confused (e.g. data from the Estonian Nature Information System and the Estonian Topographic Database). Therefore, the content of the text may remain incomprehensible to the reader of the report.

We would like to draw attention to the statements made in the report, which are misleading. The following is the statement of the NAO report (in italics), followed by an explanation.

Page 3 of the report:

It is also unclear how much forest is under protection. The data on the area of protected forests displayed to the public by the Environment Agency is misleading, and the area of strictly protected forests is estimated to be larger than it actually is. In order to clarify the extent of the error, it would be necessary to thoroughly analyse the map data and agree on a methodology for finding the surface area.

Response of the Environment Agency: On the basis of the SMI, it is known how much forest is under protection (both forests under strict protection and protection forests). Since the SMI is a statistical sample survey, the estimates also have a relative error. The estimate of the total surface area of the strictly protected forests can be considered sufficiently accurate (relative error of 3.5%). Certainly, the area of forests with strict protection has not been systematically estimated to be larger or smaller. The exact list of layers used for the SMI and the order of felling is given on the homepage of the environmental portal under the SMI

tables. The list of layers necessary to define strict protection has been agreed upon in the administrative area of the Ministry of the Environment.

Comment of the National Audit Office: The National Audit Office stands by its position. Paragraph 36 of the report shows an example of overestimation of the surface areas of the strictly protected forests. The inspection of the data carried out by the Environmental Board and the Land Board showed that the Environment Agency, in the ETD calculations, was wrong in determining the area of the planned special protection zones about 10 times, estimating these areas to be larger than the real ones (35,811 ha, the actual area of new special protection zones, which at the same time has not already been designated as a special protection zone, is 3,600 ha). However, the SMI found the surface area of the same protection category to be 44,432 ha, which is even larger.

It is erroneous to claim that the list of layers necessary to determine strict protection has been agreed upon. Audit operations proved that:

- When submitting data to the National Audit Office, the layering methodology referred to in the "Forests 2019" yearbook was not followed;
- In the administrative area of the Ministry of the Environment, there was no agreement and it was not known how to find surface areas of forests under strict protection.

After the completion of the audit operations and the review of the assessments and results of the National Audit Office, the methodology for finding the surface areas was changed to correspond to the one that had been used when submitting data to the National Audit Office (see the "Forests 2020" yearbook). The National Audit Office acknowledges the implementation of the recommendations of the Environment Agency even before the official publication of the report, but the National Audit Office is not sure whether the errors mentioned above have been eliminated in the new calculations.

Page 3 of the report:

In the administrative area of the Ministry of the Environment, there is no agreement on which definition of "forest" should be the basic premise of data analysis. The data in the Estonian Nature Information System can be interpreted in different ways, which in turn makes it easy to make mistakes in the data analysis and show the surface areas of forests differently.

Response of the Environment Agency: The concept of forest is defined in § 3 of the Forest Act. The administrative area of the Ministry of the Environment is based on this definition (including forest inventory data in the Forest Register, SMI, RMK information system).

The Environment Agency cannot agree that the data can be interpreted differently. Rather, the problem is the familiarity/unfamiliarity with the datasets of specialists who performed analyses in different professions. If the person doing the analysis does not know all the nuances of the dataset, then he will get a different result. A clear initial task is important, in this work it changed several times.

Comment of the National Audit Office: The main question of the National Audit Office was and still is how the forest is divided between different protection regimes, and the former is also a prerequisite that the Environment Agency itself must have the methodology to answer this question. The complexities of the answer to the request, on the basis of which the summary was made, are reflected in the report in paragraphs 27–39 and in Annex B of the report. We point out that the response given by the Environment Agency contradicts its other responses, which indicate that the methodology for finding the areas of strict forests (i.e. the layers cutting methodology and the use of the concept of forest) have been agreed upon in the administrative area of the Ministry of the Environment.

Page 3 of the report:

... create an application for the Forest Register to record felling in protected areas and create the ability to search for data by both protected areas and their protection regimes. The data of the Estonian Topographic Database shall be used in the statistics of the surface areas of the protected areas.

Response of the Environment Agency: The origin of the data has been confused. The Estonian Topographic Database (ETD) does not contain protected surface areas, as the Estonian Nature Information System (EELIS) keeps records of them. There are several other places in the report that say about the surface area of the protected areas / the surface area of different regimes of the protected areas, although in fact it seems that they mean the surface area of forest land in these areas (e.g. Page 9, Figure 4, Page 13, paragraph 26).

Comment of the National Audit Office: The National Audit Office refers to the need to reflect the surface areas of the protected forests on the basis of ETD. On the basis of the ETD, forest land is also determined in the land cadastre, and, on the basis of this, land tax is collected, and it is a matter of accurate map data. The National Audit Office has not confused data sources and is aware that information about protected areas comes from EELIS. This is also described in paragraphs 27–39 of the report. The text has been supplemented for better understanding.

Page 5, paragraph 1, Figure 1 of the report:

Although the concept of forest seems to be clear, different parties mean different phenomena when talking about forest. The forest becomes wood, mushrooms, berries, and plants. In addition, peace of mind, health, clean air and several other ecosystem services. It is not clear to everyone which forest must be protected and why. One and the same forest landscape (for example, the pine stand in the photo in Figure 1) can be described in at least three ways – through legal, ecological and cultural (cognitive) meaning.

Response of the Environment Agency: When describing a forest, a division is used at a scientific level: ecological functions, economic functions, social functions, and cultural functions. The description of the NAO report is arbitrary and misleading.

First of all, in the legal view given by the NAO, the forest is described based on the cutting age, yet at the legal level it is said: "A forest is an ecosystem that consists of forest land, the vegetation that grows on it, and the fauna that lives there."

Secondly, in the cultural view, the forest is described primarily from the point of view of recreation, yet Estonia also has a long-term culture of using forest products, i.e. the NAO uses a very one-sided approach to the cultural view.

Thirdly, the ecological point of view has been discussed only from the point of view of very old forest, while the ecological point of view is also important from the point of view of commercial forest, including young forest. The community in the young forest is different from the community in the old forest. Also, the ecological point of view is crucial in drawing up the rules of economic activity: leaving intact and seed trees out of fellings, leaving dead wood, limitations on the surface area of felling, limitations on the age of felling, etc.

Fourth, the social view is completely neglected.

Comment of the National Audit Office: The National Audit Office consciously wanted to emphasise the confusion surrounding the concept of forest and chose a different focus to describe the forest – not through functions, but through the meanings of the concept of forest and the description of the forest. The approach used in the report was conditioned by the fact that when the forest is discussed in public debate, the parties talk past each other. If it is legally correct to call the bare area created after the felling of an old forest still “a forest” – more precisely, one of the development classes of the forest – then it is equally important to realise that for a large number of people a clearcut area means the loss of the forest, and to be aware of the changes in the ecological condition of the forests.

Pages 7–8, paragraph 4, Figure 3 of the report:

There are 2.3 millions ha of so-called legal forest, i.e. forest land. Forest land is divided into different forest development classes. The largest share of the surface area of Estonian forest land is those forest areas where the trees have not yet started to grow back, i.e. the forest is not regenerated (i.e. bare and unclear areas) or the trees that meet the criteria for regeneration are up to ten years old (see Figure 3).

Response of the Environment Agency: Figure 3 is misleading, because the forest land development classes "bare area" and "unclear area" cannot be added to the column of stands up to 10 years old in the stand age distribution figure. It is also wrong to say that together they make up the largest part of the forest surface area, while the rest of the forest is many times larger.

The text deals with developmental classes, but the interpretation deals with comparison with age classes. According to SMI 2021, middle-aged forests have the largest share of development classes (32.1%). Together, bare and unclear areas account for 8.9%, or 21.1% when young growths are included.

Comment of the National Audit Office: The National Audit Office does not agree with the position of the Environment Agency. The objective is to reflect the entire surface area of forest land. Bare and unclear areas are not included in the stands, and presenting data only through the age division of the stands would be misleading for the reader. Without special knowledge of forestry, the reader cannot read that the subgroup "younger than 10-year-old stands" does not include a significant part of the area of forest land – the part that has been clearcut.

Page 7 of the report, on the side:

For information, the ecological value and economic value of the forest do not meet the same criteria. The phrase "rotting forests" represents lost revenue in economic terms, but represents an ecologically valuable stage of development in the forest.

Response of the Environment Agency: The term "rotting forests" has not been used at the level of experts and scientists. Using a vague term creates confusion.

Comment of the National Audit Office: In public debates and opinion articles, this term is often used when talking about forests that have not been cut. The National Audit Office considers it important to broaden the knowledge of the meaning and significance of a fallen tree from an ecological point of view.

Pages 9, paragraph 11, Figure 4 of the report:

Response of the Environment Agency: The RK report states that the surface area presented in the figure reflect the surface area of forest land in existing protected areas. This could also be reflected in the figure title and source line. Otherwise, it may give the misleading impression that these are surface areas of different regimes of the protected areas.

Page 10, paragraph 15 of the report:

Like the term "forest", the term "strict protection" has different meanings. For example, according to the data of the Statistical Forest Inventory (SMI), 14.2% of Estonia's territory is under strict protection. It includes both natural and maintainable special management zones (including plotted ones), strict nature reserves and key habitats. However, the International Union for the Conservation of Nature Resources (IUCN) considers a forest to be strictly protected only if it is not felled and is allowed to grow naturally. Considering that most of the strictly protected forests in Estonia are maintainable special management zones (see Figure 4), according to the IUCN's definition, there are many times less strictly protected forests in Estonia.

Response of the Environment Agency: There are several different divisions. For example, the NAO has not presented the MCPFE distribution developed directly for the forest (see for example: https://foresteurope.org/wp-content/uploads/2016/08/MCPFE-INFO-DOC-on-data-collection-on-Protected-forests.pdf). According to this, the result is similar to the content used in Estonia. Estonia has also reported the corresponding data (see the MCPFE report https://foresteurope.org/state-of-europes-forests/).

Page 11, Figure 5 of the report:

Response of the Environment Agency: The figure is misleading as it is not clear whether it is a stand or a single tree.

The characteristics of the biological lifespan given in the figure apply to a single tree. However, the agreed cutting maturity is indicated per stand. The biological age and diameter of stands are smaller than individual trees.

From the list of clear cuttings, there is no group selective cutting in the figure.

Comment of the National Audit Office: The explanation has been added.

Page 11 of the report (on the side):

For information, if managed as a selection forest, the natural forest community changes the least and is most sustainable for the forest. In this way, the forest is kept close to nature, i.e. trees are selectively cut in the growing forest, doing it every few years;

tree species specific to the habitat site grow in the forest; drainage and fertilisation are generally avoided; tall forest is maintained consistently. Since the underwood is not cut, the species composition and appearance of the forest changes little over time.

Response of the Environment Agency: In Estonia, a unified approach to the concept and practice of selection forestry has not developed. For example, according to one approach, selection forestry is management with only selective cutting, according to another approach, small-area clear cutting and shelterwood fellings are also allowed as part of selection forestry.

Selection forestry can also completely change the natural community. In the case of felling, it is important to emphasise that the type of felling does not directly determine proximity to nature. In one sense, the statement that underwood is not cut in the case of selection forestry is also false.

In the case of selection forestry, forest management only as selective cutting, if the goal is to obtain high-quality wood, even as a by-product, then this is not possible in the vast majority of Estonian forests. It can be added as a note that forest fertilisation is prohibited in Estonia.

Page 14 of the report (on the side):

An example of how inaccurate data can lead to wrong conclusions about a forest.

Excerpt from the conversation with the Minister of the Environment Erki Savisaar on Äripäev's radio show "Kuum tool" of 30/05/2022:

TV presenter: "The former head of Enterprise Estonia, Peeter Raudsepp, who said on the Äripäev's radio show that cutting the forest is already affecting domestic tourism. That we promote the kind of untouched nature that can no longer be shown to tourists. Biodiversity issues, there are big gaps in society with this forest management. Maybe the ceiling is here?"

Minister of the Environment: "[--] As for its protection, I do not agree with the statement that we have it nowhere to show it. After all, we still have a quarter of Estonia's forests (i.e. half a million hectares) under protection, where nothing happens. And I think there is enough to exhibit it to our tourists as well. [--]."

Response of the Environment Agency: Based on this example, the data cannot be said to be inaccurate. This is a mistake by the minister. The Environment Agency has not assessed a quarter of Estonia's forest land as the share of strictly protected forests.

Comment of the National Audit Office: The text has been changed.

Page 15, paragraph 31 of the report:

The National Audit Office did not get any assurance about the accuracy of the surface areas of protected areas during the audit. The Environment Agency had to correct the data submitted to the National Audit Office several times, and the cross-checking of the data with the Environmental Board and the Land Board caused even more confusion with the data – sometimes the surface area numbers differed by multiples. During the audit, it became apparent that a simple question about area data can receive answers differing multiple times, and when using the data of the so-called basic database of the state nature conservation – the Estonian Nature Information System (EELIS) – it is easy to get lost in the data analysis.

Response of the Environment Agency: The data differed mainly because the NAO repeatedly supplemented and clarified its request.

Comment of the National Audit Office: The question of the National Audit Office was and still is how the forest is divided between different protection regimes, and the prerequisite that the Environment Agency itself must have the methodology to answer this question. The complex response to the request, on the basis of which a pointed summary has been made, is reflected in paragraphs 27–39 of the report and in Annex B of the report.

Page 15, paragraph 32 of the report:

From the data submitted to the National Audit Office and the explanations of the authorities, it appeared that:

- *the areas of strictly protected areas are smaller than the SMI and ETD data show;*
- *The SMI methodology does not allow providing detailed surface area data by zone of protected areas, and, if this is done anyway, the numbers are misleading;*
- *the authorities responsible for data processing lack clarity as to which definition of "forest" should be the basic premise of data analysis, and this allows forest surface areas to be shown differently;*
- *there is no agreed method for processing the data in the Estonian Nature Information System so that the numbers reflecting the surface area of the protected forests are reliable and the calculations can be repeated if necessary.*

Response of the Environment Agency: The NAO's statement "*the areas of strictly protected areas are smaller than the SMI and ETD data show"* is wrong, and this is not proven in the report either. On the basis of the SMI, it is known how much forest is under protection (both forests under strict protection and protection forests). Since the SMI is a statistical sample survey, the estimates also have a relative error. The estimate of the total surface area of the strictly protected forests can be considered sufficiently accurate (relative error of 3.5%). Certainly, the area of forests with strict protection has not been systematically estimated to be larger or smaller. The exact list of layers used for the SMI and the order of felling is given on the homepage of the environmental portal. The list of layers necessary to define strict protection has been agreed upon in the administrative area of the Ministry of the Environment.

Assessment of the NAO: *"The SMI methodology does not allow providing detailed surface area data by zone of protected areas, and, if this is done anyway, the numbers are misleading;"*

This fact was already known before the request was made, it was not revealed during the inquiry.

The NAO's statement *"the authorities responsible for data processing lack clarity as to which definition of "forest" should be the basis of data analysis, and this allows forest surface areas to be shown differently"* is misleading. "Forest", i.e. the surface area of forest land in the request results, corresponds to the definition of forest land in the Forest Act.

Comment of the National Audit Office: The National Audit Office stands by its positions. We note in addition to what was already mentioned in the previous answer (see the Environment Agency's general comments on page 3 – the answer to the first

comment), that the Environment Agency took the position that the SMI methodology does not allow providing detailed area data until the end of the audit. During the audit, the Environment Agency repeatedly submitted data on the protected forests located in different protection zones to the National Audit Office based on the SMI. The actions of the Environment Agency together with the position presented above leave open what are the reliable data on how much protected forest in Estonia is located in protection zones of different degrees of strictness.

Page 15, paragraph 33 of the report:

Overestimation of the surface areas is possible because the protected areas often overlap. For example, the same location can be a special management zone of a nature reserve, a key habitat, a limited management zone of a permanent habitat of a species, etc. At the same time, just planned zones can also be located in these areas, either to change the existing zone or to additionally create new ones.

Response of the Environment Agency: The possibility of overestimation given by the NAO can arise if the data is not known. The Environment Agency has not overestimated.

Comment of the National Audit Office: Paragraph 36 of the report provides an example of overestimation by the Environment Agency.

Page 15, paragraph 34 of the report:

In the event that several proposals for the establishment of a protected area have been made, all areas are also included as separate map layers in EELIS as planned protected areas. There are many options for how different areas can overlap (see Figure 7). In the data analysis, it is important and has a direct impact on the results, in which way the overlapping of the areas is eliminated, so that one area is not counted multiple times. In the case of the SMI, the relative error resulting from the SMI methodology is added to the above aspect, which in turn affects the results.

Response of the Environment Agency: In the calculation of the SMI, the surface areas are on a one-off basis. The exact list of layers used for the SMI and the order of felling is given on the homepage of the environmental portal.

Comment of the National Audit Office: The explanation about the overestimation of surface areas in the SMI is given in the previous answer. It has also been explained that the list of cutting layers became clear in the Environment Agency only after the draft report of this report was reviewed by the National Audit Office.

Page 15 of the report, on the side:

In the comparison between the Estonian Topographic Database (ETD) and the Statistical Forest Inventory (SMI), the surface areas of the strict areas were proportionally more in the SMI calculation. Also, the data on the surface area of strictly protected forests provided by the Environment Agency also differed from the data provided by the State Forest Management Centre, as the calculation of strictly protected areas is based on a different methodology.

Response of the Environment Agency: On the basis of the SMI and ETD, the Environment Agency has compared protected surface areas, for example, in the compilation "Estonian nature conservation in 2020." If you try to put both sources on the same footing, the differences are small. The reason for the difference is that the ETD does not allow the forest to be treated according to the definition of the Forest Act.

Comment of the National Audit Office: The text has been changed. The position presented by the Environment Agency points to a significant problem with the country's data. At the same time, it directly contradicts other positions presented by the Environment Agency. The reference that the ETD does not allow the forest to be treated according to the definition of the Forest Act means that the "forest" of the Forest Act is something different than the "forest" of the land cadastre (where the data reaches on the basis of the ETD). The "forest" of the land cadastre is the basis for collecting land tax from people, and it is data that enables the basic functions of the state to be performed.

On the other hand, the Environment Agency has explained in its previous answer that *"The "forest", i.e. the surface area of forest land in the results of requests, corresponds to the definition of forest land in the Forest Act*. It is known that forest land is assigned to the cadastre on the basis of the ETD data, so it has been indicated that the ETD still meets the definition of "forest" in the Forest Act.

Page 16 of the report, on the side:

The Environment Agency also pointed out that the ETD and SMI surface area data cannot be compared with each other, as they treat different areas as forests. For example, the SMI surface *area calculation includes bogs, which are not counted as forest in the ETD calculation.*

Response of the Environment Agency: The SMI does not consider bogs as forests. The SMI treats the forest based on the Forest Act. Forest land in the ETD database does not fully meet the definition of forest land in the Forest Act.

Comment of the National Audit Office: during the audit, the Environment Agency indicated that bogs are considered as forests in the SMI. The question arose in the comparison of the ETD and SMI surface area data, where there was a significant difference – the ETD showed the surface area of forests of the strict nature reserves as 3,197 ha, while the SMI showed more than twice as much, 7,169 ha (see Annex B, Table 3). The difference in surface areas was explained primarily by considering bogs as forests. Otherwise, large differences in surface areas would be justified by a large relative error in the SMI calculations.

Both the public SMI data and the SMI data at the disposal of the National Audit Office show that bogs are still included in the calculation of forest land, and the Environment Agency is wrong in its response. The situation that has arisen once again proves the relevance of the problem raised in the report – the use of the term “forest” in the presentation of data is unclear and allows for misleading.

Page 16, paragraph 36 of the report:

Among other things, the Land Board analysed for the National Audit Office how many of the planned special protection zones are located in the already existing special protection zone and how many more are planned to be created. Although the Environment Agency confirmed to the National Audit Office that there are 35 811 ha of proposed target protection zones in

Estonian forest areas and thus these land areas are also included in the calculation of strict protection, the analysis of the Land Board revealed that the actual surface area of the new special management zones is approx. 3600 times smaller, i.e. 3,600 ha.

Response of the Environment Agency: When comparing analyses, it is vital that the data sources and dates are exactly the same. The analyses performed by all parties should certainly be accompanied by a description of the methodology, but this was not the case when this the NAO report was made.

The Environment Agency used the EELIS map layers to make requests. The Environment Agency sends information about changes to KPOIS weekly, but does not know the exact moment of their implementation.

Comment of the National Audit Office: The National Audit Office agrees that both data sources and dates are important when performing analyses. However, the problem with the data lies in other aspects – in this example, in the cutting of the EELIS layers, i.e. the data processing methodology. The National Audit Office stands by its position that the submitter of national statistics must know on the basis of which methodology to process the data.

Pages 17, paragraphs 38 and 39 of the report:

38. According to the Environment Agency, the National Audit Office should not have asked for detailed data on the areas of the zones based on the SMI, because the SMI is not suitable for evaluating the detailed distribution of the zones of strictly protected forests (i.e. for finding the surface areas). On the other hand, the Environment Agency is of the opinion that, in a request with such a level of detail, the requester has to:

- *define first, on the basis of which definition of "forest" the information is requested, i.e. forest in a broader or narrower sense;*
- *provide the exact data processing methodology to avoid double counting, i.e. which EELIS map layer, in which order and with which cutting to cut, with which method to exclude overlap of areas.*

39. The National Audit Office does not agree with the Environment Agency. The basic principles of transferred forest statistics must be defined by the state itself, the basic concepts must be filled with content, and this cannot be expected from the person making the data request. First, it must be unambiguous and clear for all parties, according to which criteria "forest" is defined. Secondly, the principles of data collection, handling and analysis must be transparent and clear to everyone, so that the surface area data and other analysis related to the topic are reliable. Thirdly, the National Audit Office considers that the state should not be based on statistical generalisation (SMI) when calculating the surface area of the areas, but should be based on the most accurate map data possible, including the ETD.

Response of the Environment Agency: Answers to the NAO's requests were sent according to the wording of the request. If the wording of the request changes, so does the result. The NAO repeatedly changed the wording of the request.

The state should base itself on the best information, in the case of forests it is the SMI.

Comment of the National Audit Office: The National Audit Office stands by the positions presented in its report. The National Audit Office identified a number of errors in the request answers, which the NAO requested to be corrected. It turned out that the concept of forest was interpreted in several ways, and the methodology of using the EELIS data was not unambiguous and did not follow the methodology described in the "Forests 2019" yearbook. The National Audit Office continues to be of the opinion that the data requester cannot specify the methodology for data processing. This is especially the case when one asks how the numbers presented in the state's public data were obtained (e.g. 14.2% of the surface area of the strictly protected forests). The National Audit Office's question was the same throughout the audit operations – how the forest is divided between different protection regimes.

Page 19, paragraph 43 of the report:

[---] felling information, which the Environment Agency collects via the SMI, and which provides an overview of the situation 2–7 years ago, is a statistical generalisation.

Response of the Environment Agency: The amount of felling can be averaged using data from different years of field work (the result also shows the average). Data from 1–3 or 1–6 years ago have generally been used for felling.

Page 20 of the report, on the side:

For information, although the Forest Change Map does not reflect the most recent data (in one year, information is not collected for the whole of Estonia, but only for ¼ of the territory) and the methodology for creating the map does not allow to guarantee absolute accuracy, it is the best map application available to the public for bare areas and, according to the Environment Agency, also appropriate to use.

Response of the Environment Agency: According to the Environment Agency, the Forest Change Map of the Land Board is a good raw material that could be used more in analyses. At the same time, it must be stated very clearly that without further analysis the map cannot be used for the evaluation of fellings: the map has a large number of overlaps; the map contains errors regarding the felling of deciduous forests (the situation with and without leaves is compared); the map's forest mask does not match the forest definition; the map has changes caused by man-made objects (for example, power lines; map changes cannot be considered as clear cutting, the change may also have occurred as a result of other fellings (especially in deciduous forests), and it also reflects natural disturbances (storm, flood, fire).

Pages 21, paragraphs 45, Table 3 of the report:

The data that the Environment Agency forwarded to the National Audit Office and that reflected clear cutting and deforestation in protected areas were many times smaller than the analysis of the Forest Change Map showed (see Table 3). This refers to the fact that bare areas are created in the forest not only as a result of clear-cutting, but also due to the combination of different types of felling, which, however, is not included in the clear-cutting statistics and this must be taken into account when making forest statistics.

Response of the Environment Agency: See previous response. Information presented in this form is misleading. The summation of the bare areas of the Forest Change Map of the Land Board cannot be treated unambiguously.

Paragraph 62 of the report:

The Environmental Board explained that it is not always possible to determine the reasons for the changes in the ecological state of the forest with local observation (e.g. the impact of mines). The SMI provides an overview of the wood reserves of Estonian forests and an estimate of the natural forest's surface area, but does not assess the impact of forest management on the forest as an ecosystem. The SMI methodology is not designed to relate changes to a specific location.

Response of the Environment Agency: Indeed, the SMI is not designed to relate changes to a specific location, but the SMI is a very good input for assessing the ecological status of the forest as a whole. For example: tree species composition (both all-Estonian and stand-based), age, damage, etc. are very good indicators for evaluating the condition of forests ecologically. The SMI also contains a large number of directly ecological characteristics, e.g.: indicator species, plant coverage, the impact of human activities, distance from ditches, etc.

Paragraph 93 of the report, Figure 13:

The concept of "protection forest" was abolished, and with it also the prohibition that the felling block in these forests may not be larger than 2 ha.

Response of the Environment Agency: the statement is misleading, because after the abolition of the concept of protection forests, the protected areas were managed according to conservation regulations and generally have a clear cutting limit of at least 2 ha. In addition, on the basis of the Forest Act, the surface area limit of a clear-cutting block in certain habitat sites is 2 ha:

§ 29 of the Forest Act. Clear cutting:

(11) In the event of clear cutting, the following shall not be allowed:

1) the area of a cutting area must not exceed two hectares on dunes, in areas sensitive to erosion or deflation and in areas of infiltration or with pressured groundwater;

2) the cutting area must not exceed two hectares in marsh site types and in lichen site types.

Comment of the National Audit Office: The National Audit Office notes that the described exceptions are only part of the areas that previously belonged to the term "protection forests." The text has been changed, the figure has been omitted.

Paragraphs 101–104 of the report:

Response of the Environment Agency: In these paragraphs, the NAO once again treats selection forestry very one-sidedly. It is explained in more detail in the answer to the side text on page 11 of the report.

Annex A of the report

Response of the Environment Agency: The RK has presented a table on page 129 of the "Estonia's Forestry Development Plan until the year 2030" basic research report.

There is a comment by the table already mentioned in the report: "Since the assessment was carried out with the aim of clarifying the impact of forestry activities on the supply of forest ecosystem services, looking at the prepared table, one gets the impression that clear cutting is an activity with a fatal end, as all ecosystem services will run out. In fact, the evaluation did not take into account that after clear cutting, a new community is formed, a clear cut area, which offers completely different services compared to the forest."

Comment of the National Audit Office: The text has been changed, Annex A has been omitted.

Page 92 of the report

There is a purpose to using each definition, and that is how it should be. It is not possible to get an accurate overview of the entire nature of the forest. Information about how many protected areas we have is easy to get. It is already difficult to say how much forest there is in the protected areas precisely because of the different definitions of the terms. The SMI is a small-scale sample survey of statistical methodology, where a statistical assessment of the forests of the entire country is given as a result of sample plots surveying.

Response of the Environment Agency: The assessment that the SMI is a smaller scale sample survey is misleading. The SMI has been prepared since 1999, assessing the situation for approx. 5,500 sample plots per year in the current period. It is a very large-scale sample survey.

Recommendations of the National Audit Office	Responses of the auditees
Availability and accuracy of protected area data and felling information **53. Recommendations to the Minister of the Environment:** ▪ In order to get up-to-date information about the use of the protection forests, arrange for the Forest Register to be changed in such a way that the forest owner submits a report on the realisation of felling permits – the time of felling, the amount of wood cut, the size of the cut area. If there are restrictions, conditions or recommendations on felling in	**Response of the Minister of the Environment:** ▪ We believe that the creation of various additional data collection solutions is necessary in order to obtain a more accurate overview of the activities that took place in the protected areas. Among other things, it enables assessments of the relevant impact of Natura and assessments of protection effectiveness to be carried out more efficiently than before. An important risk point, when using the proposed solution, is the uneven quality of the data, the increase in bureaucracy and the costs associated with the implementation of the proposal. We can provide an overview of the possible solutions, accompanying effects and the schedule for the implementation of possible negotiable activities by the end of the first quarter of 2023. ▪ Already today, the search engine makes it possible to make the majority of interesting requests, and interested parties have done so. For public

Recommendations of the National Audit Office	Responses of the auditees
the felling permit, request an overview of their implementation. ▪ In order to simplify and speed up the availability of felling information to interested parties, make public the part of the forest register search engine that is currently restricted for official use. In addition, to create data extracts in the search engine, it is possible to search for data both by protected areas and by their protection regimes. ▪ In order to ensure more accurate data on the statistics of the surface areas of the protected areas, use the data of the Estonian Topographic Database (ETD) in calculating the surface areas of the protected forests, and not the generalised estimates of the Statistical Forest Inventory (SMI). ▪ In order to ensure that the European Commission is presented with data that correspond to reality, update the data (including on forest habitats) in the European Union's Natura standard database. **(paragraphs 27–52)**	and bulk requests, there is the WFS service that allows for both protected area and regime-by-mode requests. All information is also available on nature conservation restrictions (movement restrictions, protected areas, zones, etc.). Currently, the official information is the cause of the damage, the way the notification was received, the status of the notification, and the method of the procedure. The further development of the Forest Register's request system is undoubtedly possible, and we can consider it more precisely in future development projects if there is justified public interest. ▪ Areas of protected areas are based on EELIS, but statistics on protected areas are currently largely based on the ETD data. The SMI data is used for more general statements – all-Estonian calculations or in cases where there is no specific basic dataset. By the end of the first quarter of 2023, the Ministry of the Environment, together with the Environment Agency, will additionally review which statistical data of the basic data it is possible to change. ▪ The data will be updated during 2023. **The National Audit Office's comment** regarding the use of the WFS service: The WFS service requires the user to have specific knowledge and data analysis skills, including the ability to use geoinformation systems. The National Audit Office's recommendation is aimed at creating greater functionalities of the Forest Register's search engine, so that it can be used, for example, by research institutions, the public, and interest groups.
Availability and accuracy of protected area data and felling information **54. Recommendations to the Director General of the Environment Agency:** ▪ Change the software solution of the Estonian Nature Information System (EELIS) in such a way that it will be possible to extract data from the system as easily as possible by regimes of protected areas without overlapping. Ensure that applications intended for publicity and official use of EELIS contain correct and up-to-date data. ▪ In order to get the right information about the surface areas of the protected areas and to clearly distinguish areas with legal protection from those that are still planned to be protected, to distinguish the surface area data of existing or valid protected areas, special conservation areas and permanent habitats with different protection regimes from areas that are still being plotted. Report both surface areas separately in national statistics. ▪ In order to ensure that officials, the public and scientific institutions have up-to-date information about the extent of felling in the protected areas, regularly analyse and publish felling information by different regimes of the protected areas. When providing an overview, use the most recent satellite data (with the help of the Land Board's ESTHub or Tartu Observatory) and/or the Land Board's lidar data. ▪ To make public the basic data and the data processing methodology of the expert assessment of felling volumes compiled on the basis of Tartu Observatory's satellite images. **(paragraphs 27–52)**	**Response of the Director General of the Environment Agency:** ▪ The current legal framework allows for the establishment of double protection in areas. Since EELIS contains data on all protected areas, overlapping of data is inevitable. There are no plans to develop the mentioned software solution into EELIS. However, the Environment Agency is currently working on an analytical project related to the data of the EELIS database, during which various outputs intended for both the publicity and official use will be prepared. Including the statistics of the protected areas and their protection regimes, where overlaps between protection regimes have been removed. This ensures that statistics prepared on the basis of the same methodology are constantly available to everyone, and the results do not depend on specialists who may have different knowledge regarding the content and methodology of the datasets. Time of implementation: the first results will be completed during this year (2022). Work is expected to continue in the years 2023–2024. ▪ On the basis of the lidar data of the Tartu Observatory and the Land Board, it is possible to assess, in particular, areas that have become bare (clear cutting, deforestation, disturbances). Other types of felling are also carried out in the protected areas (formative cutting, severance cutting, sanitary cutting, selective cutting), which are almost impossible to estimate based on these data sources. The analyses are based on the most recent available data. The Environment Agency analyses the compilation of statistics on felling in the protected areas. **Comment of the National Audit Office:** since bare areas in forests also occur as a result of other types of felling, it is important that the methodology used provides an overview of all types of felling and also other circumstances that cause bare areas to occur. ▪ Both the map layers and the description of the methodology have been distributed to all interested persons. We are considering various options for publishing it.

Recommendations of the National Audit Office	Responses of the auditees
The extent of protection of habitats and species in the European Union's Nature Directive and the Birds Directive **89. The recommendation to the Minister of the Environment:** in order to contribute to the achievement of a favourable condition of Natura habitats of pan-European importance, analyse what measures are sufficient to ensure the good condition of the forest habitats in Natura areas. If necessary, initiate changes to legislation. **(paragraphs 85–86)**	**Response of the Minister of the Environment:** The Ministry of the Environment cannot agree with the assessment that there is no clarity where and what should be protected in the Natura areas. The protection objectives of each area are fixed, and there are also documents that plan activities to achieve these goals (conservation regulations, protection management plans and action plans, manuals). But we can agree that the dataset used to make decisions could always be more comprehensive and versatile. To this end, we are planning further surveys and inventories on an ongoing basis and have initiated a wider process to review and improve the Protection Performance Assessment System. The Ministry of the Environment has initiated a draft amendment to the Nature Protection Act, according to which all fellings for economic purposes will be prohibited in the forest habitats of Annex I of the Nature Directive that remain in Natura areas. The current wording of the draft is as follows: "Felling is prohibited in the limited management zone of the protected area and permanent habitat of the Natura 2000 network and in the special conservation area, with the exception of felling to avoid a direct threat to human life and property, formative cutting to achieve the protection objective, and felling in the case provided for in § 40 (2) of the Forest Act to prevent forest damage and to prevent its spread, in the following forest habitat types specified in Annex I of Council Directive 92/43/EEC: dune forests, western Taïga, old broad-leaved forests, spruce stands rich in grasses, coniferous forests on glaciofluvial eskers, deciduous swamp woods, forests of slopes, screes and ravines, bog woodlands, alluvial forests and riparian mixed forests." In addition, we are preparing a separate protection management plan for the forest habitats in the so-called Natura 2000 areas, which summarises the corresponding protection objectives of Natura areas and also their impact factors. An EIA will be prepared for this plan to determine the effects. This answers the question to what extent activities outside habitats are permitted and whether and what additional regulations are necessary. The plan will be completed by the end of 2023. **Comment of the National Audit Office:** During the audit, the Ministry of the Environment explained that conservation activities should be planned in the Natura habitat, and not in the Natura area as a whole. Based on the EU Nature Directive and the decisions of the European Court of Justice, the obligation to protect applies to the entire Natura area, unless it is proven by inventories that there is no habitat in this area or that it does not affect the protection of the area's habitat. Since the locations of the habitats are not all known and the inventories have mostly been made only in special management zones, it is important to ensure protection throughout the entire Natura area by making felling decisions based only on the inventory data or by assessing separately for each decision whether felling can damage the habitat or the species.

Recommendations of the National Audit Office	Responses of the auditees
Assessment of impacts when felling is permitted in the Natura areas **90. Recommendation to the Director General of the Environmental Board:** to make sure that the impact of felling on the natural values of a specific allotment has been assessed at some stage of the procedure before confirming the felling permit. **(paragraphs 56–83)**	**Response of the Director General of the Environmental Board:** In protected areas, the Environmental Board issues a forest notification as a discretionary decision. This process assesses how the proposed felling will affect conservation values, and if there is a negative impact, felling will not be permitted. Thus, we have assessed the impact of felling in the protected areas. We admit that the discretionary decision does not meet the requirements of the EIA/ESP process established in the current legal space, but it would also be disproportionately burdensome for both the landowner and the Environmental Board for the purpose of one forest notification. The Ministry of the Environment is preparing to supplement and amend the regulations of the Nature Conservation Act (hereafter NCA) and the Environmental Impact Assessment and Environmental Management System Act (hereafter EIAEMSA), which will result in the possibility of a separate Natura impact assessment. The Natura impact assessment procedure (preliminary assessment, appropriate assessment, making an exception) will be included in the Nature Conservation Act. This simplifies the impact assessment for the Natura 2000 sites. In parallel, the Environmental Board is preparing a protection management plan for the Natura 2000 forest habitats by the end of 2023, which includes a description of protective measures and implementation principles for forest management in protected areas. The strategic environmental impacts assessment is carried out on the protection management plan, within the framework of which the cumulative impact of standard situations and fellings is assessed, which would not be possible by the assessment of individual notifications. At the same time, we have taken into account that in more specific cases the impact must still be assessed in the forest notification procedure as part of the Natura impact assessment. On 7 February 2022, the Environmental Board submitted a proposal in accordance with § 8 of the NCA by letter No. 7-4/22/2442 for the strict protection of the forest habitat types of Directive 92/43/EEC located in the limited management zones of protected areas and permanent habitats in Natura 2000 areas. In essence, this means that no forest habitat can be directly damaged in the Natura area today. This does not exclude indirect effects that may result from felling in the vicinity of habitats, which may be accompanied by an edge effect and loss of coherence, but we find that these effects are not so extensive and intense, and would be accompanied by partial or complete irreversible destruction of forest habitats. According to the opinion of the Supreme Court (administrative case 3-17-740/46), every activity whose intensity and extent of harmful effects is very small should not be treated as damage to the protected habitat, which cannot be allowed by the administrator of the natural object. A negative impact on the cohesiveness of the site must be avoided. Considering today's measures implemented for the protection of forest habitats (zoning of forest habitats in the special management zone, the mentioned proposal for protection), we consider that possible significant impacts have been minimised. **Comment of the National Audit Office:** In the opinion of the National Audit Office, the currently valid measures are not sufficient, and until now, the impact of the felling of protection forests on the condition of the habitat has not been determined (see paragraphs 60–64). The decision of the Supreme Court referred to by the Ministry of the Environment also emphasised that the impacts should be assessed before the decision to cut is made.
Assessment of the condition of species living in the forest **91. Recommendation to the Director General of the Environment Agency:** Assess the impact of forest felling on the condition of protected forests within the framework of environmental monitoring. Also develop indicators to monitor the long-term impact of felling on forest communities. This allows decision-makers to be given the necessary information to assess the success of nature conservation activities in protected areas and to take into account the impact of fellings in environmental protection and fellings planning. **(paragraphs 61–69)**	**Response of the Director General of the Environment Agency:** Monitoring consists of long-term observation of different species and habitats. Based on this dataset, various analyses can be made and causal relationships of trends can be looked for. Since the annual monitoring sample for different habitats is small, it does not make sense to prepare such an analysis every year, but it can be performed if there is a sufficient data set – for example, at the end of the monitoring cycle (6 years). The so-called third monitoring cycle is currently underway. I agree that it is necessary to deal more vigorously with the development of indicators. The purpose of the monitoring is currently to assess the all-Estonian condition, the use of monitoring data in the planning of fellings in a specific location is not very informative at the moment, but more general policy-making can be done based on the monitoring data. National environmental monitoring is primarily focused on obtaining a general overview of the condition of the country's environment (so-called background monitoring) and its long-term changes on the basis of certain selected

Recommendations of the National Audit Office	Responses of the auditees
	indicators, in order to ensure long-term time series based on the same methodology, which provide background data for the interpretation of shorter-term changes, including the explanation of the extent and significance of various disturbances and human impact. Clarifying the causes of the deterioration of the environment condition requires an analysis based on specific methodology and research principles. In most cases, it also requires years of data collection, including the factors with which the relationships are to be evaluated, so as not to draw erroneous conclusions based on individual, non-representative data. Without such a long-term data set and the analysis of various influencing factors, the person performing the monitoring work would say the reason for the deterioration of the condition based on personal opinion, which is subjective and not scientifically verifiable. We agree with the part of the recommendation that it is necessary to develop indicators/methodology to assess the long-term impact of felling on forest communities. We also agree that with the discussion of the problem of felling in the public debate, the need for such data collection and analysis by the state has been emerging more and more. At the same time, it requires consideration in cooperation with the Ministry of the Environment, in what form this monitoring should be carried out and where it is possible to find funding for additional monitoring. In cooperation with the Ministry of the Environment, we are already considering expanding the scope of the Environmental Monitoring Act to include monitoring of pressure factors and resource monitoring (e.g. monitoring of fish stocks, game monitoring, etc.).
Management as a selection forest **106. Recommendations to the Minister of the Environment:** In order to motivate forest owners to manage naturally valuable forests as selection forests, ▪ carry out surveys to develop the most suitable selection forestry techniques in the Estonian areas; ▪ develop subsidy measures that would encourage forest management as a selection forest. **(paragraphs 101–104)**	**Response of the Minister of the Environment:** ▪ When developing selection forestry techniques, it is necessary to make sure whether, under which conditions and in which types of forest habitat sites the use of selection forestry techniques works in the best way. Even today, the Forest Act allows forests to be managed as selection forests, using selective cutting, but for various reasons forest owners have used it little. Among other things, the Forestry Act was amended in 2017 to encourage the use of alternative felling types to clear cutting – i.e. shelterwood cutting and selective cutting – by easing the restrictions on them. At the Estonian University of Life Sciences, the possibilities of using selection forestry in modern conditions have already been partially studied, but the development of the most suitable selection forestry techniques still requires time- and resource-intensive surveys. Surveys concerning selection forestry have been launched, among others, by the RMK. Surveys concerning selection forestry and finding out the conditions for the use of selection forestry have been included in the "Forestry Development Plan until 2030" draft. ▪ The Ministry of the Environment basically agrees with the proposal. Carrying out additional surveys is always possible if there are sufficient funds. It is also possible, if funds are available, to implement additional subsidy measures in places where it is effective. We explain that the Ministry of the Environment has launched the LIFE IP project, one of the objectives of which is the analysis of the current state of the private forest subsidies system and the development of possible changes/improvements. The "Forestry Development Plan until 2030" draft also states: "Research projects will be initiated to find out the impact of selective cutting on the forest ecosystem, and wider implementation will be encouraged among forest owners who aim to manage their forests as a selection forest (among other things, legislation will be amended and ways to collect and analyse statistics will be developed)."
The combined effect of different fellings creates bare areas **151. Recommendations to the Minister of the Environment:** In order to prevent the creation of large bare areas and damage to the natural values the in protected forests, ▪ A. consider amending the Forest Act so that ○ 1. the age for considering a forest to be regenerated would increase;	**Response of the Minister of the Environment:** ▪ A.1. According to the Ministry of the Environment, the proposal needs a more detailed analysis to clarify the nature of the problem to be solved by the proposed measure and the suitability of the measure. We can plan the activity in the 2023 work plan. ▪ A.2. According to the Ministry of the Environment, the proposal needs additional analysis, which will be done by the end of the first quarter of 2023. We would like to point out that to some extent this is already taken into account today (the general requirements of the Forest Act on the size of felled areas and the timely regeneration of forests and area-based restrictions). The obligation to consider the cumulative impact stems from the principles of the EIA, SEA and Natura assessment and is regulated by

Recommendations of the National Audit Office	Responses of the auditees
○ 2. when issuing felling permits, the cumulative effect of felling of adjacent blocks would be taken into account; ▪ B. consider amending the Nature Conservation Act so that ○ 1. it would be ensured that the whole area would be taken into account when planning fellings, i.e. spatial planning; ○ 2. the impact of clear cutting on the ecosystem of protected forests (including nature reserves and landscape conservation areas, special conservation areas, national parks) would be analysed; ○ 3. when issuing felling permits for protected forests, approved protection management plans containing information on the location of the natural values and the impact of felling, as well as a list of protection management activities, would be a prerequisite. ▪ C. Establish conditions to support the preservation of the natural values (including preserving as much of the subsequent growth and understory vegetation as possible, regardless of the type of felling, limiting the use of heavy machinery and harmonising the requirements of the state and private forests to avoid felling during the spring breeding season). ▪ D. In order to avoid damage to natural values in the protected forests, key habitat contracts should also be concluded on nature reserves, but compensation should be paid for the same area only on the basis of one contract. ▪ E. Develop the functionality of the Forest Register to be able to reflect changes in felling permits. **(paragraphs 93–104, 124–128, 142–150)**	the Environmental Impact Assessment and Environmental Management System Act. ▪ B.1. According to the Ministry of the Environment, the proposal needs further discussion and clarification. It is also not clear from this report what was specifically meant and what should be additionally stipulated at the level of the law. Until now, "spatial planning" has been a tool of everyday protection management work. ▪ B.2. The Ministry of the Environment agrees with the proposal. When planning the protection procedure of each protected area, the impact of necessary and possible activities on the protected values in the area is considered. The problem is the lack of a clear understanding of the nature of selection forestry and related surveys and guidelines, which was already mentioned earlier in the proposal. As additional knowledge is obtained, it may be necessary to supplement the legislation. ▪ B.3. According to the Ministry of the Environment, the proposal needs additional clarification. The data on the location of natural values is managed in the EELIS database, where the data is continuously updated. Conservation management plans do not contain continuously updated data on the natural values, but they primarily plan the objectives and activities to achieve these latter. The realisation of the proposal may be possible in the future during the development of the EELIS database. Within this framework, it is planned, among other things, to review the existing IT solutions related to the protection management activities (including the protection management plans). A more detailed analysis of these topics will be reached in 2024. It remains unclear what is meant by the proposal that the protection management plan must include a forest management plan. Since the limited management zones include private forests to a greater extent, the question also arises whether the state should order forest management plans for all such areas in the future, and what would be the advantage of such a solution compared to the current one. **Comment of the National Audit Office:** The wording of the recommendation has been corrected – the protection management plan should include a list of the protection management activities. ▪ C. The Ministry of the Environment considers that further clarification of this proposal is necessary. In the case of protected natural objects, the conservation regulations also currently set a number of additional requirements to the strictures of the laws. Several preliminary works have been carried out for the development of additional regulations regarding the felling peace during the bird nesting period, including more detailed instructions for landowners, and the Environmental Board has revised its procedural practices. ▪ D. The Ministry of the Environment does not agree with the submitted proposal. We proceed from the logic that the natural values are protected in the protected areas on the basis of the regulations established there. The concept of key habitats is a measure supporting traditional nature conservation and was created to ensure the protection of natural values found in commercial forests, for which private forest owners can sign voluntary protection contracts. ▪ E. In the opinion of the Ministry of the Environment, the proposal needs to be specified, for the solution of which problem changes in forest notifications to the Forest Register are recommended.
Fellings in the protected forests **152. Recommendations to the Director General of the Environmental Board:** ▪ In order to avoid damage to the status of the network of protected areas of pan-European importance, consider formulating activities that prevent damage to the condition of a habitat or species as an obligation in the felling permit, rather than as recommendations. ▪ In order to prevent damage to natural values in protected forests due to errors, train officials who issue felling permits.	**Response of the Director General of the Environmental Board:** ▪ When processing forest notifications, the Environmental Board has followed the current legislation in setting additional conditions for felling activities, and the Environmental Board can only set conditions (obligations) if the current legislation allows it. If it is not possible to set conditions due to legislation, the Environmental Board has given forest owners recommendations for better protection of the natural values. We support the National Audit Office's proposal to make the legislation clearer and stronger in this regard. **Comment of the National Audit Office:** The National Audit Office is of the opinion that the legislation currently in force also allows deciding on the setting of the necessary obligation; this if the impact of felling has been assessed.

Recommendations of the National Audit Office	Responses of the auditees
▪ In order for the supervisor and the local residents to have information about the works being carried out, information on fellings for protection management should be added to the Forest Register. ▪ In order to prevent the destruction of naturally valuable areas as a result of felling, to inform private forest owners about the inventoried areas with characteristics of a key habitat located on their land and to make a proposal to conclude an contract. **(paragraphs 129–150)**	▪ The Environment Agency has continuously and annually trained its own officials for better protection of the natural values with the existing scarce training resources (160 euros per person annually). For example, both this year and last year, wildlife officials have received training on forest habitats according to the Habitats Directive (trainers Anneli Palo (Metsamutt OÜ) and Aivar Hallang (OÜ Metsaruum)), and every year officials who have a key habitat expert's certificate are given repeated training on key habitats, where recognised species experts are trainers either. In addition, there are internal trainings where the institution's own experts conduct trainings. ▪ Through the public view of the Forest Register, this is possible already today, by adding the corresponding information to the "Decision explanation" box in the forest notification. However, this requires the addition of relevant information before the forest notification is approved. After confirming the forest notification, it is no longer possible to change the "Decision explanation" box. In the case reported in the inspection report, from which the given recommendation derives, the conditions of the forest notification were changed in the Nõva Nature Reserve after the forest notification was approved. As far as the Environmental Board is aware, the RMK had installed relevant information boards for the purpose of felling, so there was information about the purpose of the felling on site. The Environmental Board makes a proposal (as the recommendation to the Minister in paragraph 151 of the inspection report) for the development of the Forest Register, so that it is possible to add additional information to the forest register even after the approval of the forest notification. ▪ The recommendation remains a bit incomprehensible to the Environmental Board, as in paragraph 146 of the inspection report there is a section "*The Environmental Board also did not previously inform private owners about the existence of the KH, but, starting from 2021, letters have been sent directly to forest owners. The Environmental Board has also informed about the possibility of concluding the KH contracts through the media, but this has not significantly increased the interest of private forest owners in the contracts. The Environmental Board informs the forest owner about the KH previously inventoried, but having no contract, if the owner submits an application for a felling permit. In this case, the forest owner is proposed to conclude the KH contract. If the owner is not interested in the contract, the felling permit is approved."* The Environmental Board confirms once again that the private landowners have been informed about key habitats located on the lands of the private owners without a protection contract, both during the processing of the forest notification, as direct mails by letter and as social media posts, and proposals have been made and will continue to be made in the future to conclude protection contracts. The Environmental Board has been more active in informing private landowners since 2019, when the state allocated additional funds for the conclusion of new KH protection contracts, but, before 2019, unfortunately, there was a period when the funds were only sufficient to make payments for existing KH contracts and it was not possible to conclude new contracts.
Natura forest subsidies **169. Recommendations to the Minister of the Environment:** In order for the Natura forest subsidies to be a means of ensuring the preservation of forest areas in ecologically good condition, consideration should be given to designing support measures in a way that ▪ would take into account the quality of the forest area and the potential revenue in reality; ▪ would not allow the subsidy to be paid for areas from where economic income has been earned, and would also take into account the age of the forests. That is, it is not justified to pay the subsidy for the areas from which the opportunity to potentially earn will come decades later;	**Response of the Minister of the Environment:** We explain that the Ministry of the Environment has launched the LIFE IP project, one of the objectives of which is the analysis of the current state of the private forest subsidies system and the development of possible changes/improvements. Corresponding proposals will be developed in the first half of 2025. It should be taken into account that the payment of the subsidies can be based on easily available data and the management of the system cannot lead to a significant increase in administrative costs.

Recommendations of the National Audit Office	Responses of the auditees
▪ would support forest owners who choose the principles of selection forestry when managing the forest. **(paragraphs 153–168)**	
Transfer of nature conservation lands to the state **189. Recommendations to the Minister of the Environment:** ▪ In order to ensure equal treatment of landowners and transparency in the assessment of land value, specify the Government of the Republic Regulation No. 242 "The procedure for the acquisition of immovables containing protected natural objects by the state and for proceedings regarding proposals, and the criteria on the basis of which the use of an immovable for its intended purposes is deemed to be significantly hindered by the protection regime, and the procedure and basis for determination of the value of an immovable" of 8 July 2004 in the following aspects: ○ Specify the criteria for considering the aspects arising from the general spatial plan of the municipality with regard to possible building rights. Create clear rules on what assumptions to set for real estate appraisers in such cases; ○ Specify the regulation in which cases to apply the valuation methodology of non-forested property for those properties that meet the characteristics of a forest. ▪ In order to ensure maximum transparency and clarity in the development of the transaction price, disclose all the circumstances that the state takes into account when calculating the price of land purchase (including the State Forest Management Centre's sale price of the wood assortment related to this transaction on the basis of duration contracts). **(paragraphs 171–188)**	**Response of the Minister of the Environment:** The Ministry of the Environment has started a review of the regulations of the Government of the Republic Regulation No. 242 "The procedure for the acquisition of immovables containing protected natural objects by the state and for proceedings regarding proposals, and the criteria on the basis of which the use of an immovable for its intended purposes is deemed to be significantly hindered by the protection regime, and the procedure and basis for determination of the value of an immovable" of 8 July 2004, in order to make changes if necessary. We can analyse the proposals of the National Audit Office in more detail during this process. We plan to submit the draft amendment to the regulation to the Government of the Republic in the first quarter of 2023.

Audit description

Audit objective

The audit objective is to find out whether forest felling in protected areas ensures the preservation of the natural values for which these areas have been created.

For this purpose, it was assessed how the protection management system is structured, how decisions are made about taking forests under protection, setting restrictions and felling forests. What problems are faced by the protected areas and what compensation measures has the state set in relation to tolerating nature conservation restrictions?

Criteria for giving an assessment

We planned to treat the first question of the audit, the nature of the protection forests and their felling data, as an overview. Since during the analysis it was revealed that the data are conflicting and incomplete, the assessment has been given based on the criterion – the data on the surface area of the protected areas connected to the forest by different authorities and the surface area of felling that took place in them are similar, and if there are differences, they are clearly justified.

The criteria for the second main issue of the audit, which concerns the protection of natural values, is as follows – when establishing the protection order of protected areas, the risks related to forest cutting have been analysed at different stages (establishment of a protected area, establishment of conservation regulations, preparation of a protection management plan), including the possible temporal and spatial interaction of fellings, and the set cutting restrictions in accordance with the conservation regulations. In the case of amendments to the Forest Act and forest management regulations regarding felling conditions, it has been assessed whether the easings of the regulation will have a negative impact on the natural values of the protected areas, and measures have been taken to prevent or mitigate this impact. During the felling permit (or forest notification) procedure, the protected values of the area and the possible impact of fellings are assessed, and the conditions of the permit are set based on the need for protection.

We planned to consider the third question of the audit, regarding compensation mechanisms for felling restrictions, partly as an overview. We assessed the adequacy of the subsidy rate based on the following criterion – the subsidy rate of Natura's private forest subsidy takes into account the income lost due to restrictions in such a way that the subsidy rates are differentiated according to the quality, habitat site and permitted felling techniques, and this allows taking into account the actual damage caused by management restrictions. The subsidy system is designed in a way that ensures that the subsidy is not paid for those forest areas from which income has been earned (cut areas).

We planned to treat the fourth question of the audit, concerning key habitats, as an overview, and the evaluation was based on the following criterion – the compensation mechanism for key habitats ensures that the owners of private lands are motivated to protect the inventoried key habitats on their lands, i.e. contracts have been signed with the state.

Scope and approach of the audit

The focus of the audit included protected forests, which means forests protected under the Nature Conservation Act in protected areas, special conservation areas[126] and permanent habitats and key habitats protected under the Forest Act.

To answer the first main question of the audit, the Environment Agency was first asked. Since the answers received were not complete and did not seem reliable, the National Audit Office repeatedly clarified the request and explained its wishes to the auditee, after which the National Audit Office was

[126] See explanatory Figure 6 for the special features of protected areas and special conservation area.

repeatedly sent new data. The National Audit Office did not receive a final explanation of how and considering which parameters the answers were sent. As the Environment Agency's data and explanations were not convincing, the National Audit Office also cross-checked the data received from the Environmental Board, the State Forestry Management Centre and the Land Board.

In order to answer the second main question of the audit, data from various sources on the condition of the protected values of forests were compiled and an overview of the changes made in the legislation was prepared. The central part of the analysis was the expert work commissioned by the Estonian Naturalists' Society, during which the entire decision-making chain was evaluated based on ten sample cases in order to find out at which stages mistakes were made, due to which the protected values were ultimately damaged. The following aspects were analysed:

1) expert opinion on the creation of a protected area and its conditions (what terms and conditions are desired, what types of felling, etc., interview and opinions of the expert who prepared the expert opinion);

2) compliance of the conservation regulation with the expert assessment (it was assessed whether the recommendations given in the expert assessment have been taken into account, what the procedural process of the regulation has been);

3) whether the conservation regulation have been changed in recent years and how (e.g. have the terms and conditions for felling become more lenient);

4) compliance of the change in the protection regime (in case of easing) with the directives of the European Union (Nature Directive, Birds Directive, Landscape Convention);

5) whether the protection management plans envisage economical logging techniques; whether the effectiveness of the previous plan was evaluated when updating the protection management plan and whether the assessment was taken into account when preparing the new plan;

6) whether the terms and conditions of the felling permits for a specific area issued by the Environmental Board corresponded to the conservation regulations and the protection management plan; how the notification was issued – on what grounds is felling permitted, how is the permit for felling justified, what are the terms and conditions set for felling, who was involved in the proceedings;

7) whether the felling was carried out in accordance with the conditions of the felling permit.

To answer the third main question, data was collected from the Private Forest Centre about Natura forest subsidy recipients. A sample was taken from the list of recipients of the Natura forest subsidies, which was compared with the orthophotos of the Land Board, in order to clarify whether subsidies are also paid to areas whose natural values have already been damaged (fellings done).

A request was made to the Land Board and the State Forest Management Centre about the land units acquired by the state due to the nature conservation restrictions (protected area, cadastral unit of the land unit, nature of the restrictions). A request was also made about the sale of land with the nature conservation restrictions. The principles of paying compensations related to nature conservation restrictions (compensation for a key habitat, the methodology underlying the sale of land with nature conservation restrictions to the state) were compared in order to find out whether the differences are justified and the rules are transparent.

Interviews were conducted at the Environmental Board, the State Forest Management Centre, the Ministry of the Environment, and the Environment Agency.

As part of the expert work, on four occasions, together with the experts, on-site observations were made at the locations of the protected habitats under analysis. In addition, they participated in the information day organised by the Estonian Fund for Nature and the Environmental Board, which took place in the

forests of Lahemaa and explained the felling of protected areas, and in the inspection of the statistical forest inventory together with the Environment Agency.

Time of completing the audit:

The audit activities were completed in October 2021.

Audit team:

The audit team included Auditors Sigrid Rajangu and Tuuli Rasso and Audit Manager Airi Andresson.

Contact details

Additional information regarding the audit is available at the Communications Department of the National Audit Office
tel. +372 640 0704 or +372 640 0777, e-mail riigikontroll@riigikontroll.ee

An electronic copy (pdf) of the audit report is available on the website www.riigikontroll.ee.

The number of the audit report in the internal records system of the National Audit Office is 80085.

Postal address of the National Audit Office of Estonia:

Kiriku Street 2/4
15013 TALLINN
Tel. +372 640 0700
riigikontroll@riigikontroll.ee

Previous audits of the National Audit Office in the field of forestry and nature conservation

27/03/2015 – **State activity in the organisation of nature conservation to ensure the preservation of semi-natural communities**

09/09/2010 – **Sustainability of state forest management**

03/06/2010 – **Calculation of the amount of wood cut in the state forest**

28/05/2008 – **Protection of valuable forest habitats in the Natura 2000 network areas**

All reports are available on the website of the National Audit Office at www.riigikontroll.ee

Annex A. Protected areas and their division by zone

Type of natural object under protection	Objective	Protective measures
Strict nature reserve	A strict nature reserve is created for scientific purposes to explain the natural processes of communities/ecosystems in areas where there is almost no direct human impact.	With the strictest protection. The presence of people is prohibited all year round. Economic activities and use of natural resources are prohibited
Special management zone	In natural special protection zones, the natural development of natural processes is protected (e.g. swamps, natural forests).	Economic activities are prohibited, time restrictions on movement have been established to avoid disturbing rare or endangered species or damaging the community.
	Human assistance is often needed in maintained special protection zones to preserve the natural values (e.g. maintenance of wooded meadows, mowing, grazing of marsh pastures, cutting of scrub).	Activities that do not threaten the protection objective, mandatory maintenance work, such as mowing, grazing, thinning of tree and shrub fronts, etc., are allowed. Temporary movement restrictions may also be imposed in the special protection zone (e.g. for bird nesting season).
Limited management zone	Limited management zones are areas with the most lenient protection regime, which are determined when stricter restrictions are not needed to preserve the natural values. The main requirements are the preservation of the landscape and sustainable management. The limited management zones also act as a connection area to connect more strictly protected zones into a single protected area.	The economical use of natural resources, the construction of new buildings, the construction of roads, the extraction of mineral resources and other activities that change nature are regulated.

Annex B. The National Audit Office's data request "How many protected forests are there in Estonia and between which zones are they divided?"

According to the Statistical Forest Inventory (SMI) 2019, there were 328,800 ha of strictly protected forests in Estonia, or 14.1% of all forests. Since it is an aggregate number, the National Audit Office wanted to know in more detail how these numbers were obtained.

In the "Forests 2019" yearbook, these numbers are also discussed in a little more detail (see the following excerpt from the most recent forestry information during the audit operations in the "Forests 2019" yearbook, where the surface area of the protected areas is discussed in Chapter 9 and the following tables are presented), but these are also aggregate numbers.

Information on felling by zone is not presented to the public, and the second part of the National Audit Office's request concerned felling information by protection zone, separately it was asked to provide information on felling that took place in the forest habitats of the European Union.

Table 1. Distribution of protected forest's surface area according to reasons for protection (excerpt from the "Forests 2019" yearbook, Table 9.1.2)

Reason for protection	Total		State Forest Management Centre		Others	
	Surface area 1,000 ha	%	Surface area 1,000 ha	%	Surface area 1,000 ha	%
Given the overlaps (a stricter protection reason excludes a weaker protection reason)						
Strict nature reserves and special protection zones	276.0	46.6	252.1	60.7	23.9	13.5
Limited management zones	106.9	18.0	48.8	11.8	58.1	32.7
Special protection zone of permanent habitat	34.4	5.8	25.6	6.2	8.8	5.0
Limited management zone of permanent habitat	48.6	8.2	35.2	8.5	13.4	7.5
Special conservation areas	26.0	4.4	15.5	3.7	10.5	5.9
Water protection forests	82.3	13.9	25.1	6.0	57.2	32.2
Other reasons	18.7	3.2	12.9	3.1	5.8	3.3
Protected forests, total	592.8	100	415.1	100	177.7	100

Source: Environment Agency

The National Audit Office made an information request to the Environment Agency, in which it asked to reflect information on the surface areas of the protected areas and their zones calculated according to the ETD and SMI and by different owners. The condition of the request was that the reported surface areas did not contain overlapping zones.

The National Audit Office assumed that since the aggregate numbers (i.e. the sums of the surface areas of different areas) are given in the SMI yearbook and the National Audit Office follows the logic in its request that the Environment Agency has already used in its work[127], then it is also easy to answer a detailed request in this regard. Audit operations showed the opposite.

The first data received by the National Audit Office raised questions. For example, the dataset contained information about areas that could not exist – more than 4,000 hectares of the most stringent protection

[127] See the methodology for excluding overlaps of different zones of protected areas described in the "Forests 2019" yearbook, page 218.

regime – plotted strict nature reserves. As the data repeatedly submitted by the Environment Agency still raised questions, the National Audit Office made inspection requests to the Environmental Board, the Land Board and the State Forest Management Centre.

Although everyone was given the same starting task, the repetitions produced different results. The surface area data depended on how the data in the database was interpreted and how the forest was defined, and whether and by what methodology overlapping areas were excluded. In turn, the data of the RMK and the Environment Agency also differed, because different methods are used to calculate the surface areas of forests. The Environment Agency calculates data on the basis of the ETD and SMI, while the RMK calculates data on the basis of inventory data in its own information system. Also, in the calculation of strictly protected areas, the RMK also includes areas that the state has not considered under strict protection. Table 2 reflects the data given in the RMK yearbook 2020.

Table 2. Excerpt from the yearbook of the State Forest Management Centre (surface areas of different protected areas, ha)

Protected areas in the forest of the State Forest Management Centre* (ha)	
Special protection zone of protected area	199,151
Limited management zone of protected area	70,246
Limited management zone of permanent habitat	29,656
Special protection zone of permanent habitat	24,787
Special conservation area	19,004
Protected area without the conservation regulation	562
Strict nature reserve of protected area	3,316
Single object of nature	124

* Zones of the protected area may partially overlap.

Table 3 shows the latest version of the data provided by the Environment Agency on the surface areas of the protected forests by different restriction regimes.

Table 3. The Environment Agency's data for the protected areas by different restriction regimes. According to the Environment Agency, the surface areas shown in the table do not include the different overlapping areas. The first 10 regimes, on the orange background, are considered under strict protection.

Areas under protection	ETD				SMI			
	Forest land	Natura	State land	Private land	Forest land	Natura	State land	Private land
Strict nature reserves	3,196.99	3,196.99	3,196.5	0.49	7,169.41	7,169.41	7,169.41	0
Special management zones	213,578.38	178,367.77	197,213.84	16,364.54	231,699.68	191,644.89	217,890.9	13,808.78
Special protection zones of permanent habitat	31,061.61	12,073.12	24,014	7,047.61	30,226.75	8,881.62	22,135.68	8,091.07
Locations of specimens of category I	6,927.67	1,025.2	3,702.04	3,225.63	9,804.1	1,677.12	5,078.04	4,726.06
KH with contract	599.04	35.65	14.63	584.41	208.31	0	0	208.31
KH on state land	12,818.96	2,293.93	12,818.96	0	12,623.23	3,516.36	12,623.23	0
Plotted strict nature reserve	0	0	0	0	0	0	0	0

Plotted special protection zone	35,811.65	23,494.07	33,338.88	2,472.77	44,432.76	30,752.91	41,461.14	2,971.62
Plotted special protection zone of permanent habitat	4,960.44	131.45	4,118.61	841.83	0	0	0	0
Limited management zone	111,630.84	101,248.91	53,002.39	58,628.45	104,652.48	93,821.86	49,401.79	55,250.69
Limited management zone of permanent habitat	33,048.22	12,393.5	25,331	7,717.22	39,197.64	13,603.6	31,780.96	7,416.68
Plotted limited management zone	2,799.97	1,124.68	1,535.33	1,264.64	1,281.32	968.51	782.01	499.31
Plotted limited management zone of permanent habitat	4,189.45	5.01	3,567.32	622.13	0	0	0	0
Object under protection at the local level	2,455.36	0.44	2,031.02	424.34	4,840.2	0	4,840.2	0
Special conservation area	28,859.94	28,711.02	13,686.22	15,173.72	32,432.14	32,432.14	15,104.39	17,327.75
Coastal limited management zone	5,674.4	21.8	1,299.66	4,374.74	3,933.67	0	564	3,369.67
Shore limited management zone	98,596.65	251.42	35,130.89	63,465.76	80,508.56	156.4	31,102.95	49,405.61
Plotted special conservation area	564.6	0.02	488.76	75.84	1,619.81	0	1,619.81	0
KH, other	1,775.87	3.7	1.38	1,774.49	1,981.3	0	0	1,981.3
Under protection, total	**598,550.04**	**364,378.68**	**414,491.43**	**184,058.61**	**606,611.36**	**384,624.82**	**441,554.51**	**165,056.85**

Source: Environment Agency, as of January 2021

At the end of the audit, the Environment Agency noted that it was not correct to answer such a request (about the SMI data) because the SMI methodology does not allow data to be presented by zone, and the numbers submitted to the National Audit Office are not true.

As a result of the analysis, the Land Board prepared for the National Audit Office a summary of the problems of the Estonian Nature Information System and the complexities that arose during the analysis.

Input data used by the Land Board:

- nature conservation zones – the Estonian Nature Information System (EELIS), Restrictions Information System (KPOIS);
- forest – the Estonian Topographic Database (ETD), Forest Register.

Brief description of work:

Unified access and understanding of protected area data – EELIS' public WFS service was used to collect the EELIS data for this analysis[128] and the WFS service intended for use within the administrative area of the Ministry of the Environment. In addition, an extract from the KPOIS database for coastal and shore limited management zones. The collection of initial data was made difficult by the complex

[128] A map service based on an open standard, which enables the use of data from the Estonian Nature Information System (EELIS) with various GIS software (including various free software). https://keskkonnaagentuur.ee/keskkonnaagentuuri-tegevusvaldkonnad/looduskaitse/kratt

understanding of the data (what data are on the layers under service; e.g. to obtain the general special protection zone's layer, natural and maintained special protection zones must be combined, or to obtain the plotted theme layers presented in the matrix, the data must be filtered out of one general layer based on their name). If it was possible to get limited-use information from the service within the administrative area of the Ministry of the Environment, this service did not have all the layers that are in the EELIS public service. Both services had to be used to get all EELIS data. The nature conservation zones of EELIS have been consolidated into KPOIS, but again it is a matter of aggregated data, from which the subject layers of the matrix must be manually filtered out of the two large data layers on the basis of names or codes. After the initial filtering, it became clear that there were more objects in the KPOIS system and there were overlaps when comparing some layers with the data of the public WFS service of EELIS. The administrator of the database could not explain whether these were justified overlaps or duplicate objects in the database, because the administrator of the database cannot determine the correctness of the data in terms of nature conservation. Thus, the author of the analysis gave up the use of the data of the nature protection zones in KPOIS in favour of the public WFS service of EELIS and within the administrative area of the Ministry of the Environment.

- Different understandings of the forest as a phenomenon – when using the initial ETD layer "E_305_puittaimestik_ a" filtering tyyp=10, i.e. forest, there was a problem that certain types of forest might be missing, which are, for example, counted as forest in the Forest Register. A good example is the wetland in the ETD, which is forested (E_306_margala_ a, where puis=10) and may already be fully considered as forest in the Forest Register. The difference is also the time dimension, i.e. if the ETD map data is corrected on the basis of orthophotos according to visual inspection, the Forest Register operates on the basis of changes in the entries in the system in addition to the orthophoto and aerial photo inspection. To compensate for this, both forests are included in the analysis separately and also combined.

Focus group meeting organised by the National Audit Office

Due to the confusion related to the data and the ambiguity of the terms "forest" and "strict protection", the National Audit Office organised a focus group meeting during which answers to data problems were sought with the help of representatives of the Ministry of the Environment, the Environmental Board, the State Forest Management Centre, the Land Board and the Environment Agency. The purpose of the meeting organised by the National Audit Office was to get an answer to the question of which source provides correct and up-to-date information on how much forest there is in Estonia's protected areas under different regimes and how much has been cut. What is the meaning of the terms "forest" and "strict protection"?

Summary of the focus group "Metsainfo" of the National Audit Office of 05/10/2021.

The data request to the Environment Agency revealed a number of data quality issues that had not been previously addressed. Among other things, it became apparent that using the same raw data, it is possible to answer the same question in several ways. The main problems are:

- different meanings of the term forest (the ETD, Forest Register, SMI, RMK) and the confusion arising from interpretation possibilities and the incomparability of data;
- Multi-interpretability and shortcomings of the database information of EELIS (different data included in EELIS user versions);
- Different institutions have a different methodological approach (the RMK's allotment-based calculation, SMI, ETD);
- there is no way to get up-to-date accurate data on fellings.

The participants in the focus group have answered the National Audit Office's questions as follows:

What is a forest? How to find the surface area of the protected forests without overlaps?

Forest has several meanings. It is, for example, in the sense of the SMI, ETD and Forest Register; for international reporting, there are separate criteria for a forest of the LULUCF and FRA (*Global Forest Resources Assessment*).

The Forest Act gives the meaning of a forest – as forest land in the cadastre, a land area of at least 0.1 ha and the canopy density (or union rate) of at least 30%. "Forest land" in the cadastre comes from the ETD (the Estonian Topographic Database, which maps objects located in the terrain for the Estonian main map), where areas are mapped as forest if trees with the 30% canopy density (not shrubs or bogs) are in an area of 0.05 ha (including cleared areas). The ETD is a bulk survey obtained by photographing the ground surface from an airplane, the pixel size is 50 cm.

In addition to tree-covered areas, the SMI also considers bogs, which the ETD does not consider to be forests, as forests. The forest register defines a forest according to the criteria given in the sub-acts of the Forest Act and where there is an on-site inventory of what is happening in the forest. FRA considers areas where the trees are at least 5 m high, the land area is 0.5 ha and the canopy density is 10% as a forest, and it is a forest if it currently meets the mentioned criteria or it is potentially possible to achieve them. The meaning of the term “forest” is based on the need that we want to show through it. The use of the term depends on what data is provided and to whom. The participants in the focus group do not see a problem in the fact that different definitions of forest are in use at the same time, as this difference in definitions does not interfere with forest management.

There is a purpose to using each definition, and that is how it should be. It is not possible to get an accurate overview of the entire nature of the forest. Information about how many protected areas we have is easy to get. It is already difficult to say how much forest there is in the protected areas precisely because of the different definitions of the terms. The SMI is a small-scale sample survey of statistical methodology, where a statistical assessment of the forests of the entire country is given as a result of sample plots surveying. One sample plot represents approx. 160 hectares. It must be taken into account that the conclusions made with the SMI methodology are subject to statistical errors. The smaller the area about which something is inferred, the greater the error. If you want to go to the level of protection regimes and zones, the SMI is no longer suitable for this, you have to use the ETD. In the case of strict nature reserves, for example, the SMI data should not be used at all, as the statistical error is too large.

The ETD data is based on map material. The green conventional sign in the ETD indicates a forest, but there is no substantive data. These so-called forest boundaries are established while in front of a computer screen, not in the forest. Land tax is collected from forest lands determined on the basis of the ETD, but this forest does not have to 100% coincide with the definition according to the Forest Act. They cannot be considered forestry data.

The RMK and Forest Register's information about the forest is based on the data obtained during the ground inventory, where the actual and substantive boundaries of the forest are established. The accuracy of these data compared to the ETD is much higher. The Environmental Board indicates that it is important to so-called translate how these data were obtained – what data was used. The RMK explains that if there is a small grove of trees in the middle of the field, it is a forest according to the ETD's definition, but according to § 4, Section 1, paragraph 1 of the Forest Act, the lower limit of the definition of a forest for such a piece of land is 0.5 ha.

When defining a forest, an important indicator is the height index, which should be over 7.5 m (i.e. the expected height of the forest at the age of 100, which is the lower limit of the 5a quality). From now on, we start talking about managed forests.

In the opinion of the RMK, the Environmental Board and the Environment Agency, the results of the requests cannot be compared, as the requests have been made by different people, probably using

different methods. Nor can it be assumed that all users of the ETD and EELIS data will understand these data in the same way. The data analyst is the Environment Agency, and therefore it could not be assumed that the Land Board would be able to analyse the surface area of forests in the same way. The National Audit Office must make its own choice on how to define the concept of forest, and the request should be made by an agency appointed by the National Audit Office and under the conditions given by the National Audit Office.

The Land Board considers that the ETD is a general and so far the most accurate data set, which gives wider boundaries. Information about what is happening inside the forest is more precisely provided by satellite, SMI and inventory data. The ETD is the best basis for obtaining surface area indicators (e.g. how much forest is in the protected areas). The Land Board is interested in making the definition of the ETD and Forest Register more similar. There are more than 700,000 cadastral units in Estonia where land tax is paid on the basis of the ETD. Perhaps too much is being done to many – forest land is known to be more expensive than arable land. According to the Land Board, the cross-use of data contained in different registers is important here, and if the data is made available, easily traceable and transparent, there will be less confusion. If everyone uses the ETD data, there can be no ambiguity about what a forest is, since it is open data. By its very nature, all nature conservation data is open, there is no trade secret. If it becomes transparent, it would simplify the complexity of the situation for everyone. There can only be certain aspects that remain hidden from the public (e.g. sites of category I species, habitats).

Overlaps occur because one area has several protected modes at the same time. The existing protected area may overlap with the plotted protected area and/or permanent habitat or KH. There are several combinations of these. The most problematic is the overlap with the plotted areas. It can also be seen from the above table that the data of these areas differ the most. The methodological approach is also different here. The RMK, for example, classifies as plotted protection zones only those that are added to the existing ones or if the scheduled protection zone is stricter than the existing one, e.g. if the special protection zone is plotted instead of the limited management zone. The Environment Agency considers the entire area as a plotted one. Again, the methodology is how someone uses the available data.

The data of the RMK and the Environment Agency are not comparable with the ETD data. The RMK is convinced that the total number of strict forests in the yearbook is correct. If the allotment has at least one reason for protection that requires strict protection, it is included in the calculation of strictly protected areas. The RMK, according to its own calculations, can easily tell how many limited management zones and special protection zones there are, but they contain overlaps.

The surface area of forest land is actually the final size in the sense of the ETD and Forest Register. You have to choose the one from the surface of which you can make generalisations about Estonia. If we want to know what is under strict protection, then we can generalise the ETD as forest land – a map layer with strict protection in the geoinformation system – and cut with it. There should be a methodically correct solution to avoid overlaps.

In EELIS, it is necessary to develop specific so-called standard reports – everyone can make a statement about how much we have of something. The answer to such requests should be immediately available and retrievable at any time, without the need for months of analysis. The necessary information (protection regimes, forest layer, etc.) must be developed into the system. Terms and conditions should be agreed upon beforehand. Then, regardless of the user, it is possible to put together unified, reliable information.

What data is the basis for decision-making in the country, and are there no problems for the country due to the difference in the data of the concept of forest?

According to the participants in the focus group, it is not a problem that at the same time different concepts are the basis for making different decisions and, as a result, different source data. National strategic decisions and international reporting are based on the SMI. For example, the Forestry Development Plan and other long-term decisions. Information from the Forest Register is the basis for the Environmental Board's individual decisions, mainly for issuing felling permits.

The Ministry of the Environment also considers the ETD-based data as important. The Environment Agency prepares annual ETD-based summaries with all these different statistical indicators – zones, division by ownership, etc. This is the underlying database that Ministry of Environment also takes as a basis in everyday work. Regarding the national forest, it would be more accurate to use the RMK data, but currently the Ministry of Environment has used the ETD data.

The National Audit Office's request was also the kind that no one does on a daily basis and that no one directly needs, because information with such detail is not directly needed.

According to representatives of the Ministry of the Environment, there is currently enough information to make decisions, the general picture is correct, and there is no reason to doubt the accuracy of the data.

The Land Board noted that the clarification of the definition of forest is necessary for a fairer determination of the land tax.

What does strict protection mean? Is the public being misled by the fact that the definition of strict protection includes clearcut areas or young growths? In people, the term "strictly protected forest" creates an image of an untouched old natural forest (western Taïga) that no one cuts down.

Strict protection is a regime – it is more of a legal definition. It denotes an area where there is no forest management activity, except for species protection activities – maintenance work, nature conservation activities, habitat restoration, swamp restoration or fellings, which are necessary to fulfil the nature conservation objective. Strict protection does not always equate to natural development (i.e. where we do not interfere). Nature conservation works involving fellings are often difficult to justify to the public. It is not understood why nature conservation works are carried out, for example when felling is done on the lekking grounds of western capercaillie or to restore semi-natural communities. In the first year, the restored areas may not look good at all, and this can cause people to resent it.

The strict protection regime includes strict nature reserves, natural and maintained special protection zones, special protection zones of permanent habitats, KHs and all plotted special protection zones.

It is not important whether or how forests have been managed on this land in the past. Strict protection means that from now on it will no longer be done there. Strict protection is a long-term view. If we had not taken the young forests under protection in Lahemaa, for example, in 1972, we would not have today's pine stands.

According to the RMK, the Environmental Board, the Ministry of the Environment, and the Environment Agency, there are two most important aspects in the system of protected areas – looking to the future and the cohesiveness of the areas. During the protection of the additional habitat site types of fresh boreo-nemoral forests, fellings had already been done there, but Estonia lacked these areas and cohesiveness was needed. This does not mean or indicate that we have allowed too much felling in the past. We take into account that if this area is left to natural development, in the long term the habitat type of fresh boreo-nemoral forests will grow in its place, the nature value that we want to protect will develop.

There is also no reason to consider the situation problematic, where less than half of the strictly protected forests are old forests (47%) and the majority are younger forests. Over time, the value of the forest increases and there are various ecological functions, the young forest is also a part of the ecosystem. The age of the forest is one thing, but it does not mean that if the forest has not reached this age, then this community is worthless. For example, the eagle has also nested in a forest that is less than 100 years old. Every year that we keep the young forest in the special protection zone, the value of this forest community increases. It should also be taken into account that in the past the nature conservation objectives were completely different - today's decisions are based on current knowledge and needs.

According to the Ministry of the Environment, the strict protection of forests is in good condition. Estonia has large ranges and individual pieces, if you look at the percentages of strict protection, so the situation is very good even compared to other countries. The Ministry of the Environment has made the

right decisions. The protection of old forests in a large amount and in the long term can be ensured if we stick to our decisions today in maintaining strictly protected areas. According to the Ministry of the Environment, the existing situation cannot be considered misleading.

The definition of the International Union for Conservation of Nature (IUCN) is more conservative with regard to strict protection – it means only natural development, excluding also maintained special protected areas in strictly protected areas. The Ministry of the Environment does not believe that the IUCN expresses our understanding of the nature of strict protection more accurately. Bringing the IUCN together with the Estonian nature protection system is not possible. Even the term "national park", for example, can be interpreted in different ways. It is known that the European Commission is defining an answer to the same question. The Commission also takes into account the IUCN definition, but in order to fulfil the protected area objective of the European Union's biodiversity strategy (30% of the EU under protection and 10% under strict protection), the definition of strict protection in the European Commission's guidance material (*Note on criteria and guidance for protected areas designations*) is not limited to the IUCN definition only, but defines it more broadly. The European Commission's document is now complete.

According to the Land Board, the situation can also be viewed in the way that we have intact conservative protection (i.e. natural development) and we have future-looking protection (protection of already cut areas, restoration of semi-natural areas, improvement fellings, etc.). Anxiety has arisen in society precisely because this so-called future-looking strict protection is extensive today, about 50%. It is important to keep the right proportion here. It should also be clearly explained to people why this protection is needed and what this protection is.

There is more strict protection for the RMK than the protection regimes under the Nature Conservation Act provide. The RMK also implements voluntary strict protection. For example, the twig nest is under strict protection of the RMK. If a person performing forest work or an appraiser identifies a twig nest of an unknown species, they will not continue with forest work until it has been determined whether it belongs to protected species. Methodologically, the way we calculate the surface areas of the plotted special protection zones is different. We take into account as plotted ones only those areas that are added or become stricter than before.

According to the assessment of the Ministry of the Environment and the Environment Agency, there are no problems with fellings of the plotted special protection zones. In the case of felling of plotted areas, the felling planned in the notification is compared with the objective of the planned protected area zone and assessed whether the planned felling may harm the planned protection objective, and the decision is made accordingly. It takes 28 months to process a felling permit. By that time, as a rule, the content has already been decided, which protection order will remain and how to proceed. These issues have also gone through the courts. The Environmental Board has enough legal grounds to decide what to do with the felling. The RMK does not submit notifications on plotted special protection zones.

The Environmental Board considers it important to emphasise that, regardless of how the National Audit Office defines the concept of strict protection in its report, there will always be two sides – for some it is much, for others it is little. The Environmental Board has been in court with both sides.

Today we have a situation where the state does not have accurate and up-to-date data on fellings (clear cuttings). The SMI offers two-year-old data, the lidar data of the Land Board on forest changes is up to four years old. According to the forest notification, the cut volumes cannot be counted, because we have not obliged the landowners to report the fellings. The completion of the monitoring system being created by the Environment Agency, which was supposed to provide up-to-date felling information using satellite images by the end of 2020, has been postponed indefinitely. Different organisations and interest groups produce their analyses and numerical data from the surface of existing open data.

How to get up-to-date and accurate information about felling? Doesn't the Ministry of the Environment need more recent data and doesn't it need them for its work? If we had the practice of using more up-to-date data, wouldn't that have saved us from infringement procedures?

The Environmental Board and the Ministry of the Environment are convinced that information on felling (clear cutting) should and must come from the SMI regarding the whole of Estonia. For today's purchases and practice, there is no problem that the data constantly reflects the situation of two years ago. So far, there has been no practical need for more accurate and up-to-date data. The Environmental Board has not been given an annual felling limit in forests, and this record does not have to be kept and is not kept. It has not been necessary to make decisions that would direct forest management operationally.

When issuing felling permits, the Environmental Board uses aerial photographs as a basis, which are a daily tool for permitting clear cutting of a forest reserve, and each individual felling permit procedure is based on the parameters of the Forest Act – the size of the 7 ha adjacent felling block, forest regeneration criteria, etc. Satellite data is enough for the Environmental Board.

Based on the point of view of the manager of the protected area – whether the felling has a cumulative effect, whether the objectives of the protected area have been damaged, etc., these decisions and analyses have not been made by the Environmental Board, because there is no such obligation. This will most likely come as a liability in connection with the European Commission's infringement procedures. The Nature Conservation Department of the Environmental Board has begun to analyse whether the protection objective has been achieved.

When permitting fellings, the Environmental Board has based the wording of the protection objectives on whether and which felling is permitted. The decision is made on an allotment basis, the conservation regulations and protection conditions do not define the cumulative effect, and there are no mechanisms in use to guide felling across cadastral units. If they were, it would be very important to know how much has been cut and how much can still be cut. The Environmental Board has proceeded from the principle that forest habitat types are protected only in the special protection zone if the conservation of the forest habitat type is a protection objective. It is allowed to cut them in the limited management zone. This is a simple and clear approach for everyone. The reserve of old forest today is a request function built into the Forest Register and it is an indicator calculated at the landscape scale that summarises the condition of allotments. If new expectations arise, the Environmental Board must start assessing the cumulative impact. However, it needs new tools and a significant reorganisation of everything related to protected areas and forestry. Broadly speaking, the Estonian parliament (Riigikogu) sets the expectations for the Environmental Board and sets the rules. If there is no need for better data, it will not be offered. Considering the essentials and from a personal standpoint, one can think that it would be good and necessary.

According to the Ministry of the Environment, it should be taken into account that we have created the organisation of nature protection based on a different logic – which we want to remain in any case. If we want to preserve something for sure, its place is in the special protection zone. The Environmental Board's principle is that where there is flexibility and talk about the direction of biodiversity, it remains in the limited management zone, and recommendations are given there. Damaging of what we want to preserve is regulated through the regulations.

The Ministry of the Environment is of the opinion that there is no connection between the lack of up-to-date data and the infringement procedures of the European Commission. It was not the lack of information that was the problem, but rather how discretionary decisions are made. The Commission is not convinced that natural values are sufficiently preserved. The criticism against Estonia is that discretionary decisions have been made without evaluating the environmental impact. The Ministry of the Environment is of the opinion that there are many complex nuances and different ways of interpreting the directive, as the directive does not require 100% protection of habitats.

According to the RMK, the need for data reflecting the forest resource and its use is becoming more and more prominent due to the changing circumstances. In the context of climate, carbon sequestration must

be taken into account. Due to this, there are also restrictions on the use of the forest. The state must find a way to produce this data as cost-effectively as possible. Is it increasing the pace of epy SMI, using lidar or satellite data as remote monitoring, setting the obligation to report fellings to the Forest Register, etc. So far, there has been no need, because currently Estonia as a whole has not reached the limit of the felling volume set in the Forestry Development Plan. There was no need to check and pull the so-called brake. The Forest Act also lacks a mechanism to limit the volume of felling, if a hypothetical limit is reached and fellings should be stopped. Even if a situation were to arise that there is a risk of exceeding the annual felling volume, currently the suspension of felling could be implemented retrospectively, based on data from two years ago. There is a gap in the data here, and this gap should be filled.

In order to collect information on fellings, it would also be possible to feedback the fellings done in the Forest Register. Or in a simple form: the volume allowed in the felling permit has been cut – "yes/no" and what was the volume. According to the Environmental Board, this information is actually available at the Tax and Customs Board through taxation. Data on all fellings are declared accurately to the solid cubic metre. From the owner's point of view, why should the landowner declare the same thing in two places? Such a burden cannot be placed on the landowner. This could be an automated exchange of information between the Tax and Customs Board and the Forest Register. There is no link made between the solid cubic metre, the forest notification, and those who fell the trees.

According to the RMK, it would be very difficult and expensive if one wants accurate data, because the official has to go to the forest afterwards and assess what picture opened up there. Otherwise, the data will not be reliable.

The Land Board would really need information about the fellings that have been carried out. At the time of the land purchase-sale transaction, it is necessary to know whether felling has taken place or not.

The resource in the Land Board – the Forest Change Map – is not currently used as an analysis method for the state, but it is an informative map for private individuals and interest groups. The project initiated by the Environment Agency to link remote monitoring and the SMI (a project that was supposed to be put into practice by the end of 2020). Its operation is still being tested. It is not possible to say at what point a functioning solution will be ready.

The Land Board sees that the SMI is necessary, but must accept and understand that it remains a relatively small-scale sample survey. There are untapped opportunities for data on fellings. For example, in addition to lidar survey data, satellite data is also available on forest changes, which, unlike the lidar survey information from four years ago, is updated several times a week. They provide an up-to-date and fast large-scale cumulative assessment very quickly. In addition, it would be possible to use an analogue of the map of grasslands created on the basis of the radar data of the Agricultural Registers and Information Board (PRIA), adapted for forestry. Such an application should be developed and money is needed for this.

According to the Ministry of the Environment, this is good information and it is the same direction that the Environment Agency itself is working on. In Estonia, various authorities and organisations have published a lot of different statistics on felling volumes. This was also shown in the infringement proceedings, that the data on felling data varied – from 86,000 ha of clear cuttings was the maximum surface area that was felled. The authorities do not know what this volume actually is. Using PRIA's experience and transferring the system of the Ministry of the Environment are necessary.

Annex C. Estonian Naturalists' Society. Cases of damage to the natural values. Summary of expert work.

Within the scope of this work, cases of deforestation in ten areas located in different regions of Estonia have been discussed: In northern Estonia (Nabala-Tuhala Nature Reserve (NR) and Lahemaa National Park), northwestern Estonia (Länemaa Suursoo Landscape Conservation Area and Nõva NR), Hiiumaa Island (Prähllamäe), Saaremaa Island (Pahapilli), northeastern Estonia (Sirtsi NR), southern Estonia (Otepää Nature Park), southwestern Estonia (Massumetsa and Kõveri-Ilvese region). The cases have been selected from previously known problematic cases in such a way that they deal with somewhat different problems, while these areas represent many similar cases throughout Estonia in recent years. The following summary observations are based on the analysis of the surveyed cases.

Summary of the circumstances that led to felling where it should not have been felled:

- the procedural process for establishing a protected area is contrary to the Nature Conservation Act (Kõveri-Ilvese region);
- the nature reserve does not have a protection management plan (Nabala-Tuhala NR, Saaremaa yew tree habitat);
- the protection management plan partially contradicts the protection objectives (Tänavjärve);
- The requirements of the Natura habitat have been ignored, including an environmental impact assessment (Nabala-Tuhala NR, Otepää Nature Park, Lahemaa National Park, Sirtsi NR, Nõva NR, partially Kõveri-Ilvese permanent habitat);
- clear cutting has been done in the protected area, although the objective of the protected area is to protect the western Taïga. The Natura forest subsidy has been paid even after felling, and this sends the message that felling old protected forest is a permitted practice (Nabala-Tuhala NR);
- Natura habitat type is not inventoried (Nabala-Tuhala NR);
- The protection objectives of the nature conservation species of category I have been ignored (Prähllamäe, Sirtsi NR);
- The habitat and conditions of the protected species of category II have not been taken into account (Nabala-Tuhala NR, Otepää Nature Park, yew tree habitat in Saaremaa, Lahemaa National Park, Sirtsi NR);
- the cumulative effect of felling has been left unassessed both in issuing forest notifications and in the conservation regulations (e.g. Nabala-Tuhala, Otepää);
- large-scale combined fellings are allowed without setting conditions (clear cutting, sanitary cutting, gradual felling) (Nabala-Tuhala NR, Kõveri-Ilvese). In the Ülejõe land unit of the Nabala-Tuhala NR, in the habitat of the lady's-slipper orchid (limited management zone, habitat of the species of category II), extensive combined felling was carried out, although the protection of this habitat is the purpose of the protected area;
- not setting restrictions based on the objectives of the protected area in the limited management zone of the nature reserve allows felling there in the same way as in a normal commercial forest (Nabala-Tuhala NR, Lahemaa National Park, Otepää Nature Park);
- there is no action plan for the protected species, which would regulate, among other things, felling (the habitat of yew trees in Saaremaa);
- Sanitary cutting has been done in the Natura area (Nabala-Tuhala NR);

- the expert assessment's recommendations of the conservation regulation have been partially or completely ignored (Nabala-Tuhala NR, Otepää Nature Park);
- the conservation regulation of the nature reserve contradicts the protection objectives (Nabala-Tuhala NR, Lahemaa National Park, Otepää Nature Park);
- in the protection management plan, the impact of fellings on protection objectives has not been discussed (Otepää Nature Park, Lahemaa National Park);
- The observation data of the habitat was entered into the register with a long pointer, which is why it was possible to clear the area before it was taken under protection (the lady's-slipper orchid habitat of Nabala-Tuhala Ülejõe land unit – observation of 30/06/2018, register entry of 13/08/2019. Fellings were done in spring 2019);
- the procedural system for forest notifications (i.e. felling permits) cannot always distinguish when a protected species is located in the notification area, and therefore an automatic notification is given (the habitat of yew trees on Saaremaa Island);
- forest notifications contain incorrect information (Nabala-Tuhala NR);
- the forest declaration contradicts the protection objectives (Sirtsi NR, Nõva NR);
- in the forest notification, some of the conditions have been omitted (noise and fragmentation of the habitat must be avoided on the Sirtsi NR);
- during the coordination of forest notifications, the presence of key habitats has been left unchecked (Kõveri-Ilvese permanent habitat, Prählamäe);
- the recommendations of the forest notification have been ignored during felling (Kõveri-Ilvese, Tänavjärve);
- little or no supervision (Nabala-Tuhala NR, Kõveri-Ilvese, Prählamäe, Tänavjärve, Nõva). The site of the protected species was also not checked to ensure that the felling was carried out in accordance with the requirements (the habitat of yew trees in Saaremaa);
- other activities were accompanied by felling, which contradicts the protection objectives (reconstruction of the drainage systems of Prählamäe, Sirtsi swamp restoration project, Tänavjärve);
- before being taken under protection, clear cutting has been done and then the deforested area of low ecological value has been taken under strict protection (Massumetsa);
- felling was carried out carelessly (the habitat of yew trees in Saaremaa);
- felling was done when the ground was not frozen (Tänavjärve, Nõva NR);
- felling was done during the nesting period (Nõva NR).

In conclusion, it can be said that in practically all cases, the Environmental Board presented very lenient minimum requirements for the preservation of protected species, formalising them as recommendations.

The Environmental Board (or the former Environmental Inspectorate) minimally supervised the fulfillment of the felling terms and conditions set by itself, and the lack of supervision could not prevent violations even in the state forest, which is managed by the State Forest Management Centre (RMK).

In Natura natural areas, the Environmental Board has allowed activities that cause the destruction and deterioration of the habitat types and species that are the protection objective. Allowing such an activity is not in line with the Nature Directive and Birds Directive.

Forest notifications have been issued on neighbouring allotments within a short period of time, allowing felling in a cumulatively much larger area than the conservation regulation allows for individual felling blocks. This results in the damage or even destruction of natural values, while there seems to be no legal violation.

Felling conditions and their cumulative effects can be considered in the development of a conservation regulation, but this has not been considered.

The conservation regulations are too general and leave too much room for interpretation and responsibility to the manager of the protected area. Several cases show that officials do not take experts' assessments into account, and there is no corresponding justification.

Protection management plans are important in order to specify the purpose of specific activities and to analyse possible risk factors. However, no general document can foresee all possible aspects. Therefore, it is very important to start an environmental impact assessment to evaluate every large-scale activity.

Other forest habitat types and habitats of species that are the objective of the protected area have been damaged in the course of track cutting and restoration works. It is important to assess the impact of activities in a complex way, not just one activity centrally.

The legal regulation of the protected areas should more clearly define the role and responsibility of the manager of the protected area to ensure adequate forest protection.

Case summaries

Case description of Nabala-Tuhala

- A protection management plan has not been drawn up for the Nabala-Tuhala Nature Reserve.
- It was felled in the Natura forest habitat type, which is the protection objective of the nature area.
- Felled in an uninventoried Natura forest habitat type.
- Fellings were done in the habitat of a species of protection category II (lady's-slipper orchid).
- The Natura forest subsidy is also paid for cut areas.
- By combining cutting types, a large area can be cut in the limited management zone.
- Large areas of the limited management zone are clearcut, which undermines the protection objectives of the nature reserve.

The Environmental Board generally does not order inventories of habitat types in limited management zones, although habitat types in Natura nature areas should be inventoried in the entire area in order to plan and organise habitat protection correctly.

All types of felling are permitted based on the conservation regulation: regeneration, shelterwood and improvement fellings. The conservation regulations limit only clear cutting (regeneration cutting) to a felling block of 2 ha and shelterwood cutting to a felling block of 5 ha, which allows the forests in the limited management zone to be managed essentially like conventional commercial forests (the average surface area of clear-cut deforested area in Estonia is about 2 ha on state land).

The explanatory memorandum of the conservation regulation does not discuss the (including cumulative) effect of felling on protection objectives.

The explanatory memorandum of the conservation regulation does not explain why it was decided not to consider the experts' recommendations.

When adjoining fellings are joined and cutting types are combined, it is still possible to create extensive bare areas in the nature reserve, which certainly do not preserve the flora there. The use of different types of felling in the limited management zone of protected areas gives an opportunity to bypass the rules of the conservation regulation (limit of 2 and 5 ha) and make the maximum felling at once. Essentially, in this case, the limited management zones no longer fulfil their protection objective, because the cutting intensity is similar to that of the commercial forest.

Cutting yew trees and their habitats on Saaremaa and Hiiumaa Islands

- On Saaremaa Island, the protected yew trees have been cut down and the condition of the remaining yew trees has been damaged by the bordering fellings.
- On Hiiumaa Island, the condition of the yew trees has been damaged by the bordering clear cuttings.

In order to ensure the condition of the yew tree and to plan conservation management activities, the protection and action plan of the species has not been approved, although the corresponding draft was drawn up already in 2010.

No permanent habitats have been established to protect yew tree habitats, although the procedure for their creation was already started ten years ago and the last expert assessment was completed in 2017. Since the species has a limited distribution, the habitats are only in Western Estonia, and the species is small in number, it would be fully justified to create permanent habitats for the yew tree.

Preservation of yew trees located in the limited management zone and their suitable growth conditions depends primarily on the conditions set by the Environmental Board during the processing of felling notices.

Fellings in the Otepää Nature Park

- A total of 115 ha have been cut in Natura forest habitat types, which are the protection objective of the nature area.
- Clear cutting in the habitat of a species being a protection objective.

The conservation regulation of Otepää Nature Park were amended in 2016, and the updated regulations allowed clear cutting compared to the previous one, although setting different restrictions on clear cutting. There are some conditions in the conservation policy that exclude the destruction of forest habitat types, but they still allow habitats to be damaged.

It is stated in the expert assessment on the conservation regulation that the authorisation of clear cutting accompanied by the updating of the conservation regulation is not necessary from the point of view of achieving the protection objectives. The expert assessment was not taken into account, and clear cutting is allowed with the approved conservation regulation. Various restrictions have been set on clear cutting, including partially taking into account the conditions proposed in the expert assessment. The explanatory memorandum does not explain why the experts' opinion was not fully taken into account.

Despite the conditions presented in the expert assessment, the manager of the protected area also allowed to cut the habitat types named as protection objectives based on the conservation regulations.

The protection management plan of Otepää Nature Park does not address the impact of forest felling on the habitat types and species that are the protection objective. A separate additional assessment was not carried out for the area located in the limited management zone to preserve the habitat of the protected species, the three-toed woodpecker.

Fellings in the Lahemaa National Park

- It has been cut in Natura forest habitat types, which are the protection objective of the nature area. Clear cutting directly destroys the forest habitat type and therefore conflicts with the area's protection objectives.

- Clear cutting in the habitat of the species being a protection objective.

The conservation regulation of Lahemaa were amended in 2015, based on which clear cutting is permitted in spruce stands of up to 0.5 ha and gray alder stands of up to 1 ha, in addition, shelterwood cutting is permitted as a felling block of up to 2 ha. Based on the previously valid conservation regulations, clear cutting was prohibited in Lahemaa National Park and only shelterwood cutting was allowed.

In the case of the limited management zone, no separate conditions have been set for the protection of the three-toed woodpecker's habitat. Old spruce stands of cutting maturity are the habitat of the three-toed woodpecker, where, in some cases, the Environmental Board has allowed clear cutting.

The cumulative effect of felling, including clear cutting, has not been taken into account when issuing forest notifications for all felling in the limited management zones of Lahemaa National Park.

In the limited management zones, felling has been carried out in accordance with the conservation regulation and there is probably no legal infringement, but the clear cutting of habitat types is not in line with the Nature Directive and the cutting of forest bird habitats is not in line with the Birds Directive.

Fellings in the Kõveri-Ilvese permanent habitat

- Damage to the habitat of the protected species by felling and drainage.

Protecting western capercaillie is the protection objective of Luitemaa NR, which is in the area of influence of Rail Baltic, and also of the Natura 2000 protected area, and the construction of the railway will have a significant negative environmental impact on the Natura area as well.

In the case of the coordinated felling notifications for this area in need of nature conservation, there is not even a pre-estimated impact on the Luitemaa Natura area, nor have conditions been set that would help avoid negative impact.

The temporal and spatial interaction resulting from permitting felling has not been taken into account, although there is a comprehensive expert survey. The result is damage to the protected species' habitat with extensive felling and drainage in a situation where it is anticipated that the construction of Rail Baltic will have an additional, very significant impact on the protected species. According to the experts, the interaction is so great that, as a result, the entire population of western capercaillie in the Luitemaa Natura bird sanctuary may be destroyed.

High-ranking public officials of the Ministry of the Environment exceeded their powers by issuing illegal orders to change the boundaries of the protected area, which has resulted in damage to the natural values.

The results of the surveys submitted by experts, as well as the expertise of the Environmental Board itself, were not taken into account, and instead the proposals of the manager (RMK) were taken as the basis for decisions to protect the natural values.

During the coordination of the reconstruction of drainage systems, a full-scale environmental impact assessment was not carried out. Preliminary assessments of the reconstruction of drainage systems, including preliminary assessments of Natura's impact, are superficial and do not involve expert knowledge. The competence of an expert who knows the natural values is lacking.

The environmental impact of forest fellings was not assessed even at the preliminary assessment level, although there is a massive concentration of fellings around the Natura area.

The presence of key habitats was not checked in the habitats of protected species entered in the environmental register, which are also characteristic species of key habitats and indicate a high probability that it is a protected forest section waiting to be taken into account.

The Environmental Board presented very lenient minimum requirements for the preservation of protected species, formulating them as "recommendations."

Fellings in the permanent habitat of a protected species in Prählamäe

- During the reconstruction of the drainage systems, the living conditions of the protected species were damaged.

The environmental impact of the drainage projects was not assessed, although the effects were obvious, the affected area contained a lot of valuable natural values, and the nature conservation expert assessed the negative impact of the works as significant.

When considering the initiation of the environmental impact assessment, the change in the water regime of the headwaters accompanying the construction of new ditches was not taken into account, especially the effect of low water or complete drying during the dry season. Nutrients removal due to the combined effect of drainage and clear cutting was also not taken into account.

When considering the initiation of a drainage-related Natura area or a general environmental impact assessment, the best expert knowledge regarding the extent of the impact was not taken into account and the lack of impact was assumed without basis.

The presence of key habitats was not checked in the habitats of protected species entered in the environmental register, which are also characteristic species of key habitats and indicate a high probability that it is a protected forest section waiting to be taken into account.

Fellings in the habitats of protected species in the Sirtsi Nature Reserve

- The drainage ditch was reconstructed in the Sirtsi Nature Reserve through the special protection zone, which is also the habitat of the flying squirrel. The ditch and track cutting for its construction damage the quality of the flying squirrel's habitat.

- Flying squirrels were disturbed during the elimination of drainage ditches in the flying squirrel's habitat, so they abandoned the nests/shelters they had been using.

- Damage to the habitats of western capercaillie by fellings, estimated to be *about* 1/3 of the swamp forest habitats in the given areas.

During the major project (swamp restoration), other important natural values were damaged, which are also the protection objective of this protected area.

In the forest notification procedure, the time limit for the activity and the need to preserve trees suitable for flying squirrel nests were noted, but it was not stated that disturbing noise and fragmentation of the habitat must be avoided.

The impact of deforestation on capercaillies has not been analysed in the restoration plan.

After giving superficial approvals, all responsibility was left to the RMK, which, however, is not competent to assess the possible impact on the natural values.

The Environmental Board has not considered a follow-up inspection necessary.

Fellings in the Massumetsa region

- Valuable forest habitats are cut down before they are officially designated as protected areas.

- Different methodologies (the Estonian Topographic Database (ETD), statistical forest inventory (SMI)) consider forest areas of different ecological value as strictly protected forests.

- Although the surface area of the strictly protected forest has statistically increased in recent years, primarily due to the protection of fresh boreal forests and fresh boreo-nemoral forests, they contain young growths and low-value areas.

The Massumetsa region was one of the pre-selected areas of the Estonian forest reserve network project carried out in 1999–2001. High-value forest areas have been cut in the Massumetsa region over the course of 15 years, so that by the time the protected area was established in 2019, the value of these forests had greatly decreased.

Nevertheless, these cut-through forests were zoned into a special protection zone and are reflected in official statistics as "strictly protected forests".

The large protected area of Massumetsa was created after fellings, which has already significantly damaged the cohesive ecosystem of the forest range. At the same time, such young growths fill the surface area and percentage of forests under strict protection, although an ecologically valuable forest will develop there perhaps only after 100 years.

Track cutting in Läänemaa-Suursoo Landscape Conservation Area

- Roads have been widened, the use of which is not justified for passenger cars and rather threatens the natural values.

- Viable old pines of high value were cut.

- The soil was damaged by felling.

- Fellings were done in the water protection zone.

RMK did not comply with the prescription of the forest notification or the Water Act and cut down the trees growing directly on the lake shore.

Heavy machines were driven on the unfrozen ground, the wheel tracks can still be seen many years later.

The attitude of the officials of the Environmental Board was superficial, they did not specify specific trees that are allowed to fell.

Although attention was drawn to the violations, the Environmental Board did not consider it necessary to inform the Environmental Inspectorate itself.

Formative cutting in the Nõva Nature Reserve

- Fellings were done with unfrozen soil and the disturbance of protected species during the breeding season was not taken into account.

In the basin between the dunes, the set conditions were violated during the felling of the Natura habitat type.

Monitoring was not started even when the environmental organisation informed about felling problems. The Environmental Board official did not see a problem in the violations.

The officials of the Environmental Board overstepped the limits of their competence and gave contradictory answers when asked. The coordination documents were made retrospectively, after the violation had occurred.