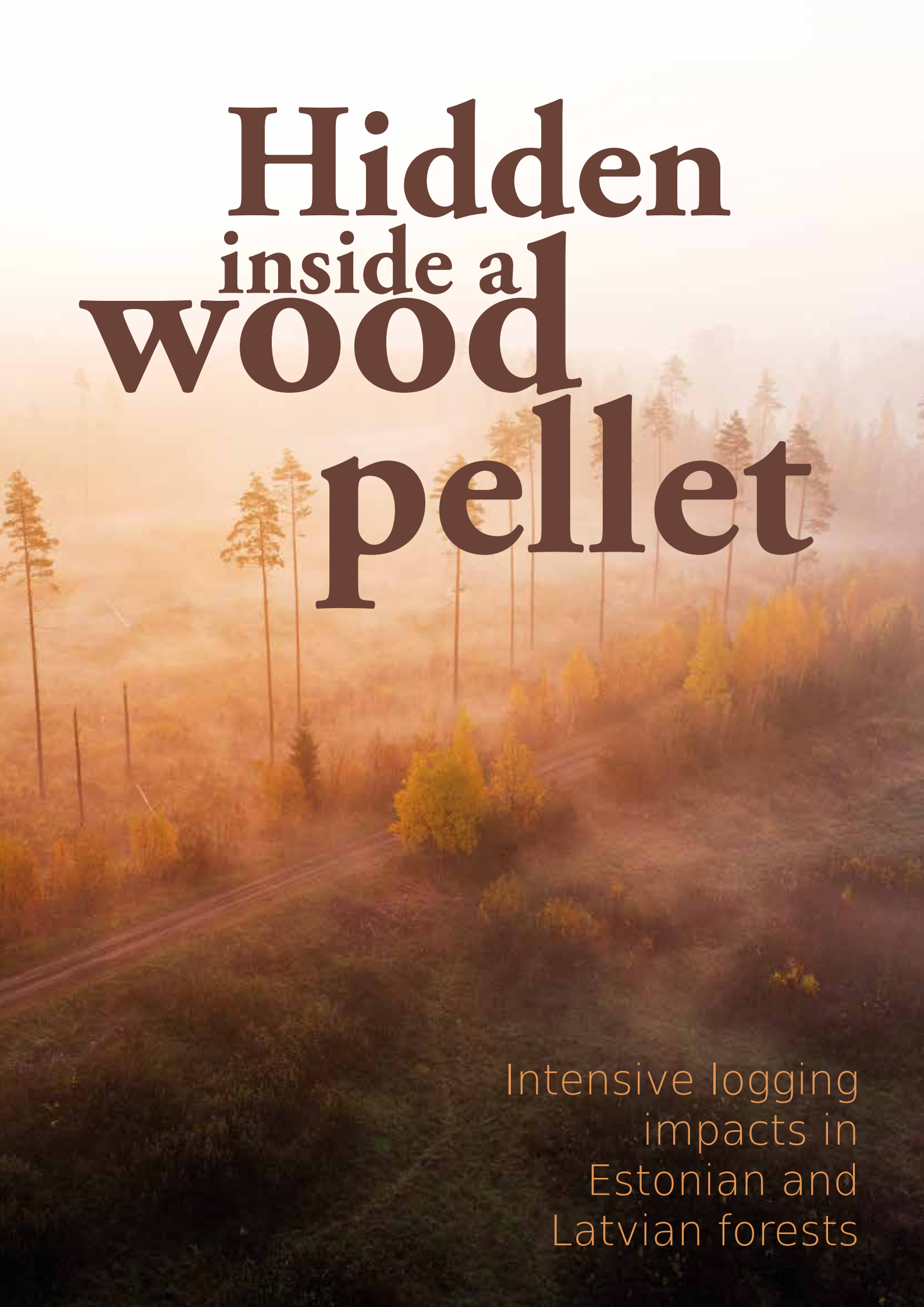

Hidden inside a wood pellet

Intensive logging impacts in Estonian and Latvian forests

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Contents

Summary

Estonia and Latvia are important exporters of woody biomass for energy to Denmark, the Netherlands, the UK and other European countries. This report looks at the ecological and climate impacts of intensive forest logging, how demand for biomass contributes to the recent increase in logging intensity,and how the sustainability standards that biomass trade relies upon harbour serious shortcomings.

The key facts to take note of are the following:

- Estonia and Latvia are both heavily forested countries where forest logging intensity has risen in recent times. Clearcutting is the main industry method for extracting wood.
- Evidence suggests that the intensification of logging in Estonia and Latvia is reinforced by biomass demand from abroad.
- The rise in logging intensity has negative consequences for biodiversity in both countries. The last remaining old-growth forests, rich in rare species, are in notable decline. Destructive logging (including clearcuts) is happening regularly also in Natura 2000 network forests, the pan-European conservation network enforced by EU directives. Forest bird numbers are in decline in both countries and the habitat destruction by logging is an important contributing factor.
- Intensive forestry has a serious negative impact on the climate. 'Business as usual' logging scenarios are projected to seriously reduce the annual uptake of carbon dioxide by forests in both countries. Loss of climate mitigation opportunity is undermined in favour of wood extraction. The reduction of the forest sink caused by intensive logging has led Latvian Land Use, Land Use Change and Forestry (LULUCF) sinks and emissions figures to swing from showing a net carbon sink to a net carbon source. The same is projected for Estonia.
- Widely-used sustainability standards based on voluntary certificates do not address the cumulative negative impacts of intensive logging on climate and biodiversity. Even the most commonly recognised certificates allow clearcutting of large areas despite the negative climate and biodiversity impacts.

This report illustrates the need for policymakers in countries importing biomass from Estonia and Latvia to acknowledge and act to reduce, through their decisions, the adverse environmental impacts that the demand for biomass has on the exporting countries. The central message is thus to move away from policies that incentivise unsustainable forest management abroad.

This report will also be of interest to MEPs and to policymakers in the European Commission: It shines a light on the ongoing struggle of two Member States to achieve climate and biodiversity targets because of biomass demand fuelled by the classification of bioenergy under the Renewable Energy Directive, and despite the existence of the Natura 2000 network and the Birds and Habitats Directives, which should be acting to protect and restore ecosystems and carbon sinks.

1.Introduction

We are running out of time to make the transformative changes needed to avert the worst impacts of the climate and ecological crisis. We urgently need to transition from fossil fuels to low-carbon renewable energy in a just and transparent way, that is consistent with science. We cannot afford to waste time on false solutions.

This report highlights the main impacts of intensive forest management and the burgeoning forest biomass industry. It focuses on experiences in Estonia and Latvia, where growing demand for forest biomass has had significant negative impacts on the environment.

These two Baltic countries together exported more than three million tonnes of wood pellets in 2019[1], made from over six million cubic metres (m3) of wood[2]. This is equivalent to at least 200 square kilometres (km2)[3] of clearcut forest a year. An area of mature forest comparable in size to the Møn island in Denmark or the municipality of Amsterdam is thus cut down for pellet exports every year. Of the three million tonnes of wood pellets exports in 2019, 1.7 million tonnes went to Denmark, the Netherlands and the UK[4]. Considering the amount of wood needed for its production, this is equivalentto around 190,000 trucks loaded with roundwood[5].

To tackle the climate and biodiversity crises, we need our wildlife- and carbon-rich forests more than ever. Yet Estonian old-growth forests, along with key habitats for protected species, are in decline, with the number of breeding forest birds reducing by 50,000 pairs each year. At the same time, the trade in wood biomass for energy is reducing Estonia's and Latvia's ability to achieve climate neutrality: cutting down forests depletes natural carbon sinks and takes both countries further away from fulfilling their climate ambitions. It is an unfortunate fact that biomass burned in power and heat plants is classified as a form of renewable energy in EU legislation, regardless of how irresponsibly and unsustainably it is sourced. The situation in the Baltic states is driven partly by demand subsidised by importing biomass, in line with the EU Renewable Energy Directive or national regulations. People living in Denmark, the Netherlands and the UK are thus unwittingly contributing to logging in the Baltic States through their taxes or 'green' levies on energy bills.

Even if countries commit to "Sustainable Forest Management" on paper, adverse effects are often not mitigated – nor will the forests be saved by sustainability certificates that in the best case are outdated in their design.

This report demonstrates the extent to which intensive forest management is degrading forest habitats across Estonia and Latvia, in some cases in contravention of the EU Nature Directives and biodiversity commitments, highlighting the role of the biomass industry and the European trade in biomass. It points out that sustainability certification provides no reliable certainty that environmental obligations are being met. On the contrary, certification may be concealing the increasingly unsustainable nature of Baltic forest management. The report aims to inform decision-makers about the grave consequence of supporting forest biomass energy, and encourages them to move away from this harmful and false climate solution.

1 FutureMetrics (2020). Global wood pellet trade in 2019. https://www.futuremetrics.info/global-trade-sankey-map/

2 For reference value, wood pellets are assumed to be 2.24 solid wood m3 per ton, the median value for the same figure in Europe. See: FAO, ITTO and United Nations (2020). Forest product conversion factors. https://doi.org/10.4060/ca7952en (page 49).

3 Calculated with 289 cubic meters of wood per hectare of forest as in 2018 in average of state forest: https://www.keskkonnaagentuur.ee/sites/default/files/03_raied_13.09_0.pdf

4 FutureMetrics (2020). Global wood pellet trade in 2019. https://www.futuremetrics.info/global-trade-sankey-map/

5 Considering the amount of wood needed to produce 1.7 million tonnes of wood pellets and on the assumption that one truck fits 20 cubic meters of roundwood when considering the general requirements. See: Erametsakeskus (2015) Mitu puud on mets? https://www.eramets.ee/metsandusuudised/mitu_puud_on_mets/

2. Estonian and Latvian forests and their management

History and ownership of forests

Estonia and Latvia are situated between the temperate and boreal zones – also called the hemiboreal zone, meaning that if left to nature, both countries would be almost entirely covered by forest. Today, around half[6] of their area is classified as 'forest', although this includes areas where tree cover has been lost to clearcutting.

Most of Estonia's and Latvia's forests are classed as "modified natural" or "semi-natural forests". This means they are made up of native tree species (mainly birch, pine and spruce) that have regrown after previous logging and that they have some or many of the characteristics of undisturbed natural forests. Old-growth forests are rare in both countries.

Estonia and Latvia have a strong shared history. After World War II and throughout the Soviet occupation, the area of forest expanded significantly as agricultural lands were abandoned. At the same time, the extent of undisturbed natural forests declined. Those trends have changed since the countries regained their independence. Although the total area classified as forest has remained stable or has even slightly increased (depending on the data source), actual tree cover has declined[7].

In both Estonia and Latvia, about half of all forest belongs to the state and are managed by state forestry agencies – Riigimetsa Majandamise Keskus (RMK) in Estonia and "Latvijas Valsts mezi" in Latvia. A small fraction of Latvian state-owned forest is managed by the Latvian Nature Conservation Agency and other institutions. The relatively high level of state forest ownership dates back to post-World War I nationalisation by the newly established republics. Most private forests were former estates and agricultural land that belonged to rural households and were returned to their former owners and their descendants after Soviet rule. A significant share of the private forest has been consolidated and is now owned by large companies.

Only a small fraction of forest is strictly protected: 14.1% in Estonia[8] and 7% in Latvia[9]. Various degrees of protection (such as prohibitions on or limits to clearcutting) also apply to some other forests to protect wildlife, freshwater, cultural

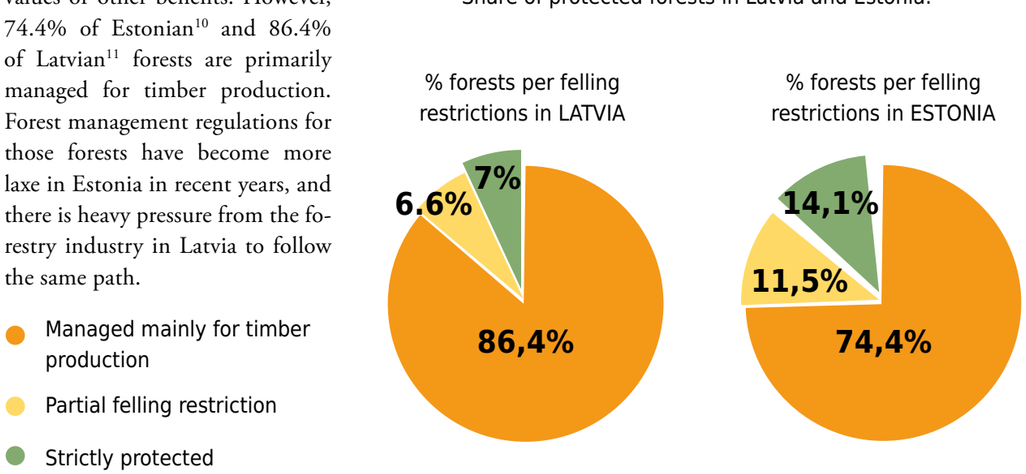
6 Forest Information System for Europe: https://forest.eea.europa.eu/

7 P.V. Potapov, S.A. Turubanova , A. Tyukavina, A.M. Krylov, J.L. McCarty, V.C. Radeloff, M.C. Hansen (2015) Eastern Europe's forest cover dynamics from 1985 to 2012 quantified from the full Landsat archive: http://silvis.forest.wisc.edu/wp-content/uploads/pubs/SILVIS/Potapov_etal_RSE_2015.pdf

8 Estonian Environment Agency Yearbook Forest 2018: https://www.keskkonnaagentuur.ee/et/aastaraamat-mets-2018

9 Latvian State Forest Service annual report 2019: https://www.zm.gov.lv/public/files/CMS_Static_Page_Doc/00/00/01/80/15/Publiskais_parskats_2019.pdf

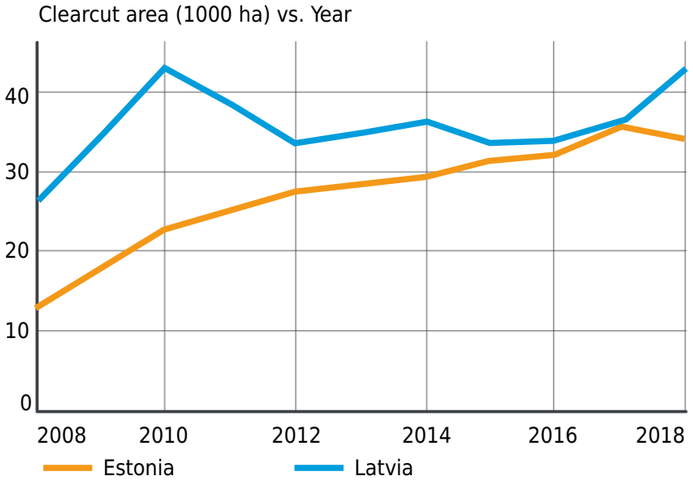
values or other benefits. However, 74.4% of Estonian[10] and 86.4% of Latvian[11] forests are primarily managed for timber production. Forest management regulations for those forests have become more laxe in Estonia in recent years, and there is heavy pressure from the forestry industry in Latvia to follow the same path.



Progressive intensification of logging

In Estonia, annual logging volumes have been rising continuously throughout the last decade. They stood at 4.6 million m³ in 2008 and almost trebled to 12.7 million m3 by 2018[12].

Latvia saw similar increases in logging during the mid-1990s[13]. Its logging volumes have fluctuated since then, albeit with a generally upwards trend. In 2019, Latvia recorded its highest logging volume since 2000[14].



10 Estonian Environment Agency Yearbook Forest 2018: https://www.keskkonnaagentuur.ee/et/aastaraamat-mets-2018

11 Latvian State Forest Service annual report 2019: https://www.zm.gov.lv/public/files/CMS_Static_Page_Doc/00/00/01/80/15/Publiskais_parskats_2019.pdf

12 Statistics Estonia. Datasets used: MM03: Gross felling based on national forest inventory (nfi): http://andmebaas.stat.ee/index.aspx?DatasetCode=MM03.

13 Saliņš Z. 1999. Meža izmantošana Latvijā: vēsture, stāvoklis, perspektīvas. Jelgava: LLU Meža izmantošanas katedra

14 Ministry of Agriculture Republic of Latvia annual forest statistics:https://www.vmd.gov.lv/valsts-meza-dienests/statiskas-lapas/publikacijas-un-statistika/publiskais-parskats?nid=1808#jump

Clearcutting is the dominant logging method in Estonia and Latvia. In Latvia, over 80% of the total final felling (logging oriented to harvest mature trees) takes the form of clearcuts, rather than selective logging[15]. The total area of forest clearcut increased from 0.9% per year in 2008 to 1.4% in 2018[16].

In Estonia, clearcutting accounts for 95% of final fellings[17], and the annual area of clearcut forest increased from 0.5% in 2008 to 1.5% in 2018[18] of total forest land.

Once a forest has been clearcut, it takes many decades if not centuries before it can regrow sufficiently to recover its original level of biodiversity and ecosystem productivity. The broader impacts of large-scale clearcuts should thus be taken into account in addition to the increase in logging volumes.

The link between bioenergy demand and logging intensity

There is clear evidence that the intensification of logging is at least partly driven by higher demand for biomass for heat and power. Given that over half of Estonia's and Latvia's wood pellet exports in 2019 went to Denmark, the Netherlands and the UK, 'green energy' use in those three countries contributes directly to increased logging in the two Baltic states.

A recent study published in the science journal Nature shows that across Europe, the area of forests logged every year increased by an average of 49% and the amount of wood removed from forests

increased by 69% between 2016-18 compared to 2011-14[19]. Estonia and Latvia were amongst the seven European countries with the highest increase in logging. The authors concluded that this increase in logging could not be explained by there being an increased percentage of mature forests and that the cause had been the recent growth in wood markets, especially the demand for and international trade in wood-based bioenergy. Forest management is being intensified to meet this growing demand.

The rising demand for bioenergy is illustrated in another article publis-

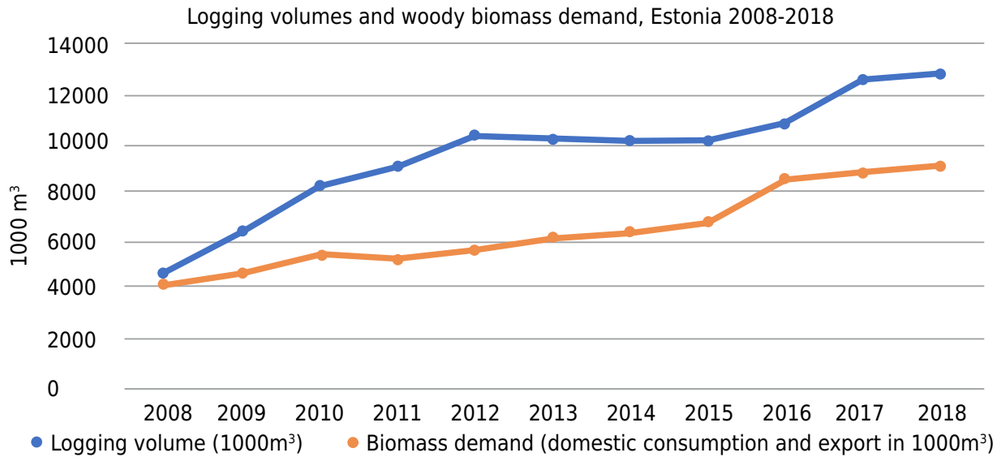
15 https://www.zm.gov.lv/public/ck/files/Parskats%20par%20koku%20cirsanu%202019_gad%C4%81.xlsx

16 Ministry of Agriculture Republic of Latvia annual forest statistics: https://www.vmd.gov.lv/valsts-meza-dienests/statiskas-lapas/publikacijas-un-statistika/publiskais-parskats?nid=1808#jump

17 Estonian Environment Agency Yearbook Forest 2018: https://www.keskkonnaagentuur.ee/et/aastaraamat-mets-2018

18 Estonian Environment Agency Yearbook Forest 2018: https://www.keskkonnaagentuur.ee/et/aastaraamat-mets-2018

19 Ceccherini, G., Duveiller, G., Grassi, G. et al. Abrupt increase in harvested forest area over Europe after 2015. Nature 583, 72–77 (2020). https://doi.org/10.1038/s41586-020-2438-y



hed in 2019 in Energy Policy, which estimated the total EU use of bioenergy will have increased by 94% between 2005 and 2020[20]. This puts more pressure on forests, given that over half of the bioenergy in the EU comes from forest biomass.

The graph abow demonstrates the correlation between woody biomass demand and logging volumes in Estonia between 2008 and 2018, based on data by Statistics Estonia[21].

That growing demand for biomass energy has led to more intensive logging has been confirmed by the Board Member and former Chairman of the Estonian Forest and Wood Industries Association, Jaak Nigul[22]. He stated that increasing demand for low-value wood[23] for energy purposes:

1. incentivises forest owners to manage, i.e. log, their forests more intensively,
2. contributes to the increase in national logging volumes, and
3. thereby increases the supply of high-quality wood, such as sawn timber.

Biomass subsidies and incentives based on the EU's Renewable Energy Directive have been pushing up the economic value of what would otherwise be low-value wood which contributes to increased logging in Estonia[24],[25].

20 Banja, M., Sikkema, R., Jégard, M., Motola, V., & Dallemand, J.-F. (2019). Biomass for energy in the EU – The support framework. Energy Policy, 131, 215–228. https://doi.org/10.1016/j.enpol.2019.04.038. Note, while existing data is used for the period 2005-2017, the change between 2017 and 2020 is based on estimations.

21 Statistics Estonia. Datasets used: 1. KE023: Energy balance sheet by type of fuel or energy (http://andmebaas.stat.ee/index.aspx?DatasetCode=KE023), and 2. MM03: Gross felling based on national forest inventory (nfi) (http://andmebaas.stat.ee/index.aspx?DatasetCode=MM03). While logging intensity has the original value, the biomass demand is calculated as the sum of gross inland consumption and exports of woody biofuels (firewood, wood chips, wood waste, briquette, pellets). The original value of briquette and pellets - tons - has been converted to m3 solid volume to make these comparable to the firewood, wood chips and wood waste measures. For reference values, briquette is assumed to be 1.96 solid wood m3 per ton and pellets as 2.24 solid wood m3 per ton, the median values for the same figure in Europe. See: FAO, ITTO and United Nations (2020). Forest product conversion factors. https://doi.org/10.4060/ca7952en (page 49).

22 ERR (2019) Metsatööstus: biomassi kasutus Narvas väärindaks väheväärtuslikku metsa. https://www.err.ee/971904/metsatoostus-biomassi-kasutus-narvas-vaarindaks-vahevaartuslikku-metsa

23 The low-value wood in this context relates to the specifications of sawmills of pulpmills, i.e., any wood, including roundwood not needed by sawmills or pulpmills is automatically classified as such, regardless of its ecological value.

24 Äripäev (2016) Puit ahju ja elektriks – metsaomanik rõõmustab. https://www.aripaev.ee/uudised/2016/01/21/puit-ahju-ja-elektriks--metsaomanik-roomustab

25 Postimees (2011) Metsakasvatajad arutasid puidu kütteks kasutamist. https://parnu.postimees.ee/546732/metsakasvatajad-arutasid-puidu-kutteks-kasutamist

Higher prices of low-value wood have been found to also affect the prices of sawlogs and forestry market more broadly[26,27,28]. This further incentivises forest owners to have their forests logged more intensively, causing environmental harm.

Furthermore, growing demand for forest biomass can increase pressure on policymakers to loosen restrictions on forest management to help raise logging volumes. In Latvia, there are growing forestry industry demands to permit the cutting of forests with younger trees. One of the main arguments put forward by industry representatives is that forest owners should have the right to log trees earlier if the purpose is to increase biomass supplies for energy[29].

In summary, the growing demand for wood-based bioenergy by countries such as Denmark, the Netherlands and the UK inevitably leads to more intensive logging in the regions and countries from which the wood is imported, such as the Baltic States.

26 Buongiorno, J., Raunikar, R., & Zhu, S. (2011). Consequences of increasing bioenergy demand on wood and forests: An application of the Global Forest Products Model. Journal of Forest Economics, 17(2), 214–229. https://doi.org/10.1016/j.jfe.2011.02.008

27 Favero, A., Daigneault, A., & Sohngen, B. (2020). Forests: Carbon sequestration, biomass energy, or both? Science Advances, 6(13), eaay6792. https://doi.org/10.1126/sciadv.aay6792

28 Nepal, P., Abt, K. L., Skog, K. E., Prestemon, J. P., & Abt, R. C. (2019). Projected Market Competition for Wood Biomass between Traditional Products and Energy: A Simulated Interaction of US Regional, National, and Global Forest Product Markets. Forest Science, 65(1), 14–26. https://doi.org/10.1093/forsci/fxy031

29 http://www.mf.llu.lv/lv/raksts/2016-12-12/dagnis-dubrovskis-meza-kanoni-jamaina

3. Ecological impacts of logging

With forests covering around half of Estonia and Latvia and providing habitat to tens of thousands of species[30], the protection of biodiverse forests is central to preserving the countries' overall biodiversity. The intensification of logging and the reliance on clearcutting as the main logging method are significant negative trends.

The section below summarises the impacts that such logging has on old-growth forests, protected nature sites, and woodland birds.

Old-growth forests and key habitats

High demand for wood has affected the last remaining old growth forests in Estonia and Latvia, which are critical for biodiversity conservation. These forests have evolved without major human impacts and are thus unique local biodiversity hotspots. Deadwood, large old trees, trees with cavities and other micro-habitats host a variety of species that cannot survive in actively managed forest landscapes, such as the flying squirrel, the capercaillie, the black stork and hundreds of species of moss, fungi and lichen.

Today, Estonia has an estimated 46,700 hectares of old-growth forests (2% of total forest area[31]) with small patches across the country. Over the past decade, 14% of the country's old-growth forests have been degraded to the point that they can no longer be considered old-growth[32]. One of the key mechanisms for protecting such forests involves mapping and designating woodland key habitats, i.e. small forest areas with a high probability of hosting endangered, vulnerable or rare species. Woodland key habitats are likely to have eight times more protected species than surrounding areas[33].

Despite the importance of key habitats to biodiversity protection, they are regularly being logged, partly due to incomplete mapping (in Estonia, only around 42% had been mapped by the year 2000), and partly due to forest owners being subject to different forest management regulations: greater protection applies to key habitats in state forests but not those found in the 50% of forest cover under private ownership.

In Latvia, key habitats were initially mapped but later removed from the database of State Forest Service, leaving state forest managers to decide whether to protect or log them. Most of the woodland key habitats fall within the scope of Annex I of the EU Habitats Directive ("habitat types in danger of disappearance and whose natural range mainly falls within the territory of the European Union"). Natural habitats are currently being mapped in Latvia, but they remain vulnerable to being logged unless they are designated as Natura 2000 network sites (an EU coordinated nature protection network which, amongst other objectives, seeks to preserve and enhance the conservation status of forest habitats).

In summary, many woodland key habitats – scattered across state and private lands – remain unprotected. These habitats are under particular threat because they contain older trees – vital for biodiversity – which, paradoxically allows them to be classified as "harvest-ready".

30 Lõhmus, A.; Soon, M. (2004).Katusliigid bioloogilist mitmekesisust säästvas metsanduses: kriitiline ülevaade ja perspektiivid Eestis. Metsanduslikud uurimused, kd 41, 73–85

31 Estonian Environment Agency Yearbook Forest 2018:
https://www.keskkonnaagentuur.ee/et/aastaraamat-mets-2018

32 Estonian Environment Agency response to a request for information to ELF (2019)
https://media.voog.com/0000/0037/1265/files/Teabenoue_loodusmets.pdf

33 Presentation by Indrek Tammekänd at seminar on Woodland Key Habitats by Estonian Naturalists´ Society:
https://www.elus.ee/wp-content/uploads/2019/02/6_VEPde-elustiku-mitmekesisusest.-Indrek-Tammek%C3%A4nd.pdf

Neckera pennata, an indicator species of Woodland Key Habitat

A typical woodland key habitat in Western part of Estonia.

Logging in protected nature areas

Protected areas are meant to be protected from harmful logging, however high demand for wood has led to destruction even in the Natura 2000 network. Estonia's Natura 2000 network covers an estimated 380,000 hectares of forests (16.2% of total forests).

The EU's Bird and Habitat Directives, the legal framework for the Natura 2000 network, require appropriate impact assessment of any logging carried out within Natura 2000 sites, however this requirement has been ignored in Estonia. According to data acquired from the Estonian Environmental Board, between 2009-2018, logging licenses were issued that covered 82,411 hectares within Natura 2000 sites. This amounts to 22% of the total area of the country's Natura 2000 network. No appropriate assessments have looked at the impacts of logging on the integrity of those forest habitats.

Furthermore, in the past five years, many logging restrictions that previously applied to Estonia's Natura 2000 sites have been relaxed. For example, clearcuts are now allowed in many Natura 2000 forests that should be protected under the Habitat Directive.

Particularly problematic examples are found in Estonia's Haanja and Otepää Natura 2000 sites, situated in the southern part of the country.

Aerial photograph of the Haanja, Natura 2000 site shows that forest management in this protected area does not significantly differ from forest management elsewhere where clearcut forest is a dominant landscape.

A fresh logging site in Haanja that belongs to Natura 2000 network.

Logging and tree cover reduction in Natura 2000 and other protected sites have also been recorded in Latvia. In many areas, tree cover is being lost to logging despite the sites being designated as 'protected'. In all but the most strictly protected categories, more than half of the tree cover loss is due to logging[34]. And even in the most strictly protected areas logging still takes place.

Pellet trade and Natura 2000 forests

Graanul Invest is Europe's biggest pellet producer and the largest pellet exporter from Latvia and Estonia. It has declared an interest in buying forests in protected areas and states in its sustainability report[35] that it will take on the role of a ranger, protecting, monitoring and caring for protected areas - adding that sometimes this involves logging to 'enhance the conservation value' of the area. Graanul Invest`s subsidiary, Valga Puu, owns a significant share of Natura 2000 forest sites in southern Estonia. Valga Puu has been lobbying for a weakening of the forest management regulations that apply to the Natura 2000 network sites[36]. There are numerous examples of Valga Puu clearcutting forests on Natura 2000 sites, most in the Haanja and Otepää Nature Parks.

Examples from Haanja include:

In Tootsi village, a Kiire plot owned and managed by a Graanul Invest affiliate cleared a Natura 2000 area larger than four hectares. According to the silvicultural inventory for the site, it used to be a more than 100 year old mixed forest stand dominated by pine and aspen trees. Despite the species-diverse character of the site having been documented, it was never classified as a forest habitat listed in the Habitat Directive.

So despite the damage done, no domestic law has been broken by the logging.

In Miilimäe village, a plot of more than 13 hectares has been almost entirely clearcut by the same Graanul Invest affiliate over the past five years, leaving behind a nearly tree-less, degraded area. Forest owners are eligible for compensation if they restrict logging within the Natura 2000 network – but, ironically, they can even claim compensation after they have clearcut forests.

34 Presentation by Andris Avotiņš on seminar „Problems in Biodiversity Conservation in the Baltic Forests and Possible Solution" 2019: https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Zinas/2019/Decembris/Avotins_Aunins_LU_20191125_TheOwlPerspective.pdf

35 Graanul Invest sustanability report 2019: https://www.graanulinvest.com/cms-data/upload/graanul-invest-aruanne-2019-eng.pdf

36 Management plan for Karula National Park 2020-2019: https://www.keskkonnaamet.ee/sites/default/files/karula_rp_kkk_2020-2029_0.pdf

Forest birds

The number of breeding woodland birds is a good indicator of the quality and integrity of forest ecosystems[37]. Estonia has had a consistent dataset of woodland bird numbers since 1983, and it shows a loss of around one quarter of its forest birds in the past two decades[37]. The decline has hit non-migratory and migratory woodland birds, so at least part of the reason for the overall decline is the changes in local habitats. Woodland birds are declining at a rate of 50,000 breeding pairs a year[39]. The most affected species include black grouse, capercaillie, northern goshawk, woodlark, tree pipits and many others.

Latvian monitoring of breeding birds started in 2005. Since then, the hazel grouse (a non-migratory woodland bird) has suffered the steepest fall in numbers – 79% from 2005 to 2018. One of Latvia's most charismatic woodland birds is the black stork; this too has witnessed a dramatic decline in numbers (60% from 1989 to 2018[40]). Both species are classified as specially protected in the EU and have been included in Annex I of the Birds Directive. This means that any actions that damage their habitat must be avoided under EU legislation.

Hazel grouse is a typical forest bird in decline – the numbers of this bird in Latvian forest were 79% less in 2018 than 13 years earlier.

37 Versluijs et al. (2019) Ecological restoration modifies the value of biodiversity indicators in resident boreal forest birds: https://www.sciencedirect.com/science/article/abs/pii/S1470160X18307866

38 Estonian Environment Agency, Estonian conservation 2020: **ht**tps://www.keskkonnaagentuur.ee/sites/default/files/elk_2020_est.pdf

39 Renno Nellis, Veljo Volke (2019) Changes in abundances of forest birds during the period of 1983 to 2018 eoy.ee/hirundo/files/Nellisi_Volke_2019-1.pdf

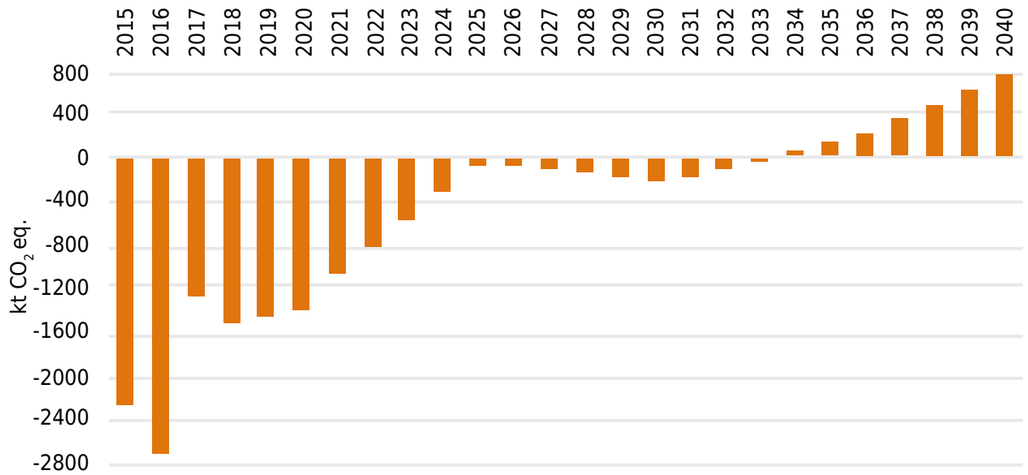
40 Latvian Annex B - Bird species' status and trends report format (Article 12) for the period 2013 – 2018: cdr.eionet.europa.eu/Converters/run_conversion?file=lv/eu/art12/envxbhqxq/LV_birds_reports_20191030-151740.xml&conv=612&source=remote

4. Forest logging and climate goals

High-intensity logging has depleted Estonia's and Latvia's forest carbon sink and could turn forests into a net carbon source if future trends continue. Logging is thus reducing the possibility for Latvia and Estonia to achieve net zero greenhouse gas emissions. Debates about biomass are often preoccupied with technical arguments over carbon accounting. However, there is clear evidence that intensive logging regimes, driven in part by biomass exports, are making it increasingly difficult for Estonia and Latvia to meet ambitious climate targets, even if they chose to have high ambition on climate.

If business as usual continues, Estonia and Latvia will lose an important opportunity to reduce overall carbon emissions with the help of the Land Use, Land-Use Change and Forestry (LULUCF) sector. Changes to forestry have the greatest potential to support Estonian and Latvian climate goals, because protecting mature forests and allowing them to expand is the most effective way of increasing carbon removals[41]. Unfortunately, biomass subsidies in countries such as Denmark, the Netherlands, and the UK are now helping to turn carbon sinks in Baltic countries into net sources of carbon dioxide emissions.

The trend of everreducing overall forest carbon sinks in Estonia and Latvia has been confirmed by numerous studies and reports, although the exact figures differ depending on data sources, modelling methods and assumptions:



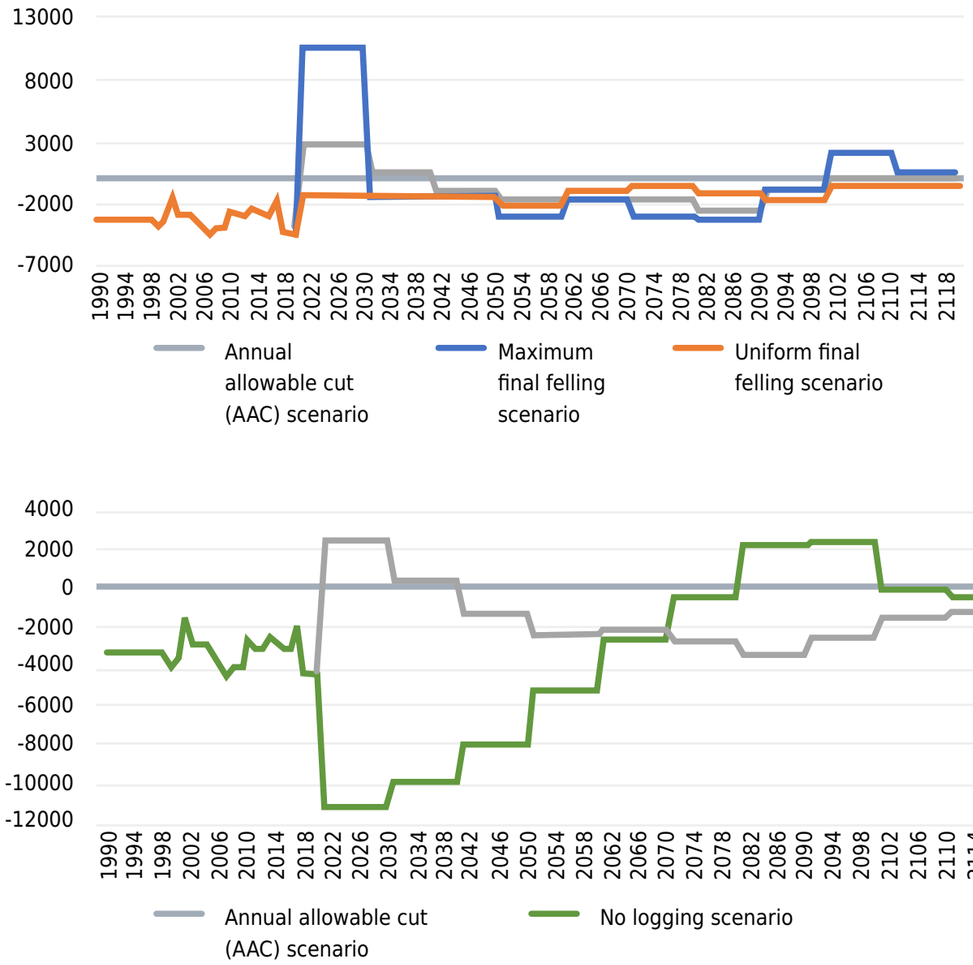
It states: "In coming years [the] forest growing stock reaches the peak and then begins to decrease. Therefore, it is also expected that [carbon dioxide] CO2 sequestration from forest land is going to decline. "

- An Estonian report submitted under Articles 13 and 14 of Regulation (EU) 525/2013 demonstrates that under the current policy, the country's LULUCF Sector would turn into a net source of greenhouse gas emissions by 2034 and that the current forest carbon sink would decrease by almost 50% over the next five years.

- The National Energy and Climate Plans (NECPs) submitted to the EU by both Estonia and Latvia confirm that both countries are expecting the progressive loss of their forest carbon sinks due to logging.

41 Moomaw et al. (2019) Intact Forests in the United States: Proforestation Mitigates Climate Change and **Se**rves the Greatest Good:
https://www.frontiersin.org/articles/10.3389/ffgc.2019.00027/full?te=1&nl=climatefwd:&emc=edit_clim_20200328

Both sets of documents show depleting forest carbon sinks, but neither presents the case for alternative scenarios. An alternative scenario has been presented in a report called "Forest and Climate Change"[42] by authors from Cambridge University and The Estonian Environment Agency. They present scenarios ranging from zero logging to maximum annual logging (17.2 million m3 per year in next decade). The latter would result in the release of 365 million tonnes of carbon due to logging by 2050. Even if one was to rely on claims that forest carbon sinks would be restored by new trees, it would take until 2070 before, even if managed with moderate intensity, Estonia's forests could outperform the "no logging" scenario.



Different logging scenario´s emission comparisons in the report "Forest and Climate Change".

42 Raport „Mets ja kliimamuutused" (2020): https://www.envir.ee/sites/default/files/metsad_ja_kliima_muutused_v3.0_eesti_keelne.pdf

5. Certification: what does it involve and what are its shortcomings?

Biomass sustainability standards – introduced by several countries including the UK and Netherlands and about to be introduced in Denmark - are supposed to prevent or at least mitigate negative environmental impacts of subsidised biomass energy. They mostly rely on voluntary forestry and biomass certification schemes. Unfortunately, none of the certification schemes applied to forest biomass, including from Estonia or Latvia, address the wider environmental harm caused by intensified logging.

The section below discusses three of the main certification schemes used to certify forest biomass as sustainable: Forest Stewardship Council (FSC); Sustainable Biomass Program (SBP); and Programme for the Endorsement of Forest Certification (PEFC), as well as sustainability standards applying to the Dutch subsidies scheme SDE+.

Forest Stewardship Council (FSC)

FSC is the world's most widely recognised voluntary forest management certification scheme. Despite this, it has no mechanisms for addressing the climatic impacts of logging which are essential to the biomass energy discussion. This is a problem that FSC is fully aware of. In 2016, FSC published a paper[43] stating that they expect governments, businesses, and civil society organisations to put "strict, enforceable requirements for the use of biomass for energy production that lead to a genuine, quantified reduction of greenhouse gas emissions compared to fossil fuel use, and prevent negative impacts on biodiversity". Unfortunately, this aspect has been largely ignored by governments and biomass companies who often rely on FSC in ensuring that the industry is sustainable. Other certificates and regulations (e.g. SPB and SDE+ as explained below) also lack the transparency and depth necessary to address this shortcoming.

An additional problem is that, contrary to commonly held assumptions, FSC permits large clearcuts. Its principles and standards are not capable of addressing the cumulative impacts arising from high-intensity logging, such as the loss of forest birds and other species.

43 Forest, Climate Change, and the Forest Stewardship Council (2016): https://fsc.org/en/engagement/climate-change

Sustainable Biomass Program (SBP)

SBP – widely used in the Baltic wood pellet industry - is a certification scheme to address the sustainability of wood pellets and woodchips used for energy. SBP standards refer to protecting forest carbon sinks. However, the experience in Estonia and Latvia shows that SBP routinely ignores evidence about the impacts of intensive logging on forest carbon sinks, and instead legitimises the growing trade in forest biomass.

Decisions about whether biomass from a certain country or a region is "carbon beneficial" are based on SBP-endorsed Regional Risk Assessments (RRA). RRAs are often issued in respect of entire countries. The SBP analysis of forest carbon stocks has significant shortcomings, for example, it looks solely at present differences between logging and tree growth, ignoring the trends and "opportunity cost" of different logging scenarios.

Estonian and Latvian forest carbon inside RRAs

The current Estonian RRA[44] dates from 2016, and it disregards evidence given by civil society organisations to a state-commissioned study[45]. The RRA inadequately concluded[46] that trade in forest biomass cannot be described as a threat to the forest carbon sink because "no suitable models for Estonian forest have been developed." This statement ignores projections reported to the EU by Estonian Provinces, as well as the Estonian NECP and the National Forestry Accounting Plan, all of which acknowledge declining forest carbon sink and predict that the country's LULUCF sector will become a net source of emissions in the next decade[47]. The RRA from 2016 remains unchanged and provides the basis for the claim that biomass from Estonia is carbon neutral.

The latest Latvian RRA[48] was published in 2017. Two years later Latvia's LULUCF sector was reported to have become a net source of carbon emissions. Although forests themselves sequester more carbon than they emit, the forest carbon sink has been reduced by two-thirds compared to the 1990s. Latvia's forests currently sequester an average of one million tonnes of carbon less per year than they did a decade ago. Nonetheless, the SBP's RRA simply states: "The results of the inventory over the last decade indicate that the LULUCF sector is a net [carbon dioxide] CO2 sink".

44 SBP-endorsed Regional Risk Assessment for Estonia:
https://sbp-cert.org/wp-content/uploads/2019/06/SBP-endorsed-Regional-Risk-Assessment-for-Estonia.pdf

45 Report "The possibilities for Estonia to reach a competitive low carbon economy by 2050" (2013):
https://www.envir.ee/sites/default/files/madala_sysinikuga_majandus_2050_loppraport_0.pdf

46 Regional Risk Assessment for Estonia: SBP Response to Consultation:
https://sbp-cert.org/wp-content/uploads/2018/12/RRA-Response-to-Consultation-Estonia-Apr-16.pdf

47 This is despite projections have been used to report on Estonia´s Report pursuant to Articles 13 and 14 of Regulation (EU) 525/2013, NECP and LULUCF National Forestry Accounting Plan - all which direct to declining sink and a foreseen LULUCF emissions in next decade.

48 SBP-endorsed Regional Risk Assessment for Latvia:
https://sbp-cert.org/wp-content/uploads/2018/12/SBP-endorsed-Regional-Risk-Assessment-for-Latvia.pdf

Programme for the Endorsement of Forest Certification (PEFC)

PEFC is a widelyused voluntary forest management certification scheme that has been heavily criticised by NGOs for its lack of transparency and the vagueness and lack of rigour of its certification, accreditation and chain of custody procedures.

Although widely used by industry and governments, PEFC certification has not been recognised as proof of sustainable forest management by either the Estonian Council of Environmental NGOs or the large majority of NGOs worldwide.

Case study on the weakness of certificates[49]

The weaknesses of sustainability certification are illustrated by an Estonian case from 2019, when loggers working for Valga Puu, a subsidiary of Graanul Invest Group, exceeded the maximum logging quota approved for Karula National Park (a Natura 2000 site) three times over. Despite a High Court conviction for illegal logging, the company argues that there had been no wrongdoing because they had carried out a special audit. No evidence of such an audit has been made public, apart from the fact that Valga Puu has Chain of Custody certification from PEFC and FSC.

Dutch subsidies scheme (SDE+)

As a classic example of state-level sustainability standards, SDE+ has a set of criteria designed to guarantee the sustainability of forest biomass. Any energy company seeking to receive renewable energy subsidies for forest biomass energy must verify compliance with the Dutch standards. Those standards require biomass providers to consult stakeholders about risk assessments, but they rely heavily on what the biomass producer says and foresee only a desk audit when conflicting views are presented[50].

For instance, in December 2019, Estonian Fund for Nature (ELF) provided comments[51] to the verification protocol of the largest pellet producer, Graanul Invest, but all concerns were dismissed without a field audit which would have confirmed the accuracy of ELF's observations.

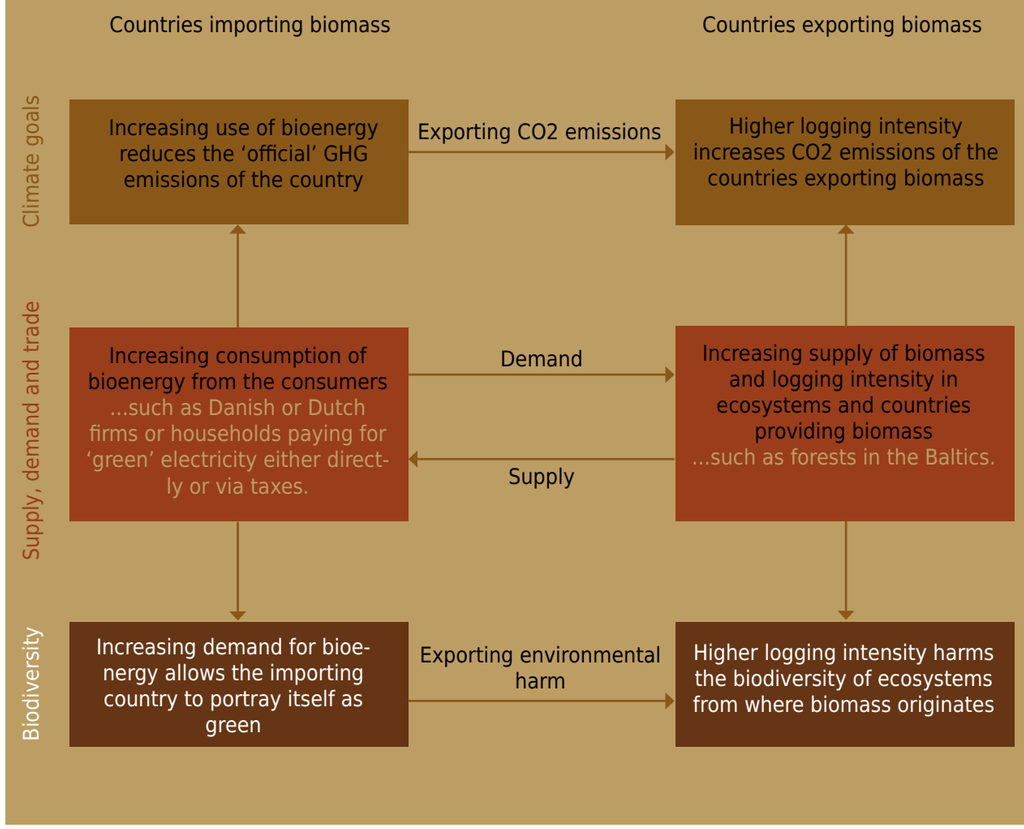
49 Lõunaleht (2019) Trahv metsarüüste eest on väiksem kui miinimumpalk:
http://www.lounaleht.ee/?page=1&id=28018

50 Verification Protocol for Sustainable Solid Biomass for Energy Applications (2020, the Netherlands):
https://english.rvo.nl/sites/default/files/2020/03/Verification%20protocol%20for%20Sustainable%20Solid%20Biomass%20for%20Energy%20Applications.pdf

51 Letter by ELF to Graanul Invest on its compliance with Verification Protocol for Sustainable Solid Biomass SDE:
https://media.voog.com/0000/0037/1265/files/230-1_ELF_Verification%20Protocol%20for%20Sustainable%20Forest%20Biomass.pdf

Links between forest biomass consumers and suppliers

The previous sections highlighted that biomass demand increases logging in Estonia and Latvia, thereby impacting on biodiversity and climate goals. This means a chain can be drawn between bioenergy consumers in importing countries, especially Denmark, the Netherlands and the UK, and suppliers of bioenergy in exporting countries like the Baltics.



6. Conclusion

This report shows that Estonian and Latvian forests are not managed sustainably in terms of the climate or biodiversity. It also reveals that current management practices are moving these states away from their climate and biodiversity commitments. Biomass exports to countries such as Denmark, the UK and the Netherlands are driven by subsidies for biomass energy. This increases demand which drives up overall logging rates and destructive logging practices. Existing sustainability standards and certification mechanisms are inadequate to guarantee that Estonian and Latvian forest biomass is sustainable. To protect the environment and meet the climate goals as agreed on EU and the global level, it is critical that current and potential biomass importers take their climate and biodiversity and climate responsibilities seriously and desist from subsidising actions which damage biodiversity and increase emissions.

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