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# **Bioenergy at the Intersection of the EU's Legal Frameworks for Biodiversity and Energy and Climate Change: Are Forests Protected?**

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# Abbreviations

CBD – the Convention on Biological Diversity

CJEU – Court of Justice of the European Union

CO<sub>2</sub> – Carbon dioxide

COP – Conference of the Parties

EASAC - The European Academies Science Advisory Council

ECJ – European Court of Justice

EIA – Environmental Impact Assessment

EU – the European Union

FAO – Food and Agriculture Organisation of the United Nations

FRA – the United Nations Global Forest Resources Assessment

FRL – Forest reference level

GHG – Greenhouse Gasses

IPBES – The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

IPCC – The Intergovernmental Panel on Climate Change

LULUCF – Land use, land use change and forests

NDC – Nationally determined contributions under the Paris Agreement

NGO – Non-governmental organisation

REDII – 2018 Renewable Energy Directive

REDIII – 2023 Renewable Energy Directive

TFEU – the Treaty on the Functioning of the European Union

UNFCCC – United Nations Framework Convention on Climate Change

## **Abstract**

This thesis examines the protection of forests within the EU legal framework on the example of energy production from forest biomass, as it is at the very crossroads of biodiversity protection and energy and climate change law. The protection of forests and climate change mitigation are highly intertwined, as the disappearance of forests accelerates climate change, which in turn leads to the disappearance of forests. This cyclical problem points out the need to address both issues simultaneously. Hence, the main research question explores whether the approach to biomass within the EU's corpus of climate change instruments is aligned with the protection of forests in its biodiversity protection instruments. The analysis covers the crucial EU legislation for this research, such as the EU's Biodiversity Strategy for 2030, the New EU's Forest Strategy for 2030, the Nature Directives, the Deforestation Regulation, the European Climate Law, the LULUCF Regulation, and the Renewable Energy Directive. To supplement that, relevant case law is analysed with an aim to understand judicial interpretations and enforcement. The findings of this thesis indicate significant challenges in harmonising these objectives, emphasising the need for improved integration to ensure sustainable forest management and effective climate change mitigation.

# 1 Introduction

## 1.1 Background

Forests are crucial for the survival of the Planet Earth and every living being living on it. Nearly one-third of the land on our planet is covered by forests,<sup>1</sup> and they are home to the most of the world's terrestrial biodiversity.<sup>2</sup> In addition to that, forests have an environmental, social, and economic value,<sup>3</sup> and, unfortunately, they are most often seen through their economic worth, as a source of timber, while two other values are neglected.<sup>4</sup> Despite the positive trend of forest area expansion in Europe over the last 30 years, with a 9% increase and forests and wooded land now covering 43% of the EU's land space,<sup>5</sup> there is a simultaneous and concerning rise in deforestation and forest degradation, with primary forests being especially endangered.<sup>6</sup> Another devastating fact is that only 2.2% of forests in Europe are not disturbed by man.<sup>7</sup> Over the past forty years, global wildlife populations have dropped by 60% due to human-induced activities, leading to a widespread decline in biodiversity across nearly all regions of the world.<sup>8</sup>

Climate change stands as a significant environmental challenge in the 21<sup>st</sup> century, and some observations even predict that it will surpass all other threats to biodiversity by the end of it.<sup>9</sup> As for the forests, climate change has revealed previously hidden weaknesses that worsen

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<sup>1</sup> *Global Forest Resources Assessment 2020* (FAO, 2020), Page xi, <https://doi.org/10.4060/ca9825en>.

<sup>2</sup> “Regulation (EU) 2023/1115 on the Making Available on the Union Market and the Export from the Union of Certain Commodities and Products Associated with Deforestation and Forest Degradation and Repealing Regulation (EU) No 995/2010” (The European Parliament and the Council, May 31, 2023), Preamble, Paragraph 1.

<sup>3</sup> Regulation (EU) 2023/1115 Preamble, Paragraph 1.

<sup>4</sup> See more in Rowena Maguire, *Global Forest Governance: Legal Concepts and Policy Trends* (Cheltenham, UK: Edward Elgar, 2013).

<sup>5</sup> “State of Europe’s Forests 2020” (Ministerial Conference on the Protection of Forests in Europe - FOREST EUROPE, 2020), Page 16, [www.foresteuropa.org](http://www.foresteuropa.org).

<sup>6</sup> “Proposal for a Regulation of the European Parliament and of the Council on Nature Restoration (COM(2022) 304 Final)” (European Commission, June 22, 2022), Preamble, Paragraph 58.

<sup>7</sup> “State of Europe’s Forests 2020”, Page 21.

<sup>8</sup> European Commission. Directorate General for Environment., *EU Biodiversity Strategy for 2030: Bringing Nature Back into Our Lives*. (LU: Publications Office, 2021), Page 6, <https://data.europa.eu/doi/10.2779/677548>.

<sup>9</sup> Hans-Otto Pörtner et al., “Scientific Outcome of the IPBES-IPCC Co-Sponsored Workshop on Biodiversity and Climate Change” ([object Object], June 24, 2021), Page 38, <https://doi.org/10.5281/ZENODO.4659158>.

additional harmful factors such as pests, pollution, and diseases. It affects the patterns of forest fires, creating conditions that will likely cause an increase in the size and severity of forest fires across the EU in the coming years.<sup>10</sup> Forests play an important role in regulating the climate, and therefore, the fact that around 10% of the world's remaining forests was lost in the period from 1990 to 2020 is alarming.<sup>11</sup> They are helping in combating climate change as they serve as significant carbon sinks and sources. Trees, being sizable organisms, accumulate carbon during their lifespan.<sup>12</sup> Carbon accumulates through the growth of live biomass and/or the accumulation of dead organic matter and soil carbon. Processes such as respiration, decomposition and burning of biomass are the ones that release the carbon back into the atmosphere.<sup>13</sup> Both deforestation and forest degradation release greenhouse gases into the atmosphere by burning forest biomass and breaking down remaining plants and soil carbon. This way, burned trees, which once were carbon sinks, turn into a source of carbon.<sup>14</sup> Simply put, forest loss is one of the most substantial examples of human-activity-caused environmental change.<sup>15</sup>

One review from 2014 observed that the abundance of instruments addressing forests across various realms of international economic, environmental, and developmental law has resulted in confusion, overlaps, and redundancy regarding strategies for conserving, managing, and utilising forests.<sup>16</sup> There are international conventions and EU regulations that cover the protection of forests, amongst other things, while no international convention is focused only

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<sup>10</sup> “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: New EU Forest Strategy for 2030 (COM(2021) 572 Final)” (The European Commission, July 16, 2021), Page 1.

<sup>11</sup> Regulation (EU) 2023/1115 Preamble, Paragraph 2 (n.2).

<sup>12</sup> Felipe Bravo et al., eds., *Managing Forest Ecosystems: The Challenge of Climate Change*, Managing Forest Ecosystems 17 (Berlin: Springer, 2008), Page 4.

<sup>13</sup> Bravo et al., Page 63 (n.12).

<sup>14</sup> G. R. Van Der Werf et al., “CO<sub>2</sub> Emissions from Forest Loss”, *Nature Geoscience* 2, no. 11 (November 2009): Page 737, <https://doi.org/10.1038/ngeo671>.

<sup>15</sup> Annalisa Savaresi, “Forest Biodiversity”, in *Biodiversity and Nature Protection Law*, ed. Elisa Morgera and Jona Razzaque, Elgar Encyclopedia of Environmental Law, volume III (Cheltenham, UK: Edward Elgar Publishing, 2017), Page 203.

<sup>16</sup> Savaresi, Page 208 (n.15).

on the protection of forests.<sup>17</sup> Scientific bodies that deal with both forests and climate change separately do exist, but only in 2021, The Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) held a joint workshop to assess the complex relationship between biodiversity and climate change.<sup>18</sup> One of the reasons for their actions arose from the lack of comprehensive assessments of both issues.<sup>19</sup>

This leads us to the core of this thesis and that is bioenergy, as forest-derived bioenergy<sup>20</sup> illustrates the complex interplay among bioenergy, forest governance, and emissions and removals within the land use and forestry sector.<sup>21</sup> To be precise, bioenergy could refer to energy that is produced from any form of biomass<sup>22</sup>, however, forest biomass stands as the predominant source of bioenergy production in the European Union.<sup>23</sup> In line with this, it is defined as a renewable energy source according to the latest Renewable Energy Directive (2023/2413)<sup>24</sup>, Article 1(1)(a), amending Article 2(1) of the Renewable Energy Directive from 2018<sup>25</sup>.

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<sup>17</sup> Harro van Asselt, “Forests at the Intersection of the Climate and Biodiversity Regimes”, in *Managing the Fragmentation of International Environmental Law* (New York University Journal of International Law and Politics (JILP), 2011), Page 1217.

<sup>18</sup> Pörtner et al., “Scientific Outcome of the IPBES-IPCC Co-Sponsored Workshop on Biodiversity and Climate Change”, Page 4.

<sup>19</sup> Pörtner et al., Page 32.

<sup>20</sup> Forest-based bioenergy can be obtained from forest residues, including waste products like branches, stumps, and treetops left over from forest management, as well as by-products from industrial wood processing, such as bark, sawdust, and wood chips. However, the availability of these forest residues, which would otherwise decompose in the forest, is limited.; see more in Seita Romppanen, “‘Blind Spots’ in EU Climate and Energy Law”, *European Energy and Environmental Law Review* 29 (2020): Page 153.

<sup>21</sup> Romppanen, Page 150.

<sup>22</sup> “Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the Promotion of the Use of Energy from Renewable Sources” (Official Journal of the European Union, December 11, 2018), art. 2(24); in future text to this Directive will be referred as to “REDII”.

<sup>23</sup> Romppanen, “‘Blind Spots’ in EU Climate and Energy Law”, Page 151; “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Clean Energy For All Europeans (COM (2016) 860 Final)” (The European Commission, November 30, 2016), Page 9, <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016DC0860>.

<sup>24</sup> “Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 Amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as Regards the Promotion of Energy from Renewable Sources, and Repealing Council Directive (EU) 2015/652” (Official Journal of the European Union, October 18, 2023); in future text: REDIII

<sup>25</sup> REDII.



The European Council put its objective to reach 45% of renewable energy production by 2030 under its “Fit for 55” plan in the autumn of 2023 while strengthening sustainability criteria for bioenergy production.<sup>26</sup> The LULUCF regulation<sup>27</sup> outlines Member States' responsibilities in the LULUCF<sup>28</sup> sector, designed to support the Paris Agreement<sup>29</sup> goals and meet the Union's GHG reduction target from 2021 to 2030 by addressing both emissions and removals.<sup>30</sup> REPowerEU Plan<sup>31</sup> states that energy production in the EU consists of 60% of the energy produced from biomass and the same Plan predicts a further increase of energy from this source, while mentioning that forest biomass is prioritised, together with agricultural biomass and non-recyclable biomass waste.<sup>32</sup> The preamble of the REDIII also emphasises the importance of addressing broader environmental issues, particularly the preservation of biodiversity, in the Union's efforts to reduce greenhouse gas emissions and combat climate change through its renewable energy policy. Nonetheless, it is noted that certain biofuels, bioliquids, and biomass fuels production methods may result in indirect land use changes, posing a threat to biodiversity conservation initiatives.<sup>33</sup>

When it comes to the pieces of legislation and policies focusing more on biodiversity protection, there are the Biodiversity Strategy, and the new EU Forest Strategy, both for 2030. The EU Biodiversity Strategy has the goal to initiate the restoration process of Europe's

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<sup>26</sup> Council of the European Union, “Renewable Energy: Council Adopts New Rules”, October 19, 2023, <https://www.consilium.europa.eu/en/press/press-releases/2023/10/09/renewable-energy-council-adopts-new-rules/>.

<sup>27</sup> “Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the Inclusion of Greenhouse Gas Emissions and Removals from Land Use, Land Use Change and Forestry in the 2030 Climate and Energy Framework, and Amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU” (Official Journal of the European Union, May 30, 2018).

<sup>28</sup> Land use, land use change and forestry

<sup>29</sup> United Nations Framework Convention on Climate Change, “Paris Agreement”, 2015, <https://unfccc.int/process-and-meetings/the-paris-agreement>.

<sup>30</sup> LULUCF Regulation Article 1(a).

<sup>31</sup> REPowerEU was created in 2022 and it aims to swiftly decrease reliance on Russian fossil fuels by accelerating the transition to cleaner energy and fostering collaboration to establish a more resilient energy system and a unified Energy Union; see more in the “Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions - REPowerEU Plan (COM(2022) 230 Final); {SWD(2022) 230 Final}” (The European Commission, Brussels 2022), [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en).

<sup>32</sup> REPowerEU Plan, Page 8.

<sup>33</sup> REDIII, Preamble, Paragraph 76.

biodiversity by 2030, fostering benefits for humanity, the environment, climate, and the economy, while its vision for 2050 is to have all ecosystems worldwide fully restored, resilient, and sufficiently safeguarded.<sup>34</sup> The Proposal for a Regulation on Nature Restoration emphasises the vulnerability of forest ecosystems to the impacts of climate change. However, it highlights their pivotal role in both adapting to and mitigating climate change and associated risks.<sup>35</sup> Forests are recognised for their capacity to store and absorb carbon, thereby contributing to climate regulation.<sup>36</sup> Additionally, this proposal mentions that forests provide a multitude of essential ecosystem services, including the provision of timber, food, and various non-wood products, as well as that they play critical roles in stabilising soil, preventing erosion, and purifying air and water, emphasising their significance in maintaining environmental health and resilience.<sup>37</sup> In light of this, the purpose of legal measures to increase energy production from forest biomass to combat climate change should be carefully reviewed, as there are concerns about the impact of increased harvesting of forest biomass on biodiversity and vital ecosystem services.<sup>38</sup>

Although all these instruments focus either on saving the Planet by climate change mitigation and adaptation while protecting biodiversity or on the protection of biodiversity while combating climate change, it seems that some existing overlaps lead to worsened states of both issues. Therefore, this thesis will examine whether the current policy of the EU is leading us towards both saving the forests and combating climate change or whether it has the potential to lead to a trap of further forest loss and climate change. Biomass is the example on which the focus will be as it is at the crossroads of both emergencies.<sup>39</sup>

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<sup>34</sup> European Commission. Directorate General for Environment., *EU Biodiversity Strategy for 2030*, Page 8.

<sup>35</sup> COM(2022) 304 Final, Page 3.

<sup>36</sup> COM(2022) 304 Final, Page 5.

<sup>37</sup> COM(2022) 304 Final, Preamble, Paragraph 56.

<sup>38</sup> Michael Norton et al., “Serious Mismatches Continue between Science and Policy in Forest Bioenergy”, *GCB Bioenergy* 11, no. 11 (November 2019): Page 1258, <https://doi.org/10.1111/gcbb.12643>.

<sup>39</sup> European Commission. Joint Research Centre., *The Use of Woody Biomass for Energy Production in the EU*. (LU: Publications Office, 2021), Page 6, <https://data.europa.eu/doi/10.2760/831621>.

## 1.2 Aim and Research Question

Given the increasingly evident link between forest protection and the fight against climate change, the disappearance of forests accelerates climate change, which, in turn, contributes to forest loss. Therefore, addressing and solving problems simultaneously appears to be crucial. The main research question of this thesis is whether the approach to biomass within the corpus of climate change instruments is aligned with the protection of forests in the biodiversity protection instruments within the EU.

Several secondary research questions will be addressed to support the analysis of the main research question. The second chapter will explore three sub-questions: how are forests defined within the EU's legal landscape, what is the ecological importance of forests and what is the position of the forests within the international legal landscape. The aim of the sub-questions is to provide the reader with a broader understanding of the position of forests from different perspectives, facilitating a better understanding of the following chapters.

The sub-question for the third chapter will examine the legal approach to forests within the EU's legal instruments. Finally, the fourth chapter will examine what the EU's legal approach to forests means in practice, particularly in relation to forest biomass.

## 1.3 Methodology

A legal doctrinal research methodology will be used in this thesis. That means that it is research in which rules and principles connected to one legal area or institution are systematically observed to understand the law and understand its existing loopholes.<sup>40</sup> This type of a research approaches law as a system and when analysing and therefore, it uses legal texts, including legislation, case law and scholarly commentary.<sup>41</sup>

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<sup>40</sup> Jan M. Smits, "What Is Legal Doctrine? On the Aims and Methods of Legal-Dogmatic Research", *SSRN Electronic Journal*, 2015, Page 5, <https://doi.org/10.2139/ssrn.2644088>.

<sup>41</sup> Smits, Page 6.

The primary materials for this thesis research will be the EU legislation, including directives, regulations, and treaties relevant to the protection of forests and the regulation of biomass within the EU's legal landscape. Relevant case law will be reviewed to understand how courts have interpreted and applied these legal instruments in practice. This will provide insight into the practical enforcement and effectiveness of the laws. In addition, various international conventions that impact the EU's legal framework on biodiversity and energy and climate change will be examined. This includes instruments such as the CBD for biodiversity protection and the UNFCCC, and the Paris Agreement, which influence the EU's climate policies. The alignment and potential conflicts between biodiversity protection and energy and climate change instruments will be compared. This analysis will be of crucial importance for answering the main research question.

Secondary materials, such as academic articles, books, and reports by legal scholars and environmental experts, will be used to support the analysis. These sources will provide context, critique, and different perspectives on the effectiveness and alignment of the EU's legal frameworks for biodiversity and energy and climate change.

Nonetheless, the research will use insights from environmental science to address the ecological aspects of forest protection and biomass use. These interdisciplinary references will be used in an auxiliary manner<sup>42</sup> to supplement the legal analysis. This approach will help to explain the environmental issues that the law seeks to address and help the reader understand the practical implications of legal provisions.

Other disciplines will be used in an auxiliary manner to explain the ecological background of existing environmental emergencies that the law needs to address to help the reader understand occurring environmental problems. Everything apart from it will be the EU's pieces of legislation and various international conventions, together with scholars' work related to the topic.

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<sup>42</sup> See more in Sanne Taekema and Bart van Klink, "On the Border. Limits and Possibilities of Interdisciplinary Research", n.d., Page 5, <http://ssrn.com/abstract=2221334>.

## **1.4 Clarification of the Terms**

The term “forest loss” covers both forest degradation and deforestation. Definitions that will be used are the ones from Article 2 of the Deforestation Regulation (Regulation (EU) 2023/1115), meaning that deforestation will be understood as “the conversion of forest to agricultural use, whether human-induced or not” (Article 2(3)), while degradation will have meaning of undertaking “structural changes to forest cover, taking the form of the conversion of either primary forests or naturally regenerating forests into plantation forests or into other wooded land, or of primary forests into planted forests” (Article 2(7)).

To avoid repetition, the United Nations’ Forum Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement will be together called “Climate Conventions”, whereas the Birds and Habitats Directives will be together called “Nature Directives”.

## **1.5 Delimitation**

To ensure a focused and thorough examination, ecological data will be used with a purpose of introducing and understanding the problem. This thesis will primarily explore the European Union’s perspective on the issue, refraining from delving into international resolutions or comprehensive solutions on a global level. Nonetheless, some of the international conventions and agreements will be introduced and analysed as they are crucial for the topic of this thesis on a global level and as European Union’s legislation has the obligation be aligned with them as the EU and its Member States are parties to those international legal instruments.

Additionally, while the LULUCF Regulation is integral to the discussion, detailed exploration of concepts like Forest Reference Level (FRL), discussions of CO<sub>2</sub> equivalents per year, similar technical aspects, and related aspects of biological science will be avoided, given the legal doctrinal nature of this research. This decision is made to maintain clarity and precision within the legal framework of analysis, acknowledging potential complexities that may arise from in-depth discussions of rather scientific environmental matters.

## 1.6 Outline

The second chapter of the thesis will go more into detail explaining first the complexity of defining forests within the EU, then giving ecological background of the problem and afterwards, it will dive in the pieces of international background and policies on the matter. The third chapter will then elaborate on the EU's legislation, starting with the Treaty on the Functioning of the European Union to explain the legal basis for environmental protection and then move on to biodiversity protection, focusing on forests, and climate change instruments. In the EU's wide legal corpus, two main nexuses of the environmental law stand out on this issue. One is the Biodiversity Strategy for 2030 which is closely connected to the Birds and Habitats Directives, Forest Strategy for 2030, and Proposal for a Regulation on Nature Restoration and focuses on the protection of biodiversity, including forests, while the other is the Fit for 55 Package which is related to the Renewable Energy Directive, the LULUCF Regulation, the European Climate Law, and the REPowerEU package and these instruments focus more on climate change. The essence of the problem will be presented and discussed in the fourth chapter, where the standing of biomass in both legal corpuses will be closely examined and the protection of the forests will be questioned through it. Finally, the fifth chapter will provide a conclusion on the topic. It will give a summary of the main findings and key points discussed in the previous chapters. The legal solutions proposed in the fourth chapter will be evaluated with a focus on their effectiveness and the balance between them. Eventually, recommendations for overcoming the potential issues will be offered.

## 2 From Biosphere to Jurisdiction: Understanding Forest Loss

This chapter will further elaborate on the issues that were already mentioned in the introductory part to give the needed information on the ecological aspects of forests and their place in the international legal systems. This will clarify the complex relationship between forests and climate change and explore the implications for biofuels. After going through this crucial information, the stage will be set for going into a detailed examination of these topics at the EU level.

### 2.1 Overview of the Definitions of Forests

There is still no universally accepted definition of forests, so it is left to be defined on a case-to-case basis.<sup>43</sup> For the purpose of this thesis, the definition used in Deforestation Regulation (Regulation (EU) 2023/1115), Article 2(4) will be applied. According to this regulation, a forest defined as “*land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use*”<sup>44</sup>. The same definition is used by the FAO, and it is the most commonly used one within the international legal and policy landscape.<sup>45</sup>

Nonetheless, it should be noted that the Deforestation Regulation, under Article 2, defines “forest degradation” as “structural changes to forest cover, taking the form of the conversion of primary forests<sup>46</sup> or naturally regenerating forests<sup>47</sup> into plantation forests or into other

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<sup>43</sup> Savaresi, “Forest Biodiversity”, Page 204.

<sup>44</sup> “Regulation (EU) 2023/1115”, art. 2(4).

<sup>45</sup> “Global Forest Resources Assessment 2020: Terms and Definitions” (Food and Agriculture Organisation of the United Nations, 2020), Page 4, <https://www.fao.org/3/I8661EN/i8661en.pdf>.

<sup>46</sup> ““Primary forest” means naturally regenerated forest of native tree species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed”; Regulation (EU) 2023/1115 art. 2(8).

<sup>47</sup> “The term “naturally regenerating forest” refers to a forest predominantly composed of trees established through natural regeneration. It includes any of the following: (a) forests for which it is not possible to distinguish whether planted or naturally regenerated; (b) forests with a mix of naturally regenerated native tree

wooded land or primary forests into planted forests”.<sup>48</sup> This implies that the Deforestation Regulation includes both primary and naturally regenerating forests under the definition of forests, which differs from the FAO definition.

The LULUCF Regulation has a bit broader and slightly different definition of forest in, as it defines a forest as “*an area of land defined by the minimum values for area size, tree crown cover or an equivalent stocking level, and potential tree height at maturity at the place of growth of the trees as specified for each Member State in Annex II. It includes areas with trees, including groups of growing, young, natural trees, or plantations that have yet to reach the minimum values for tree crown cover or an equivalent stocking level or minimum tree height as specified in Annex II, including any area that normally forms part of the forest area but on which there are temporarily no trees as a result of human intervention, such as harvesting, or as a result of natural causes, but which area can be expected to revert to forest*”.<sup>49</sup> While the Deforestation Regulation explicitly excludes land primarily used for agricultural or urban land purposes, the LULUCF Regulation does not exclude specify exclusions. Furthermore, it defines “Minimum values for area size, tree crown cover, and tree height parameters” for each EU Member State in its Annex II and refers to the “national greenhouse gas inventories” in Annex IIa, which differs from the approach that the Deforestation Regulation has when defining forests. Moreover, there is no mention of primary or naturally regenerating forests in the LULUCF Regulation, although it relies on national GHG inventories for classification, which may leave some space for the inclusion of primary and naturally regenerating forests, depending on the country. This variety of different interpretations of the term “forest” illustrates the absence of a single, unified definition within the EU legal landscape.

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species and planted or seeded trees, where the naturally regenerated trees are expected to constitute the major part of the growing stock at stand maturity; (c) coppice from trees originally established through natural regeneration; (d) naturally regenerated trees of introduced species”; Regulation (EU) 2023/1115 art. 2(9).

<sup>48</sup> Regulation (EU) 2023/1115 art. 2(7).

<sup>49</sup> LULUCF Regulation art. 3(6).



## 2.2 Ecological Background

Trees encounter diverse environmental conditions and endure harsh climatic events over their lifespan, potentially enhancing their genetic diversity. Despite this, forest species remain susceptible to environmental shifts, notwithstanding the presumed advantages conferred by their evolutionary traits. While forests were once thought to possess sufficient resilience to climate change, recent research indicates that the rapid pace of environmental transformation severely constrains trees' ability to adjust to new climatic realities.<sup>50</sup>

The climate is undergoing rapid and multidimensional changes due to anthropogenic climate change, which encompasses more than just global warming. Not only that average air temperatures are increasing, but there is also a rise in the occurrence of extreme climatic events. Unprecedented heatwaves and frosts, alongside severe droughts, and floods, are becoming more frequent.<sup>51</sup>

Throughout history, the decline in biodiversity has been primarily linked to alterations in land and sea usage intensity, accounting for 34% of losses over the past century, as well as direct species exploitation, with climate change and pollution each contributing 14% to it.<sup>52</sup> Around 36% of the carbon emitted into the atmosphere from 1850 to 2000 originated from deforested areas, while approximately 18% of the carbon emitted during the 1990s resulted from changes in land use.<sup>53</sup>

When it comes to climate change mitigation, reforestation<sup>54</sup>, and afforestation<sup>55</sup> could be a good partial solution for climate change mitigation if done properly. Carbon would be

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<sup>50</sup> Bravo et al., *Managing Forest Ecosystems*, Page 15.

<sup>51</sup> *Ibid*, Page 17.

<sup>52</sup> Pörtner et al., “Scientific Outcome of the IPBES-IPCC Co-Sponsored Workshop on Biodiversity and Climate Change”, Page 38.

<sup>53</sup> Robert O’Sullivan, Toby Janson-Smith, and Richard Tarasofsky, *Climate Change and Forests Emerging Policy and Market Opportunities* (New York, NY: Brookings Institution Press, 2009), Page 237.

<sup>54</sup> “Re-establishment of forest through planting and/or deliberate seeding on land classified as forest”; “Global Forest Resources Assessment 2020: Terms and Definitions”, Page 7.

<sup>55</sup> “Establishment of forest through planting and/or deliberate seeding on land that, until then, was under a different land use, implies a transformation of land use from non-forest to forest”; “Global Forest Resources Assessment 2020: Terms and Definitions”, Page 6.

removed from the atmosphere and stored in biomass while the trees are growing, but it would also stay stored in timber-based products, which is better for climate than steel or concrete.<sup>56</sup> Besides that, although reforestation and afforestation sound like an ideal solution, they should be undertaken carefully and under scientific supervision, as otherwise there will be a threat of destroying biodiversity and natural forests with monocultural plantations that usually have negligible or no positive impact on biodiversity.<sup>57</sup> The impact of monocultures is clear when we look at the example of Sweden's forests.<sup>58</sup> With the rise of mechanized forestry, forests have become younger, denser, and dominated by coniferous trees. There are fewer natural fires now, and although dead wood levels have slightly increased lately, they are still generally low. Nonetheless, these changes have led to fewer species that thrive in sunny conditions, deciduous trees, and dead wood, including saproxylic species and their predators like woodpeckers. In 2018, almost 2300 forest-dependent species were classified as endangered in Sweden.<sup>59</sup> A positive fact is that, for now, only 3,8% of forests in Europe were plantation forests, but since this data was collected in 2020, it could have been changed in the meantime.<sup>60</sup>

Primary and old-growth forests within the EU are scarce, limited in size, and fragmented. Nevertheless, they play a crucial role in biodiversity and ecosystem preservation. This is a main point in the EU's biodiversity strategy for 2030, which advocates for the stringent protection of all remaining primary and old-growth forests within the EU.<sup>61</sup> There are minimal or no signs of past human activity within these forests, and natural processes, like natural disturbances, function dynamically with little disruption from human influences. Throughout Europe, forests changed the mid-Holocene due to activities such as clearing for

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<sup>56</sup> Pörtner et al., “Scientific Outcome of the IPBES-IPCC Co-Sponsored Workshop on Biodiversity and Climate Change”, Page 52.

<sup>57</sup> *Ibid*, Page 53.

<sup>58</sup> Gabriel Michanek et al., “Landscape Planning—Paving the Way for Effective Conservation of Forest Biodiversity and a Diverse Forestry?”, *Forests* 9, no. 9 (August 29, 2018): Page 3, <https://doi.org/10.3390/f9090523>.

<sup>59</sup> *Ibid*, Page 3.

<sup>60</sup> “State of Europe’s Forests 2020”, Page 20.

<sup>61</sup> J.I. Barredo et al., *Mapping and Assessment of Primary and Old-Growth Forests in Europe* (Luxembourg: Publications Office of the European Union, 2021), Page 3.

agriculture and pasture, as well as for gathering fuelwood and construction materials.<sup>62</sup> In addition to their significant role as carbon storage sites, recent findings indicate that primary and old-growth forests may continue to accumulate carbon for longer periods during successional development than previously believed. This highlights the potential of these forests for carbon sequestration and, therefore, their, even greater importance. It is evident that carbon levels in forest ecosystems continue to rise for centuries within primary and old-growth forests. This suggests that these forests should not be viewed as carbon neutral<sup>63</sup> but rather as actively absorbing carbon dioxide, functioning as carbon sinks.<sup>64</sup>

## 2.3 International Legal Framework

As mentioned, international law is fully fragmented. Forests are covered by the protection of biodiversity, thus the IPBES is an intergovernmental body responsible for this, while the main international convention regulating their protection is the Convention on Biological Diversity (CBD)<sup>65</sup>. On the other hand, the process of regulating the protection of climate change began with the United Nation's Convention on Climate Change (UNFCCC)<sup>66</sup>, and the Intergovernmental Panel on Climate Change is the scientific body addressing these issues.<sup>67</sup> As it was mentioned, there is a significant lack of a joint approach to both biological diversity (including forests) and climate change. Therefore, this chapter will first analyse the position of forests within the CBD and the climate conventions, then examine the role of climate change in this context, and finally, briefly comment on the correlation between these two aspects within these instruments.

The UNFCCC and the CBD were created during the same period, at the Earth Summit in Rio de Janeiro in 1992 and they both fall under the term "Rio Conventions", marking a pivotal

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<sup>62</sup> Barredo et al., Page 4.

<sup>63</sup> The term carbon neutrality refers to the assumption that carbon released by living organisms into the atmosphere is balanced by the regrowth of forests. Romppanen, "'Blind Spots' in EU Climate and Energy Law", Page 152.

<sup>64</sup> Barredo et al., *Mapping and Assessment of Primary and Old-Growth Forests in Europe*, Page 9.

<sup>65</sup> "Convention on Biological Diversity (CBD)" (United Nations, 1992), <https://www.cbd.int/>.

<sup>66</sup> "United Nations Framework Convention on Climate Change (UNFCCC)" (United Nations, 1992), <https://unfccc.int/>.

<sup>67</sup> Pörtner et al., "Scientific Outcome of the IPBES-IPCC Co-Sponsored Workshop on Biodiversity and Climate Change", Page 4.

moment in international environmental law.<sup>68</sup> The UNFCCC Convention later got the Kyoto Protocol and the Paris Agreement (together, they are called “climate conventions”), while the CBD also got updates, but none of these international law instruments evolved into something that would be a convention solely focusing on the protection of forests. There is an ongoing debate on the need for an international forest convention, but it is not likely that one will be created soon.<sup>69</sup>

The CBD does mention the conservation of biological diversity as a common concern of humankind, the responsibility of States for the conservation of biological diversity, and sustainable usage of biological resources, and emphasises the alarming fact that biological diversity is degrading due to human influence.<sup>70</sup> It is also noted in the preamble of the CBD that “the fundamental requirement for the conservation of biological diversity is the *in-situ*<sup>71</sup> conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings”.<sup>72</sup> It moves on to putting the conservation of biological diversity and sustainable use of its components under the objectives of the CBD.<sup>73</sup> Article 8 focuses on conserving biodiversity in its natural habitat.<sup>74</sup> It emphasises the need for countries to create conditions that balance current uses of natural sources with biodiversity conservation and sustainable resource management, amongst other things.<sup>75</sup> A connection could be made between this provision and the usage of forest biofuels, as countries should aim to use forests sustainably while ensuring the conservation of biodiversity. The CBD also addresses the importance of protection of biodiversity from serious damage in Article 22(1), as “the provisions of this Convention shall not affect the rights and obligations of any Contracting Party deriving from any existing international agreement, except where the exercise of those rights and obligations would cause a serious

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<sup>68</sup> van Asselt, “Forests at the Intersection of the Climate and Biodiversity Regimes”, Page 1215.

<sup>69</sup> *Ibid*, Page 1217.

<sup>70</sup> CBD, Preamble, Paragraphs 3, 5 and 6.

<sup>71</sup> “*In-situ conservation* means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties”; CBD, art. 2.

<sup>72</sup> CBD, Preamble, Paragraph 10.

<sup>73</sup> *Ibid*, art. 1.

<sup>74</sup> *Ibid*, art. 8.

<sup>75</sup> *Ibid*, art. 8(i).

damage or threat to biological diversity”<sup>76</sup>, which will be of importance for discussion later in the thesis. This is, however, all too broad, and although forests do fall under the definition of biodiversity, it does not refer to forests directly in any of its provisions.

When it comes to combating climate change, the preamble of the CBD underscores the need to address the underlying causes of significant biodiversity decline, emphasising the importance of anticipating, preventing, and addressing these issues at their source.<sup>77</sup> Considering that climate change is a key driver of biodiversity loss, initiatives aimed at combating climate change could potentially align with the objectives of the biodiversity convention.<sup>78</sup> Moreover, certain provisions within the CBD could be interpreted as applicable to climate change, including the identification of activities with adverse impacts on biodiversity conservation and sustainable use, which may be connected to processes that accelerate climate change.<sup>79</sup>

At the tenth meeting of the Conference of the Parties in 2010, the Strategic Plan for Biodiversity 2011-2020, including the Aichi Biodiversity targets, was adopted.<sup>80</sup> According to the document, made more than ten years ago, a target was established to achieve a minimum of 50% reduction in the loss of all natural habitats, such as forests, by 2020. It aims to minimise the loss of natural habitats further wherever possible while also significantly decreasing degradation and fragmentation.<sup>81</sup> The obvious failure to achieve these targets by 2020 highlights the pressing need to significantly enhance the ambition and scope of biodiversity conservation efforts.<sup>82</sup>

The agreement known as the “Non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types

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<sup>76</sup> CBD, art. 22(1).

<sup>77</sup> *Ibid*, Preamble, Paragraph 8.

<sup>78</sup> van Asselt, “Forests at the Intersection of the Climate and Biodiversity Regimes”, Page 1231.

<sup>79</sup> The CBD, art. 7(c); see more in van Asselt, Page 1231.

<sup>80</sup> Conference of the Parties to the Convention on Biological Diversity, “Decision X/27 - Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets” (Secretariat of the Convention on Biological Diversity, October 2010), Page 111, <https://www.cbd.int/doc/meetings/cop/cop-10/official/cop-10-27-en.pdf>.

<sup>81</sup> *Ibid*, Page 119.

<sup>82</sup> Pörtner et al., “Scientific Outcome of the IPBES-IPCC Co-Sponsored Workshop on Biodiversity and Climate Change”, Page 15.

of forests”<sup>83</sup> was also created around the time of the Rio Conference. One of the reasons why this agreement is non-binding is that the international efforts to regulate forestry practices face opposition from trade mechanisms and proponents of free trade.<sup>84</sup> Concerns about cultural imperialism, hindering the inclusion of environmental regulations in trade agreements, and creating challenges for individual states to impose standards on forestry imports without violating WTO rules still prevail over specific legally binding obligations for states, and most of them prefer principles they can voluntarily follow.<sup>85</sup>

The preamble addresses that forests are integral to a broad spectrum of environmental and developmental concerns, embracing socio-economic development rights.<sup>86</sup> These principles aim to foster the sustainable management, conservation, and development of forests, catering to their diverse functions and uses.<sup>87</sup> They are applicable to all forest types across different geographical regions and climates.<sup>88</sup>

Principle 6(a) refers to the significant role of forests, including both natural and planted, in meeting energy demands, especially in developing nations, by providing renewable bioenergy. It emphasises the importance of fulfilling fuelwood requirements for household and industrial purposes through sustainable forest management practices, afforestation, and reforestation efforts. Additionally, it acknowledges the potential of both native and introduced species in plantation forests to supply fuel and industrial wood.<sup>89</sup> Moreover, it stresses the pivotal role of planted forests as eco-friendly sources of renewable energy and industrial resources, advocating for their acknowledgment, promotion, and enhancement. Their significance in preserving ecological processes, relieving pressure on primary forests, and

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<sup>83</sup> “Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests” (United Nations, June 1992).

<sup>84</sup> Ronnie D. Lipschutz, “Why Is There No International Forestry Law?: An Examination of International Forestry Regulation, Both Public and Private”, *UCLA Journal of Environmental Law and Policy* 19, no. 1 (2000): Page 159, <https://doi.org/10.5070/L5191019219>.

<sup>85</sup> *Ibid*, Page 159.

<sup>86</sup> “Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests”, Preamble, Paragraph (a).

<sup>87</sup> *Ibid*, Preamble, Paragraph (b).

<sup>88</sup> *Ibid*, Preamble, Paragraph (e).

<sup>89</sup> *Ibid*, Principle 6(a).

fostering local employment and development, with active community participation, is emphasised.<sup>90</sup>

The obvious absence of a universally accepted definition of forests and the acknowledgment of the importance of having such a definition within a crucial instrument like the CBD leads to further complications. For example, in the FAO Global Forest Resources Assessment, as well as in the UNFCCC and various other international processes and institutions, the term "forest" primarily falls within land use. Consequently, an expanse of land can be classified as forested even in the absence of trees. However, areas designated for agriculture or urban development, despite having tree coverage, may be categorised under different land use classifications, rather than as forests.<sup>91</sup> This gives a clear image of how it should be observed on a case-by-case basis whether one group of trees falls under the definition of forest, which makes protection of them more difficult.

The UNFCCC is not much better regarding forests, as it mentions them only in Article 4(1)(d)<sup>92</sup>. The Paris Agreement, however, puts a bit more focus on the forests. It first mentions them in Article 5 when saying that Parties should conserve and enhance sinks and reservoirs of GHG and refers to Article 4(1)(d) of the UNFCCC and then moves on to say that this includes forests. This way, it was made clear that forests play a significant role on our path to reduce carbon emissions and combat climate change.<sup>93</sup> It is also stated in the preamble of the Paris Agreement that the risk of Parties being affected “not only by climate change but also by impacts of the measures taken in response to it”<sup>94</sup> is recognised, which could cover the risk of biofuels causing more problems for biodiversity than solving climate change. The integrity of all ecosystems and protection of biodiversity are also recognised as important in

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<sup>90</sup> “Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests”, Principle 6(d).

<sup>91</sup> *Global Forest Resources Assessment 2020*, Page 20.

<sup>92</sup> In Article 4(1)(d) of the UNFCCC it is written that “All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives, and circumstances, shall: Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests, and oceans as well as other terrestrial, coastal, and marine ecosystems”

<sup>93</sup> Romppanen, “Blind Spots’ in EU Climate and Energy Law”, Page 151.

<sup>94</sup> The Paris Agreement, Preamble

the Preamble. Forest-derived mitigation is anticipated to play a significant role in the nationally determined contributions (NDC)<sup>95</sup> under the Paris Agreement, with expectations remaining high. Forecasts suggest that forests could contribute up to 25% of the targeted emission reductions by 2030, as indicated in both rapid decarbonisation scenarios and assessments of land-based mitigation potential.<sup>96</sup> To conclude, it would not be a mistake to say that in some way all instruments, apart from the Non-legally binding forest principles cover the protection of forests but rather vaguely and broadly than with a real focus and recognition of their importance.

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<sup>95</sup> For more, see United Nations Framework Convention on Climate Change, “Paris Agreement”, art. 4.

<sup>96</sup> Gert-Jan Nabuurs, Eric J. M. M. Arets, and Mart-Jan Schelhaas, “Understanding the Implications of the EU-LULUCF Regulation for the Wood Supply from EU Forests to the EU”, *Carbon Balance and Management* 13, no. 1 (December 2018): Page 2, <https://doi.org/10.1186/s13021-018-0107-3>.



## **3 Forests and Climate Change within the EU Legal Body**

This chapter explores the intertwined relationship between forests and climate change within the EU's legal framework. There is a strong and emergent need to improve biodiversity protection simultaneously with the fight against climate change. This section examines relevant legislation and policies, investigating how they intersect and address the dual challenges of forest conservation and climate mitigation. By closely analysing key legal instruments and strategies, this chapter seeks to unravel the complexities surrounding forest protection and climate action within the EU legal landscape.

### **3.1 Treaty on the Functioning of the European Union and the legality of the EU to take actions**

Biodiversity and climate change both fall under the scope of the environmental law. Therefore, the TFEU will be the first piece of the EU legislation to be examined, as it provides the base on which the EU is adopting other regulations related to environmental issues.

Article 191 of the TFEU outlines the goals of the EU's environmental policy, laying down the basic principles for developing future regulations on environmental matters. Article 191(2) TFEU requires that EU environmental policy must aim for a high level of protection, grounded in the precautionary principle, and prioritize taking preventive actions and addressing environmental damage at its source.<sup>97</sup> Additionally, Article 192(1) describes how Article 191 should be implemented, clarifying the practical framework for EU environmental actions.<sup>98</sup>

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<sup>97</sup> *Föreningen Skydda Skogen v. Länsstyrelsen i Västra Götalands län* (Joined Cases C-473/19 and C-474/19) (European Court of Justice March 4, 2021).

<sup>98</sup> "Consolidated Version of The Treaty on the Functioning of the European Union" (Official Journal of the European Union, October 26, 2012), arts. 191 and 192 (2), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=FR>.

Indirectly, EU has shared competence when it comes to regulating the forests since they fall under agriculture (Article 4(d)), environment (Article 4(e)), and energy (Article 4(i)), which are all mentioned in the Treaty on the Functioning of the EU (TFEU).<sup>99</sup> In other words, both the EU and the Member States are entitled to regulate and adopt legally binding pieces of legislation within these areas.<sup>100</sup> Nevertheless, if the EU adopts any legal act regarding these areas, the Member States have to comply with that.<sup>101</sup> Also, since the subsidiarity principle is relevant here, it should be determined if the EU should take action instead of the Member States.<sup>102</sup>

As the EU's natural heritage with all its wildlife is in great need of protection, especially as it is frequently at risk from transboundary threats, it is essential to take conservation measures at the EU level.<sup>103</sup> For example, it is noted in Paragraph 40 of the Preamble of the European Climate Law that climate change is a transboundary problem by its definition and that the target of achieving climate neutrality by 2050 will be more effectively achieved on the Union's level than by the Member States taking separated measures on their own.<sup>104</sup> Therefore, the principle of subsidiarity in Article 5 of the TFEU should play a role in this, together with the principle of proportionality should make sure that only necessary measures will be undertaken to achieve the climate neutrality goal.<sup>105</sup> This only emphasises the importance of dealing with problems that have environmental nature on the EU level, and, to conclude, basis for that is given in the TFEU.

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<sup>99</sup> TFEU, art. 4.

<sup>100</sup> David Langlet and Said Mahmoudi, *EU Environmental Law and Policy*, First edition (Oxford, United Kingdom: Oxford University Press, 2016), Page 95.

<sup>101</sup> TFEU, Article 2(2).

<sup>102</sup> Langlet and Mahmoudi, *EU Environmental Law and Policy*, Page 47.

<sup>103</sup> *Ibid*, Page 354.

<sup>104</sup> "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee on of the Regions - 'Fit for 55': Delivering the EU's 2030 Climate Target on the Way to Climate Neutrality (COM(2021) 550 Final)" (The European Commission, Brussels 2021), Preamble, Paragraph 40.

<sup>105</sup> "COM(2021) 550 Final", Preamble, Paragraph 40.

## 3.2 Legislation and Policies Focusing on the Protection of Biodiversity

### 3.2.1 Biodiversity Strategy 2030

The objective of the Strategy is to tackle the primary causes of biodiversity decline and establish a strengthened governance structure.<sup>106</sup> Additionally, it seeks to address any deficiencies in policies while simultaneously reinforcing ongoing initiatives and ensuring the complete enforcement of existing EU laws. It also emphasises that the biodiversity and climate crises are closely intertwined. Climate change exacerbates the degradation of the environment by causing droughts, floods, and wildfires. Simultaneously, the depletion and unsustainable exploitation of nature contribute significantly to climate change. However, it underlines that solutions to these problems are as intertwined as the crises are.<sup>107</sup> This Strategy lays out a significant goal regarding afforestation within the EU while also advocating for the implementation of a legal mechanism to rehabilitate deteriorated ecosystems, especially those capable of sequestering carbon effectively and mitigating the effects of natural disasters.<sup>108</sup> This Strategy calls for the enhancement of forest “quantity, quality and resilience against fires, droughts, pests, diseases and other threats likely to increase with climate change”.<sup>109</sup> One of the mitigation measures for climate change and suppressing risks for the forests related to the usage of bioenergy was the idea of minimising the usage of whole trees for energy production, mentioned in the EU Biodiversity Strategy for 2030.<sup>110</sup> Additionally, the Member States will be responsible for identifying new protected and strictly protected areas, either to enhance the Natura 2000 network or to include them

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<sup>106</sup> European Commission. Directorate General for Environment., *EU Biodiversity Strategy for 2030*, Page 7.

<sup>107</sup> *Ibid*, Page 7.

<sup>108</sup> European Commission. Joint Research Centre., *The Use of Woody Biomass for Energy Production in the EU.*, Page 163.

<sup>109</sup> European Commission. Directorate General for Environment., *EU Biodiversity Strategy for 2030*, Page 17.

<sup>110</sup> “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions: EU Biodiversity Strategy for 2030: Bringing Nature Back into Our Lives (COM(2020) 380 Final)” (The European Commission, May 20, 2020), Page 10, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0380>.

under national protection schemes, ensuring that each area has clearly defined conservation objectives and measures.<sup>111</sup>

To facilitate the flourishing of natural habitats, the EU Biodiversity Strategy for 2030 has put forth a comprehensive objective, aiming to safeguard a minimum of 30% of the EU's landmass through effective management protocols, with a specific stipulation that 10% of this land should be subjected to stringent legal safeguards.<sup>112</sup> Forest ecosystems must play a significant role in achieving this target, with a particular emphasis on the necessity of providing strict protection for all primary and old-growth forests.<sup>113</sup> These forests constitute merely about 3% of the total forested area in the EU, and they typically exist in small, fragmented patches.<sup>114</sup>

### **3.2.2 Forest Strategy 2030**

Forest strategy emphasises the importance of forests in multiple ways and underpins that the usage of wood must be done sustainably, together with the circular economy approach and cascading principle.<sup>115</sup> The cascading principle, though complex, involves using and recycling natural resources for as long as possible, allocating them to the most beneficial purposes at each stage.<sup>116</sup> This will be explained in more detail in Chapter 4.3. Policies similar to the cascading principle have been used to classify certain types of wood or by-products as suitable or unsuitable for energy purposes in the past. Essentially, the objective has been to emphasise that bioenergy is feasible only when it does not conflict with industrial applications.<sup>117</sup> Following the cascading use principle for biomass, woody biomass should be utilised based on its highest economic and environmental benefits in the following sequence: wood-based products, prolonging the lifespan of these products, reuse, recycling, bioenergy,

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<sup>111</sup> “COM(2020) 380 Final”, Page 5.

<sup>112</sup> European Commission. Directorate General for Environment., *EU Biodiversity Strategy for 2030*, Page 10.

<sup>113</sup> “COM(2020) 380 Final”, Page 5.

<sup>114</sup> COM(2021) 572 Final, Page 11.

<sup>115</sup> COM(2021) 572 Final, Page 2.

<sup>116</sup> Olle Olsson, “Cascading of Woody Biomass: The Tricky Path from Principle to Policy Practice”, *Swedish Environmental Institute*, 2017, Page 1.

<sup>117</sup> *Ibid*, Page 2.

and disposal.<sup>118</sup> Energy recovery from woody biomass is employed when no other economically feasible or environmentally suitable use is available, reducing reliance on non-renewable energy sources.<sup>119</sup> How could we then explain the shift from being one of the last usage priorities in the EU policy documents to becoming one of the most used renewable energy sources?

### 3.2.3 Nature Directives

The Habitats Directive<sup>120</sup> focuses on about 2000 species requiring protection to prevent extinction or because they represent significant habitats in the EU, while the Birds Directive<sup>121</sup> protects all birds<sup>122</sup> that can be found within the EU.<sup>123</sup> From the moment it was created, the Habitat Directive became the main base for environmental conservation policy within the EU.<sup>124</sup> The primary goal of both directives is to guarantee the preservation or restoration of the species and habitats they intend to safeguard, maintaining a favourable conservation status<sup>125</sup> across their natural distribution within the European Union. Member States must implement suitable measures to achieve this goal, considering economic, social, and cultural needs, as well as regional and local attributes (Article 2.3 of the HD).<sup>126</sup> These two directives together make two intertwined systems for nature protection, more precisely, the Natura 2000 network and a protection scheme with more stringent measures for specific species and habitats that are listed as endangered.<sup>127</sup>

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<sup>118</sup> REDIII, Preamble, Paragraph 10.

<sup>119</sup> *Ibid*, Preamble, Paragraph 10.

<sup>120</sup> “Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora.” (Official Journal of the European Union, 1992).

<sup>121</sup> “Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the Conservation of Wild Birds” (Official Journal of the European Union, 2009).

<sup>122</sup> The Birds Directive, art. 1.

<sup>123</sup> European Commission. Directorate General for the Environment., *Natura 2000 and Forests.Part I-II* . (LU: Publications Office, 2015), Page 20, <https://data.europa.eu/doi/10.2779/699873>.

<sup>124</sup> Langlet and Mahmoudi, *EU Environmental Law and Policy*, Page 354.

<sup>125</sup> For more see “The Habitats Directive”, art. 1(e).

<sup>126</sup> European Commission. Directorate General for the Environment., *Natura 2000 and Forests.Part I-II* ., Page 20.

<sup>127</sup> Michanek et al., “Landscape Planning—Paving the Way for Effective Conservation of Forest Biodiversity and a Diverse Forestry?”, Page 5.

Article 6 of the Habitats Directive provides that for areas designated as special conservation sites, each EU Member State must put in place necessary conservation measures. These measures might include creating specific management plans for those areas or integrating them into broader development plans. Additionally, they must implement appropriate legal, administrative, or contractual actions that meet the ecological needs of the natural habitats and species listed in Annexes I and II of the relevant Directive.<sup>128</sup> Likewise, according to Article 6.2 of the Habitats Directive, “Member States must take appropriate measures to prevent the deterioration of natural habitats and the habitats of species in special conservation areas. They must also avoid any disturbance to the species for which these areas have been designated, especially if such disturbances could significantly impact the objectives of the Directive”.<sup>129</sup> Additionally, any plan or project that is not directly related to the management of a conservation site, but which might significantly impact it, must undergo an appropriate assessment.<sup>130</sup> When it came to determining when an impact assessment should be conducted, the Court of Justice found that, with regard to the precautionary principle, an impact assessment for a plan or project always needs to be carried out unless there is objective information that it will not have a significant impact on the site in question and that, therefore, impact assessment can be excluded.<sup>131</sup> This assessment will evaluate the implications of the plan or project for the site's conservation objectives, considering both individual and combined effects with other plans or projects.<sup>132</sup> National authorities may only permit activities if there is no reasonable scientific doubt that the integrity of the site will remain unaffected.<sup>133</sup> In case a plan or project must proceed despite a negative impact assessment and lack of alternative solutions due to overriding public interest, including social or economic reasons, the Member State must implement compensatory measures to maintain the coherence of Natura 2000.<sup>134</sup> The Member State must inform the Commission of these measures.<sup>135</sup> If the site hosts a priority habitat or species, considerations are limited to human health, public

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<sup>128</sup> The Habitats Directive, art. 6(1).

<sup>129</sup> *Ibid*, art. 6(3).

<sup>130</sup> *Ibid*, art. 6(3).

<sup>131</sup> Langlet and Mahmoudi, *EU Environmental Law and Policy*, Page 359.

<sup>132</sup> The Habitats Directive, art. 6(3).

<sup>133</sup> Langlet and Mahmoudi, *EU Environmental Law and Policy*, Page 359.

<sup>134</sup> The Habitats Directive, art. 6(4).

<sup>135</sup> *Ibid*, art. 6(4).

safety, significant environmental benefits, or other imperative reasons for overriding public interest as approved by the Commission.<sup>136</sup> According to Article 10 of the Habitats Directive, Member States should aim to promote the management of landscape features that are crucial for the conservation of wild fauna and flora through their land-use planning and development policies, even in unprotected areas.<sup>137</sup>

The provisions of the Birds Directive that cover the protection of all species of birds forbid actions such as killing, disturbing, or causing harm to many species, including their eggs and nests, in general.<sup>138</sup> Additionally, the Habitats Directive broadly prohibits the “deterioration or destruction of breeding sites or resting places” for species classified as “strictly protected.”<sup>139</sup> While the forest may not serve as a primary habitat for EU-protected species or habitat types, it plays a crucial role in maintaining the ecological integrity of the Natura 2000 site as a whole.<sup>140</sup> As a result of this overarching legal safeguard, the EU Member States are required to safeguard forest biodiversity even beyond formally designated protected zones. The European Commission oversees compliance with the EU legal system and the Member State that is in breach of these obligations is risking being brought before the European Court of Justice.<sup>141</sup>

It is important to note that a new article was inserted into the Renewable Energy Directive with a clear focus on the protection of biodiversity. By newly inserted article 15(a)(ii), Natura 2000 sites and areas designated for protection of nature and biodiversity. However, the article protects Natura 2000 areas only from “renewable energy plants and their related infrastructure”, so it is left to the interpretation if this could also cover the biomass that could

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<sup>136</sup> The Habitats Directive, art. 6(4).

<sup>137</sup> *Ibid*, art. 10.

<sup>138</sup> See more in the Birds Directive, art. 5.

<sup>139</sup> The Habitats Directive, art. 12(1)(d).

<sup>140</sup> European Commission. Directorate General for the Environment., *Natura 2000 and Forests.Part I-II* ., Page 36.

<sup>141</sup> Michanek et al., “Landscape Planning—Paving the Way for Effective Conservation of Forest Biodiversity and a Diverse Forestry?” STRANA

be taken for energy production. Nonetheless, this is the only place where the exclusion of the Natura 2000 is specifically mentioned within the Directive.<sup>142</sup>

### 3.2.4 Nature Restoration Law

The Nature Restoration Law is still in the process of creation and so far, we got a proposal for it in June 2022. It is clearly emphasised that we need more protection and action than we have now. It was also noted that one study showed that the attempt to halt the loss of biodiversity in the period 2011-2020 failed. The goal<sup>143</sup> of restoring at least 15% of the ecosystems that were in degradation by 2020 was not met.<sup>144</sup> Therefore, the European Parliament stated that voluntary measures are not working and that a more ambitious and inclusive Strategy that would legally bind Member States should be proposed.<sup>145</sup>

In the Proposal of the Preamble of the EU's Regulation on Nature Restoration, the goal of the legal protection of at least 30% of the land, of which “at least one-third should be under strict protection, including all remaining primary and old-growth forests” is mentioned.<sup>146</sup> It is also mentioned that the EU Biodiversity Strategy for 2030 requires Member States to ensure that there will be no deterioration in conservation trends or of the state of protected habitats and species, as well as that a minimum of 30% of species and habitats will be improved from “non-favourable” status to the favourable one, or to show that they are moving towards that status at least.<sup>147</sup> However, how this will be achieved together with the energy transition that includes using forest resources will remain as an open question.

Proposal for Article 1 makes the introduction for the Regulation, stating that this Regulation will lay down the rules that will contribute to “a) continuous, long-term and sustained recovery of biodiverse and resilient nature across the Union’s land and sea areas through the restoration of ecosystems; b) achieving the Union’s overarching objectives concerning

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<sup>142</sup> REDIII, art. 1(6).

<sup>143</sup> See more in “Quick Guide to Aichi Biodiversity Target 15” (Conference of the Parties to the Convention on Biological Diversity, n.d.), <https://www.cbd.int/doc/strategic-plan/targets/T15-quick-guide-en.pdf>.

<sup>144</sup> “COM(2022) 304 Final”, Page 2.

<sup>145</sup> *Ibid*, Page 3.

<sup>146</sup> *Ibid*, Preamble, Paragraph 10.

<sup>147</sup> *Ibid*, Preamble, Paragraph 11.



climate change mitigation and climate adaptation; c) meeting the Union’s international commitments”.<sup>148</sup> The proposed Article 2(a) gives the geographical scope of the Regulation, stating that it applies to ecosystems within the territory of Member States.<sup>149</sup> As for the forest, the proposed Article 10 lays down the rules for restoring forest ecosystems.<sup>150</sup> The proposal would oblige the Member States to “put in place the restoration measures necessary to enhance the biodiversity of forest ecosystems, in addition to the areas that are subject to restoration measures pursuant to Article 4(1), (2) and (3)”.<sup>151</sup> Additionally, by the proposal for Article 10(2), the Member States would be obliged to ensure a constant national increase of the following six forest ecosystem indicators: standing and lying deadwood, share of forests with uneven-aged structure, forest connectivity, common forest bird index and stock of organic carbon.<sup>152</sup> The measuring period would be from the entry into force of the Regulation on Nature Restoration to the 31<sup>st</sup> of December 2030 and then every three years until the assessment described in proposed Article 11(3) shows that satisfactory levels for each indicator are reached.<sup>153</sup> Proposed Article 11 (4) would oblige the Member States to identify and map forest areas that need to be restored, especially in which landscape diversity and connectivity need to be increased due to intense forestry or other factors related to forest management.<sup>154</sup> Furthermore, proposed Article 11 (5) would oblige the Member States to “identify synergies with climate change mitigation, climate change adaptation and disaster prevention and prioritise restoration measures accordingly”.<sup>155</sup>

### **3.2.5 Deforestation Regulation**

The Deforestation Regulation This Regulation sets the goal of minimising the Union’s contribution to deforestation and forest degradation worldwide and contributing to a reduction in global deforestation along with a decrease in the Union’s contribution to GHG emissions

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<sup>148</sup> “COM(2022) 304 Final”, Page 33.

<sup>149</sup> *Ibid*, Page 34.

<sup>150</sup> *Ibid*, Page 41.

<sup>151</sup> *Ibid*, Page 41.

<sup>152</sup> *Ibid*, Page 41.

<sup>153</sup> *Ibid*, Page 41.

<sup>154</sup> *Ibid*, Page 42.

<sup>155</sup> *Ibid*, Page 42.

and biodiversity loss worldwide.<sup>156</sup> It also recognises that the EU has a significant contribution to deforestation and forest degradation on a global level.<sup>157</sup>

Paragraph 34 of the Preamble highlights the importance of using deforestation and forest degradation as key criteria for future Union actions. It suggests that the EU's new legal framework should consider not only the legality of the production of relevant commodities and products but also ensure they are free from deforestation.<sup>158</sup> In addition to that, this Regulation defines “deforestation-free” products as “products that contain, have been fed with or have been made using relevant commodities that were products on land that has not been subject to deforestation after 31 December 2020” and that “in the case of relevant products that contain or have been made using wood, that the wood has been harvested from the forest without inducing forest degradation after 31 December 2020”.<sup>159</sup>

Now, should something like this be inserted into the Renewable Energy Directive to make sure that there will be no risk of deforestation when using wood to produce bioenergy? For now, the Deforestation Regulation applies to “relevant commodities” under which it addresses “cattle, cocoa, coffee, oil palm, rubber, soya, and wood”.<sup>160</sup> Relevant products are listed in Annex I.<sup>161</sup> Also, this ratio of not obliging only for legality check but also for making sure that the products were free of deforestation could be applied for the production of bioenergy too, so that it cannot only fulfil the legal requirements, but that operators have to make sure that it is was produced in a sustainable way and without forest degradation.<sup>162</sup>

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<sup>156</sup> Regulation (EU) 2023/1115, art. 1(1).

<sup>157</sup> *Ibid*, Preamble, Paragraph 8.

<sup>158</sup> *Ibid*, Preamble, Paragraph 34.

<sup>159</sup> *Ibid*, art. 2(13).

<sup>160</sup> *Ibid*, art. 1(1).

<sup>161</sup> *Ibid*, art. 1(1).

<sup>162</sup> To my knowledge, there are no articles written by scholars on this

## 3.3 Legislation and Policies Focusing on the Climate Change

### 3.3.1 Overview

The legal system within the EU should be aligned. Nevertheless, attention should be paid that this is not infringed while pursuing one important goal. After revising the pieces of legislation that are more focused on biodiversity protection, this subchapter will more closely look into the regulation concerning climate change and energy transition. The corner stone of the climate change framework within the EU that follows obligations under the Paris Agreement is the European Green Deal, presented by the European Commission in 2019.<sup>163</sup> Additionally, it also sets a goal for the “emission-free Europe by 2050”.<sup>164</sup> Following it, the Fit for 55 Package was adopted in 2021, urging that “this decade is a make-or-break moment for delivering on our commitments under the Paris Agreement”<sup>165</sup>. This package comprises a series of interrelated proposals designed to support the EU in achieving its ambitious objectives of reducing net emissions by at least 55% by 2030 compared to 1990 levels and becoming the first climate-neutral continent by 2050. These targets are now enshrined as obligations within the first European Climate Law.<sup>166</sup> Close attention should be paid to the measures that may cause ecological imbalances, which will be further examined in the next chapter.

### 3.3.2 European Climate Law

The European Climate Law entered into force in 2021.<sup>167</sup> It starts by emphasising in its preamble that restoring ecosystems, like forests and wetlands, can aid in fighting climate

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<sup>163</sup> “Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, and the Committee of the Regions: The European Green Deal (COM (2019) 640 Final)” (The European Commission, December 11, 2019), Page 20, [https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF).

<sup>164</sup> The European Green Deal, Page 2.

<sup>165</sup> “Fit for 55: Delivering the EU’s 2030 Climate Target on the Way to Climate Neutrality”, Page 1.

<sup>166</sup> *Ibid*, Page 1.

<sup>167</sup> “Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 Establishing the Framework for Achieving Climate Neutrality and Amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (‘European Climate Law’)” (The European Parliament and the Council, June 30, 2021), art. 14.

change.<sup>168</sup> It further notes that forests have three roles, as carbon sinks, carbon storage and substitution. Acting as carbon sinks, they help to reduce greenhouse gases by storing carbon and providing various environmental benefits.<sup>169</sup> In its article 1(a), it “establishes a framework for irreversible and gradual reduction of anthropogenic greenhouse gas emissions by sources and enhancement of removals by sinks regulated in Union law”.<sup>170</sup> Also, the Member States are required by the European Climate Law to develop and enforce national adaptation strategies that advocate for nature-centric solutions and ecosystem-oriented adaptation approaches.<sup>171</sup>

A legally binding objective for the European Union to achieve climate neutrality by 2050, aligning with the long-term temperature goals outlined in Article 2(1) of the Paris Agreement, is established in Article 2(1) of the Regulation.<sup>172</sup> Additionally, it provides a framework for advancing towards the global adaptation goals set in Article 7 of the Paris Agreement. Furthermore, this regulation specifies a binding target for the EU to achieve a net reduction in domestic greenhouse gas emissions by 2030.<sup>173</sup> The European Climate Law follows the European Green Deal and binds the Member States to balance emissions and removals of greenhouse gasses within the Union by 2050 and to reach net zero emissions by that time (or simply put, it sets out the climate-neutrality objective).<sup>174</sup> It moves on to setting the aim to achieve negative emissions after 2050.<sup>175</sup> Article 2(2) obliges the Member States to “take the necessary measures at Union and national level respectively, to enable the collective achievement of the climate-neutrality objective set out in paragraph 1”<sup>176</sup>, while Article 3 provides that The European Scientific Advisory Board on Climate Change “shall serve as a

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<sup>168</sup> European Climate Law, Preamble, Paragraph 23.

<sup>169</sup> *Ibid*, Preamble, Paragraph 23.

<sup>170</sup> *Ibid*, art. 1(1).

<sup>171</sup> *Ibid*, Preamble, Paragraph 32.

<sup>172</sup> Article 2(1)(a) of the Paris Agreement sets out that the Agreement: “In enhancing the implementation of the Convention [UNFCCC] and its objective, aims to strengthen the global response to the threat of climate change in the context of sustainable development and efforts to eradicate poverty, including by holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.”; Emphasis added by the author of the thesis

<sup>173</sup> “European Climate Law”, art. 1(2).

<sup>174</sup> *Ibid*, art. 2(1).

<sup>175</sup> *Ibid*, art. 2(1).

<sup>176</sup> *Ibid*, art. 2(2).

point of reference for the Union on scientific knowledge relating to climate change by virtue of its independence and scientific and technical expertise”<sup>177</sup>. This means that although the goal to achieve climate-neutrality is set and the Member States should put all their efforts into reaching it, it should follow scientific advice set by The Advisory Board. Furthermore, the Advisory Board “shall be guided in its work by the best available and most recent scientific evidence, including the latest reports of the IPCC, IPBES and other international bodies”<sup>178</sup>.

Intermediate climate targets are outlined in Article 4, the first one being in line with the Fit for 55 Package, obliging the Member States to reduce their net GHG emissions “by at least 55% compared to 1990 levels by 2030”<sup>179</sup>. Article 4(3) obliges the Member States to set a 2040 target after the first global stocktake<sup>180</sup> provided by the Paris Agreement.<sup>181</sup> It stipulates that the Commission is required to create “a legislative proposal, as appropriate, based on a detailed impact assessment”, which would amend the existing Regulation (EU) 2021/1119.<sup>182</sup> This proposal should be in accordance with the best and most recent scientific advice as well as “maintain, manage, and enhance natural sinks in the long term and restore biodiversity”.<sup>183</sup>

In February 2024, after the first global stocktake under the Paris Agreement, the European Commission issued a new document<sup>184</sup>, setting a target to achieve “90% net GHG emission reduction compared to 1990 levels as the recommended target for 2040”.<sup>185</sup> The need for harmonisation between “climate neutrality, biodiversity and other environmental

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<sup>177</sup> European Climate Law, art. 3(1).

<sup>178</sup> *Ibid*, art. 3(3).

<sup>179</sup> *Ibid*, art. 4(1).

<sup>180</sup> Article 14(1) of the Paris Agreement provides that “The Conference of the Parties, serving as the meeting of the Parties to this Agreement, shall periodically take stock of the implementation of this Agreement to assess the collective progress towards achieving the purpose of this Agreement and its long-term goals, (referred to as the “global stocktake”). It shall do so in a comprehensive and facilitative manner, considering mitigation, adaptation, and the means of implementation and support, and in the light of equity and the best available science”; For more see Article 14(2) and 14(3) of the Paris Agreement.

<sup>181</sup> European Climate Law, art. 4(3).

<sup>182</sup> *Ibid*, art. 4(3).

<sup>183</sup> *Ibid*, art. 4(5)(a) and 4(5)(j).

<sup>184</sup> “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions: Securing Our Future: Europe’s 2040 Climate Target and Path to Climate Neutrality by 2050, Building a Sustainable, Just, and Prosperous Society (COM(2024) 63 Final)” (Strasbourg: European Commission, June 2, 2024), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2024%3A63%3AFIN>.

<sup>185</sup> COM(2024) 63 Final, Page 3.

objectives”<sup>186</sup> is also noticed as the document underscores that the new 2040 target and strategies from 2030 to 2050 under the European Climate Law should foster that harmonisation.<sup>187</sup> It is noted that healthy nature and biodiversity are crucial components of successful climate change mitigation and resilience.<sup>188</sup> Nature-caused risks to the protection of biodiversity are mentioned, such as the damage to forests from air pollution and high ozone levels and wildfires. Hence, it addresses the need to cut emissions from greenhouse gasses and to achieve higher carbon removals to improve the state of biodiversity.<sup>189</sup> The 2040 target also addresses the EU Biodiversity Strategy, recognising it as one of the key instruments for achieving the European Union’s climate objectives, together with healthy natural resources that can provide ecosystem services to the highest possible extent.<sup>190</sup>

### 3.3.3 The Land Use, Land-Use Change and Forestry Regulation

The concept of land use, land-use change, and forestry (LULUCF) emerged during the preparations for the third Conference of the Parties (COP3) to the UNFCCC.<sup>191</sup> Despite its introduction, progress in its development has been limited since then. Someone might question why the recognition of the significance of forests in the problem of climate change hasn't become universally acknowledged by now.<sup>192</sup> One of the explanations could be that although the impact of global forests on the Earth's climate is substantial, integrating this influence into legal frameworks while acknowledging human activities presents difficulties. During negotiations preceding the Kyoto Protocol in 1997, concerns about including current forest carbon sinks in climate targets resulted in restrictions on their inclusion in mitigation strategies. Failure to address fossil fuel consumption alongside existing sinks risked delaying efforts to address the fundamental drivers of climate change.<sup>193</sup> The EU Regulation on this

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<sup>186</sup> “COM(2024) 63 Final”, Page 22.

<sup>187</sup> “COM(2024) 63 Final”, Page 22.

<sup>188</sup> “COM(2024) 63 Final”, Page 22.

<sup>189</sup> “COM(2024) 63 Final”, Page 22.

<sup>190</sup> “COM(2024) 63 Final”, Page 29.

<sup>191</sup> See more at “COP3”, *UNFCCC* (blog), n.d., <https://unfccc.int/event/cop-3>.

<sup>192</sup> O’Sullivan, Janson-Smith, and Tarasofsky, *Climate Change and Forests Emerging Policy and Market Opportunities*, Page 33.

<sup>193</sup> Nabuurs, Arets, and Schelhaas, “Understanding the Implications of the EU-LULUCF Regulation for the Wood Supply from EU Forests to the EU”, Page 2.

matter finally entered into force in 2018 as part of the EU's 2030 Climate and Energy Framework.<sup>194</sup> It covers the period from 2021 to 2030 (Article 1 of the Regulation (EU) 2018/841), but it is yet to see how effective it will.

The LULUCF Regulation establishes guidelines for the obligations of Member States concerning the LULUCF sector which aim to facilitate the achievement of the Paris Agreement objectives and fulfil the Union's GHG reduction target for the period from 2021 to 2025, accounting for the GHG emissions and removals (Article 1(a)). This regulation also entails including these emissions and removals from the same sector in accounting practices, along with monitoring the Member States' compliance during the same period (Article 1(b)). Furthermore, it establishes guidelines for the 2030 Union target (Article 1(c)) and objectives for net GHG removals within this sector for Member States from 2026 to 2030 (Article 1(d)).<sup>195</sup>

Forest reference level (FRL) is one of the main parts of this Directive. Its definition can be found in Article 3(7), and it explains that it refers to an estimation, measured in tons of CO<sub>2</sub> equivalent annually, of the average net emissions or removals arising from managed forest land within a Member State's territory during the periods spanning from 2021 to 2025 and from 2026 to 2030.<sup>196</sup> The precision of the estimation depends on the continued application of "sustainable forest management practices" recorded from 2000 to 2009, alongside the accuracy of assumptions regarding the utilisation rate of raw materials and energy. The Forest Reference Level (FRL) aims to solely reflect the consequences of alterations in forest management practices, monitoring debits and credits in relation to the baseline. In FRL accounting, actual emissions and removals for a given year are contrasted with a projected reference level.<sup>197</sup> The extent to which the forest is utilised impacts its ability to absorb emissions. As usage increases, the forest's capacity as a sink decreases, potentially resulting in emissions. To counterbalance this effect, reductions in emissions from other sectors are then required. Conversely, if the FRL is achieved and exceeded, indicating emission removals, the

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<sup>194</sup> Nabuurs, Arets, and Schelhaas, Page 1.

<sup>195</sup> LULUCF Regulation, art. 1.

<sup>196</sup> *Ibid*, art. 3(7).

<sup>197</sup> Romppanen, "'Blind Spots' in EU Climate and Energy Law", Page 160.

surplus provides flexibility<sup>198</sup>.<sup>199</sup> In addition to that, the LULUCF Regulation gives definitions of afforested and deforested land within its scope.<sup>200</sup> Here, afforested land is defined as land that was used as “cropland, grassland, wetlands, settlements or other land” and that is now transformed into forested areas.<sup>201</sup> “Deforested land” is defined as “land use reported as forest land converted to cropland, grassland, wetlands, settlements or other land”.<sup>202</sup>

Article 4 of the LULUCF Directive outlines the "no debit" principle, mandating each Member State to ensure that greenhouse gas (GHG) emissions do not exceed GHG removals. This involves adding up total emissions and total removals across all land accounting categories specified in Article 2(1).<sup>203</sup> Essentially, Member States must ensure that emissions from land use and forestry are balanced by an equal amount of CO<sub>2</sub> removals within the sector from 2021 to 2030.<sup>204</sup> There will be more discussion about the implications and effectiveness of this Regulation in the next chapter.

### 3.3.4 The Renewable Energy Directive

The Renewable Energy Directive from 2018 set the goal to reach at least 32% of energy from renewable sources within the European Union by 2030. Later, in 2020, there was a proposal to raise that percentage to 40% in accordance with the 2030 Climate Target Plan<sup>205</sup>. In July 2021, as part of efforts supporting the European Green Deal, the Commission proposed doubling the percentage of renewable energy in the energy mix by 2030, targeting a minimum of 40%, which is twice the amount of 2020.<sup>206</sup> The Directive (EU) 2023/2413 amending

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<sup>198</sup> For more, see “LULUCF Regulation”, arts. 11, 12 and 13.

<sup>199</sup> Romppanen, “‘Blind Spots’ in EU Climate and Energy Law”, Page 157.

<sup>200</sup> LULUCF Regulation, art. 2.

<sup>201</sup> *Ibid*, art. 2(a).

<sup>202</sup> *Ibid*, art. 2(b).

<sup>203</sup> *Ibid*, art. 4(1).

<sup>204</sup> For more, see European Commission, “Regulation on Land Use, Land Use Change and Forestry in 2030 Climate and Energy Framework Adopted”, *Climate Action* (blog), May 14, 2018, [https://climate.ec.europa.eu/news-your-voice/news/regulation-land-use-land-use-change-and-forestry-2030-climate-and-energy-framework-adopted-2018-05-14\\_en](https://climate.ec.europa.eu/news-your-voice/news/regulation-land-use-land-use-change-and-forestry-2030-climate-and-energy-framework-adopted-2018-05-14_en).

<sup>205</sup> For more, see European Commission, “2030 Climate Targets”, *Climate Action* (blog), n.d., [https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2030-climate-targets\\_en](https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2030-climate-targets_en).

<sup>206</sup> REDIII, Preamble, Paragraph 3.



Directive (EU) 2018/2001, Regulation (EU) 2018/1999, and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652 was officially published on the 18<sup>th</sup> of October 2023 and entered into force in November 2023.<sup>207</sup> As announced in previous negotiations, the goal of the share of energy from renewable sources used within the Union was increased. Paragraph 3(1) of the Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources was amended with the new one, with the goal now set to “ensure that the share of energy from renewable sources in the Union’s gross final consumption of energy in 2030 is at least 42,5%” and encouragement to increase that share to 45% by 2030.<sup>208</sup>

Article 29 of the REDII underlines in its first paragraph that “energy from biofuels, bioliquids and biomass fuels shall be taken into account” for the purposes of contributing to achieving the Union’s objectives, assessing compliance with renewable energy requirements, and qualification for financial assistance for the utilisation of biofuels, bioliquids, and biomass fuels only if it meets the sustainability and the GHG emissions saving criteria from the paragraphs 2-7 and 10 of the same Article.<sup>209</sup> This shows that the sustainability criteria is set as the precondition for the usage of energy from biofuels, bioliquids and biomass fuels under the Renewable Energy Directive.

Article 29(3) of the REDIII emphasises that biofuel, bioliquid, and biomass fuel production should refrain from sourcing materials from ecologically important areas like pristine primary forests, untouched native forestlands, and highly diverse forest ecosystems recognised for their ecological significance. In the case of the production of raw materials from “highly biodiverse forest and other wooded land which is species-rich and not degraded, and has been identified as being highly biodiverse by the relevant competent authority”, the evidence must be provided to ensure that the extraction of raw materials does not harm nature conservation efforts.<sup>210</sup>

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<sup>207</sup> REDIII, art. 7.

<sup>208</sup> REDIII, art. 1(2)(a) amending REDII, art. 3(1)

<sup>209</sup> REDII, art. 29(1).

<sup>210</sup> REDIII, art. 1(19)(b) amending REDII, 29(3)

Article 1(19)(e) of the REDIII, amending Article 29(6) of the REDII, goes even further with the sustainability criteria, providing standards that should be met “to minimise the risk of using forest biomass derived from unsustainable production”. It takes into account the national or sub-national laws of the country in which the forest biomass is happening. This includes monitoring and enforcement systems as tools for ensuring the legality of these operations. In addition to that, it focuses on forest regeneration of these areas together with the preservation of biodiversity and prevention of habitat destruction, with a precise definition of harvesting. Lastly, it requires management systems to spread their activities to places where there is no evidence of these practices.<sup>211</sup>

The LULUCF criteria is set out in Article 29(7) of the REDII, while Article 1(19)(f) inserts new paragraphs, emphasising alignment with Member States' commitments and targets specified in Regulation (EU) 2018/841 and the policies outlined in their integrated national energy and climate plans.<sup>212</sup> Biofuels, bioliquids, and biomass fuels from forest biomass must meet LULUCF criteria if the country or regional economic integration body is a Paris Agreement signatory and has submitted an NDC to the UNFCCC. This ensures that biomass harvest impacts align with the country's emission reduction goals. Alternatively, if local laws under the Paris Agreement govern carbon preservation in harvesting areas and show emissions compliance, these fuels are valid.<sup>213</sup> If nations lack NDCs or do not encompass LULUCF in their NDCs, the proof is required to ensure that carbon stocks and sinks are preserved or improved for any imported biomass at either the national or relevant subnational level.<sup>214</sup>

The inserted part of Article 7 of the REDII instructs Member States to include several assessments and descriptions in their updated integrated national energy and climate plans to be submitted by June 30, 2024. These include evaluating the availability of domestic forest biomass for energy purposes between 2021 and 2030, assessing the compatibility of projected

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<sup>211</sup> REDIII, art. 1(19)(e), amending REDII 29(6)

<sup>212</sup> REDIII, art. 1(19)(f).

<sup>213</sup> REDIII, art. 1(19)(f) amending REDII, 29(7)

<sup>214</sup> European Commission. Joint Research Centre., *The Use of Woody Biomass for Energy Production in the EU.*, Page 11.

biomass use with targets and budgets for 2026 to 2030, and detailing national measures and policies to ensure alignment with those targets and budgets. Additionally, Member States must report to the Commission on the measures and policies ensuring compatibility as part of their integrated national energy and climate progress reports.<sup>215</sup>

As observed, it seems that laws and policymakers made requirements more stringent towards higher protection of forests and biodiversity. However, this will be examined in more detail in the next chapter.

### 3.4 Case Law Related to These Issues

This chapter will introduce legal cases relevant to forestry, land use, and climate change, particularly focusing on the protection of forests under EU law. Cases will be analysed, and connections between the legal grounds of these decisions and the overarching themes of this thesis will be drawn.

The "Biomass Case" (Case T-141/19)<sup>216</sup> involves a challenge to the classification of biomass as a renewable energy source under the 2018 Renewable Energy Directive, directly addressing the environmental implications of biomass energy, and, hence, it is highly relevant to the concerns of this thesis.<sup>217</sup> The Finnish Climate Case<sup>218</sup> addresses Finland's compliance with EU climate obligations and its impact on forest management practices. Meanwhile, in the Skydda Skogen Case (Joined Cases C-473/19 and C-474/19)<sup>219</sup>, the Court of Justice of the European Union (CJEU) examined whether specific forestry activities in protected areas were compatible with the EU Nature Directives, specifically the Habitats Directive and the Birds Directive, highlighting the tension between forestry activities and biodiversity conservation.<sup>220</sup>

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<sup>215</sup> REDIII, art. 1(19)(f) amending REDII, 29(7)

<sup>216</sup> Sabo and Others v. Parliament and Council (Case T-141/19) (General Court of the European Union May 6, 2020).

<sup>217</sup> *Case T-141/19*, paragraph 19.

<sup>218</sup> Finnish Climate Case, No. KHO:2023:62 (Finnish Supreme Administrative Court June 7, 2023).

<sup>219</sup> *Joined Cases C-473/19 and C-474/19*.

<sup>220</sup> *Ibid*, paragraphs 1 and 2.

In the Biomass case, the applicants included individuals from several EU Member States, the United States, and various environmental interest groups based in different Member States.<sup>221</sup> They highlighted the provisions from the REDII that are related to biomass, emphasising that the EU climate and energy policy framework pursues increased use of renewable energy as the crucial one for reducing greenhouse gas emissions and fulfilling the EU's commitments under the Paris Agreement and they mentioned sustainability criteria for biofuels outlined in REDII's Article 29.<sup>222</sup> The importance of this case is that the claimants brought to the Court that taking biomass as a renewable energy source is contradictory as it neglects all the carbon that will be set free to the atmosphere by increased industrial logging and burning the wood.<sup>223</sup> They sought partial annulment of REDII, arguing that including forest biomass as a renewable energy source violates Article 191 of the TFEU and certain fundamental rights outlined in the EU Charter of Fundamental Rights.<sup>224</sup> Applicants argued that REDII directly affected them due to its inclusion of forest biomass as a renewable energy source, impacting their legal situation, and contended that the directive left no discretion to its addressees.<sup>225</sup> Additionally, they argued that the Directive is of individual concern to them as they belong to a specific group affected by deforestation and the operation of power plants it facilitates, alleging an infringement of their individual legal interests and fundamental rights.<sup>226</sup> The Court dismissed this application without going into the substance of the case.<sup>227</sup> It stated that this case is inadmissible on the grounds of the fourth paragraph Article 263<sup>228</sup> of the TFEU,<sup>229</sup> as the applicants could not be identified as a limited category of persons affected by the contested Directive, particularly since they acknowledged on their own that environmental protection and regulation impacts "everyone in both current and future generations", a fact

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<sup>221</sup> *Case T-141/19* paragraph 1.

<sup>222</sup> See more in *Case T-141/19* paragraphs 1–10.

<sup>223</sup> *Case T-141/19* paragraph 19.

<sup>224</sup> *Ibid*, paragraph 19.

<sup>225</sup> *Case T-141/19* paragraph 20.

<sup>226</sup> *Ibid*, paragraph 21.

<sup>227</sup> *Ibid*, paragraph 18.

<sup>228</sup> "Any natural or legal person may, under the conditions laid down in the first and second paragraphs, institute proceedings against an act addressed to that person or which is of direct and individual concern to them, and against a regulatory act which is of direct concern to them and does not entail implementing measures"; TFEU, art. 263(4).

<sup>229</sup> *Case T-141/19*, paragraph 46.

that argues against the idea of individual concern.<sup>230</sup> However, although this case was “dismissed as inadmissible”<sup>231</sup>, it inspires further thinking on what might have occurred if the Court had examined the merits of the specific part of the Directive that the applicants challenged. Certainly, current events suggest that such cases will become more frequent.<sup>232</sup> It is also noteworthy that the court recognized in its reasoning that it is difficult to deny the global impact of the issues raised by the applicants.<sup>233</sup>

The Finnish Climate Case, brought before the Supreme Administrative Court in Finland by two non-governmental organisations, the Finnish Association for Nature Conservation (FANC) and Greenpeace Nordic, concerns Finland's compliance with its 2022 Climate Act.<sup>234</sup> Appeals against governmental decisions in Finland are to be directly made to this court.<sup>235</sup> To start with, the Government submits an Annual Climate Report to Parliament each year, as mandated by the Climate Act.<sup>236</sup> This report tracks greenhouse gas emission trends, evaluates planned measures for emission reduction targets over the next 15 years, and assesses progress on implementing the National Adaptation Plan.<sup>237</sup> In 2021, according to estimates from Statistics Finland, the land use sector transformed from a carbon sink to an emissions source, leading to an increase in Finland's net emissions beyond the 2005 level as they grew by 4% compared to 2020.<sup>238</sup> The change from a carbon sink to an emissions source is thought to be caused by reduced tree growth rates and increased logging activities.<sup>239</sup> Consequently, claimants argued that the Government had failed to implement effective additional measures to address the decline of Finland's forest carbon sink,<sup>240</sup> and they claimed that Finland would likely fall short of its legally binding climate targets, including the 2035 carbon neutrality

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<sup>230</sup> *Case T-141/19*, paragraph 30.

<sup>231</sup> *Ibid*, paragraph 47.

<sup>232</sup> For example, see “Protests Against Vattenfall Biomass Plants”, *Biofuels Central* (blog), April 27, 2022, <https://biofuelscentral.com/protests-against-vattenfall-biomass-plants/>.

<sup>233</sup> *Case T-141/19* paragraph 30.

<sup>234</sup> Finnish Climate Case paragraphs 7–13.

<sup>235</sup> *Ibid*, paragraph 28.

<sup>236</sup> Finnish Climate Case, paragraph 2.

<sup>237</sup> *Ibid*, paragraph 2.

<sup>238</sup> *Ibid*, paragraph 3.

<sup>239</sup> *Ibid*, paragraph 4.

<sup>240</sup> *Ibid*, paragraph 24.

objective.<sup>241</sup> In essence, the court did not progress much beyond procedural considerations.<sup>242</sup> Analogous to the Biomass Case, the Finnish Climate Case was “dismissed as inadmissible” without extensively delving into substantive matters.<sup>243</sup> However, it is noteworthy that the Court implied that if the Government does not take appropriate actions towards mitigating climate change, the Court might change its take on the matter, as it said that “ assessing the legality of the Government's decision-making procedure in the manner intended by the appellant could be examined by a court of law in a case, in which failing to make the decision at this stage would lead to an end result in violation of the Climate Act, or the de facto actions of the Government would prove that it has no intention of making the appropriate decisions in order to achieve the targets and obligations required by the Act on a sufficiently rapid schedule.”<sup>244</sup> Although this case does not directly address biomass usage, it concerns carbon sequestration and the LULUCF sector, illustrating a country's inadequate measures in this regard, as demonstrated by the situation in Finland. Additionally, there may be a connection to biomass, as the decline in forest carbon sequestration is a concern when utilising forest biomass for energy production. This discussion also aligns with the problem of reaching the objectives of the Paris Agreement and promoting renewable energy sources.

In the “Skydda Skogen case”, the CJEU examined whether specific forestry activities in protected areas were compatible with Article 12(1)<sup>245</sup> of the Habitats Directive and Article 5<sup>246</sup> of the Birds Directive.<sup>247</sup> Environmental groups, including Skydda Skogen, challenged

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<sup>241</sup> Finnish Climate Case, paragraph 12.

<sup>242</sup> *Ibid*, paragraph 70.

<sup>243</sup> *Ibid*, paragraph 71.

<sup>244</sup> *Ibid*, paragraph 69.

<sup>245</sup> “Member States are obligated to implement necessary measures to establish a system of rigorous protection for the animal species outlined in Annex IV (a) within their natural habitats, prohibiting: (a) any intentional capture or killing of specimens of these species in the wild; (b) intentional disturbance of these species, especially during critical periods such as breeding, rearing, hibernation, and migration; (c) intentional destruction or removal of eggs from the wild; and (d) degradation or destruction of breeding sites or resting places”; The Habitats Directive, art. 12(1).

<sup>246</sup> “Without prejudice to Articles 7 and 9, Member States are required to implement necessary measures to establish a comprehensive system of protection for all bird species mentioned in Article 1, specifically prohibiting: (a) intentional killing or capture by any means; (b) intentional destruction or damage to their nests and eggs, or removal of their nests; (c) taking their eggs from the wild and retaining these eggs even if empty; (d) intentional disturbance of these birds, particularly during the breeding and rearing period, to the extent that the disturbance would significantly affect the objectives of this Directive; (e) keeping birds of species for which hunting and capture are prohibited”; “The Birds Directive”, art. 5.

the logging plans authorized by Swedish authorities, arguing that these activities threatened protected species and habitats.<sup>248</sup> The Protect the Forest Association argued that following the Forest Agency's guidelines for cutting down the forest area in question would result in the destruction of the forest environment.<sup>249</sup> This, in turn, would eliminate portions of the natural habitats of the protected species living there, posing a long-term threat to their survival.<sup>250</sup> The scope of the Birds Directive is established based on the need for comprehensive and effective protection of all bird species that naturally occur in the wild within the European territories of the Member States covered by the TFEU. This protection applies regardless of the areas these birds inhabit or travel through, and it operates independently of any national legislation that limits the protection of wild birds to those considered part of national heritage.<sup>251</sup> As for the Habitats Directive, the Court emphasised that, under these circumstances, compliance with Articles 12(1)(a) to (c) requires Member States to establish not only a comprehensive legislative framework but also to implement concrete and specific protection measures. Such a strict protection regime necessitates the adoption of coherent and coordinated preventive measures, and therefore, this system of strict protection must effectively prevent harm to the protected animal species as outlined in the directive.<sup>252</sup> The Court ruled that the Member States must ensure that any forestry activity complies with the conservation objectives of the Nature Directives, reinforcing the need for rigorous environmental assessments before permitting such activities.<sup>253</sup> Considering the stringent protection framework, the Court has determined that the acts mentioned in provision 12(1)(d) of the Habitats Directive encompass both intentional and unintentional acts and noted that this indicates that the EU legislature aims to provide enhanced protection to breeding sites or resting places, preventing their deterioration or destruction from any act, whether deliberate or not.<sup>254</sup> This case highlights the tension between economic interests in forestry and the legal requirements for biodiversity conservation, illustrating the direct impact of EU law on

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<sup>247</sup> *Joined Cases C-473/19 and C-474/19*, paragraph 1.

<sup>248</sup> *Ibid*, paragraph 2.

<sup>249</sup> *Ibid*, paragraph 74.

<sup>250</sup> *Ibid*, paragraph 74.

<sup>251</sup> *Ibid*, paragraphs 40 and 42.

<sup>252</sup> *Ibid*, paragraph 75.

<sup>253</sup> *Ibid*, paragraph 76.

<sup>254</sup> *Ibid*, paragraph 82.

national forestry practices.<sup>255</sup> This emphasises the obligation of Member States to consider species protected by Annex IV of the Habitats Directive and all bird species protected by the Birds Directive when deciding to cut forests, in accordance with the provisions of Articles 12(1) of the Habitats Directive and 5 of the Birds Directive. While this case does not specifically relate to the felling of trees for energy production through burning forest biomass, it is reasonable to apply a similar rationale and take it into consideration. Therefore, forests should not be felled in areas protected by these Directives. In addition to that, it is crucial that the importance of undertaking environmental impact assessments is emphasised. Article 12(d) is particularly noteworthy, as it applies not only to deliberate disturbances or killings of these species through tree felling but also unintentionally.

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<sup>255</sup> *Joined Cases C-473/19 and C-474/19*, paragraph 40.



## 4 Biomass in the Intersection of Biodiversity and Climate Change Legal Frameworks

### 4.1 Legal Perspectives and Challenges

This chapter will provide elaboration on the central part of this thesis, which is the example of biomass as one of the instruments that is often presented as one of the solutions to the intertwined issues of environmental crisis. Bioenergy is at the crossroads of two major environmental challenges of our time: biodiversity loss and climate change.<sup>256</sup> EU policies and regulatory frameworks present it as a renewable and sustainable energy source that contributes positively to climate change mitigation. Specifically, forest-based biomass for bioenergy is perceived as readily accessible renewable energy that also serves as a climate mitigation strategy within the EU.<sup>257</sup> Indeed, wood-based bioenergy holds promise as a partial solution to both issues, as mitigating climate change would help in biodiversity preservation, but only when sustainable biomass production exists.<sup>258</sup> Europe's forests provide essential wood products like cork and serve as a primary source of biomass for heating and electricity generation. Estimates suggest that their contribution to the overall available biomass for renewable energy is projected to increase.<sup>259</sup> The crucial sustainability question is whether forest-based bioenergy could effectively assist in reducing GHG emissions, or alternatively, if it remains climate-neutral or if its utilisation accelerates climate change rather than mitigating it.<sup>260</sup> In general, it seems like the demand for forests will increase.<sup>261</sup> Hence, this chapter will assess the position of biomass in both legal frameworks.

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<sup>256</sup> European Commission. Joint Research Centre., *The Use of Woody Biomass for Energy Production in the EU.*, Page 6.

<sup>257</sup> Romppanen, “‘Blind Spots’ in EU Climate and Energy Law”, Page 151.

<sup>258</sup> European Commission. Joint Research Centre., *The Use of Woody Biomass for Energy Production in the EU.*, Page 6.

<sup>259</sup> European Commission. Directorate General for the Environment., *Natura 2000 and Forests.Part I-II .*, Page 9.

<sup>260</sup> Romppanen, “‘Blind Spots’ in EU Climate and Energy Law”, Page 153.

<sup>261</sup> “What Does ‘Fit for 55’ Mean for Forests?” (Fern, n.d.), Page 1.

## 4.2 Renewable Energy or Not? The Legitimacy of Biomass under the Renewable Energy Directive

To begin with, it is essential to revisit the term “energy from renewable sources”, defined in article 1(a)(1) of the REDIII, amending article 2(1) of the REDII. The definition is “energy from renewable sources”, or “renewable energy” means energy from renewable non-fossil sources, namely wind, solar (solar thermal and solar photovoltaic) and geothermal energy, ambient energy, tide, wave and other ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas, and biogas”. The REDII defines “biomass” as “the biodegradable fraction of products, waste, and residues from biological origin from agriculture, including vegetal and animal substances, from forestry and related industries, including fisheries and aquaculture, as well as the biodegradable fraction of waste, including industrial and municipal waste of biological origin”<sup>262</sup>, while “forest biomass” is defined as “biomass produced from forestry”<sup>263</sup>. The designation of forest biomass as 'renewable' is built upon the argument that biomass carbon, originating from atmospheric CO<sub>2</sub>, is reabsorbed through regrowth over time, thus making it 'carbon neutral' with net emissions of zero over the harvest-regrowth cycle.<sup>264</sup> Nonetheless, some scholars critique this 'carbon neutrality' notion as a significant misrepresentation of the atmospheric CO<sub>2</sub> balance, emphasising that it overlooks the lengthy process of photosynthesis, which requires several decades for trees to fully mature.<sup>265</sup> The payback period typically takes several years when utilising forestry residues, but in cases involving the harvesting of additional trees, the payback period depends on the species and conditions of regrowth, which sometimes takes centuries.<sup>266</sup> Under certain circumstances, the carbon stored in the original forest stock might remain unrecovered, which makes the concept of carbon neutrality uncertain and heavily dependent on specific timeframes and contexts.<sup>267</sup> Additionally, some research showed that wind and solar energy have more favourable

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<sup>262</sup> REDII, art. 2(24).

<sup>263</sup> *Ibid*, art. 2(26).

<sup>264</sup> Norton et al., “Serious Mismatches Continue between Science and Policy in Forest Bioenergy”, Page 1257.

<sup>265</sup> *Ibid*, Page 1257.

<sup>266</sup> *Ibid*, Page 1259.

<sup>267</sup> *Ibid*, Page 1259.

payback periods in comparison to the shortest ones of forest biomass, as solar and wind energy can achieve net CO<sub>2</sub> emission reductions within a few months to a few years.<sup>268</sup>

The European Academies Science Advisory Council (EASAC) has previously stressed the urgent need to align EU and national policies on large-scale biomass use in electricity generation with the latest scientific findings. They particularly highlighted that biomass should only be classified as renewable energy under the EU's Renewable Energy Directive if its use in place of fossil fuels results in substantial CO<sub>2</sub> reductions within approximately ten years.<sup>269</sup> A key part of new governance systems would be requiring operators to publish their evaluations of the net impacts on atmospheric carbon dioxide levels over the entire life cycle of their supply chain. This would also need to include how their feedstock supplies are affecting both current and future carbon stocks.<sup>270</sup> It is also noteworthy that diverse scientific research produces conflicting results, resulting in uncertainty regarding whether biofuels ultimately produce higher greenhouse gas emissions than fossil fuels<sup>271</sup>

In the EU's "Clean Energy for All Europeans" package, published in 2016, there was a concern that if the use of solid biomass keeps increasing, the climate impact could worsen. It was emphasised that we must especially focus on reducing the extra pressure on forests to ensure long-term climate benefits.<sup>272</sup> Consequently, it appears paradoxical that seven years later, the publication of RED III suggests a likelihood of intensifying pressure on forests rather than effectively safeguarding them from degradation.

### 4.3 The Cascading Principle

Member States are required to take steps to ensure that the production of biomass energy has minimal negative effects on biodiversity, the environment, and the climate. The principle of

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<sup>268</sup> Norton et al., Page 1259.

<sup>269</sup> "Forest Bioenergy, Carbon Capture and Storage, and Carbon Dioxide Removal: An Update.", EASAC, 2019, Page 1, <https://easac.eu/publications/details/forest-bioenergy-carbon-capture-and-storage-and-carbon-dioxide-removal-an-update/>.

<sup>270</sup> Norton et al., "Serious Mismatches Continue between Science and Policy in Forest Bioenergy", Page 1261.

<sup>271</sup> *Ibid*, Page 49.

<sup>272</sup> COM (2016) 860 Final, Page 9.

cascading biomass should be applied when undertaking these actions, with a focus on carefully tailored support schemes that consider national contexts.<sup>273</sup>

As written in the REDIII, support programs for biofuels, bioliquids, and biomass fuels should be designed to discourage unsustainable practices and prevent market distortions. The emphasis should be on maximizing the economic and environmental advantages of woody biomass by prioritising wood-based products and prolonging their lifespan before everything else, and then turning to reuse and recycling, using biomass for energy, and only resorting to disposal as a last resort.<sup>274</sup> It is allowed under the REDIII to derogate from the cascading principle, but only if the security of the energy supply is endangered.<sup>275</sup>

To put it simple, carbon derived from wood serves multiple, to some extent conflicting, roles in mitigating climate change. Firstly, it can be sequestered within forest ecosystems through various silvicultural methods. Secondly, it can be stored as products in use or landfills. The third option is to use wood products as substitutes for materials with higher fossil fuel emissions. Lastly, it can be utilised for bioenergy across various stages of its life cycle.<sup>276</sup>

As described in the previous section, the LULUCF sector is dealing with carbon sequestration and other pieces of legislation within the EU. Despite that, there is the risk of losing carbon stored into trees by burning them for energy or risking losing primary forests due to monocultures that could be invasive while planted more due to better performance of CO<sub>2</sub> intake by some tree species.<sup>277</sup> In addition to that, there is also the term “non-permanence”, which refers to another scenario in which forests stop performing carbon sequestration and that is the potential risk wherein forests cease to function as sinks and instead emit carbon if they undergo harvesting, pest infestations, forest fires, or similar events.<sup>278</sup>

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<sup>273</sup> REDIII, art. 1(2)(b) amending REDII 3(3)

<sup>274</sup> REDIII, art. 1(2)(b) amending REDII 3(3)

<sup>275</sup> REDIII, art. 1(2)(b) amending REDII 3(a)

<sup>276</sup> Bravo et al., *Managing Forest Ecosystems*, Page 137.

<sup>277</sup> van Asselt, “Forests at the Intersection of the Climate and Biodiversity Regimes”, 1220.

<sup>278</sup> *Ibid*, 1220.

The second and third options both imply the usage of wooden material instead of other materials which either includes storing carbon in wood or using wooden material as the alternative to fossil-based materials.<sup>279</sup> Storing carbon in the products is highlighted in the 2030 Forest Strategy, underlining the significance of sustainable raw wood and non-wood materials and products in facilitating the European Union's transition to a sustainable, climate-neutral economy.<sup>280</sup> This was highly recognised as the wooden products could substitute plastic ones, which is not only more eco-friendly in terms of the material but also having in mind the whole path of the production of both materials and the emissions that it implies.<sup>281</sup> Wood should primarily be utilised in durable materials and products to replace those reliant on carbon-intensive and fossil fuels, particularly in constructions and furnishings. However, it's important to note that not all wood is suitable for this purpose. Conversely, wood utilised for short-lived products and energy production should prioritise materials unsuitable for long-term use, such as sawmill by-products and recycled materials. Technological advancements have made it feasible to process wood residues and waste into innovative circular materials and products, broadening the range of bio-based products and providing climate-friendly alternatives for emerging applications.<sup>282</sup>

As previously mentioned, in situations where there are no other economically viable or environmentally appropriate alternatives, woody biomass is utilised for energy recovery, thereby reducing dependence on non-renewable energy sources.<sup>283</sup> How can we then explain the transformation that has led to its widespread adoption as a primary renewable energy source? How does the status of being a penultimate priority when it comes to wood usage assigned by the cascading principle for energy production align with woody-based bioenergy being the primary source of renewable energy, accounting for 60% of its global usage,

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<sup>279</sup> COM(2021) 572 Final, Page 4.

<sup>280</sup> *Ibid*, Page 4.

<sup>281</sup> *Ibid*, Page 4.

<sup>282</sup> *Ibid*, Page 5.

<sup>283</sup> REDIII, Preamble, Paragraph 10.

especially considering the significant issue of deforestation and the growing number of endangered species?<sup>284</sup>

The usage of biomass for bioenergy is at the end of the list of priorities listed under the cascading principle.<sup>285</sup> Utilising wood for materials and energy entails the substitution of alternative materials and energy sources. In most instances, employing these alternatives instead of wood would result in greater emissions of fossil fuels.<sup>286</sup> One more argument for using woody biomass for producing long-lasting products rather than for renewable energy production is that some researchers have found that emissions that are coming from burned biomass are not any better (or greener) than the ones from fossil fuels.<sup>287</sup> Regarding carbon emissions, the effectiveness of biofuels in reducing greenhouse gas emissions compared to conventional fossil fuels remains uncertain, depending on the choice of raw materials and production technologies employed.<sup>288</sup> For instance, if agricultural land is converted from food production to the cultivation of biofuel feedstocks, it may lead to adverse outcomes regarding GHG emissions. This shift could potentially lead to higher carbon emissions compared to fossil fuel production and utilisation.<sup>289</sup> Indeed, the complexity and uncertainty of assessing greenhouse gas emissions from land use changes pose a significant challenge, as it may have secondary effects, such as displacement of food production to other areas, potentially leading to deforestation or changes in land use that release significant greenhouse gas emissions from sources such as forests, grasslands, peatlands, or wetlands.<sup>290</sup>

## 4.4 Land Planning

So, there are significant downsides to using forests as a tool for combating climate change and not protecting them for biodiversity reasons. Large plantations with monocultures that could have higher levels of carbon sequestration, together with the use of genetically modified

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<sup>284</sup> COM(2021) 572 Final, Page 7.

<sup>285</sup> REDIII Preamble, Paragraph 10.

<sup>286</sup> Bravo et al., *Managing Forest Ecosystems*, Page 139.

<sup>287</sup> Romppanen, “‘Blind Spots’ in EU Climate and Energy Law”, Page 155.

<sup>288</sup> Lin, “Governing Biofuels”, Page 48.

<sup>289</sup> *Ibid*, Page 49.

<sup>290</sup> *Ibid*, Page 49.

trees and invasive alien species could be lethal for the protection of biodiversity.<sup>291</sup> There is also a risk of promoting such plantations due to a better “carbon payback period”<sup>292</sup> as some tree species could faster sequester the carbon emitted from energy produced by burning forest biomass.<sup>293</sup> To prevent this, governments would need measures that would be suitable and cost-effective, based on the decisions made on sufficient information and comprehensive assessment concerning the unique environmental circumstances across a broad area.<sup>294</sup>

It is important to note that not all forests are good homes for a wide sort of biodiversity, nor do all forests rich with biodiversity consist of trees that are good for carbon sequestration.<sup>295</sup> Furthermore, as previously mentioned, although all trees take carbon dioxide from the atmosphere, at some point the amount of carbon that they absorb decreases as they grow older.<sup>296</sup> Therefore, well-assessed and implemented forest landscape planning would help with more stringent measures when it comes to conservation needs in certain areas while still allowing more intensive carbon sequestration to happen in some forests and even to plan other forests which would provide more biomass material for bioenergy while not degrading state of biodiversity protection.<sup>297</sup>

## 4.5 Climate Concerns

All of the European Union’s Member States and the EU itself are Parties to the Paris Agreement.<sup>298</sup> One of the goals of the Agreement is “to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to

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<sup>291</sup> van Asselt, “Forests at the Intersection of the Climate and Biodiversity Regimes”, 1232.

<sup>292</sup> The period necessary for a bioenergy project to achieve a net reduction in emissions compared to fossil fuels; Michael Norton et al., “Time Is of the Essence When It Comes to Forest Bioenergy”, *GCB Bioenergy* 14, no. 2 (February 2022): Page 108, <https://doi.org/10.1111/gcbb.12905>.

<sup>293</sup> Romppanen, “‘Blind Spots’ in EU Climate and Energy Law”, Page 154.

<sup>294</sup> Michanek et al., “Landscape Planning—Paving the Way for Effective Conservation of Forest Biodiversity and a Diverse Forestry?,” Page 2.

<sup>295</sup> Michanek et al., Page 11.

<sup>296</sup> Barredo et al., *Mapping and Assessment of Primary and Old-Growth Forests in Europe*, Page 9.

<sup>297</sup> Michanek et al., “Landscape Planning—Paving the Way for Effective Conservation of Forest Biodiversity and a Diverse Forestry?”

<sup>298</sup> See more at United Nations, “Paris Agreement Signing Ceremony”, *United Nations Sustainable Development* (website), April 22, 2016, <https://www.un.org/sustainabledevelopment/blog/2016/04/parisagreementsignatures/>.

limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change”<sup>299</sup>

To start with, the carbon payback period poses a significant challenge in this context. Some argue that the IPCC report does not mandate that individual climate mitigation measures must meet specific deadlines, leaving room for the interpretation that the payback time for forests used for bioenergy production does not negatively impact climate change.<sup>300</sup> This perspective is dangerous as it overlooks the heightened risk of exceeding the targets set by the Paris Agreement, based on the assumption that bioenergy may eventually show a net reduction in emissions compared to fossil fuels.<sup>301</sup> IPCC noted that future increases in global surface temperature are inevitable under all current emissions scenarios, persisting until at least the mid-century.<sup>302</sup> Without significant reductions in CO<sub>2</sub> and other greenhouse gas emissions in the coming decades, global warming is projected to exceed 1.5°C and 2°C during the 21st century.<sup>303</sup>

By the preamble of the REDIII, renewable electricity should be regarded as emission-free, signifying that it eliminates greenhouse gas emissions entirely when contrasted with electricity generated from fossil fuels.<sup>304</sup> It also notes that the Member States must make sure that their utilisation of forest biomass for energy generation aligns with their responsibilities outlined in the LULUCF Regulation. Also, they should perform proactive evaluations.<sup>305</sup> Nonetheless, some scientific findings are showing the results that are revealing the results that the EU is moving in the opposite direction from lowering GHG emissions with the energy production from forest biomass.<sup>306</sup> In other words, replacing coal with forest biomass for generating electricity initially increases CO<sub>2</sub> emissions due to wood’s lower energy density,

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<sup>299</sup> Paris Agreement, Article 2(1)(a)

<sup>300</sup> Norton et al., “Time Is of the Essence When It Comes to Forest Bioenergy”, Page 108.

<sup>301</sup> *Ibid*, Page 108.

<sup>302</sup> *Climate Change 2021: The Physical Science Basis: Summary for Policymakers: Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Geneva, Switzerland: IPCC, 2021), Page 14.

<sup>303</sup> *Climate Change 2021*, Page 14.

<sup>304</sup> REDIII Preamble, Para 78.

<sup>305</sup> *Ibid*, Preamble, Paragraph 85.

<sup>306</sup> Norton et al., “Serious Mismatches Continue between Science and Policy in Forest Bioenergy”, Page 1257.



emissions in the supply chain, and less efficient conversion of heat to electricity.<sup>307</sup> As previously noted, this boosts concentrations of carbon dioxide in the atmosphere, and, as payback period can take a long time, these policies may worsen climate change rather than mitigate it.<sup>308</sup> Additionally, some scientific estimates have shown that, even in scenarios using 65% residues and only 35% additional harvests, emissions would still exceed those from a coal reference scenario.<sup>309</sup>

The core of the problem is that emissions connected to the energy produced from the forest biomass are counted only under the LULUCF sector at the time of harvest, reflecting changes in the carbon pool size<sup>310</sup>, while emissions that should be reflected in connection to the REDIII are neglected as renewable energy produced from the forest biomass is presented as carbon neutral.<sup>311</sup> The reasoning here is that carbon from forestry activities has already been accounted for within the LULUCF category. Therefore, it is argued that emissions resulting from burning forest biomass do not need to be considered separately.<sup>312</sup> This situation presents a potential risk, particularly because it is possible for harvesting to take place in one country (in further text: "country A"), and therefore, the resulting emissions are counted under the CO<sub>2</sub> emissions from the LULUCF sector of country A. However, country A may export the harvested forest biomass to another country (in further text: "country B"), which then could be used it for energy production. Consequently, country B could appear as climate-neutral, producing energy with zero emissions, while all emissions associated with biomass harvesting would be attributed only to country A. Ultimately, a significant portion of emissions generated from the process of producing "renewable" energy from forest biomass could be neglected.<sup>313</sup>

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<sup>307</sup> Norton et al., Page 1257.

<sup>308</sup> *Ibid*, Page 1258.

<sup>309</sup> *Ibid*, Page 1259.

<sup>310</sup> ““Carbon pool” means the whole or part of a biogeochemical feature or system within the territory of a Member State and within which carbon, any precursor to a greenhouse gas containing carbon, or any greenhouse gas containing carbon is stored”, LULUCF Regulation art. 3(1)(3).

<sup>311</sup> Romppanen, ““Blind Spots’ in EU Climate and Energy Law”, Page 152.

<sup>312</sup> Norton et al., ““Serious Mismatches Continue between Science and Policy in Forest Bioenergy”, Page 1258.

<sup>313</sup> *Ibid*, Page 1258.

## 5 Conclusion

The analysis in this thesis raises questions about the current capability of legislative bodies within the EU to balance the protection of forests with combating climate change within the EU legal framework. Despite the presence of many instruments, such as Biodiversity and Forest Strategies for 2030 on one side and the European Green Deal together with the Fit for 55 Package on the other side, the alignment seems to be lacking, at least for now. Forest biomass is definitely a great example of that due to its origin protected by the biodiversity legal framework and due to the use, it has within the energy and climate change legal frameworks.

Throughout the thesis it was repeatedly shown that the environmental and social values of forests are often neglected. This is clear in the example of the EU, where scientific findings from bodies like the EASAC are frequently overlooked as policymakers promote biomass as the option that is a tool for climate change mitigation, which directly impacts forests. To note it again, the EASAC underscored that the biomass should only be classified as renewable energy under certain conditions, but that was not put in the REDIII. Although Intragovernmental bodies like IPCC and IPBES do collaborate to get a broader ecological picture, it seems that policymakers still need to learn how to join their efforts and take into accounts all environmental aspects of forests and how some climate change mitigation tools might affect them. For example, regulations that are more focused on climate change mitigation often focus mostly on the carbon sequestration capability of forests, like in the example of the LULUCF Regulation. Additionally, international agreements that are binding, like the CBD is, address forest protection only in vague terms, without even giving a definition of forests, while other documents that are going further with the protection of forest are not binding, like the Non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests, as its title says.

The Paris Agreement notes that there is a risk of causing a disbalance in the biodiversity by combating climate change, but the consequences that it could have are only showing with the

EU's Renewable Energy Directive and its implications on the forest biomass. The connection could be made between the Preamble of the Paris Agreement, where it acknowledges that Parties could also be affected by climate change mitigation measures and Article 22(1) of the CBD, as it implies that obligations from other international agreements should not cause damage to biodiversity. It could be seen that energy produced from forest biomass has worse CO<sub>2</sub> emissions than presented, and as it will most likely worsen climate change and therefore impact biodiversity negatively, including forests, and as all packages and instruments under the European Green Energy are indirectly forcing towards the use of forest biomass as part of renewable energy production, adopted under the Paris Agreement, in some way, measures that Parties to the Paris Agreement are taking are damaging biodiversity. Simply put, it could be argued that the EU is infringing some obligations to the CBD by trying to achieve targets under the Paris Agreement.

Furthermore, sustainability seems to be a problem on its own for all these instruments, both on the EU and international level. Although it looks to be an unavoidable part of any business related to forests, it seems to be consequently ignored. The greatest extent to which the EU is going with it is when it puts biomass in the definition of renewable energy together with wind and solar energy, completely ignoring that the forest needs a lot of time to regrow; in other words, that payback time sometimes takes decades, and sometimes recovery never happens. It is not sustainable to repeatedly cut forests down and justify with the explanation that renewable energy from forest biomass is carbon neutral, together with claiming that the sequestered carbon put back in the atmosphere when the forest was cut will be sequestered again when a new forest is planted. It is important to note that the objectives of the biodiversity and energy and climate change EU frameworks do not contrast each other, but the results that we have are showing that biodiversity is still negatively impacted. The Proposal for the regulation on nature restoration does note that forests are important for climate change and that therefore more protection of them, as well as the Renewable Energy Directive underscores the importance of sustainability. All in all, it seems that there is a need for an improvement of the alignment between the legal frameworks and practice.

Missing the definition of forests even within the EU is also an issue as it could be easily manipulated by taking the definition that one needs when cutting down the forest to make it “legal”. It is obvious that each EU Directive is defining forests from its own angle of protection, Deforestation one combating Deforest, while LULUCF focuses more on the carbon emissions counting, but could the EU find a way to combine the definitions from its directives so that it is clear what is forest, what is to be protected from any angle and so that the values of the forests are easily seen? Or that would lead to “too strict” protection of forest which is to be avoided?

As they are home to the life on the land, it is natural that the Habitat Directive protects them extensively, together with the Birds Directive. However, something is missing. How is it possible that within the European Union that has legislative framework as it does renewable energy from forest biomass is being promoted? In the relation to the Nature Directives, it is hard to imagine that any forest could be cut without impacting the species that are habituating there.

The three legal cases brought before courts within the EU maybe seem to be different, but if the grounds on which the substantive part of all three cases was based are put together, it could be seen that they could maybe be used together in the future cases to protect forests. Maybe the logic of the biodiversity protection by stopping the three falling in the forest due to industrial logging like in the Skydda Skogen case could be expanded so that it also covers unsustainable logging of the forest biomass from energy production. Furthermore, the problem of losing carbon that was raised in the Finnish climate case could lead to more cases like that, which would bring more attention for the protection of forests. Lastly, the Biomass case brings the need to revise the EU legislation in the focus so that it is more balanced with the scientific findings. Put together, these three cases could provide the the legal basis within the EU legal framework for protection of forests from unsustainable logging, saving forests in order to save carbon sequestered within threes and revising the EU pieces of legislation to be aligned with the protection of the forests in practice.

To conclude, current rules and practices regarding forest biomass energy production could result in two ways, one in which the biodiversity and energy and climate change legal

frameworks within the EU would be aligned as well as their practice and then the forests could be saved together with the climate change mitigation measures still being put in their place. However, it would require the EU law and policymakers to decrease targets related to the growing use of forest biomass and to align pieces of legislation more with the scientific findings. The other scenario, where the EU would continue with the business-as-usual practice and increase the percentage of forest biomass energy production would most likely lead to further forest loss and acceleration of climate change.

## 6 Bibliography

### Legislation

“Consolidated Version of The Treaty on the Functioning of the European Union.” Official Journal of the European Union, October 26, 2012. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=FR>.

“Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora.” Official Journal of the European Union, 1992.

“Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the Conservation of Wild Birds.” Official Journal of the European Union, 2009.

“Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the Promotion of the Use of Energy from Renewable Sources.” Official Journal of the European Union, December 11, 2018.

“Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 Amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as Regards the Promotion of Energy from Renewable Sources, and Repealing Council Directive (EU) 2015/652.” Official Journal of the European Union, October 18, 2023.

“Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the Inclusion of Greenhouse Gas Emissions and Removals from Land Use, Land Use Change and Forestry in the 2030 Climate and Energy Framework, and Amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU.” Official Journal of the European Union, May 30, 2018.

“Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 Establishing the Framework for Achieving Climate Neutrality and Amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (‘European Climate Law’).” The European Parliament and the Council, June 30, 2021.

“Regulation (EU) 2023/1115 on the Making Available on the Union Market and the Export from the Union of Certain Commodities and Products Associated with Deforestation and Forest Degradation and Repealing Regulation (EU) No 995/2010.” The European Parliament and the Council, May 31, 2023.

## **EU Communications**

“Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Clean Energy For All Europeans (COM (2016) 860 Final).” The European Commission, November 30, 2016. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016DC0860>.

“Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions: EU Biodiversity Strategy for 2030: Bringing Nature Back into Our Lives (COM(2020) 380 Final).” The European Commission, May 20, 2020. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0380>.

“Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: New EU Forest Strategy for 2030 (COM(2021) 572 Final).” The European Commission, July 16, 2021.

“Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions: Securing Our Future: Europe’s 2040 Climate Target and Path to Climate Neutrality by 2050, Building a Sustainable, Just, and Prosperous Society (COM(2024) 63 Final).” Strasbourg: European Commission, June 2, 2024. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2024%3A63%3AFIN>.

“Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee on of the Regions - ‘Fit for 55’: Delivering the EU’s 2030 Climate Target on the Way to Climate Neutrality (COM(2021) 550 Final).” The European Commission, Brussels 2021.

“Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions - REPowerEU Plan (COM(2022) 230 Final); {SWD(2022) 230 Final}.” The European Commission, Brussels 2022. [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en).

“Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, and the Committee of the Regions: The European Green Deal (COM (2019) 640 Final).” The European Commission, December 11, 2019. [https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF).

“Proposal for a Regulation of the European Parliament and of the Council on Nature Restoration (COM(2022) 304 Final).” European Commission, June 22, 2022.

### **Other EU Documents**

European Commission. Directorate General for Environment. *EU Biodiversity Strategy for 2030: Bringing Nature Back into Our Lives*. LU: Publications Office, 2021. <https://data.europa.eu/doi/10.2779/677548>.

European Commission. Directorate General for the Environment. *Natura 2000 and Forests. Part I-II*. LU: Publications Office, 2015. <https://data.europa.eu/doi/10.2779/699873>.

European Commission. Joint Research Centre. *The Use of Woody Biomass for Energy Production in the EU*. LU: Publications Office, 2021. <https://data.europa.eu/doi/10.2760/831621>.

### **International Treaties**

“Convention on Biological Diversity (CBD).” United Nations, 1992. <https://www.cbd.int/>.



United Nations Framework Convention on Climate Change. “Paris Agreement”, 2015. <https://unfccc.int/process-and-meetings/the-paris-agreement>.

“United Nations Framework Convention on Climate Change (UNFCCC).” United Nations, 1992. <https://unfccc.int/>.

“Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests.” United Nations, June 1992.

### **Other International Documents**

“Quick Guide to Aichi Biodiversity Target 15.” Conference of the Parties to the Convention on Biological Diversity, n.d. <https://www.cbd.int/doc/strategic-plan/targets/T15-quick-guide-en.pdf>.

Conference of the Parties to the Convention on Biological Diversity. “Decision X/27 - Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets.” Secretariat of the Convention on Biological Diversity, October 2010. <https://www.cbd.int/doc/meetings/cop/cop-10/official/cop-10-27-en.pdf>.

*Global Forest Resources Assessment 2020*. FAO, 2020. <https://doi.org/10.4060/ca9825en>.

“Global Forest Resources Assessment 2020: Terms and Definitions.” Food and Agriculture Organisation of the United Nations, 2020. <https://www.fao.org/3/I8661EN/i8661en.pdf>.

### **Legal Cases:**

Sabo and Others v. Parliament and Council (Case T-141/19) (General Court of the European Union May 6, 2020).

Finnish Climate Case, No. KHO:2023:62 (Finish Supreme Administrative Court June 7, 2023).

Föreningen Skydda Skogen v. Länsstyrelsen i Västra Götalands län (Joined Cases C-473/19 and C-474/19) (European Court of Justice March 4, 2021).

## **Websites**

Biofuels Central. “Protests Against Vattenfall Biomass Plants”, April 27, 2022. <https://biofuelscentral.com/protests-against-vattenfall-biomass-plants/>.

Council of the European Union. “Renewable Energy: Council Adopts New Rules”, October 19, 2023. <https://www.consilium.europa.eu/en/press/press-releases/2023/10/09/renewable-energy-council-adopts-new-rules/>.

European Commission. “2030 Climate Targets.” *Climate Action* (blog), n.d. [https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2030-climate-targets\\_en](https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2030-climate-targets_en).

UNFCCC. “COP3”, n.d. <https://unfccc.int/event/cop-3>.

United Nations. “Paris Agreement Signing Ceremony.” *United Nations Sustainable Development* (blog), April 22, 2016. <https://www.un.org/sustainabledevelopment/blog/2016/04/parisagreementsingatures/>.

“Regulation on Land Use, Land Use Change and Forestry in 2030 Climate and Energy Framework Adopted.” *Climate Action* (blog), May 14, 2018. [https://climate.ec.europa.eu/news-your-voice/news/regulation-land-use-land-use-change-and-forestry-2030-climate-and-energy-framework-adopted-2018-05-14\\_en](https://climate.ec.europa.eu/news-your-voice/news/regulation-land-use-land-use-change-and-forestry-2030-climate-and-energy-framework-adopted-2018-05-14_en).

## **Literature**

Asselt, Harro van. “Forests at the Intersection of the Climate and Biodiversity Regimes.” In *Managing the Fragmentation of International Environmental Law*, 1205–78. New York University Journal of International Law and Politics (JILP), 2011.

Barredo, J.I., C. Brailescu, A. Teller, F.M. Sabatini, A. Mauri, and K. Janouskova. *Mapping and Assessment of Primary and Old-Growth Forests in Europe*. Luxembourg: Publications Office of the European Union, 2021.

Bravo, Felipe, Valerie LeMay, Robert Jandl, and Klaus von Gadow, eds. *Managing Forest Ecosystems: The Challenge of Climate Change*. Managing Forest Ecosystems 17. Berlin: Springer, 2008.

Van Der Werf, G. R., D. C. Morton, R. S. DeFries, J. G. J. Olivier, P. S. Kasibhatla, R. B. Jackson, G. J. Collatz, and J. T. Randerson. "CO2 Emissions from Forest Loss." *Nature Geoscience* 2, no. 11 (November 2009): 737–38. <https://doi.org/10.1038/ngeo671>.

"What Does 'Fit for 55' Mean for Forests?" Fern, n.d.

Taekema, Sanne, and Bart van Klink. "On the Border. Limits and Possibilities of Interdisciplinary Research", n.d. <http://ssrn.com/abstract=2221334>.

Smits, Jan M. "What Is Legal Doctrine? On the Aims and Methods of Legal-Dogmatic Research." *SSRN Electronic Journal*, 2015. <https://doi.org/10.2139/ssrn.2644088>.

Romppanen, Seita. "'Blind Spots' in EU Climate and Energy Law." *European Energy and Environmental Law Review* 29 (2020).

Savaresi, Annalisa. "Forest Biodiversity." In *Biodiversity and Nature Protection Law*, edited by Elisa Morgera and Jona Razzaque, 203–14. Elgar Encyclopedia of Environmental Law, volume III. Cheltenham, UK: Edward Elgar Publishing, 2017.

Langlet, David, and Said Mahmoudi. *EU Environmental Law and Policy*. First edition. Oxford, United Kingdom: Oxford University Press, 2016.

Lin, J. "Governing Biofuels: A Principal-Agent Analysis of the European Union Biofuels Certification Regime and the Clean Development Mechanism." *Journal of Environmental Law* 24, no. 1 (March 1, 2012): 43–73. <https://doi.org/10.1093/jel/eqr025>.

Lipschutz, Ronnie D. "Why Is There No International Forestry Law?: An Examination of International Forestry Regulation, Both Public and Private." *UCLA Journal of Environmental Law and Policy* 19, no. 1 (2000). <https://doi.org/10.5070/L5191019219>.

Maguire, Rowena. *Global Forest Governance: Legal Concepts and Policy Trends*. Cheltenham, UK: Edward Elgar, 2013.

Michanek, Gabriel, Göran Bostedt, Hans Ekvall, Maria Forsberg, Anouschka Hof, Johnny De Jong, Jörgen Rudolphi, and Astrid Zabel. “Landscape Planning—Paving the Way for Effective Conservation of Forest Biodiversity and a Diverse Forestry?” *Forests* 9, no. 9 (August 29, 2018): 523. <https://doi.org/10.3390/f9090523>.

Nabuurs, Gert-Jan, Eric J. M. M. Arets, and Mart-Jan Schelhaas. “Understanding the Implications of the EU-LULUCF Regulation for the Wood Supply from EU Forests to the EU.” *Carbon Balance and Management* 13, no. 1 (December 2018): 18. <https://doi.org/10.1186/s13021-018-0107-3>.

Norton, Michael, Andras Baldi, Vicas Buda, Bruno Carli, Pavel Cudlin, Mike B. Jones, Atte Korhola, et al. “Serious Mismatches Continue between Science and Policy in Forest Bioenergy.” *GCB Bioenergy* 11, no. 11 (November 2019): 1256–63. <https://doi.org/10.1111/gcbb.12643>.

Norton, Michael, Lars Walloe, Duncan Brack, Mary Booth, and Michael B. Jones. “Time Is of the Essence When It Comes to Forest Bioenergy.” *GCB Bioenergy* 14, no. 2 (February 2022): 108–9. <https://doi.org/10.1111/gcbb.12905>.

Olsson, Olle. “Cascading of Woody Biomass: The Tricky Path from Principle to Policy Practice.” *Swedish Environmental Institute*, 2017.

O’Sullivan, Robert, Toby Janson-Smith, and Richard Tarasofsky. *Climate Change and Forests Emerging Policy and Market Opportunities*. New York, NY: Brookings Institution Press, 2009.

### **Scientific documents**

*Climate Change 2021: The Physical Science Basis : Summary for Policymakers : Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva, Switzerland: IPCC, 2021.

“State of Europe’s Forests 2020.” Ministerial Conference on the Protection of Forests in Europe - FOREST EUROPE, 2020. [www.foresteuropa.org](http://www.foresteuropa.org).

“Forest Bioenergy, Carbon Capture and Storage, and Carbon Dioxide Removal: An Update.” *EASAC*, 2019. <https://easac.eu/publications/details/forest-bioenergy-carbon-capture-and-storage-and-carbon-dioxide-removal-an-update/>.

Pörtner, Hans-Otto, Robert J. Scholes, John Agard, Emma Archer, Almut Arneth, Xuemei Bai, David Barnes, et al. “Scientific Outcome of the IPBES-IPCC Co-Sponsored Workshop on Biodiversity and Climate Change.”, June 24, 2021. <https://doi.org/10.5281/ZENODO.4659158>.

