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Politics and Governance
2025, Volume 13, Article XXXX
https://doi.org/10.17645/pag.XXXX

The role of forests in EU environmental politics: discourse coalitions and storylines shaping the EU Nature Restoration Regulation

Author(s)

Abstract

The adoption of the proposal for an EU Nature Restoration Regulation (EU-NRR) in 2022 sparked controversial debates across environmental policy domains. The intensity of contestation during the ordinary legislative procedure was evident in the numerous amendments and close voting outcomes within the EU legislative institutions. Although the multi-level and multi-sectoral nature of the EU environmental policy arena provides numerous opportunities and venues for political networks to influence policy processes and their outcomes, the coalition dynamics and discursive power of environmental networks remain under-researched. These dynamics are particularly evident in environmental politics, where a variety of state and non-state actors, shaped by different interests and power structures, attempt to influence political processes based on their interpretations of reality. Drawing on the discourse coalition framework and the coalition magnet concept, this study examines how coalition formation and discursive power influence policy-making processes and their outcomes. Using Discourse Network Analysis (DNA), we analyze the policy debate around the EU-NRR to: i) identify supporting and opposing discourse coalitions, ii) uncover forest-related storylines, and iii) assess the influence of discourse coalitions and their storylines on the policymaking process and its outcome. In doing so, we place particular emphasis on forest ecosystems, which have historically played a minor role in EU policies. Based on an analysis of 328 public statements and a process tracing of key policy outputs, this study highlights how coalition formation and discursive power dynamics within political networks play a critical role in shaping environmental policy-making. Furthermore, it provides valuable insights into the development of the EU-NRR—the EU's first directly applicable and legally binding forest-related policy instrument.

Keywords

Discourse; discourse coalitions; storylines; Discourse Network Analysis; forest restoration; EU Nature Restoration Regulation

1. Introduction

The restoration of natural ecosystems has gained global importance. With the adoption of the EU Green Deal in 2019, the European Commission (EC) outlined ambitious goals to make Europe the first carbon-neutral continent by 2050. In this context, the preservation and restoration of ecosystems was established as an important policy priority. Mainly targeting agricultural, forest and water ecosystems, the EC tabled a legislative proposal for a Nature Restoration Regulation (NRR) in June 2022 (EC, 2022a). The proposal aimed to foster the continuous, long-term recovery of biodiversity, achieve overarching climate goals, and meet the EU's international commitments, including those under the Convention on Biological Diversity (CBD). In so doing, the EC attempted to move beyond voluntary biodiversity protection commitments—efforts that have yielded unsatisfactory results in the past—and to improve the conservation status of different ecosystem types and species protected within and outside the Natura 2000 network of protected areas established under the EU Habitats Directive (European Council, 1992). Additionally, it aimed to close the continuous regulatory gap for forests at the EU level by establishing legally binding restoration targets for forest ecosystems (EC, 2022b).

Following its adoption, the legislative proposal underwent an "unprecedented rollercoaster" (Cliquet et al., 2024, p. 2) in the history of EU environmental policy-making and received both substantial approval as well as significant political pressure (Hering et al., 2023; Tosun, 2023). Although the political negotiations occurred during a period of widespread unrest in agricultural and environmental policy both at the EU and national levels—culminating in heated farmer protests across the EU in 2023 and 2024 (Finger et al., 2024)—and despite strong opposition from influential actors as well as multiple last-minute attempts to derail the legislative process, a qualified majority was ultimately reached in Council in June 2024. This outcome ran counter to broader political trends of EU environmental policy dismantling.

We interpret the adoption of the EU-NRR as a significant shift in EU environmental policy, particularly given its provisions for forest ecosystems. Historically, forestry matters in the EU have been governed at the national level. To date, several EU Member States (EU-MS) have largely resisted greater EU involvement due to concerns about subsidiarity and the absence of a formal legal competence for forest policy (Edwards & Kleinschmit, 2013; Winkel & Sotirov, 2016; Roux et al., 2025). Over time, an increasing number of forest-related policies have emerged at the EU level from areas of shared competence (Winkel et al., 2013; Gordeeva et al., 2025). Recent notable examples include the EU Biodiversity Strategy for 2030 (EC, 2020), which calls for the strict protection of primary and old-growth forests within the EU, and the EU Deforestation Regulation (EUDR) (Regulation 2023/1115), aimed at reducing the EU's contribution to global deforestation and forest degradation (Berning & Sotirov, 2023). Collectively, these policy developments are often interpreted as the de facto establishment of an EU forest policy (Sotirov et al., 2021), a development that has encountered growing opposition from forestry stakeholders and forest-rich EU-MS (Dahm, 2021; Vanttinen, 2022).

This raises the crucial question of how the adoption of the EU-NRR—a significant shift in EU forest and environmental policy—came about, despite strong opposition and the EU's lack of formal competencies in forest policy. To answer this question, this study i) identifies the supporting and opposing coalitions that formed during the policy-making process, ii) examines the main arguments and storylines promoted by these policy stakeholders and their coalitions, and iii) assesses how coalitions and their storylines influenced the policy-making process and its outcome, particularly concerning forest ecosystems. We employ a policy network lens as an analytical approach, conceiving of policy-making as a bargaining process between state and non-state actors (Leifeld, 2011; Brockhaus & Di Gregorio, 2014), including political parties, interest groups and non-governmental organizations (Schaub & Metz, 2020). We situate this study within the literature on the politics of environmental networks, which has provided intriguing insights into the influence of coalition formation, power dynamics, and collaboration and conflict between policy actors on the policy process (Weible & Sabatier, 2005; Ingold, 2011; Ingold & Leifeld, 2016; Schaub & Braunbeck, 2020; Wagner et al., 2023).

EU environmental policy processes offer multiple venues for participation and influence by various state and non-state actors (Marks, 1996; Mahoney, 2004). In the case of the EU-NRR, the political pressure and the strong influence of various actors received widespread public and media attention (Mayr, 2023; Karjalainen, 2023; Taylor, 2023). However, there is limited scientific understanding of how actors involved in the debate shaped the policy process and its outcome. One example is provided by Cliquet et al. (2024), who analyze the development of the main policy outputs leading up to the text agreed upon in the trilogue negotiations. Hering et al. (2023) provide additional insights, attributing the highly contested nature of the process to the significant regulatory power of the bill. Further analyses of EU environmental policy processes (Sotirov et al., 2021) and trade-related policies (Sotirov et al., 2017; Berning & Sotirov, 2024), observed similarly intense debates and coalition struggles. However, in the field of EU forest-related environmental policy, empirical studies examining the influence of discourse and coalition formation on policy and practice remain limited, with de Koning et al. (2014) providing a notable example. Moreover, while further analyses of forest-related discourse emphasize the need to direct the focus on the politics and the institutionalization of discourse (Winkel et al., 2011), as well as the interplay between local and global factors (Leipold, 2014; Edwards et al., 2022), Leipold et al. (2019) found a lack of quantitative approaches to discourse analysis in the field.

Discourse, hereafter defined as ensembles of ideas and concepts that are produced and transformed in a particular set of practices and through which meaning is given to physical and social phenomena (Hajer, 1993), can play a crucial role in political and policy processes (Hajer, 2002; Schmidt & Radaelli, 2004; Schmidt, 2008; Leifeld & Haunss, 2012; Leifeld, 2017). It can constrain and precondition the set of feasible political actions, thereby shaping policy outcomes (Hajer, 1997; Schmidt & Radaelli, 2004; Hajer & Versteeg, 2005; Leifeld, 2017), including processes of both policy stasis and change (Leipold et al., 2019). Moreover, discourse can play a crucial role in shaping political agendas and influencing public opinion, which, in turn, affects political decision-making and policy implementation (Leifeld, 2017). Numerous studies have explored the influence of discourse and network formation in political processes (Shanahan et al., 2011; Fisher et al., 2013; Schaub & Braunbeck, 2020; Ghinoi & Steiner, 2020; Schaub, 2021; Nagel & Bravo-Laguna, 2022; Kuenzler et al., 2025). These network approaches to discourse and narrative analysis have explored mainly the diversity of policy positions among actors, their relationships, and how their interactions influence political outcomes (Schaub & Metz, 2020). By integrating discourse and network analysis with process tracing of policy documents and broader political developments, this study aims to advance the limited understanding of how coalition formation, discourse, and the interplay of power and ideas shape policy-making processes and outcomes in the EU environmental policy arena, particularly in the highly contentious yet under-researched area of forest policy.

The policy-making process of the EU-NRR—characterized by intense debates, narrow votes and significant public and political attention—provides a compelling case for examining the influence of discourse, coalition formation, and the

exercise of discursive power in environmental politics. This is mainly due to the pronounced importance of discourse in highly polarized and politicized decision-making contexts (Leifeld & Haunss, 2012). Against this backdrop, the present study goes beyond analyzing discourse and coalition formation to also evaluate their potential impact on policy-making processes and their outcomes. Furthermore, the study contributes to the limited body of literature on EU forest and environmental discourse by incorporating a quantitative approach to analyzing discourse and coalition formation.

We proceed by outlining our conceptual framework and theoretical underpinnings. After explaining our research strategy, we present our empirical findings on discourse coalitions, forest-related storylines and the legislative process of the EU-NRR. We conclude by discussing our empirical findings and offering final remarks.

2. Conceptual framework and theoretical underpinnings

2.1 Discourse coalitions and storylines

This study builds on Argumentative Discourse Analysis (ADA) and Hajer´s discourse coalition framework (1993, 2006). They highlight the critical role of ideas and power in shaping discourse, coalition formation, and policy-making processes. ADA aims to reveal the underlying meanings of statements by systematically analyzing the argumentative contributions in policy debates. It pays particular attention to shared and contested positions and justifications (Billig, 1987; Hajer, 2002), providing insights on how different policy actors position themselves within the discursive space. According to Hajer (1997), discursive spaces typically consist of multiple discourse coalitions vying for discursive hegemony. Discourse coalitions are groups of actors united by a shared social construct. To influence policy processes, they employ shared arguments to contest opposing positions, seeking to influence policy-making in line with their interests and ideas.

Hajer (2006) interprets politics as a "process in which different actors from various backgrounds form specific coalitions around particular storylines" (p. 71) that give meaning to specific physical or social phenomena. Storylines act as the medium through which actors attempt to impose their view of reality, advocate for specific social positions and practices and challenge alternative social arrangements (Hajer, 2006). Storylines play a crucial role in environmental political processes. They can simplify the discursive complexity of environmental issues, add a ritualistic character and permanence to policy debates, and enhance actors' understanding and discursive competence (Hajer, 1997). Beyond argumentative persuasion, coalitions also leverage manipulation and power dynamics to shape political and policy processes in line with their ideas and interests (Hajer, 1993).

The success of a discourse coalition in shaping politics according to its interests and ideas can be evaluated using several criteria (Hajer, 1993; Leifeld & Haunss, 2012). First, successful discourse coalitions are adept at integrating a variety of arguments into broad yet consistent storylines. Second, members of successful coalitions exhibit strong ideational alignment, remain united against competing coalitions and attract a broad constituency. Third, successful coalitions dominate the discursive space, and this dominance is reflected in institutional practices (Hajer, 1993). A discourse becomes hegemonic when two conditions are met (Hajer, 1997). First, the discourse reaches saturation. That is, it begins to dominate how meaning is assigned to specific phenomena. Second, it becomes institutionalized, with theoretical concepts and ideas being translated into institutional practices, such as concrete policies and organizational structures. Policy change is primarily driven by the ability of actor coalitions to persuade officeholders who share their views and possess political leverage and decision-making authority to support them (Boin et al., 2009; Sotirov & Winkel, 2016).

2.2 Coalition magnets

Since Hajer leaves the circumstances under which social constructs form and how they provide ideational cohesion for coalitions largely open (Wallaschek, 2020), this study further draws on the coalition magnet concept (Béland & Cox, 2016). Incorporating the coalition magnet approach into Hajer's discourse coalition framework has proven helpful in addressing criticisms about the ambiguous treatment of agency and the role of ideas in ideational research (Wallaschek, 2020). Moreover, it has offered valuable empirical insights into coalition formation on financial crisis management (Kiess et al., 2017) and international health policy (Khayatzadeh-Mahani et al., 2019).

The coalition magnet approach acknowledges the critical role of compelling ideas in coalition formation, emphasizing the importance of power in understanding the political effects of ideas. Compelling ideas are typically characterized by high valence and ambiguity. They can attract a broad range of constituencies and actor groups, thereby reinforcing coalition formation. Their vagueness and interpretive flexibility allow various stakeholders to align the ideas with their interests, thereby accommodating heterogeneous preferences and fostering broad social consensus. Accordingly, coalition

magnets are defined as ideas that appeal to a variety of actors and groups, and are used strategically by policy entrepreneurs to frame interests, mobilize support and build coalitions to achieve political goals (Béland & Cox, 2016).

For an idea to function as a coalition magnet, three conditions must be met (Béland & Cox, 2016). First, policy entrepreneurs must strategically deploy the idea as they search for new language to frame policy problems. Second, key decision-makers must adopt and promote the idea, thereby granting it legitimacy. Third, the idea must activate a policy preference among actors who were previously less engaged with the issue. Ideas that lend themselves to multiple interpretations and carry a strong positive and emotional resonance are particularly valuable to policy entrepreneurs seeking to build broad coalitions. Such ideas can help shift power dynamics and tip the balance in favor of their preferred policy outcome (Béland & Cox, 2016).

3. Methods and material

3.1 Discourse Network Analysis

This study employs Discourse Network Analysis (DNA) (Leifeld, 2017), which conceptualizes political discourse as a network phenomenon, highlighting the interdependence of arguments presented in policy debates. It combines qualitative content analysis of text data with Social Network Analysis (SNA), offering new insights into the dynamic development of policy debates (Nagel & Bravo-Laguna, 2022). DNA enables the identification of structures within policy debates, including actor coalitions, brokerage, and polarization, based on shared and contested storylines. We used the Discourse Network Analyzer (version 3.0) to analyze written and verbal statements made by policy actors involved in the policy debate surrounding the EU-NRR and to transform these statements into network matrices, connecting actors through storylines (Leifeld, 2017).

Due to the diversity of policy actors involved in environmental policy-making (Hajer, 1997; Jordan & Lenschow, 2010), we covered a wide range of organizations. We conducted an in-depth analysis of i) written statements submitted during a public consultation between June and August 2022, following the adoption of the legislative proposal (n = 209), ii) written statements from the main parliamentary groups, along with their contributions during public parliamentary debates between 2022 and 2024 (n = 71) and iii) oral statements made by representatives of national ministries during two Environment Council meetings held in March and June 2024 (n = 48). Statements written in languages other than English or German were translated into English using DeepL Translate Pro AI software. We downloaded oral statements from the Council meetings in their official English translations and transcribed them prior to coding.

Despite widespread media coverage and its significance in the policy debate, this study primarily focuses on statements made by policy actors within established policy forums. We do so for two reasons. First, the study focuses on how state and non-state actors strategically construct and articulate policy positions through original statements, particularly those who are directly involved in, affected by, and actively shaping policy-making processes and their outcomes. Second, since we consider policy actors as key agents who shape, negotiate and implement policy, concentrating on their statements enables a more direct assessment of coalition formation, the impact of these coalitions on outcomes of policy processes, and their exercise of power.

Throughout the study, we deliberately use the terms "discourse networks" and "policy networks". This is justified by the fact that we study the impact of shared and contested storylines (i.e., the discourse network) on the formation of actor coalitions in established policy forums (i.e., the policy network). Furthermore, we situate this study at a macro-analytical level, covering the entire policy-making process of the EU-NRR, including the influence of collaboration and conflict among actors on the outcome of the process, rather than just the policy debate itself. Lastly, insights from existing literature on coalition formation in the EU's forest and environmental policy domain have identified similar network structures (see e.g. Sotirov et al., 2021; Berning & Sotirov, 2024; Begemann et al., 2025), suggesting the identification of a policy network in the present study that extends beyond verbal interaction.

We applied a DNA coding scheme proposed by Leifeld (2017). Due to their expected greater and more sustained influence on political and policy processes (Sabatier & Weible, 2014; Eijk, 2018), we focused on organizations as the primary actors. We identified the key forest-related storylines promoted by different organizations and their respective stances to uncover the network structures within the policy debate, shaped by both consensual and conflictual storylines. Consistent with Hajer's discourse coalition framework, the identified storylines comprise shared and contested narratives, problem definitions, ideas, and metaphors related to forest ecosystem restoration.

We employed an iterative inductive-deductive coding approach to identify central storylines in the policy debate. Prior to coding the whole dataset, we used a sample of ten statements—five expected to support the bill and five expected to oppose it. Based on this sample, an intercoder reliability test was conducted with the second author of this study, revealing a high level of agreement on the coding criteria. The first author subsequently coded the remaining statements. Assigning a timestamp to each statement enabled a more detailed analysis of coalition formation throughout the policy-making process.

Statement codes were exported to the Visone visualization software, enabling both visual and quantitative analyses of network structures (Leifeld, 2017). To identify and analyze the formation of supporting and opposing coalitions, we plotted and analyzed average normalized one-mode actor congruence networks (Leifeld, 2013; Leifeld, 2017). In these networks, nodes (i.e., actors) are connected by edges (i.e., lines) if they share a common position. We applied two different algorithms to perform network cluster analysis. First, we used the non-hierarchical *Louvain algorithm* (Blondel et al., 2008) to assess the network's modularity. This algorithm facilitates the evaluation of network strengths and the identification of clusters within the network structures by grouping nodes into clusters when connections are stronger internally than externally. Additionally, we employed the *Backbone algorithm* to identify network structures based on the embeddedness of nodes within networks.

To evaluate the cohesiveness of actor coalitions and identify central actors and storylines, we calculated various network statistics, including network modularity, cluster-specific network densities, and standardized degree centralities. Centrality in policy debates can serve as a proxy for an actors' influence on policy processes. It measures the number of actors with whom an actor shares at least one storyline and takes on a value between 0 and 1. A value of 1 indicates maximum centrality, meaning all other actors replicate an actor's storyline. A value of 0 indicates that an actor's storyline is not replicated by other actors, suggesting a less influential role in the policy debate. Moreover, we continuously adjusted edge weights (i.e., strengths of edges) by applying edge weight filters both to the actor and concept network graphs. This approach allowed for more robust analyses of network structures, including the identification of clusters (Leifeld, 2017).

To assess the storylines primarily advanced by different actors during the policy debate, we plotted and analyzed average normalized one-mode concept congruence networks. Here, storylines are connected by edges when they were addressed together by at least one organization (Leifeld, 2013; Leifeld, 2017). Influential storylines were identified based on their centrality in the network and how frequently they were raised in the debate. We further analyzed two-mode subtract networks of the 10 most central actors per supporting and opposing coalition, as determined by the standardized degree centrality (Leifeld, 2013; Leifeld, 2017). The two-mode network, which showcases actors' links with storylines, enabled a more focused analysis of the main storylines employed by the most dominant actors during the policy-making process.

3.2 Process tracing

To assess the influence of coalition formation and storylines, we traced the broader development of the policy-making process and its main policy outputs. Process tracing enables descriptive and causal inferences about the temporal sequences of events (Collier, 2011) and can provide critical insights into how high-valence and ambiguous ideas shape power dynamics and policy outcomes (Béland & Cox, 2016). The included documents were identified from the official legislative procedure file (COD, 2022/0195). They comprised the Commission proposal (EC, 2022a), opinion papers from the responsible ENVI Committee and the associated Committees for Agriculture (COM AGRI) and Fisheries (COM PECH) as well as from the European Economic and Social Committee and the European Committee of the Regions, parliamentary texts adopted in committee and plenary votes (EP, 2023a; EP, 2024), the agreed text from the trilogue negotiations (EP, 2023b) and the final legislative text (Regulation, 2024/1991). The results section focuses on the findings from the main policy outputs, beginning with the legislative proposal, continuing through the text adopted by Parliament and following the trilogue negotiations up to the final legal text.

The explanation of outcome process tracing (Wagemann et al., 2020) focused on both the general legal provisions relevant to forest ecosystems and those explicitly targeting them. We examined how these provisions evolved throughout the policy-making process via text amendments and assessed how the storylines advanced by policy actors and their coalitions are reflected in these changes. The focus on forest-related provisions and amendments addressed all ecosystem types covered by the bill, including overarching restoration goals and targets, implementation, reporting and monitoring periods, derogation clauses, and the use of concrete language in the legal text, among others. For two reasons, we opted not to focus solely on forest-specific provisions. First, a narrow focus on these provisions was expected

to limit the scope for assessing the influence of discourse coalitions and their storylines on the policy-making process. Second, many general provisions (e.g., reporting requirements) are either directly or indirectly related to forest ecosystems.

The DNA findings were then compared with the process tracing results to draw causal inferences about the relationship between discursive power, coalition formation, changes in policy outputs, and the outcome of the policy-making process.

4. Results

4.1. Discourse coalitions

A total of 109 organizations raised their voices in the analyzed policy debate (see Table A2 in the Appendix). The organization types and their percentage shares are shown in Figure 1. Among the most represented organizations were governmental bodies, including national environmental ministries represented in the Council, as well as other national ministries and implementing agencies representing various policy areas (e.g., economy, climate and agriculture), forest and landowners and their associations, and environmental NGOs (ENGOs).

A noteworthy observation is that several individuals and organizations that participated in the public consultation simultaneously represented forestry and agricultural interests. While individual forest and landowners were later grouped under forest and landowner associations in the network graphs, we initially coded them separately to demonstrate their significant role in the public consultation. Moreover, the partly identical wording in the statements revealed that many actors initially categorized as 'individuals' were, in fact, directly affiliated with organized groups.

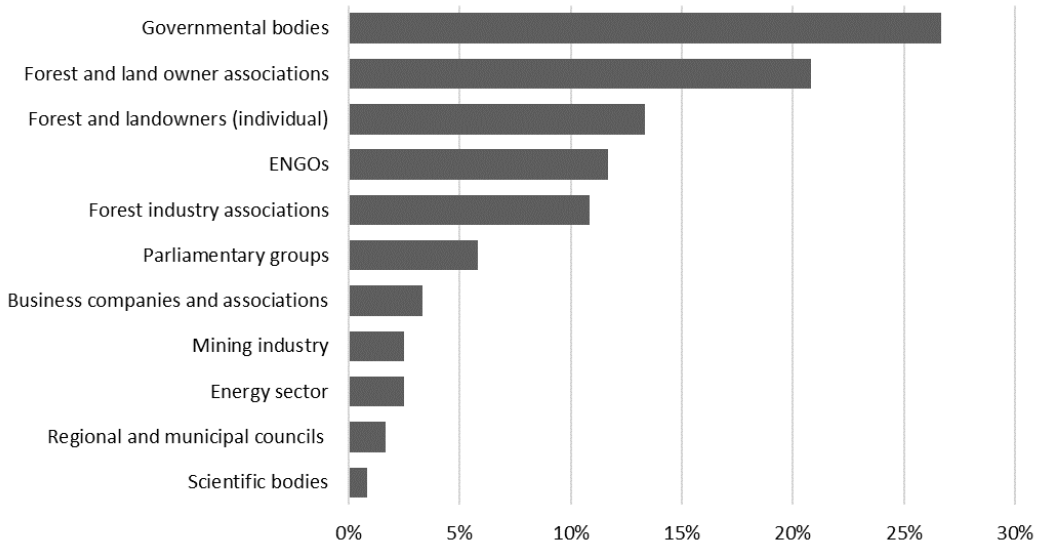

Figure 1: Percentage distribution of organization types participating in the forest-related policy debate.

Figure 2 displays the one-mode actor congruence networks for the periods 2022–2023 and 2022–2024. The cluster analysis and network visualization revealed two overarching discourse coalitions. These two coalitions were consistently confirmed as edge weights between nodes were progressively increased (see Figure A5 in the Appendix).

The supporting coalition, represented by the cluster on the right-hand side of Figure 2, primarily consists of center-left parliamentary groups (i.e., the Socialists and Democrats (S&D) and the Greens/EFA), ENGOs and environmental agencies and the majority of national ministries responsible for environmental policy in the Council. Many of these ministries, particularly those from influential EU-MS, such as Germany and France, joined the supporting coalition by issuing statements in the Council at a later stage of the analyzed policy debate. Members of the supporting coalition predominantly advocated for ambitious restoration targets and provisions, including for forest ecosystems.

The opposing coalition, represented by the cluster on the left-hand side of Figure 2, consists of center-right parliamentary groups, including the European People's Party (EPP) and the European Conservatives and Reformists (ECR). It also includes forest and landowner associations, industry representatives from primary sectors such as agriculture, forestry, and mining, as well as a minority of national ministries, particularly from forest-rich and agriculturally oriented EU-MS. These

actors frequently criticized the proposal for its perceived unrealistic objectives, its insufficient consideration of landowners' and industry needs and the strong influence of the EC in forest policy and management.

The cluster analysis revealed that the opposing coalition not only outnumbered the supporting coalition in terms of member organizations but also exhibited a higher network density (0.76 vs. 0.65), indicating a more substantial level of cohesiveness among its member organizations during the policy debate. At the same time, most of the governmental bodies that participated in the policy debate are part of the supporting coalition (also see Table A2), especially those holding decision-making power in the legislative process. Additionally, S&D and the Greens/EFA, which were among the most strongly represented parliamentary groups behind the EPP during the 2019–2024 constitutive session, appeared to play an active role in the analyzed policy debate, as reflected by the high number of statements issued.

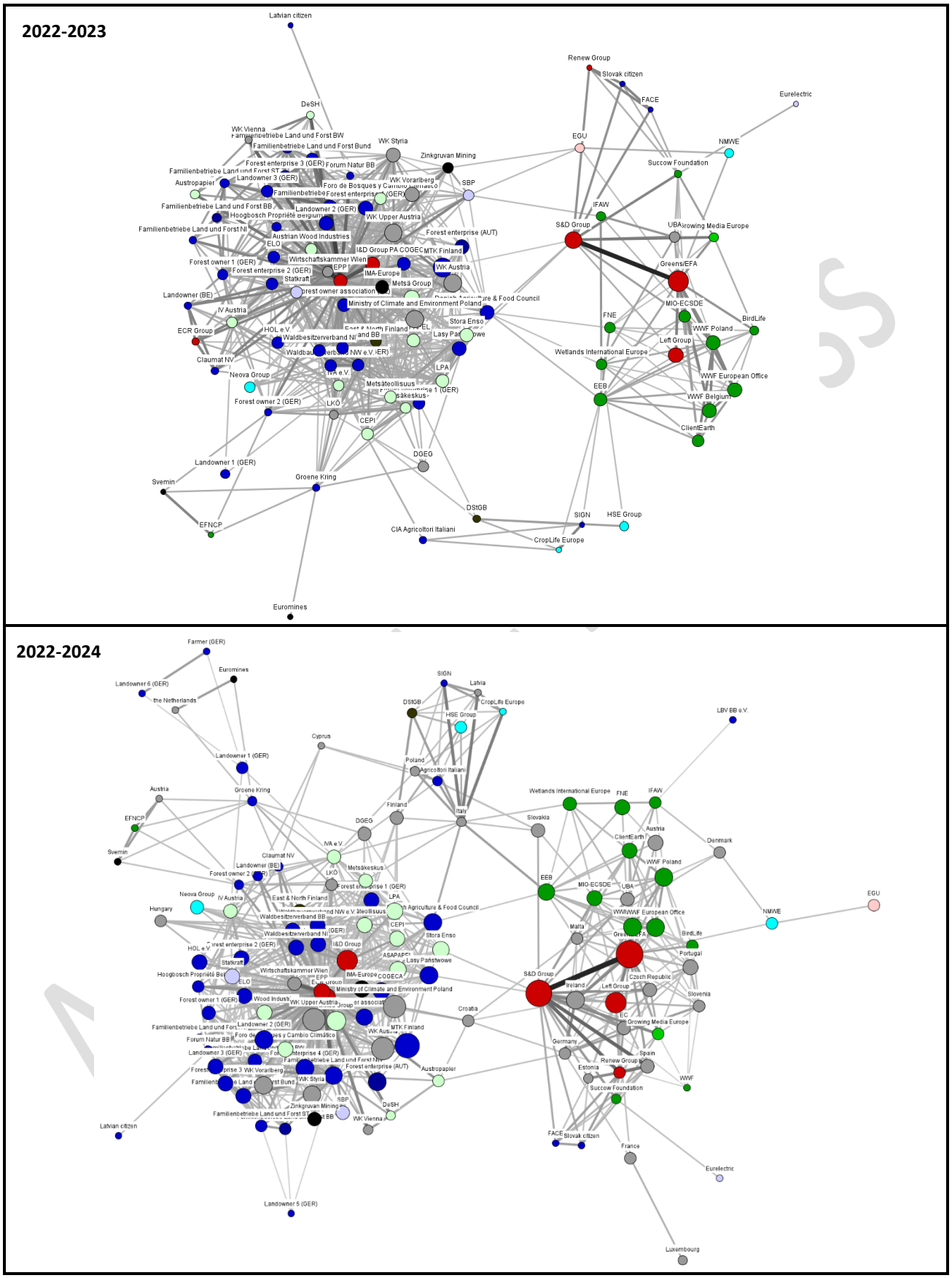

Figure 2: Backbone normalized one-mode actor congruence networks. A large node size indicates a high statement frequency during the debate. Thicker and darker lines between nodes (edges) indicate higher edge weights between nodes. Different node colors represent different organization types: grey: governmental bodies, blue: forest and landowner associations, dark green: ENGOs, mint green: forest industry associations, turquoise: business companies and associations, red: parliamentary groups, pink: scientific bodies, black: mining industry, pale violet: energy sector.

4.2 Forest-specific and forest-related storylines

The statement analysis revealed 14 central storylines (Table 1). Of these, seven were found to exhibit relatively little or no disagreement (consensual), while the remaining seven were characterized by significant disagreement across coalitions (conflictual). Six of the storylines directly addressed forest ecosystems, while the remaining eight were more indirectly related. They addressed issues such as perceived ambiguities in the legislative proposal and concerns about insufficient funding for forest ecosystem restoration.

Table 1 illustrates the centrality of storylines in the debate and the frequency with which policy actors supported or opposed them. Approximately three-quarters of the statements reflected a supportive stance, while the remaining quarter expressed opposition. However, it is important to note that whether a statement was coded as supportive or opposing depended on the specific formulation of each storyline, specifically whether it was framed positively or negatively.

Additional information on the identified storylines, including exemplary statements from members of the supporting and opposing coalitions, can be found in Table A3 of the Appendix.

Table 1: Central storylines of the EU-NRR forest-related policy debate, including their centrality in the policy debate and the agreement and disagreement among policy actors.

Level of disagreement	Storylines	Description	Degree centrality (std)	Agreement		Disagreement		Total	
				Σ	%	Σ	%	Σ	%
Low									
	State of European forests	European forests and their biodiversity are in a bad state and in need of restoration.	0.08	29	5.5	3	0.6	32	6.1
	Restoration financing	The financing of (forest) restoration measures is largely unclear.	0.20	36	6.8			36	6.8
	Global crises	Multiple global crises require strengthening domestic production and economies (of the primary sectors).	0.21	18	3.4			18	3.4
	Leakage	Restoration of forest ecosystems will lead to outsourcing of biomass production, thereby relocating climate and biodiversity impacts to non-EU countries.	0.26	18	3.4	5	1.0	23	4.4
	Legal ambiguity	Definitions (e.g. good condition, favorable reference areas) and wording in legislative proposal are largely unclear.	0.27	23	4.4	1	0.2	24	4.6
	Bureaucratization	The legislative initiative comes along with a great administrative burden for forest and landowners, ministries and implementing agencies.	0.27	23	4.4	1	0.2	24	4.6
	Expropriation	The law poses a risk to land ownership and supports the expropriation of land.	0.28	13	2.5	2	0.4	15	2.9
High									
	Restoration site	Restoration measures (including forest ecosystems) should be implemented in already established Natura 2000 sites.	0.24	9	1.7	3	0.6	12	2.3
	Forest restoration cost-benefit	The costs of forest restoration outweigh the benefits. Opportunity costs and losses are not accounted for in cost-benefit assessments.	0.27	21	4.0	8	1.5	29	5.5
	Subsidiarity	The direct setting of legally binding forest ecosystem restoration indicators goes beyond the EU's competence.	0.31	36	6.8	21	4.0	57	10.8
	Feasibility	The law imposes unrealistic and non-achievable restoration goals. Restoration baselines build on a lack of evidence.	0.35	32	6.1	24	4.6	56	10.6
	Local participation and inclusion	Local expertise and necessities are insufficiently included in the legislative proposal and policy-making process (top-down approach).	0.35	41	7.8	21	4.0	62	11.8
	Forest disturbances	Forest restoration will increase the risk of climate disturbances, undermining climate change adaptation and biodiversity restoration goals.	0.38	26	4.9	23	4.4	49	9.3
	Production restriction	Forest restoration will impose production restrictions and promote forest set-asides, threatening forestry and rural economies.	0.41	68	12.9	21	4.0	89	16.9
Sum				393	74.7	133	25.3	526	100

The most central storylines were identified through standardized degree centrality. They were primarily advanced by members of the opposing coalition and included mainly conflictual storylines, such as the production restriction, forest disturbance, local participation and inclusion, and feasibility storylines. Figure 3 shows the average normalized one-mode concept congruence network. Edge weights of 0.25 or less were filtered out to determine the underlying network structure. Notably, more conflictual storylines (black nodes) are voiced more frequently and together, particularly by the opposing coalition. This dominance is further reflected in the higher network density of conflictual storylines (0.81), compared to consensual storylines (green nodes, 0.38). The latter appear to have played a less central role in the policy debate, underlining the high degree of polarization.

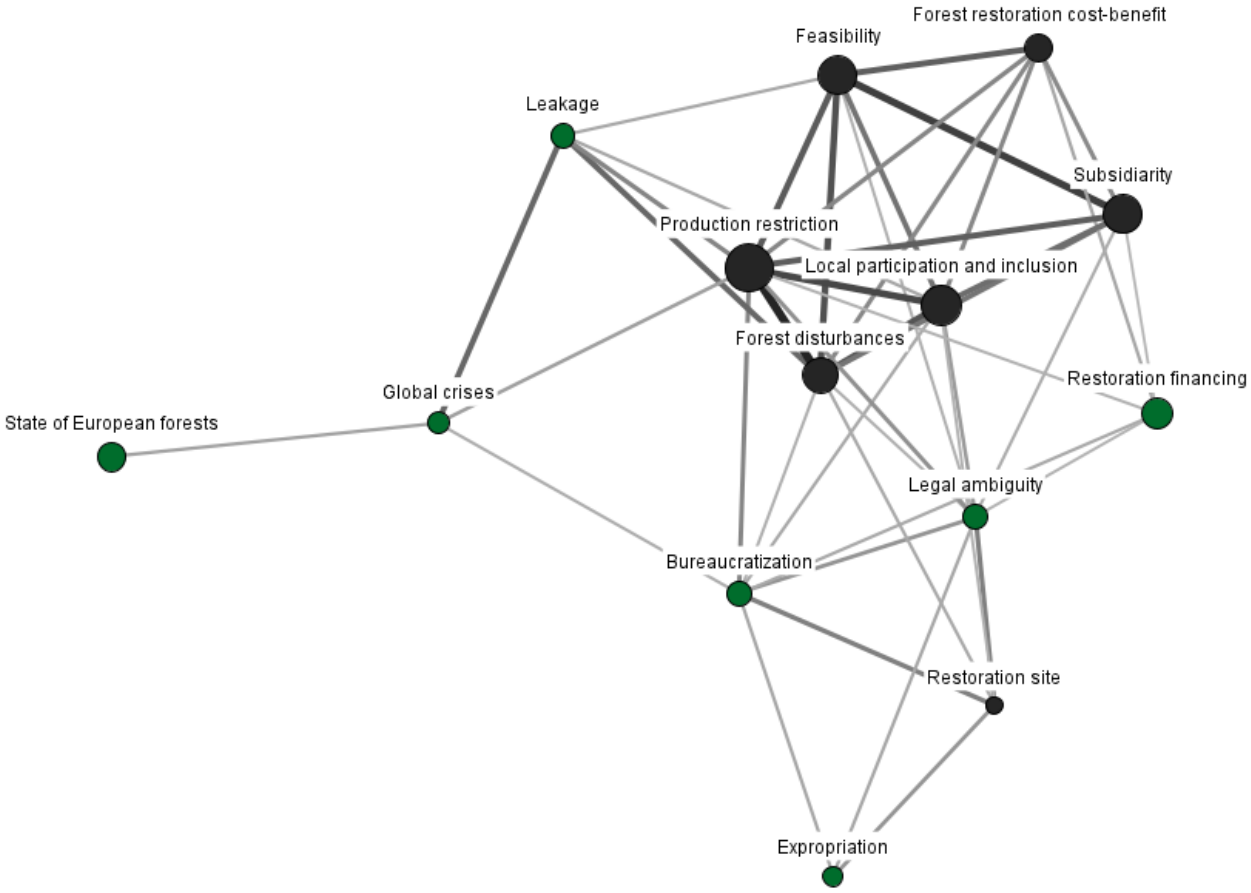

Figure 3: Average normalized one-mode concept congruence network (filtered edge weights ≤ 0.25). Green nodes: more consensual storylines; black nodes: more conflictual storylines. The larger the node size, the more frequently the storyline was referenced during the policy debate. Thicker and darker edges indicate higher edge weights, meaning that organizations mentioned the respective storylines together or in the same context.

Figure 4 shows the two-mode subtract network. It provides further insights into the storylines promoted by the 10 most central actors from the supporting and opposing coalitions, respectively. While certain storylines, such as those concerning restoration finance and legal ambiguity, elicited broad consensus across coalitions, other issues proved highly polarizing. In particular, there were strongly opposing views on whether forest restoration provisions impose production restrictions and whether they help mitigate or instead exacerbate forest disturbances.

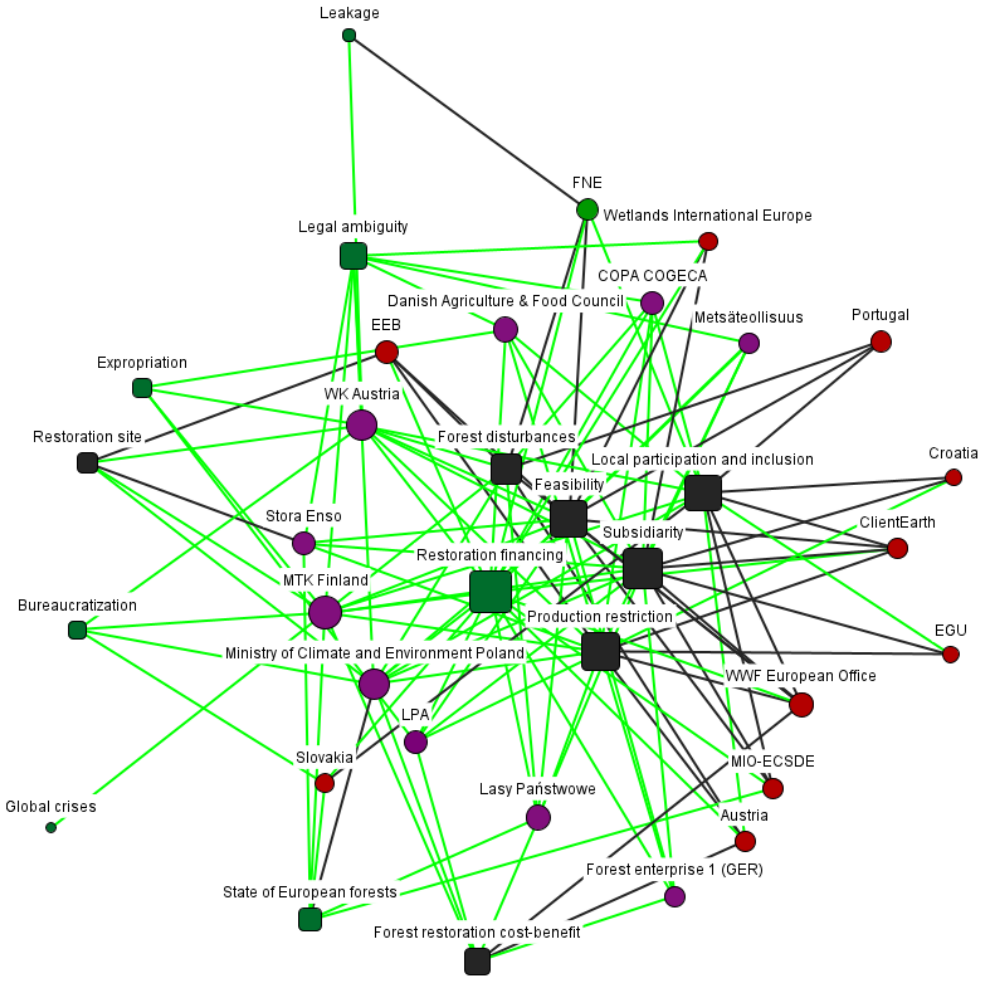

Figure 4: Two-mode subtract network. Purple nodes: The 10 most central organizations from the opposing coalition. Red nodes: The 10 most central organizations from the supporting coalition. Black squared nodes: more conflictual storylines. Green squared nodes: more consensual storylines. Green edges: agreement. Black edges: disagreement.

In what follows, we will present qualitative insights into the four most conflictual forest-specific storylines, which were most frequently addressed in the statements and exhibited high degree centralities in the debate (see Table 1 and Figure 3).

4.2.1 Production restriction storyline

A dominant narrative in the policy debate centered on the perceived impact of forestry production restrictions, particularly concerns over increasing management limitations and forest set-asides supposedly mandated by the EU-NRR. This debate was often linked to the role of forests in mitigating climate change, specifically whether climate goals could be better achieved through forest conservation or wood-based carbon storage. The opposing coalition advanced the narrative that the bill would threaten forestry and rural economies, a concern prominently expressed by European People´s Party (EPP) Chairman Manfred Weber. He repeatedly argued that “the main instrument the law proposes is to reduce productive land, including forest land […] an idea that already exists in the Common Agricultural Policy (CAP), called set-aside […]” (Weber, 2023, p. n/a).

This storyline was widely echoed by forest owner and industry associations, who criticized the bill for emphasizing the carbon storage potential of standing forests while overlooking the carbon storage capacity in wood products. The debate over whether forest ecosystem restoration would result in production restrictions was frequently linked to the restoration site storyline. Due to concerns over additional management restrictions outside protected areas, the opposing coalition strongly advocated for focusing restoration efforts within designated Natura 2000 sites. In contrast, the supporting coalition welcomed the extension of forest ecosystem provisions beyond the habitat types covered by the

EU Habitats Directive. These divergent views shaped policy amendments: while the original proposal included areas beyond Natura 2000, the text adopted in Parliament limited the scope, only for the final text to re-extend coverage beyond the network.

4.2.2 Forest disturbance storyline

> *"Forests are currently burning across Europe. Huge areas are releasing enormous amounts of carbon dioxide and remaining wastelands. The EU-NRR runs the risk of making it more difficult for forests to adapt to climate change by further restricting use and increasing the proportion of deadwood, and creating structures that further promote forest fires."* (German agriculture and forestry enterprise, 2022, p. n/a; translated from German)

The debate on forest ecosystem restoration was characterized by strongly opposing views on the relationship between forest restoration and natural disturbances. Supporters of the bill, such as S&D, emphasized that "improved nature also helps rural areas […] cope with extreme weather events, safeguarding against wind, droughts, and floods" (Luena, 2023, p.n/a). In contrast, opponents of the bill raised concerns about the role of forest restoration in exacerbating forest disturbances, particularly regarding the required increase in standing and lying deadwood, as well as the enhancement of forest connectivity. Concerns raised by the opposing coalition regarding deadwood indicators led to their temporary removal from the forest ecosystems article in the parliamentary text, following amendments tabled by the EPP.

4.2.3 Subsidiarity storyline

Diverging views on the EU's competence for forest policy have sparked contentious debates across coalitions. For instance, the Central Union of Agricultural Producers and Forest Owners in Finland (MTK Finland) pointed to a growing trend of expanding the Commission's authority relative to other EU institutions and EU-MS. Moreover, several organizations criticized the provision in Chapter V of the legislative proposal, which grants the Commission the power to adopt delegated acts, particularly the authority to amend the annexes, including those related to forest ecosystem indicators.

The direct establishment of forest ecosystem indicators faced widespread criticism from various groups, including a Czech forest owner association, which called for the removal of all forest ecosystem indicators, and MTK Finland, which urged the Commission to fully respect EU-MS' national competence for forest policy, pointing at the limited applicability of a fixed set of forest ecosystem restoration indicators across European bioregions. On the other hand, some supporters of the bill even raised concerns that too much freedom given to EU-MS in national implementation could lead to ineffective action at the national level. They argued in favor of establishing forest ecosystem restoration indicators at the EU level to ensure consistency and avoid disparities across EU-MS.

Despite disagreements among policy actors regarding the EC's competence in forestry matters, which led to the temporary removal of the article on forest ecosystems during negotiations, the provision remained in the final legal text, albeit in a weakened form.

4.2.4 Forest restoration cost-benefit storyline

The economic impacts of forest restoration and restoration measures more broadly were another controversial point in the policy debate. This topic was closely linked to the broader discussion on restoration financing, where both the opposing and supporting coalition raised concerns about funding bottlenecks for forest restoration. While the EC highlighted the potentially high returns on restoration investment in its impact assessment (EC, 2022b), opponents contested these estimates. They criticized the reliance on EU-wide average values and the failure to account for the opportunity costs of restoration.

These concerns were particularly prominent among forest owners and industry associations from forest-rich and agriculturally oriented EU-MS. For example, the silviculture association of North Rhine-Westphalia in Germany argued that the cost-benefit calculations for forest ecosystems failed to account for the role of forest owners and managers, as well as the broader range of ecosystem services provided by forests. Similarly, MTK Finland emphasized the notably high costs of ecosystem restoration in Finland, primarily due to the large proportion of potentially restorable former peatlands and the associated loss of forestry production potential. These concerns were frequently echoed by national ministries, including Finland's Environment Minister, Kai Mykkänen, who justified Finland's rejection of the bill by pointing to the country's exorbitant restoration costs.

4.3 Key developments of the legislative process

4.3.1 Commission proposal

To meet nature restoration and climate mitigation goals, Article 4 of the Commission's EU-NRR proposal requires EU-MS to restore at least 30% of listed habitat types by 2030, 60% by 2040, and 90% by 2050. These targets complement existing EU environmental policies, such as the Habitats and Birds Directives, by introducing clear restoration goals and deadlines both within and beyond Natura 2000 sites. The proposal promotes a landscape-scale restoration approach across diverse ecosystems—including marine, agricultural, and forest ecosystems—and obliges EU-MS to develop national restoration plans that quantify areas in need of restoration. In addition, it mandates the monitoring of restoration indicators and requires annual electronic reporting from the date of the regulation's entry into force, followed by triennial updates.

Forest ecosystems play a central role in the proposal, with their importance for biodiversity protection, climate change mitigation and adaptation, as well as the provision of both wood and non-wood ecosystem services, highlighted in the preamble. Article 10 of the Commission's proposal is the key provision addressing forest ecosystems. It requires EU-MS to implement restoration measures aimed at improving forest conditions by ensuring increasing national trends across seven forest ecosystem restoration indicators. These include a) standing deadwood, b) lying deadwood, c) the share of forests with uneven-aged structure, d) forest connectivity, e) the common forest bird index and f) the stock of organic carbon.

4.3.2 Parliamentary amendments and plenary vote

Votes in the Council—and particularly in the European Parliament (EP)—in June and July 2023 resulted in numerous changes to the legal text, weakening the ambition of the legislative proposal (Cliquet et al., 2024). Many of these changes directly impact the provisions on forest ecosystems and reflect storylines advanced by the opposing coalition (e.g., the forest disturbance and restoration site storylines). Although rejection requests from COM AGRI and COM PECH were overturned in the COM ENVI vote, forest ecosystem and peatland restoration targets were temporarily removed from the legal text as part of approximately 2,500 amendments. This was mainly due to subsidiarity concerns regarding the EU's authority over forestry, as, for example, raised by the European Economic and Social Committee, which also called for greater consideration of increasing natural disturbances in Europe and a stronger balance between natural resource preservation and exploitation.

While forest ecosystems were reintroduced following the Parliament's plenary vote, forest-specific provisions underwent far-reaching amendments. At the request of the EPP, forest-specific recitals were removed and Renew Europe proposed that forest restoration obligations be met using a reduced set of mandatory indicators—namely a) standing deadwood, b) lying deadwood, and c) the common forest bird index. Additionally, a list of eligible indicators was suggested, encompassing d) the share of forests with uneven-aged structure, e) forest connectivity, f) the share of forests dominated by native tree species, g) tree species diversity and h) the stock of organic carbon. Subsequent amendments proposed by the EPP led to the removal of both standing and lying deadwood indicators from the bill, primarily due to forest disturbance concerns raised by the opposing coalition. Further modifications in response to concerns related to climate change impacts included the addition of a third paragraph to Article 10, outlining exemptions to forest restoration obligations in cases of large-scale force majeure events, such as natural disturbances, and climate change-related habitat transformations.

The narrow votes and the substantial weakening of the legal text following the parliamentary votes triggered widespread concern and mobilization among the general public, scientists, major corporations, and business associations. Backed by ENGOs, the "RestoreNature" campaign mobilized over one million messages and signatures from the broader public, urging EU decision-makers to ensure the final adoption of the bill (WWF, 2023; ClientEarth, 2023). Additionally, approximately 6,000 scientists expressed concerns about the ongoing discussions surrounding the EU Green Deal and, in particular, the EU-NRR as a flagship policy (Pe´er et al., 2023). They highlighted the lack of evidence supporting specific claims and refuted the arguments put forward by the bill's opponents. Throughout the legislative process, the supporting coalition gained additional support from major corporations and business associations, including Nestlé, Coca-Cola, and IKEA, all of which demonstrated exceptional engagement with the issue. In joint letters issued in June 2023 and May 2024 (Our Nature, Our Business, 2024), they urged all Members of the European Parliament (MEPs) and the EU-MS to adopt the bill.

Parliament adopted additional, more general amendments that further weakened the proposal. These amendments reflected several storylines advanced by the opposing coalition, including those concerning global crises, feasibility, production restrictions, and cost-benefit considerations for restoration and largely aimed to secure greater flexibility to protect economic interests (Cliquet et al., 2024). They include i) the weakening of key restoration provisions—for example, changing 'shall put in place' to 'shall aim to put in place' in Article 4, §1, ii) limiting the scope of restoration to Natura 2000 sites currently in poor condition, iii) weakening the non-deterioration clause for restored areas and iv) the removal of restoration provisions for agricultural ecosystems and peatlands from the text.

In addition to weakening the regulatory provisions for forest ecosystems, Amendment 80, proposed by shadow rapporteur César Luena on behalf of the S&D, incorporated the EU Biodiversity Strategy's commitment to planting three billion trees by 2030 into the legal text, thus granting the commitment legal status.

While Mick Wallace, the shadow rapporteur for the Left Group, welcomed the survival of the bill following the parliamentary vote, he lamented that the text passed by Parliament had been "absolutely gutted", remaining only "a shell of the Commission's proposal" (Wallace, 2023, p. n/a).

4.3.3 Trilogue agreement

The trilogue agreement reached in November 2023 reversed several amendments made by Parliament (Cliquet et al., 2024). Provisions on agricultural ecosystems and forest-specific recitals were reintroduced into the text, and the scope of terrestrial restoration was again expanded beyond Natura 2000 sites, as advocated by the supporting coalition. Regarding forest ecosystems, standing and lying deadwood were reintroduced to the text. In response to widespread concerns from the opposing coalition about the interaction between forest disturbances and restoration, additional clauses were added to Article 10, requiring EU-MS to carefully assess forest fire risks before implementing forest restoration measures.

Although the trilogue agreement aligns more closely with the legislative proposal, it comprises various concessions to the opposing coalition, particularly the farming sector, as reflected in the key provisions of the final legislative. These include i) the addition of food security enhancement as a standalone legal objective, ii) an exemption for the re-programming of CAP and Common Fisheries Policy (CFP) or other related funding programs under the 2021-2027 Multiannual Financial Framework (MFF) for restoration measures and iii) the introduction of a new article on temporal suspensions—the so-called "emergency brake". This provision grants the EC the authority to adopt implementing acts that temporarily suspend the agricultural ecosystem provisions in the event of an emergency that significantly affects land availability or food security.

While MEP Christine Schneider, the EPP's shadow rapporteur, highlighted notable improvements to the initial proposal that better addressed agricultural concerns, César Luena (S&D) emphasized the preservation of the bill's original objectives and the strengthening of provisions for forest ecosystems.

4.3.4 Final adoption

Despite the EPP's last-minute decision to withdraw its support for the negotiated text, the Parliament gave its final approval in February 2024. However, the Council's failure to reach a qualified majority at its March 2024 meeting sparked significant concern among EU-MS representatives. Several national ministers pleaded for the bill's final adoption, warning that failure to do so would raise fundamental questions about the credibility of the EU's political system and the integrity of the ordinary legislative procedure. As the then-Irish Minister of the Environment, Eamon Ryan, famously stated:

> "[...] *and if we're to say here as a Council, we've changed our mind, we entered into negotiations, we agreed with the Parliament, the Commission, but now we think differently, how would any future trial of negotiations have any real confidence? How could any parliamentarian say, I'll compromise here, I'll take a risk, I'll expose myself because I'll get a deal, and then we'll have a deal done? If we don't agree to what we've already negotiated, we undermine the entire European legislative process* […]." (Ryan, 2024, p. n/a)

They also questioned the EU's intended pioneering role in international environmental policy if the Council failed to adopt the negotiated law.

> "*During the Czech presidency, we negotiated in biodiversity COP conference a very good deal, something that the European Union may take forward. What are we going to do now? What are we going to do in autumn in*

> *this conference if we have no law on nature restoration? What are we going to say? What happens to our trustworthiness if we're talking about 2040 goals, about our future, about climate goals, about water protection? We are no longer trustworthy, we are only talking*." (Hladík, 2024, p. n/a)

Efforts to persuade opposing EU-MS to reconsider their rejection gained momentum with a joint letter from environment ministers in May 2024 (Politico, 2024). Eamon Ryan, who emerged as a key policy entrepreneur of the bill, led the letter that was signed by ministers from eleven EU-MS, including influential countries like France, Spain, and Germany. It urged all EU-MS to finalize the process and adopt the bill at the Council meeting in June 2024. These efforts proved successful, with both Slovakia and Austria shifting their positions. Notably, Austria's former Environment Minister Leonore Gewessler voted against her government's official stance, which ultimately helped secure a qualified majority.

The final legal text, adopted by the Council on June 17 2024, closely aligns with the outcome of the trilogue agreement. Despite its temporary removal during the legislative process, forest ecosystems remain a key focus under Article 12. While the common forest bird index remains the only mandatory forest ecosystem indicator, seven eligible indicators are listed under Paragraph 3. EU-MS must demonstrate a nationally increasing trend for at least six of these indicators, measured from the regulation's entry into force through the end of 2030, and every six years thereafter.

5. Discussion

We can compare and analyze our findings through two key strands of policy and forest science studies. The first focuses on how discourse, coalition formation, and the exercise of discursive power can influence policy-making processes and their outcomes, including processes of policy change. Second, we discuss our findings in the context of existing literature on EU forest and environmental policy-making processes. Although the importance of discourse in policy-making is increasingly recognized in political science, research explicitly addressing the forest policy subsystem at the EU level remains limited. This is surprising given the high polarization of forest environmental discourse at the EU level (de Koning et al., 2014) and the particularly critical role of discourse in highly polarized and politicized decision-making processes (Leifeld & Haunss, 2012).

While policy-making processes are often shaped by competing discourse coalitions argumentatively vying for control over outcomes (Hajer, 1997), dominant coalitions are expected to have the most significant influence on the outcome of the policy-making process (Schaub & Metz, 2020). Successful discourse coalitions are characterized by showing strong ideational congruence, unity against opposing coalitions and broad support (Hajer, 1993). In this context, the literature on policy networks suggests that the structure of networks can significantly impact the policy-making process and its outcome. Policy change is less likely to occur when a unitary coalition structure dominated by a single, homogeneous coalition persists. Conversely, when discursive hegemony is challenged by the emergence of a competing coalition, resulting in a polarized network, and the challenger succeeds in discursively dominating the policy process, policy change becomes more likely. Such change is more likely to endure if the newly formed coalition successfully establishes discursive hegemony (Ingold & Gschwend, 2014; Schaub & Braunbeck, 2020).

Our empirical observations only partially corroborate the theoretical considerations outlined above. While our analysis reveals a strongly polarized policy network as a precursor to policy change, evaluating the success of discourse coalitions in influencing the policy-making process requires a more detailed assessment. Notably, the opposing coalition significantly influenced the process and its outcome (Cliquet et al., 2024). Their rejection and skepticism towards forest restoration provisions were packed into a broad set of storylines that dominated the analyzed debate. These storylines skillfully simplified the complexity of the restoration idea, giving the debate a ritualistic character. For example, the bureaucratization and expropriation storylines were frequently echoed by numerous non-state actors during the public consultation, and they continue to dominate ongoing forest and environmental policy debates both at the EU and EU-MS level. The dominance of the opposing coalition is further reflected by the greater number of aligned actors and a higher network density compared to the supporting coalition. Its interests and ideas strongly influenced the analyzed policy debate and are evident in the numerous text amendments throughout the negotiation process. Nevertheless, its attempts to undermine or obstruct the legislative process ultimately failed, not least because of the lack of political leverage and decision-making authority, allowing the supporting coalition to prevail in the policy-making process.

Following a tumultuous policy-making process, the restoration discourse gained dominance in the EU environmental policy domain and was ultimately institutionalized with the adoption of the EU-NRR. This outcome was largely driven by the strong advocacy of major parliamentary groups, particularly the Greens and the S&D, as well as various influential

EU-MS represented in the Council. Throughout the policy-making process, they skillfully harnessed the emotional appeal and ambiguity of the restoration idea to attract and mobilize a broad constituency from inside and outside the analyzed policy network, including from the scientific community, the private sector, and the general public. The ambiguity of forest restoration (Stanturf et al., 2014), appears to have prompted starkly contrasting viewpoints among discourse coalitions, such as regarding the relationship between forest restoration and climate disturbances, and have further contributed to implementation conflicts on the ground (O'Brien et al., 2025). However, this very ambiguity seems to have offered enough interpretive flexibility and strong ideational cohesion to bring together a range of actors and align their diverse interests around the (forest) restoration idea. This expanded engagement reshaped power dynamics within the policy network, ultimately tipping the balance in favor of the supporting coalition's preferred outcome (Béland & Cox, 2016).

We argue that the remarkable mobilization and the outcome of the policymaking process were primarily facilitated by the forest restoration idea's role as a strong coalition magnet (Béland & Cox, 2016). While the (forest) ecosystem restoration movement originated primarily at the international level (Shelton et al., 2024), it has recently gained significant momentum within the EU. In the context of European forests, however, the necessity to diversify forest structures and improve and conserve key biodiversity indicators, such as deadwood and forest bird populations, has long been recognized. Influential state (e.g. parliamentary groups) and non-state actors (e.g. ENGOs) strategically adopted and advanced the internationally established restoration idea to address long-standing policy challenges, particularly climate change and biodiversity loss, and the vital role of forest ecosystems in this context. Over time, key decision-makers, including various MEPs and national ministers in the Council, emerged as strong promoters of the bill. They consistently emphasized the urgency of restoring natural ecosystems to combat biodiversity loss and support climate change mitigation, thereby granting it substantial legitimacy. Moreover, they skillfully elevated the policy debate by challenging the credibility of both the ordinary legislative procedure and EU institutions, while also questioning the EU´s claimed role as global environmental leader, should the adoption fail.

Despite the influential role of the opposing coalition, which successfully incorporated far-reaching text amendments that led to a general weakening of the legislative proposal (Cliquet et al., 2024), the adoption of the EU-NRR marks a substantial change in EU environmental policy, particularly in the realm of forest policy. The institutional framework for forest policy at the EU level has historically been shaped through forest-related policy areas. They include the field of environmental policy, in particular through the EU Birds and Habitats Directives, which remain rather vague in terms of specific forest management obligations (de Koning et al., 2014; Sotirov et al., 2021), and agricultural policy, as financing instrument for forestry measure at the EU level (Fleckenstein, 2024). By formulating directly applicable and legally binding indicators and targets for forest ecosystem restoration in the EU-NRR, the EC is, for the first time, exerting direct influence over forest policy and management in the EU-MS. As a regulation, the EU-NRR does not require legal transposition into national legislation, allowing for direct applicability across EU-MS. This aligns with observations that the EC is effectively creating a de facto forest policy through related areas of shared competence, particularly environmental policy (Sotirov et al., 2021; Gordeeva et al., 2025).

Insights from the policy-making process and its outcome become even more striking when compared to earlier policy-making processes in the EU forest environmental policy domain. In their analysis of the coalitional politics of the EU Habitats Directive, Sotirov et al. (2021) found that its final adoption in 1992 was possible, among others, by the poorly organized forest sector interest groups at the EU level at that time. Notably, several forest-rich EU-MS, including Finland and Sweden, which typically oppose EU legislative initiatives related to forests (Winkel & Sotirov, 2016; Sotirov et al., 2017; Begeman et al., 2025), were absent during the adoption, only having joined the EU in 1995. Moreover, at that time, the EP—whose internal vote significantly weakened the draft EU-NRR legislation (Cliquet et al., 2024)—only held an advisory role in the policy-making process, as it was not granted legislative power until the introduction of the co-decision procedure in the Maastricht Treaty in 1993 (Sotirov et al., 2021).

Although political discourse and the associated storylines played a key role in shaping the EU-NRR, we argue that they should not be considered the sole factors influencing policy-making and policy change processes (Schmidt & Radaelli, 2004). Instead, the political leverage and decision-making power within actor coalitions, the broader political context of the discourse, and the emotional appeal and ambiguity of the debated topic all played a crucial role in shaping coalition formation and the outcome of the legislative process examined in this study. Therefore, a narrow consideration of network metrics (e.g., network density and the number of affiliated actors) seems insufficient when assessing the

influence of actor coalitions on such processes. This is because these metrics are strongly influenced by pre-determined network boundaries and may be offset by the political influence and decision-making power embedded in actor coalitions. However, given the difficulty of comprehensively analyzing the statements and arguments of the wide range of actors typically involved in environmental politics, studies of environmental networks and their influence on policy processes should carefully account for factors beyond the boundaries of the networks under analysis. In the present study, these factors appeared to have paved the way for the successful adoption of the EU-NRR amid political turbulence and mounting opposition to EU environmental policy.

6. Conclusion

This study examines the EU-NRR negotiation process to assess the influence of discursive power, as manifested through coalition formation and the advancement of storylines, on EU environmental policy-making. By combining DNA and a process-tracing of key policy outputs and broader political developments, we identified a dominant opposing coalition whose interests and ideas are strongly reflected at different stages of the process. At the same time, we observed significant mobilization among various actor groups outside the analyzed policy network. These actors were mobilized by influential figures from EU legislative institutions, who emerged as key policy entrepreneurs. Despite the unfavorable momentum against ambitious environmental policies at the time of negotiation, the reinforcement of the supporting coalition tipped the balance of power in favor of its desired outcome. Although discursive influence and coalition formation significantly impacted the analyzed process, our findings suggest that they should be assessed and interpreted within the broader political context. Furthermore, when evaluating their influence on policy-making processes and their outcomes, the decision-making power embedded in actor coalitions should be thoroughly examined.

Our study has certain limitations. While our findings highlight the substantial role of discourse and coalition formation in EU environmental policy-making, the direct causal relationship between these factors and the policy-making process and its outcome cannot be conclusively determined from the data examined. Instead, our findings suggest that additional factors influenced the political discourse, the policy-making process and its outcome. These factors include political developments at both international and national levels, with the latter influencing the voting behavior of national ministers in the Council, the mobilization of key actors from outside the analyzed policy network and broader concerns about the credibility of EU political institutions and the ordinary legislative procedure. Together, these factors appear to have offset the opposing coalition's dominance in the analyzed policy debate.

Future discourse analyses of EU forest and environmental policy should consider comparing country-specific discourses across EU-MS and their respective interest groups to assess their influence on higher-level political processes and the voting behavior of national ministries in the Council. Furthermore, despite the direct applicability of the EU-NRR, its long-term success and implementation in forest ecosystems will depend on its alignment with national forest and environmental policies, regulatory frameworks, and predominant management practices, as well as effective collaboration with public and private forest owners. However, these actors largely adopted a critical stance in the policy debate. It therefore remains uncertain whether the enthusiasm demonstrated by policy entrepreneurs following the adoption of the EU-NRR will persist over time, particularly when confronted with local realities (Bull et al., 2018). In the end, the success of the EU-NRR hinges on convincing landowners and local stakeholders of the tangible benefits of restoration. This outcome can only be achieved through constructive collaboration when developing and implementing national restoration plans, and by providing sufficient financial support for forest restoration measures and potential income losses.

Declaration of competing interest

The authors declare that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The research leading to these results has received funding from the European Union's Horizon 2020 research and innovative program under grant agreement No 101036849.

References

Begemann, A., Dolriis, C., Onatunji, A., Chimisso, C., & Winkel, G. (2025). The Politics of Sustainable Finance for Forests: Interests, beliefs and advocacy coalitions shaping forest sustainability criteria in the making of the EU Taxonomy. Global Environmental Change, 92, 103001.

Béland, D., & Cox, R. H. (2016). Ideas as coalition magnets: Coalition building, policy entrepreneurs, and power relations. *Journal of European Public Policy*, *23*(3), 428–445. https://doi.org/10.1080/13501763.2015.1115533

Bernig, L., Sotirov M. (2023). Hardening corporate accountability in commodity supply chains under the European Union Deforestation Regulation. Regulation & Governance. http://dx.doi.org/10.1111/rego.12540

Berning, L., & Sotirov, M. (2024). The coalitional politics of the European Union Regulation on deforestation-free products. *Forest Policy and Economics*, *158*, 103102. https://doi.org/10.1016/j.forpol.2023.103102

Blondel, V. D., Guillaume, J.-L., Lambiotte, R., & Lefebvre, E. (2008). Fast unfolding of communities in large networks. *Journal of Statistical Mechanics: Theory and Experiment*, *2008*(10), P10008. https://doi.org/10.1088/1742-5468/2008/10/P10008

Boin, A., 't Hart, P., & McConnell, A. (2009). Crisis exploitation: Political and policy impacts of framing contests. *Journal of European Public Policy*, *16*(1), 81–106. https://doi.org/10.1080/13501760802453221

Brockhaus, M., & Di Gregorio, M. (2014). National REDD+ policy networks: from cooperation to conflict. Ecology and Society, 19(4).

Bull, G. Q., Boedhihartono, A. K., Bueno, G., Cashore, B., Elliott, C., Langston, J. D., ... & Sayer, J. (2018). Global forest discourses must connect with local forest realities. International Forestry Review, 20(2), 160-166.

Bunea, A. (2013). Issues, preferences and ties: Determinants of interest groups' preference attainment in the EU environmental policy. *Journal of European Public Policy*, *20*(4), 552–570. https://doi.org/10.1080/13501763.2012.726467

Cliquet, A., Aragão, A., Meertens, M., Schoukens, H., & Decleer, K. (2024). The negotiation process of the EU Nature Restoration Law Proposal: Bringing nature back in Europe against the backdrop of political turmoil? *Restoration Ecology*, *32*(5), e14158. https://doi.org/10.1111/rec.14158

COD (2022/0195). Ordinary legislative procedure (ex-codecision procedure). Nature restoration. https://oeil.secure.europarl.europa.eu/oeil/en/procedure-file?reference=2022/0195(COD).

Collier, D. (2011). Understanding Process Tracing. *PS: Political Science & Politics*, *44*(4), 823–830. https://doi.org/10.1017/S1049096511001429

ClientEarth (2023, November 10). Nature Restoration Law one step closer to becoming reality – but with loopholes. https://www.clientearth.org/latest/press-office/press-releases/nature-restoration-law-one-step-closer-to-becoming-reality-but-with-loopholes/.

Dahm, J. (2021, October 8). Six EU countries 'strongly' condemn Commission's EU forest strategy. Euractiv. https://www.euractiv.com/section/climate-environment/news/six-eu-countries-strongly-condemn-commissions-eu-forest-strategy/.

De Koning, J., Winkel, G., Sotirov, M., Blondet, M., Borras, L., Ferranti, F., & Geitzenauer, M. (2014). Natura 2000 and climate change—Polarisation, uncertainty, and pragmatism in discourses on forest conservation and management in Europe. *Environmental Science & Policy*, *39*, 129–138. https://doi.org/10.1016/j.envsci.2013.08.010

EC. (2020). EU Biodiversity Strategy for 2030: Bringing nature back into our lives (COM(2020) 380 final). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0380

EC. (2022a). Proposal for a Regulation of the European Parliament and of the Council on Nature Restoration. COM (2022) 304 Final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022PC0304.

EC. (2022b). COMMISSION STAFF WORKING DOCUMENT (SWD) IMPACT ASSESSMENT Accompanying the proposal for a Regulation of the European Parliament and of the Council on nature restoration. SWD/2022/167 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52022SC0167.

Edwards, P., Brukas, V., Brukas, A., Hoogstra-Klein, M., Secco, L., & Kleinschmit, D. (2022). Development of forest discourses across Europe: A longitudinal perspective. *Forest Policy and Economics*, *135*, 102641. https://doi.org/10.1016/j.forpol.2021.102641

Edwards, P., & Kleinschmit, D. (2013). Towards a European forest policy—Conflicting courses. *Forest Policy and Economics*, *33*, 87–93. https://doi.org/10.1016/j.forpol.2012.06.002

Eijk, C. (2018). *The Essence of Politics*. Amsterdam University Press. https://doi.org/10.5117/9789463727211

EP (2023a). Amendments adopted by the European Parliament on 12 July 2023 on the proposal for a regulation of the European Parliament and of the Council on nature restoration (COM(2022)0304 – C9-0208/2022 – 2022/0195(COD)). Ordinary legislative procedure: first reading.

EP (2023b). PROVISIONAL AGREEMENT RESULTING FROM INTERINSTITUTIONAL NEGOTIATIONS. Committee on the Environment, Public Health and Food Safety.

EP (2024). European Parliament legislative resolution of 27 February 2024 on the proposal for a regulation of the European Parliament and of the Council on nature restoration (COM(2022)0304 – C9-0208/2022 – 2022/0195(COD)). Ordinary legislative procedure: first reading.

European Council. (1992). Council 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 Communities, L 206, 7–50. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043

European Parliament & Council of the European Union. (2009). 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, L 20, 7–25. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147

Finger, R., Fabry, A., Kammer, M., Candel, J., Dalhaus, T., & Meemken, E. M. (2024). Farmer Protests in Europe 2023–2024. *EuroChoices*, *23*(3), 59–63. https://doi.org/10.1111/1746-692X.12452

Fisher, D. R., Leifeld, P., & Iwaki, Y. (2013). Mapping the ideological networks of American climate politics. *Climatic Change*, *116*(3–4), 523–545. https://doi.org/10.1007/s10584-012-0512-7

Fleckenstein, S. (2024). From sectoral policy change to cross-sectoral (dis) integration? A longitudinal analysis of the EU's forest and rural development policy. Forest Policy and Economics, 169, 103319.

German agriculture and forestry enterprise. (2022, August 19). 3rd public consultation on the proposal for a nature restoration regulation.

Ghinoi, S., & Steiner, B. (2020). The Political Debate on Climate Change in Italy: A Discourse Network Analysis. *Politics and Governance*, *8*(2), 215–228. https://doi.org/10.17645/pag.v8i2.2577

Gordeeva, E., Wolfslehner, B., & Weber, N. (2025). 25 Years of EU Forest Policy—An Analysis. *Forests*, *16*(2), 256. https://doi.org/10.3390/f16020256

Hajer, M. A. (1993). Discourse Coalitions and the Institutionalization of Practice: The Case of Acid Rain in Great Britain. In F. Fischer & J. Forester (Hrsg.), *The Argumentative Turn in Policy Analysis and Planning* (S. 43–76). Duke University Press. https://doi.org/10.1215/9780822381815-003

Hajer, M. (1997). 'Discourse Analysis', The Politics of Environmental Discourse: Ecological Modernization and the Policy Process (Oxford, 1997; online edn, Oxford Academic, 1 Nov. 2003) https://doi.org/10.1093/019829333X.003.0003.

Hajer, M. (2002). Discourse analysis and the study of policy making. European political science, 2(1), 61-65.

Hajer, M. (2006). Doing Discourse Analysis: Coalitions, Practices, Meaning. cited from van den Brink, M. A., & Metze, T. (2006). Words matter in policy and planning. Discourse theory and method in social sciences. Netherlands Geographical Studies 344.

Hajer, M., & Versteeg, W. (2005). A decade of discourse analysis of environmental politics: Achievements, challenges, perspectives. Journal of Environmental Policy & Planning, 7(3), 175–184. https://doi.org/10.1080/15239080500339646.

Hering, D., Schürings, C., Wenskus, F., Blackstock, K., Borja, A., Birk, S., Bullock, C., Carvalho, L., Dagher-Kharrat, M. B., Lakner, S., Lovrić, N., McGuinness, S., Nabuurs, G.-J., Sánchez-Arcilla, A., Settele, J., & Pe'er, G. (2023). Securing success for the Nature Restoration Law. *Science*, *382*(6676), 1248–1250. https://doi.org/10.1126/science.adk1658

Hladík (2024, March 25). Environment Council. Public session. https://video.consilium.europa.eu/event/en/27398.

Ingold, K. (2011) Network structures within policy processes: coalitions, power, and brokerage in Swiss climate policy, Policy Studies Journal, 39(3): 435–59. doi: 10.1111/j.1541-0072.2011.00416.x

Ingold, K., & Gschwend, M. (2014). Science in Policy-Making: Neutral Experts or Strategic Policy-Makers? *West European Politics*, *37*(5), 993–1018. https://doi.org/10.1080/01402382.2014.920983

Ingold, K. and Leifeld, P. (2016) Structural and institutional determinants of influence reputation: a comparison of collaborative and adversarial policy networks in decision making and implementation, Journal of Public Administration Research and Theory, 26(1): 1–18.

Jordan, A., & Lenschow, A. (2010). Environmental policy integration: A state of the art review. *Environmental Policy and Governance*, *20*(3), 147–158. https://doi.org/10.1002/eet.539

Karjalainen, T. (2023, February 2). Who's to pay the cost of EU's Nature Restoration Regulation, MS or EU? Finnish MEPs disagree. forets News. https://forest.fi/article/whos-to-pay-the-cost-of-eus-nature-restoration-regulation-ms-or-eu-finnish-meps-disagree/.

Khayatzadeh-Mahani, A., Labonté, R., Ruckert, A., & de Leeuw, E. (2019). Using sustainability as a collaboration magnet to encourage multi-sector collaborations for health. *Global Health Promotion*, *26*(1), 100–104. https://doi.org/10.1177/1757975916683387

Kiess, J., Norman, L., Temple, L., & Uba, K. (2017). Path dependency and convergence of three worlds of welfare policy during the Great Recession: UK, Germany and Sweden. *Journal of International and Comparative Social Policy*, *33*(1), 1–17. https://doi.org/10.1080/21699763.2017.1281832

Kuenzler, J., Stauffer, B., Schlaufer, C., Song, G., Smith-Walter, A., & Jones, M. D. (2025). A systematic review of the Narrative Policy Framework: A future research agenda. *Policy & Politics*, *53*(1), 129–151. https://doi.org/10.1332/03055736Y2024D000000046

Leifeld, P. (2011). Discourse networks and German pension politics (Doctoral dissertation). Department of Politics and Public Administration, University of Konstanz, Konstanz.

Leifeld, P. (2017). Discourse network analysis. The Oxford handbook of political networks, 301-326.

Leifeld, P. (2013). Reconceptualizing Major Policy Change in the Advocacy Coalition Framework: A Discourse Network Analysis of German Pension Politics. *Policy Studies Journal*, *41*(1), 169–198. https://doi.org/10.1111/psj.12007

Leifeld, P., & Haunss, S. (2012). Political discourse networks and the conflict over software patents in Europe. *European Journal of Political Research*, *51*(3), 382–409. https://doi.org/10.1111/j.1475-6765.2011.02003.x

Leipold, S. (2014). Creating forests with words—A review of forest-related discourse studies. *Forest Policy and Economics*, *40*, 12–20. https://doi.org/10.1016/j.forpol.2013.12.005

Leipold, S., Feindt, P. H., Winkel, G., & Keller, R. (2019). Discourse analysis of environmental policy revisited: Traditions, trends, perspectives. *Journal of Environmental Policy & Planning*, *21*(5), 445–463. https://doi.org/10.1080/1523908X.2019.1660462

Mahoney, C. (2004). The Power of Institutions: State and Interest Group Activity in the European Union. *European Union Politics*, *5*(4), 441–466. https://doi.org/10.1177/1465116504047312

Marks, G. (1996). *European Integration from the 1980s: State-Centric v. Multi-level Governance*.

Mayr, J. (2023, July 17). Gibt es eine Mehrheit für das Naturschutzgesetz? Tagesschau online. https://www.tagesschau.de/ausland/europa/eu-abstimmung-naturschutzgesetz-100.html on 12.07.2023.

Nagel, M., & Bravo-Laguna, C. (2022). Analyzing multi-level governance dynamics from a discourse network perspective: The debate over air pollution regulation in Germany. *Environmental Sciences Europe*, *34*(1), 62. https://doi.org/10.1186/s12302-022-00640-0

Our Nature, Our Business. (2024). Joint letter in support of an ambitious EU Nature Restoration Law. https://www.ournatureourbusiness.eu/

O'BRIEN, L., KONCZAL, A., BEGEMANN, A., LOVRIC, M., LOVRIC, N., FLECKENSTEIN, S., & WINKEL, G. (2025). Forest restoration paradigms and conflicts in Europe. *International Forestry Review*.

Pe'er, G., Hering, D., Kachler, J., Bruelheide, H., Wittmer, H., Bonn, A., ... & Wubs, J. (2023). Scientists support the EU's Green Deal and reject the unjustified argumentation against the Sustainable Use Regulation and the Nature Restoration Law. Zenodo.

Politico (2024, May 13). https://www.politico.eu/wp-content/uploads/2024/05/13/Environment-ministers-letter-supporting-NRL-adoption_13-may-2024.pdf.

Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 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 (Text with EEA relevance). *Official Journal of the European Union, L 150, 206–247.* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1115

Regulation (EU) 2023/855 of the European Parliament and of the Council of 17 May 2023 on nature restoration. *Official Journal of the European Union, L 128, 1–52*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R0855

Roux, JL., Pülzl, H., Sotirov, M., Winkel, G. 2025. Understanding EU forest policy governance through a cultural theory lens. Policy Science 58, 111–144 (2025). https://doi.org/10.1007/s11077-025-09566-9

Ryan, E. (2024, March 25). Environment Council. Public session. https://video.consilium.europa.eu/event/en/27398.

Sabatier, P. A., & Weible, C. M. (Eds.). (2014). Theories of the policy process. Westview press.

Schaub, S. (2021). Public contestation over agricultural pollution: A discourse network analysis on narrative strategies in the policy process. *Policy Sciences*, *54*(4), 783–821. https://doi.org/10.1007/s11077-021-09439-x

Schaub, S., & Braunbeck, T. (2020). Transition towards sustainable pharmacy? The influence of public debates on policy responses to pharmaceutical contaminants in water. *Environmental Sciences Europe*, *32*(1), 140. https://doi.org/10.1186/s12302-020-00423-5

Schaub, S., & Metz, F. (2020). Comparing Discourse and Policy Network Approaches: Evidence from Water Policy on Micropollutants. *Politics and Governance*, *8*(2), 184–199. https://doi.org/10.17645/pag.v8i2.2597

Schmidt, V. A. (2008). Discursive Institutionalism: The Explanatory Power of Ideas and Discourse. *Annual Review of Political Science*, *11*(1), 303–326. https://doi.org/10.1146/annurev.polisci.11.060606.135342

Schmidt, V. A., & Radaelli, C. M. (2004). Policy Change and Discourse in Europe: Conceptual and Methodological Issues. *West European Politics*, *27*(2), 183–210. https://doi.org/10.1080/0142038042000214874

Shanahan, E. A., Jones, M. D., & McBeth, M. K. (2011). Policy Narratives and Policy Processes. *Policy Studies Journal*, *39*(3), 535–561. https://doi.org/10.1111/j.1541-0072.2011.00420.x

Shelton, M. R., Kanowski, P. J., Kleinschmit, D., & Ison, R. L. (2024). Critical social perspectives in forest and landscape restoration–a systematic review. Frontiers in Environmental Science, 12, 1466758.

Sotirov, M., Winkel, G. (2016): Towards a cognitive theory of shifting alliances and policy change: linking the advocacy coalition framework and cultural theory. Policy Sciences 49 (2): 125-154.

Sotirov, M., Stelter, M., & Winkel, G. (2017). The emergence of the European Union Timber Regulation: How Baptists, Bootleggers, devil shifting and moral legitimacy drive change in the environmental governance of global timber trade. *Forest Policy and Economics*, *81*, 69–81. https://doi.org/10.1016/j.forpol.2017.05.001

Sotirov, M., Winkel, G., & Eckerberg, K. (2021). The coalitional politics of the European Union's environmental forest policy: Biodiversity conservation, timber legality, and climate protection. *Ambio*, *50*(12), 2153–2167. https://doi.org/10.1007/s13280-021-01644-5

Stanturf, J. A., Palik, B. J., Williams, M. I., Dumroese, R. K., & Madsen, P. (2014). Forest restoration paradigms. Journal of sustainable forestry, 33(sup1), S161-S194.

Taylor, K. (2023, July 20). EU kicks off decisive talks on contested nature restoration law. Euractiv. https://www.euractiv.com/section/energy-environment/news/eu-kicks-off-decisve-talks-on-contested-nature-restoration-law/.

Tosun, J. (2023). The European Union's Climate and Environmental Policy in Times of Geopolitical Crisis. JCMS: Journal of Common Market Studies, 61, 147-156.

Vanttinen, P. (2020, October 19). Finland and three other member states launch a forestry lobbying group. Euractiv. https://www.euractiv.com/section/energy-environment/news/finland-and-three-other-member-states-launch-a-forestry-lobbying-group/.

Wagemann, C., Goerres, A., & Siewert, M. B. (Eds.). (2020). Handbuch Methoden der Politikwissenschaft. Wiesbaden: Springer VS.

Wagner, P. M., Ocelík, P., Gronow, A., Ylä-Anttila, T., & Metz, F. (2023). Challenging the insider outsider approach to advocacy: how collaboration networks and belief similarities shape strategy choices. Policy & Politics, 51(1), 47-70.

Wallace, M. (2023) in Giese, S. (2023, July 12). Facts beat disinfo in crucial nature vote. https://left.eu/facts-beat-disinfo-in-crucial-nature-vote/

Wallaschek, S. (2020). Contested solidarity in the Euro crisis and Europe's migration crisis: A discourse network analysis. *Journal of European Public Policy*, *27*(7), 1034–1053. https://doi.org/10.1080/13501763.2019.1659844

Weber, M. (2023, July 2023). Start over with the Nature Restoration Law. https://www.eppgroup.eu/newsroom/start-over-with-the-nature-restoration-law.

Weible, C.M. and Sabatier, P.A. (2005) Comparing policy networks: marine protected areas in California, Policy Studies Journal, 33(2): 181–201. doi: 10.1111/j.1541-0072.2005.00101.x

Winkel, G., Gleißner, J., Pistorius, T., Sotirov, M., Storch, S. (2011): The sustainably managed forest heats up: discursive struggles over forest management and climate change in Germany. Critical Policy Studies 5 (4): 361-390.

Winkel, G., & Sotirov, M. (2016). Whose integration is this? European forest policy between the gospel of coordination, institutional competition, and a new spirit of integration. *Environment and Planning C: Government and Policy*, *34*(3), 496–514. https://doi.org/10.1068/c1356j

Appendix

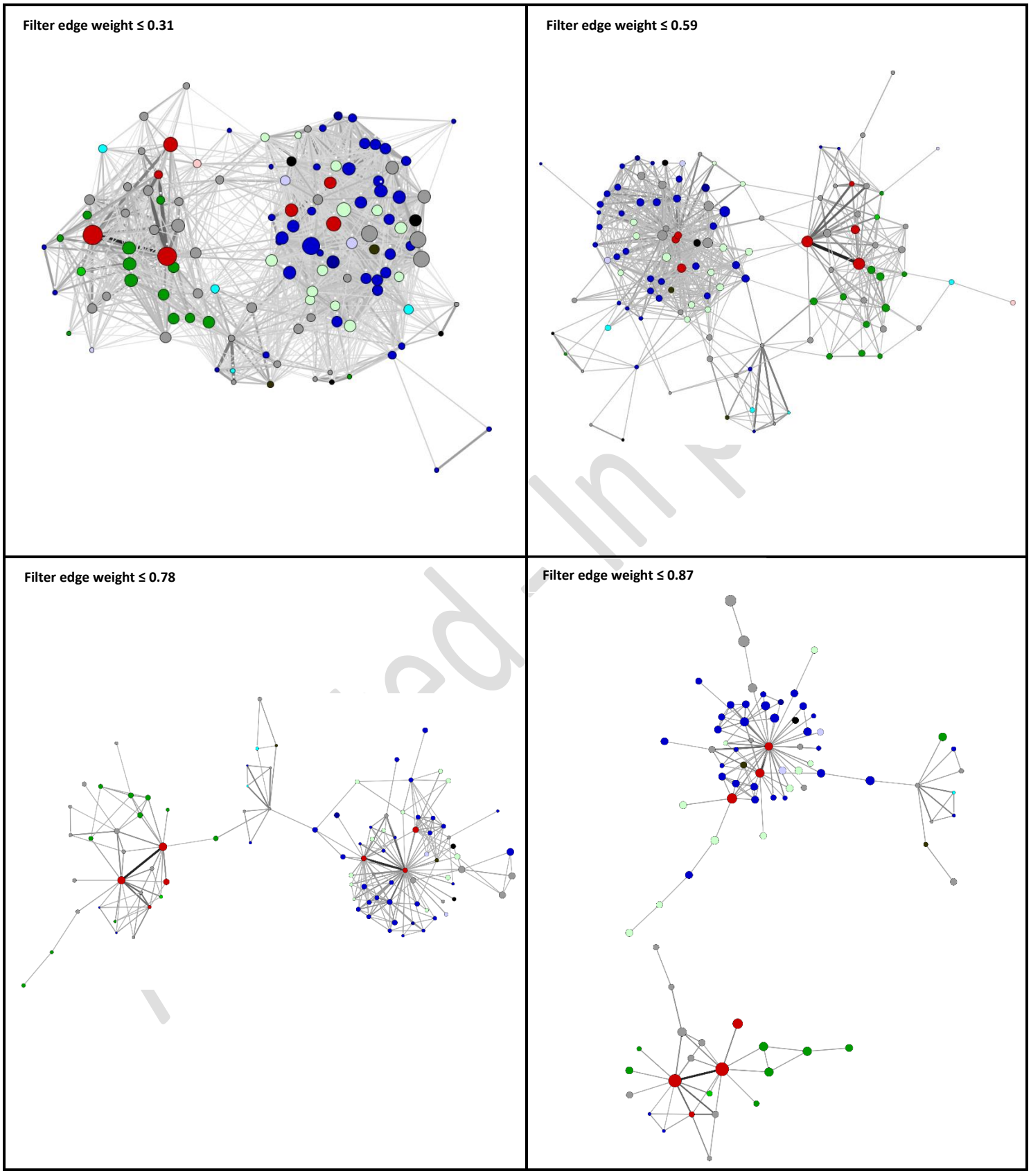

Figure A5: Actor congruence networks applying different edge weight filters (filters: ≤ 0.31, ≤ 0.59, ≤ 0.78, ≤ 0.87).

832 *Table A2: Supplementary information on organizations, including their types and affiliations with EU-MS or political levels.*

Coalition	Organization type	Organization name	Country/Political level
Supporting			
	(Environmental) NGOs		
		BirdLife International	International
		ClientEarth	International
		European Environmental Bureau (EEB)	EU
		France Nature Environnement (FNE)	France
		Growing Media Europa	EU
		International Fund for Animal Welfare (IFAW)	International
		Mediterranean Office for Environment, Culture and Sustainable Development (MIO-ESCDE)	International
		Succow Foundation	Germany
		World Wide Fund for Nature (WWF)	International
		WWF Belgium	Belgium
		WWF European Office	EU
		WWF Poland	Poland
		Wetlands International Europe	EU
	Governmental bodies		
		Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology Austria	Austria
		Ministry of Economy and Sustainable Development Croatia	Croatia
		Ministry of Agriculture, Rural Development and Environment Cyprus	Cyprus
		Ministry of the Environment Czech Republic	Czech Republic
		Ministry of the Environment Denmark	Denmark
		European Commission	EU
		Ministry of the Environment Estonia	Estonia
		Ministry for the Ecological Transition France	France
		German Federal Office for Environment (UBA)	Germany
		German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection	Germany
		Ministry for the Environment, Climate and Communications	Ireland
		Ministry of Environmental Protection and Regional Development of the Republic of Latvia	Latvia
		Ministry of the Environment, Climate and Biodiversity of Luxembourg	Luxembourg
		Ministry for the Environment, Energy and the Regeneration of the Grand Harbor of Malta	Malta
		Ministry of Environment and Climate Action of Portugal	Portugal
		Ministry of Environment of the Slovak Republic	Slovakia
		Ministry of the Environment and Spatial Planning of Slovenia	Slovenia
		Ministry for the Ecological Transition and the Demographic Challenge	Spain
	Parliamentary groups		
		Greens/EFA	EU
		The Left	EU
		Renew Europe	EU
		Socialists and Democrats (S&D)	EU
	Business company and association		
		European Federation for Hunting and Conservation (FACE)	EU
		HSE Group	Slovenia
		Natural Mineral Waters Europe (NMWE)	EU
	Scientific body		
		European Geosciences Union (EGU)	EU
	Energy sector		
		Eurelectric	EU
Opposing			
	(Environmental) NGOs		
		European Forum on Nature Conservation and Pastoralism (EFNCP)	EU
	Forestry (and land use) industry		
		Agricultural Industry Association e.V. (IVA)	Germany
		Asociación Española del Sector del Papel y Cartón (ASAPAPEL)	Spain
		Association of the Austrian Paper Industry - Austropapier	Austria
		Austrian Wood Industries	Austria
		Confederation of European Paper Industries - CEPI	EU
		Deutsche Säge- und Holzindustrie (DeSH)	Germany
		Federation of Austrian Industries (IV)	Austria
		Finnish Forest Center (Metsäkeskus)	Finland
		Finnish Forest Industries (Metsäteollisuus)	Finland
		Foro de Bosques y Cambio Climático (FBYCC)	Spain

Table A2 (continued)

Coalition	Organization type	Organization name	Country/Political level
Opposing			
	Forestry (and land use) industry	Latvian Peat Association (LPA)	Latvia
		Metsä Group	Finland
		Stora Enso	Finland
	Governmental bodies		
		Austrian Chamber of Commerce (federal)	Austria
		Austrian Chamber of Commerce Styria	Austria
		Austrian Chamber of Commerce Upper Austria	Austria
		Austrian Chamber of Commerce Vorarlberg	Austria
		Austrian Chamber of Commerce Vienna	Austria
		Ministry of Infrastructure and Water Management Netherlands	The Netherlands
		Ministry of Environment Finland	Finland
		General Directorate for Energy and Geology	Portugal
		Ministry of Energy Hungary	Hungary
		Ministry of the Environment and Energy Security Italy	Italy
		Ministry of Climate and Environment Poland	Poland
	Parliamentary groups		
		European Conservatives and Reformists (ECR)	EU
		European People's Party (EPP)	EU
		Identity and Democracy (ID)	EU
	Forest (and land) owner (association)		
		Association of municipal, private and ecclesiastical forest owners in the Czech Republic	Czech Republic
		Austrian Chamber of Agriculture	Austria
		Central Union of Agricultural Producers and Forest Owners (MTK)	Finland
		CIA Agricoltori Italiani	Italy
		Claumat NV	Belgium
		Copa Cogeca	EU
		Danish Agriculture & Food Council (DAFC)	Denmark
		Dutch Foundation for Innovation in Greenhouse Horticulture (SIGN)	The Netherlands
		European Landowners' Organization (ELO)	EU
		Familienbetriebe Land und Forst Brandenburg	Germany
		Familienbetriebe Land und Forst Baden-Württemberg	Germany
		Familienbetriebe Land und Forst (federal)	Germany
		Familienbetriebe Land und Forst Lower Saxony	Germany
		Familienbetriebe Land und Forst North Rhine-Westphalia	Germany
		Familienbetriebe Land und Forst Saxony-Anhalt	Germany
		Forum Natur Brandenburg e.V. (FNB)	Germany
		Forest enterprises (1-4)	Germany
		Forest owners (1-2)	Germany
		Forest owner association Brandenburg	Germany
		Forest owner association Lower Saxony	Germany
		Groene Kring	Belgium
		Hauptverband des Osnabrücker Landvolkes (HOL) e.V.	Germany
		Hoogbosch Propriété Belge N.V.	Belgium
		Landesbauernverband Brandenburg (LBV BB) e.V.	Germany
		Lasy Państwowe	Poland
		Waldbauernverband North Rhine-Westphalia e.V.	Germany
	Business company and association		
		CropLife Europe	EU
		Neova Group	Finland
	Regional and municipal council		
		German Association of Towns and Municipalities (DStGB)	Germany
		East and North Finland	Finland
	Energy sector		
		Statkraft	Norway/international
		Sustainable Biomass Program (SBP)	International
	Mining industry		
		Euromines	EU
		Industrial Minerals Europe (IMA Europe)	EU
		Swedish Association for Mines, Mineral and Metal Producers (Svemin)	Sweden
		Zinkgruvan Mining	Sweden

835 *Table A3: Supplementary information on the storylines identified, their meaning and exemplary quotes from discourse coalitions.*

Storyline	Explanation	Opposing coalition (exemplary)	Supporting coalition (exemplary)
State of European forests	The debate surrounding the storyline focused on the overall state of biodiversity in European forests.	"The results [of regular monitoring of the status of habitats under the Habitats Directive] show that there are no major negative changes in current habitat extent, impacts and threats, structure and function, or deterioration in future habitat prospects (degradation) due to forest management." (Association of municipal, private and ecclesiastical forest owners in the Czech Republic)	"Importantly, this is the first-ever piece of legislation that explicitly targets the restoration of Europe´s nature, to repair the 80% of European habitats that are in poor condition, and to bring back nature to all ecosystems, including forests, […]." (European Federation for Hunting and Conservation)
Restoration financing	The debate surrounding this storyline centered on whether sufficient financing is available to implement (forest) restoration measures.	"Further evaluation of the availability of the funding mechanisms provided for farmers and forests, including data on previous rates of consumption of EU funds by member states to estimate the effectiveness of the financial proposal." (CIA Agricoltori Italiani)	"In its current format, the proposed regulation does not explicitly address the EU support for nature restoration other than in Article 12(2)(l)." (Wetlands International Europe)
Global crises	The debate surrounding this storyline addressed the role of forest restoration in the context of geopolitical conflicts, particularly with regard to strengthening domestic agriculture and forestry production.	"The Ukraine war and the fragility of international supply chains require Europe to maintain production capacities to secure the supply of food and renewable raw materials." (German Familienbetriebe Land und Forst e.V.)	"Russia's war on Ukraine shows we need a more resilient EU food system without lowering quality or health safety standards." (S&D)
Leakage	The debate surrounding this storyline addressed the potential outsourcing of production resulting from forest restoration efforts to non-EU countries, along with the associated relocation of climate and biodiversity impacts.	"Banning the use of wood leads to higher imports from other EU countries and thus to the overexploitation of other areas, including the associated damage to the environment and biodiversity" (Austrian Economic Chambers)	"However, what applies to climate change, also applies here: this crisis should make us aware of how dependent we are on fossil fuels and importing our food, especially animal feed. We need to build a resilient European agricultural sector that works with nature, not against it. For that, you need laws like this." (The Greens/EFA)
Legal ambiguity	The debate surrounding this storyline focused on the role of legal ambiguities and unclear definitions within the legislative proposal.	"Alongside this there are a series of terms that are ill-defined or not at all; resilience, reference condition, satisfactory level, forest connectivity, sufficient, connectivity, favorable conservation status, and biological cycle." (COPA COGECA)	"The NRL creates more legal certainty by establishing a legal framework with clear definitions, rights, obligations, monitoring, reporting, targets and deadlines." (The Left)
Bureaucratization	The debate surrounding this storyline referred to the potential increase in administrative burdens for forest and landowners caused by the Regulation.	"Due to the accumulation of obligations and strict nature goals, the agricultural and forestry sector is succumbing to the pressure." (Hoogbosch Propriété Belgium)	"There are no obligations which apply directly to industries, farmers, fisheries, etc, so there is no regulatory burden!" (The Left)
Expropriation	The debate surrounding this storyline addressed concerns about disproportionate impacts on property rights, including the potential for land expropriation allegedly supported by the Regulation.	"The proposal of the Regulation in its current version suggests that the EU decides on the use of land instead of land owner (state, municipalities, private individuals). It shouldn't be so." (Latvian Peat Association)	"Following the adoption of the council mandate, new flexibilities were brought in, allowing further taking into account of essential economic activities to food security and ecosystem resilience." (French Ministry for the Ecological Transition)

836 *Table A3 (continued)*

Storyline	Explanation	Opposing coalition (exemplary)	Supporting coalition (exemplary)
Restoration site	The debate surrounding this storyline discussed whether (forest) restoration measures should be focused on Natura 2000 sites only or go beyond them.	"As indicated in paragraph 23 of the draft regulation, the Natura 2000 network is the main instrument for achieving the objectives of the Habitats and Birds Directives, and therefore EU regulations in this regard should be defined within the boundaries of the Natura 2000 network." (Polish Ministry of Climate and Environment)	"The marine habitats to be restored go beyond those covered under the Habitats Directive and also the restoration of habitats of species go beyond the species protected under the Birds and Habitats Directives." (European Environmental Bureau)
Forest restoration cost-benefit	The debate surrounding this storyline addressed the cost-benefit ratio of forest restoration.	"The cost estimates included the impact assessment are quite uncertain and possibly an underestimation, as estimations are based an EU-average and no opportunity costs are included. A more comprehensive economical evaluation should have been conducted to better assess the real economic effects of the regulation." (Metsäkeskus)	"This will also be critical in adapting to our climate challenge. We know that in each of our countries, nature-based solutions are going to be the lowest cost, the most beneficial measures we can take in reducing emissions." (Irish Ministry of Environment)
Subsidiarity	The debate surrounding this storyline examined whether directly setting forest ecosystem targets and indicators exceeds the EU's competence.	"The EU does not have a common forest policy. Any new legislation must fully respect the Member States national competence related to forest policy." (MTK Finland)	"We are concerned that giving too much freedom to Member States will result in delays and a lack of effective action at national level." (MIO-ESCDE)
Feasibility	The debate surrounding this storyline discussed whether the Regulation sets realistic targets and whether the restoration baselines are supported by sufficient empirical evidence.	"There are also many data gaps in forest inventories. Not only this lack of data creates serious doubt about the credibility and justification of the set targets." (European Landowner Organization)	"This regulation represents an appropriate framework for us to protect and strengthen the role of nature in achieving those [nature restoration] targets." (Slovenian Ministry of the Environment, Climate and Energy)
Local participation and inclusion	This debate surrounding this storylines storyline discussed whether the expertise and needs of key stakeholders have been sufficiently considered.	"Nature conservation is not possible without cooperation with the local people who live and work in the forests and fields, who know the local area better than anyone else and who want to pass on good ecological, social and economic conditions to their children." (German forest enterprise; translated from German)	"The inclusion of forest ecosystems and marine areas (in particular, seagrass and seabed) among the spheres of intervention of the law and the bottom-up approach of the restoration planning by Member States, are both welcome points." (MIO-ESCDE)
Forest disturbances	The debate surrounding this storyline focused on the interactions between forest restoration and forest disturbances.	"Indicator carbon stock in the forest: risks of climate change, calamities, forest fires etc. are completely ignored here." (German land and forest owner association)	"Nature restoration is our best insurance policy for climate adaptation as it will increase our resilience to droughts, floods and other extreme weather events." (eNGOs, S&D, Left and Greens)
Production restriction	The debate surrounding this storyline addressed the potential restrictive impact of forest restoration on forest production and its effects on rural economies.	"Wood represents an extremely important value chain in Vorarlberg, which secures sustainable jobs and prosperity. The loss of many jobs would be the result if forests were to be put to other uses." (Vorarlberg Chamber of Commerce)	"It is crucial for enhancing the productivity and resilience of forest and agricultural land, which are already severely threatened by the growing impacts of climate change in nearly all parts of Europe." (Left Group, the Greens/EFA)

837