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### IMPLEMENTING THE NATURE RESTORATION REGULATION: LEGAL CHALLENGES AND OPPORTUNITIES (UNIVERSITY OF ROMA TRE, 6-7 NOVEMBER 2025)

The conference “Implementing the Nature Restoration Regulation: Legal Challenges and Opportunities”, held on 6-7 November 2025 at the university of Roma Tre, represented one of the first occasions to reflect on the practical and legal implications of the recently adopted Nature Restoration Regulation (NRR).<sup>1</sup> The event brought together academics, public authorities, environmental lawyers, economists and ecologists, fostering an interdisciplinary dialogue to tackle the Regulation’s scope and ambitious requirements. As Prof. Chiara Cellerino (University of Genoa) explained, the conference represented the final public event of a collaborative effort involving three universities – Roma Tre University, the University of Genoa, and LUMSA University – brought together within the national research project “Restoring Nature for Children in Italy (RINASCI)”, funded as a Project of Relevant National Interest (PRIN) under the National Recovery and Resilience Plan (PNRR), to explore the legal dimensions of ecological restoration in the Italian context. Nevertheless, the conference programme – Cellerino noted – clearly adopted a broader and more international perspective. This shift can be considered as both natural and necessary. The legal issues raised by nature restoration, indeed, transcend national boundaries and require comparative, interdisciplinary, and cross-level analysis. Within this wider context, the project’s principal investigator, Dr. Morgan Eleanor Harris (University of Roma Tre), noted that the discussions of the conference would converge around three recurring themes: first, the coherence and interaction between the NRR and existing environmental legislation; second, the increasingly close relationship between scientific knowledge and legal reasoning; third, the economic dimension of biodiversity.

The first panel opened with an intervention by Prof. An Cliquet (Ghent Uni-

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<sup>1</sup> Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869 [2024] OJ L.

versity), who began by noting that the public debate surrounding the NRR had been marked by contrasting narratives. While some actors – particularly in the agricultural and land-use sectors – perceived the Regulation as a threat to legal certainty, even describing it as a form of “bullying” of farmers and landowners, others welcomed it as an overdue opportunity to correct decades of ecological degradation. In this context, Cliquet posed a central question: does the NRR create legal certainty or uncertainty? To answer this question, she clarified that legal certainty demands legal rules to be clear, precise and consistent, enabling individuals and economic actors to foresee their rights and duties. Nonetheless, Europe is already confronting multiple ecological threat such as nitrogen overload, soil degradation, poor water quality, declining biodiversity, and accelerating climate impacts, the environmental repercussions of which are now extending into the socio-economic sphere. This has resulted in courts increasingly compelled to intervene in existing permits, generating the very legal uncertainty that opponents of restoration claim to fear. Because of this reality, neither property owners nor businesses can reasonably anticipate that environmental or market regulations will stay constant and must consider the fact of advancing scientific understanding and pressing environmental emergencies. From this viewpoint, Cliquet argued that even if legitimate expectations safeguards reliance on current laws, it cannot ensure that damaging activities will be permitted to persist without end. In this perspective ambitious restoration rules are not only ecologically indispensable but also a source of legal stability. Furthermore, the national restoration strategies mandated by the NRR can improve clarity by specifying the locations, for restoration and the actions to be prioritized, thereby minimizing the regulatory uncertainty that have marked previous decades. According to her perspective the NRR could offer a chance to harmonize ecological integrity with legal consistency, but its effectiveness will rely on the way Member States execute their strategies.

The second speech, given by Prof. Hendrik Schoukens (University of Ghent) concentrated on the connection, between the NRR and private property rights. The speaker highlighted that conventional views of property – based on notions of control and ownership through labour as famously articulated by John Locke – are in tension with the extensive ecological restoration initiatives demanded by the NRR. This conflict is already visible in practice. In fact, land transformations, such as the drained peatlands in Belgium converted into productive agricultural polders, continue to create disputes between conservation authorities and landowners who view these areas as legitimate products of labour and investment. As restoration obligations expand, such frictions are likely to intensify. Schoukens, on this regard, examined recent CJEU case law, par-

ticularly the *Sātiņi-S* ruling<sup>2</sup> of 2022 where the Court clarified that environmental restrictions in Natura 2000 sites constitute controls on the use of property, not expropriations, and therefore do not automatically require financial compensation under Article 17 of the Charter of Fundamental Rights. A subsequent judgment<sup>3</sup> in the same dispute added that overcompensation for use restrictions may even qualify as unlawful State aid, effectively placing limits on how far Member States can go in compensating landowners. These principles are crucial for understanding the NRR. Indeed, although the Regulation does not directly redefine property rights, its ambitious restoration targets – including peatland rewetting – will inevitably interfere with existing land uses. The clause in Article 11(4) making rewetting voluntary for private landowners may reduce political resistance, but it risks creating unrealistic expectations about the scope of existing obligations under Natura 2000 and other EU environmental law. In conclusion, he called for moving beyond a purely defensive view of property rights. Restoration measures can also protect property, for example by reducing flood risks.

The second panel opened with a presentation by Prof. Niko Soinen and Prof. Suvi-Tuuli Puharinen (University of Eastern Finland), examining why even the most advanced restoration laws - including the NRR - struggle to deliver the scale of ecological recovery urgently needed across Europe. The speakers began by framing the problem: decades of habitat destruction, land-use expansion and insufficient conservation have generated a significant “ecological debt”, leaving mitigation measures and traditional conservation tools unable to halt biodiversity loss. As they argued, restoring ecosystems at landscape scale – from forests to rivers – is now indispensable, and the NRR represents a major step forward in this direction. However, they noted that implementation continues to face systemic obstacles embedded in existing legal and economic structures. Through interdisciplinary work recently published in *Restoration Ecology*<sup>4</sup>, they developed the idea of shifting from the familiar restoration continuum (which prioritises mitigation and incremental improvement) toward a restoration hierarchy, where full ecological restoration is considered first and downscaled only when strictly necessary. This shift is particularly important in sectors such as hydropower, where current legal frameworks still favour partial measures (e.g., fish passages) rather

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<sup>2</sup> Case C-234/20 *Sātiņi-S* [2022] ECLI:EU:C:2022:56.

<sup>3</sup> Case C-238/20 *Sātiņi-S* [2022] ECLI:EU:C:2022:57.

<sup>4</sup> N. Soinen, S. Puharinen, A. Iho, S. Koljonen, J. Artell, K. Tolonen and A. Belinskij, ‘Ecological restoration hierarchy as a lens to reveal the foundational economic and legal structures impeding restoration’ (2025) *Restoration Ecology* e70216.

than transformative solutions such as dam removal – even though only full restoration would meaningfully recover riverine ecosystems. Drawing on case studies from Finland, they suggested that current laws often restrict the possibility of ambitious restoration because permits tend to be long-lasting and difficult to revise, property rights shield existing uses, and economic assessments typically consider single projects rather than whole ecosystems. Yet when evaluated through a systemic lens – for example, assessing an entire river rather than a single hydropower plant – full restoration can prove both ecologically necessary and economically advantageous. Lastly, they identified some foundational legal issues that consistently impede ambitious restoration across jurisdictions: property rights prioritise economic uses; restoration mandates are limited; natural resource permits are “sticky”, slowing or preventing intervention; environmental law is centred on mitigation, reinforcing the *status quo*; businesses externalise ecological harm, leaving restoration burdens to the public sector; restoration obligations are narrow, triggered only in specific circumstances; expropriation is used to promote development but not ecological recovery. These structural features, they argued, explain much of the persistent implementation gap in restoration law.

The second lecture, given by Prof. Jerzy Jendrośka (Opole University; Institute of Environmental Protection, Warsaw) explored public participation in the drafting and approval of National Restoration Plans (NRP) under Article 14 NRR, placing it within the context of the 1998 UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (the ‘Aarhus Convention’). He emphasized that public participation should be viewed comprehensively – encompassing the right to information, participation in decision-making processes and access to justice – even though these elements are only briefly mentioned in the Regulation. A major portion of his presentation concentrated on the Strategic Environmental Assessment (SEA) Directive 2003/35/EC, which he claimed holds a practical function in organizing public participation. He argued that Article 14(20) indirectly requires SEA.

Access to justice represented is another issue. The robust provision on access to justice initially proposed by the Commission – aligning with Article 9(2) of Aarhus Convention – was eliminated during negotiations. This passes the responsibility onto Member States and their courts to guarantee this right, possibly leading to inconsistencies throughout the Union, particularly in areas where access to justice is still limited. He further recalled that transparency duties stem from Directive 2003/4/EC indicating that all environmental information utilized in restoration strategies must be made available proactively (an element governments might undervalue). He concluded by warning that

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“stakeholder involvement” cannot replace public participation under Aarhus: the latter must include the wider public and environmental NGOs, not only sectoral interests. Confusing the two, he argued, would undermine essential procedural guarantees.

Prof. Lorenzo Ciccacese, a leading Italian authority on biodiversity and climate, formerly director of the Protected Areas division of the Italian Institute for Environmental Research (ISPRA) and Italy’s national focal point to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), gave the first afternoon keynote. His lecture examined how law and science must interact to solve the biodiversity crises. Illustrating the gravity of the continuing biodiversity decline, he maintained that our failure to address the direct and indirect causes of biodiversity loss is the result of past policy failures. For this reason, the 2022 Kunming-Montreal Global Biodiversity Framework stresses “mainstreaming”, which is the inclusion of nature’s many values across all economic sectors. The NRR, in his view, is a major milestone because it incorporates scientific knowledge into legally binding duties. Its implementation calls for strong co-operation among different governance levels, regional coordination, and reliance in established scientific knowledge baselines, monitoring, indicators and methods for prioritising interventions. In this context, Ciccacese concluded, science can identify priorities, but law must operationalise them and governance must deliver them.

After the keynote, the floor passed to Eleonora Ciscato (State University of Milano) who introduced the theme of the session: the synergies between nature restoration and other EU environmental objectives. As she noted, much of the morning discussion had focused on the NRR itself, but the Regulation does not operate in isolation. Indeed, its implementation inevitably intersects with broader environmental frameworks, from water quality to air pollution, often with cross-border implications.

Within this context Ciscato, introduced the opening panellist, Nienke van der Burgt (Ghent University), who addressed how the required nature restoration initiatives might be obstructed by pollution controls, especially those connected to PFAS contamination. Focusing on the Scheldt estuary (Belgium-Netherlands), she observed that all potential restoration methods, such as depoldering or creating wetlands, require either soil or water displacement. This creates a dilemma: while environmental law prohibits the spread of contamination, EU regulations require Member States to undertake ecological restoration. Van der Burgt provided two illustrations of how judicial bodies could handle this conflict. In the 2022 Hedwige polder case, objection to a restoration initiative based on concerns about PFAS was dismissed due to a documented pollution. Conversely, in the Belgian Oosterweel case the Council of State annulled authorizations, for the reuse of PFAS-polluted soil ruling that moving soil within an already compro-

mised area would breach the standstill principle. These judgments shows that future restoration initiatives will demand thorough, context-specific legal and environmental assessments, possibly even custom derogations to pollution controls, albeit with monitoring and risk mitigation measures.

The panel proceeded with a talk, from Elisa Cavallin (Ghent university), who analyzed how three EU instruments – the NRR, the Carbon Removals and Carbon Farming Certification Regulation<sup>5</sup> and the new Soil Monitoring and Resilience Directive<sup>6</sup> – work together in tackling Europe’s escalating soil emergency. She started by highlighting the state of European soils: extensive pollution, buildup of pesticides and heavy metals decline in soil organic carbon, erosion, compaction and the continuous deterioration of farmlands and peatlands. She observed that these actions weaken efforts for climate mitigation, biodiversity conservation, food production and the overall well-being of humans. She recognized potential synergies among the three tools: restoration objectives can directly enhance soil quality; the Soil Monitoring Directive offers the essential data framework; and the Carbon Farming Regulation, while focused on carbon might promote ecological gains via sustainability standards. Meanwhile tensions persist. The three laws vary in their binding force, which could lead to inconsistent application. Conflicting land-use needs – restoration, carbon farming and agriculture – might result in disputes if not managed properly. Monitoring requirements may prove onerous and support from stakeholders and farmers should not be taken for granted. Cavallin concluded that, while these instruments have strong potential to reinforce each other, realising that potential will require coherent implementation, consistent monitoring systems, and careful management of trade-offs across Europe’s landscapes.

The concluding presentation of the panel was given by Prof. Volker Mauerhofer (Meiji University, Tokyo) who provided an in-depth examination of the connection, between the NRR and three fundamental instruments in the EU nature law: the Habitats Directive,<sup>7</sup> the Birds Directive<sup>8</sup> and the Environmental Liability Directive

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<sup>5</sup> Regulation (EU) 2024/3012 of the European Parliament and of the Council of 27 November 2024 on the certification of carbon removals, carbon farming and carbon storage in products [2024] OJ L.

<sup>6</sup> Directive (EU) 2025/2360 of the European Parliament and of the Council of 12 November 2025 on Soil Monitoring and Resilience (Soil Monitoring Law) [2025] OJ L.

<sup>7</sup> Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds [2010] OJ L20/7.

<sup>8</sup> Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora [1992] OJ L206/7.

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(ELD).<sup>9</sup> From the beginning Mauerhofer emphasized that the NRL was designed by the EU legislator with a clear goal of complementarity. The regulation does not supplant the existing framework, instead it extends its coverage particularly in domains that were either overlooked or only partially included before. This is underscored by the frequency with which the NRR refers to both the Habitats and Birds Directives affirming their status as the foundation of EU nature conservation legislation. A key aspect of his presentation focused on the connection, between the notion of “good condition” and the established “favourable conservation status” (FCS) as defined in the Habitats Directive. Mauerhofer argued that the NRL employs “good condition” not as a replacement of FCS, but rather as an instrument to render it operational: reaching good condition should aid in achieving favourable conservation status, which continues to be the more robust and legally enforceable target. Given that the NRL has more flexible rules it should be interpreted in a uniform way that ensure that the stricter requirements of the existing directives take precedence in the event of any conflict. Mauerhofer also tackled matters such as the varying geographical scopes of the two systems (local for the directives national for the NRL) and the contrasting processes for exceptions and compensation measures. His main point is that when the two legal frameworks intersect, interpreters must prioritize the rigorous requirements of the Habitats and Birds Directives consistently with the principle of achieving a high level of environmental protection enshrined in the Treaties.

The final session of the day, devoted to the financing of nature restoration, opened with a speech by Francesca Leucci (Brussels School of Governance). Her talk focused on one of the most rapidly evolving and debated instruments in this field: biodiversity credits, a market-based tool to support ecosystem restoration. Leucci described biodiversity credits as instruments that embody quantifiable ecological enhancements – like rehabilitated forests or wetlands – which can be acquired by governmental or private entities. Numerous such projects are already underway worldwide demonstrating the growth of this sector. Nevertheless, she highlighted the difficulties associated with these initiatives. The first challenge is valuation: existing frameworks for quantifying biodiversity benefits are vague and unreliable. The second challenge involves measurement of gains, as biodiversity is intricate and hard to represent, using metrics raising the potential for greenwashing. Issues of fairness also emerge in relation to the rights of local communities and landowners. Within the EU, the NRR promotes the involvement

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<sup>9</sup> Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage [2004] OJ L143/56.

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of private funding in restoration efforts but provides minimal guidance on the functioning of these markets. This shortfall is currently being tackled by the Commission's 2025 Roadmap to Nature Credits,<sup>10</sup> which offers a certification framework inspired by carbon credits. Although it aims to enhance consistency and clarity numerous scientific and legal issues remain unresolved. Leucci concluded by stressing that biodiversity credits will likely play a growing role in EU restoration policy and that legal scholars should engage early to help shape a credible and equitable framework.

The second presentation of this panel, delivered by Mario Barbano (University of Genova), explored the relationship between state aid regulations and the funding requirements of the NRR. Barbano emphasized that restoration commitments impose financial burdens on Member States, which primarily draw from national budgets to support them. He stated that state support frameworks in biodiversity serve two purposes: they can effectively aid restoration initiatives and they must also stop public funds from bolstering environmentally damaging practices. He argued that national restoration strategies need to pinpoint and gradually eliminate subsidies. Barbano explained that restoration funding does not always count as state aid such as when they fall under the *de minimis* regime or entail conservation activities only. State aid rules can be relevant if projects entail purchasing land, yet the General Block Exemption Regulation may nonetheless exclude such projects from their scope.<sup>11</sup> He concluded by emphasising that while various legal tools exist to promote public financing of restoration projects, they differ in administrative complexity and offer varying levels of legal certainty. For this reason, clearer Commission guidance and closer monitoring of state-funded measures is essential. Ultimately, state aid can help bridge the financing gap, but direct EU funding would remain the most effective and distortion-free solution.

The concluding presentation, given by Paola Francesca Rizzi (University of Bari) explored novel incentive-driven approaches to restoring biodiversity in farming environments. Agriculture sits at the heart of the biodiversity challenge: it produces harmful externalities while EU bodies have historically sought to promote sustainability by enhancing positive impacts and minimizing negative ones through the Common Agricultural Policy (CAP). Nevertheless, the ongoing economic volatility in the sector renders sustainability efforts particularly challenging for farmers, reflecting Garrett Hardin's

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<sup>10</sup> European Commission, 'Roadmap towards Nature Credits' (Communication) COM (2025) 374 final.

<sup>11</sup> Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty [2014] OJ L187/1.

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“tragedy of the commons”. The NRR establishes, for the first time, mandatory duties for agricultural ecosystems especially in Article 11 but also includes a contentious food-security safeguard clause that may broaden the leeway of Member States. Rizzi advocates for additional economic tools that narrow the profitability difference, between sustainable and unsustainable methods. This is where payments for ecosystem services (PES), voluntary arrangements through which one party remunerates another for providing an environmental service, become relevant. The most significant example is the French model of obligations *réelles environnementales*, introduced in 2016: real obligations attached to land that allow landowners to be compensated for conservation or restoration activities. This innovative mechanism, in the view of the speaker, combines environmental protection with economic incentives and, given its compatibility with civil-law traditions like Italy’s, represents a promising candidate for legal transplantation.

The day finished with a round table focused on the technical and cultural obstacles facing Member States as they formulate their National Restoration Plans pursuant, to the NRR. Participants included Federica Luoni (LIPU), Vito Emanuele Cambria (La Sapienza), Francesca Leucci (IPBES) and Jerzy Jendrośka, who participates in creating Poland’s restoration plan. Federica Luoni depicted a scenario the current process for the preparation of the Italian NRP by a lacking in transparency. Without open communication and genuine public engagement, the Regulation may be regarded as just another technical exercise. For this reason, she said that the Italian league for the protection of birds (LIPU) is attempting to raise awareness of nature restoration, advocating for more robust institutional actions. Vito Emanuele Cambria then recapped the results of a survey of the Italian community of restoration practitioners, which identified multiple common challenges: unreliable data, incomplete habitat mapping, disjointed vertical and horizontal governance and insufficient collaboration among agriculture, water and forestry sectors. In his view public engagement is crucial and it needs to be based on a more robust ecological knowledge. Jerzy Jendrośka discussed the situation in Poland, which he found to be influenced by domestic political debates. In preparing its NRP, Poland has formed working groups and implemented a participatory process along with a SEA, which should be completed, prior to sending the draft plan to the Commission in September 2026. Nevertheless, he pointed out that Member States have different approaches regarding the timing of participation and SEA, and many are unclear on their duties under the Aarhus Convention. He further emphasized some legal challenges inherent in the restoration planning: modifying land-use planning, water laws, environmental assessments and guaranteeing cross-border collaboration. Francesca Leucci highlighted that the challenge goes beyond administrative issue and is funda-

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mentally systemic: embedding biodiversity into spatial planning requires navigating regulatory intricacies that span various levels and fields. Although public participation is essential numerous elements – like determining baselines – are fundamentally technical; hence suitable educational and mediation instruments are essential.

Addressing the question on how the NRR can foster the profound transformative change needed to tackle the biodiversity crisis, Luoni underscored the importance of emotional and behaviour involvement of the public. Unless there is a transformation in societal habits, such as diet, consumption patterns, transports and views of nature, restoration may continue to be a purely technical task detached from the life of communities. Cambria highlighted that nature continues to be viewed mainly as a limitation, which leaves political discussions open to oversimplified narratives. In his opinion a transdisciplinary method connecting science, law and public communication is essential to develop a cultural narrative, about restoration. In this context, Jendrośka emphasized again that public involvement often primarily aims to foster agreement and political backing, yet, for the NRR to succeed, environmental awareness needs to increase and access to justice must be available. In the absence of enforcement mechanisms, no law can be genuinely successful. Leucci concluded by assessing the need to rebuild our cultural relationship with nature, drawing on traditional knowledge and promoting direct educational experiences. Bringing students and citizens back into natural environments can trigger a lasting change in how nature is perceived and valued.

The first panel of Friday, chaired by Prof. Giuseppe Spoto (Roma Tre) opened with a presentation by Luigi Servadei of the Italian Agricultural and Agronomic Research Council (CREA). He emphasized that implementing the NRR poses both a challenge and an opportunity to enhance environmental governance across the Union. He stressed that the Regulation's success depends on Member States integrating it into their existing legal frameworks – from the Habitats Directive to the Water Framework Directive,<sup>12</sup> the Marine Strategy Framework Directive<sup>13</sup> to the laws addressing air pollution. He argued that a unified strategy is essential to avoid duplication, enhance collaboration and guarantee the success of restoration measures, particularly in the most sensitive ecosystems. The CAP may also contribute to this end, yet, its tools need to be harmonized with restoration goals and promote sustainable agricultural methods.

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<sup>12</sup> Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy [2000] OJ L327/1.

<sup>13</sup> Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy [2008] OJ L164/19.

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The second presenter, Niels Hoek (European University Institute), explored how the NRR tackles the decrease in pollinators, which are vital to biodiversity and food security, given that 70% of crops grown in Europe are reliant on animal pollination. He noted that pollination is the product of an ecological network formed through millions of years of co-evolution, one that is increasingly disturbed by habitat destruction, pesticides, intensive farming, climate change and light pollution. Article 10 NRR establishes the critical environmental objective to stop the decline of pollinators population by 2030 and promote their increase thereafter. Key actions include restoring native vegetation, minimizing chemical impacts and maintaining interconnected and diverse habitats. Nevertheless, Hoek emphasized that the implementation of these actions encounter policy obstacles. Weak pesticide rules, incentives for intensive production, slow invasive species controls, even EU lighting standards threaten to undermine the NRR's goals.

The next speech, given by Enrico Mezzacapo (University of Pisa), explained how the NRR and the CAP are two pathways that must now converge. Agriculture, he noted, is one of the main drivers of biodiversity loss in Europe due to pesticide use, landscapes simplification and climate change which are degrading ecosystems and making food systems increasingly fragile. Over the years, the CAP has tried to integrate environmental objectives, but often with limited results. The NRR is an important step forward, yet it has arrived weakened by political compromises: several measures targeting agricultural ecosystem were softened, and there is no specific funding commitment. Since the NRR does not impose direct obligations on farmers, he argued that the CAP becomes the key instrument to make restoration on agricultural land truly effective. There are important synergies between the two – such as GAEC<sup>14</sup> standards and eco-schemes – but the current CAP still risks slowing down restoration efforts, also because of derogations and the lack of reform in the most environmentally harmful sectors. Mezzacapo concluded that three reforms are essential: secure and dedicated public funding, conditionalities genuinely aligned with the NRR and the elimination of environmentally harmful subsidies. Voluntary carbon or biodiversity markets, he stressed, cannot replace the role of public policy to this end.

The last speaker of this panel, Siemen Kalders (University of Hasselt) focused on the recovery of grassland butterflies in Flanders, an area where losses have been severe: almost one-third of species have already disappeared, and numerous others continue to

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<sup>14</sup> Good Agricultural and Environmental Conditions.

be at risk. The NRR's framework allows Member States to choose the grassland butterfly index as one of the metrics for assessing the health of agricultural ecosystems. If Member States choose to do so, they must adopt measures necessary to increase butterfly numbers until "satisfactory levels" are reached. Kalders described why butterflies serve as an important ecological indicator: they react swiftly to alterations in land use, nitrogen deposition, pesticide application and habitat fragmentation, and while their resurgence frequently indicates broader biodiversity gains. Nonetheless, he also pointed out legal issues with the index, particularly that of shifting baselines, given that most monitoring records start only in the 1990s, well after significant declines had already happened. This threatens to reduce restoration goals unless guided by evidence and the precautionary principle. He concluded that the NRR offers a real opportunity for Flanders to reverse decades of decline of its butterflies, but effective implementation will require clear EU guidance, coherent national baselines, and a broader ecosystem-based view that extends beyond the 17 species in the index.

The final session of the conference, chaired by Katia Lafussa (LUMSA University of Rome), explored constitutional and comparative perspectives on ecological restoration. Laffusa recalled the Italian constitutional reform which modified Article 9 to explicitly include the protection of the environment, biodiversity and ecosystems also in the interest of future generations, and Article 41, which places environmental sustainability as a limit on private economic initiative. Within this constitutional landscape, the panel examined how the NRR interacts with national constitutional principles, especially where restoration obligations may collide with private economic interests.

The session opened with a presentation by Eleonora Ciscato (State University of Milan) and Matilde Meertens (University of Ghent), entitled "Striving for Just Ecological Restoration: A Critical Analysis of the EU Nature Restoration Regulation"<sup>15</sup>. They emphasized that ecological restoration can be truly successful only if it incorporates environmental justice. For them, three key components are fundamental to achieve this goal: the fair distribution of burdens and benefits, the genuine involvement of affected communities, and the recognition of the different values people attribute to nature. Applying this framework to the NRR, they observed that the regulation contains references to fairness and participation, though often implicitly and without strong guarantees. Moreover, significant issues remain in certain sectors – such as agriculture and fisheries – where greater burdens will be sustained, and the quality of participatory processes

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<sup>15</sup> E. Ciscato and M. Meertens, 'Striving for just ecological restoration: A critical analysis of the EU Nature Restoration Regulation' (forthcoming) *Transnational Environmental Law*.

will largely depend on how individual Member States choose to implement them. The speakers also warned of the risk that the NRR may be applied solely through a technical lens, overlooking the perceptions, values and needs of local communities. A genuine “just ecological restoration” instead requires national plans to explicitly address these dimensions, ensuring that restoration efforts are not only ecologically effective but also socially equitable.

The next speaker, Alberto Jaci (University of Messina), emphasized that private environmental litigation can have a role in ensuring compliance with NRR. Because the NRR imposes binding restoration obligations on Member States, disputes might occur between environmental objectives and individual economic concerns. In this scenario, Jaci highlighted the role of litigation by individuals and environmental groups, who may be empowered to initiate lawsuits to enforce restoration duties or claim compensation. He further explored how civil liability, and the “polluter pays” principle are enforced when environmental damage arises, while also acknowledging the importance of ADR (alternative dispute resolution). Overall, Jaci argued that private litigation may become a key instrument for ensuring the NRR’s effectiveness and fostering a shared, multilevel responsibility for ecological restoration.

The third presentation of the session, delivered by Ilaria Costanzo (University of Ca’ Foscari), explored the connection between NRR and the environmental principles of EU law detailed in Article 191 TFEU, which typically emphasize prevention, followed by remediation and the polluter-pays principle. The NRR, in her view, deviates from this hierarchy: instead of prioritizing the avoidance of environmental damages, it recognizes that Europe’s environment is, presently, in a critical condition. Consequently, it places restoration above prevention, which take a supportive role. This represents a shift in principles, as the regulation encourages enhancing ecological status rather than simply preserving the existing situation from further harm. This innovation is both a strength and a vulnerability since the NRR still operates within a legal system still rooted in the logic of prevention. Ultimately, for her, it will be national implementation and judicial interpretation that determine which model will prevail.

Finally, the last speaker of the Conference, Franco Sicuro (University of Bari, Aldo Moro), proposes the NRR as a basis for a novel framework of “environmental governance” within Italy’s constitutional framework. The NRR directly connects with the 2022 reform, giving rise to the accountability for organizations and economic actors for their impacts on ecosystems, aligning with the Constitutional Court’s ruling in Judgment 105/2024. However, he pointed out those recent decisions – like hunting reforms – highlight the vulnerability of the existing framework and the danger of separating

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species protection from ecosystem conservation. In his opinion there are four avenues to be investigated: the institutional impact of the NRR on territorial governance and the inclusion of biodiversity tools in special planning; the need to rethink urban environments so as to protect fauna; the potential limitation on legislative discretion regarding issues covered by the NRR, grounded in the constitutional “mandate to protect the environment” and the emergence of a new model of environmental governance, informed by supranational principles and a systemic reading of Articles 9, 11, 32, 41 and 117 of the Italian Constitution. Sicuro concluded that the NRR presents an opportunity to reshape Italian constitutional law according to a biocentric perspective.

In the end, the conference revealed that the NRR represents a change in EU environmental law. Throughout the panels, three overarching insights surfaced. First, the NRR demands systemic integration since its success relies on harmonious coordination with current EU frameworks – like the Habitats, Water, Soil monitoring and Environmental Liability Directives – alongside national constitutional tenets and sector-specific policies, including the CAP. Second, the Regulation highlights the increasing reliance of legal frameworks on scientific knowledge. Trustworthy data, tested environmental indicators and baseline evaluations are essential to convert restoration objectives in binding commitments. Third, restoration has a fundamental socio-legal nature, raising distributive issues, requiring public involvement and necessitating economic and cultural changes that go beyond mere compliance with the law.

Overall, the conference has shown that the NRR provides an ambitious and innovative framework, but its success will hinge on Member States’ capacity to implement it coherently, mobilise adequate resources and foster a renewed relationship with nature. It highlighted that despite the challenges inherent in the NRR, ecological restoration duties represent a critical opportunity to build the foundations for long-term social, economic, institutional and constitutional sustainability in Europe.