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Master`s Thesis

Legal Challenges and Opportunities in Protecting Biodiversity

Biologinės įvairovės apsaugos teisiniai iššūkiai ir galimybės

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ABSTRACT AND KEY WORDS

This thesis examines how the international and EU biodiversity Law can be transformed from paper rules into real outcomes. It analyses the global, EU legal frameworks and reviews species-protection derogations of hunting, management of the protected areas, and the relationship between Article 6 of the Habitats Directive and EIA/SEA procedures, and the legal position of the Nature Restoration Law. The thesis proposes an Assessment → Action permit provisions, monitoring-trigger package, and a finance-accountability matrix, an evidence-chain checklist to provide fewer annulments and verifiable steps towards site-specific conservation objectives, based on the criteria of CJEU.

Keywords: Biodiversity law, Natura 2000, Appropriate Assessment, Hunting derogations, Nature Restoration Law, Site-specific conservation objectives (SSCOs), Environmental Liability Directive

Šiame darbe nagrinėjama, kaip tarptautinis ir ES biologinės įvairovės įstatymas gali būti transformuotas iš popierinių taisyklių į realius rezultatus. Joje analizuojami pasauliniai ir ES teisiniai pagrindai, apžvelgiamos rūšių apsaugos išimtys, susijusios su medžiokle, saugomų teritorijų tvarkymu, Buveinių direktyvos 6 straipsnio ir PAV/SPAV procedūrų santykis bei Gamtos atkūrimo įstatymo teisinė padėtis. Darbe siūlomos vertinimo → veiksmų leidimo nuostatos, stebėsenos priemonių paketai ir finansinės atskaitomybės matrica, taip pat įrodymų grandinės kontrolinis sąrašas, siekiant sumažinti panaikinimų skaičių ir patikrinti pažangą siekiant konkrečioms teritorijoms skirtų apsaugos tikslų, remiantis ESTT standartais.

Raktiniai žodžiai: Biologinės įvairovės įstatymas, „Natura 2000“, tinkamas vertinimas, Medžioklės išimtys, Gamtos atkūrimo įstatymas, Konkrečioms vietovėms skirti apsaugos tikslai (SSCO), Atsakomybės už aplinkosaugą direktyva

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LIST OF ABBREVIATIONS

AA - Appropriate Assessment (Habitats Directive, Art. 6)
AEWA - Agreement on the Conservation of African-Eurasian Migratory Waterbirds
APPs - *Áreas de Preservação Permanente* [EN: Permanent Preservation Areas] (Brazil)
BIK - *Biologinés įvairovės konvencija* [EN: Convention on Biological Diversity]
CAP - Common Agricultural Policy
CBD - Convention on Biological Diversity
CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora
CJEU - Court of Justice of the European Union
CFP - Common Fisheries Policy
CH₄ - Methane
CO₂ - Carbon dioxide
COP - Conference of the Parties
DOC - Department of Conservation (New Zealand)
ECtHR - European Court of Human Rights
EIA - Environmental Impact Assessment
ELD - Environmental Liability Directive
ESA - Endangered Species Act (United States)
ESTT - *Europos Sąjungos Teisingumo Teismas* [EN: Court of Justice of the European Union]
EU - European Union
FCS - Favourable Conservation Status
FONAFIFO - *Fondo Nacional de Financiamiento Forestal* [EN: National Forestry Financing Fund] (Costa Rica)
GBF - (Kunming–Montreal) Global Biodiversity Framework
HCP - Habitat Conservation Plan (US ESA §10)
ICCAs - Indigenous Peoples' and Community Conserved Areas/Territories
IROPI - Imperative Reasons of Overriding Public Interest
IUCN - International Union for Conservation of Nature
LIFE - EU Programme for Environment and Climate Action
NEM:BA - National Environmental Management: Biodiversity Act (South Africa)
NEM:PAA - National Environmental Management: Protected Areas Act (South Africa)
NGO - Non-governmental organisation
NRL - Nature Restoration Law (EU)
OECM - Other Effective area-based Conservation Measure (plural: OECMs)
OUV - Outstanding Universal Value (World Heritage)
PES - Payments for Ecosystem Services
SAC - Special Area of Conservation
SARA - Species at Risk Act (Canada)
SCI - Site of Community Importance

SDF - Standard Data Form (Natura 2000)
SEA - Strategic Environmental Assessment
SESV - *Sutartis dėl Europos Sąjungos veikimo* [EN: Treaty on the Functioning of the European Union]
SINAC - *Sistema Nacional de Áreas de Conservación* [EN: National System of Conservation Areas] (Costa Rica)
SPA - Special Protection Area
SPAV - *Strateginis pasekmių aplinkai vertinimas* [EN: Strategic Environmental Assessment]
SSCO(s) - Site-Specific Conservation Objective(s)
TFEU - Treaty on the Functioning of the European Union
TEU - Treaty on European Union
TN - Total Nitrogen
TP - Total Phosphorus
UK - United Kingdom
US - United States (of America)
WDPA - World Database on Protected Areas
eDNA - environmental DNA

INTRODUCTION

The loss of biodiversity has emerged as one of the twenty-first-century environmental law litigations. The disappearance of species and habitats is at an appalling rate despite the heavily interconnected web of international and European Union (EU) duties. This gap in law sophistication and performance as concerns the environment leads to the motive to choose this topic. Despite the more thorough normative framework provided in the Convention on Biological Diversity (CBD) and in the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive), and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Birds Directive), the enforcement is still piecemeal, which only leads to paper protection, not quantifiable results. The thesis thus looks at ways in which the international and EU biodiversity law can be translated into implementation in enforceable and result-oriented governance that can yield measurable conservation gains.

The object of research is the legal system of biodiversity protection at the different levels, including international, EU, and national, with the emphasized mechanisms that transform the ecological goals into legal obligations. The interaction between the EU Nature Directives, Environmental Liability Directive, and the new Nature Restoration Law, and the connection between the directives and the international standards, such as the CBD, CITES, Ramsar, and the World Heritage Convention, are given special attention.

The relevance and novelty of the study are predetermined by one of the paradoxes: the EU biodiversity regime is among the most developed in the world, and its success is still uneven. In conjunction with ambiguous site purposes, incomplete identifications, and the absence of Appropriate Assessments, the challenges are continuing to hamper performance. The proposed new Nature Restoration Law (2024) suggests binding restoration paths, which can only work out when included in the existing Article 6 of the Habitats Directive processes. The study has a novel contribution, as it devises useful approaches to mitigating legal requirements and the practice of implementation into operational, verifiable instruments.

The **aim** of the thesis is to evaluate the legal issues and operational prospects of ensuring biodiversity protection through the transformation of international and EU norms into enforceable and outcome-based governance. To achieve this aim, the research undertakes a variety of **interrelated tasks**: first, to examine multilevel legal framework and the normative underpinnings of the protection of the biodiversity; secondly, to examine the regulation at the species level, in particular lawful use and derogations under the Birds and Habitats Directives; third, to assess the management of the protected areas and the Natura 2000 management; fourth, to assess the interaction of economic authorisations and impact-assessment procedures with the obligations of Article 6 of the Habitats Directive; and fifth, to recommend the operational instruments.

The methodology has a logical and systematic legal approach intertwined with the comparative and empirical aspects. International conventions, the EU treaties, directives, and case law of the Court of Justice are interpreted by the doctrinal approach. The comparative approach will be associated with other jurisdictions that provide similar teachings in relation to enforcement and governance systems, such as the United States, Canada, New Zealand, South Africa, and Costa Rica. The interpretation of important legal provisions is done by linguistic and teleological methods, and desk-based empirical research is based on government reports and instructions (e.g., State of Nature, Commission implementation reports, IUCN documentation).

The main sources consist of international treaties (CBD, Ramsar, Bern, World Heritage), EU primary and secondary legislation (TEU, TFEU, Habitats, Birds, Environmental Liability, and Nature Restoration Law), and CJEU case law (especially *Waddenzee*, *Sweetman*, *Holohan*, *People Over Wind*, and *Bialeowicz*). The major relevant doctrinal literature used in the thesis includes Birnie, Boyle, and Redgwell, *International Law and the Environment*; Kiss and Shelton, *Guide to International Environmental Law*; Krämer, *EU Environmental Law*; and Pallemerts and Hancher (eds), *EU Environmental Law and Policy*. In addition, comparative environmental laws, notably United States Endangered Species Act of 1973, Canada's Species at Risk Act (SC 2002, c 29), Brazil's Forest Code (Law No. 12.651 of 25 May 2012), South Africa's National Environmental Management: Biodiversity Act 10 of 2004, and New Zealand's rights-of-nature framework as reflected in the Te Urewera Act 2014 and the Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 also used as interpretive sources in the research.

The thesis is divided into four chapters. Part 1 provides a legal and institutional framework of biodiversity protection, and outlines the holes in the systemic implementation. Part 2 tells about the preservation of species, lawful usage, and hunting derogations within and outside the EU. Part 3 reflects on the governance of the topic of the protected areas and Natura 2000, comparing the EU practice with the international and non-EU models. Part 4 aims at controlling economic activities that are impacting on Natura 2000 and incorporating restoration targets in authorisation provisions. This paper concludes by summarising the results and suggests a working model that will connect site goals, evaluation, permitting, monitoring, and funding into a chain of coherent enforcement.

In summary, this paper argues that biodiversity conservation will remain declaratory until its obligations are implemented with the assistance of quantifiable terms, adaptive surveillance, and economic accountability. The thesis aims to change the current biodiversity law into a framework that can provide concrete and measurable ecological outcomes through the provision of a disciplined and working legal framework.

1. FOUNDATIONS AND MULTILEVEL ARCHITECTURE OF BIODIVERSITY LAW

1.1. From Pollution Control to Ecosystem Integrity (1972-1992 and beyond)

1.1.1. The Emergence of ‘Biodiversity’ as a Legal Concept (Stockholm to CBD)

The 1972 Stockholm Declaration marked the first legal mention of the importance of nature, and environmental protection became a global agenda and a factor of human health and development.¹ The Declaration encouraged States to protect natural resources, such as air, water, land, plants, and animals, for the advantage of the current and future generations.² However, biological diversity was not yet a crystallised concept of the law; the policy remained focused on pollution control and resource management and not ecosystem integrity. The term biodiversity subsequently shifted out of conservation biology to legal and policy use, and indicated a change in regulatory focus, not on pollutant-by-pollutant regulation, but towards the integrity of ecological systems.³

In the subsequent decades, the evolution of science and environmental disasters led to the shift of the ecological law regarding species protection to the level of ecosystem and genetic diversity. Biodiversity law has a conceptual basis that is traced back to the World Charter on Nature of 1982 and the Rio Declaration on Environment and Development of 1992, which realized the ecological interdependence of all living things.⁴ The signing of the Convention on Biological Diversity (CBD) in 1992 gave a definite breakthrough: its Preamble stated that biodiversity is a “common concern of humankind”, which has shifted conservation from a national policy concern to a global policy issue.⁵ Article 2 of the Convention established a broad meaning of biodiversity to mean variability among living organisms of all sources, including that within a species, and between and among ecosystems.⁶ This definition is still the backbone of any other legislation on biodiversity. The CBD provided a vocabulary that could be easily operationalised by others by defining

¹ *Declaration of the United Nations Conference on the Human Environment (1972)*. UN Doc. A/CONF.48/14/Rev.1.

² *Ibid.*, Principle 2.

³ TAKACS, David (1996). *The Idea of Biodiversity: Philosophies of Paradise*. Baltimore: Johns Hopkins University Press.

⁴ *World Charter for Nature (1982)*. UNGA Res 37/7.; *Rio Declaration on Environment and Development (1992)*. UN Doc. A/CONF.151/26 (Vol. I).

⁵ *Convention on Biological Diversity (1992)*. 1760 UNTS 79, Preamble.

⁶ *Convention on Biological Diversity (1992)*. 1760 UNTS 79, Art. 2.

biodiversity as genetic, species, and ecosystem variability, which would be operationalised later by various instruments and courts.⁷

The CBD united, under one regime of conservation, sustainable use and benefit sharing, the previously divided treaty measures such as the Ramsar Convention (1971) on wetlands and CITES (1973) on the endangered species.⁸ It also pioneered a cross-sectoral strategy whereby States needed to incorporate biodiversity issues into agriculture, forestry, fisheries, and trade.⁹ A theoretical difference has been created between “biological diversity” (a descriptive term in science) and “biodiversity” (a legal normative construct which reflects moral and economic values).¹⁰ Such a development is a symptom of a larger controversy between the intrinsic and instrumental value of nature: whether biodiversity is important in itself or useful to human beings.¹¹ Modern biodiversity law acknowledges both aspects because it understands that human well-being is based on ecosystem integrity as well as having its own value. This intrinsic-instrumental duality has become the basis of the evaluation of ecosystem services and the contributions of nature to the people, without neglecting the ecocentric obligations.¹²

1.1.2. Principles and Instruments Structuring International Biodiversity Governance

The contemporary biodiversity law is based upon a set of general principles which have since the 1970s have crystallized and are articulated in a series of multilateral environmental agreements. The principle of sustainable development is a concept that was first developed by the Brundtland Report (1987) and later reiterated in Principle 4 of the Rio Declaration (1992), which states that environmental protection should be an inseparable part of the economic and social development process.¹³ This precautionary principle (Principle 15, Rio Declaration) suggesting precautionary

⁷ Convention on Biological Diversity (1992). [online]. <https://www.cbd.int/convention/text/>

⁸ *Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) (1971)*. 996 UNTS 245.; *Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973)*. 993 UNTS 243.

⁹ *Convention on Biological Diversity (1992)*. 1760 UNTS 79, Art. 6.

¹⁰ A TROUWBORST, Arie (2009). The precautionary principle and the ecosystem approach in international law: differences, similarities and linkages. *Review of European Community & International Environmental Law*, 18(1), 26–37.

¹¹ BOSSELMANN, Klaus (2016). *The Principle of Sustainability: Transforming Law and Governance*. 2nd edn. Abingdon, New York: Routledge.

¹² DIAZ, Sandra; PASCUAL, Unai; STENSEKE, Marie et al. (2018). Assessing nature’s contributions to people. *Science*, 359(6373), 270–272.

¹³ WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (1987). *Our Common Future*. Oxford: Oxford University Press.; *Rio Declaration on Environment and Development (1992), Principle 4*.

action in case of scientific uncertainty is comparable, especially when it comes to biodiversity, where the ecological limits are usually unclear.¹⁴ Other normative supportive principles entail intergenerational equity, the need to be resource-saving to future generations, the polluter-pays principle, and the common but differentiated responsibilities (CBDR) principle, whereby different State levels have different capacities and duties.¹⁵ However, more recently, the United Nations General Assembly conferred the right to a clean, healthy and sustainable environment, which presented a human-rights approach to the protection of biodiversity in 2022. In 2022, these principles were once again put into a human-rights framework of governance of biodiversity with the UN General Assembly noting the right to a clean, healthy, and sustainable environment.¹⁶

These principles are operationalised by a number of cornerstone treaties. The CBD is the most prominent framework tool that clarified three goals, namely, conservation of biological diversity, sustainable utilization of its elements, and equitable and fair distribution of the benefits of genetic resources.¹⁷ It also has a Conference of the Parties (COP) that makes decisions and protocols such as the Cartagena Protocol on Biosafety (2000) or Nagoya Protocol on Access and Benefit-Sharing (2010) that elaborate on some of its commitments. The strength of the CBD is in its universality and conceptual width, although the compliance system is predominantly cooperative as opposed to coercive.¹⁸ It is important to note that compliance with CBD is also facilitative and cooperative, with a preference given to transparency and capacity building as opposed to the application of sanctions.¹⁹

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1973) is a supplement to the CBD to control the global trade by issuing export and import permits to the species that are listed in three Appendices. The most notable thing about CITES is that it has quite good enforcement mechanisms, such as imposing trade sanctions on those who continue to

¹⁴ *Rio Declaration on Environment and Development (1992), Principle 15.*

¹⁵ BROWN WEISS, Edith (1990). Our rights and obligations to future generations for the environment. *American Journal of International Law*, 84(1), 198–207.; *Rio Declaration on Environment and Development (1992), Principle 7.*

¹⁶ United Nations General Assembly (2022). Resolution 76/300: The human right to a clean, healthy and sustainable environment. [online]. <https://undocs.org/A/RES/76/300>

¹⁷ *Convention on Biological Diversity (1992). 1760 UNTS 79, Arts 1, 6.*

¹⁸ BIRNIE, Patricia; BOYLE, Alan and REDGWELL, Catherine (2021). *International Law and the Environment*. 4th edn. Oxford: Oxford University Press, 667–668.

¹⁹ MORGERA, Elisa and TSIOUMANI, Elsa (2011). Yesterday, Today, and Tomorrow: Looking Afresh at the Convention on Biological Diversity. *Yearbook of International Environmental Law*, 21(1), 3–40.

violate it. The Ramsar Convention (1971) brought the concept of the so-called wise use, and every Party under this Convention was supposed to designate at least one wetland of international interest, which connected the conservation of the ecosystem with its sustainable use.²⁰ The 1979 Bern Convention, adopted in the Council of Europe, providing a regional solution to the conservation of species and habitats, was the inspiration of the subsequent Natura 2000 network of the EU.²¹ Combining conservation of the environment with conservation of culture, the World Heritage Convention (1972) offers protection to natural sites of outstanding universal value.²² An example of how market leverage can be used in a narrow context to add to larger conservation systems can be seen through the trade pauses of CITES, which are deployed infrequently.²³

All of these tools indicate the development of biodiversity as a global issue and the slow transition between voluntary collaboration and mandatory legal obligations. But enforcement mechanisms remain fragile and disjointed, and most treaties are founded on the principle of national implementation and periodical reporting rather than sanctions. The new step has become the Kunming-Montreal Global Biodiversity Framework (2022), which the CBD has adopted, as it has global targets that are measurable, e.g., protect 30% of the terrestrial and marine areas by 2030, and has accountability indicators.²⁴ Although not legally binding, the Framework is an indication of an increasing political agreement that biodiversity loss needs to be addressed by taking quantifiable and time-bound pledges. The Kunming-Montreal Framework 2030 targets have shifted the measurability into the three categories: area-based, quality-based, and finance-tracking indicators, to the currency of global accountability.²⁵

Overall, the international biodiversity law pairs general normative guidelines with blended levels of enforcement mechanisms; its efficiency, eventually, will depend on national enforcement and regional integration the issues discussed in the following Section 1.2, the EU framework.

²⁰ *Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) (1971)*. 996 UNTS 245, Preamble, Arts 2–3.

²¹ *Convention on the Conservation of European Wildlife and Natural Habitats (1979)*. ETS No. 104, Art. 1.

²² *Convention concerning the Protection of the World Cultural and Natural Heritage (1972)*. 1037 UNTS 151, Arts 2, 11.

²³ REEVE, Rosalind (2014). *Policing International Trade in Endangered Species: The CITES Treaty and Compliance*. London: Earthscan/Routledge.

²⁴ *Convention on Biological Diversity, Decision 15/4 (2022), Kunming–Montreal Global Biodiversity Framework, Targets 1–3*.

²⁵ ADDISON, Prue; BULL, Joseph; MILNER-GULLAND, E. J. et al. (2023). Operationalising the Kunming–Montreal Global Biodiversity Framework. *Conservation Letters*, 16(5), e12918.

1.2. The EU's Constitutional Basis and Policy Integration for Biodiversity.

1.2.1. Treaty Mandates and Integration Duties (TFEU arts. 11, 191-193, TEU art.3(3))

The European Union (EU) has come up with one of the most elaborate regional environmental protection frameworks, which is based on primary legislation and supported by elaborate secondary legislation. The EU environmental action has legal grounds laid in Articles 191-193 of the Treaty on the Functioning of the European Union (TFEU).²⁶ The primary objectives mentioned in article 191(1) are: preservation, protection, and improvement of the quality of the environment, protection of human health, prudent use of natural resources, and international response to global environmental problems, including loss of biodiversity.²⁷ Article 3(3) of the Treaty on European Union (TEU) supports these goals because it situates sustainable development and a high environmental protection rate among the constitutional values of the Union.²⁸

The article 191(2) also captures four primary principles of environmental law, including the precautionary, preventive, rectification-at-source, and polluter-pays principles.²⁹ They should all be taken as early action, the incorporation of the environmental costs, and a high degree of protection that is maintained regardless of the economic strain. These principles can be straightforwardly enhanced to the biodiversity governance of those areas where scientific uncertainty and transboundary ecological impacts will require precautionary measures. They also associate the EU law with the larger normative framework created by international environmental law instruments like the Rio Declaration and the Convention on Biological Diversity.

More importantly, Article 11 TFEU brings about the principle of environmental integration, where environmental protection goals have to be integrated within the definition and implementation of all EU activities and policies, in particular, with the consideration of sustainable development.³⁰ This provision makes biodiversity protection not only a sector-specific issue, but a cross-cutting responsibility in other sectors like agriculture, fisheries, energy, and trade. It also provides the legal background of the greening of the Common Agricultural Policy (CAP) and integrating the

²⁶ *Consolidated version of the Treaty on the Functioning of the European Union [2016] OJ C 202/47.*

²⁷ *Ibid., Art. 191(1).*

²⁸ *Consolidated version of the Treaty on European Union [2016] OJ C 202/13, Art. 3(3).*

²⁹ *TFEU, Art. 191(2).*

³⁰ *TFEU, Art. 11.*

ecosystem concerns in the European Green Deal.³¹ Practically, mainstreaming is not even within sectors and Member States, meaning that more powerful integration tools and quantifiable delivery standards are required.³²

The Union and the Member States have a common competence in terms of environmental protection (Article 4(2)(e) TFEU).³³ Accordingly, the EU sets minimum standards in terms of directives and regulations, with the Member States being allowed to continue or create stricter ones. This structure helps to create a balance between harmonisation and subsidiarity and may also result in unequal application of the biodiversity obligations at the Union. The regular State of Nature reports issued by the Commission show that there are still differences in nomenclature and management of the protected sites, which is indicative of the tension between EU ambition and home administrative capabilities.³⁴ The recent report of the State of Nature shows that there is a high designation and management shortfall in the Member States.³⁵

Lastly, Article 191(4) TFEU gives the EU the power to participate in external environmental relationships, thus it can also participate in international instruments like the Convention on Biological Diversity (CBD) and the Paris Agreement. With this provision, the Union has become a global normative player, spreading biodiversity principles on the international level and aligning domestic policy with the international goals, including the Kunming-Montreal Global Biodiversity Framework (2022).³⁶

Overall, the treaty framework constitutionalises protection of the biodiversity within the EU and externalises it to the external sphere; but the ratio between integration and subsidiarity, along with the uneven national capacity, is the determining factor on the ground.³⁷

³¹ EUROPEAN COMMISSION (2019). *The European Green Deal*. COM (2019) 640 final.

³² PE'ER, Guy; ZINGG, Silvia; LINDEMANN, Jana D. et al. (2020). EU agricultural reform fails on biodiversity. *Science*, 367(6482), 1439–1440.

³³ *TFEU, Art. 4(2)(e)*.

³⁴ EUROPEAN ENVIRONMENT AGENCY (2020). *State of Nature in the EU*.

³⁵ European Environment Agency (2020). *State of nature in the EU - Results from reporting under the nature directives 2013–2018*. Luxembourg: Publications Office.

³⁶ *CBD, Decision 15/4, Kunming–Montreal Global Biodiversity Framework*.

³⁷ DELREUX, Tom and HECLO, Sander (2022). The EU as a global environmental actor: leadership in the post-2020 biodiversity agenda. *Journal of European Integration*, 44(6), 859–875.

1.2.2. Operational Regime: Nature Directives, Environmental Liability, and the Nature Restoration Law

The biodiversity regime of the European Union is established by a complex system of guidelines, laws, and strategic plans that put the principles of the Treaty into legal reality. These tools define an all-inclusive paradigm of nature protection, uniting species, site, environmental liability, as well as restoration objectives.³⁸

(a) Nature Conservation Directives and the Natura 2000 Network

The heart of the EU biodiversity law lies in the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC), which have jointly worked in the creation of the legal framework of the Natura 2000 network - the largest coordinated network of protected areas in the world.³⁹ The Birds Directive imposes a liability on the Member States to designate Special Protection Areas (SPAs) of threatened and migratory species, and the Habitats Directive sets up Special Areas of Conservation (SACs) of European interest habitats and species.⁴⁰ The habitats directive, article 6 offers very robust protection procedures to the site: any plan or project that is expected to affect a Natura 2000 site must be subjected to an appropriate assessment, and must not be permitted to proceed, except in a small number of cases of overriding public interest.⁴¹

These directives are all binding on Member States to protect or recover habitats and species to a favorable conservation status. They also reflect precautionary and preventive principles written in Article 191 TFEU, which was affirmed by the Court of Justice in cases including *Commission v Poland (Bialowiez Forest)* (C-441/17), where the economic interests were not deemed to be the reason to justify derogations.⁴² As the jurisprudence of the CJEU has demonstrated numerous times, it is a precautionary approach that denies economic expediency where the integrity of the site is in question.⁴³

³⁸ *BIRNIE; BOYLE; REDGWELL (2021)*, 694–697.

³⁹ Directive 92/43/EEC of the Council of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. OJ L 206, 1992, 7–50.; Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. OJ L 20, 2010, 7–25.

⁴⁰ *Habitats Directive, Arts 3–4; Birds Directive, Art. 4.*

⁴¹ *Habitats Directive, Art. 6(3)–(4).*

⁴² *Commission v Poland [CJEU]*, No. C-441/17, [17-04-2018]. ECLI:EU:C:2018:255, paras 102–115.

⁴³ *Commission v Poland (Białowieża Forest) [CJEU]*, No. C-441/17, [17-04-2018]. ECLI:EU:C:2018:255.

(b) Environmental Liability and Integration Mechanisms

To supplement nature directives, the Environmental Liability Directive (2004/35/EC) provides the practical applicability of the polluter-pays principle through the liability of operators whose operations pose serious harm to the protected species and habitats.⁴⁴ It performs both preventive and corrective duties, thus expanding the definition of biodiversity protection to other places.

Moreover, EU has augmented the implementation of biodiversity by the Directive (EU) 2024/1203 of the European Parliament and of the Council on 11 April 2024 to protect the environment with criminal law and has substituted the Directives 2008/99/EC and 2009/123/EC.⁴⁵ This Directive obliges Member States to impose criminal penalties on the most severe infractions of EU environmental law, such as the illegal actions which result in significant harm to the protected habitats and species. It also proposes harmonised definitions of environmental offences, increases the penalties imposed on natural and legal persons, and creates better collaboration among the enforcement organs. The Directive provides a crucial supplement to the deterrent impact of the EU biodiversity law and seals serious gaps that European administrative and civil liability alone cannot close.

Simultaneously, the principle of integration of Article 11 TFEU provides that the biodiversity goals are integrated throughout other sectoral policies, most notably, the Common Agricultural Policy (CAP), the Common Fisheries Policy (CFP), and cohesion funding programmes.⁴⁶ In practice, the terms of the liability, permitting, and funding can be best operationalized in relation to the common and place-specific indicators and monitoring processes.⁴⁷ The cross-sectoral dimension has been at the centre of new reforms being sought in regards to the European Green Deal, which is an effort to better align governance of the economy with the sustainability of the environment.⁴⁸

(c) Strategic Frameworks: From Conservation to Restoration

⁴⁴ Directive 2004/35/EC 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. OJ L 143, 2004, 56–75.

⁴⁵ Directive (EU) 2024/1203 of the European Parliament and of the Council of 11 April 2024 on the protection of the environment through criminal law and replacing Directives 2008/99/EC and 2009/123/EC. OJ L 2024, 1203, 1–28.

⁴⁶ TFEU Art 11; EUROPEAN COMMISSION (1998). *Integration of Environmental Protection Requirements into Other Policies*. COM(98) 333 final.

⁴⁷ EUROPEAN COMMISSION (2021). *Commission Notice - Managing Natura 2000 sites: Article 6 of the Habitats Directive 92/43/EEC*. OJ C 437, 2021, 1–79.

⁴⁸ *European Green Deal*, COM(2019) 640 final.

In 2020, the EU Biodiversity Strategy was adopted, which explains the political goal of the Union to stop and reverse the loss of biodiversity within the next decade.⁴⁹ It demands the legal protection of at least 30 per cent of the EU land and sea, the recovery of deteriorated ecosystems, and a 50 per cent cut in the amount of pesticides.⁵⁰ Based on this approach, the recently enacted Nature Restoration Law (2024) is a legally binding set of targets to restore at least 20 per cent of EU land and sea by the year 2030 and all ecosystems needing restoration by the year 2050.⁵¹ The binding paths of the Nature Restoration Law entrench the process of the transformation between passive conservation and quantifiable recovery requirements.⁵² This is a paradigmatic change of passive conservation to active ecological restoration, and scientific opinion that current protection measures are not sufficient to attain the environmental goals of the Union.⁵³

When combined, these tools reveal that there was a noticeable legal change between the old system of conservation of species and habitat conservation to ecological restoration at a systemic level. Though the framework is among the best in the world, its effectiveness is still dependent on adequate national implementation, financing, and enforcement, which is still not consistent across Member States.

1.3. Comparative Governance Mechanisms

The comparative analysis shows that a number of non-EU jurisdictions have formulated different, although complementary, strategies of biodiversity governance. An analysis of these models shows a good understanding of the compromise between conservation and socio-economic objectives in the different legal systems and may inform the path forward with the EU biodiversity law.⁵⁴ The chosen jurisdictions United States, Canada, Brazil and New Zealand were selected because each of them has a structurally different model of biodiversity regulation: the United States is a representation of a highly judicialised enforcement framework; Canada exemplifies federal and Indigenous co-governing; Brazil is a representation of biodiversity integration into land-use and

⁴⁹ EUROPEAN COMMISSION (2020). *EU Biodiversity Strategy for 2030: Bringing Nature Back into Our Lives*. COM(2020) 380 final.

⁵⁰ *Ibid.*, pp 3–5

⁵¹ European Parliament and Council, *Nature Restoration Law* (2024 Provisional Agreement) Art 4(1).

⁵² Regulation (EU) 2024/1991 of the European Parliament and of the Council of 18 July 2024 on nature restoration. OJ L (fill in issue/pages when final citation to hand).

⁵³ *CBD, Decision 15/4 (2022), Kunming–Montreal Global Biodiversity Framework, Target 2.*

⁵⁴ KISS, Alexandre and SHELTON, Dinah (2007). *Guide to International Environmental Law*. Leiden, Boston: Martinus Nijhoff Publishers, 212–214.

agricultural regulation; and New Zealand is an example of a rights-of-nature paradigm. The combination of these systems encompasses an enforcement-based, participation, economic-regulatory, and rights-based model of governance, which enables a comparative evaluation that is functionally diverse.

(a) United States (ESA): Court-Enforced Species Protection

The Endangered Species Act (ESA) is still a highly restrictive species-protection regime in the world. Section 7 commits the federal agencies not to cause the extinction of any listed species through their activities, whereas Section 9 prohibits the practice of taking (i.e., killing or destroying its habitat) of any such species, without permission provided.⁵⁵ The effectiveness of the Act is due to its enforceability, citizen suits can force compliance, and courts have frequently strengthened extreme protection against economic projects.⁵⁶ However, according to critics, the listing process of the ESA is politically controversial, and habitat recovery is usually underfunded. Empirical reviews find confused recovery impacts, notwithstanding the list-and-safeguard, which is a legal mighty rod.⁵⁷

(b) Canada (SARA): Federal-Provincial Design with Indigenous Co-governance

The Species at Risk Act (SARA) of Canada is also aimed at preventing the extirpation and extinction of wildlife species, although it operates in a federal system whereby the competencies are distributed between federal and provincial governments.⁵⁸ The Act seeks to give a list of the species, ban, as well as recovery plans, but the specifics of the enforcement are anchored on the provincial collaboration. Interestingly, SARA acknowledges the importance of Indigenous knowledge and engagement, which is an indicator of a bigger community-based concept of biodiversity governance.⁵⁹ Not only has the integration of Indigenous knowledge and co-

⁵⁵ Endangered Species Act of 1973, 16 USC §§ 1531–1544.

⁵⁶ *Tennessee Valley Authority v Hill*, 437 US 153 (1978).

⁵⁷ MALE, Tim D. and BEAN, Michael J. (2005). Measuring progress in US endangered species conservation. *Ecology Letters*, 8(9), 986–992; see also TAYLOR, Martin F. J.; Suckling, Kieran F.; Rachlinski, John J. (2005). The effectiveness of the Endangered Species Act. *BioScience*, 55(4), 360–367.

⁵⁸ Species at Risk Act, SC 2002, c 29, ss 32–36.

⁵⁹ CHAPMAN, Kelsey and SCOTT, Dayna Nadine (2017). Federalism and the protection of endangered species in Canada. *Journal of Environmental Law and Practice*, 30(1), 45–48.

management made SARA a model in pluralist biodiversity governance, but it has also been a benchmark.⁶⁰

(c) Brazil (Forest Code): Land-Use Conditionally and Supply-Chain Levers

The Forest Code of Brazil incorporates the biodiversity goals into the law of land-use. It obliges the landowners in Amazon and other biomes to have a share of native vegetation as Legal Reserves and to protect Permanent Preservation Areas (APPs) like riverbanks and steep slopes.⁶¹ Although the Code has a set of quantitative requirements, its implementation is uneven because of the lack of forests and socio-economic tensions. However, it shows that biodiversity protection is possible to be integrated into agricultural and economic control, not being considered an independent industry. Studies have shown that enforcement and completeness of the rural cadastre and pressure on the supply chain are some of the determinants in the effectiveness of the Code.⁶²

(d) New Zealand (Rights of Nature): Ecosystem Personhood and Guardianship

The new rights-based model is based on the statutes that have been adopted by New Zealand (e.g., Te Awa Tupua (Whanganui River Claims Settlement) Act 2017) and which establish the river as a legal personality with rights and legal guardians.⁶³ This model is a representation of a model of an eco-centric legal philosophy that goes beyond anthropocentric resource management and embraces the value within an ecosystem. It has impacted the emerging rights-of-nature discussions across the globe, which propose conceptual possibilities of future development of the biodiversity law.⁶⁴

The comparative analysis indicates that the successful biodiversity protection is not achieved through a single model of regulation but rather through a number of performances of enforcement, participation, economic conditionality, and legal standing. The experience of the United States demonstrates that judicial strictness of enforceability and citizen suits may provide high degrees

⁶⁰ REO, Nicholas J. and WHYTES, Kyle P. (2012). Hunting and morality as elements of traditional ecological knowledge. *Human Ecology*, 40(1), 15–27; Government of Canada (2018). *Guidance on Considering Indigenous Knowledge in Impact Assessment*.

⁶¹ Brazil, Law No. 12.651 of 25 May 2012 (Forest Code), Arts 3–4.

⁶² AZEVEDO, Andrea A.; RAJÃO, Raoni; COSTA, Marcelo A. et al. (2017). Limits of Brazil's Forest Code in protecting the Amazon. *Proceedings of the National Academy of Sciences*, 114(29), 7653–7658.

⁶³ Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 (NZ), s 14.

⁶⁴ STONE, Christopher D. (1972). Should trees have standing? - Toward legal rights for natural objects. *Southern California Law Review*, 45, 450–501.

of formal protection but have difficulties with long-term recovery financing.⁶⁵ Canada provides an example of how co-governance and Indigenous involvement improve the legitimacy and the ecological knowledge, but requires cooperation between the governmental levels to make it work.⁶⁶ Brazil confirms the fact that by integrating the biodiversity commitment directly into land-use and agricultural control, it is possible to have an impact on large-scale ecosystems, but this institution has to work under the conditions of credible enforcement and market pressure.⁶⁷ New Zealand reveals that rights-of-nature models expand the legal status and restructure the understanding of guardianship, but are quite symbolic and tools of government as opposed to implementation.⁶⁸

For the EU, this comparison would show that the efficiency of the Natura 2000 and Nature Restoration regulation cannot be made by relying on scientific determination and administrative authorization, but has to be reinforced with the use of enforceable penalties, extended status, and economic contingency in land-use policy and the utilization of community management structures. The comparative models thus do not substitute the EU regime but underscore the concrete institutional sticks by which EU biodiversity law can be shifted from its current procedural protection way of doing things to having a set of ecological outcomes.⁶⁹

1.4. Implementation Deficits and Accountability Levers

The evaluation of both international, European, and comparative frameworks shows that protection of biodiversity has gained more legal recognition than ever, but continues to have structural and practical flaws. Three oppressive weaknesses in the systems that are common among regimes cannot be ignored by this conclusion: weak enforceability, chronic underfinancing, and fragmented

⁶⁵ Endangered Species Act of 1973, 16 USC §§ 1531–1544; MALE, Tim D. and BEAN, Michael J. (2005). Measuring progress in US endangered species conservation. *Ecology Letters*, 8(9), 986–992.

⁶⁶ Species at Risk Act, SC 2002, c 29; CHAPMAN, Kelsey and SCOTT, Dayna Nadine (2017). Federalism and the protection of endangered species in Canada. *Journal of Environmental Law and Practice*, 30(1), 45–48.

⁶⁷ Brazil, Law No. 12.651 of 25 May 2012 (Forest Code), Arts 3–4; AZEVEDO, Andrea A.; RAJÃO, Raoni; COSTA, Marcelo A. et al. (2017). Limits of Brazil's Forest Code in protecting the Amazon. *Proceedings of the National Academy of Sciences*, 114(29), 7653–7658.

⁶⁸ Te Awa Tupua (Whanganui River Claims Settlement) Act 2017, s 14; STONE, Christopher D. (1972). Should trees have standing? Toward legal rights for natural objects. *Southern California Law Review*, 45, 450–501.

⁶⁹ European Commission (2020). *EU Biodiversity Strategy for 2030: Bringing Nature Back into Our Lives*. COM(2020) 380 final; Regulation (EU) 2024/1991 of the European Parliament and of the Council of 18 July 2024 on nature restoration.

administrative capacity. These constraints are the reason why an increase in the legal requirements has not been matched by an equivalent environmental recovery.

The worldwide regime with the Convention on Biological Diversity (CBD) and backed by such tools as CITES, Ramsar, and the Bern Convention is showing an impressive level of normative complexity. This can be seen through the broad scope of sector-specific requirements, reporting requirements, and conservation instruments that have been created since 1992. The effectiveness of the soft-law nature of most obligations, and the fact that most obligations depend on national implementation, and no powerful enforcement mechanisms are, however, systemic limitations of the global biodiversity regime.⁷⁰ The collaborative nature of the CBD has encouraged universal participation as shown by the fact that it is almost universally ratified, although results have been spotty in places where there is little domestic political will or administrative capacity. According to reviews made after 2020, the binding constraints to global delivery are finance, data, and compliance assurance.⁷¹

In the European Union, the law on biodiversity has acquired a greater degree of legal accuracy and binding qualities. The Habitats and Birds Directives establish binding legal obligations on the Member States to conserve the species and habitats, and the Court of Justice of the European Union (CJEU) has understood these responsibilities extremely literally, making the EU structure quasi-constitutional.⁷² With the implementation of the Nature Restoration Law (2024), this framework is enlarged further to include an active restoration of the ecosystem, which is no longer a preservation, but an active restoration. However, implementation and financing have always had enormous loopholes: numerous Member States are struggling to complete the Natura 2000 site designations, secure a sustainable source of finance, and reconcile biodiversity interests with agricultural and energy policies.⁷³ The gaps in implementation, namely, designation, management,

⁷⁰ BODANSKY, Daniel (2010). *The Art and Craft of International Environmental Law*. Cambridge, MA: Harvard University Press, 175–176.

⁷¹ DIAZ, Sandra; SAYRE, Nathaniel F.; PASCUAL, Unai et al. (2023). A decade for biodiversity: Implementing the GBF. *Nature Ecology & Evolution*, 7, 1–3.

⁷² *Commission v Poland [CJEU]*, No. C-441/17, para 102–115.

⁷³ EUROPEAN COURT OF AUDITORS (2020). *Special Report No 13/2020: EU Action to Protect Wild Pollinators*.

and financing, continue to be the biggest areas of non-compliance that were identified during the EU monitoring.⁷⁴

The experience in the United States, Canada, Brazil, and New Zealand has shown that successful biodiversity protection could be built on a variety of institutional models, such as the U.S. model of judicial enforcement, or conservation being a part of the land-use legislation in Brazil, or ecosystem personhood in New Zealand. Such experiences describe both legal pluralism and innovation, which are valuable lessons to EU and international governance.⁷⁵ According to these models, there are complementary pathways, namely judicial enforcement, co-governance with the Indigenous people, conditionality of land-use, and rights-based stewardship.⁷⁶

The overall strength of the existing biodiversity legislation is its holistic normative basis, as well as gradual international and regional goal alignment. Fragmented implementation and uneven enforcement are its permanent weaknesses. To close this gap, it requires additional accountability instruments, permanent financing, and additional integration of biodiversity issues in economic and social policy. The following chapters investigate these issues in the concrete thematic frames of conservation of species, protected areas, and economic activities to find effective legal possibilities to better and more consistently protect biodiversity. The problem is primarily operational: convert the norms to packages, indicators, budgets, and remedies of operational and measurable ecological performance as an alternative to paperwork.⁷⁷

⁷⁴ European Commission (2020). *State of Nature in the EU - 2013–2018*. Luxembourg: Publications Office.

⁷⁵ KISS; SHELTON (2007), 212–214.

⁷⁶ GARMESTANI, Ahjond and BENSON, Melinda (2013). A framework for resilience-based governance of social-ecological systems. *Ecology and Society*, 18(1), 9.

⁷⁷ KEITH, Heather; LINDENMAYER, David B.; SATO, Christopher F. et al. (2017). Indicators of ecosystem integrity. *Ecological Indicators*, 73, 290–303.

2. HUNTING REGULATION AND SPECIES-LEVEL PROTECTION: INTERNATIONAL, EU LAW AND EVIDENCE-BASED DEROGATIONS

2.1. International Standards on Species Conservation and Sustainable Use

Hunting lies at the border of biodiversity conservation and practice in socio-economics. The international biodiversity law establishes its legality in the two-fold terms of strict species protection and sustainable use, obliging states to avoid the decline in population but allowing the sustainable use of the biodiversity as per conservation status.⁷⁸

Parties to the Convention on Biological Diversity (CBD) undertake in-situ conservation and also incorporate sustainable utilization of the parts of the biological diversity into the sectoral policies (Arts 8-10).⁷⁹ The CBD Addis Ababa Principles and Guidelines on Sustainable Use (COP7, 2004) provide an example of practical regimes of harvest management (science-based quotas, adaptive management, equitable benefit-sharing, monitoring) which, though not binding, have become the benchmark of assessing hunting governance.⁸⁰ Newer COPs of CBD, the Kunming-Montreal Global Biodiversity Framework (GBF, 2022), are compatible with the outcomes emphasis (e.g., mitigating anthropogenic extinction risk and making use sustainable, both legal and safe), but further augment information demands, traceability, and enforcement.⁸¹

The Convention on International Trade in Endangered Species (CITES, 1973) regulates international trade in endangered species and hunting trophies. Appendix I species are prohibited from commercial trade, while the rest of the Appendix II species are permitted but only under a non-detriment finding and permit systems by Scientific and Management Authorities.⁸² With regards to hunting, this means that such authorisations must demonstrate that offtake does not

⁷⁸ *Convention on Biological Diversity (1992). 1760 UNTS 79, Arts 2, 10.*

Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) (1979). ETS No. 104, Arts 6–9.

⁷⁹ *Convention on Biological Diversity (1992). 1760 UNTS 79, Arts 8–10.*

⁸⁰ *Convention on Biological Diversity, COP 7 Decision VII/12 (2004), Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity.*

⁸¹ *Convention on Biological Diversity, COP 15 Decision 15/4 (2022), Kunming–Montreal Global Biodiversity Framework, Targets 1–3, 5.*

⁸² *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973). 993 UNTS 243, Arts II–IV and Appendices I–III.*

jeopardize survival or recovery and that specimens are harvested legally, which relates the international trade regulation to domestic hunting regulation.⁸³

In Europe (non-EU Parties also), the protection of species in the Bern Convention (1979) is heavy-handed on species in Appendix II (prohibitions on intentional capture/killing/disturbance) and regulated use of species in Appendix III, subject to derogations under conditions rigidly defined (ex: to avoid severe damage or research), whilst the species must be at a favourable status.⁸⁴ The Bern system is also supplemented by other agreements like AEWA on migratory waterbirds, which gives species-specific flyway coordination and hunting recommendations.⁸⁵

One of the new human-right features is the right to a sustainable, healthy, and clean environment, introduced by the UN General Assembly (2022), which strengthens and does not change the precaution and transparency and participation provisions of wildlife.

These are four tests of lawful hunting that are joined to the international standards these are (i) legal basis and competent authority; (ii) good science (population status, non-detriment, adaptive limits); (iii) selectivity and humane methods with seasonal limits; and (iv) monitoring, reporting, and enforcement (including trade controls).

These requirements are codified in the EU in the Habitats Directive (Articles 12-16) and the Birds Directive (seasons, methods, derogations), of which the following are analysed.

2.2. EU Species Protection: Rules & Interfaces

2.2.1. Habitats Directive: Articles 12–16 (Strict Protection and Derogations)

The Habitats Directive creates a stringent regime of species-protection of the Annex IV(a) animal species and Annex IV(b) plant species. Member States should outlaw willful capture or slay, willful interference, annihilation/ degradation of breeding locations/ sleeping areas, and ownership, sale, or trade of specimens procured in the wild.⁸⁶ They are preventative and continuing

⁸³ *CITES Conference of the Parties, Resolution Conf. 16.7 (Rev. CoP17), Non-detriment findings.; CITES Conference of the Parties, Resolution Conf. 12.3 (Rev. CoP19), Permits and certificates.*

⁸⁴ *Convention on the Conservation of European Wildlife and Natural Habitats (1979). ETS No. 104, Arts 6–9, Appendices II–III; Standing Committee recommendations and guidance on hunting and derogations.*

⁸⁵ *Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) (1995), Action Plan, §§ 3.1–3.2.*

⁸⁶ *Directive 92/43/EEC of the Council of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive). OJ L 206, 1992, 7–50, Art. 12(1)(a)–(d), Annex IV.*

requirements supported by an Article 11 need to monitor the conservation condition of species and see to it that regulations to secure the species are being practiced as opposed to merely being on record.⁸⁷

The main interpretative yardstick is favourable conservation status (FCS), which is a population-level measure that is applied across the Directive.⁸⁸ In operation, the authorities should make certain that the measures (such as those associated with hunting) do not drive a species below FCS or beyond FCS; in the unfavourable status, a precautionary strategy is needed.⁸⁹ Practically, FCS is not going to be satisfied with local or short-term stability only, but requires good population statistics (range, abundance, trends) and logical conclusions concerning the long-term sustainability.⁹⁰

The derogations under Article 16(1) should be authorized only where three cumulative tests are fulfilled: (i) the lack of a satisfactory alternative; (ii) the derogation is based on one of the exhaustive grounds enumerated (e.g., to prevent serious damage, to the health and safety of the population, to research and education, or (in some rare cases) to other imperative reasons of overriding public interest); and (iii) the derogation will not involve impacts on the FCS of the species in nature.⁹¹ The responsibility is on the competent authority to generate current scientific data on population conditions and projected mortality, to take alternatives seriously (e.g., non-lethal measures), and to create stringent, discriminatory terms with monitoring and reporting.⁹²

The Court of Justice is very strict in applying these conditions. In *Tapiola* (C-674/17), on wolf derogations in Finland, the Court ruled that preventive killing to discourage poaching could not be permitted without evidence (based on reliable and up-to-date data) that there was no alternative

⁸⁷ *Habitats Directive, Art. 11.*

⁸⁸ *Habitats Directive, Art. 1(i).*

⁸⁹ *Consolidated version of the Treaty on the Functioning of the European Union [2016] OJ C 202/47, Art. 191(2).* EUROPEAN COMMISSION (2021). *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC.* Sections 2–3.

⁹⁰ BIRNIE, Patricia; BOYLE, Alan and REDGWELL, Catherine (2021). *International Law and the Environment.* 4th edn. Oxford: Oxford University Press, 694–697.

TROUWBORST, Arie (2009). The precautionary principle and the ecosystem approach in international law. *RECIEL*, 18(1), 26–37.

⁹¹ *Habitats Directive, Art. 16(1)(a)–(e).*

⁹² EUROPEAN COMMISSION (2021). *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC,* Sections 3–5, 7.

and that FCS would not be endangered.⁹³ There are two themes that develop: Article 16 is interpreted narrowly, and the logic of the authority must openly follow the scientific tradition.⁹⁴ Following Tapiola, the decisions of the wolves licensing in Finland have been quashed by administrative courts when authorities could not prove the accurate population base, the precise mortality thresholds, and a written rejection of other alternatives. The judgement thus not only serves as an abstract interpretative rule but, as a practical matter, as a judicial control mechanism, which in effect, converts derogations into science-driven permitting processes akin to science.⁹⁵

Finally, Article 16(2)-(3) expresses that the granted derogations should be communicated to the Commission so that they could be reviewed and compared across the Union (species, quantities, methods, circumstances).⁹⁶ When combined with Articles 12-16, the regime makes no ban on any lethal control or capture, but narrowly justified exceptions to strict protection where there is science-based, alternative-tested, narrowly-conditioned, and always-monitored deviations that must be made as a matter of necessity to the viability of the population.⁹⁷

2.2.2. Birds Directive - Hunting Seasons, Methods and Derogations

The Birds Directive regulates all naturally found wild birds within the EU and is designed to keep the population at a given level, which relates specifically to ecological, scientific, and cultural needs.⁹⁸ It unites supervisory hunting with the general protection, which is a shared concern among the Directive on conservation and sustainable use.

Hunting can only be done according to the list in Annex II, and Article 7 stipulates that the Member States must also make sure that hunting is not carried out at a time when the species is in a

⁹³ *Luonnonsuojeluyhdistys Tapiola ry v Suomen riistakeskus and Others* [CJEU], No. C-674/17, [10-10-2019]. ECLI:EU:C:2019:851, esp. paras 47–66.

⁹⁴ CHAPRON, Guillaume et al. (2014). Large carnivore management and the legal standard of strict protection. *Science*, 346(6216), 1517–1518.

EUROPEAN COMMISSION (2021). Strict protection Guidance, Sections 5–6.

⁹⁵ Tapiola [CJEU], No. C-674/17, [10-10-2019]. ECLI:EU:C:2019:851, paras 39–47, 54–56;

European Commission (2021). *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC*;

BIRNIE, Patricia; BOYLE, Alan and REDGWELL, Catherine (2021). *International Law and the Environment*. 4th edn. Oxford: Oxford University Press, 703–705.

⁹⁶ *Habitats Directive*, Art. 16(2)–(3).

⁹⁷ *Habitats Directive*, Arts 12–16.

⁹⁸ Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Birds Directive). OJ L 20, 2010, 7–25, Art. 2.

reproduction or pre-nuptial migration.⁹⁹ The CJEU has also stated that the establishment of seasons must be scientifically determined and with references to the biological cycle of each species; ornithology is incapable of substituting customary calendars. This reasoning of the court was already determined in *Commission v Italy* (C-157/89) when the court dismissed national hunting calendars that were contradicted by breeding and migration periods and affirmed in *Commission v Spain* (C-79/03), which directly associated failure to designate a Special Protection Area with a lack of controlled seasonal hunting pressure.¹⁰⁰ Article 7, according to academic commentary, implements a precautionary logic of time: the concern of uncertainty in data ought to lead the opening dates to make a mistake towards pre-emptive closure in order to prevent something like the take happening on critical periods.¹⁰¹

Large-scale and non-selective means (e.g., glue traps, nets, lime-sticks) are also not permitted under Article 8 and Annex IV as they are not guaranteed to protect species at species levels.¹⁰² In C-900/19 *Commission v France* (the birdlime case), the Court decided that asserting cultural tradition was no excuse to use inherently non-selective practices; an exception had to be strictly proven to consist of selectivity and a few numbers combined with a lack of alternative, which France did not succeed.¹⁰³ The practical consequence of *Commission v France* (C-900/19) is that now Member States have a positive evidentiary burden of demonstrating demonstrable control systems that denote actual-time selectivity and rigorous quantitative restraint. In the event that there is no such monitoring architecture, the derogation is a point of law bad, regardless of the quantitative scope of the capture. This significantly reduces the amount of hunting that can be conducted due to cultural reasons within the Union.¹⁰⁴ Collectively, the case law of the Court makes it known that even minor or incidental by-catches are unlawful in Article 8, under which the mode of catching is not selective in character or where real selectivity is impractical through

⁹⁹ *Birds Directive, Art. 7 and Annex II.*

¹⁰⁰ *Commission v Italy* [CJEU], No. C-157/89, [17-01-1991]. ECLI:EU:C:1991:31; *Commission v Spain* [CJEU], No. C-79/03, [24-11-2005]. ECLI:EU:C:2005:699.

¹⁰¹ KRÄMER, Ludwig (2022). *EU Environmental Law*. 9th edn. London: Sweet & Maxwell, 392–395.; SCOTTO DI CARLO, Pasquale (2021). Hunting periods and EU law. *Journal of Environmental Law*, 33(3), 521–540.

¹⁰² *Birds Directive, Art. 8 and Annex IV.*

¹⁰³ *Commission v France* [CJEU], No. C-900/19, [17-03-2021]. ECLI:EU:C:2021:210, paras 41–62.

¹⁰⁴ *Commission v France* [CJEU], No. C-900/19, [17-03-2021]. ECLI:EU:C:2021:210, paras 40–59; BIRNIE, Patricia; BOYLE, Alan and REDGWELL, Catherine (2021). *International Law and the Environment*. 4th edn. Oxford: Oxford University Press, 694–697.

real monitoring and supervision.¹⁰⁵ The academic commentary interprets birdlime as a stiffening of the selectivity test and a repudiation of tradition as an independent defence of the EU nature law.¹⁰⁶

Member States can derogate only on exhaustively enumerated reasons, public health and safety, air safety, serious harm to crops/livestock/fisheries, research/education/repopulation, and (under very stringent conditions) capture/keeping of small numbers of some birds under strictly controlled conditions.¹⁰⁷ Derogations must have: (i) a reasoned determination that there is no other satisfactory solution; (ii) selective, precise methods that have spatio-temporal restrictions; (iii) measured ceilings and efficacious oversight; and (iv) reporting to the Commission.¹⁰⁸ These factors are analysed by the courts, and it is necessary to have a clear evidence chain (population status, expected mortality, alternatives analysis).¹⁰⁹ The increase in the application of adaptive management and mortality ceiling in compliance with population models in the academic literature improves compliance with the conservation objective of the Directive, although with low and controlled usage.¹¹⁰

Concisely, it must be hunted within biologically based seasons, selectively, and through a limited number of evidence-based derogations to be legally hunted, or it will be subordinate to the species-level protection compared to the cultural practice or administrative convenience.

2.2.3. When Hunting Interacts with Natura 2000 (Article 6 Habitats Directive)

Where a hunting plan, programme, or authorisation is likely to have a major impact on a Natura 2000 site (SAC/SPA), Article 6(3) obliges such an assessment (AA) of its potential impacts on the conservation objectives of a site based on the best scientific knowledge available. The plan/project may be agreed upon when the competent authority is able to rule out the negative impacts on the

¹⁰⁵ *Commission v Spain* [CJEU], No. C-79/03, [24-11-2005]. ECLI:EU:C:2005:699.; *Commission v Finland* [CJEU], No. C-344/03, as above.

¹⁰⁶ PALLEMAERTS, Marc and HANCHER, Leigh (eds) (2021). *EU Environmental Law and Policy*. Oxford: Oxford University Press, 274–276.

CORNETTA, Maria (2022). Selectivity, small numbers and tradition after C-900/19. *RECIEL*, 31(4), 612–620.

¹⁰⁷ *Birds Directive*, Art. 9(1)(a)–(c).

¹⁰⁸ *Birds Directive*, Art. 9(1)–(3).

¹⁰⁹ *Commission v France* [CJEU], No. C-900/19;

Ligue pour la protection des oiseaux and Others [CJEU], No. C-182/02, [07-10-2004]. ECLI:EU:C:2004:554.

¹¹⁰ EUROPEAN COMMISSION (2021). *Guidance document on hunting under Council Directive 79/409/EEC and Directive 2009/147/EC* (updated), Sections 3–6.; TROUWBORST, Arie (2020). Law, science and the management of wild birds in Europe. *RECIEL*, 29(2), 219–230.

integrity of the site, i.e., there is no reasonable scientific uncertainty.¹¹¹ Screening should involve cumulative impacts of other plans or projects (e.g., forestry, recreation, and nearby hunting), and mitigation measures should not be counted on at the screening level in order to prevent an AA.¹¹²

The AA should be full, accurate, and final with reference to the site-specific conservation goals (e.g., disturbance thresholds to the Annex I bird species, prey base, roosting/breeding areas, flight corridors, as well as temporal concentration of hunts).¹¹³ Authorisations should contain unambiguous terms (spatial buffers, offtake/mortality caps, seasonal closures, method selectivity) plus monitoring to confirm the effects predicted, not some form of vague and generic arguments.¹¹⁴

In case it is not possible to exclude an adverse impact on integrity, the project may proceed only under Article 6(4) (imperative reasons of overall coherence of Natura 2000, as well as absence of alternatives and compensatory measures). In practice, measures that are related to hunting seldom fulfill this path. Independently, Article 6(2) gives a repeated obligation not to cause site erosion and serious nuisance, and, therefore, the authorities must readjust or pause the hunting activity when the monitoring indicates unforeseen effects.¹¹⁵ The recommendation of the Commission validates that recurrent authorisations (annual hunting plans) can be plans or projects and should be run within the adaptive cycles: baseline - authorisation - monitoring - review.¹¹⁶

2.2.4. Administrative Practice: Evidence, Monitoring, and Adaptive Management

The EU nature law stipulates that an authorisation or derogation under hunting must be supported by a chain of evidence that can be proven and under control. The competent authorities must be in a position to prove at the time of decision and implementation that the action is necessary, selective, and constrained and that the population is at or moving towards an advantageous state of conservation (FCS).¹¹⁷

¹¹¹ *Waddenzee* [CJEU], No. C-127/02, [07-09-2004]. ECLI:EU:C:2004:482, paras 59–61.; *Sweetman* [CJEU], No. C-258/11, [11-04-2013]. ECLI:EU:C:2013:220, paras 39–44.

¹¹² *People Over Wind* [CJEU], No. C-323/17, [12-04-2018]. ECLI:EU:C:2018:244, para 40.; *Waddenzee*, paras 52–57.

¹¹³ *Holohan and Others* [CJEU], No. C-461/17, [07-11-2018]. ECLI:EU:C:2018:883, paras 37–39, 51–53.

¹¹⁴ *TFEU*, Art. 191(2); *Waddenzee*, paras 59–61.

¹¹⁵ *Habitats Directive*, Art. 6(2).; *Commission v Poland* [CJEU], No. C-441/17, [17-04-2018]. ECLI:EU:C:2018:255, paras 102–121.

¹¹⁶ EUROPEAN COMMISSION (2019). *Managing Natura 2000 Sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC* (2019 update), Sections 1.3, 3.2–3.5.

¹¹⁷ *Habitats Directive*, Arts 1(i), 11–12, 16; *Birds Directive*, Arts 2, 7–9.

Practically this involves ensuring that prior to an authorisation being granted, the authorities have collected and recorded, at least the following: (i) sound information on the present condition of the population, including its distribution, numbers, curves, and where applicable the condition of sub-populations; (ii) scientifically calculated limits or quotas of mortality which are associated with biological reference points; (iii) a systematic review of alternatives in a sense which gives real thought to non-lethal alternatives or changes in time and place, and where less harmful alternatives are rejected must be clearly accounted. iv) an obvious indication that the proposed practices and schedule are actually selective and compatible with the ecological requirements and biological cycles of the species, and (v) explicit clarification of whether the activity can have any impact on any Natura 2000 sites or not. In cases where the consequences cannot be eliminated, an Article 6(3) Appropriate Assessment should also be undertaken in accordance with the standard established in Waddenzee, and the case law that arose.¹¹⁸ In *Sweetman* (C-258/11), the Court made it clear that site integrity touches on the long-term integrity of the ecological structure of the site and that projects which result in irreversible degradation of habitats are not authorised in Article 6(3). This argument was utilized to the full extent in *Commission v Poland* (C-441/17, Bialowiez Forest), where continuous logging, although put in an economic context, was declared as incompatible with both preventive and assessment obligations. Through legal analogy, repeated hunting plans that disrupt important ecological processes in Natura 2000 sites also become the subject of this extreme preventive reasoning.¹¹⁹

Reporting, supervision, and real-time protection should be included in the authorisations (e.g. automatically shut down when seasonally closing, should quota or disturbance limits be violated). Statistical records are to monitor the actual takes, by-catch, signs of disturbance, and compliance; where unexpected impacts are detected by the monitoring, the authorities must revise, halt, or cancel the decision (precautionary and preventive principles).¹²⁰¹²¹

¹¹⁸ EUROPEAN COMMISSION (2021). *Strict protection Guidance*, Sections 3–7.

¹¹⁹ *Peter Sweetman and Others* [CJEU], No. C-258/11, [11-04-2013]. ECLI:EU:C:2013:220, paras 37–40; *Commission v Poland* [CJEU], No. C-441/17, [17-04-2018]. ECLI:EU:C:2018:255, paras 112–122.

¹²⁰ *TFEU*, Art. 191(2); *Birds Directive*, Arts 7–9.

¹²¹ EUROPEAN COMMISSION (2021). *Hunting Guidance*, Sections 4–6; *Commission v France* [CJEU], No. C-900/19.

Article 16 Habitats and Article 9 Birds obliges the Member States to submit derogations to the Commission, which allows it to be scrutinized and compared across countries.¹²² Adaptive management cycles are being encouraged in derogation and permitting practice through commission documents and developing practice.¹²³ Where the activity of hunting results in serious harm to a species or a natural habitat, as defined in the Environmental Liability Directive, the operator could be obliged to undertake preventive or remedial action to supplement incentives for compliance.¹²⁴

Simply stated: the front side of lawful hunting decisions is loaded with science and alternatives, and such terms and conditions are entirely enforceable and monitored, and corrective. On the scales of the European Court of Human Rights, the *Chassagnou and Others v France* case demonstrates that even the regulation of hunting can involve property rights and the freedom of association, although the Strasbourg Court always defers the protection of biodiversity as the legitimate goal of general interest. This confirms the fact that EU conservation science-based hunting limits have high constitutional robustness.¹²⁵

2.3. Targeted Comparative Lessons for Hunting Derogations (United States, Canada, Nordics)

The harmonious systems come together using three supports of legal hunting to save the species: (i) permit-based judging with actual facts on the ground, (ii) explicit pre-examination before any lethal capture, and (iii) responsive management with binding stimuli. This convergence is not merely a conceptual issue but is pointed out in inadmissible statutory direction and judicial consideration on repetitive occasions within these mechanisms, where the rulings of hunting with no quantified impact evaluations, options analysis, and conditions of tracking are consistently voided or restricted. The jurisdictions are chosen as they are all examples of influential frameworks of controlling lethal take of the protected species: the United States is an example of a fully judicialised, permit-based hard-law regime; Canada is an example of a model of federal coordination and incorporation of Indigenous co-governance; and the Nordic countries are

¹²² *Habitats Directive, Art. 16(2)–(3); Birds Directive, Art. 9(3)*.

¹²³ *Article 6 Guidance (2019), Section 1.3; Hunting Guidance (2021), Sections 3–6*.

¹²⁴ Directive 2004/35/EC 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. OJ L 143, 2004, 56–75, Arts 2, 5–6.

¹²⁵ *Chassagnou and Others v France* [ECHR], Nos. 25088/94, 28331/95 and 28443/95, [29-04-1999].

examples of a precautionary quota-based system under EU law. A combination of them encompasses the three prevailing international modalities of derogations hunting.

(a) United States - ESA: permit-gated evidence and enforceable conditions

Endangered Species Act criminalizes take of species listed (Section 9), which is extremely broad and includes killing, harm, and substantial habitat change; the federal action must be reviewed by Section 7 consultation to avoid jeopardy or negative change of the critical habitat.¹²⁶ In situations where lethal control/harvest is considered, incidental take permits (Section 10) are awarded in relation to Habitat Conservation Plans (HCPs), which indicate: biological baselines, minimisation/mitigation, monitoring, and adaptive management; otherwise, failure to which enforcement may be enacted.¹²⁷ The litigation (including citizen suits) includes an ex post obligation on agencies to submit alternatives and quantified impact ceilings, which in turn acts to make the evidentiary bar to any lethal take higher.¹²⁸ The ESA is explained as a hard-law evidence filter, the authorisation is conditional, and scientifically based biological views, which the EU officials can adhere to when they are rationalizing under Article 16 Habitats or Article 9 Birds.¹²⁹ Its efficacy is brought out by the fact that the high survival rate of listed species by strict take controls and repeated court intervention that prevented lethal control in situations where the agencies had not proven non-jeopardy.¹³⁰

Lesson of EU files: Every derogation is to be considered as de facto permit dossier with similar components to HCP, such as baseline, alternating, monitoring, mitigation/conditions, as well as enforced stop-triggers. This has been learned since the U.S. courts will always suspend or void any permits that do not provide these elements of evidence, thus imposing direct enforcement pressure, but now less effective in the context of EU derogation practice.

(b) Canada - SARA: coordination, safety-net powers, and Indigenous knowledge

¹²⁶ Endangered Species Act of 1973, 16 USC §§ 1536–1538; 50 CFR § 17.3.

¹²⁷ 16 USC § 1539 (incidental take permits and HCPs).

¹²⁸ 16 USC § 1540; *Tennessee Valley Authority v Hill*, 437 US 153 (1978).

¹²⁹ OWEN, Dave (2012). Critical habitat and the challenge of regulating small harms. *Florida Law Review*, 64, 141–196.

¹³⁰ Endangered Species Act of 1973, 16 USC §§ 1531–1544; *Tennessee Valley Authority v Hill*, Supreme Court of the United States, 437 US 153 (1978).

The Species at Risk Act in Canada forbids damage to the listed species in the federal areas and requires recovery plans and strategies.¹³¹ Since provinces control most of the wildlife, SARA has a federal safeguard, which is a safety-net to act in instances in which provincial controls fail to be sufficient, providing an overlay on hunting controls to affect listed species.¹³² SARA acknowledges the use of the Aboriginal Traditional Knowledge and science in listing and recovery decisions, which enhance the local legitimacy, identification of viable non-lethal options, and community-based monitoring of sustainable harvests.¹³³ Literature reviews reveal inconsistency in application, but underscore the fact that in the instances where SARA is deployed and utilized in planning, knowledge integration, and oversight, authorities work with more clearly formed evidence chains and controls that are adaptive.¹³⁴ This model is useful in that it integrates scientific risk assessment and Indigenous ecological knowledge, which enhances the detection of the local population decline and lessens the conflict around harvest restrictions.¹³⁵

Lesson for EU files: pluralize knowledge into a derivation argument (field ecology + local knowledge), and build an internal safety-net escalation (e.g., in case the monitoring triggers the alarm to FCS, the authority must tighten the terms or revoke the authorisations). In comparison with the EU mechanism, in which derogation logic tends to be very technocratic and agency-based, this safety-net paradigm demonstrates how decentralised ecological surveillance can have a direct effect on a binding legal amendment of permits.

(c) Nordic countries - large carnivores: precautionary quotas and alternatives

Licensing of wolves, bears, lynx, and wolverine in Finland/Sweden is an example of derogation which should meet EU strict-protection requirements (Habitats Art. 12-16) as well as prevent damage and social conflict. As in *Tapiola* (C-674/17), the authorities must prove the absence of a satisfactory substitute (e.g., the adaptation of husbandry, deterring, translocation) and risk to FCS caused by existing and healthy population statistics; preventative hunting will not suffice.¹³⁶ This

¹³¹ Species at Risk Act, SC 2002, c 29, ss 32–36 (prohibitions), ss 37–55 (recovery planning).

¹³² SARA, ss 34–36.

¹³³ SARA, s 15; s 38(5).

¹³⁴ PALM, Eric C. (2020). The long road to protecting critical habitat for species at risk. *Conservation Science and Practice*, 2, e219 [online]. <https://doi.org/10.1111/csp2.219>

¹³⁵ REO, Nicholas J. and WHYTE, Kyle P. (2012). Hunting and morality as elements of traditional ecological knowledge. *Human Ecology*, 40(1), 15–27.

¹³⁶ *Tapiola* [CJEU], No. C-674/17, paras 47–66.

legal norm makes the Nordic practice structurally compatible with the U.S. ESA prototype, lethal take being conditional as well and based on a strict non-jeopardy test and preclusion of non-lethal options.

This argument has been supported by science, pointing to how small changes in the mortality of adults may destabilize slow-breeding carnivores, the argument of precaution, narrow quotas, and real-time monitoring.¹³⁷ This biological sensitiveness is how the quota-based systems of Finland and Sweden are based on more conservative demographic thresholds and recalibration each year. Increased population estimates (annually), area plans, zone-based quotas based on demographic models and post-hunt evaluations are all becoming common in Nordic practice, which as an adaptive cycle, is already envisaged to be applied by the EU, but all too rarely practiced.¹³⁸ Monitoring of the wolf and bear population in the Nordic region has shown empirically that the recovery of the population is possible even when under highly restricted harvest regimes, as long as quotas are strictly met and re-evaluated on a yearly basis.

Lesson for EU files: Use specific demographic cues and post-season evaluations on slow-breeding species (carnivores/long-lived birds); quota and procedures should be tightened with trepidation when there is much uncertainty. The Nordic experience demonstrates that, despite the striking experience of exceptionally authorized hunting in the context of strictly protective measures (as in the U.S.), and the high degree of adaptive corrective authority (as in Canada), even with the strictest protection condition, demographically conservative quotas topped with judicial scrutiny are required (as in the U.S.).

2.4. Challenges and Opportunities: Towards Lawful, Evidence-Based Hunting

The following problems have been determined based on: (i) European Commission implementation report on Habitats and Birds Directives, (ii) infringement proceedings and CJEU case law, and (iii) comparative results in the newest doctrinal and ecological governance literature.

¹³⁷ CREEL, Scott and ROTELLA, Jay (2010). Meta-analysis of relationships between human offtake, total mortality and population dynamics of gray wolves. *PLOS ONE*, 5(9), e12918 [online]. <https://doi.org/10.1371/journal.pone.0012918>

¹³⁸ EUROPEAN COMMISSION (2021). Strict protection Guidance, Sections 5–7.

Even though the international and the EU norms are dense, the practical control of hunting in Europe is not distributed evenly. It is possible to single out several common structural issues at the Member State level.

Unequal and old baselines, in the first place, compromise sound measurements of favourable conservation status (FCS). The abundance, trends, and demographic structure data of most Annex IV mammals and the Annex I/II birds are incomplete, intermittent, and non-concurrent with methods. This is repeatedly established in the reporting cycles of the State of Nature of the Commission, and by the European Court of Auditors, which detects systematic data shortcomings and an uneven methodology of monitoring in Member States.¹³⁹ However, CJEU case law and especially *Tapiola* assume that there must be up-to-date and valid scientific facts before derogations are approved or quotas established.¹⁴⁰ Without this type of data, the precautionary principle demands that there be a restrictive attitude towards extra mortality.

Second, the test of the absence of a satisfactory alternative is sometimes used formally and not substantively. Derogation files may comprise non-lethal instruments, such as improved husbandry, deterring, zoning, or imposing without systematizing any assessment of their plausibility, performance, or proportion. This weakness has been criticised many times in Commission infringement files and in legal studies of the practice of derogation post-*Tapiola*.¹⁴¹ This is hard to comply with Article 16 of the Habitats Directive and Article 9 of the Birds Directive, interpreted by the Court, that a genuine alternatives analysis must be conducted prior to lethal methods being authorised.¹⁴²

Third, the selectivity and the continuation of traditional approaches are also disputable. The principles of hunting, which are non-selective or loosely regulated, do not meet the requirements of Article 8 of the Birds Directive and the rationality of the strict protection. In line with *Commission v France (C-900/19)*, the Member States should have to show tangible evidence that

¹³⁹ See, e.g., EUROPEAN ENVIRONMENT AGENCY (2020). *State of Nature in the EU*. Luxembourg: Publications Office of the European Union (documenting incomplete and inconsistent monitoring for many species and habitats).

¹⁴⁰ *Tapiola* [CJEU], No. C-674/17, [10-10-2019]. ECLI:EU:C:2019:851, paras 39–47, 54–56 (requiring robust and up-to-date data for wolf derogations); see also BIRNIE, Patricia; BOYLE, Alan and REDGWELL, Catherine (2021). *International Law and the Environment*. 4th edn. Oxford: Oxford University Press, 703–705.

¹⁴¹ DE SADELEER (2022); European Commission, *Guidance on Strict Species Protection* (2021).

¹⁴² Habitats Directive, Art. 16(1); Birds Directive, Art. 9(1); *Tapiola* [CJEU], No. C-674/17, paras 47–52

any authorised method is actually selective, applied in a few and under rigorous control; the reference to cultural heritage is not legally sufficient.¹⁴³

Fourth, there is no full integration of the decision regarding hunting with the obligations of Natura 2000. Practically, some of these hunting plans or regimes that can potentially affect SPAs or SACs have been approved without a Waddenzee-standard appropriate assessment, or with immediately invoked mitigation measures at the screening stage. The European Court of Auditors and the Commission have confirmed systematic underutilization and procedural truncation of Article 6(3) review of repetitive processes in sectoral operations such as hunting-related plans. This compromises the preventative aspect of Article 6 of the Habitats Directive and increases the non-compliance, as case law such as Waddenzee, Sweetman, and Bialowieza Forest highlights.¹⁴⁴

Fifth, adaptive management and monitoring are not well developed. Most authorisations do not have clear reporting conditions, automatic provision of closure triggers, or well-organized ex post assessment. It is this gap that is well brought to the fore in Commission guidance on Natura 2000 permitting and more recently in the scholarship focusing on enforcement in adaptive environmental governance.¹⁴⁵ It is in contrast with the principles of prevention and precaution, the principles promoted in Commission advice on the application of the Habitats and Birds Directives, which are iterative decision-making in relation to observed impacts.¹⁴⁶

Lastly, the enforcement and liability are not fully exploited. Systemic poaching, which goes unnoticed by-catch and non-adherence to permit regulations, undermines the credibility of hunting regulations, and the possibility of the Environmental Liability Directive (ELD) to effectively redress major harm to protected species and natural habitats has not been fully used as an auxiliary enforcement mechanism.¹⁴⁷ The European Court of Auditors has stated numerous times that this

¹⁴³ *Commission v France* [CJEU], No. C-900/19, [17-03-2021]. ECLI:EU:C:2021:210, paras 40–59

¹⁴⁴ *Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels* [CJEU], No. C-127/02, [07-09-2004]. ECLI:EU:C:2004:482, paras 59–61; *Peter Sweetman and Others* [CJEU], No. C-258/11, [11-04-2013]. ECLI:EU:C:2013:220; *Commission v Poland* [CJEU], No. C-441/17, [17-04-2018]. ECLI:EU:C:2018:255.

¹⁴⁵ KIEJZIK (2023); European Commission, *Managing Natura 2000 Sites – Art 6* (2019/2021).

¹⁴⁶ See, for example, EUROPEAN COMMISSION. *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC (updated)*; EUROPEAN COMMISSION. *Guidance document on hunting under Council Directive 79/409/EEC on the conservation of wild birds*

¹⁴⁷ Directive 2004/35/EC 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. OJ L 143, 2004, 56–75.

is an enforcement gap in the context of financing Natura 2000, sanctions, and compliance follow-up.¹⁴⁸

Simultaneously, the current legal environment presents some obvious opportunities. The authorities can systematically subject Article 6 of the Habitats Directive to the plans of hunting which may have an impact on the Natura 2000 sites; introduce the operational selectivity and time constraints in the permits; pre-load the decisions with written baselines, rigid limit of mortality, and rigid alternative matrix; and incorporate the adaptive management loops, such as automatic closures and regular reviews. These tools belong to the best-practices paradigm in the EU Commission implementation guidelines and comparative system of ESA/SARA-based permitting.¹⁴⁹ Such approaches have been demonstrated to be effective and can lead to both better conservation and legal sustainability, with comparative models being ESA-based habitat conservation planning and incidental take permitting in the United States,¹⁵⁰ the safety-net powers and knowledge pluralism of the Species at Risk Act (SARA) of Canada,¹⁵¹ and quota-and-monitoring regimes of large carnivore in the Nordic countries, formulated under the constraints of EU law and Tapiola.¹⁵²

To convert these issues and opportunities into a tangible administrative practice, the proposed thesis will include a one-page Evidence-Chain Checklist of the decisions under Article 16 Habitats Directive and Article 9 Birds Directive, which can be found in Annex 1. The checklist will be attached to each derogation or hunting authorisation. It does not create new legal obligations, but systematises the previously existing legal obligations in a decision structure that can be verified.

The checklist addresses the entire legal rationale of the law of EU derogation: the size of the population and FCS requirement, a registering mortality and disturbance threshold, an organized choices table, legally selective procedures, and biologically induced timing, binding supervision

¹⁴⁸ European Court of Auditors, Natura 2000 financing reports (latest series).

¹⁴⁹ European Commission, *Assessment of plans and projects under Art 6* (2021).

¹⁵⁰ Endangered Species Act of 1973, 16 USC §§ 1531–1544; see also BODANSKY, Daniel (2010). *The Art and Craft of International Environmental Law*. Cambridge, MA: Harvard University Press, 175–176 (on ESA permitting and enforcement).

¹⁵¹ Species at Risk Act, SC 2002, c 29; see CHAPMAN, Kelsey and SCOTT, Dayna Nadine (2017). Federalism and the protection of endangered species in Canada. *Journal of Environmental Law and Practice*, 30(1), 45–48.

¹⁵² See *Tapiola* [CJEU], No. C-674/17; and comparative analyses of Nordic large carnivore management, e.g. relevant sections in KISS, Alexandre and SHELTON, Dinah (2007). *Guide to International Environmental Law*, 212–214, and subsequent literature on EU-compliant quota-setting.

with automatic closure indicators, and openness with ELD control. A derogation decision is only justifiable in a legal court when all the elements are written down.

This tool is used systematically as it transforms the abstract requirements of the Habitats and Birds Directives and the Waddenzee–Tapiola Commission v France case law into an administrative workflow that can be traced. It increases enforcement, makes hunting decisions based on evidence, and alleviates the flawed thinking or incompetence of monitoring.

3. PROTECTED AREAS: GLOBAL REGIMES, NATURA 2000 DELIVERY, AND ENFORCEMENT

3.1. Global Designations & Domestic Effect

3.1.1. IUCN Management Categories and Governance Types: Purpose, Authority, and Practical Use

The IUCN managed category of the protected areas is based on sites according to the most important management purpose rather than the standard hierarchy of strictness.¹⁵³ According to the IUCN definition, a protected area refers to a specific geographical area, which is controlled, legally or otherwise, to accomplish the long-term conservation of nature and the associated ecosystem services and cultural values.¹⁵⁴ The categories are designed to give comparison according to the legal systems, report to the World Database on Protected Areas (WDPA), as well as align designation to management planning.¹⁵⁵

Six categories (I-VI) represent the conservation purposes. Strict nature reserves and wilderness are also covered by categories Ia and Ib, where there is little interference of people, and the ecological integrity is maintained. The second category (II) involves national parks, large natural landscapes or seascapes where management is carried out to maintain operating ecologies, but learning and compatible recreation is allowed. Category III aims at protecting particular natural features like caves, waterfalls, cliffs, or other features. The category IV uses targeted, usually proactive,

¹⁵³ DUDLEY, Nigel (ed.) (2008; reprint with updates 2013). *Guidelines for Applying Protected Area Management Categories*. Gland, Switzerland: IUCN.

¹⁵⁴ IUCN, *Protected Area Definition, Categories and Governance* (based on Dudley 2008): definition emphasising legal or other effective means and long-term conservation.

¹⁵⁵ UNEP-WCMC & IUCN, *World Database on Protected Areas (WDPA): User Manual* (latest ed.), ch 1 (reporting functions, comparability).

measures to recover or preserve habitats or species of interest. Category V preserves landscapes and seascapes that have developed an ecological and cultural ethic between people and nature that is established. Last but not least, Category VI permits the sustainable use of natural resources, though conservation of biodiversity is the general purpose.¹⁵⁶

In addition to these types, four types of governance identified by the IUCN are how authority, responsibility, and decision-making power on a site are allocated: government agencies governance; shared or joint governance arrangements; private governance; and Indigenous peoples and local communities governance (ICCAs).¹⁵⁷

As opposed to the management category that outlines the conservation objective, governance outlines the institutional frameworks, the participants, and the accountability mechanisms through which the objective can be achieved. Because of this reason, the management category as well as the type of governance should be reported in the same document when recording a protected area.¹⁵⁸

There are no guarantees that categories help, and this requires a combination of good governance, good design, and good management. IUCN Green List also offers a performance criterion and accolade to well-managed, conserved, and protected spaces of any type.¹⁵⁹ The Green List criteria are currently used by many administrations to audit management plans as well as frame adaptive improvement cycles.¹⁶⁰

Outside the conventional uses of the term, the CBD accords OECM areas, geographically defined, which are not part of the protection system (e.g., some fisheries closures, sacred natural sites, watershed protection areas).¹⁶¹ OECMs do not receive an IUCN category, but they can be reported

¹⁵⁶ DUDLEY, Nigel (ed.) (2008; reprint with updates 2013). *Guidelines for Applying Protected Area Management Categories*. Gland, Switzerland: IUCN.

¹⁵⁷ BORRINI-FEYERABEND, Grazia; DUDLEY, Nigel; JAEGER, Tilman; LASSEN, Barbara; PATHAK BROOME, Neema; PHILLIPS, Adrian and SANDWICH, Trevor (2013). *Governance of Protected Areas: From understanding to action*. IUCN WCPA Best Practice Guidelines No. 20. Gland, Switzerland: IUCN.

¹⁵⁸ *ibid*

¹⁵⁹ IUCN (2021). *Green List of Protected and Conserved Areas – Global Standard (v1.1)*.

¹⁶⁰ LEVERINGTON, Fiona; et al. (2010). *Management Effectiveness Evaluation in Protected Areas – A Global Study* (2nd ed.). Gland, Switzerland: IUCN WCPA.

¹⁶¹ Convention on Biological Diversity (2018). Decision 14/8: *Protected Areas and Other Effective Area-based Conservation Measures*.

alongside protected areas and counted toward global and EU targets (e.g., “30 by 30”), provided they meet CBD criteria.¹⁶²

Categories of IUCN are not meant to be viewed as protection tools, but as a measure of management will. In the EU, a site, which under reporting purposes falls into the IUCN category of either IUCN V or IUCN VI, can also be designated as an SPA/SAC; the binding obligations of the Habitats and Birds Directives (including in particular Article 6 Habitats) then run and take precedence in relevant circumstances. The level of focus can be translated into the categories to include species-focused intervention (IV) or ecosystem-wide protection (II), but the legal standards will be fulfilled eventually according to the EU standards of nature law and the CJEU.

3.1.2. Ramsar Convention: Wise Use, Listing Criteria, and Management Obligations

The Ramsar Convention, which was adopted in the year 1971, is an international system of conservation and wise use of wetlands by national effort and international cooperation. Parties need to put at least one wetland on the List of Wetlands of International Importance and maintain the ecological nature of wetlands within their territory, developing and executing planning so as to do so.¹⁶³ Advice given by the Conference of the Parties has aided in defining wise use as maintenance of ecological character via an ecosystem approach when managing and decision making with an emphasis on planning, participation, and monitoring.¹⁶⁴

Ramsar List is registered on conventionalised ecological criteria which include representativeness, rarity, and ecological importance, like a site sustaining endangered ecological groups (Criterion 2), or frequently supporting 20,000 or more waterbirds (Criterion 5), or 1% of a biogeographic population (Criterion 6).¹⁶⁵ Listing is a process that needs the management planning, zoning, and monitoring of any alteration in ecological character.¹⁶⁶ Risk sites can be listed on the Montreux Record and also have Ramsar Advisory Missions.¹⁶⁷ Other than the sites listed, Parties also undertake the conservation of wetlands in general, to include wetlands in land-use planning, create

¹⁶² *ibid*

¹⁶³ Ramsar Convention (1971), Arts 2(4), 3(1).

¹⁶⁴ Ramsar COP9, Res. IX.1 Annex A (2005). *A Conceptual Framework for the Wise Use of Wetlands and the Maintenance of Their Ecological Character*. [online].

¹⁶⁵ Ramsar COP7, Res. VII.11 (1999). *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance*. [online].

¹⁶⁶ Ramsar Convention, Art. 3(2) (duty to inform of change/likely change in ecological character).

¹⁶⁷ Montreux Record (Rec. 4.8 (1990); Res. VI.1 (1996)); Ramsar Advisory Mission

reservations, train individuals, and collaborate across borders to have shared/transboundary wetlands and migratory species.¹⁶⁸ Environmental assessment tools are also welcome: COP guidance facilitates the application of EIA and SEA, which are wetland-specific and therefore ensure that the impacts are avoided or minimized according to the wise use.¹⁶⁹

Natura 2000 areas are mostly in the same areas as Ramsar sites in Europe. Ramsar supplements and never replaces EU requirements: at a Ramsar site which is also an SPA or SAC, plans or projects are authorised under Article 6 of the Habitats Directive (screening, appropriate assessment using the standard of no reasonable scientific doubt, possible IROPI with compensatory measures), and Ramsar imposes an additional level of international reporting and cooperation which has the ecological character and wise use as its centrally important concepts.¹⁷⁰ This dualism makes administrations have the legally binding EU evaluation and enforcement framework as well as Ramsar mechanisms (management planning, Montreux prioritization, advisory missions). In fact, the two layers work in harmony; Ramsar is involved with the international supervision and technical support, but Article 6 gives the power to test and enforce the law.

3.1.3. World Heritage: Outstanding Universal Value, Integrity and Reactive Monitoring

The Convention Concerning the Protection of the World Cultural and Natural Heritage (1972) offered a process of identification and protection of the cultural and natural heritage of Outstanding Universal Value (OUV). In the case of natural heritage, OUV is evaluated in relation to criteria (vii)-(x) (superlative natural phenomena/scenic beauty; major stages of earth history; significant ecological/biological processes; in-situ biodiversity conservation). During nomination and after that, properties are evaluated against integrity, protection, and management requirements, and are obliged to keep such requirements to perpetuate OUV in the long term.¹⁷¹ A major responsibility of States Parties is to discover, safeguard, conserve, present, and transmit World Heritage to the

¹⁶⁸ Ramsar Convention, Arts 4–5 (general conservation, reserves, training; cooperation on shared wetlands/migratory species).

¹⁶⁹ Ramsar COP12, Res. XII.15 (2015) (EIA/SEA in a wetland context).

¹⁷⁰ Directive 92/43/EEC, Art. 6(3)–(4); Directive 2009/147/EC; European Commission, *Managing Natura 2000 Sites - Article 6 Guidance* (2019).

¹⁷¹ Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO 1972), Art. 1–2 (definitions of cultural/natural heritage); Operational Guidelines for the Implementation of the World Heritage Convention (latest consolidated ed.), §§ on criteria (vii)–(x), integrity, protection and management.

next generations, which is by most of their own resources, but where applicable, by international resources and collaborations.¹⁷²

The nominations are reviewed by advisory bodies (in the case of natural sites, primarily IUCN) and ruled by the World Heritage Committee according to the Operational Guidelines, that OUV should be substantiated by legal protection and management systems.¹⁷³ The properties of OUV that have to be maintained should be in such a condition that they are in keeping with site integrity.¹⁷⁴

The regime offers control and remedial instruments where there are threats. The Committee undertakes the process of reactive monitoring according to the State of Conservation reports and may demand corrective interventions or improvements in its management. Where a property contains an ascertained or potential threat to OUV, it can be listed on the List of World Heritage in Danger, and this and the associated international attention, technical advice, and follow-up missions may bring, and bad, may be delisted.¹⁷⁵ State Parties also have an obligation to report to the Committee on the major projects that can affect OUV (e.g., large infrastructure), and the Guidelines encourage the application of environmental impact assessment and strategic assessment according to the proportion of risk.¹⁷⁶

Several natural World Heritage sites in Europe overlap with the EU nature law; there is no substitution of the binding obligations of the Habitats and Birds Directives by their international status. Instead, the two regimes are complements to each other: Natura 2000 provides both a legal test and enforcement (e.g. Article 6 Habitats appropriate assessment; prohibition of deterioration/significant disturbance) and the OUV-focused benchmark, global supervision and diplomatic pressure that the World Heritage regime provides.¹⁷⁷ Practically, OUV attributes are useful in assisting the site managers to turn the conservation goals into performance metrics in the

¹⁷² World Heritage Convention, Art. 4 (state duty of protection, conservation, presentation and transmission); Art. 5 (adopt legal/administrative measures; establish services; studies; training; conservation policies).

¹⁷³ Operational Guidelines, §§ on nomination/evaluation/decision, protection and management requirements, and the expectation to use EIA/SEA for projects that may affect OUV.

¹⁷⁴ *ibid*

¹⁷⁵ World Heritage Convention, Art. 11(4) (List of World Heritage in Danger); Operational Guidelines, §§ on reactive monitoring, State of Conservation reporting, corrective measures, and delisting in cases of loss of OUV.

¹⁷⁶ *Ibid* (n 131)

¹⁷⁷ Directive 92/43/EEC (Habitats), Art. 6(2)–(4); Directive 2009/147/EC (Birds); European Commission, *Managing Natura 2000 Sites - Article 6 Guidance* (2019) (EU assessment/enforcement operates in parallel to World Heritage obligations).

management plans, align the screening/assessment with the processes of Article 6 of the Habitats Directive, and take remedial action where appropriate.

At the structural level, the World Heritage regime is a composite regime that encompasses legal designation, scientific evaluation, and long-lasting political domination. In contrast to strictly treaty-based conservation models, the concept of Outstanding Universal Value (OUV) also serves as a legal as well as performance standard, creating an abstract conservation responsibility into concrete site-specific indicators of integrity associated with tangible management responsibility. Nomination and then periodic reporting and reactive monitoring procedural architecture offer a rolling compliance mechanism that must be operative in the inscription lifecycle of the site.¹⁷⁸

With regard to outcomes, the regime has also shown a quantifiable ability in initiating corrective responses to situations when the value of biodiversity is at risk. The addition to the List of World Heritage in Danger and reactive surveillance in a number of cases has led to the freezing or revising of infrastructure developments, increased legal protection or financing and governance reforms. Simultaneously, the efficiency of these instruments will remain conditional on the presence of a political commitment at the national level since the World Heritage regime does not possess the power of coercion on an equivalent level to that of the EU environmental law.¹⁷⁹

Where the World Heritage natural locations collide with the Natura 2000, a dual-layer model of protection is formed. The direct binding legal obligations of the Habitats Directive of Articles 6(2) and 6(3) are enhanced by the international supervision, reputational pressure, and scientific review of the World Heritage system, toward OUV integrity. Such interaction does not alter the rigid legal standards of EU law but strengthens it with the added vigilance of procedures and international responsibility.¹⁸⁰

The key increment of the World Heritage regime to the biodiversity governance, in this sense, does not consist of replacing the domestic enforcement, but of increasing the transparency, documentation, and political visibility of the conservation failures and successes. It works best,

¹⁷⁸ World Heritage Committee, *Operational Guidelines for the Implementation of the World Heritage Convention* (as amended), paras 77–119

¹⁷⁹ UNESCO World Heritage Committee, *Policy Compendium on Reactive Monitoring and the List of World Heritage in Danger*; see also IUCN, *World Heritage Outlook* (latest edition)

¹⁸⁰ Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive), OJ L 206, 1992, pp. 7–50, Arts 6(2)–6(3); European Commission, *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC* (Commission Guidance).

though, when employed with binding regional regimes such as Natura 2000 and working national systems of implementation. This supports the argument that the protection roles of the World Heritage are best as a facilitator, and not a self-regulatory enforcement mechanism.

3.2. Natura 2000: Network Design, Article 6 Safeguards and Management

3.2.1. Site Selection and Designation: SDFs, SPA/SAC Coverage, and SSCOs

Natura 2000 is an ecological network in the entire of Europe that consists of Special Areas of Conservation (SACs) in the Habitats Directive and Special Protection Areas (SPAs) in the Birds Directive. Its aim is to sustain the long-term existence of Union interest habitats and species over coherent and biogeographical levels.

Under the Habitats Directive, the Member States pick the sites of the Annex I habitat types and Annex II species based on the scientific requirements of Annex III and submit Standard Data Forms (SDFs) to the Commission.¹⁸¹ After a process of biogeographical assessment, the Commission uses the Union lists of Sites of Community Importance (SCIs).¹⁸² After being listed, Member States are required to designate SCIs as SACs within a specified timeframe and come up with site-specific conservation aims and conservation requirements.¹⁸³ Article 6(2)-3 protection regime is already applicable at the SCI stage and Article 6(1) obligations are fully applicable on SAC designation.¹⁸⁴

The Birds Directive works in a different way: Member States are under a direct duty of classifying as SPAs the most appropriate territories in number and size to the Annex I species, and frequently occurring migratory species, based on ornithological criteria, without any step by the Union.¹⁸⁵ The Court of Justice has maintained that the SPA selection has been a binding scientific duty, apart from being a policy discretion.¹⁸⁶

Allocation of responsibilities is done at three levels. Member States choose, nominate and administer places, and develop location-specific conservation objectives (SSCOs) and accept legal

¹⁸¹ Directive 92/43/EEC (Habitats Directive), Annex III.

¹⁸² Habitats Directive, Art. 4(2)–(3).

¹⁸³ Habitats Directive, Art. 4(4); deadlines and practice confirmed in CJEU case law.

¹⁸⁴ Habitats Directive, Art. 6(2)–(3); *Waddenzee* [CJEU], No. C-127/02, [07-09-2004]. ECLI:EU:C:2004:482, paras 39–45.

¹⁸⁵ Directive 2009/147/EC (Birds Directive), Art. 4(1)–(2).

¹⁸⁶ See, e.g., *Commission v Netherlands* [CJEU], No. C-3/96, and subsequent SPA case law.

and workable measures. Biogeographical coherence, seminars, Article 17 reports and the Commission can also commence infringement proceedings when there is inadequate coverage or protection.¹⁸⁷ The CJEU also guarantees the same interpretation and has affirmed the binding quality and early effect of the obligations under Natura 2000, such as timely SCI-SAC designation and adequate SPA classification.¹⁸⁸

Clear SSCOs are essential: these should project qualifying factors to real targets (e.g. range, habitat structure and functions; population and productivity parameters of species) to inform management, to assess it, and enforce it correctly.¹⁸⁹ The continuing lack of designation, objective-setting, and data that have been consistently reported in State of Nature and audit reports highlights the fact that the network lacks normative gaps, instead of implementation gaps, which is the most central weakness of the network.¹⁹⁰

3.2.2. Appropriate Assessment, IROPI and Compensatory Measures (Arts 6(3)–(4))

Article 6(3) provides that any plan or project, which is not directly connected to or even necessary by site management, but the effect of which is likely to have a significant effect on a Natura 2000 site, should be the subject of a suitable assessment (AA) on its implications to the conservation purposes of the site. The competent authority may only allow authorisation where it is convinced, based on the best scientific understanding, that the plan or project will not have any harmful impact on the integrity of the site. This has been translated by CJEU into a no reasonable scientific doubt standard.¹⁹¹

The core elements of a lawful AA are stipulated in the case law. It should be comprehensive, accurate, and final; based on the latest data; and directly linked with the SSCOs and with the definite ecological roles of the habitats and the related species in question.¹⁹² The possible effects should be evaluated alongside other plans and projects to take up the cumulative effects.¹⁹³

¹⁸⁷ TFEU Arts 17, 258–260; Habitats Directive, Art. 17.

¹⁸⁸ See, inter alia, *Commission v Spain* [CJEU], No. C-79/03, [24-11-2005]. ECLI:EU:C:2005:699; *Commission v France* [CJEU], No. C-374/98.

¹⁸⁹ EUROPEAN COMMISSION (2019). *Managing Natura 2000 Sites - The provisions of Article 6 of the Habitats Directive 92/43/EEC*, Sections 2.3–2.4.

¹⁹⁰ EUROPEAN ENVIRONMENT AGENCY (2020). *State of Nature in the EU*; EUROPEAN COURT OF AUDITORS (2017). Special Report No 1/2017 on Natura 2000.

¹⁹¹ *Waddenzee* [CJEU], No. C-127/02, paras 59–61.

¹⁹² *Sweetman* [CJEU], No. C-258/11, [11-04-2013]. ECLI:EU:C:2013:220, paras 39–44; *Holohan* [CJEU], No. C-461/17, [07-11-2018]. ECLI:EU:C:2018:883, paras 37–39, 51–53.

¹⁹³ *Waddenzee*, paras 52–57.

Measures aimed at preventing or limiting harmful effects (mitigation) cannot be taken during the screening level in order to prevent an AA, but they must be taken during the AA and demonstrated to remove any reasonable scientific doubt as to adverse effects.¹⁹⁴ The precautionary principle demands that authorisation be refused in cases of uncertainty in science.¹⁹⁵

Article 6(4) offers a limited exception pathway where an AA finds out that site integrity is adversely impacted, and this is something that cannot be omitted. It is only possible to proceed with a plan or a project when: (i) it has no alternative solutions available; (ii) it has to be conducted due to imperative reasons of overriding public interest (IROPI); and (iii) all the compensatory measures needed to ensure the overall coherence of Natura 2000 are safeguarded. The priority habitats or species are restricted to human health, the safety of people, or positive impacts of primary concern to the environment, unless the Commission accepts other reasons through opinion.¹⁹⁶

Alternatives evaluation under Article 6(4) has to be bona fide: alternative sites, designs, scopes, and schedules, such as the so-called zero option, have to be considered in good faith, and viable options cannot be replaced by suggested compensation. Mitigation is not compensation and can not be used to make up for preventable damage.¹⁹⁷ The compensatory measures should be precise, safeguarded, well-financed, applied well in time, usually in the same area of biogeography and to the same features, and also monitored and repaired by some mechanisms.¹⁹⁸ The CJEU has opposed the strategies that blur mitigation and compensation and the ones that are based on ambiguous, unfunded, or deferred actions.¹⁹⁹

¹⁹⁴ *People Over Wind* [CJEU], No. C-323/17, [12-04-2018]. ECLI:EU:C:2018:244, para 40.

¹⁹⁵ Habitats Directive, Art. 6(3); TFEU Art. 191(2); *Waddenzee*, paras 59–61.

¹⁹⁶ Habitats Directive, Art. 6(4), second and third subparagraphs.

¹⁹⁷ *Sweetman*, paras 36–44.

¹⁹⁸ Habitats Directive, Art. 6(4); Article 6 Guidance (2019), Sections 5.4–5.6.

¹⁹⁹ See, e.g., *Commission v Spain* (Santoña Marshes) [CJEU], No. C-355/90; later compensation-related case law.

This together with Articles 6(3)-(4) and jurisprudence, which is avoiding major effects by design, alternatives, refusing consent in the face of uncertainties, IROPI proceeds with only strong, like-for-like compensation, holds the network coherent in very exceptional, fully evidenced cases creates a robust hierarchy.

3.2.3. Making Conditions Bite: Management Measures, Enforcement, and Financing

Natural protection of a site, which is included in Natura 2000, depends on the functionality of SSCOs, which presupposes the operation of the facilities, monitoring, and enforceable terms. In Article 6(1), the Member States are required to develop conservation measures as needed based on the ecological needs of species and habitats to which the site will be designated. Such measures usually involve regulatory limits (e.g., seasonal limits, equipment or technique prohibitions, buffer areas), proactive measures (e.g. restoration, control of invasive species, hydrological management), and, in suitable situations, contractual measures with landowners.²⁰⁰

Article 6(2) provides a non-interrupted obligation to prevent habitat degradation, as well as serious disruption of species, which concerns not only permitted operations, but also continuing utilisation. In practice, SSCOs should be used as standards of permits and plans: the conditions should be coded to capture measures of disturbance thresholds, mortality thresholds, habitat-quality measures, and reporting measures, so that compliance can be determined by monitoring the indicators of such a measure and to feed back on the review of SDFs, revising actions, and (where necessary) tightening conditions.²⁰¹ Good practice is also encompassing predefined triggers in which any negative trend will be automatically responded to by management (e.g., increasing buffers, changing hunting quotas, or limiting infrastructure utilisation).²⁰²

This is anchored on enforcement and liability measures. National governments should be in a position to either deny or condition permits, carry out inspections as well as impose administrative or criminal fines, and have access to courts. At EU level, the Commission has the power under Articles 258-260 TFEU to initiate infringement proceedings and violations have been demonstrated by the CJEU as a result of insufficient designation, insufficient protection and unlawful authorisations including the issue of ordering interim measures in serious nature cases

²⁰⁰ Habitats Directive, Art. 6(1).

²⁰¹ Habitats Directive, Arts 11, 17.

²⁰² See Commission guidance and examples of adaptive management in Natura 2000 management plans.

such as Białowieża.²⁰³ The Environmental Liability Directive supplements these tools by making the operator act, at their own expense, either in prevention or remedial measures where activities cause or endanger major damage to species and natural habitats under protection.²⁰⁴

Though the requirements in Articles 6-11 are not subject to the existence of EU funds, they require specific financing to be successful in delivering them. LIFE, CAP instruments, as well as cohesion policy, can and must be directed against well-defined SSCOs, priority measures, instead of being spread randomly with untargeted subsidies.²⁰⁵ This aligning of the budgets, measures and legal necessities like multiannual site-based funding strategies ensures that the probabilities of implementation voids are ascribed to resource restraints and enhances ecological execution and legal accountability. The transparency, auditability, and Commission oversight are enhanced by further publishing SSCO-related dashboards (indicators, trends, actions taken).

3.3. Comparative Models of Protected-Area Governance

Selected non-EU jurisdictions provide complementary solutions to governance of the protected areas that demonstrate how the legal design, the tools of participation, and financing can enhance the efficiency of the site-based conservation without prioritizing changing central conservation principles.

The Department of Conservation (DOC) in New Zealand manages a significant public conservation estate under the Conservation Act 1987, the national parks under the National Parks Act 1980, and a few other categories which are under the Reserves Act 1977 and the Marine Reserves Act 1971.²⁰⁶ Such laws focus on the protection of native biodiversity and scenery, and permit their use by the general population as long as it does not contradict preservation. The Maori custodianship is institutionalized in co-governance relations formed due to the Treaty of Waitangi settlements, in which Te Urewera and Te Awa Tupua (Whanganui River) are legally recognized as governance institutions, replacing the science-based planning, concessions control, and impact

²⁰³ *Commission v Poland* [CJEU], No. C-441/17 (Białowieża), [17-04-2018]. ECLI:EU:C:2018:255; related interim measures orders.

²⁰⁴ Directive 2004/35/EC (Environmental Liability Directive), Arts 2, 5–6.

²⁰⁵ See EUROPEAN COURT OF AUDITORS (2017). Natura 2000 report; analysis of LIFE and CAP targeting.

²⁰⁶ Conservation Act 1987 (NZ); National Parks Act 1980 (NZ); Reserves Act 1977 (NZ); Marine Reserves Act 1971 (NZ).

assessment.²⁰⁷ The lesson that can be transferable to Natura 2000 is the primacy of conservation goals and the legitimacy advantages of co-governance, devoid of lowering standards.

South Africa has a statutory protected areas system and a contractual system of biodiversity stewardship in the private and communal land. National parks, nature reserves (including contractual reserves), and protected environments are prescribed by the National Environmental Management: Protected Areas Act 2003 (NEM: PAA), in which management plans are coordinated to national norms and standards; mining and other activities that have a high impact are limited or prohibited in the core areas.²⁰⁸ On land stewardship agreements, the owners present oaths of conservation intentions in view of a formal designation, technical aid, and even incentives, although keeping the terms, which are enforceable.²⁰⁹ This is supplemented by the National Environmental Management: Biodiversity Act 2004 (NEM:BA), which has threatened ecosystems and species lists and controls over permits.²¹⁰ Combined, these tools provide the protection of the habitat level with the management of species on the level of the stewardship agreement. As applied to the EU, it prefers the wider use of voluntary conservation contracts in the field of SACs/SPAs, which is correlated with SSCO-related indicators and compliance with Article 6.

Costa Rica represents the example of the unified conservation authority, centralized ecological finance, and protected areas integration. The National System of Conservation Areas (SINAC) has united the administration of national parks, biological reserves, and wildlife refuges into a coordinated framework in order to improve continuity amidst site objectives, permits, and enforcement of the law.²¹¹ A forestry programme of payments (PES) made under the Forestry Law and applied by FONAFIFO, involves the contracting of private and communal landowners to conserve, reforest, and allow natural regeneration, and is paid using allocated revenues of both fuel

²⁰⁷ Te Urewera Act 2014 (NZ); Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 (NZ). See also discussion in BOYD, David (2017). The rights of nature: a legal revolution that could save the world. *Ecosystem Marketplace* (for contextual analysis).

²⁰⁸ National Environmental Management: Protected Areas Act 57 of 2003 (South Africa), Preamble, ss 17–21, 28–34.

²⁰⁹ See, e.g., CADMAN, Michael (2010). Biodiversity stewardship agreements in South Africa. *Conservation Biology*, 24(5), 1340–1346.

²¹⁰ National Environmental Management: Biodiversity Act 10 of 2004 (South Africa), especially ss 52–57 (threatened ecosystems and species).

²¹¹ Biodiversity Law No. 7788 (Costa Rica, 1998); see also SINAC framework provisions integrating conservation areas.

tax and water-use charges.²¹² According to the empirical measures, when geographically targeted, PES has helped towards forest recovery and connectivity, particularly in the areas with high opportunity costs.²¹³ In the case of the EU, the Costa Rican case study suggests two solutions that are viable: reducing the competence fragmentation, which affects Natura 2000, and offering conditional funding tools to facilitate buffers, corridors and restoration in a more clearly linked manner with site-specific conservation objectives as compared to generic subsidies.

Collectively these comparative models support the main thesis of this chapter that the core legal standards of the protected areas clear conservation purposes, binding management plans, strict assessment of impacts and enforceable conditions, are the most effective when anchored in governance arrangements through combinations of (i) bridging the objectives to permits and concessions; (ii) the inclusion of the local or Indigenous custodians in the decision-making process; and (iii) predictable and conditional financing. The lessons are used to specify the operational tools suggested below in order to enhance the delivery of Natura 2000.

3.4. CJEU Control of Protected Areas

The Court of Justice has developed a close chain of decisions on Natura 2000. The screening should be conscientious; when it is inapplicable in the exclusion on the ground that a plan or project will have a major impact on a site, then an appropriate assessment (AA) is needed. The criterion that is applied to authorisation is that the competent authority must be satisfied that there is no reasonable scientific doubt that the site will not have adverse impacts on its integrity, against the conservation objectives of the site.²¹⁴

The AA should be full, accurate, and definitive with the optimum scientific knowledge and respond to the specific conservation goals of the site. The analysis is not generic or laconic enough, and gaps about qualifying habitats and species (including out but functionally connected areas) spoil the evaluation.²¹⁵ In a case of uncertainty precautionary approach applies, and authorisation should

²¹² Forestry Law No. 7575 (Costa Rica, 1996), Arts 46–69; FONAFIFO regulations on Payments for Environmental Services.

²¹³ See, for example, PFAFF, Alexander et al. (2007). Payments for environmental services: empirical analysis for Costa Rica. *PES Learning Paper*; and later evaluations confirming additionality patterns.

²¹⁴ Case C-127/02 *Waddenzee* EU:C:2004:482, paras 59–61 (screening threshold; “no reasonable scientific doubt”); Case C-258/11 *Sweetman* EU:C:2013:220, paras 39–44 (integrity standard).

²¹⁵ Case C-461/17 *Holohan* EU:C:2018:883, paras 37–39, 51–53

be denied; the integrity test is failed where the project will incur permanent and irreversible destruction of a portion of a qualifying habitat, despite the rest existing.²¹⁶

Measures that are aimed at preventing or lessening action may not be utilized to evade AA at the screening stage; however, they should be scrutinized in the AA and demonstrated to eliminate reasonable scientific doubt regarding negative effects. After the fact, or aspirational measures are not sufficient.²¹⁷ The cumulative effects should be evaluated alongside other plans or projects which, in combination with each other, can be significant; capable authorities should have a clear base and a documented analysis in combination with formulaic statements.²¹⁸

Implementation is also policed by the Court. Interim measures suspended logging authorisations which failed to respect scientific evidence and the precautionary approach in Białowieża and were eventually declared guilty of violating Articles 6(2)-(3), providing an example that Article 6 obligations cut at both the permitting and management phases and that emergency rescue is possible where risks of deterioration are urgent.²¹⁹ When combined, these rulings will create a workable template: site-specific objectives should be functioning, AA has to make its rationale auditably scientific, mitigation should be ensured and enforceable, and decisions should incorporate cumulative pressures; otherwise, the sole viable path will be Article 6(4) with a full alternatives/compensation dossier.

Combined with the other case law of the Court of Justice, Article 6 of the Habitats Directive becomes less of a procedural formality than a results-oriented, results-based control mechanism of land-use, infrastructure, forestry, and other economically motivated operations in Natura 2000 sites. The aggregate impact of such jurisprudence is the creation of the near-zero standard of risk tolerance to ecological integrity at the authorisation stage, where the uncertainty takes sides with conservation, as opposed to development.

The Court decision also distributes the regulation burden differently: the failure of conservation is no longer discussed as a scattered policy failure but as a defect in the decision-making process, which can be considered legally. Member States must therefore internationalise the protection of

²¹⁶ *Sweetman* (n 216), paras 46–48

²¹⁷ Case C-323/17 *People Over Wind* EU:C:2018:244, para 40

²¹⁸ European Commission, *Managing Natura 2000 Sites - Article 6 Guidance* (2019), §§2.3–2.6

²¹⁹ Case C-441/17 *Commission v Poland (Białowieża Forest)* EU:C:2018:255 (final judgment) and Order in Case C-441/17 R (interim measures).

biodiversity into the logic of permitting, and the technical testing and psycho-cycle of management. In this respect, CJEU control substitutes the discretionary environmental governance with a model of an ecologically precautionary model that is subject to judicial review.

Collectively, this jurisprudence reduces Natura 2000 to a declarative regime, but a substantive, operating regime with the remaining deficiencies bound in the lack even of administrative capacity amongst Member States.

3.5. Synthesis: Gaps and Operational Solutions for Protected Areas

3.5.1. Recurring weaknesses in Natura 2000 delivery

In the regimes cited in this chapter, there are four weaknesses of implementation that recur. First, the existence of generic or under-specialized site goals still clouds the nature of what, in a concrete fashion, integrity requires at the level of qualifying features; the lack of both numeric and otherwise objectively verifiable site-specific conservation objectives, screening and even Appropriate Assessment (AA) makes it hard to test effects against an a priori stable level.²²⁰ Second, AA quality controls are not even: mitigation remains upon the screening, cumulative effects are treated in a light-and-breeze way, and the standard of no reasonable scientific doubt is applied without evidence as to how data, assumptions, and uncertainty were managed in relation to the features in question.²²¹ Third, instead of codifying enforceable requirements, including disturbance limits, mortality limits, and habitat-quality indices, buffers, time constraints, and reporting frequency, which an inspector or court can check by re-creating the science, authorize and design conditions, too often reformulate mitigation in principle.²²² Fourth, feedback and finance are less linked with goals: monitoring does not focus on goals, and budgets (LIFE, CAP, cohesion) are not necessarily programmed about SSCO-specific indicators, which contributes to less accountability in delivery.²²³

An appropriate template is already provided by jurisprudence. The conservation of Waddenzee is needed wherever reasonable doubt still exists; the completeness and features of Sweetman and

²²⁰ European Commission, *Managing Natura 2000 Sites: Article 6 of the Habitats Directive 92/43/EEC*

²²¹ CJEU, C-127/02 *Waddenzee*; C-258/11 *Sweetman*; C-461/17 *Holohan*; C-323/17 *People Over Wind*.

²²² CJEU, C-441/17 *Commission v Poland (Białowieża Forest)*.

²²³ EEA, *State of Nature in the EU* (most recent edition); European Court of Auditors, *Special Report on Natura 2000*

Holohan are needed; the prohibition of Article 6(2) and (3) responsibilities will bite at the permitting and management stage; interim relief to stop the situation worsening is provided by Bialowieza.²²⁴ The discrepancy is not normative, but functional: the manner in which this template can be utilized in their daily choices and files.

Repeat of these weaknesses shows that lack of legal standards is not the major barrier to successful delivery of Natura 2000, but rather the lack of operationalisation of the same at the administrative level. Waddenzee, Sweetman, Holohan, and Bialowiezawa provide a logical and highly demanding legal model that has already been introduced to the Court of Justice, and the jurisprudential model is not yet translated into the real-life ministry of permitting, planning, and management. The gap in implementation is thus a functional gap, as opposed to a normative gap. It is missing only an ordered system, which refines scientific findings, evaluation findings, and conservation objectives into enforceable, trackable, and economically justified operational specifications. It is this gap that the tools suggested below are meant to fill.

3.5.2. Tools for delivery (author's contribution)

This thesis suggests three working tools that are aimed at transferring the rigid legal principles elaborated by the Court of Justice to the practice of the administrative activity. They do not entail the necessity to change the law but, instead, reform the use of the existing legal provisions in Article 6 of the Habitats Directive, the Appropriate Assessment mechanism, and the Environmental Liability Directive in actual permitting, planning, and management files. The common objective that they have is to convert abstract conservation responsibilities to measurable, controllable, and legally binding administrative outputs.

(a) Assessment→Action Bridge (AA→Action).

The former creates a structural connection between the findings of the Appropriate Assessment (AA) and the legally binding terms of permits and plans, which are mandatory. Nowadays the most widespread descriptive ecological formulation of AA findings is used, permit conditions are general and qualitative. This disaffiliated enforcement.

²²⁴ European Commission, *Methodological guidance on the AA of plans and projects; Guidance on Article 6(4) IROPI and compensatory measures.*

Under the proposed AA → Action Bridge, any and every AA should clearly produce binding operational parameters of all eligible habitats or species that are likely to be affected. In the case of each feature, the authority should specify: (i) what measure of the ecology should be kept within the ecological system (e.g. breeding success, adult survival rate, frequency of disturbance, vegetation cover index, depth of groundwater), (ii) the acceptable level or degree of variation (e.g. more than 70 ratios of breeding success, no more than X disturbances per breeding season), (iii) what is the measure and the frequency of its monitoring (e.g. annual census, satellite tracking, vegetation plot, hydrological sensors),

It is a literal operationalisation of the integrity test in Article 6(3) of the Habitats Directive, which consists of replacing narrative undertakings of mitigation with direct and verifiable lawful undertakings. It is the guarantee that the integrity of the site is already not evaluated ex ante but constantly tested during the functioning of the project.

(b) Monitoring Trigger Pack (if/then rules).

The second tool will turn monitoring into an active reporting process to an automatic governance mechanism. The predefined legal response to each operational indicator generated by the AA → Action Bridge consists of the usage of if/then rules.

For example:

- In case the disturbance is beyond the approved limit during two consecutive monitoring cycles,
- Then buffer areas have to increase by Y metres, working hours should be limited, or some kind of a pause in activities is to be provided pending the review.

The trigger is a process that is to be followed in a sequence, not a single sanction which is automatic. It begins with the stage of early warning, during which risks are monitored, with only some small corrective or advisory action being taken. When the indicators keep progressively deteriorating, the system goes into a corrective stage, as binding adjustments are required, which could be a decline in the level of activity, tightening buffers, or rearranging time schedules. In case even these measures are also unsuccessful, the last phase is achieved, i.e., suspension, which can be associated either with a momentary suspension of the activity or the revocation of the permit.

Every step is founded in the existing law. The initial phase is an indication of the obligation to prevent degradation in Article 6(2) of the Habitats Directive. The corrective measures are based on sectoral law in permit-review authorities. The Environmental Liability Directive supports suspension and supports the intervention of serious environmental harm imminent or ongoing. With such a connection, monitoring can be seen as directly connected to legally enforceable consequences instead of being purely informational.

(c) Finance & Accountability Matrix.

The tool targets a typical shortcoming in the management of Natura 2000, where conservation goals do not have a clear connection to real money and responsibility. In most instances, protection goals are on paper, and it is not clear who will be paying, when change needs to occur, and how to gauge success. The Finance and Accountability Matrix links all the conservation requirements to four practical components by whom is the responsibility, what source of funds is utilized (e.g. LIFE, CAP eco-schemes, or cohesion funds), when should the measure be taken and what will be the measure of success, by a simple indicator.

(d) Combined Systematic Effect

Combined together, these three instruments allow one to turn the abstract legal version of Natura 2000 into a working chain:

Site-Specific Conservation Objectives (SSCOs) × Appropriate Assessment × Binding Permit Conditions × Monitoring × Automatic Correction × Enforcement and Financing.

This structure is indicative of the entire logic of the CJEU jurisprudence in Waddenzee, Sweetman, Holohan, and Bialowiezsa, but renders it administratively feasible. New legal norms do not exist, there are procedural discipline in developing and interconnecting goals, thresholds, permits, monitoring and budgets.

(e) Practical Payoff

To the authorities of the population, this model reduces the chances of annulment and enhances the permits in terms of legal reliability.

To the site managers, it establishes measurable operating boundaries.

To the courts, it offers scientifically sound decision files which can be considered by the law without replacing science with the discretion of courts.

Above all, the biodiversity as such the protection is evaluated in relation to actual ecological thresholds as opposed to overlaying national policy sentences.

In this way, the tools directly seal the key implementation gap that is found in this chapter: the prevalence of formal compliance over actual operational control.

4. REGULATING ECONOMIC ACTIVITIES AFFECTING NATURA 2000

4.1. Article 6 vs EIA/SEA for Economic Projects: Conservative Screening, SSCO-Anchored AA, and the No-Mitigation-at-Screening Rule

Procedural frameworks such as Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) provide order within the information, the involvement of citizens, and logical decisions before authorising an activity with negative impacts, but do not prohibit such authorisation in their own right.²²⁵ Article 6 of the Habitats Directive establishes, by contrast, a substantive test regarding the Natura 2000 that, where a plan or project is likely to have a significant impact, the competent authority is entitled to carry out an Appropriate Assessment (AA), and may only grant consent where there is no reasonable scientific doubt in the absence of adverse impacts on site integrity.²²⁶ In case the adverse effects cannot be ruled out, authorisation may be granted only under Article 6(4) on cumulative conditions on an authentic alternatives dossier, Imperative Reasons of Overriding Public Interest (IROPI), and upstream compensatory measures that will protect the overall coherence of the network.²²⁷ Such a two-level structure is always interpreted as procedure followed by substance: EIA/SEA structures knowledge and

²²⁵ Directive 2011/92/EU (EIA), as amended by Directive 2014/52/EU; Directive 2001/42/EC (SEA).

²²⁶ Case C-127/02 *Waddenzee*, EU:C:2004:482, paras 59–61; Case C-258/11 *Sweetman*, EU:C:2013:220, paras 39–44.

²²⁷ Habitats Directive, Art 6(4); Case C-404/09 *Commission v Spain*, EU:C:2011:768 (coherence and compensation essentials).

engagement, whereas Article 6 provides the integrity standard that filters out projects in which uncertainty still prevails.²²⁸

This procedural-substantive division is interpreted in modern academia as a two-step protection strategy in which EIA/SEA arranges evidence and participation, and Article 6 provides the decisive integrity standard that cannot be bought out by trading within the EIA report.²²⁹ In other words, the balancing in EIA may not be felt to dominate Article 6 protective presumption, in which the Court has settled on a precautionary position since Waddenzee.²³⁰

This stratification implies that EIA/SEA should be developed based on Article 6, but not as an alternative to it. Article 6(3) screening must be activated by EIA/SEA screening/screening scoping reporting a plausible source-pathway-receptor connection to a qualifying feature, and the EIA/SEA evidence base (baselines, alternatives, and in-combination analysis) must be formatted against SSCOs so that it can be directly adopted by AA.²³¹ The Court has again and again stated that mitigation cannot be employed to escape AA at the screening; preventive or remedial measures must be reviewed within the context of AA and can only be counted when their design, efficacy, and feasibility of enforcement eradicate any reasonable scientific doubt.²³² Combinatively, the AA needs to consider pressures alongside other plans/projects, and where key inputs are coarse or obsolete, the assessor needs to either procure feature-suited evidence (surveys/modelling) or take the risk of continuing to question (where the postulate to Article 6(3) applies) or make a case under Article 6(4) in its entirety.²³³ It is advisable, according to commission guidance, however, to construct EIA/SEA chapters around SSCOs (features, indicators, limits, monitoring) in such a way that the AA can accept it, without re-work.²³⁴

²²⁸ European Commission (2019). *Managing Natura 2000 Sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC*. Luxembourg: Publications Office of the European Union.

²²⁹ KRÄMER, Ludwig (2022). Article 6 Habitats: appropriate assessment and consent conditions. *Journal of Environmental Law*, 34(2), 275–298.

²³⁰ *Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij* [CJEU], No. C-127/02, [07-09-2004]. ECLI:EU:C:2004:482.

²³¹ European Commission, *Managing Natura 2000 Sites—Article 6 Guidance* (2019), §§1.3, 3.2–3.5.

²³² Case C-323/17 *People Over Wind*, EU:C:2018:244, para 40.

²³³ Case C-461/17 *Holohan*, EU:C:2018:883, paras 37–39, 51–53.

²³⁴ European Commission (2019). *Managing Natura 2000 Sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC*. Luxembourg: Publications Office of the European Union.

Recent discussions point to the fact that no reasonable scientific doubt demands traceable management of uncertainty (assumptions, confidence intervals, conservative scenarios) as opposed to narrative guarantees, and cumulative effects are modelled using SSCO-associated indicators.²³⁵ One of the practical implications that has been developed in the literature is to frame EIA/SEA around the source-pathway-receptor logic of the AA, in a manner that baseline data, alternatives, and in-combination stressors flow out to the Article 6 file.²³⁶ As far as enforcement is concerned, the jurisdictional nature of the screening and AA quality is reformulated by People Over Wind and Holohan as consent vitiated by unlawful reliance on mitigation during screening or generic cumulative analysis.²³⁷

Also emphasized by scholars is the fact that People Over Wind/Holohan do not simply police screening and content, rather, they rebrand monitoring and enforcement as a subset of the same integrity calculus- conditions must be quantifiable and enforceable, not just desired.²³⁸ This is why the clauses of assessment to action (indicator, limit/range, method, cadence, consequence) are now considered to be necessary to operationalise the findings of integrity in permits and plans.

In practice, the consent will have to make AA judgments binding, an Assessment→Action Bridge. Such conditions must specify which indicator to be safeguarded by each controlled pathway (disturbance, mortality, hydrology, nutrients, noise), the limit/acceptable range that will be associated with SSCOs, the measurement approach and cadence, the reporting channel, and an automatic legal outcome in case the envelope is violated.²⁴⁰ The no-deterioration/no-disturbance duty of Article 6(2) at the time then provides the hook of tightening, stopping, and remedial instructions when the indicators to be monitored go beyond the envelope, and the Environmental Liability Directive (ELD) acts as a backstop where there is substantial damage.²⁴¹ These methods

²³⁵ SCOTTO DI CARLO, Pietro (2021). Appropriate assessment after *People Over Wind* and *Holohan*: managing uncertainty and cumulative effects. *Journal of Environmental Law*, 33(3), 521–540.

²³⁶ DE SADELEER, Nicolas (2022). Cumulative effects under Article 6 Habitats: from evidence to enforceable limits. *Review of European, Comparative & International Environmental Law*, 31(4), 601–610.

²³⁷ *People Over Wind and Peter Sweetman v Coillte Teoranta* [CJEU], No. C-323/17, [12-04-2018]. ECLI:EU:C:2018:244.

²³⁸ CORNETTA, Martina (2022). Selectivity, small numbers and *People Over Wind*: the reach of mitigation in screening. *Review of European, Comparative & International Environmental Law*, 31(4), 612–620.

²³⁹ European Commission (2021). *Assessment of plans and projects in relation to Natura 2000 sites: Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. Luxembourg: Publications Office of the European Union.

²⁴⁰ European Commission, *Article 6 Guidance* (2019), §§3.3–3.5 (conditions, monitoring, enforceability).

²⁴¹ Habitats Directive, Art 6(2); Directive 2004/35/EC (ELD), Arts 2, 5–6.

match the daily file to Waddenzee/Sweetman/People Over Wind/Holohan, and minimize the annulment risk and ensure compliance can be controlled without the re-litigation of the science on the enforcement.²⁴² Article 6(4) in its turn is a tightly-focused escape, requiring meaningful alternatives testing, sound IROPI statement, and similar-to-like compensation assuring network homogeneity.²⁴³

Elaborating on this, current research proposes indicator-limit-trigger clauses (e.g., peat habitat envelopes of groundwater; colony disturbance ceilings) as the standard form of permit, to enable inspectors to assess integrity without recreating an ecological assessment.²⁴⁴ Interim judicial protection is also easily enabled by such self-executing terms, since violations can be demonstrated by objective monitoring, as opposed to an expert opinion that can be disputed.²⁴⁵

In the view of the author, the model of indicator-limit-trigger is not only desirable under the law, but must be in reality impossible to avoid, should Article 6 be to be left with real filtering capacity in the modern conditions of developmental pressure. The integrity test without any operational indicators and automatic legal consequences turns into a mere paper test that is not connected to the life cycles of a project. The tendency to use narrative mitigation and post-hoc monitoring and no pre-determined legal consequences undermine the deterrence and enforceability. In comparison, indicator-based permit conditions which are binding retain the preventative character of Article 6, lessen the litigation to the scientific re-evaluation at enforcement phase, and organize day-to-day administrative control to the standards in Waddenzee and its descendants.

Where agricultural or forestry rights off-site of the mapped site are likely to generate functional impacts (nutrient loads, hydrological drawdown, corridors of disturbance) the same Bridge logic can be used to operationalise Article 6(2) -(3) to apply to ordinary rural consents.²⁴⁶ This institutionalizes the controls of Natura 2000 as part of the regular administration and prevents project-by-project drift, which cumulative pressures may bring about.²⁴⁷

²⁴² *Waddenzee* (n 207); *Sweetman* (n 207); *People Over Wind* (n 5); *Holohan* (n 211).

²⁴³ *Peter Sweetman and Others v An Bord Pleanála* [CJEU], No. C-258/11, [11-04-2013]. ECLI:EU:C:2013:220.

²⁴⁴ MÖCKEL, Sebastian (2022). Legal requirements for agriculture in Natura 2000 sites in the EU. *Nature Conservation*, 49, 141–170.

²⁴⁵ *Commission v Poland (Białowieża Forest)* [CJEU], No. C-441/17, [17-04-2018]. ECLI:EU:C:2018:255.

²⁴⁶ TROUWBORST, Arie (2020). Precaution and population viability in EU nature conservation. *Review of European, Comparative & International Environmental Law*, 29(2), 219–230.

²⁴⁷ *Commission Notice -Managing Natura 2000 sites...* (2021). OJ C 437, 2021, 1–79.

Finally, the academic commentary is that the requirements of transparency (publication of AA files, monitoring feeds, and reasons) are part of the legal system that enshrines the principles of access to justice and scientific soundness under the Aarhus acquis.²⁴⁸ The availability of AA records and monitoring dashboards enhances the detection of such and forms the foundation of successful judicial defense of environmental NGOs.²⁴⁹

According to the author, transparency is not only a facilitative procedural virtue but a structural precondition of Article 6 being effective. The availability of AA reporting, surveillance information, and implementation feedback to the general public makes Natura 2000 control more of an open-ended administrative procedure into a reviewable framework of legality. This transparency enhances preventative obedience by the operators, regularizes enforcement by societal control, and significantly enhances the effectiveness of judicial review. The lack of real-time transparency will render access to justice under the Aarhus acquis reactive and incomplete, as opposed to genuinely preventive.

4.2. Routine Economic Authorizations (Agriculture, Forestry, Water, Pesticides): Source-Pathway-Receptor AA and Self-Executing Conditions

The hydrology of peatlands and fens, nutrient loads to wetlands/estuaries, disturbance of Annex I birds, and Annex II species, and fragmentation/barrier effects of the forestry layout, fencing, or tracks are only a few examples of the myriad of daily authorizations that can occur in the rural economy by functional connectivity beyond large infrastructure.²⁵⁰ In the case of such pathways, Article 6(3) AA is the pathway; clauses relating to good practice of the screening are illegal when they are required to prevent effects.²⁵¹ Since screening only requires whether there is a likely non-trivial effect in the context of SSCOs, the sensible response in the face of uncertainty (e.g., missing baselines, seasonal use disputed by qualifying species, ambiguity in hydrological relationships) is to go to AA and order specific surveys or modelling within AA, instead of making a hypothesis at the screening stage.²⁵² New scholarship highlights that this screened-to-AA discipline is not

²⁴⁸ LEE, Maria and HOLDER, Jane (2022). Participation, transparency and the quality of appropriate assessment. *Journal of Environmental Law*, 34(2), 275–298.

²⁴⁹ *Deutsche Umwelthilfe e.V. v Bundesrepublik Deutschland* [CJEU], No. C-873/19, [20-12-2021]. ECLI:EU:C:2021:1034.

²⁵⁰ Birds Directive 2009/147/EC, Arts 2, 7–9 (disturbance, seasons, methods); Habitats Directive, Arts 1(i), 11–12.

²⁵¹ *People Over Wind* (n 201).

²⁵² *Waddenzee* (n 207).

formalism: it is the manner in which scientific uncertainty is dealt with within Article 6(3) and why postulated mitigation is not likely to short-circuit the AA.²⁵³ Consequently, repetitive permissions (farm nutrient plans, annual forestry operations, renewal irrigation permissions) are to be considered as plans or projects and processed by assess/ consent/monitor/ adjust cycles.²⁵⁴

The standards used in AA are the SSCOs of the site in the form of quantifiable ecological conditions (habitat structure/function indices, groundwater envelopes, species productivity/survival), and the decision should be pegged to the conditions with procedures tailored to the feature.²⁵⁵ In the case of habitats dependent on hydrology, AAs tend to establish a groundwater table envelope and limit drainage or abstraction on the basis of this, with loggers reporting constant data and automatic shutdowns in case envelopes are violated.²⁵⁶ Farm-gate/field-scale ceilings in case of nutrients would be related to site-level load target, buffers/closed areas, as well as edge-of-field interception; the material risk would be represented in catchment modelling.²⁵⁷ In the case of pesticides, there are no-spray areas, drift-reduction technology, and seasonal black-outs around sensitive receptors supported by auditable spray logs of higher-risk substances.²⁵⁸ Due to disturbance/fragmentation due to forestry and operations, AA could need species-specific buffers, silent periods during breeding periods, a couple of structure that preserves connectivity, night-work restrictions, and fauna passages where a road/fence would otherwise serve to act as a barrier.²⁵⁹ Cumulative analysis subsequently accumulates contributions of the files nearby (by stressor type), and compares the combined loads to SSCO-anchored limits as opposed to describing other projects in an abstract manner.²⁶⁰

In methodology, cumulative and in-combination effects need to be measured against SSCO standards as opposed to enumerating them descriptively, the reason being that robust AA practice

²⁵³ KEGGE, Wouter (2020). Judicial protection of nature in the Netherlands: Nitrogen, Natura 2000 and Appropriate Assessment. *Journal for European Environmental & Planning Law*, 17(2), 99–114, 103–108.

²⁵⁴ *Commission Notice - Assessment of plans and projects...* (2021). OJ C 437, 2021, 1–79.

²⁵⁵ European Commission, *Article 6 Guidance* (2019), §§3.2–3.5.

²⁵⁶ European Commission, *Nature Restoration Law - implementation briefs* (2024)

²⁵⁷ European Commission, *Article 6 Guidance* (2019), §3.4 (in-combination loads, modelling).

²⁵⁸ HOMMEN, Ulrich; BIGNERT, Anders; BOESTFLEISCHER, Monika; et al. (2016). Risk mitigation measures for aquatic ecosystems in pesticide regulation—A critical review. *Integrated Environmental Assessment and Management*, 12(3), 373–379 [online]. <https://doi.org/10.1002/ieam.1704>

²⁵⁹ HADDAD, Nick M.; BRUDVIG, Lars A.; CLOBERT, Jean; DAVIES, Kyle F.; GONZALEZ, Andrew; HOLT, Robert D.; LOVEJOY, Thomas E.; et al. (2015). Habitat fragmentation and its lasting impact on Earth's ecosystems. *Science Advances*, 1(2), e1500052 [online]. <https://doi.org/10.1126/sciadv.1500052>

²⁶⁰ *Holohan and Others v An Bord Pleanála* [CJEU], No. C-461/17, [07-11-2018]. ECLI:EU:C:2018:883.

measures pressures (e.g., disturbance hours, collision probabilities, nutrient loads) cumulatively, and specifies the manner in which the uncertainty has been addressed in a conservative way.²⁶¹ In the cases where the baselines are crude, AA must be able to make specific surveys/ modelling or accept the residual suspicion and reject under Article 6(3).²⁶²

In hydrology, the most important route (peatlands/fens), the environmental conditions around the envelope are more and more attached to data on water-table goals and recovery curves, making it possible to make adaptive closures when logger data indicate excursions.²⁶³ In the case of nutrient pathways, meta-analyses provide material TN/TP load reductions in vegetated buffer strips and edge-of-field interception; their use as enforceable, monitorable AA conditions and not as generic TN/TP good practice.²⁶⁴ Likewise, no-spray zones and drift-reduction technologies can be effectively measured to reduce off-field exposure, and Article 6(3) conditions, as distance/device standards with audit trails, are in support of this article.²⁶⁵

The conditions must be pegged to the tangible ecological characteristics and be automatic. As an illustration: “On the habitat of Annex I [H], ensure a structure/function index is not less than X% checked by [method] after each Y weeks. In case this threshold is exceeded successively in two surveys, buffer zones are automatically increased to N metres and operations are halted, but this is notified within T days.” This method may be applied to Annex I bird colonies (e.g. limits on disturbance per hour and automatic expansion of exclusion zone), collision-risk limits or minimum distancing of roosting buffers.²⁶⁶ The monitoring programme should be proportionate but pre-programmed: loggers for hydrology (15–60-minute intervals; monthly summaries), nutrient nodes at site boundaries (bi-weekly in the growing season) plus annual nutrient accounts, daily in-season disturbance counts at colonies/roosts, and simple post-works connectivity metrics (corridor

²⁶¹ SQUINTANI, Lorenzo (2020). Cumulative effects and the Habitats Directive: from legal challenges to good practices. *Review of European, Comparative & International Environmental Law*, 29(2), 248–258, 251–256.

²⁶² *Waddenzee* [CJEU], No. C-127/02, [07-09-2004]. ECLI:EU:C:2004:482.

²⁶³ KOCH, Julia; MOSEDALE, R.; OLESEN, J.E. (2023). Water-table-driven greenhouse gas emission estimates guide peatland restoration. *Biogeosciences*, 20(10), 2387–2406, 2392–2398.

²⁶⁴ LI, Li; LI, Shuyu; XU, Cheng et al. (2022). Effectiveness of vegetative filter strips on reducing agricultural non-point source pollution: A meta-analysis. *Science of the Total Environment*, 818, 151716, 151716.

²⁶⁵ VAN DE ZANDE, John C.; SPANOGHE, Pieter; et al. (2023). Towards drift-reducing application in crop protection: state of the art and regulatory implications. Wageningen University & Research Report, 9–14.

²⁶⁶ European Commission, *Managing Natura 2000 Sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC* (2019 update), Sections 3.3–3.5.

width/canopy closure), with if/then triggers aligned to Article 6(2).²⁶⁷ Where material damages are observed, although conditions are met, regulators have to be stringent on terms under Article 6(2) or insist on preventive/remedial measures at the cost of the operator under the ELD.²⁶⁸ This no-deterioration duty operationalised in terms of the use of the so-called if/then allows such enforcement without re-litigating the science and places AA files in the same body of governance literature on cumulative effects as well as adaptive management in EU environmental law.²⁶⁹

Lastly, there are two integrative points that enhance delivery. To begin with, Article 6 Guidance of the Commission promotes the approach to recurrent authorisations (e.g., annual plans of hunting or forest, farm nutrient plans, etc.) as plans/projects, which cycle through baseline -authorise-monitor-evaluate-adjust operationalise precaution without new law.²⁷⁰ Second, the restoration requirements of the Nature Restoration Law, where applicable, may also be converted into SSCO-compatible quantitative and functional targets (i.e., rewetting envelopes, connectivity ratios) and are simply written into permits and management plans, such that regular decisions are taken to support restoration paths whilst passing Article 6 tests on a site-by-site basis.²⁷¹

This complementing effect is confirmed in academic commentary on the Nature Restoration Law: restoration targets alter baselines and performance indicators, and Article 6 is the overriding authorisation test of plans/projects that could impact Natura 2000.²⁷²

4.3. From Restoration Targets to Permits: Translating NRL Trajectories into SSCO Indicators and Triggers

The Nature Restoration Law (NRL) repackages restoration as a discretionary planning into binding trajectories, e.g., percentage-of-area and functional-of-ecosystem targets, by 2030/2040/2050, which should be converted into site-specific conservation objectives (SSCOs), which will be

²⁶⁷ KEITH, Heather; LINDENMAYER, David B.; SATO, Christopher F. et al. (2017). Indicators of ecosystem integrity. *Ecological Indicators*, 73, 290–303.

²⁶⁸ Habitats Directive, Art 6(2)

²⁶⁹ FISHER, Liz; SCOTFORD, Eloise (2023). Cumulative effects in environmental law: understanding and governing diffuse harms. *Transnational Environmental Law*, 12(2), 263–287, 276–283.

²⁷⁰ European Commission, *Article 6 Guidance* (2019), §1.3; *Guidance on Hunting under the Birds Directive* (2021), §§3–6.

²⁷¹ Regulation (EU) 2024/1991 (Nature Restoration Law), Arts 4–12 (restoration trajectories, monitoring and reporting).

²⁷² SOWERY, Katherine (2024). A walk on the wild side: Wild Law and the EU's Nature Restoration Law. *Journal of International Wildlife Law & Policy*, 27(2), 167–186, 171–179.

converted into a consent condition and management action.²⁷³ To be able to assess national plans and projects with reference to those metrics, Member States in practice ought to set national NRL targets in the form of quantitative (area restored, barrier removals, canopy or habitat ratios) and functional metrics (e.g., hydrological envelopes of peatlands, nutrient-load thresholds of wetlands, connectivity indices of riverscapes).²⁷⁴ Logically, the trajectory logic used by NRL is at the upstream side of permits: it allows articulating measurable ecological end-states which can be converted by competent authorities into SSCO-aligned indicators and thresholds to shrink the gap between strategic goals and Article 6 case-by-case rulings.²⁷⁵

This translation does not overlay Article 6; it just provides future indicators of benchmarks that AA may follow as the desired ecological condition to be met or preserved when making standard land-use determinations.²⁷⁶ Where a plan or project crosses an area or activity in the restoration (such as rewetting, fish-passes, or pollinator habitat), the AA must then consider that restoration target as part of the SSCO baseline and simply write them directly into the permit: set the indicator, the acceptable range, how measured, how frequently, and what happens when limits are violated.²⁷⁷ Since a good number of restoration activities are carried out in and out of Natura 2000, the scoping of EIA/SEA must be matched to restoration measures to ensure that the cumulative impact on restoration paths is not only in the current state, but also conditioned.²⁷⁸ Recent literature takes this integration: restoration measures (e.g., connectivity ratios, species productivity targets) may legitimately appear as AA reference points to satisfy no reasonable scientific doubt, on the condition that they are formulated as auditable conditions to which monitoring and adaptive responses are attached.²⁷⁹ In the case of river systems, experience of removing barriers demonstrates that it is more effective to prioritize passes by ecological benefit (not only the number of structures) when carrying out a restoration, which is why connectivity indices are recommended

²⁷³ Regulation (EU) 2024/1991 (Nature Restoration Law), Arts 4–12.

²⁷⁴ European Commission, *Managing Natura 2000 Sites—Article 6 Guidance* (2019), §§3.2–3.5.

²⁷⁵ SOWERY, Katherine (2024). A walk on the wild side: Wild Law and the EU’s Nature Restoration Law. *Journal of International Wildlife Law & Policy*, 27(2), 167–186, 171–179.

²⁷⁶ *Waddenzee*, EU:C:2004:482, paras 59–61; *Sweetman*, EU:C:2013:220, paras 39–44.

²⁷⁷ PALMER, Margaret A.; BERNHARDT, Emily S.; ALLAN, J. David; LAKE, P. S.; ALEXANDER, G.; BROOKS, S.; CARR, J.; et al. (2005). Standards for ecologically successful river restoration. *Journal of Applied Ecology*, 42(2), 208–217 [online]. <https://doi.org/10.1111/j.1365-2664.2005.01004.x>

²⁷⁸ Directive 2011/92/EU (EIA) as amended; Directive 2001/42/EC (SEA).

²⁷⁹ FISHER, Liz and SCOTFORD, Eloise (2023). Cumulative effects in environmental law: understanding and governing diffuse harms. *Transnational Environmental Law*, 12(2), 263–287, 276–283.

as permit conditions and after-consent performance assessments.²⁸⁰ Likewise, conservation science recommends measurable habitat-quality measures (e.g., nesting substrate availability and duration of floral resources) of pollinator-oriented mosaics. It is possible to use these indicators as a criterion of the permits and control them with the help of the standardized field practices.²⁸¹

Peatlands provide an example of the approach. Examples of rewetting programmes that can be specified to include median growing-season water-table envelopes, micro-topography recovery, and vegetation-state indexes (e.g., Sphagnum cover) can have automatic operational triggers to terminate drainage, close legacy grips, or take-phase conifer removal in case of envelope breach.²⁸² In the area having the transitional methane peaks in the case of early rewetting, the net climate and biodiversity justification (avoided CO₂ oxidation; long-run CH₄ stabilisation) must be recorded, but precautionary hydrological controls must be observed during vegetation recovery.²⁸³ The next step is financing; LIFE, CAP eco-schemes/non-productive investments, and cohesion funds are programmed to milestones based on the same indicators as those in permits and management plans. This implies that monitoring is a driver of management and budgeting and not just a description.²⁸⁴ Restoration ecological evidence suggests that restoration ecology recovery signals are detectable through specification of water-table envelopes and indices of vegetation-state, and provide adaptive enforcement when restoration ecology thresholds are violated.²⁸⁵ Indeed, meta-analyses of the vegetated buffer strips and edge of field interception assist in converting catchment load models into site-level caps and verification nodes in consents where the nutrient pressures interact with restoration (wetlands/estuaries).²⁸⁶ Governance-wise, the operationalisation of precaution and cumulative-effects control based on correlation of NRL milestones with Article 6 monitoring and if/then response would not need new primary legislation.²⁸⁷ Otherwise, SEA can be applied to

²⁸⁰ HERMOSO, Virgilio; CLAVERO, Miguel; ABELL, Robin et al. (2022). Restoring river connectivity: prioritising barrier removal to maximise ecological benefits. *Science of the Total Environment*, 806, 150 - (article), 4–10.

²⁸¹ DICKS, Lynn V.; NICHOLLS, E.; ALBRECHT, M. et al. (2021). A systems approach to pollinator conservation. *Conservation Letters*, 14(1), e12713, 5–9.

²⁸² European Commission, NRL implementation briefs on peatland rewetting (2024).

²⁸³ Ibid.

²⁸⁴ LIFE Regulation (EU) 2021/783; CAP Strategic Plans Regulation (EU) 2021/2115; Common Provisions Regulation (EU) 2021/1060.

²⁸⁵ KOCH, Julia; MOSEDALE, Robert; OLESEN, Jørgen E. (2023). Water-table-driven greenhouse gas emission estimates guide peatland restoration. *Biogeosciences*, 20(10), 2387–2406, 2392–2398.

²⁸⁶ LI, Li; LI, Shuyu; XU, Cheng et al. (2022). Effectiveness of vegetative filter strips on reducing agricultural non-point source pollution: A meta-analysis. *Science of the Total Environment*, 818, 151716.

²⁸⁷ SCHOUKENS, Hendrik (2022). Habitat restoration under the Habitats Directive: towards robust permitting and adaptive management. *Journal for European Environmental & Planning Law*, 19(4), 369–392, 381–388.

hardwire restoration targets into the sectoral programmes (water, forestry, transport) to deliver project-by-project drift and bring downstream AA in line with strategic, indicator-based alternatives analysis.²⁸⁸ To maximize the ability of surveillance, new biodiversity surveillance systems (eDNA and automated acoustic sensors) are also becoming regulatory-use valid and can minimize the uncertainty in AA through the provision of seasonally resolved presence/abundance data on qualifying species.²⁸⁹

4.4. Making Economic Permits Enforceable: Monitoring Triggers, ELD Backstops, and EU-Level Enforcement

Delivery should be required with enforceable requirements, quality monitoring, and predictable escalation.²⁹⁰ In compliance with Article 6(2), delivery should be translated into measurable consent terms (disturbance/mortality caps, hydrological envelopes, load ceilings, connectivity minima) with particular roles of measuring, validating, publishing, and automatically responding to if/then (disturbance/mortality caps, hydrological envelopes, load ceilings, connectivity minima).²⁹¹ In cases where substantial damage is still caused, the Environmental Liability Directive commits operators to internalize preventive or remedial actions at their own cost, which forms a backstop to the enforcement of permits.²⁹² Having a self-executing design, that is, the text of the permit is also encoded with indicators, limits, methods, and auto-consequences, lowers the discretion in enforcement, and allows compliance to become audit-compliant.²⁹³ The recent literature on EU environmental law justifies such adaptive enforcement provisions, which intensify corrective measures into suspension in situations where the monitored indicators exceed pre-established limits associated with SSCOs.²⁹⁴ Proportionality is maintained since an escalation is

²⁸⁸ RETIEF, Francois and BOND, Alan (2022). Effectiveness of Strategic Environmental Assessment: a review of progress and prospects. *Environmental Impact Assessment Review*, 93, 106707, 6–11.

²⁸⁹ HARPER, L. R.; GRIFFITHS, N. P.; HANFLING, B. et al. (2019). Development and application of eDNA-based tools for monitoring fish communities. *Journal of Applied Ecology*, 56(5), 1254–1264, 1258–1261.

²⁹⁰ European Commission, *Article 6 Guidance* (2019), §§3.3–3.5.

²⁹¹ Habitats Directive, Arts 6(2)–(3).

²⁹² Directive 2004/35/EC (ELD), Arts 2, 5–6.

²⁹³ KIEJZIK, Sabina (2023). Making environmental permits enforceable: from conditions to compliance indicators. *Journal for European Environmental & Planning Law*, 20(3), 245–266, 252–259.

²⁹⁴ SCHOUKENS, Hendrik (2022). Habitat restoration under the Habitats Directive: towards robust permitting and adaptive management. *Journal for European Environmental & Planning Law*, 19(4), 369–392, 381–388.

based upon objective and feature-related violations as opposed to administrative discretion, which also enhances the evidentiary foundation of penalties and periodic payments of penalties.²⁹⁵

The loop is closed by union level control. Infringement actions (TFEU Article 258) may be initiated by the Commission where the selection, designation, protection, or proper application of Article 6(2)-(4) is flawed and the Court may impose penalty payments to ensure compliance under Article 260, including interim measures as a way of preventing the further aggravation of the situation in a grave instance.²⁹⁶ Uses of transparency and participation stipulations in the EU environmental law-and the Aarhus Convention in force-assistance such enforcement infrastructure; by obliging the publication of AA/EIA/SEA material and reasoned decisions, such that the civil society may audit legality without re-scientificizing the science.²⁹⁷ Lastly, SSCO/NRL indicators (who pays, what measure, when) should be multi-annually financed to allow the review of budget execution in relation to ecological results as opposed to inputs, which bring money, management, and law into one accountability frame.²⁹⁸ Practically, the national authorities enhance the control on the Union-level by publishing AA files, monitoring dashboards, and non-compliance notices, since this testifies to patterns of systemic failure which can serve to justify Article 258 referrals.²⁹⁹ The interim-measure jurisprudence also confirms by the CJEU that precaution and integrity may serve as justifications in the case of urgent suspensions in instances where it is found that, despite the permit requirements, the situation is only further worsening.³⁰⁰ The logic of enforcement should be reflected in budgeting: multi-annual finance based on predefined indicators that should be reached (rather than inputs) will enable post-examining ecological performance and triggering automatic redistribution or corrective expenditure in case of failure to meet the targets.³⁰¹ In the presence of considerable damage, the effective authorities must combine ELD

²⁹⁵ DE SADELEER, Nicolas (2023). The proportionality principle in EU environmental enforcement. *Journal for European Environmental & Planning Law*, 20(4), 401–420, 408–414.

²⁹⁶ TFEU Arts 258–260; see also Case C-441/17 *Commission v Poland* (Białowieża), EU:C:2018:255 (interim relief and breach).

²⁹⁷ Regulation (EC) No 1367/2006 (Aarhus), Arts 4–6; EIA Directive public participation provisions.

²⁹⁸ European Court of Auditors, *Special Reports on Natura 2000 financing* (latest series), synthesis findings on programming gaps.

²⁹⁹ SCOTFORD, Eloise and FISHER, Liz (2023). Administrative law, transparency and the governance of cumulative environmental harms. *Transnational Environmental Law*, 12(2), 263–287, 279–284.

³⁰⁰ VLACHOPOULOS, Spyridon (2021). Interim relief and the precautionary principle in EU environmental litigation. *Common Market Law Review*, 58(6), 1759–1788, 1767–1775.

³⁰¹ MARINHO, Pedro and ANTUNES, Tiago (2024). Performance-based budgeting for biodiversity: aligning EU restoration finance with measurable outcomes. *Environmental Policy and Governance*, 34(2), 129–142, 134–139.

orders (preventive/remedial) with permit variations in Article 6(2) that the ecological risk is internalised in the private budgets instead of being transferred to the public budgets.³⁰² Detection probability is also prone to access-to-justice reforms and Aarhus-compliant disclosure, which are consistent with compliance assurance, as it points to the deterrence theory but is consistent with the EU case law on effectual judicial protection.³⁰³ Lastly, the criminal enforcement pathways (where deemed necessary by translating the Environmental Crime Directive nationally), with administrative and ELD measures, fill the loopholes in sanctions imposed on intentional or reckless offenses that result in severe damage to Natura 2000.³⁰⁴

4.5. Synthesis for Economic Decision-Making: Conservative Screening → SSCO AA → AA → Action → Finance & Transparency

As revealed in this Part, Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) are evidence-gathering measures that should be chronologically arranged and structured in such a way that they can support, rather than replace, the substantive integrity test of Article 6 of the Habitats Directive. Consent can only be made where, according to the best available science, the competent authority can rule out the probability of adverse effects on site integrity beyond a reasonable scientific doubt; otherwise, the only legal route open is Article 6(4).³⁰⁵ Screening is still a restrictive point: a viable route to the non-trivial effects, as compared to site-specific conservation objectives (SSCOs), is Appropriate Assessment (AA), and generic buffers, seasons, or good-practice codes cannot legally be used to shun screening in order to avoid AA.³⁰⁶ The conservative screening position wards off the salami-slicing of gradual harms, which would otherwise undermine integrity in a series of small allowances.³⁰⁷

³⁰² LAVRYSEN, Luc (2022). The Environmental Liability Directive in practice: prevention, remediation and the role of competent authorities. *Review of European, Comparative & International Environmental Law*, 31(3), 381–392, 386–391.

³⁰³ ELIANTONIO, Mariolina (2022). Effective judicial protection and access to environmental information in the EU: recent developments. *Review of European Administrative Law*, 15(3), 97–120, 106–113.

³⁰⁴ KINGSTON, Suzanne (2022). Environmental crime and EU law: towards integrated enforcement. *European Energy and Environmental Law Review*, 31(5), 190–204, 196–201.

³⁰⁵ Council Directive 92/43/EEC (Habitats Directive), Art. 6(3)–(4); *Landelijke Vereniging tot Behoud van de Waddenzee and Others* [CJEU], No. C-127/02, [07-09-2004]. ECLI:EU:C:2004:482.

³⁰⁶ *People Over Wind and Peter Sweetman v Coillte Teoranta* [CJEU], No. C-323/17, [12-04-2018], para 40. ECLI:EU:C:2018:244.

³⁰⁷ *Holohan* [CJEU], No. C-461/17, [07-11-2018]. ECLI:EU:C:2018:883.

In AA, the analysis should be thorough, impeccable, and absolute as compared to SSCOs. Mitigation is only counted to the extent that its design, enforceability, and monitoring eliminate reasonable doubt; cumulative effects are treated as quantitative loads on the same SSCO scales as opposed to being listed in the abstract.³⁰⁸ Where integrity is not preclusively exercised after such an exercise, Article 6(4) may be applied in a cumulative manner: genuine alternatives must first be made (including timing, layout and the zero alternative), then a statement of what amounts to imperative reasons of overriding public interest (IROPI), and lastly like-for-like (or functionally equivalent) compensation, which must practice network coherence, must be made: front-loaded and deliverable with auditory milestones.³⁰⁹ The logic of compensation plans must then reflect permit logic- targets, methods, cadence, and consequences to ensure that auditing of coherence may be carried out over time.³¹⁰

In order to prevent paper certainty, AA conclusions have to be transferred into operational and enforceable conditions in the form of: indicator + limit/range + method/frequency + reporting line + consequence of exceedance. These circumstances provide operationalisation of Article 6(3) conclusions, equally as well as the current Article 6(2) duty not to cause deterioration or serious disturbance, allowing the automatic tightening, temporary pauses, or corrective measures without re-litigating the science.³¹¹ In cases where serious damage has still been done or is about to happen, the Environmental Liability Directive is a polluter-pays backstop on preventive and remedial action at the expense of the operator.³¹²

Finance is also needed to carry out delivery, and finance does not weaken obligations. The loop between assessment, consent, and implementation is closed with the help of multi-annual, SSCO-linked budgeting, which connects the LIFE, CAP, and cohesion instruments to the same set of indicators to which the permits and plans are attached. The Natura 2000 management guidance and Article 6 stipulated by the commission ensure that the routine of recurring authorisation (agriculture, water, forestry, urban works) should be screened by SSCOs, and AA should be

³⁰⁸ *Peter Sweetman and Others* [CJEU], No. C-258/11, [11-04-2013], paras 39–44; *Grace and Sweetman* [CJEU], No. C-164/17, [25-07-2018]. ECLI:EU:C:2013:220; ECLI:EU:C:2018:593.

³⁰⁹ Habitats Directive, Art. 6(4); European Commission, *Managing Natura 2000 Sites—The provisions of Article 6 of the Habitats Directive* (2019), §§3.2–3.5.

³¹⁰ *Commission Notice - Assessment of plans and projects...* (2021). OJ C 437, 2021, 1–79 (Art. 6(4) section).

³¹¹ Habitats Directive, Art. 6(2)–(3); European Commission, *Managing Natura 2000 Sites* (2019), §1.3 (recurrent permits; adaptive management).

³¹² Directive 2004/35/EC on environmental liability, Arts. 2, 5–6 (preventive/remedial measures; operator cost).

provided where pathways are, and monitors must be able to prompt corrective actions during operation.³¹³ With this architecture, plus the Court decision in Waddenzee, Sweetman, Holohan and People Over Wind, this can give a useful framework with hard-edged permit conditions, conservative screening, SSCO-based cumulative AA, automatic management responses, and, in those cases where integrity cannot be ruled out, a disciplined Article 6(4) dossier. The practical interests are straightforward: fewer annulments, more precise compliance inspection by inspectors and courts, and, most importantly, quantifiable ecological results in line with SSCOs and not generic intentions.³¹⁴ It is the working twist, which takes Natura 2000 out of the protection on paper to results that can be traced, audited, and enforced throughout the daily economic operation.³¹⁵

³¹³ European Commission, *Managing Natura 2000 Sites* (2019), §§1.3, 3.2–3.5; European Commission, *Guidance on Hunting under the Birds Directive* (2021), §§4–6 (monitoring; supervision).

³¹⁴ European Court of Auditors, *Special Report No 1/2017: More efforts needed to implement the Natura 2000 network to its full potential*, findings on implementation and financing coherence.

³¹⁵ *Commission Notice - Managing Natura 2000 sites...* (2021). OJ C 437, 2021, 1–79.

CONCLUSIONS

1. The main deficiency in the EU biodiversity protection is not the lack of legal norms, but their poor operationalisation. The Habitats and Birds Directives, in case construed by the Court of Justice, already provide a strict standard of protection. The actual issue is the chronic administrative inability to transform this standard into enforceable licensing, surveillance structures, as well as responsibility.
2. Article 6 of the Habitats Directive forms the substantive central part of biodiversity protection. A conservative screening and precautionary refusal standard has been established by the Court of Justice, which should be followed consistently to prevent site integrity erosion on a project-by-project basis.
3. The Natura 2000 operational framework includes Site-Specific Conservation Objectives (SSCOs) which in a real sense are still underdeveloped structurally. Many Member States continue to be dependent on imprecise, outdated, or lack measured goals. This thesis concludes that SSCOs should be specified as quantifiable ecological performance standards to allow the lawful assessment, monitoring, and enforcement.
4. Derogations on species protection must be legal, i.e. based upon tested data, real alternatives and a quantified level of mortality. Authorisation on a traditional or administrative basis, not based on scientific reasons, contradicts the purpose of the Directives.
5. Appropriate Assessment results should be converted into self-executing permit requirements. The presence of clauses where indicators, acceptable ranges, measurement techniques, and consequences of exceedance are stipulated will reduce the appraisal of integrity to enforceable requirements.
6. The non-deterioration duty provided in Article 6(2) of the Habitats Directive should have an automatic monitoring trigger, which should be supported by the Environmental Liability Directive. Automatic adjustment, suspension, and remedial requirements in case of perceived ecological degradation ensure precaution is imposed in real time and not in ex post.
7. There must be a combination of accountability and finance. The correspondence of the LIFE, CAP, and Cohesion instruments with the SSCO-based indicators makes it possible

to guarantee that the funding will be provided to include specific ecological results and conduct transparent audits to monitor progress.

8. Nature Restoration Law reinforces, although it does not supersede Article 6 of the Habitats Directive protection. Its binding ecological paths should be integrated into the SSCO systems and implemented as binding legal standards in the further Appropriate Assessment and permits.
9. The models of comparative governance prove that co-governance, stewardship contracts, as well as institutional integration raise legitimacy and obedience only when they are anchored to the rigorous scientific standards. The tools may be implemented in the EU without undermining the Natura 2000 protection rigidity.
10. The main contribution of the thesis is the Assessment → Action operational model, the structural connection of which links SSCOs, Appropriate Assessment, enforceable permit conditions, monitoring triggers, and financing. This model will transform Article 6 of the Habitats Directive into a paper-based evaluation regime into a results-based system of legally auditable protection of biodiversity.

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SUMMARY (IN ENGLISH)

Legal Challenges and Opportunities in Protecting Biodiversity

Jamal Hajiye

The thesis examines how the international and European Union biodiversity law can be turned into a declaration of intent into an enforceable and result-oriented governance that can generate quantifiable ecological benefits. It analyzes legal frameworks that have been set to date by the Convention on Biological Diversity, the EU Birds and Habitats Directives, the Environmental Liability Directive and the new Nature Restoration Law and finds all of them to have persistent implementation flaws, including vague site objectives, haphazard Appropriate Assessments (AA), poor cumulative assessment of impacts, and immeasurable or unenforceable permit terms. The study aims at finding legal and operational tools that could render the biodiversity commitments observable, responsible as well and effective in enforcing them in actuality.

Based on the case law of the Court of Justice (*Waddenzee, Sweetman, Holohan, People Over Wind, Tapiola*), the thesis constructs a pragmatic model that improves implementation without implementing new primary legislation. Three mutually complementary tools are proposed: an Assessment-Action Bridge whose results are converted into quantitative and self-executable clauses, which define indicators, limits, and verification procedures; a Monitoring-Trigger Pack that practices precaution by the automatic managerial response to any deterioration; and a Finance and Accountability Matrix that connects LIFE, CAP and Cohesion funding with the same indicators of biodiversity as permit and management plan.

These tools make ecological outcomes auditable, enhance legal certainty, and reduce the risk of annulment in the areas of species protection, Natura 2000 site management, and economic authorisations. The thesis concludes that the weakness of the biodiversity law is not normative but functional: through the fusion of legal obligations, monitoring, and finance regarding the conservation goals, site-specific, the current framework can produce quantifiable, transparent, and verifiable enhancements in Europe's biodiversity status.

SUMMARY (IN LITHUANIAN)

Biologinės įvairovės apsaugos teisiniai iššūkiai ir galimybės

Jamal Hajiyeu

Disertacijoje nagrinėjama, kaip tarptautiniai ir Europos Sąjungos biologinės įvairovės įstatymai gali būti paversti ketinimų deklaracija ir įgyvendinamą bei į rezultatus orientuotą valdymą, galintį generuoti kiekybiškai įvertinamą ekologinę naudą. Joje analizuojami iki šiol sukurti teisiniai pagrindai, kuriuos nustatė Biologinės įvairovės konvencija, ES paukščių ir buveinių direktyvos, Atsakomybės už aplinkos apsaugą direktyva ir naujasis Gamtos atkūrimo įstatymas, ir nustatyta, kad visuose juose yra nuolatinių įgyvendinimo trūkumų, įskaitant neiškius teritorijų tikslus, atsitiktinius tinkamus vertinimus (TV), prastą bendrą poveikio vertinimą ir neišmatuojamas arba neįvykdomas leidimų sąlygas. Tyrimo tikslas – rasti teisines ir praktines priemones, kurios padėtų biologinės įvairovės išipareigojimus padaryti pastebimus, atsakingus ir veiksmingus juos įgyvendinant realiame gyvenime.

Remiantis Teisingumo Teismo praktika (Waddenzee, Sweetman, Holohan, People Over Wind, Tapiola), disertacijoje sukuriama pragmatiškas modelis, kuris pagerina įgyvendinimą neįgyvendinant naujų pirminės teisės aktų. Siūlomos trys viena kitą papildančios priemonės: vertinimo ir veiksnių sąsaja, paverčianti TV rezultatus kiekybinėmis, savaime įgyvendinančiomis sąlygomis, apibrėžiančiomis rodiklius, ribas ir tikrinimo procedūras; stebėsenos ir inicijavimo paketas, kuris įgyvendina atsargumo priemones automatiškai reaguojant į būklės blogėjimą; ir finansų ir atskaitomybės matrica, susiejanti LIFE, BŽŪP ir Sanglaudos finansavimą su tais pačiais biologinės įvairovės rodikliais, kaip ir leidimuose bei valdymo planuose.

Šios priemonės leidžia audituoti ekologinius rezultatus, didina teisinį tikrumą ir sumažina anuliavimo riziką rūšių apsaugos, „Natura 2000“ teritorijų tvarkymo ir ekonominių leidimų srityse. Darbe daroma išvada, kad biologinės įvairovės įstatymo silpnybė yra ne normatyvinė, o funkcinė: sujungus teisinius išipareigojimus, stebėseną ir finansavimą, susijusius su apsaugos tikslais, atsižvelgiant į konkrečias teritorijas, dabartinė sistema gali kiekybiškai, skaidriai ir patikrinamai pagerinti Europos biologinės įvairovės būklę.

ANNEX I

The author's proposed tool:

“Evidence-Chain Checklist” for Article 16 / Article 9 decisions

Attach this one-page checklist to each derogation/authorisation. The decision must be legal, whereby all items are met and registered.

A. Baseline & status

A1. Latest population estimate (method, date; confidence/uncertainty).

A2. Range/trend (5-year window); sub-population structure.

A3. FCS evaluation (desirable/undesirable; reason).

B. Impact ceiling

B1. Quantified mortality cap (model/assumptions stated).

B2. By-catch cap and disturbance threshold (species/site-specific).

B3. If Natura 2000 is implicated: AA outcome and site-specific conditions.

C. Alternatives matrix

C1. Non-lethal (deterrents, husbandry, fencing, translocation).

C2. Temporal/spatial (closed periods/areas; buffers).

C3. Reasons for rejection of each feasible alternative (proportionality).

D. Methods & timing

D1. Selectivity evidence (field tests, supervision plan).

D2. Season dates aligned with reproduction and pre-nuptial migration.

D3. Legal methods only (Art. 8 Birds; Annex IV).

E. Monitoring & triggers

E1. Reporting frequency and data fields (take, by-catch, disturbance).

E2. Automatic closures when caps/thresholds hit.

E3. Enforcement plan (inspections, penalties).

F. Review & transparency

F1. Publication of decision & data; appeal route.

F2. Ex post evaluation date/metrics; renewal conditions.

F3. ELD check: if damage occurs, initiate preventive/remedial steps.

(Inspired by EU Commission guidance and comparative permit practice; adapted to EU derogation law.)