

# A Comparative Analysis of the Ukrainian and Dutch Models of Biodiversity Protection: Effectiveness of Economic and Legal Mechanisms

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*Received: 19.04.2022*

*Accepted: 12.08.2022*

*Published: 25.08.2022*

**Abstract.** This study aims to compare the economic and legal mechanisms for biodiversity protection implemented within Dutch and Ukrainian legislation frameworks. Given the importance of biodiversity conservation as a critical component of environmental policy, the research focuses on how both countries adhere to the Convention on Biological Diversity provisions.

The methodology is based on a comparative legal analysis of the regulatory frameworks of the Netherlands and Ukraine. This includes examining EU biodiversity protection laws and the national reports of both countries on the implementation of the Convention on Biological Diversity.

The results indicate that both countries employ similar models for biodiversity protection, including using permits, licences, and quotas and integrating biodiversity protection rules into laws and other regulatory acts. Both states comply with their international and European obligations regarding biodiversity protection. Standard economic instruments include funding, attracting investments, establishing ecological networks, insurance schemes, and various tax regimes.

The study highlights that the Netherlands' biodiversity conservation system is more decentralised than Ukraine's. Noteworthy is the practice in the Netherlands of implementing codes of conduct for nature management, which are developed separately by each province based on a typical template. This research contributes to understanding how decentralised and localised approaches can enhance the effectiveness of biodiversity protection efforts.

**Keywords:** biological diversity, national ecological network, ecosystems, economic and legal instruments

## INTRODUCTION

In 1992, the United Nations adopted the Convention on Biological Diversity, which aims to conserve biological diversity, ensure the sustainable use of its components, and share benefits equally. The countries that signed the Convention agreed to bear responsibility for conserving their biological diversity and

ensuring the sustainable use of their biological resources.

More than 190 countries are parties to this Convention, including the Netherlands and Ukraine, which are the focus of our study. Thus, the provisions of this Convention have been incorporated into the national legislation of the member states and are universally binding. This

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feature is common to the legal frameworks for biodiversity conservation in both the Netherlands and Ukraine. Other similarities and differences will be discussed in detail in the following section of the article.

This Convention is also of interest to our research because, firstly, it defines "biological diversity" as the variability among living organisms of all types, including, among other things, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part. This concept encompasses diversity within species, between species, and diversity of ecosystems (Secretariat of the Convention, 2011). Secondly, the text of the Convention is permeated by the idea of sustainable use of natural diversity, which is integral to sustainable development, embedded both in the context of this Convention and in other international agreements.

### ***The Connection Between Biodiversity Protection and the Concept of Sustainable Development***

The 2030 Agenda for Sustainable Development includes a specific goal on biodiversity protection, namely Goal 15: "Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss" (United Nations, 2015). In addition to Goal 15, biodiversity components are embedded within other Sustainable Development Goals (SDGs), as outlined in the document "Biodiversity and the Sustainable Development Goals," developed during the Ninth Trondheim Conference on Biodiversity (2–5 July 2019). For instance, Goal 2 on ending hunger encompasses the conservation of genetic biodiversity in seeds, cultivated plants, and livestock; Goal 6 on clean water and sanitation includes the conservation of biodiversity in aquatic ecosystems (<https://trondheimconference.org/background-documents>).

Thus, biodiversity conservation is one of the pillars of sustainable development, forming an integral part of environmental protection efforts and fostering ecological use of natural resources. While climate change remains the most discussed environmental issue, food security and biodiversity conservation

(particularly preventing habitat degradation) are crucial for achieving positive outcomes (Scherer et al., 2020). Moreover, the actions required to achieve biodiversity conservation are fully aligned with the 2030 Agenda for Sustainable Development objectives and represent essential components of these goals (Secretariat of the Convention, 2020, p. 13).

Various European scientific studies explore the connection between biodiversity conservation and sustainable development. Köninger et al. (2021) highlight the relationship between livestock manure and soil biodiversity in sustainable agriculture and agri-sector contexts. The authors assert that manure quality as a fertiliser affects soil biodiversity and can accelerate the transition to more sustainable food production systems. Bach et al. (2020) argue that the interaction of biota within the soil is directly linked to the development of other natural ecosystems on which society depends. The researchers analyse the direct relationship between soil biodiversity and the sustainable development of the economy, asserting that focusing on soil biodiversity in land management can help achieve multiple SDGs simultaneously. Visseren-Hamakers et al. (2021) emphasise the pathway to achieving SDGs through transformational biodiversity governance – formal and informal rules, legislative frameworks, and networks of stakeholders at all societal levels, which drive transformational changes towards sustainable development, mainly focused on biodiversity issues.

Another study focuses on using forest biomass as a renewable energy source in the EU, emphasising the link between biodiversity conservation and sustainable energy development in Europe (Mather-Gratton et al., 2021). Tarasewicz and Jönsson (2021) examine compromise models between sustainable development's ecological, economic, and social dimensions, using forest ecosystems as a case study.

### ***Review of Scientific Research on Biodiversity Protection***

Numerous scientific studies focused on various aspects of biodiversity conservation demonstrate the relevance of this issue. Ongoing research explores the territorial biodiversity conservation model (Bhola et al., 2021; Maxwell

et al., 2020), the most common mechanism for species protection in conservation areas.

In academic literature, biodiversity protection is often studied through a sectoral approach. Research on biodiversity in soil ecosystems reveals that the regulatory framework of EU countries does not fully address all aspects of soil biodiversity conservation (Köninger et al., 2022). In the field of forest ecosystem biodiversity, significant research has been conducted on the impact of climate change, which leads to both a decrease and an increase in species diversity (Thom et al., 2017). Studies on the impact of livestock on biodiversity are also noteworthy, analysing the positive effects of conservation-focused livestock farming and the negative impact of more intensive livestock farming for food production purposes (Kok et al., 2020a).

Particular attention is drawn to numerous studies on biodiversity protection's economic and legal-organisational aspects, such as regulatory mechanisms through international agreements, funding strategies for biodiversity organisations, and the impact of anthropogenic activities on natural diversity. Lundberg et al. (2020) analysed the funding strategies of international NGOs through fundraising, highlighting biodiversity conservation as a flagship for donations. Evans et al. (2012) propose mechanisms to increase funding for conservation, such as directing agricultural subsidies towards biodiversity conservation, increasing the private sector's involvement in biodiversity preservation, expanding biodiversity support funds through the tax system, and directing charitable donations towards biodiversity research. Bracy Knight et al. (2019) developed the Biodiversity Metrics Framework, providing researchers with a tool to measure biodiversity conservation outcomes. Sapes et al. (2017) explored the role of species distribution models (SDMs) in forest ecosystems to enhance biodiversity.

The COVID-19 pandemic has left its mark on biodiversity conservation policies in European countries, becoming a subject of scientific inquiry. For instance, Lawler et al. (2021) studied the connection between COVID-19 and biodiversity loss and ecosystem health, concluding that human activities that cause disease spread and, consequently, pandemics

affect biodiversity conservation and ecological policy. Smith et al. (2021) explored the impact of the COVID-19 pandemic and lockdowns on the sustainable development of protected areas, which are biodiversity conservation hubs worldwide. They found that lockdown measures significantly reduced the revenue of protected areas, affecting their management and funding. On the other hand, reduced human pressure on wildlife during lockdowns may contribute to more sustainable biodiversity conservation in the long term.

The increasing demand for agricultural products is one of the main drivers of biodiversity loss (Fastré et al., 2021), leading some researchers to argue that increasing the proportion of protected land may pose food security challenges in many countries (Mehrabi et al., 2018). Schleicher et al. (2019) contend that the global goal of making 50% of land-protected areas would affect over one billion people. Pimm et al. (2018) propose focusing conservation efforts on areas with high biodiversity, arguing that granting protected status to large land areas may not necessarily lead to increased biodiversity. Agriculture, as a significant component of a country's economy, depends on and affects the biodiversity of ecosystems (Bartkowski et al., 2021).

As a compromise, the EU has proposed the new Farm to Fork (F2F) strategy, aimed at better integrating a range of policy areas, including food production, climate change, and biodiversity conservation (De Boer & Aiking, 2021). Another compromise scenario to reduce agriculture's environmental impact involves using eco-friendly methods on multifunctional landscapes, which can be achieved with minimal reduction in agricultural output (Rega et al., 2019). Henders et al. (2018) analysed the regulatory framework on deforestation and its connection to agriculture in UN biodiversity documents.

### ***Research Aim and Objectives***

Although biodiversity conservation models have been extensively studied, comparative research on biodiversity protection in different countries is lacking. Therefore, this study focuses on biodiversity protection in countries with different landscapes and natural ecosystems – the Netherlands and Ukraine. This article examines the standard and distinct

features of the economic and legal factors of biodiversity protection in these two countries and compares their biodiversity conservation models. Based on this comparative analysis, we aim to address the following questions:

1. What are the differences and similarities in biodiversity protection's economic and legal regulations in the studied countries?
2. Which indicators influence the outcomes, and what best practices can be applied in both countries?

## RESEARCH METHODOLOGY

This research is based on qualitative analysis methods, particularly document analysis and content analysis of academic works. The aim was to compare the economic and legal mechanisms for biodiversity protection in the Netherlands and Ukraine. These methods facilitated an in-depth examination of the existing regulatory frameworks of both countries.

Databases such as Scopus, ResearchGate, and Web of Science were utilised to collect scientific publications. These scientometric platforms were selected due to their high reputation and comprehensive coverage of contemporary research in ecology and law. The keywords used for the search included "biodiversity protection," "economic mechanisms for biodiversity protection," "legal mechanisms for biodiversity protection,"

"Netherlands legislation," and "Ukrainian legislation." The search targeted publications from 2017 to 2023 written in English or Ukrainian. The screening process excluded works that did not align with the research topic lacked sufficient relevance or had not been cited by other authors.

As a result of the search, 30 academic papers were selected, forming the study's theoretical foundation. The data obtained were systematised and analysed by comparing legal documents and academic works. The analysis considered both quantitative indicators and qualitative characteristics of each economic and legal mechanism. The results were presented as visual models and a comparative table, illustrating the differences in approaches to biodiversity protection in Ukraine and the Netherlands.

## RESULTS

### *Model of Biodiversity Protection in the Netherlands*

The Netherlands adopts a comprehensive approach to biodiversity protection. The Dutch scientific community researches critical challenges, particularly the potential to balance biodiversity conservation with agricultural practices, especially livestock farming (Kok et al., 2020b) and general farming (van Treuren et al., 2020; Westerink et al., 2021). The Dutch government, in turn, creates and regulates the legal and economic mechanisms for biodiversity protection.

In examining the legal mechanisms for biodiversity protection in the Netherlands, attention should be paid to the dualistic nature of Dutch law, which consists of national legislation and EU regulations. Additionally, international environmental law significantly influences Dutch legislative processes. The Netherlands is a signatory to the Convention on Biological Diversity and its protocols, and the provisions of the Convention have been incorporated into national legislation.

The Nature Conservation Act (Dutch: Wet natuurbescherming, Wnb) protects natural areas, wildlife, and plants in the Netherlands. It came into force on 1 January 2017, replacing the Nature Protection Act, the Flora and Fauna Act, and the Forestry Act. This law results from the Dutch government's efforts to preserve biodiversity (Government of the Netherlands, 2017).

The law imposes restrictions on businesses regarding acquiring permits for land use within protected areas and mandates compliance with the so-called "nature code of conduct." Furthermore, the law enshrines the principle of decentralisation of governance powers—local authorities independently set nature conservation rules in their provinces. In contrast, local authorities carry out the issuance of permits and licences. Each year, local authorities prepare wildlife management plans, specifying which species and in what numbers may be hunted to avoid harming the biodiversity of a particular ecosystem. The central government establishes regulations for

protecting major water bodies and is responsible for international nature conservation policies (Government of the Netherlands, 2017).

Biodiversity protection measures are undertaken under the aegis of the Ministry of Agriculture, Nature, and Food Quality. In 2014, the government developed the programme "The Natural Way Forward" (Government Vision 2014 "The Natural Way Forward") to shape national biodiversity conservation policy until 2025. This programme outlines vital directions for biodiversity protection in the Netherlands through cooperation between the government, businesses, and the public (Ministry of Economic Affairs, 2014).

The 2013 Nature Pact is a document that defines the distribution of responsibilities for nature restoration and management between the Dutch national government and provinces from 2011 to 2027 (Government of the Netherlands, 2013).

As a member of the EU, the Netherlands has committed to adhering to the nature conservation goals set out in EU biodiversity regulations, including the Birds and Habitats Directives, which are crucial for preventing further biodiversity loss and restoring European biodiversity. The EU Water Framework Directive is a key policy instrument for achieving good ecological and chemical status in aquatic ecosystems. The Directive aims to ensure "good status" for all groundwater and surface water (rivers, lakes, transitional and coastal waters) in the EU (Government of the Netherlands, 2019). The directives have been fully incorporated into Dutch law, particularly the Nature Conservation Act.

The Netherlands also implements biodiversity conservation measures in line with the EU Biodiversity Strategy for 2030, a long-term plan to protect nature and halt ecosystem degradation. This strategy aims to restore Europe's biodiversity by 2030 and includes specific actions and commitments (European Commission, 2020).

The Dutch model for biodiversity protection is organisationally based on the National Ecological Network (NEN), which consists of a network of interconnected nature reserves, protected areas, agricultural land,

forests, and water bodies used for species reproduction. The advantage of such a system is that biodiversity conservation and growth occur more effectively within an ecological network than in isolated areas (Brink, 2015, p. 65).

The Netherlands' National Ecological Network is part of the EU-wide Natura 2000 network, which includes over 27,000 natural sites across the EU (European Commission, 2020).

The Netherlands plans to strengthen the National Ecological Network by creating at least 80,000 hectares of new protected areas between 2011 and 2027 (Government of the Netherlands, 2019). The Dutch government has also mandated the compulsory purchase of 10% of land within the National Ecological Network during land purchases by private individuals to support biodiversity conservation programmes. This requirement is a tool to encourage public engagement in biodiversity development in protected and recreational zones (van Straalen & Altes, 2014).

Moreover, the government encourages provincial authorities to incorporate biodiversity restoration mechanisms into development plans by combining nature with other functions, such as climate change adaptation, water supply, tourist infrastructure redevelopment, urban development, infrastructure investment, and flood protection (Government of the Netherlands, 2019).

Through the Ministry of Agriculture, Nature, and Food Quality, the Dutch government cooperates with the Dutch financial sector to accelerate the transition to a "green" financial system, not only by creating financial funds where necessary but also by combining knowledge and networks, creating government support, and providing access to international platforms (Kan et al., 2021, p. 5). At the same time, it is clear that the financial sector is only beginning to address the issue of biodiversity, and most financial institutions are still exploring the economic arguments for managing biodiversity impact (Kan et al., 2021, p. 5).

To summarise, Figure 1 presents a visual model of biodiversity protection in the Netherlands.

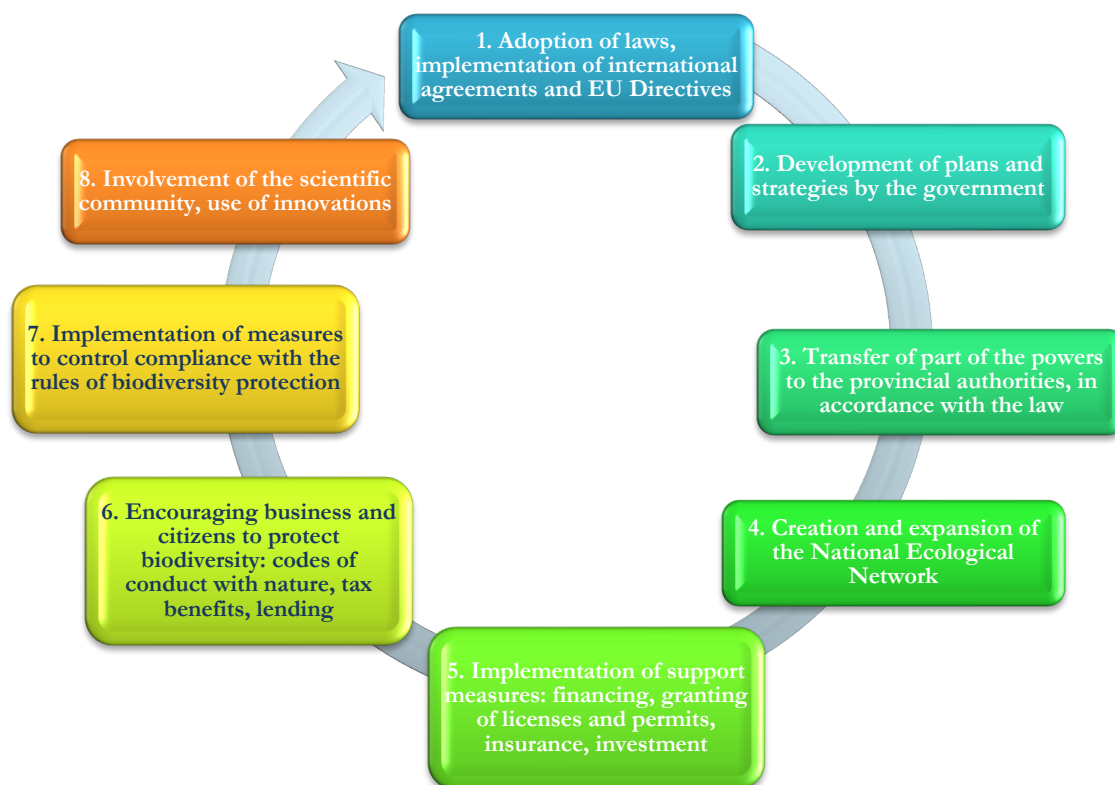


Fig. 1. Biodiversity Protection Model in the Netherlands  
Source: Authors' development.

### *Model of Biodiversity Protection in the Netherlands*

Ukraine occupies less than 6% of Europe's area, yet it is home to approximately 35% of Europe's biodiversity (Law of Ukraine, 2019). In terms of protected areas, Ukraine lags behind EU countries.

The national legal framework for biodiversity protection consists of laws and subordinate regulations. Ukraine has several laws related to environmental protection, which regulate biodiversity conservation but often duplicate each other. Evidently, the Netherlands faced a similar situation before adopting a unified "Nature Conservation Act," perhaps a comprehensive legal act for biodiversity conservation would also be suitable for Ukraine.

The Law of Ukraine, "On Environmental Protection," identifies the preservation of the genetic fund of wildlife as a primary objective, allocates responsibilities among various government bodies, and defines the competencies of the environmental management authority (Law of Ukraine, 1991). The Law "On the Nature Reserve Fund" regulates the use and protection regimes of protected areas in Ukraine (Law of Ukraine,

1992). The Law "On the Animal World" outlines the principles for the conservation, rational use, and reproduction of wildlife, including measures to increase the populations of various species and different usage regimes, including paid use and government permissions (Law of Ukraine, 2001). Similarly, the Law "On the Plant World" sets forth usage regimes for natural plant resources, including paid usage and their use for livestock and beekeeping (Law of Ukraine, 1999). These two laws address the reproduction and protection of plant and animal biodiversity in Ukraine.

Soil biodiversity conservation is governed by the Law "On Land Protection," which regulates crucial issues such as soil conservation during agricultural activities, prevention of soil degradation, soil fertility protection, and land conservation procedures (Law of Ukraine, 2003).

The conservation of aquatic biological resources is based on the Law "On Fisheries, Industrial Fishing, and the Protection of Aquatic Biological Resources," which establishes a permit system for the use of aquatic resources and includes biodiversity protection measures

for water bodies (Verkhovna Rada of Ukraine, 2012).

Currently relevant is the Law "On the Basic Principles (Strategy) of State Environmental Policy of Ukraine until 2030" (Law of Ukraine, 2019), which outlines the government's priorities for the preservation of biological and landscape diversity. Specifically, the law proposes increasing the area of protected areas by expanding existing ones and creating new nature reserves. Measures aimed at biodiversity conservation include preventing the spread of invasive species and controlling their appearance, as well as promoting the use of modern fertilisers with minimal negative impact on flora, fauna, and human health.

In addition to national regulations, Ukraine is party to several international agreements on biodiversity protection. Ukraine ratified the Convention on Biological Diversity and, in compliance with this Convention, adopted the Law "On the Ecological Network of Ukraine," which governs the creation of an ecological network that integrates all protected areas on land and in water (Law of Ukraine, 2004). The Cabinet of Ministers of Ukraine is responsible for the organisation and oversight of this ecological network.

Following the signing of the EU Association Agreement, Ukraine introduced a series of legislative changes to harmonise its laws with EU norms, supported by the EU's APENA project, "Supporting Ukraine in Approximation of the EU Environmental Acquis," which has been in place since 2015 (CBD, 2018, p. 21). As a result of this work, numerous EU biodiversity protection standards have been incorporated into Ukrainian legislation (CBD, 2018).

Furthermore, Ukraine participates in the Pan-European Strategy for Biological and Landscape Diversity, including all European biodiversity conservation initiatives (Council of

Europe, 1996). In Ukraine, the strategy is being implemented mainly through integrating biodiversity principles into agriculture—such as sustainable land use, withdrawing degraded lands from cultivation, reforesting them, and restoring them to a healthy ecological state (Girenko, 2013).

The aforementioned legal acts define the economic mechanisms for biodiversity protection in Ukraine. These mechanisms include various tools and measures implemented by the government and local authorities to promote biodiversity conservation and compensate for damages in cases of violation of biodiversity preservation regulations.

Economic instruments under these laws include state budget funding (subsidies, grants), setting limits on the use of natural resources and pollutant emissions, establishing an environmental tax, and introducing ecological insurance (Verkhovna Rada of Ukraine, 1992).

Environmental modernisation of industry is one mechanism employed by the government to reduce the environmental tax or provide annual compensation.

Another mechanism for biodiversity conservation is creating a favourable investment climate to attract funds from international donors and private capital for conservation activities (Resolution, 1998).

In the scientific community, there is a proposal to introduce a mechanism of eco-compensation in Ukraine—payments for the restoration or protection of biodiversity, which is a common practice in European countries. This mechanism creates a system of financial incentives for businesses to address biodiversity conservation (Veklych, 2019).

Thus, the Ukrainian biodiversity protection model can be summarised in Figure 2.

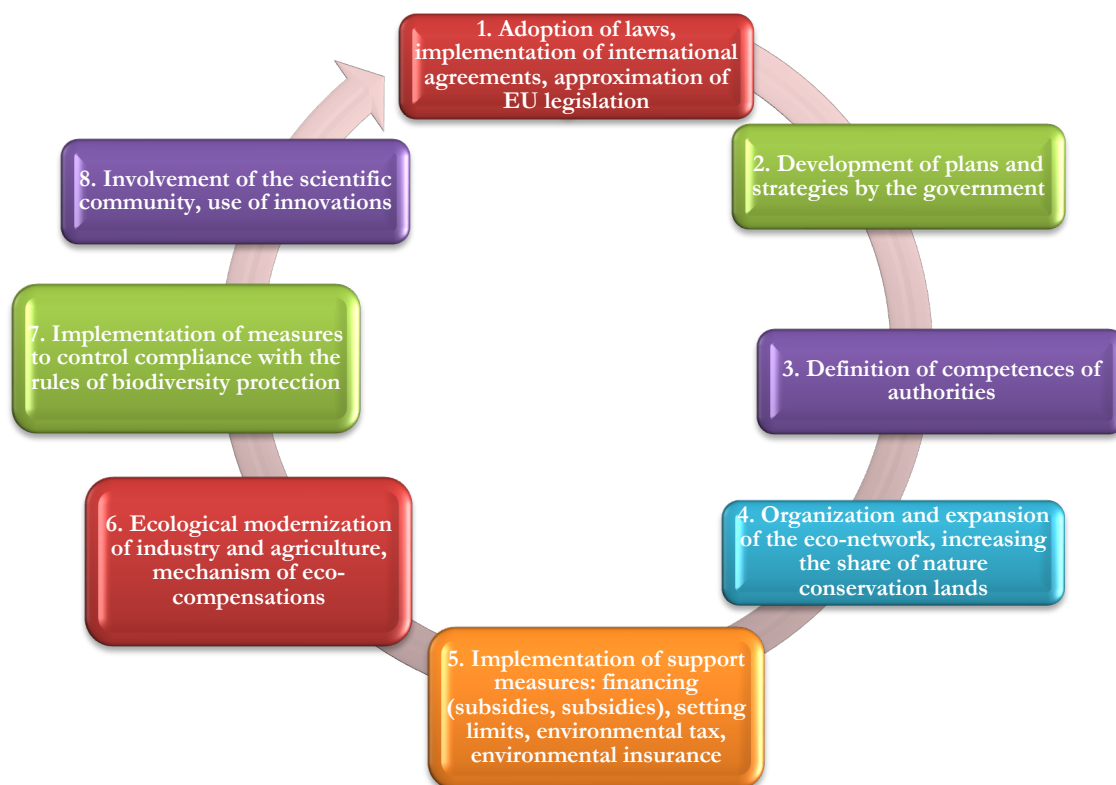


Fig. 1. Biodiversity Protection Model in Ukraine  
Source: Authors' development.

## DISCUSSION

Based on our analysis of international law and the legislation of the Netherlands and Ukraine in the context of biodiversity protection and conservation, as well as the countries' reports on the implementation of the Convention on Biological Diversity, we propose a comparison of the economic and legal regulation of biodiversity protection in these countries.

The Netherlands and Ukraine employ similar models of biodiversity protection. Standard legal instruments include permits, licences, and quotas, enshrining biodiversity protection rules in laws and other regulations and adhering to international and European obligations regarding biodiversity protection.

The biodiversity conservation system in the Netherlands features a higher degree of decentralisation compared to Ukraine. Of particular interest for Ukraine is the Dutch practice of applying codes of conduct regarding nature, drafted individually by each province based on a common template.

The Ukrainian legal framework for biodiversity protection is more fragmented, with many regulatory acts. In contrast, the Netherlands supplements its national legislation with EU laws on nature conservation, particularly the Birds and Habitats Directives.

Standard economic instruments include public funding, investment attraction, the establishment of ecological networks, insurance schemes, and various taxation regimes.

Table 1. Economic and Legal Measures for Biodiversity Protection in the Netherlands and Ukraine

Criteria for comparison	Netherlands	Ukraine
Legislation in the field of biodiversity protection	Law "On Nature Protection" (2017) Nature Pact (2013) EU Directives "On Birds" and "On Habitat"	Laws of Ukraine "On environmental protection", "On nature reserve fund", "On animal life", "On plant life", "On land protection"
Participation in international agreements on biodiversity protection	<ul style="list-style-type: none"> <li>○ Convention on the Protection of Biological Diversity</li> <li>○ Pan-European strategy for the preservation of biological and landscape diversity</li> </ul>	

The area of nature conservation lands	90,251 hectares (2012)	3,803.1 hectares (2015)
Legal measures to preserve biodiversity (joint)	<ul style="list-style-type: none"> <li>○ Legislative regulation</li> <li>○ System of permits and licenses</li> <li>○ Establishing ecological limits</li> <li>○ System of legal control, financial penalties for violation of rules</li> </ul>	
Legal measures to preserve biodiversity (diversity)	<ul style="list-style-type: none"> <li>○ Attracting philanthropic funds to protect biodiversity</li> <li>○ Increase in the share of private owners</li> </ul>	<ul style="list-style-type: none"> <li>○ Environmental Insurance</li> </ul>
Economic measures to preserve biodiversity (joint)	<ul style="list-style-type: none"> <li>○ State funding</li> <li>○ Investment attraction</li> <li>○ Creation of a network of ecological territories</li> <li>○ Preferential taxation regimes</li> </ul>	
Economic measures to preserve biodiversity (diversity)	<ul style="list-style-type: none"> <li>○ Attracting philanthropic funds to finance the protection of biodiversity</li> <li>○ Increase in the share of private owners</li> </ul>	<ul style="list-style-type: none"> <li>○ Ecological modernisation of industry and agriculture</li> </ul>

Source: Author's development based on Ukraine (2018) and Government of the Netherlands (2019).

Ukraine's biodiversity is "under-researched, but includes endemic, rare, vulnerable, and endangered species, some of which are migratory" (CBD, 2018). The threats to biodiversity in Ukraine are primarily linked to the relatively small number of protected areas and a lower level of public and business engagement in biodiversity conservation compared to similar metrics in the Netherlands. The economic instruments of the Dutch biodiversity conservation model are based on the premise that natural diversity is crucial to the country's economy and the well-being of its citizens. Economic instruments also play a vital role in both countries, though their application and effectiveness differ. The Netherlands has successfully integrated biodiversity concerns into its economic policy, using subsidies, tax incentives, and public-private partnerships to promote biodiversity-friendly practices (de Vries & Hanley, 2016).

Additionally, a notable shortcoming in Ukraine is the limited involvement of the scientific community in researching biodiversity conservation issues. Conservation efforts are hindered by a mismatch between conservation capacities and the need for research, funding, policy, and management (Campos-Arceiz et al., 2018). In the long term, factors such as the country's well-being, language, geographical location, and security play a significant role in biodiversity protection (Amano & Sutherland, 2013).

Furthermore, stakeholders involved in

biodiversity conservation initiatives are mainly non-governmental organisations, experts and universities, government authorities, and coalitions of companies. Their initiatives can be grouped into three categories of economic and legal measures: management practices, socio-political actions, and research and conservation efforts (Boiral & Heras-Saizarbitoria, 2017).

The international system for biodiversity protection is characterised by a high level of intergovernmental cooperation, active scientific research involvement, and investment and funding from non-governmental sources. To ensure adequate land-based biodiversity protection, more than 60% of land should be utilised with a focus on nature conservation (Fastré et al., 2021). Growing pressure to integrate biodiversity conservation into the sectoral policies of European countries has triggered various policy changes in the Netherlands (Sotirov & Storch, 2018). In the future, the European integration processes in Ukraine will also contribute to unifying efforts for biodiversity conservation at the international level.

The scope of the materials examined limits this study, as the legislation of both countries will likely change in the future, prompting further research.

This study provides a comprehensive comparative analysis of the economic and legal mechanisms for biodiversity protection in the Netherlands and Ukraine, offering significant conclusions about the effectiveness and

challenges of these systems. The analysis reveals that both countries employ a combination of regulatory and economic instruments. However, their approaches have notable differences, particularly regarding the degree of decentralisation and policy implementation.

The Dutch approach to biodiversity conservation is characterised by a high degree of decentralisation, allowing regional governments substantial autonomy in developing and implementing biodiversity policies. This decentralised approach is supported by robust institutional frameworks and the integration of biodiversity conservation into broader environmental and economic policies (van Zanten et al., 2018; Van der Heijden & Ten Heuvelhof, 2018). A vital feature of the Dutch system is the use of codes of conduct developed at the provincial level, allowing for adaptation to local ecological and socio-economic conditions. This method has proven effective in promoting compliance and encouraging stakeholder participation in biodiversity conservation efforts (Van der Heijden & Ten Heuvelhof, 2018).

In contrast, Ukraine's approach is more centralised, with national legislation playing a dominant role in shaping biodiversity policy. Although Ukraine has made progress in aligning its biodiversity protection measures with EU standards, implementation remains challenging due to institutional weaknesses and limited financial resources (Kovalenko & Tarasov, 2019). Reliance on national directives can lead to a lack of flexibility in responding to local ecological conditions, a significant limitation compared to the Dutch model.

Although Ukraine has adopted similar instruments, it faces challenges in implementing

them due to economic constraints and the lack of incentives for private sector involvement (Melnyk & Melnyk, 2021). The effectiveness of economic instruments in Ukraine is further complicated by inconsistent enforcement of environmental regulations, which undermine efforts to integrate biodiversity conservation into economic development.

Another critical difference lies in the monitoring and evaluation of biodiversity policies. The Netherlands has established robust mechanisms for monitoring biodiversity trends, which are crucial for adaptive management and policy improvement (Van der Heijden & Ten Heuvelhof, 2018). However, Ukraine faces challenges in systematically collecting and analysing biodiversity data, limiting its ability to assess the effectiveness of conservation measures and adapt to changing needs (Melnyk & Melnyk, 2021).

In conclusion, both countries have made significant efforts to protect biodiversity through legal and economic mechanisms. However, the effectiveness of these measures depends on the degree of decentralisation, the strength of institutional frameworks, and the availability of financial resources. The results of this study highlight the importance of adaptive management, stakeholder participation, and the integration of biodiversity conservation into broader economic policies as crucial factors for successful conservation. Future research should focus on identifying ways to improve the implementation of biodiversity policies in Ukraine, mainly through decentralised management and enhanced economic incentives for conservation.

## CONCLUSIONS

Thus, biodiversity conservation measures in Ukraine share many standard features with those in the Netherlands, which can be attributed to international regulatory frameworks—both countries incorporate international agreements and strategies into their national regulations. This serves as a clear example of globalisation processes in the field of environmental protection.

The study revealed significant differences and commonalities in the economic and legal regulation of biodiversity protection in Ukraine and the Netherlands. Specifically, both countries utilise a combination of legislative and economic

mechanisms to achieve biodiversity conservation goals. However, a key difference lies in the degree of decentralisation. In the Netherlands, regional governments have significant autonomy in developing and implementing environmental policies, allowing for adaptation to local conditions. On the other hand, Ukraine operates through a more centralised system, which ensures uniform national standards but reduces flexibility in responding to local environmental challenges.

The key factors influencing the effectiveness of regulation are the availability of financial resources, the level of institutional

support, and the degree of local community involvement in decision-making processes. The Netherlands effectively engages the private sector through economic incentives and tax benefits, which could provide valuable lessons for Ukraine. Conversely, Ukraine's experience establishing unified national standards and norms for biodiversity protection could benefit the Netherlands' regions, where decentralisation may lead to policy fragmentation.

Future research prospects include a deeper analysis of the impact of decentralisation on the

effectiveness of nature conservation in various regions of the Netherlands and an assessment of the integration of economic mechanisms into Ukraine's national policy. Furthermore, exploring opportunities for creating joint funding mechanisms and technology exchange between the two countries could enhance the effectiveness of biodiversity conservation measures. These aspects could form the basis for future scientific research aimed at developing more adaptive and efficient models for biodiversity management.

## REFERENCES

- Amano, T., & Sutherland, W. J. (2013). Four barriers to the global understanding of biodiversity conservation: wealth, language, geographical location and security. *Proceedings of the Royal Society B: Biological Sciences*, 280(1765). <https://doi.org/10.1098/rspb.2012.2649>
- Bach, E. M., Ramirez, K. S., Fraser, T. D., & Wall D. H. (2020). Soil biodiversity integrates solutions for a sustainable future. *Sustainability*, 12(7), Article 2662. <https://doi.org/10.3390/su12072662>
- Bartkowski, B., Droste, N., Ließ, M., Sidemo-Holm, W., Weller, U., & Brady, M. V. (2021). Payments by modelled results: A novel design for agri-environmental schemes. *Land Use Policy*, Volume, 102, Article 105230. <https://doi.org/10.1016/j.landusepol.2020.105230>
- Bhola, N., Klimmek, H., Kingston, N., Burgess, N. D., van Soesbergen, A., Corrigan, C., ... Kok, M. T. (2021). Perspectives on area-based conservation and its meaning for future biodiversity policy. *Conservation Biology*, 35(1), 168–178. <https://doi.org/10.1111/cobi.13509>
- Boiral, O., & Heras-Saizarbitoria, I. (2017). Managing biodiversity through stakeholder involvement: Why, who, and for what initiatives?. *Journal of Business Ethics*, 140(3), 403–421. <https://doi.org/10.1007/s10551-015-2668-3>
- Bracy Knight, K., Seddon, E. S., & Toombs, T. P. (2020). A framework for evaluating biodiversity mitigation metrics. *Ambio*, 49(6), 1232–1240. <https://doi.org/10.1007/s13280-019-01266-y>
- Brink, M. (2015). *Country report for the state of the world's biodiversity for food and agriculture – The Netherlands*. Centre for Genetic Resources, Wageningen University and Research Centre. <https://edepot.wur.nl/370431>
- CDB. (2018). *Sixth national report of Ukraine on the implementation of the Convention on Biological Diversity*. <https://www.cbd.int/doc/nr/nr-06/ua-nr-06-en.pdf>
- Council of Europe. (1996). *Pan-European biological and landscape diversity strategy*. <https://www.cbd.int/doc/nbsap/rbsap/pebls-rbsap.pdf>
- De Boer, J., & Aiking H. (2021). Exploring food consumers' motivations to fight both climate change and biodiversity loss: Combining insights from behavior theory and Eurobarometer data. *Food Quality and Preference*, 94, Article 104304. <https://doi.org/10.1016/j.foodqual.2021.104304>
- de Vries, F. P., & Hanley, N. (2016). Incentive-based policy design for pollution control and biodiversity conservation: A review. *Environmental and Resource Economics*, 63, 687–702. <https://doi.org/10.1007/s10640-015-9996-8>
- European Commission. (2020). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Biodiversity Strategy for 2030 Bringing nature back into our lives*. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52020DC0380>
- Evans, D. M., Barnard, P., Koh, L. P., Chapman, C. A., Altwegg, R., Garner, T. W. J., ... Pettorelli, N. (2012). Funding nature conservation: Who pays?. *Animal Conservation*, 15(3), 215–216. <https://doi.org/10.1111/j.1469-1795.2012.00550.x>
- Girenko, I. (2013). The main provisions of the Pan-European Strategy for the Conservation of Biological and Landscape Diversity 1995 and the problems of its implementation in the field

- of protection of the plant world of Ukraine. *Actual Problems of State and Law*, 70, 223–230. [http://nbuv.gov.ua/UJRN/apdp\\_2013\\_70\\_36](http://nbuv.gov.ua/UJRN/apdp_2013_70_36)
- Government of the Netherlands. (2013). *Natuurpact ontwikkeling en beheer van natuur in Nederland*. <https://nl.chm-cbd.net/en/policy-biodiversity-netherlands/nature-pact>
- Government of the Netherlands. (2017). *Wet natuurbescherming*. <https://wetten.overheid.nl/BWBR0037552/2021-07-01>
- Government of the Netherlands. (2019). *Sixth national report to convention on biological diversity 15 July 2019*. <https://chm.cbd.int/pdf/documents/nationalReport6/246989/2>
- Henders, S., Ostwald, M., Verendel, V. & Ibsch, P. (2018) Do national strategies under the UN biodiversity and climate conventions address agricultural commodity consumption as deforestation driver?. *Land Use Policy*, 70, 580–590. <https://doi.org/10.1016/j.landusepol.2017.10.043>
- Fastré, C., van Zeist, W., Watson, J.E.M., Visconti, P. (2021). Integrated spatial planning for biodiversity conservation and food production. *One Earth*, 4(11), 1635–1644. <https://doi.org/10.1016/j.oneear.2021.10.014>
- Kan, D., Patel, R., Leach, K., Bekker, S., Dawkins, K. (2021). *Biodiversity impact and ecosystem service dependencies*. Government of the Netherlands. <https://www.government.nl/documents/reports/2021/08/05/biodiversity-impact-and-ecosystem-service-dependencies>
- Kok, A., de Olde, E. M., de Boer, I. J. M., & Ripoll-Bosch, R. (2020a). European biodiversity assessments in livestock science: A review of research characteristics and indicators, *Ecological Indicators*, 112, Article 105902. <https://doi.org/10.1016/j.ecolind.2019.105902>
- Kok, A., Oostvogels, V.J., de Olde, E.M., & Ripoll-Bosch R., (2020b) Balancing biodiversity and agriculture: Conservation scenarios for the Dutch dairy sector. *Agriculture, Ecosystems & Environment*, 302, Article 107103. <https://doi.org/10.1016/j.agee.2020.107103>
- Köninger, J., Lugato, E., Panagos, P., Kochupillai, M., Orgiazzi, A., & Briones, M. J. I. (2021). Manure management and soil biodiversity: Towards more sustainable food systems in the EU. *Agricultural Systems*, 194, Article 103251. <https://doi.org/10.1016/j.agry.2021.103251>
- Köninger, J., Panagos, P., Jones, A., Briones, M. J. I., & Orgiazzi, A. (2022). In defence of soil biodiversity: Towards an inclusive protection in the European Union. *Biological Conservation*, 268, Article 109475. <https://doi.org/10.1016/j.biocon.2022.109475>
- Law of Ukraine “On Environmental Protection” No. 1264-XII (1991). <https://zakon.rada.gov.ua/laws/show/en/1264-12#Text>
- Law of Ukraine “On the Nature Reserve Fund of Ukraine” No. 2456-XII (1992). <https://zakon.rada.gov.ua/laws/show/2456-12#Text>
- Law of Ukraine “On Flora” No. 591-XIV (1999). <https://zakon.rada.gov.ua/laws/show/591-14#Text>
- Law of Ukraine “On Fauna” No. 2894-III (2001). <https://zakon.rada.gov.ua/laws/show/2894-14#Text>
- Law of Ukraine “On Land Protection” No. 962-IV (2003). <https://zakon.rada.gov.ua/laws/show/962-15#Text>
- Law of Ukraine “On Environmental Network of Ukraine” No. 1864-IV (2004). <https://zakon.rada.gov.ua/laws/show/en/1864-15#Text>
- Law of Ukraine “On Fisheries, Industrial Fishing and Protection of Aquatic Biological Resources” No. 3677-VI (2012). <https://zakon.rada.gov.ua/laws/show/3677-17#Text>
- Law of Ukraine “On the Key Principles (Strategy) of the State Environmental Policy of Ukraine for the Period till 2030” No. 2697-VIII (2019). <https://zakon.rada.gov.ua/laws/show/en/2697-19#Text>
- Lawler, O. K., Allan, H. L., Baxter, P. W., Castagnino, R., Tor, M. C., Dann, L. E., ... Kark, S. (2021). The COVID-19 pandemic is intricately linked to biodiversity loss and ecosystem health. *The Lancet Planetary Health*, 5(11), e840–e850. [https://doi.org/10.1016/S2542-5196\(21\)00258-8](https://doi.org/10.1016/S2542-5196(21)00258-8)
- Lundberg, P., Verissimo, D., Vainio, A., & Arponen, A. (2020). Preferences for different flagship types in fundraising for nature conservation. *Biological Conservation*, 250, Article 108738. <https://doi.org/10.1016/j.biocon.2020.108738>

- Mather-Gratton, Z.J., Larsen, S. & Bentsen N.S. (2021) Understanding the sustainability debate on forest biomass for energy in Europe: A discourse analysis. *PLoS ONE*, 16(2), Article e0246873. <https://doi.org/10.1371/journal.pone.0246873>
- Mehrabi, Z., Ellis, E. C., & Ramankutty, N. (2018). The challenge of feeding the world while conserving half the planet. *Nature Sustainability*, 1(8), 409–412. <https://doi.org/10.1038/s41893-018-0119-8>
- Ministry of Economic Affairs. (2014). *The Natural way forward: Government vision 2014*. <https://nl.chm-cbd.net/sites/nl/files/2021-05/thenaturalwayforward-webversion.pdf>
- Pimm, S. L., Jenkins, C. N., & Li, B. V. (2018). How to protect half of Earth to ensure it protects sufficient biodiversity. *Science Advances*, 4(8), Article eaat2616. <https://doi.org/10.1126/sciadv.aat2616>
- Rega, C., Helming, J., Paracchini, M.L. (2019). Environmentalism and localism in agricultural and land-use policies can maintain food production while supporting biodiversity. Findings from simulations of contrasting scenarios in the EU. *Land Use Policy*, 87, Article 103986. <https://doi.org/10.1016/j.landusepol.2019.05.005>
- Resolution of the Verkhovna Rada of Ukraine “On the Main Directions of the State Policy of Ukraine in the Field of Environmental Protection, Use of Natural Resources and Environmental Safety Resolution” No. 188/98-BP (1998). <https://zakon.rada.gov.ua/laws/show/188/98-%D0%B2%D1%80#top>
- Sapes, G., Serra-Diaz, J. M., & Lloret, F. (2017). Species climatic niche explains drought-induced die-off in a Mediterranean woody community. *Ecosphere*, 8(5), e01833. <https://doi.org/10.1002/ecs2.1833>
- Secretariat of the Convention on Biological Diversity. (2011). *The Convention on Biological Diversity: Text and annexes*. <https://www.cbd.int/doc/legal/cbd-en.pdf>
- Secretariat of the Convention on Biological Diversity. (2020). Global biodiversity outlook 5: Summary for Policy Makers. <https://www.cbd.int/gbo5>
- Schleicher, J., Zaehring, J. G., Fastré, C., Vira, B., Visconti, P., & Sandbrook, C. (2019). Protecting half of the planet could directly affect over one billion people. *Nature Sustainability*, 2(12), 1094–1096. <https://doi.org/10.1038/s41893-019-0423-y>
- Scherer, L., Svenning, J. C., Huang, J., Seymour, C. L., Sandel, B., Mueller, N., ... van Bodegom, P. M. (2020). Global priorities of environmental issues to combat food insecurity and biodiversity loss. *Science of the Total Environment*, 730, Article 139096. <https://doi.org/10.1016/j.scitotenv.2020.139096>
- Smith, M. K. S., Smit, I. P., Swemmer, L. K., Mokhatla, M. M., Freitag, S., Roux, D. J., & Dziba, L. (2021). Sustainability of protected areas: Vulnerabilities and opportunities as revealed by COVID-19 in a national park management agency. *Biological Conservation*, 255, Article 108985. <https://doi.org/10.1016/j.biocon.2021.108985>
- Sotirov, M., & Storch, S. (2018). Resilience through policy integration in Europe? Domestic forest policy changes as response to absorb pressure to integrate biodiversity conservation, bioenergy use and climate protection in France, Germany, the Netherlands and Sweden. *Land Use Policy*, 79, 977–989. <https://doi.org/10.1016/j.landusepol.2017.04.034>
- Tarasewicz, N. A., & Jönsson, A. M. (2021). An ecosystem model based composite indicator, representing sustainability aspects for comparison of forest management strategies. *Ecological Indicators*, 133, Article 108456. <https://doi.org/10.1016/j.ecolind.2021.108456>
- Thom, D., Rammer, W., Dirnböck, T., Müller, J., Kobler, J., Katzensteiner, K., ... Seidl, R. (2017). The impacts of climate change and disturbance on spatio-temporal trajectories of biodiversity in a temperate forest landscape. *Journal of Applied Ecology*, 54(1), 28–38. <https://doi.org/10.1111/1365-2664.12644>
- van Treuren, R., Hoekstra, R., Wehrens, R., & van Hintum, T. (2020). Effects of climate change on the distribution of crop wild relatives in the Netherlands in relation to conservation status and ecotope variation. *Global Ecology and Conservation*, 23, Article e01054. <https://doi.org/10.1016/j.gecco.2020.e01054>
- Van Straalen, F. M., & Altes, W. K. (2014). Compulsory purchase for biodiversity conservation in the Netherlands. *Land Use Policy*, 38, 223–232. <https://doi.org/10.1016/j.landusepol.2013.11.021>
- Veklych, O. O. (2019). Structure of the

modern mechanism of environmental compensation (of the eco-compensation mechanism). *Efektívna Ekonomika*, 8. <https://doi.org/10.32702/2307-2105-2019.8.3>

Visseren-Hamakers, I. J., Razzaque, J., McElwee, P., Turnhout, E., Kelemen, E., Rusch, G. M., ... Zaleski, D. (2021). Transformative governance of biodiversity: Insights for sustainable development. *Current Opinion in Environmental Sustainability*, 53, 20–28. <https://doi.org/10.1016/j.cosust.2021.06.002>

United Nations. (1992). *The Convention on Biological*. <https://www.cbd.int/convention/text>

United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. <https://sdgs.un.org/2030agenda>

Westerink, J., Pleijte, M., Schrijver, R., van Dam, R., de Krom, M., & de Boer, T. (2021). Can a ‘good farmer’ be nature-inclusive? Shifting cultural norms in farming in The Netherlands. *Journal of Rural Studies*, 88, 60–70. <https://doi.org/10.1016/j.jrurstud.2021.10.011>