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STATUS OF EMERALD SPECIES AND HABITATS IN THE REPUBLIC OF MOLDOVA:

A LEGAL AND INSTITUTIONAL FRAMEWORK ASSESSMENT



Action implemented by:



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Table of Contents

Acknowledgments	3
Introduction	7
Part I: General aspects regarding the Emerald Network - tool for the protection of species and natural habitats	8
Legislative premises as basis for establishing the Emerald Network in the Republic of Moldova	9
Emerald Network Site Designation Procedure	10
Creating the Emerald Network in the Republic of Moldova	12
Emerald Network site types, natural habitats, and wildlife species	14
Benefits of creating the Emerald Network	14
Part II: Legal and institutional aspects regarding the management and protection of the Emerald Network	16
Analysis of the legal framework regarding the management and protection of the Emerald Network	17
Defining and origin for notions 'Emerald Network', 'pan-European ecological network', 'area of special interest for conservation'	18
The purpose of establishing the Emerald Network	18
Establishment of the Emerald Network	19
Management of areas of special interest	20
Impact assessment (appropriate assessment) on Emerald sites under Art. 6 of Directive No. 92/43/EEC	21
Emerald Network Site Registry	22
Monitoring and reporting on the conservation status of natural habitat types and wildlife species within the Emerald Network	23
The fund of natural areas protected by the state and the Emerald Network	23
Competences of central and local public administration authorities in the field of management and protection of the Emerald Network	25
Emerald Network Legal Protection Mechanisms	29
Part III: Current state of the Emerald species and habitats, and sufficiency index in the Republic of Moldova	34
Mammals	36
Amphibians and Reptiles	37
Birds	37
Fish	37
Invertebrates	38
Plants	39

Habitats.....	51
Conclusions and identified gaps	58
Specific recommendations for improving the Emerald-related legal framework.....	61
Annexes	63
Annex 1: Proposed new Emerald site - Tețcani site.....	63
Annex 2: Proposed new Emerald site - Sărata Nouă site.....	64
Annex 3: Emerald sites.....	65
Annex 4: List of Emerald habitats	67
Annex 5: List of protected Emerald species.....	68

Abbreviations and acronyms

AA	Appropriate Assessment
ASCI	Area of Special Conservation Interest
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CoE	Council of Europe
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EU	European Union
EU4Environment	The “European Union for Environment” (EU4Environment) Action
IUCN	International Union for Conservation of Nature
NEN	National Ecological Network
NGO	Non-governmental Organization
OECD	Organisation for Economic Co-operation and Development
PA	Protected Area
SDF	Standard Data Form
SEA	Strategic Environmental Assessment
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization

Introduction

Over time, environmental issues and nature conservation have become a concern for all of humanity, and the human right to a healthy environment is increasingly vulnerable to the risks and negative effects generated by various phenomena, economic activities, and political decisions. Ensuring the human right to a safe environment must become a national priority because it directly aims at the living conditions and the health of the population, the preservation of biodiversity, as well as the capacities for sustainable development. It is worth noting that biodiversity has been and is always in continuous danger from human activity. The current species extinction rate is tens or hundreds of times higher than the average of the last 10 million years and is constantly accelerating. Thus, the study 'The biomass distributions on Earth' published by Proceedings of the National Academy of Sciences of the United States of America indicated that although the world's 8 billion people represent only 0.01 percent of all living creatures, humanity has already caused the extinction of 83 percent of all wild mammals and half of plant species.¹ The dramatic biodiversity loss poses serious risks to the economy and human health.² According to the World Economic Forum Global Risks Report 2020, biodiversity loss and ecosystem collapse are among the top five risks to society and human health.³

With biodiversity loss on a constant rise, there is a pressing need to establish a robust legal framework that effectively safeguards the environment and promotes biodiversity conservation. This need has been recognized at both the international and national levels. Legalizing biodiversity protection measures is essential to ensure the state's sustainable development. However, to achieve the objectives of biodiversity protection, the legal framework must be accompanied by a practical institutional framework and a set of mechanisms for implementing the legislative provisions.

The Emerald Network is one of the environmental legal instruments created at the European level (including also non-EU and some African countries) to ensure the protection of the human right to a safe environment, address the long-term decline of biodiversity, and prevent the destruction and degradation of habitats, the persecution of some species, and the unsustainable exploitation of wildlife resources. According to Law No. 94/2007, the Emerald Network is an ecological network consisting of areas of special conservation interest (ASCIs). It is a component of the National Ecological Network (NEN) and represents the extension of the coherent European ecological network of particular conservation areas 'Natura 2000' to non-member countries of the European Union (EU). Emerging from the importance of the Emerald Network and the commitments undertaken by the Republic of Moldova internationally to ensure the conservation of biological diversity, this study aims to analyze the national-level legislative and institutional framework to identify any inconsistencies, gaps, and confusing regulations as necessary.

This document constitutes a coordinated management tool for central and local public authorities and other interested parties in strengthening the Emerald Network in the Republic of Moldova through legislative, social, and conservation actions. Apart from the analysis of the existing regulatory framework in the country, this document aims to identify gaps and barriers, whether legal or institutional, that impede the protection and conservation and effective management of these sites. In addition to an analysis of the legal framework, the description of the species and habitats present in the country, the existing management, and other aspects of protection, the document will be followed by a road map outlining actions for a given period with the ultimate aim of conserving and protecting species and habitats through effective and integrated site management.

¹ Bar-On, Y. M., R. Phillips, and R. Milo. 2018. "The Biomass Distribution on Earth." *PNAS* 115 (25): 6506–11. <https://www.pnas.org/doi/10.1073/pnas.1711842115>

² Global Assessment Report on Biodiversity and Ecosystem Services [Media Release: Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating'](#). Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.

³ The Global Risks Report 2020, of the 15th edition of the World Economic Forum, publicat la data de 15 ianuarie 2020.

Part I:

General aspects regarding
the Emerald Network - tool
for the protection of species
and natural habitats

Legislative premises as basis for establishing the Emerald Network in the Republic of Moldova

The legal premises that necessitated the establishment of the Emerald Network at the national level reside in the international treaties to which the Republic of Moldova is a party. The following sections describe the Conventions and Treaties that Moldova acceded to, ratified, and is a party to.

International Treaties

The Republic of Moldova is a party to several international conventions and agreements that directly promote the conservation of biodiversity and natural heritage:

- [Convention on Biological Diversity](#) (Rio de Janeiro, June 5, 1992) - ratified by [Parliament Decision No. 457/1995](#).

The objectives of this convention are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources, including through appropriate access to genetic resources and appropriate transfer of relevant technologies, taking into account all rights to these resources and technologies as well as through appropriate funding.

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora](#) (Washington, March 3, 1973) - joined through [Law No. 1246/2000](#).

The convention's objective is to protect certain species of wild fauna and flora against excessive exploitation through international trade.

- [Convention on the Conservation of Migratory Species of Wild Animals](#) (Bonn, June 23, 1979) - joined through [Law No. 1244/2000](#).

The objective of the convention is to restore the conservation status of the targeted migratory species to a favorable level or to maintain it at that level.

- [Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat](#) (Ramsar, February 2, 1971) - ratified through [Parliament Decision No. 504/1999](#).

The objectives of the convention are the conservation and wise use of all wetlands through local and national action and international cooperation to achieve sustainable development worldwide.

- [Convention on the Conservation of the European Wildlife and Natural Habitats](#) (Bern, September 19, 1979) - acceded to by Parliament Decision No. 1546/1993.

The objectives of the convention are the conservation of wild flora and fauna and their natural habitats and the protection of endangered migratory species.

- [European Landscape Convention](#) (Florence, October 20, 2000) - ratified by [Law No. 536/2001](#).

The objectives of this convention are the promotion of the protection of landscapes, their management and arrangement, and the organization of European cooperation in this field.

- [Nagoya Protocol](#) on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity. (Nagoya, November 29, 2010) - [ratified by Law No. 117 /2016, promulgated by Decree of the President of the Republic of Moldova no. 2145/2016](#).

The objective of this protocol is the fair and equitable sharing of the benefits arising from the use of genetic resources, including through appropriate access to genetic resources and the proper transfer of relevant technologies, taking into account all rights over those resources and technologies, and through appropriate funding, thus contributing to the conservation of biological diversity and the sustainable use of its components.

- [The Cartagena Protocol on Biosafety](#) (New York, February 14, 2001) - ratified by [Law No. 1381/2002](#).

The objective of this protocol is to contribute to ensuring an adequate level of protection for the safe transfer, handling, and use of living organisms modified by modern biotechnology and which may have adverse effects on the conservation and sustainable use of biological diversity, also taking into account the risks to people's health and particularly focusing on the cross-border movement of the organisms.

- [Agreement on the Conservation of African-Eurasian Migratory Waterbirds](#) (Haga, June 16, 1995) - joined by [Law No. 1244/2000](#).

The agreement aims to conserve migratory waterbirds and their habitats in Africa, Europe, the Middle East, Central Asia, Greenland, and the Canadian Archipelago.

- [Agreement on the Conservation of European Bats](#) (London, December 4, 1991) - joined through [Law No. 1244/2000](#).

The agreement aims to protect and conserve bats. Countries, through this agreement, wish to identify those sites within their area of jurisdiction that are important for conservation status, including bat roosting and protection. They shall protect- with appropriate, economic and social considerations - such sites against damage or disturbance. In addition, each party shall endeavor to identify and protect important foraging areas for bats from damage or disturbance.

European Union Directives:

- [Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora](#).

The purpose of this directive is to contribute to the maintenance of biodiversity by conserving natural habitats and species of wild flora and fauna in the territory of the member states where the treaty applies.

- [Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds](#).

This directive concerns the conservation of all bird species found in the wild in the member states' European territory where the treaty applies. The directive regulates the protection, management, and control of these species and sets the rules for their exploitation.

Emerald Network Site Designation Procedure

The Emerald Network is an ecological network consisting of ASCIs for species/habitats protected at the European level. Its implementation was launched by the Council of Europe (CoE) as part of its work under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), adopting Recommendation No. 16 (1989) of the Standing Committee of the Bern Convention. This convention is one of the binding European legal instruments to ensure the conservation of wild flora and fauna and their natural habitats, as well as to promote cooperation between states. Thus, according to the Art. 4 of the Bern Convention, the signatory states, including the Republic of Moldova, are obliged:

- To take suitable and necessary legislative and administrative measures to protect the habitats of wild species of flora and fauna, especially those listed in annexes no. I and II of the Convention and for the safeguarding of threatened natural habitats;
- To take into account, in planning and development policies, the need to preserve protected areas to avoid or minimize their degradation;
- To pay special attention to protecting areas crucial for migratory species listed in annexes no. II and III of the Convention, particularly those that are strategically placed along major migration routes, serving as wintering, aggregation, feeding, breeding, or moulting sites;

- To coordinate their efforts according to the need to protect the natural habitats considered by the Bern Convention if they are located in regions beyond Emerald border.

The establishment of the Emerald Network began only in 1998 after the Standing Committee of the Bern Convention adopted Resolution No. 3 in 1996 regarding creating a pan-European ecological network and Resolution No. 5 (1998) that deals with the rules for the network of ASCIs (Emerald Network). The criteria for designating ASCIs are defined in Recommendation No. 16 (1989) of the Standing Committee of the Bern Convention:⁴

- Contribute significantly to the conservation of threatened, endemic species or any other species listed in annexes no. I and II at the Bern Convention;
- Support a significant number of species in an area of high species diversity or support important populations of one or more species;
- Represent areas of importance for one or more migratory species;
- Contain important and/or representative areas for threatened habitat types;
- Contain an outstanding example of a habitat type or mosaic of habitats;
- Contribute in another significant way to the achievement of the objectives of the Bern Convention.

The Emerald Network process includes three implementation phases:

Phase I: Identification and selection of sites based on scientific research, carried out by specialists in the field of biology, ecology, and geography, through the selection criteria established by the resolutions of the Bern Convention.

Participating countries assess their natural resources and identify protected species and habitats following relevant Bern Convention resolutions. They then select potential sites suitable for ensuring the long-term survival of Emerald species and habitats and submit a database of scientific information on the proposed sites to the Bern Convention Secretariat. Proposed sites may be formally designated by the Standing Committee as candidate sites for inclusion in the Emerald Network, as provided for in Recommendation No. 157 (2011) on the status of candidate sites for inclusion in the Emerald Network and recommendations on the criteria for their designation.

Phase II: International assessment of the effectiveness of the proposed sites, conducted on a species-by-species and habitat-by-habitat basis for each biogeographic region.

The evaluation will not begin until a complete inventory of a set of proposed ASCIs has been conducted (ideally, over 80 percent of the proposed ASCIs will be available for evaluation). Once the value of the proposed ASCI sites has been scientifically assessed, sites considered for inclusion in the Emerald Network are submitted to the Convention Standing Committee for consideration and ultimately approved for inclusion in the Emerald Network.

As part of the biogeographic process for evaluating site proposals for the Emerald Network (Phase II), a decision may be made on identifying additional potential sites for the Emerald Network to ensure adequate protection for some species and habitats. In addition to describing the biogeographic process in detail, the document 'Evaluation Criteria for Proposed ASCI National Lists' stipulates that the Bern Convention Standing Committee will grant 'official candidate site' status to all proposed sites that successfully pass the initial quality check of the country database. Only then can an assessment of the suitability of the proposed Emerald Network sites begin at the biogeographic level.

Building the Emerald Network is a dynamic process that requires constantly updating information. A key role in this process is played by scientific work, including field research. It also includes collection

⁴ https://search.coe.int/bern-convention/Pages/result_details.aspx?ObjectId=0900001680746c25

of relevant data on the distribution of species and habitats as specified in Resolutions 4 and 6 and the presentation of these data on maps.

It should be noted that the identification of Emerald Network sites (ASCIs) by states is not the end of the work, but only the beginning. States are encouraged to take further steps (through legislation or otherwise) to ensure the proper management of ASCIs.

Phase III: National approval of the sites included in the Emerald Network and the implementation of management and monitoring activities under the responsibility of the national authorities.

To approve the ASCI, each government must submit Standard Data Forms (SDFs) for each site in the Emerald Network through the European Environment Agency (EEA) Common Data Repository. The SDF is based on a Natura 2000 database whose structure has been modified to cover a larger geographic area and more Emerald species. Thus, the evaluation of the Emerald Network database is a cycle consisting of the following steps:

1. Submission of proposals in the form of a database by national authorities to the Bern Convention Secretariat using the EEA's shared data repository.
2. Quality check of the database by the Bern Convention Secretariat followed by correction of incompleteness and errors by the parties.
3. Designation by the Standing Committee of the Bern Convention of the sites proposed by the official candidate sites for inclusion in the Emerald Network.
4. Preliminary assessment by the European Topic Agency for Biological Diversity of the European Environment Agency (hereafter - EEA-ETC/BD) of the suitability of the proposed ASCI list (species (habitat)/country/biogeographical region).
5. Scientific discussion at a regional biogeographic workshop and assessment of the suitability of specific sites of the Emerald Network.
6. Inclusion of additional sites in the Emerald Network and updating of the database by national authorities (if necessary).
7. Submission of revised/expanded EEA-ETC/BD database.
8. Submission of the final list of Emerald Network sites to the Expert Group on Protected Areas and Ecological Networks for discussion at the Bern Convention.
9. Submission of the final list of Emerald Network sites to the Standing Committee of the Bern Convention for approval.

Creating the Emerald Network in the Republic of Moldova

The Republic of Moldova, after acceding to the Bern Convention, undertook measures to protect species and habitats, including through the creation of the Emerald Network. In line with this, some pilot projects have been implemented to establish the basis for the Emerald Network creation.

Pilot project 2009–2011, the first joint program of the EU and the CoE was implemented to support the extension of the principles of the Natura 2000 network through the Emerald Network in Eastern Europe and the South Caucasus (hereinafter - the Joint Programme).

Phase I of the pilot project, which was implemented from 2009 to 2011 under the Joint Program, assisted seven target countries (Ukraine, Armenia, Azerbaijan, Belarus, Georgia, Moldova, and the Russian Federation) in assessing natural resources and determining species and habitats for network protection as well as in selecting appropriate potential ASCIs to ensure the long-term survival of species protected by the Bern Convention.

The Joint Program also aimed at

- Creating and training national multidisciplinary teams involved in network design;

- Identifying potential ASCI networks in the target countries;
- Collecting data on species and habitats and displaying their distribution on maps; and
- Describing potential ASCIs using Emerald/Natura 2000 SDF software.

Thus, the Joint Program aimed to identify and describe the territories that meet the criteria for inclusion in the network, that is, it fulfilled Phase I of the general scheme of the network design process.⁵

The second phase of the pilot project (Phase II), financed by the EU and carried out by the CoE 'Support for the creation of the Emerald Network', aimed to implement stage II of the network creation process. This project was a continuation of the previous joint EU/CoE program on the establishment of the Emerald Network, implemented in 2013–2016 in the same target countries and directly built on the results of the previous project.

The general objectives of the second joint program were to disseminate the philosophy and methodology of the Natura 2000 network for the seven countries mentioned earlier, to promote the Bern Convention and EU environmental principles in the field of habitat and species protection outside the EU, and to assist these countries in fulfilling the obligations arising from the accession to the Bern Convention.

The second joint program set out the task of achieving the following results:

- Identifying potential 'Emerald' territories in the target countries;
- Carrying out an international scientific assessment of the sufficiency of these territories to ensure the long-term survival of the target species and habitats, that is, biogeographical seminar.⁶

During one of the project's working meetings (April 2013), international experts clearly demonstrated that only including protected areas (or similar conservation areas) of specific countries may not suffice to meet the requirements for establishing Emerald Network.

Moldova benefited from an additional project supported by the CoE/Foundation of Prince Albert II of Monaco titled 'Support for the implementation of the objectives of the Emerald Network in the Republic of Moldova', which involved (a) filling the sufficiency gaps of the potential Emerald sites, from the conclusions of the biogeographic seminars by identifying and describing additional areas for the network, and (b) revising the reference lists, which should include all species in Res. 6 (1998) and habitats in Res. 4 (1996) of the Bern Convention found within the country, including comments on their presence in the country.

As a final result of the activities carried out during Phases I and II of the joint program, the Republic of Moldova has decided to consider several species and habitats for inclusion in the Emerald Network: 14 species of plants, 140 species of animals (birds - 80 species, mammals - 13 species, amphibians - 3 species, fish - 19 species, reptiles - 2 species, invertebrates - 23 species), and 32 habitats.

During the biogeographical seminars, species and habitats highlighted at the national level were examined. For example, during the last biogeographical seminar for Belarus, the Republic of Moldova, and Ukraine, which took place on June 18–19, 2019, the species of invertebrates, reptiles, amphibians, fish, mammals, and plants were examined to determine the sufficiency of the representativeness of the proposed species for Emerald sites, according to certain criteria.⁷

Recognizing the need to complete the first two phases of the Joint Programme for establishing the Emerald Network at the national level, the EU4Environment Program planned several actions related to the establishment of the Emerald Network, among which were the following:

⁵ https://pjp-eu.coe.int/emerald-network/images/moldova_emerald_narrative_report_2013.pdf

⁶ <https://capacity4dev.europa.eu/groups/env-east/info/project-emerald-network-natural-protection-sites-2008-2015>

⁷ <https://www.coe.int/en/web/bern-convention/-/emerald-network-biogeographical-seminar>

- Elaboration of the Action Plan (Road Map) for creating the Emerald Network in Moldova;
- Identification of national performance indicators regarding the Emerald Network and its components;
- Elaboration of the management plan for the areas of the Emerald Network;
- Development of three management plans for selected Emerald sites in the North, Center, and South of the Republic of Moldova.

The EU4Environment Program also has a regional component that aims to facilitate knowledge and experience exchange between the Eastern Partnership countries and the EU on advancing the establishment and management of the Emerald Network and achieving nature protection goals and targets more generally.

Emerald Network site types, natural habitats, and wildlife species

In 2018–2019, the Standing Committee of the Bern Convention adopted 61 Emerald sites, which constitute 277,157 ha or 8 percent of the country's territory.

- Emerald habitats - 32 (see Annex 4);
- Emerald sites - 61 (see Annex 3);
- Emerald species 167 (see Annex 5).

Biodiversity of the Republic of Moldova: Plant and animal species

Flora

The flora of the Republic of Moldova includes 5,568 plant species (2,044 higher plant species and 3,524 lower plant species), with several tertiary and quaternary relict species, and a few extremely rare species that represent subendemic elements. More than 30 species of woody plants are an important source of livelihood for the rural population, about 200 species are medicinal plants, and about 700 species of wild flora are fodder and feed for wild and domestic animals. The Red Book of Moldova (2nd edition) includes 117 rare, vulnerable, and endangered plant species.

Mushrooms

Natural ecosystems provide conditions for 1,357 species of fungi, including 557 species of macromycetes and 196 species of lichens. Most micromycetes live in forest ecosystems. Of the total number of mushrooms, only 70 are edible. The Red Book of Moldova (2nd edition) includes nine species of fungi and 16 species of lichens.

Fauna

The fauna of the Republic of Moldova includes over 15,000 species of animals, of which 474 species are vertebrates (75 species of mammals, 281 species of birds, 14 species of reptiles, 14 species of amphibians, and 90 species of fish) and the other species represent invertebrates (mostly insects).

Annexes 4 and 5 to this report list the habitats identified in Resolution No. 4 and species identified in Resolution No. 6.

Benefits of creating the Emerald Network

Some of the benefits of the Emerald Network are as follows:

General biodiversity protection: The Emerald Network helps protect Europe's most important habitats and species by designating them as Special Areas of Conservation under Law No. 94/2007 on the ecological network. Therefore, these areas benefit from legal protection and any economic activity that could affect their conservation status is strictly regulated. This helps ensure that the unique biodiversity of these areas is preserved for future generations.

Conservation of habitats and species: The Emerald Network supports the conservation of rare and threatened habitats such as wetlands, forests, and grasslands, ensuring their long-term survival. These habitats are home to many of the most important species of flora and fauna, and the conservation of these habitats is crucial to the survival of these species.

Improving habitat management: By bringing together experts from different fields, the Emerald Network helps coordinate habitat conservation measures and improve the efficiency of conservation efforts. This collaboration helps ensure the efficient use of resources and the conduct of conservation activities in a harmonized and coherent manner.

Monitoring the status of species and habitats: The Emerald Network provides a framework for monitoring species populations, which is important for detecting changes in their distribution and abundance and guiding conservation actions. Constant monitoring helps identify any decline in species populations and allows early action to address any problems.

Awareness and education of citizens: By highlighting the importance of wildlife and habitat conservation, the Emerald Network helps raise public awareness of conservation issues and encourages people to get involved in conservation efforts. This increased awareness can lead to greater public support for conservation initiatives and help promote sustainable development practices that consider both the needs of people and wildlife.

The potential economic benefits associated with the Emerald Network are as follows:

- **Ecotourism and recreational opportunities:** Once Emerald Network is created and legalized, it can attract more nature lovers, eco-tourists, and visitors interested in exploring unique natural complexes with their typical biological diversity. This can create opportunities for local businesses such as mini-hotels or eco-pensions, restaurants, tour operators, and gift stores, increasing employment and income opportunities for locals.
- **Improved water and air quality:** Protecting habitats and ecosystems within the Emerald Network helps conserve water sources and reduce air pollution. Clean water and air are important resources for human well-being and can have a positive impact on public health. Better health outcomes, in turn, can reduce health care costs and increase productivity in communities.
- **Sustainable use of natural resources:** The Emerald Network promotes the sustainable use of natural resources within its protected areas. This can include activities such as responsible fishing, sustainable forestry, and controlled harvest of non-timber forest products. These practices promote the long-term viability of local economies that depend on these resources, while ensuring their preservation for future generations.
- **Conservation of ecosystem services:** Emerald Network plays a critical role in maintaining ecosystem services such as water purification, soil fertility, pollination, and climate regulation. These services are essential to human well-being and have economic value. By preserving these ecosystems, the Emerald Network indirectly supports sustainable agriculture, reduces the impact of natural disasters, and provides other benefits that can have a positive impact on local economies.

Overall, the Emerald Network provides a valuable framework for conserving biodiversity and protecting the country's unique natural heritage. This provides a coordinated and effective approach to habitat management, species conservation, and public education and helps ensure that natural heritage is preserved for future generations to enjoy.

Part II:

Legal and institutional aspects regarding the management and protection of the Emerald Network

Analysis of the legal framework regarding the management and protection of the Emerald Network

The present study includes the analysis of a series of normative acts.

[Environmental Strategy](#) for 2024-2030⁸ and the action plan for its implementation, approved by Government Decision No.409 dated June 12, 2024, define the basic principles and priorities in the field of environmental protection, rational use of natural resources, and sustainable development of the country; ensure synergy in the implementation of the international commitments undertaken by the Republic of Moldova and the implementation of policies through the lens of European integration; and provide the basis for institutional reform and capacity building for the implementation of the political and legislative framework in the field of environmental protection and sustainable use of natural resources.

[Law of the animal kingdom No. 439/1995](#) regulates relations in the field of protection and use of wild animals (mammals, birds, reptiles, amphibians, fish, insects, crustaceans, molluscs, and so on), hereinafter referred to as animals, which live naturally on land, in water, and in the atmosphere or the soil and permanently or temporarily populate the territory of the republic. This law is partially harmonized with Articles 1, 3, 4, 7, and 8 of Directive 2009/147/EC of the European Parliament and of the Council of November 30, 2009, on the conservation of wild birds, published in the Official Journal of the European Union L 20 of January 26, 2010.

[Law of the plant kingdom No. 239/2007](#) establishes the legal framework in the field of conservation, protection, restoration, and use of objects of the plant kingdom as well as the competences of public authorities at all levels and of scientific institutions in the field.

[Law No. 94/2007 regarding the ecological network](#) creates a legal framework for the establishment and development of the national ecological network, as an integral part of the pan-European ecological network, and local ecological networks. It sets out the establishment of a management and protection regime for the national ecological network and local ecological networks and defines the powers and obligations of public administration authorities in this field. The law partially transposes the provisions of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and species of wild fauna and flora, published in the Official Journal of the European Union L 206 of July 22, 1992.

[Law No. 1538/1998 regarding the fund of natural areas protected by the state](#) establishes the legal basis for the creation and operation of the fund of natural areas protected by the state, its principles, mechanism, and mode of conservation as well as the attributions of central and local public authorities, nongovernmental organizations (NGOs), and citizens in this field. The objects and complexes within the protected areas are of international, national, and local importance. The method of assigning these degrees of importance is established by this law, by other normative acts regarding the fund of protected areas, and by international conventions in the field (Convention on Biological Diversity, Rio de Janeiro, 1992; Convention on Wildlife and Natural Habitats of Europe, Bern, 1979; Convention on Migratory Species of Animals, Bonn, 1979; Convention on Wetlands of International Importance, Ramsar, 1971, and so on).

[Law No. 325/2005 regarding the Red Book of the Republic of Moldova](#) regulates social relations in the field of protection, use, and restoration of extinct, critically endangered, endangered, vulnerable, rare, and undetermined species of plants and animals, included in the Red Book of the Republic of Moldova (hereinafter - Red Book). The law aims to prevent their disappearance and ensure conservation of their genetic background, establishes the legal bases for keeping the Red Book, and outlines the attributions of public authorities at all levels and scientific institutions in this field.

It should be mentioned that although the Republic of Moldova joined the Bern Convention back in 1993, legal regulations regarding the 'Emerald Network' appeared relatively recently. Until 2017, the national regulatory framework did not refer to the Emerald Network nor did it regulate the legal relationships that

⁸ At the time of writing, the Environmental Strategy for 2024-2030 was under development.

could arise in the process of establishing, managing, and protecting the Emerald Network. Only during 2017–2023, the legislation of the Republic of Moldova was subjected to several amendments and additions, to transpose Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and species of wild fauna and flora, particularly to legislate the provisions related to the establishment and management of the Emerald Network.

A first attempt to legislate at the national level, the aspects related to the Emerald Network, successfully concluded in 2017 through the approval of Law No. 162/2017 for the modification of some normative acts.⁹ The second amendment and substantial addition to Law No. 94/2007 concerning the Emerald Network, dictated by the need to align with the European acquis, was produced by the approval of Law No. 225/2022 regarding the modification of some normative acts, which partially transposes Directive 92/43/EEC. Next, we will analyze the legal provisions regarding the Emerald Network, following the changes and additions made over time.

Defining and origin for notions ‘Emerald Network’, ‘pan-European ecological network’, ‘area of special interest for conservation’

With the enforcement of Law No. 162/2017, in Article 2 of Law No. 94/2007, the notion of ‘Emerald Network’ appears, defined as “the ecological network made up of special conservation areas, being a part of the national ecological network, representing the extension in non-member countries of the EU of the coherent European ecological network of special conservation areas NATURA 2000.” We note that the definition in the national legislation corresponds to the definition by the EEA: “Emerald network - a network of areas of special interest for conservation (ASCI), which is to be established on the territory of the contracting parties and observer states to the Convention from Bern, including, among others, the countries of Central and Eastern Europe and the EU member states. For EU member states, the sites in the Emerald network are those in the Natura 2000 network.”¹⁰

At the same time, the differentiation between the national ecological network and the pan-European ecological network appears.

National ecological network: It is established at the national level and comprises territories of habitats, landscapes, and their elements, which are united physically and functionally. They are particularly important from a scientific and aesthetic point of view, of the value and conservation of biological diversity and maintenance of the ecosystem balance.

Pan-European ecological network It is established at the European level and connects the national ecological networks. It consists of territories, which are united physically and functionally, representing natural and seminatural elements of the landscape. They need to be conserved and managed to ensure the favorable state of ecosystems, habitats, species, and landscapes of European importance.

This classification particularly emphasizes the importance of protecting ecological networks and the need to apply a complex, multi-site approach to their management to achieve the purpose for which they were created.

At the same time, Law No. 162/2017 defines an ‘area of special interest for conservation’ as a site of common European importance where conservation measures are necessary to maintain or restore natural habitats and/or species populations to a favorable conservation stage, for which the site is designated.

The purpose of establishing the Emerald Network

Article 3 of Law No. 94/2007, which regulates the purpose of establishing the national ecological network and its functions, was completed with a new paragraph that determines the purpose of the

⁹ <https://weblex.md/item/view/id/7b9877464401f490e240b4b1eda4e237>

¹⁰ <https://www.eea.europa.eu/help/glossary/eea-glossary/emerald-network>

Emerald Network: “(3) The Emerald Network is created to protect areas of special interest for conservation, due to the presence of habitats and species of special interest for conservation.”

Due to the fact that the legislator differentiates between the national ecological network and the pan-European ecological network, it would be appropriate for the Emerald Network to be discussed in the chapter dedicated to it.

Establishment of the Emerald Network

In Article 12¹ of Law No. 94/2007, the procedure for establishing the Emerald Network is provided. The law distinguishes several procedural phases for establishing the Emerald Network:

- scientific identification and evaluation of species and habitats protected at European level, present on the territory of the Republic of Moldova
- approval of the sites identified by the Standing Committee of the Bern Convention
- national designation of approved Emerald sites and application of management, monitoring and information measures for each site.

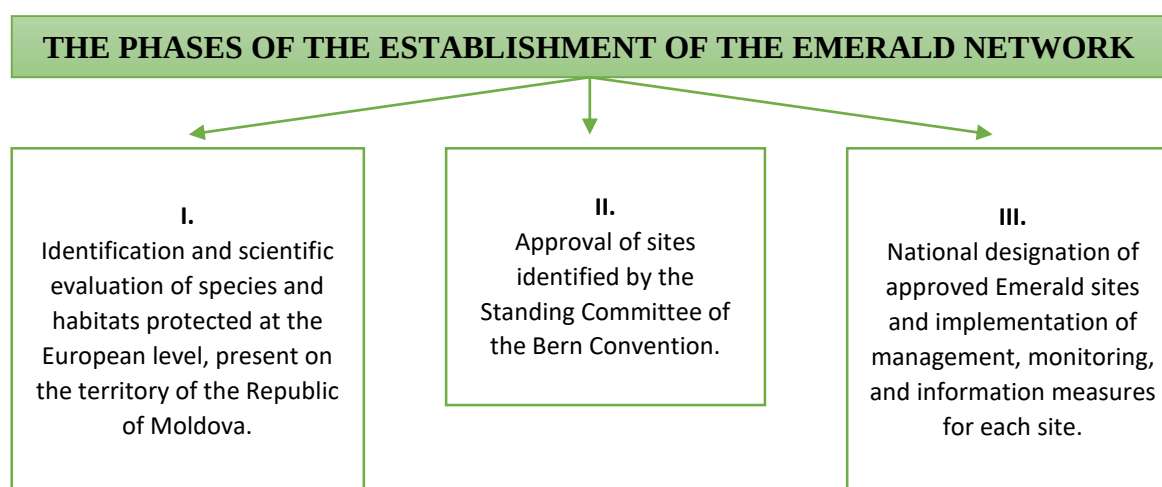
ASCIs are designated by government decision and will be part of the Emerald Network after recognition of their status by the Standing Committee of the Bern Convention.

Due to the need to align national legislation with the European acquis, on November 4, 2022, Law No. 225/2022 regarding the modification of some normative acts was published in Official Gazette No. 343-348 Art. 649. One of the focal points of the respective amendments concerns the procedure for establishing the Emerald Network.

Thus, Law No. 94/2007 is completed with a new chapter, chapter III¹, devoted entirely to the aspects related to the Emerald Network. Consequently, the provisions related to the establishment of the Emerald Network can be found in Article 12¹. According to that article, the establishment of the Emerald Network ensures the conservation of natural habitats and species of wild flora and fauna, subject to special protection at the European level, present on the territory of the Republic of Moldova, detailed in annexes no. 1–4 of Law No. 94/2007. The identification and selection of sites for inclusion in the Emerald Network are carried out based on scientific research by specialists in the field of biology, ecology and geography, in collaboration with the Environment Agency, through the selection criteria established by the resolutions of the Convention in Bern.

Regarding the procedural phases of establishing the Emerald Network, we note that this time the legislator opts for a more concise formulation of the phases (see Figure 1).

Figure 1. Phases of the establishment of the Emerald Network



Source: an elaboration of the World Bank.

The proposal for the designation of a territory as a site of the Emerald Network is developed by the Environment Agency, based on the evaluation report approved by the Ministry of the Environment, by the standard technical sheet defined by the Bern Convention.

The technical sheet must meet at least one of the following criteria:

- The territory contributes significantly to the survival of endangered species, endemic species, or any species listed in annexes no. 2–4 of Law No. 94/2007;
- The territory supports the existence of a significant number of species or the existence of important populations of one or more species listed in annexes no. 2–4 of Law No. 94/2007;
- On the territory, there is an important or representative sample of types of habitats that are in danger of disappearing, listed in annex no. 1 of Law No. 94/2007;
- On the territory, there is a special example of a certain type of habitat or a mosaic of different types of habitats listed in annex no. 1 of Law No. 94/2007;
- The territory of the Emerald site is an important space for one or more species of migratory animals.

The law stipulates that after completing the SDF, it is sent, in electronic format, to the Secretariat of the Bern Convention for processing. However, there needs to be a mention of the authority responsible for sending it.

According to Art. 12², the stage of evaluation and identification of the types of natural habitats and species of wild flora and fauna ends with the submission of the final database of candidate sites for the Emerald Network by the Ministry of the Environment to the Standing Committee of the Bern Convention for approval.

With the operation of the amendments to Law No. 94/2007 by Law No. 225/2022, the legal provisions regarding the designation of Emerald sites at the national level disappear. It would be appropriate to develop a guide regarding the procedure carried out to establish the Emerald Network, intended for the relevant authorities and other actors involved in the process.

Management of areas of special interest

According to Article 124 of Law No. 94/2007, the management of ASCIs is conducted in accordance with appropriate management plans, either specific to the designated sites or integrated into broader management plans. These plans, along with legal, administrative, or contractual measures, aim to prevent any damage or disturbance to the habitats and species for which the areas were designated. The management plan is developed for a single site of the Emerald Network or for several sites that are geographically linked or have similar natural characteristics.

The management plans must include the following mandatory information:

- Description of the territory, including inventory data of natural habitats and species of wild flora and fauna specified in annexes no. 1–4 of Law No. 94/2007;
- Conservation objectives of flora and fauna species and their habitats, taking into account economic, social, and cultural conditions as well as regional and local characteristics;
- Evaluation and determination of the tasks and measures necessary to achieve the conservation objectives;
- Strategies for managing natural habitats and species of wild flora and fauna;
- Action plans, which include, among other things, information about activities, expected results, human and financial resources required, and time frame for the implementation of planned activities;
- Indicators necessary to evaluate the progress of achieving conservation objectives;

- Monitoring the state of conservation of the types of natural habitats and species of wild flora and fauna on the territory of the Emerald Network;
- Cartographic materials.

According to the amendments to Law No. 94/2007, Art. 12⁴ para. (4) foresees that if the site of the Emerald Network is located on the existing territory of natural areas protected by the state or constitutes an object of the fund of natural areas protected by the state, the management of the site is ensured according to the provisions of Law No. 1538/1998 regarding the fund of natural areas protected by the state. However, Law No. 1538/1998 does not refer to the Emerald Network and does not include the Emerald site within the natural areas protected by the state. Nevertheless, Art. 2 of Law No. 1538/1998 defines the fund of protected areas as the totality of natural areas, objects, and natural complexes protected by the state; thus, the Emerald sites would fall into this fund. On the other hand, Art. 4 para. (1) does not attribute the Emerald site to the protected area (PA) fund, referring only to the following categories of objects and natural complexes: scientific reserve, national park, natural monument, natural reserve, landscape reservation (of geographical landscape), resource reservation, an area with multifunctional management, dendrological garden, a monument of landscape architecture, and zoo. Two other types are recognized and supported by other international regulations: biosphere reserve (by United Nations Educational, Scientific and Cultural Organization [UNESCO] Program) and wetland of international importance (by Ramsar Convention). However, the decision to establish or incorporate these categories into the national protected area system depends on the country's commitment to conservation and preference for these designations. Therefore, to ensure the applicability of the provisions stipulated in paragraph (4), Art. 12⁴, it is necessary to amend Art. 3 of Law No. 1538/1998.

Additionally, based on the fact that the Emerald sites are designated for the imposition of special measures to conserve natural habitats and/or wild species of community interest, if there is overlap in the natural areas protected of national interest, the management of the site can be admitted by the provisions of Law No. 1538/1998 but with the condition that the most restrictive protection functions will be respected. This condition is missing in the current legislation, which will generate the situation where a site of European importance will be managed under the same conditions as a site of national importance, which is contrary to the purpose for which Emerald sites are designated.

The Ministry of the Environment is the authority that ensures the development and approval of management plans for Emerald sites within 10 years from establishing the Emerald Network. Currently, there are management plans for the Emerald sites; nevertheless, they are developed in various formats and with different structures. Additionally, these plans are not officially approved by the ministry or by the administration of the protected area, should this Emerald site be situated (overlapping) in a protected area. We believe that to facilitate the process of developing management plans, it is necessary to create a methodology for the elaboration of management plans for the Emerald sites. This request has been declared numerous times as important and necessary, not only by state authorities but also by the administration of protected areas that have Emerald sites on their territory.

[Impact assessment \(appropriate assessment\) on Emerald sites under Art. 6 of Directive No. 92/43/EEC](#)

Through Article 12⁶, of Law No. 94/2007 on ecological networks, we see a first attempt to transpose Art. 6 para. (3) of Directive No. 92/43/CEE and to regulate at the national level the procedure for assessing the impact of a planned activity or a policy document (plan, program) on the Emerald sites: “(1) Any plan or project that is not directly related or is not necessary for the management of the area of special interest for conservation, but which could significantly affect the area, separately or in combination with other plans or projects, is subject to an appropriate assessment regarding the potential effects on the area of special interest for conservation, having in mind given its conservation objectives.”

This evaluation procedure has not been applied in practice in the territory of the Republic of Moldova for several reasons:

- Article 6 of Directive No. 92/43/CEE was not fully transposed, specifically the provisions of para. (4), which refer to the exceptions that allow a plan or project to be carried out despite a negative result of the assessment of the effects on the site and in the absence of an alternative solution.
- No mechanism was created to implement the impact assessment procedure on Emerald sites.
- No competent authorities have been designated to carry out the impact assessment on the Emerald sites.
- The procedural stages and other details regarding the impact assessment procedure for Emerald sites were not regulated.

Therefore, the provisions stipulated in Art. 12⁶, have not achieved their intended purpose, that is, to prevent the potential impact of human activities and policy documents on Emerald sites by creating and applying an assessment mechanism under Directive No. 92/43/EEC.

The full transposition of Art. 6 of Directive No. 92/43/CEE took place in 2022 through the approval of Law No. 225/2022 regarding the modification of some normative acts and was supplemented by Art. 12⁶ of Law No. 94/2007, according to which

- Any policy and planning documents and amendments to such documents which, either individually or in combination, may have a significant impact on the Emerald sites and which are not directly related to the management of the conservation objectives of the Emerald sites or are not necessary for that management are subject to appropriate assessment, by the provisions of Law No. 11/2017 regarding the strategic environmental assessment.
- Any planned activity, either individually or in combination with other activities, which may have a significant impact on the Emerald sites, and which is not directly related to the management of the conservation objectives of the Emerald sites or is not necessary for that management, is subject to appropriate assessment, by the provisions of Law No. 86/2014 regarding environmental impact assessment.

At the same time, Art. 12 para. (3) states that where the AA finds that a policy and planning document or planned activity may have a significant negative impact on the conservation objectives of the Emerald sites and, in the absence of alternative solutions, the policy and planning document planning or planned activity must nevertheless be carried out for imperative considerations of major public interest, including social or economic reasons. The competent environmental authority allows the implementation of such policy and planning document or such planned activity and establishes the necessary compensatory measures to protect the coherence and smooth functioning of the Emerald Network.

The situation is more restrictive where the site harbors a priority natural habitat type or a priority species, and the policy and planning document or planned activity must be carried out. The only considerations that can be invoked are those related to public health or safety and if they have certain beneficial consequences of major importance for the environment (Art. 12 para. (4)).

Concerning the regime of activities that are already legally carried out on the territory or in certain parts of the Emerald Network, the legislator regulated in Art. 125 that these activities are subject to the restrictions or prohibitions established by Law No. 94/2007, once the activity permit expires.

The legal provisions regarding the appropriate assessment entered into force in 2023, November 4.

Emerald Network Site Registry

A functional registry containing data on the Emerald network (that is species/habitat data, exact boundaries with GIS data, and so on) is currently missing. Certain general information is stored on the web page.¹¹ Law No. 225/2022 stipulates that the format of the Emerald Network Sites Register will be

¹¹ <https://cdr.eionet.europa.eu/md>

established based on the standard technical sheet, defined by the Bern Convention, and the information entered in the Emerald Network Sites Register will be public, except for those with limited access.

Free access to the Emerald Network Sites Register will be provided on the official website of the Environment Agency - the authority responsible for keeping the register.

Monitoring and reporting on the conservation status of natural habitat types and wildlife species within the Emerald Network

According to Art. 12⁷ para. (1) of Law No. 94/2007 on ecological network, the monitoring of the state of conservation of natural habitat types and species of wild flora and fauna is carried out by the standard monitoring plan developed and approved by the government.

The conservation status of a natural habitat is considered 'adequate' if its natural area and the areas it covers within this are stable or increasing, if it has the specific structure and functions necessary for its long-term maintenance and the probability of their maintenance in the foreseeable future is high, and if the species that are characteristic of the habitat are in a favourable state of conservation (Art. 12⁷ para. (2) of the Law No. 94/2007).

As foreseen in Law 94/2007, the monitoring of the state of conservation of natural habitat types and wild flora and fauna species within the Emerald Network is carried out by the Environment Agency jointly with scientific institutions with a biological profile and in coordination with the Ministry of the Environment. Scientific and university institutions with a biological profile can monitor the conservation status of certain types of natural habitats and species of wild flora and fauna on Emerald Network sites on their own, with mandatory notification from the Environment Agency. It must annually submit to the Ministry of the Environment monitoring data on the state of conservation of the types of natural habitats and species of wild flora and fauna included in the Emerald Network.

According to the Art. 128 of the Law No. 94/2007 on ecological network, the Ministry of the Environment presents, once every six years, to the Secretariat of the Bern Convention the national report on the state of conservation of natural habitats and species of wild flora and fauna, in the form established by the Standing Committee of the Bern Convention.

The fund of natural areas protected by the state and the Emerald Network

Law No. 1538/1998 establishes the legal bases of the creation and operation of the fund of natural areas protected by the state; the principles, mechanism, and method of its conservation; and the attributions of central and local public authorities, NGOs, and citizens in this field. According to Law No. 1538/1998, the protected areas fund is defined as the totality of natural areas, objects, and natural complexes protected by the state.

The establishment of the protected areas fund aims to

- Regulate relations in the field of environmental protection, conservation of natural objects, and complexes for present and future generations;
- Conduct in-depth study of natural processes in biocenoses, including important forest and steppe ecosystems, wetlands, breeding and wintering areas and animal migration routes, and the restoration of ecological balance in protected natural areas;
- Conserve the gene pool within the limits of the biological capacities of natural objects and complexes;
- Hold liable natural and legal persons who have caused damage in protected natural areas;
- Comply with international conventions and agreements on protected natural areas.

Although Law No. 94/2007 states that the Emerald site can be an object of the fund of natural areas protected by the state, it does not contain legal regulations regarding Emerald sites (see point 2.1.7).

Law No. 1538/1998 regulated by Art. 18 the administration regime of the natural areas protected by the state by formulating “the administration regime of the fund of protected areas represents a unitary set of protective, ecological and technical-organizational measures that regulate the activity, carried out within the fund, of conservation, optimization and development sustainable rationalization of the network of protected natural areas.” Because the fund of natural areas protected by the state comprises various categories of objects and natural complexes, we consider it appropriate to expressly provide in the law that a differentiated protection, management, and conservation regime is applied in protected natural areas. When establishing the methods of administration of the protected natural areas, placed under a special protection and conservation regime, the following must be considered: the category of the protected natural area, the extent of the protected natural area, the possibilities of securing financial resources to ensure the proper functioning of the administration and to achieve conservation objectives, and institutional capacities.

At the same time, to improve the ecological coherence of the network of protected natural areas of national and community interest, the appropriate management of ecological corridors must be identified and established, as areas of major importance for wild fauna and flora. Express provisions regarding the need for the management of ecological corridors are missing both in Law No. 94/2007 and Law No. 1538/1998. The lack of these regulations in the framework legislation can lead to neglect of these areas, which—due to their linear and continuous structure, such as rivers with their banks, or due to their refuge functions, such as forest curtains, natural thickets, natural vegetation on marginal lands of agricultural crops, along roads and railways, small areas of forest or wetlands - are essential for migration, dispersal of wild species, and genetic exchanges between populations of the same species.

In addition to those mentioned earlier, we draw attention to the lack of legal provisions in Law No. 1538/1998 regarding the mechanisms of environmental impact assessment (EIA), strategic environmental assessment (SEA), and appropriate assessment (AA). The law refers only to the ecological expertise assessment that will no longer be applicable from November 2023, as it is repealed by LP226 of 30.09.22, MO326-333/21.10.22 Art.626. Thus, Art. 9 stipulates: "All projects and programs for ecological restoration and development, administrative and social construction, construction of communication networks and other economic objectives in protected natural areas are subject, by the central authority for the environment, to the ecological expertise of the state."

As a result of the recent changes in the legal framework regarding environmental assessment (EIA, SEA, AA), and due to the necessity to protect and prevent any negative impact on the natural areas protected by the state, including the Emerald sites (see points 2.1.5 and 2.3), there is a need to completely review the contents of Article 9 of Law No. 1538/1998 and to supplement that law with legal provisions regarding the performance of environmental assessments.

Another gap identified in Law No. 1538/1998 refers to the provisions of Art. 98 para. (2), which contravenes the rules contained in the Code of Administrative Offenses No. 218/2008. According to Art. 1 para. (1), of the Code of Administrative Offenses, this code is a law of the Republic of Moldova that includes legal norms that establish general and special principles and provisions in contraventional matters, determine the facts that constitute contraventions, and provide for the contraventional process and contravention sanctions. Despite these regulations, Law No. 1538/1998 in Art. 98 para. (2) established the list of actions that are considered contraventions, provided they do not constitute crimes according to the law:

- The use of protected natural areas for purposes other than those provided by this law;
- The organization of economic activity in protected natural areas, as well as in their protection zones, without ecological expertise;
- Damage or destruction of protected natural areas;
- Non-liquidation of the ecological consequences of accidents, catastrophes, and other destructive phenomena;

- The introduction of plants and animals foreign to the respective area, which pollute the autochthonous genetic background;
- Violation of the export rules of plants and animals taken under state protection;
- Unauthorized execution of any landscaping and construction work;
- Discharge of industrial and domestic waste into waters or onto land, their storage in protected natural areas, and their protection zones;
- The use of chemicals in protection zones beyond the permitted norms;
- Unauthorized harvesting of forest fruits and berries, mushrooms, medicinal plants, seeds, and aquatic organisms;
- Unsolicited displacement of the boundaries of protected natural areas;
- Damage, erasure, or removal of border, geodetic or topographic markers, warning panels or indicators;
- Entry of unauthorized persons, with or without motor vehicles, into fully protected areas;
- Camping in prohibited areas;
- Grazing in prohibited areas;
- Organization and conduct of unauthorized economic, tourism, and leisure activities;
- Photographing or filming for commercial purposes without paying taxes.

It is important to note that these facts cannot be qualified as contraventions as long as the Code of Administrative Offenses does not regulate them. Therefore, there is a need to repeal that paragraph, as it is void of legal force and conceptually erroneous.

It is also necessary to mention that, from the viewpoint of legal technique, Law No. 1538/1998 does not align with the legal provisions enshrined in Law No. 100/2017 regarding normative acts. Thus, the exposition of the articles in the concerned law contradicts the legislative technique currently applicable in the Republic of Moldova. According to Law No. 100/2017, Art. 51, the basic structural element of the laws is the article. The article's name includes the word 'article' and its serial number as well as succinctly expresses the object of regulation, without having its own meaning in the article's content. In Law No. 1538/1998, the articles are displayed without a name that determines the regulatory object of the article, making it difficult to identify the necessary legal provisions.

Competences of central and local public administration authorities in the field of management and protection of the Emerald Network

Success in implementing the legislation on the protection of the Emerald Network depends to a large extent on the capacity of the actors involved in implementing the provisions of the regulatory framework, especially the capacity of the relevant authorities. Table 1 reflects the powers of the competent authorities associated with the management and protection of Emerald sites.

Table 1: Duties of competent authorities in the field of management and protection of Emerald sites

1. Ministry of Environment (https://www.mediu.gov.md/) • Coordinates the activities related to the establishment and development of the national ecological network and its integration with the ecological networks of neighboring states, to be included in the pan-European ecological network. • Coordinates the selection of eligible sites to be identified as sites of international importance and to be designated as special conservation areas. • Identifies natural heritage assets that require a special protection regime for their conservation and sustainable use. • Coordinates the activities related to the designation of areas of special interest for conservation to be included in the Emerald Network. • Ensures the supervision of the state of conservation of the species and natural habitats included in the Emerald Network. • Ensures the development and approval of management plans for the areas of special interest for conservation included in the Emerald Network and for the species for which these areas have been designated. • Ensures the elaboration, every six years, of a report on implementing conservation measures for flora species and types of natural habitats. The report, drawn up according to the form established by the Secretariat of the Convention on the Conservation of WildLife and Natural Habitats in Europe (Bern, 1979), is sent to the Standing Committee of the Convention and made public. • Promotes education and general information regarding the need to protect areas of special interest for conservation to preserve biodiversity.
2. Ministry of Infrastructure and Regional Development (https://midr.gov.md/) • Contributes to the establishment of the national ecological network and local ecological networks by presenting the necessary documentation and ensuring the integrity, protection, and extension of forest curtains along communication routes and energy networks as ecological corridors.
3. Ministry of Agriculture and Food Industry (https://www.madrm.gov.md/) • Contributes to the establishment of the national ecological network and local ecological networks by ensuring cooperation with economic agents in the agricultural sector, including the institutions whose competence includes water management activities.
4. Environmental Agency (https://am.gov.md/) • Monitors the state of conservation of the types of natural habitats and species of wild flora and fauna within the Emerald Network, in collaboration with the public institution 'Moldova State University'. • Keeps the Registry of Emerald Network sites. • Participates in the development of management plans for Emerald sites.
5. Agency Moldsilva (http://www.moldsilva.gov.md/) • Contributes to the establishment of the national ecological network and local ecological networks by making available to their creators the forestry facilities that belong to the national forest fund. • Contributes to the afforestation of degraded lands, to the regeneration of degraded stands, within the ecological networks or to be included in them, and to the restoration of areas intended for rehabilitation, to include them in the national or local ecological network as elements and defragmenting these elements.
6. Inspectorate for Environmental Protection (https://ipm.gov.md/) • Exercises state control over compliance with conservation measures for natural habitats and species of wild flora and fauna within the limits of the Emerald sites provided for in the management plan. • Exercises control over compliance with environmental protection rules when carrying out measures to maintain and conserve biodiversity and use hunting fauna. • Exercises control over compliance with the rules for environmental protection within the natural areas protected by the state. • Exercises control over the way natural and legal persons complies with the legislation on the protection and rational use of aquatic biological resources. • Calculates the damage caused to hunting and forestry resources within the forest fund and outside the forest fund.

• Calculates the damage caused to fish resources through various activities such as water pollution, ponds, fish wintering pits, water capture without fish protection facilities, explosions, sand and gravel extraction, bed deepening, illegal fishing, and so on. • Exercises control over the legality of keeping wild animals in captivity by natural or legal persons, as well as the living conditions provided to them.
7. Local public administration authorities
• Establish local ecological networks using public property of administrative-territorial units and private property, with the consent of their owners and beneficiaries. • Provide the necessary assistance to national and international institutions to evaluate and determine the categories of the elements of the national ecological network and local ecological networks. • Ensure the activities of land allocation for creating and reconstructing the elements of the ecological network, and their mapping according to the actual on-the-ground zoning. • Ensure the co-financing of the activities for setting up local ecological networks within the limits set by the local budgets.

Some of the problems identified in the Republic of Moldova that significantly influence the process of administration, management, and protection of the Emerald Network are

- Lack of qualified personnel with studies in the field;
- Lack of institutional memory, generated by the frequent turnover of staff, which reduces the level of institutional expertise;
- Lack of technical personnel who would ensure the operation and maintenance of digitized information systems;
- Lack of experience in managing and protecting special conservation areas of international importance.

It should be noted that NGOs can assist public authorities in protecting the Emerald Network in a variety of ways:

- **Advocacy and political influence:** NGOs can participate in policy development and decision-making processes that affect the Emerald Network. They advocate for the expansion of protected areas, the inclusion of important habitats and species, and the implementation of effective conservation measures. NGOs often provide expert knowledge, research findings, and recommendations to influence policies that enhance the ecological integrity of the network.
- **Research and data collection:** NGOs can conduct research and collect data on the status of species and habitats within the Emerald Network. This information can help agencies identify areas that need immediate attention and develop effective conservation strategies.
- **Conservation management:** NGOs engage in on-the-ground conservation efforts for the Emerald Network. They may undertake habitat restoration, biodiversity monitoring, species conservation initiatives, and invasive species control. NGOs often work with local communities, landowners, and other stakeholders to implement sustainable land management practices and effectively manage the sites.
- **Public awareness and education:** NGOs can play an important role in raising public awareness of the importance of the Emerald Network and its conservation goals. They organize educational campaigns, workshops, and public events to promote environmental awareness and benefits of biodiversity conservation. The NGOs also help promote a sense of responsibility among local communities and visitors, encouraging them to behave responsibly and respectfully.
- **Capacity building and training:** NGOs can provide training and capacity-building support to stakeholders involved in the management of the Emerald Network. They provide expertise in conservation planning, ecological monitoring, sustainable tourism, and community

engagement. By improving the skills and knowledge of the various stakeholders, NGOs contribute to the long-term sustainability and effective management of the network.

- **Monitoring and reporting:** NGOs can contribute to the monitoring and reporting of activities within the Emerald Network. They can monitor potential pressures and threats such as illegal activities, habitat destruction, or pollution and report them to the relevant authorities for immediate action.
- **Collaboration and partnerships:** NGOs often work with government agencies, research institutions, and other NGOs to foster partnerships for the conservation of the Emerald Network. These collaborations facilitate the exchange of information, expertise, and resources and enable more effective conservation initiatives. NGOs also act as facilitators, bridging gaps between different stakeholders and facilitating dialogue and collaboration.
- **Fundraising and grant applications:** NGOs can help agencies secure funding for conservation projects within the Emerald Network. They can actively engage in fundraising efforts and help prepare grant proposals by leveraging their networks and expertise to secure financial support.
- **Public participation:** NGOs can encourage public participation and engagement in protecting the Emerald Network. They can involve local communities, volunteers, and citizen scientists in monitoring, restoration activities, and awareness campaigns to foster a sense of ownership in conservation efforts.
- **Policy development and implementation:** NGOs can contribute to developing and implementing conservation policies and regulations related to the Emerald Network. They can provide valuable input based on their expertise and experience, ensuring that policies are scientifically sound, practical, and effectively enforced.

By working with government agencies, NGOs can complement their efforts and provide valuable resources, expertise, and public support to sustain the Emerald Network. By working together, these stakeholders can improve the effectiveness and impact of conservation actions, leading to long-term conservation of endangered species and habitats.

On the other hand, scientists play a crucial role in supporting the public authorities that are directly involved in implementing the actions aimed at protecting the conservation objectives of the Emerald Network. Here are some ways scientists can contribute:

- **Research and monitoring:** Scientists can conduct research and monitoring activities within the Emerald Network to collect data on various aspects such as biodiversity, ecological processes, and threats. This research can provide valuable information for assessing the status of the network and identifying actions to protect it.
- **Species and habitat assessment:** Scientists can contribute to the assessment of species and habitats, including threats or impacts, present in the Emerald Network. They can identify priority species and habitats, assess their conservation status, and make recommendations for their protection and management.
- **Ecological restoration:** Scientists can advise public authorities on how to carry out restoration projects within the Emerald Network and offer knowledge in ecological restoration approaches. They can aid in locating degraded areas, creating strategies for restoration, and keeping track of how well those efforts are doing.
- **Impact assessment:** Scientists can cooperate with government agencies to analyze the potential effects of development plans on the Emerald Network. Scientists can assist decision-makers and ensure that the network's conservation values are not compromised by assessing potential environmental, social, and economic impacts.

- **Training:** Scientists can help with capacity-building and training programs for public officials and stakeholders involved in the Emerald Network's management. They can share best practices, provide technical expertise, and lead seminars and training sessions to improve understanding of ecological processes, conservation measures, and sustainable management techniques. Scientists can provide scientific advice and input during the formulation or amendment of laws and legislation relating to the Emerald Network's protection. Their experience can assist authorities in developing effective, evidence-based conservation policies that address existing and emerging conservation concerns.
- **Public outreach and education:** Scientists can participate in public outreach and education projects to promote awareness about the Emerald Network's relevance and conservation. They can communicate and disseminate all scientific findings in understandable ways, collaborate with local communities, and promote stewardship and sustainable practices among the general population.

So by working in partnership with government agencies, scientists can contribute their expertise and skills to the successful protection and maintenance of the Emerald Network, ensuring its long-term conservation and ecological integrity.

Emerald Network Legal Protection Mechanisms

To ensure the protection of the human right to a safe environment and to address the long-term decline of biodiversity, a mechanism was created to reevaluate the potential impact on special conservation sites, regulated by Directive No. 92/43/CEE, referred to as the appropriate assessment mechanism. This mechanism aims to prevent the destruction and degradation of habitats, the persecution of some species and the unsustainable exploitation of wildlife resources, and improve living conditions at an international level. Directive No. 92/43/EEC is based on the precautionary principle, that the absence of scientific evidence regarding the significant effect of a type of planned activity or a policy and planning document cannot be used as a justification for its approval and admission.

Thus, according to Art. 6 para. (3) of Directive No. 92/43/EEC, any plan or project that is not directly related to or not necessary for the management of the site, but which could significantly affect the area, per se or in combination with other plans or projects, must be subject to an assessment corresponding to the potential effects on the site, depending on the site's conservation objectives. Therefore, the competent national authorities approve the plan or project of economic activity only after the assessment concludes that it has no negative effects on the integrity of the site in question and, where appropriate, after consulting public opinion.

Contrary to the provisions of para. (3) of Art. 6 of Directive No. 92/43/CEE which refers to the strict protection of sites, the provisions of para. (4) of Art. 6 regulate the procedure, allowing derogation from this strict protection in certain circumstances. Thus, according to para. (4), of Art. 6, if, despite a negative result of the assessment of the effects on the site and in the absence of an alternative solution, the plan or project must be carried out, nevertheless, for crucial reasons of major public interest, including social or economic reasons, the member state takes all necessary compensatory measures to protect the coherence of the Emerald Network.

It is important to note that the impact that a planned activity/policy and planning document has on the environment needs to be assessed to consider the efforts to protect human health, contribute through a cleaner environment to the preservation of quality of life, ensure the preservation of species diversity, and conserve the reproductive capacity of the ecosystem as a fundamental life resource.

Thus, starting from the need to align national legislation with that of the EU, in 2022 a series of measures were taken at the national level to establish the appropriate assessment mechanism through the full transposition of Art. 6 of Directive No. 92/43/EEC. The amendments, made through the approval of Law No. 225/2022 and Law No. 226/2022 regarding the modification of some normative acts, concerned the following legislative acts:

- **Law No. 94/2007** regarding the ecological network. (Art. 12⁶ Assessment of the impact of new activities and facilities on the territory of the Emerald Network - see 2.1.6).
- **Law No. 86/2014** regarding environmental impact assessment. This law establishes that any planned activity that, individually or in combination with other activities, may have a significant impact on Emerald sites and that is not directly related to the management of these sites or does not result from this management is subject to appropriate assessment (Art. 10⁸, paragraph (1)). It is important to note that the law distinguishes two forms of appropriate assessment:
 - Within the EIA procedure, for the planned activities specified in annexes no. 1 and 2 of Law No. 86/2014 (Art. 108, paragraph (2), letter a))
 - Separately, for planned activities that do not fall under annexes no. 1 and 2 of Law No. 86/2014, but they can have a significant impact on Emerald sites (Art. 108, paragraph (2), letter b)).
- **Law No. 11/2017** on strategic environmental assessment. This act stipulates that any policy and planning documents, and amendments to such documents, which, either individually or in combination, may have a significant impact on the Emerald sites and which are not directly related to the management of these sites or are not necessary for that management, are subject to biodiversity assessment. Appropriate assessment is carried out during the development of the draft policy and planning document until its approval. The conclusions of the appropriate assessment are a part of the environmental opinion; they are imperative and must be incorporated by the initiator in the final policy and planning document presented for adoption (Art. 85. Assessment of biodiversity).

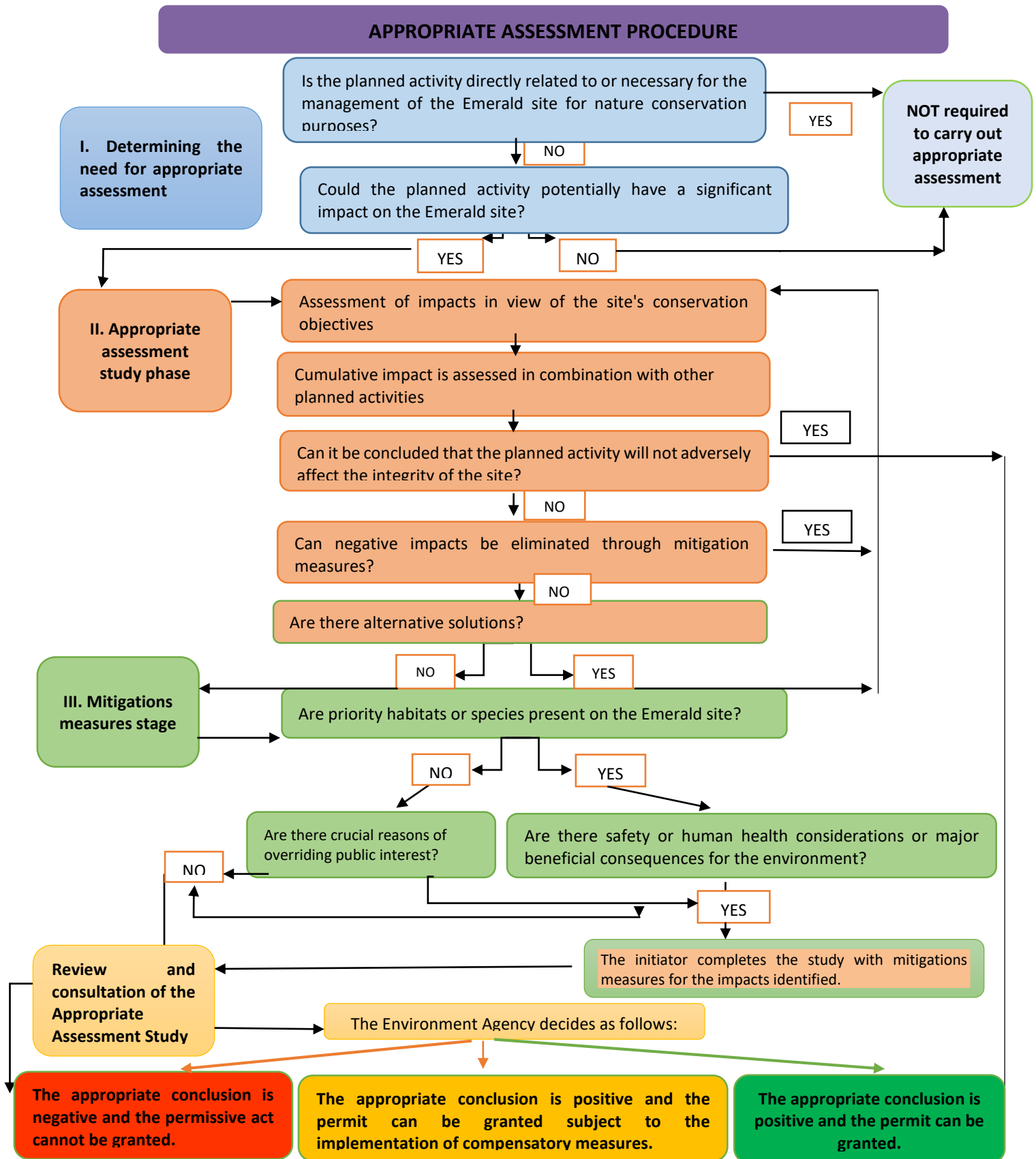
The specific features of the appropriate assessment mechanism can be deduced from the procedural steps taken to identify the potential significant impact of the planned activity or policy and planning document on the Emerald sites (see Figure 2).

Appropriate assessment is carried out not only to identify the potential negative impact of the policy and planning document or the planned activity on the site but also the possible cumulative effects that the policy and planning document and the planned activity may have in combination with other policy documents and existing, proposed, or approved planning and economic activities.

Therefore, the purpose of the appropriate assessment mechanism is not to prohibit the economic development of the state but to carry out a case-by-case analysis of the potential effects generated by the implementation of strategic documents or planned activities on the Emerald sites provided for in Law No. 94/2007 regarding the ecological network, considering their conservation objectives. In general terms, appropriate assessment implicitly implies a positive obligation on environmental authorities to identify potential significant impacts on Emerald sites at an early stage at the forefront of every decision made concerning policy and planning documents and planned activities, including regarding decisions to grant funding or other types of support.

It is necessary to mention that the appropriate assessment entered into force in November 2023 as part of the improved Law No 86/2014 on EIA. This assessment mechanism, which is new both for the authorities responsible for the environment and for other legal entities, will be applied to activities planned by economic operators and to policy and planning documents developed by central and local public authorities, as appropriate.

Figure 2: Appropriate assessment procedure



Source: developed by EcoContact for the World Bank.

The extent of the obligation to carry out an appropriate assessment of the impact of a policy and planning document or a planned activity on a protected site should be determined in the light of conservation objectives. In other words, the decision about whether the policy and planning document or planned activity is likely to have a significant impact on an Emerald site should be made considering the site's conservation objectives.

It is therefore essential that conservation objectives, which must be site specific and measurable, be established and made available to the public for all Emerald sites without delay. Conservation objectives must specify the targets for each attribute or parameter that determines the conservation status of the protected features.

Liability for destroying and damaging wildlife species and protected habitats within the Emerald Network

Currently, the legislation of the Republic of Moldova does not expressly regulate the liability for the destruction and damage of species of wild fauna and flora as well as of protected habitats within the Emerald Network. This particularly only concerns the conservation of natural areas protected by the state, such as the following:

[Code of Administrative Offenses No. 218/2008](#)

Article 139: Violation of the way of using the animal kingdom in nature reserves and other natural areas protected by the state, which is sanctioned with a fine from 24 to 30 conventional units (c.u.).

Article 140 para. (1): Collecting or destroying plants, capturing or destroying animals included in the Red Book of the Republic of Moldova and in the annexes to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), illegal trading, and committing other actions or inactions that can cause the reduction in the number of these plants and animals or their disappearance, which are sanctioned with a fine from 50 to 100 c.u.

Article 141. Violation of the regime of protection of objects and complexes within the natural areas protected by the state.

(1) Violation of the protection regime of objects and complexes from the background of natural areas protected by the state, including from scientific reserves, natural reserves, landscape reserves, resource reserves, biosphere reserves, national parks, nature monuments, areas with multifunctional management, botanical gardens, dendrological gardens, zoological gardens, monuments of landscape architecture, which led or may lead to the destruction or change of their initial state, shall be fined from 40 to 80 c.u. applied to the natural person, with a fine from 200 to 3,000 c.u. applied to the legal person.

(2) Violation of the rules for the protection of the soil, deposits, water resources, fauna, and flora from the objects and complexes of the fund of the natural areas protected by the state, as well as their unauthorized use, is sanctioned with a fine from 50 to 100 c.u. applied to the natural person, with a fine from 200 to 400 c.u. applied to the legal person.

(3) Violation of the rules prohibiting the placement, processing, and dumping of industrial and household waste in the objects and complexes within the natural areas protected by the state and in their protection zones, is sanctioned with a fine from 50 to 80 c.u. applied to the natural person, with a fine from 200 to 400 c.u. applied to the legal person.

[Criminal Code No. 985/2002](#)

Article 235. Violation of the regime of administration and protection of the fund of natural areas protected by the state, if this creates the danger of causing damage in large proportions or has caused damage in large proportions, is punished with a fine in the amount of 850 to 1,350 c.u. or with imprisonment of up to 3 years, in both cases with (or without) deprivation of the right to hold certain positions or to exercise a certain activity for 3–5 years, and the legal person is punished with a fine from 2,000 to 4,000 c.u. with the deprivation of the right to exercise a certain activity.

It should be noted that the sanctions existing in criminal and contravention legislation for illegal acts applicable to natural areas protected by the state cannot be applied to Emerald sites, considering that Law No. 1938/1998 does not regulate these sites as an object of the fund of natural areas protected by the state.

More than that, according to the principle of legality, enshrined in Art. 3 of the Criminal Code No. 985/2002, only acts that are considered crimes/contraventions at the time of their commission are sanctioned and only the sanctions existing within the sanctioning system are applied. As long as the national legal framework does not include express regulations regarding criminal and contraventional liability for damage to wild fauna and flora species as well as for violation of the Emerald sites management regime, there will not be an effective mechanism to counter illegalities in this domain, which in turn will not allow effective protection of these sites.

In this context, it is important to highlight that the principle of legality also implies the prohibition of extensive, unfavorable interpretation and application by analogy of criminal and contravention law. Applying criminal or misdemeanor law by analogy would mean extending the scope of these laws to acts not provided for by law, such as in our case acts that would endanger the preservation of the 'Emerald sites'. If such a concept were to be accepted, any guarantee against the arbitrariness and subjectivism of the one who transposes the criminal and contraventional law into practice would disappear.

Regarding the measures applicable by the state to deter the commission of illegal acts on the flora and fauna species as well as the protected habitats within the Emerald Network, they must be based on the 'polluter pays' principle. The 'polluter pays' principle does not seek to 'punish' the polluter by imposing a fine or a criminal sanction, focusing on the imposition of obligations to provide measures to prevent and repair environmental damage and to assign responsibility for costs associated with these measures. However, if environmental damage is caused, the cost charged to the perpetrator must be equivalent to the damage caused in question.

To identify the financial cost of environmental damage, methodologies with specific indicators and formulas are applied at the national level. There are also instructions on the assessment of different types of damages to soil resources; to atmospheric air through pollution caused by stationary sources; to the environment by non-compliance with the legislation on the basement; to atmospheric air in the process of managing production and household waste; and caused by illegal hunting, purchase, trade, possession, export of game animals, and so on. Regrettably, the methodologies and instructions in question are outdated and must be revised to match the current socioeconomic reality.

Part III:

Current state of the Emerald species and habitats, and sufficiency index in the Republic of Moldova

The current chapter provides an overview of the assessment by a group of experts, as indicated in the document's foreword, with regard to the status of Emerald species and habitats in the Republic of Moldova. The assessment based on the conclusions of the biogeographic seminars held in 2018–2019 under the CoE/EU Joint Programme Emerald Network of Nature Protection Sites, Phase II.

According to the conclusions of the last seminars,¹² out of 167 habitats and species, 134 were evaluated from the continental and steppe biogeographic regions as insufficient (insufficient major, insufficient moderate, and insufficient minor). For example, for 22 habitat types from continental/steppe areas (out of 29 habitats), the sufficiency has been assessed as 'insufficient moderate (IN MOD)', which, according to the description, means that one or several additional sites (or extensions of sites) must be proposed to achieve sufficient coverage of the Emerald Network in Moldova.

Similar enhancements of the Emerald sites are required for 38 species from continental and steppes biogeographic region (out of 147 species). So, there is a need for an official reply on behalf of the Ministry of Environment to the Bern Committee that requires an expert review of sites and species assessed during the biogeographical seminars and an update and justification of proposed modifications.

The result of this assessment is to form a reasoned opinion regarding an update of the sufficiency index for the Republic of Moldova, as well as to include in the road map measures needed to ensure that, based on expert knowledge of species and habitats, actions are taken to reach nearly 80 percent of Moldova's Emerald Network sufficiency index by 2030 (for IN MOD: new sites), with a first proposed intermediate timeline to reach a sufficiency index of approximate 60 percent by 2026 (for scientific reserve (SR), correction of data (CD), and insufficient minor (IN MIN)). Furthermore, the analysis will additionally indicate where Emerald species can be found outside of the network and accordingly may be recommended for assessment and proposed for inclusion in the Emerald Network.

It is recommended that the Ministry of Environment, as the central public authority in the field of environmental protection, supports the new round of the assessment of the sufficiency index of Emerald species and habitats in Moldova based on the preliminary assessment of the conclusions of the biogeographic seminars, to initiate a new biogeographic seminar at the regional level or engage in bilateral meetings with Bern Convention. The updated assessment will serve as a base to extend the Emerald Network coverage via the identification of new Emerald sites to be suggested for adoption as well as extension, where needed, of the existent adopted Emerald sites to additionally include natural areas (forest, steppe, wetlands, etc.) as well as agricultural areas, communities, and private lands. An important measure to increase the sufficiency index would be improved management of Emerald sites by developing the monitoring and management planning system.

The Emerald Network under the Bern Convention on the Conservation of European Wildlife and Natural Habitats was set up to ensure that all high biodiversity areas of European importance are identified, their ecological inventories completed, and their significance recognized legally. Before being officially adopted as Emerald Network, all sites proposed to join it are thoroughly assessed for biogeographical level and sufficiency to achieve the ultimate objective of the network. This objective is the long-term survival of the species and habitats of the Bern Convention, requiring specific protection measures.

Law No. 225/2022 complements Law No. 94/2007 regarding the ecological network with a new chapter, Chapter III - The Emerald Network, dedicated entirely to the aspects of the Emerald Network. According to Art. 12, the types of natural habitats and species of wild flora and fauna are evaluated by biology, ecology, and geography specialists in coordination with the Environment Agency.

According to the Evaluation of the 2011–2020 Emerald Network work - Proposal of a post-2020 work plan, Moldovan Emerald Network, the sufficiency index for Moldova has been calculated as **24 percent**. The proportion of adopted sites with management plans is **47.5 percent**).¹³ This means that the existing

¹² Conclusions of the biogeographical evaluation seminars - Convention on the Conservation of European Wildlife and Natural Habitats - www.coe.int

¹³ <https://rm.coe.int/evaluation-of-the-2011-2020-emerald-network-workplan-and-proposal-of-a/1680a040a9>

Emerald sites may be covered by some form of management plan, either overlapping with other protected areas that have management plans or with forestlands that already have planning documents in place. However, this assessment uncovered that the reality is different. Only a few areas within designated Emerald sites have complete management plans, while others have only an action plan or are part of the management plans of protected areas. This could be considered as insufficient for conservation purposes of species and habitats within.

Furthermore, this report's focus and biogeographic information revision have centered on conclusions 'IN MIN', SR, and CD. This is more of a 'desk review' of the Emerald Network database rather than an in-depth assessment of species and habitats.

The assessment is divided as follows:

- Mammals
- Birds
- Amphibians and reptiles
- Invertebrates
- Plants
- Habitats

Mammals

The last biogeographical seminar on mammals for the Republic of Moldova was held in 2019, June 18–19, in Minsk, Belarus. Of 17 species assessed, 7 species were classified as IN MIN, 1 IN MOD, and 4 IN MOD/IN MIN.

Nevertheless, new data regarding mammals have been obtained during the last years of research and assessments. For example, a further important hibernation and shelter site for bats was found in the mines located between Molovata Nouă and Cocieri villages. A great diversity of bats was recorded there: 10 species, including a hibernating colony of *Myotis myotis* of about 80 individuals, a colony of *Rhinolophus hipposideros*, and several individuals of *Myotis bechsteinii* and *Myotis dasycneme*.

Another important hibernation and shelter site for bats was found in the mines near Parcani village, Soldănești district. The largest hibernation colony of *Myotis blythii* was recorded - about 400 individuals. Solitary individuals of *Myotis dasycneme* were also reported there.

Over the last three years, several new colonies of *Spermophilus suslicus* have been reported near the village of Chișcareni (47.564°N, 28.039°E), the village of Glinjeni. (47.588°N, 27.922°E), Todirești village (47.299°N, 27.813°E), Novaia Nicolaevca (47.283927°N, 27.857644°E), and Câșlița-Prut villages. Several colonies may have disappeared in the last four to five years, especially in the central part of the country.

In October 2020, traces of beaver (*Castor fiber*) activity were observed 10–100 m away from Belevu Lake and the four backwaters in the Biosphere Reserve 'Prutul de Jos' reserve. In recent years, video traps (trap cameras) have been used with increasing intensity, making it possible to record rare species with a hidden or nocturnal way of life, which are very difficult to observe in nature. In December 2020, with the help of photo traps, the beaver was recorded as a new mammal species on the territory of the Republic of Moldova. Starting from 2021, the beaver moved northward along Prut River, and in 2023 it was registered in the 'Pădurea Domnească' nature reserve.

Also, some of the species that were included in the database and agreed on during the biogeographical seminars need to be revised or deleted:

- *Rhinolophus ferrumequinum*. Only two solitary individuals were reported. The distribution area does not include the Republic of Moldova (International Union for Conservation of Nature [IUCN] map). Probably, during migrations in search of shelters for hibernation, some

individuals penetrated the territory of the republic. However, a permanent stable population does not exist in the country.

- *Sicista subtilis*. The last report was in the 1960s. Since then, the species has not been observed due to the intense exploitation of the steppe lands. It is considered to no longer exist on the country's territory.

Additionally, it is proposed to update existing database by including the new site where 10 species (approximately 80 individuals) of bats were recorded, which can help achieve the IN MOD status of the current species by 2026 (Table 2).

Amphibians and Reptiles

One reptile species and one amphibian species were declared as IN MOD during the last biogeographical seminar where Moldova participated — *Elaphe sauromates* and *Triturus cristatus*. Unfortunately, in recent years, no new data on these species have been recorded; nevertheless, species such as *Triturus dobrogicus* were found to spread throughout the territory of the Ramsar site 'Lower Prut Lakes'. A new location of *Elaphe sauromates* was also found and reported near the Sărata Nouă Lake (Annex 2).

Also, for the IN MIN species, the experts could not identify any sites where they could be located. Additionally, no recommendations exist for them.

Birds

The bird's biogeographical seminar was held in 2018, May 23–24, concluding with 22 IN MIN species and 8 IN MOD. A new area that has been registered is proposed to be added for 12 species, thereby reclassifying all of them from IN MIN to IN MOD, and the other 8 species are suggested to be excluded.

Based on experts' additional proposals, the status of some species can be changed, which will influence the sufficiency index respectively (Table 4). The Ministry of Environment should officially submit these changes in order to update the database and the sufficiency index. Experts are also suggesting more assessments need to be done.

Fish

The last biogeographical seminar on fishes took place in 2019, June 18–19, where five species were considered IN MIN and two IN MOD. Based on the recent development and taxonomic repositioning, some species are recommended to be excluded, such as *Barbus meridionalis*, which needs to be replaced with *Barbus petenyi*. Additionally, it was stated that the *Zingel asper* is not found on the territory of the Republic of Moldova and must be excluded.

The new suggested changes for the database refer to updating the number of individuals for some species, for example *Rhodeus amarus* for both steppe zone (STE) and continental zone (CON). The same applies to *Cobitis taenia*, which is considered to have an optimal population status in most natural ecosystems. Other observations concluded by the fish experts refer to the following:

- *Rhodeus amarus* has numerous populations in most of the natural aquatic ecosystems in the Republic of Moldova; therefore, the sufficiency index is sufficient for both the STE and the CON.
- *Cobitis taenia* also has an optimal population status in most natural ecosystems; it is recommended that the SUF status applies to STE and CON areas.
- *Barbus petenyi* - Rheophilic species are widespread in the medial sector of the Dniester and Prut Rivers. It is proposed to change their status from SUF to IN MOD for the CON and to exclude the species from the STE because it is not typical for the lower sectors of the rivers.
- *Zingel zingel* - Rheophilic species are widespread in riverbeds of Dniester and Prut Rivers. It is proposed to change their status from SUF to IN MOD for the CON and retain the SUF status for the STE.

- *Zingel streber* - Rheophilic species are widespread in the Prut riverbed. It is proposed to change their status from SUF to IN MOD for the CON and to maintain the SUF status for the STE.
- *Gymnocephalus schraetser* is a characteristic species of the Prut River ecosystem (endemic to the Danube). It is proposed to change its status from SUF to IN MOD for the CON and to maintain the SUF status for the STE.
- *Gymnocephalus baloni* is a characteristic species of the Prut River ecosystem (endemic to the Danube). It is suggested that the designation of new sites shall fully include the lower sector of the Prut River (thus expanding the Emerald Network). At the same time, expansion of the Emerald Network can help protect migratory and semi-migratory species of fish up to the Costești-Stânca dam.
- *Romanogobio kesslerii* requires IN MOD status for both CON and STE areas.
- *Sabanejewia aurata* for the CON to be modified from IN MIN status to IN MOD by including the sector Criva village-Bădragii-Vechi village in the national Emerald Network. This inclusion is expected to change the status of *Barbus petenyi*, *Gymnocephalus schraetser*, *Zingel zingel*, *Zingel streber*, *Romanogobio kesslerii* for the STE from IN MIN to SUF.

Eudontomyzon mariae is a species with little known current distribution in the Republic of Moldova; therefore, the SR status is recommended for both CON and STE areas.

Invertebrates

The analysis of conclusions for invertebrates reveals that two species are IN MIN, one is IN MOD for both types of zones, and one is IN MOD/IN MIN.

More detailed assessment done by experts for this report suggests some species that were not detected in the country for more than a century (such as *Osmoderma eremita*) can be excluded from the database. The same applies for *Coenagrion mercuriale* as its range does not cover the Republic of Moldova. Such species as *Vertigo angustior*, *Vertigo moulinsiana*, and *Colias myrmidone* are considered to have no suitable habitats.

Recommendations to be included in the road map to increase the sufficiency index are as follows:

- Keeping old trees (and dead wood) of different species in forests to allow rare insect species to develop normally.
- Preservation and, when needed, restoration of forest edges to maintain and attract pollinator species (such as diurnal and nocturnal lepidopterans, wild bees, wasps, tachinid flies, etc.). Forest edges provide habitats for more plant species, have a higher wood production, produce more nectar to pollinators and show a better rejuvenation of the forest.
- Rational use of water from lakes and rivers for irrigation. In Moldova, reduced amounts of surface water during summer times lead to depletion of its last sources of freshwater (from springs, ponds, rivers, and streams), mainly used for the irrigation of agricultural fields. Because of droughts, the larvae of aquatic insect species perish and the adults leave in search of water to lay eggs elsewhere.
- Restoration and cleaning of the natural beds of rivers and springs, cleaning water bodies and maintaining conditions as close to natural conditions as possible. The leased ponds are destroyed through abysmal management, practically resulting in the decline of all invertebrate species.
- Restoration of forests and shelterbelts by promoting indigenous species. Planting exotic (alien) species can lead to the introduction of other invasive insect species that use exotic tree species as intermediate food sources. The consequences of the invasions are difficult to predict, while economic loss can be huge.
- Rehabilitation of water protection shelterbelts; where there is water and vegetation, there are more insects.

- Regulation of water flow from reservoirs and dams is crucial to avoid flooding or drying up of rivers due to restricted water flow. The drying up of ponds, rivers, and streams can lead to significant losses in invertebrate biodiversity.
- Revitalizing steppe and meadow habitats by limiting excessive grazing. Invertebrates come to pollinate spontaneous plants; unflowering plants are of more specific interest for phytophagous pests.
- Protection of watersheds that are destroyed by large horned cattle, which come to water. A variety of invertebrate species inhabit the water-soil transect zone, emerging vegetation and marshy-type soils with grassy vegetation. All this spectrum of habitats is destroyed by livestock that come to water. Setting up watering places for livestock away from trees in the open can help maintain such habitats alive and avoid their further deterioration.

More on the current and recommended status can be found in Table 6.

Plants

Biodiversity specialists continuously monitor all rare species included in the Emerald sites, thereby enabling a truthful analysis of their current status, which allows to update data in European reports. The state of some species has changed essentially during the last years. Such species, as *Schivereckia podolica* and *Crambe tataria*, were reevaluated from the IN MIN category to the IN MOD category due to the increase in the number of individuals and the number of sites where they were identified over the last period. The species *Echium russicum* and *Cypripedium calceolus*, as a result of the reevaluation, changed from the IN MOD category to the IN MIN category due to the drastic reduction in the numerical population and the number of sites.

Table 7 presents information regarding the species of the biogeographic region, the category of their endangerment, the limiting factors that endanger the species' existence, and some arguments that were the basis of the revaluation of the species.

To increase the sufficiency index, the following recommendations are proposed:

- Sustainable management of the Emerald sites through efficient and proper management.
- Analysis/establishment of the patterns of habitat fragmentation across Emerald sites in order to ensure conditions for more connecting corridors and migration paths for species.
- Prohibition of drainage and water capturing works in Emerald sites, which can lead to disruptions of seasonal conditions, threatening species' existence.
- Carrying out of actions to combat/control invasive species in Emerald sites, especially aggressive adventive species such as *Ailanthus altissima* (introduced) and *Elaeagnus angustifolia* (native, but highly aggressive) and others (to be identified).
- Conservation and compliance with the protection regime of species and habitats included in the Annexes of the Bern Convention and the Habitats Directive, the CITES convention, and their inclusion in the State Protected Species List.
- Periodic monitoring and assessment of the state of the populations of species included in the Annexes of the Bern Convention and the Habitats Directive.
- Prohibition of activities such as mowing, grazing, or burning dry vegetation in the typical habitats where species included in the Annexes of the Bern Convention and the Habitats Directive can live.
- Carrying out of activities to inform and raise awareness among the target audiences about the ecological and conservation value of the Emerald sites.

Table 2: Biogeographic status of efficiency of mammals species

Feature code	Feature name	Biogeographical region	Status	Comments	Comments 2023	Recommended status 2023	New proposed areas 2023
1307	<i>Myotis blythii</i>	STE	IN MIN	3 sites			
1323	<i>Myotis bechsteinii</i>	STE	IN MIN	1 site			
1324	<i>Myotis myotis</i>	STE	IN MIN	1 site			
2021	<i>Sicista subtilis</i>	STE	SR				
1304	<i>Rhinolophus ferrumequinum</i>	CON	SR				
1318	<i>Myotis dasycneme</i>	STE	IN MIN	3 sites			
1324	<i>Myotis myotis</i>	CON	IN MIN	2 sites	In the mines near the villages of Molovata Nouă and Cocieri, 10 species of bats were recorded, including a hibernating colony of the species <i>Myotis myotis</i> of about 80 individuals	IN MOD	Molovata Nouă and Cocieri
1335	<i>Spermophilus citellus</i>	CON	IN MOD/ IN MIN	6 sites			
1352	<i>Canis lupus</i>	CON	IN MIN	2 sites center			
1352	<i>Canis lupus</i>	STE	IN MOD/ IN MIN	2 sites			
1355	<i>Lutra lutra</i>	CON	IN MIN	5 sites center			
1355	<i>Lutra lutra</i>	STE	IN MIN	3 sites			
2608	<i>Spermophilus suslicus</i>	CON	IN MOD/ IN MIN	7 sites			
2608	<i>Spermophilus suslicus</i>	STE	IN MOD/ IN MIN	5 sites			
2633	<i>Mustela eversmanii</i>	CON	IN MOD/ IN MIN	Additional 2 sites/check the deletions			
2633	<i>Mustela eversmanii</i>	STE	IN MOD/ IN MIN	3 sites			

Notes: STE = Steppe zone; CON = Continental zone, IN MIN = Insufficient – minor, IN MOD = Insufficient- moderate, SR = Scientific reserve.

Table 3: Biogeographic status of efficiency of reptiles and amphibians

Feature code	Feature name	Biogeographical region	Status	Comments	Comments 2023	Recommended status 2023	New proposed areas 2023
1166	<i>Triturus cristatus</i>	CON	IN MOD/IN MIN				
1220	<i>Emys orbicularis</i>	CON	IN MIN	In north and south			
1279	<i>Elaphe sauromates</i>	STE	IN MOD		A new location was found, reported near the Sărata Nouă Lake (Annex 2)		
1298	<i>Vipera ursinii</i>	STE	SR				

Notes: STE = Steppe zone; CON = Continental zone, IN MIN = Insufficient – minor, IN MOD = Insufficient- moderate, SR = Scientific reserve.

Table 4: Biogeographic status of efficiency of birds species

Feature code	Feature name	Status	Comments	Comments 2023	Recommended status 2023	New proposed areas 2023
A229	<i>Alcedo atthis</i>	IN MIN		7+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A089	<i>Aquila pomarina</i>	IN MIN	IN MIN: southern part	14+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A338	<i>Lanius collurio</i>	SUF/CD	CD: population assessment			New proposed area MD0000062, Tețcani (Annex 1)
A030	<i>Ciconia nigra</i>	SR	SR: northeast	6+1 sites	SUF	New proposed area MD0000062, Tețcani (Annex 1)
A533	<i>Oenanthe pleschanka</i>	IN MIN	IN MIN: one site in the south	1+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A031	<i>Ciconia ciconia</i>	IN MIN		6+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A032	<i>Plegadis falcinellus</i>	IN MIN	IN MIN: 2 sites; check lower Dniester		EXCL	
A243	<i>Calandrella brachydactyla</i>	IN MIN/SR			EXCL	
A242	<i>Melanocorypha calandra</i>	SR	SR: south		EXCL	
A119	<i>Porzana porzana</i>	IN MIN		1 site	IN MIN	
A120	<i>Porzana parva</i>	IN MIN/CD	CD for presence	1 site	IN MIN	
A121	<i>Porzana pusilla</i>	IN MIN	IN MIN: Lower Prut	1 site	IN MIN	
A393	<i>Phalacrocorax pygmaeus</i>	IN MIN/CD	IN MIN for one site 'Congaz-Taraclia' Lakes	5+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A022	<i>Ixobrychus minutus</i>	SR	SR: presence in the north		EXCL	
A339	<i>Lanius minor</i>	IN MOD/CD	IN MOD: south; CD: population	19+1 sites	SUF	New proposed area MD0000062, Tețcani (Annex 1)

Feature code	Feature name	Status	Comments	Comments 2023	Recommended status 2023	New proposed areas 2023
A029	<i>Ardea purpurea</i>	IN MIN	Congaz-Taracia	5+1 sites	IN MOD	https://moldovabirds.blogspot.com/search/label/St%C3%AERC%20ro%C5%9Fu(MD0000016 Stepa Bugeacului)
A092	<i>Hieraaetus pennatus</i>	IN MIN	IN MIN: Congaz-Taracia	16+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A133	<i>Burhinus oedicnemus</i>	SR	Southern border		EXCL	
A166	<i>Tringa glareola</i>	IN MIN	IN MIN: 2 sites	1 site		
A402	<i>Accipiter brevipes</i>	SR	SR: southern part	3 sites	IN MOD	MD0000001 MD0000012 MD0000013
A071	<i>Oxyura leucocephala</i>	SUF/CD	CD: correct status	2 sites		
A001	<i>Gavia stellata</i>	IN MIN	2 lakes in southern part	4 sites		
A193	<i>Sterna hirundo</i>	IN MIN		5+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A215	<i>Bubo bubo</i>	IN MOD/SR		4 sites		
A195	<i>Sterna albifrons</i>	SR	SR: check status	3 sites	IN MOD	MD0000001 MD0000012 MD0000013
A196	<i>Chlidonias hybrida</i>	IN MIN		3 sites		
A197	<i>Chlidonias niger</i>	IN MOD/IN MIN	IN MOD: same site as for A027	5+1 sites		New proposed area MD0000062, Tețcani (Annex 1)
A397	<i>Tadorna ferruginea</i>	SUF/CD	CD: exclude from southeast	3 sites		

Feature code	Feature name	Status	Comments	Comments 2023	Recommended status 2023	New proposed areas 2023
A403	<i>Buteo rufinus</i>	SR	SR: check newest observations	4 sites	IN MOD	MD000011 MD0000013 MD0000016 MD0000055
A037	<i>Cygnus bewickii</i>	IN MIN	Prut	2 sites		
A084	<i>Circus pygargus</i>	SR		1 site	IN MIN	MD0000016 Stepa_Bugeacului
A131	<i>Himantopus himantopus</i>	IN MIN	Northern part	6+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A132	<i>Recurvirostra avosetta</i>	SR		2+1 sites	IN MOD	MD0000001 MD0000016 MD0000012
A140	<i>Pluvialis apricaria</i>	IN MIN/CD	IN MIN: In south	2+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A075	<i>Haliaeetus albicilla</i>	SUF/CD		9 sites		
A176	<i>Larus melanocephalus</i>	SR			EXCL	
A170	<i>Phalaropus lobatus</i>	SR	Check regularity		EXCL	
A080	<i>Circaetus gallicus</i>	SR	Update distribution in southern part		EXCL	
A224	<i>Caprimulgus europaeus</i>	IN MIN/CD	IN MIN general; CD population data	25+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A081	<i>Circus aeruginosus</i>	IN MIN	Center	6+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A082	<i>Circus cyaneus</i>	IN MIN/CD	Lake Congaz-Taraclia	7 sites		
A246	<i>Lullula arborea</i>	IN MIN/CD	CD for population assessment	17+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A272	<i>Luscinia svecica</i>	SR				

Feature code	Feature name	Status	Comments	Comments 2023	Recommended status 2023	New proposed areas 2023
A293	<i>Acrocephalus melanopogon</i>	SR		1 site	IN MIN	New proposed area MD0000062, Tețcani (Annex 1)
A122	<i>Crex crex</i>	IN MIN/CD	IN MIN: 3–4 sites; CD: presence	26 sites	IN MOD	
A127	<i>Grus grus</i>	IN MIN		2 sites		
A021	<i>Botaurus stellaris</i>	IN MIN	One site south	6+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A234	<i>Picus canus</i>	SUF/CD	CD: population assessment	32 sites		
A236	<i>Dryocopus martius</i>	IN MIN	IN MIN: one site	8+1 sites	IN MOD	New proposed area MD0000062, Tețcani (Annex 1)
A024	<i>Ardeola ralloides</i>	IN MIN	2 sites on south	3 sites		
A239	<i>Dendrocopos leucotos</i>	SR		6+1 sites	SUF	New proposed area MD0000062, Tețcani (Annex 1)
A255	<i>Anthus campestris</i>	IN MIN/CD	CD for population assessment	16 sites		
A307	<i>Sylvia nisoria</i>	IN MOD/IN MIN/CD	IN MOD: south; CD for some deletions and population assessment	30 sites		After determining in 9 areas the number of SUF species
A320	<i>Ficedula parva</i>	IN MIN	IN MIN: upper Prut	17 sites		After determining the presence in the upper Prut of SUF

Notes: IN MIN = Insufficient – minor, IN MOD = Insufficient- moderate, SR = Scientific reserve, SUF = Sufficient, CD = Correction of Data, EXCL = To be excluded.

Table 5: Biogeographic status of efficiency of fish species

Feature code	Feature name	Biogeographical region	Final conclusion	Comments	Comments	Recommended status	New area
1134	<i>Rhodeus amarus</i> 5339	STE	SUF/CD		It has numerous populations in most of the natural aquatic ecosystems of the Republic of Moldova, therefore SUF is sufficient for the STE and CON areas.		
2511	<i>Romanogobio kesslerii</i> 6134	CON	SUF/CD		Populations with declining numbers. It is necessary to expand the existing sites/or designate new sites in the riverbeds of the Prut and Dniester Rivers. IN MOD recommended.		MD0000062 Tețcani (Annex 1)
2511	<i>Romanogobio kesslerii</i> 6134	STE	IN MOD/CD	Central part	IN MOD status could be maintained by expanding the habitats in the Dniester and Prut riverbeds in the south of the country.		
4126	<i>Alosa maeotica</i>	STE	IN MIN	2 sites	Marine species that occasionally enter the terminal sector of the lower Dniester. It is sufficient to be included in the existing site in the lower Dniester riverbed.	IN MIN	
1145	<i>Misgurnus fossilis</i>	CON	IN MIN	Center	For the CON area, IN MIN status and the designation of habitats on already existing sites remain.	IN MIN	
1146	<i>Sabanejewia aurata</i>	CON	IN MIN	Center	Populations with declining numbers. It is necessary to assess and include other sites in the Prut and Dniester Rivers, such as the portion between Criva and Bădraji-Vechi villages along Prut River (as a characteristic habitat of this species, that may also solve the situation with <i>Barbus petenyi</i> and <i>Gymnocephalus schraetzer</i>). IN MOD status is recommended.	IN MOD	MD0000062 Tețcani (Annex 1)
1146	<i>Sabanejewia aurata</i>	STE	IN MOD/IN MIN	Center	For the STE area, the IN MIN status is sufficient with the mention of the characteristic habitat in the already existing sites in the Dniester and lower Prut.	IN MIN	
1157	<i>Gymnocephalus schraetzer</i>	CON	SUF/CD	Change from C to A	Endemic species of the Danube basin. Sporadic spread in the Prut River. It is recommended to designate new sites by including in the Emerald Network the segment between Criva and Bădraji-Vechi villages on the Prut River. Sufficiency status must be IN MOD.		MD0000062 Tețcani (Annex 1)
1158	<i>Zingel asper</i>	CON	SR	Check the record and evidence	Should be excluded from the list as it is not found here.	EXCL	
1160	<i>Zingel streber</i>	CON	SUF/CD	Population assessment	The expansion or designation of new sites in the Prut riverbed is recommended.		
2484	<i>Eudontomyzon mariae</i>	STE	SR		Species with little known current distribution within the borders of the Republic of Moldova.	SR	

Feature code	Feature name	Biogeographical region	Final conclusion	Comments	Comments	Recommended status	New area
4127	<i>Alosa tanaica</i>	STE	IN MIN	Prut, Manta, Beleu	Can be included in the existing sites of the lower Dniester and the lower Prut (in the breeding periods it is reported in large quantities in the Beleu and Manta Lakes).	IN MIN	
1134	<i>Rhodeus amarus</i> 5339	CON	IN MIN/CD	IN MIN center	Can be included in the existing sites of the lower Dniester and the lower Prut. Its populations are numerous in most of the natural aquatic ecosystems of the Republic of Moldova, therefore SUF is sufficient for the STE and CON areas.	SUF	

Notes: STE = Steppe zone; CON = Continental zone, IN MIN = Insufficient – minor, IN MOD = Insufficient- moderate, SR = Scientific reserve, SUF = Sufficient, CD = Correction of Data, EXCL = To be excluded.

Table 6: Biogeographic status of efficiency of invertebrate species

Feature code	Feature Name	Biogeographical region	Status	Comments	Comments 2023	Recommended status 2023
1084	<i>Osmoderma eremita</i> 5378	STE	IN MOD/CD		Not detected for more than 100 years	EXCL
1086	<i>Cucujus cinnaberinus</i>	CON	IN MIN/CD		It is present everywhere, including parks of Chisinau city.	IN MOD
1087	<i>Rosalia alpina</i>	CON	SUF	1 site	Regularly detected in one site from Moldova	
1084	<i>Osmoderma eremita</i>	CON	SR REF ¹⁴		Not detected for more than 100 years	EXCL
4045	<i>Coenagrion ornatum</i>	CON	IN MIN	1 site	Insufficient data	IN MIN
1044	<i>Coenagrion mercuriale</i>	CON	SR REF		Area of distribution is not within Moldova.	EXCL
1052	<i>Euphydryas maturna</i> 6169	CON	SUF/CD		It is present everywhere.	
1052	<i>Euphydryas maturna</i> 6169	STE	SUF/CD		Widely distributed in Moldova	
1059	<i>Phengaris teleius</i> 6177	CON	SR REF/CD		The presence of the species was not confirmed.	EXCL
1078	<i>Euplagia quadripunctaria</i> 6199	CON	IN MIN/CD	Center	It is present everywhere.	IN MOD
1014	<i>Vertigo angustior</i>	CON	SR		There are no suitable habitats for this species.	EXCL
1016	<i>Vertigo moulinsiana</i>	CON	SR		There are no suitable habitats for this species.	EXCL
1032	<i>Unio crassus</i>	CON	IN MOD/IN MIN	3 sites	Only 3 sites on the Prut River	IN MOD

¹⁴ Species and Habitats indicated with the “SR REF” evaluation are taken into account in the statistics.

Feature code	Feature Name	Biogeographical region	Status	Comments	Comments 2023	Recommended status 2023
1044	<i>Coenagrion mercuriale</i>	STE	SUF/CD		The distribution area is not within Moldova.	EXCL
1060	<i>Lycaena dispar</i>	CON	IN MIN		It is present everywhere.	
1060	<i>Lycaena dispar</i>	STE	IN MIN		It is present everywhere.	
1088	<i>Cerambyx cerdo</i>	STE	SR REF		New data required.	SR
1089	<i>Morimus funereus</i>	CON	IN MOD	3 sites	Frequently found in natural forests	SUF
4011	<i>Bolbelasmus unicornis</i>	CON	SUF/CD		Rare species, no new data.	
4011	<i>Bolbelasmus unicornis</i>	STE	SUF/CD		Rare species, no new data.	
4013	<i>Carabus hungaricus</i>	CON	SUF/CD		Rare species, no new data.	
4013	<i>Carabus hungaricus</i>	STE	SUF/CD		Rare species, no new data.	
4020	<i>Pilemia tigrina</i>	CON	SUF/CD		Rare species, no new data.	
4026	<i>Rhysodes sulcatus</i>	CON	SUF/CD		Rare species, no new data.	
4030	<i>Colias myrmidone</i>	CON	SR		There are no suitable habitats for this species.	EXCL
4045	<i>Coenagrion ornatum</i>	STE	SR		No data.	SR
4053	<i>Paracaloptenus caloptenoides</i>	STE	SR		No data.	SR
1078	<i>Euplagia quadripunctaria</i> 6199	STE	IN MIN/ CD		It is present everywhere.	IN MOD

Notes: STE = Steppe zone; CON = Continental zone, IN MIN = Insufficient – minor, IN MOD = Insufficient- moderate, SR = Scientific reserve, SR REF = Scientific reserve on the reference list, SUF = Sufficient, CD = Correction of Data, EXCL = To be excluded.

Table 7: Update of the threat categories and limiting factors of vascular plant species of the Emerald convention

Feature code	Feature name	Biogeographical region	Status	Comments	Comments 2023	Recommended status 2023	New proposed areas 2023
1428	<i>Marsilea quadrifolia</i>	STE	IN MIN	1 site	The presence of the species is indicated only on the basis of the data presented in the Red Book of the Republic of Moldova, 3rd edition. The veracity of the data is questionable. It remains on the list but thorough field research is needed to establish its exact location and real numbers.		
1516	<i>Aldrovanda vesiculosa</i>	STE	IN MIN	2 sites	Possibly 3–4 sites in Hîncești, Cimișlia, and Basarabeasca districts of the Cogilnic river basin	IN MOD	Hîncești, Cimișlia and Basarabeasca districts of the Cogilnic river basin (extension of existent Emerald site)
1831	<i>Luronium natans</i>	CON	SR REF				
1939	<i>Agrimonia pilosa</i>	STE	SR				
2116	<i>Schivereckia podolica</i>	STE	IN MIN	2 sites	The change in the status of the species occurred as a result of the identification of a significant number of sites where the status of the species is satisfactory. Only the destruction of the specific habitat can endanger the existence of the species.	IN MOD	
2249	<i>Carlina onopordifolia</i>	CON	IN MIN	1 site			
4068	<i>Adenophora liliifolia</i>	STE	SR				
2116	<i>Schivereckia podolica</i>	CON	SUF/CD	CD for population assessment			
4091	<i>Crambe tataria</i>	STE	IN MIN		The change in the status of the species occurred as a result of the identification of new sites where the status of the species is satisfactory. The overuse of steppes and abusive grazing can reduce the population of the species.	IN MOD	MD0000048
4097	<i>Iris aphylla</i> ssp. <i>hungarica</i>	CON	SUF/CD	Population assessment	The population of the species is stable, and the state of conservation is satisfactory. The factors that can cause the endangerment of the species are the change in the management regime of <i>Quercus pubescens</i> forests and the destruction of the habitat.		
4097	<i>Iris aphylla</i> ssp. <i>hungarica</i>	STE	SUF/CD	Population assessment	The population of the species is stable, and the state of conservation is satisfactory. The factors that can cause the endangerment of the species are the change in the management regime of <i>Quercus pubescens</i> forests and the destruction of the habitat.		

Notes: STE = Steppe zone; CON = Continental zone, IN MIN = Insufficient – minor, IN MOD = Insufficient- moderate, SR = Scientific reserve, SR REF = Scientific reserve on the reference list, SUF = Sufficient, CD = Correction of Data.

Habitats

Here we provide two examples, based on the representativeness for nature and conservation significance, that can be considered for the expansion of Emerald sites (see also Table 8).

The first example refers to the Habitat C1.226 - Floating *Aldrovanda vesiculosa* communities¹⁵ and is based on the "Environmental Impact Assessment for the rehabilitation of wetland functions in the Cogâlnic river through the construction of a reservoir"¹⁶, which targets important ecosystems with potential for restoration/revival. According to available documentation, proposed rehabilitation activities tackle sensitive areas where many species and habitats can be affected. A strong argument mentioned in this study is that, following the refurbishment of the reservoir, favorable nesting and feeding conditions would be created for a number of birds species associated with aquatic habitats, which would generate a significant increase of birds both in terms of diversity and number of individuals during summer and winter. The created reservoir would restore a number of habitats of community interest, namely: Ponto-Sarmatic deciduous thickets; Ponto-Sarmatic forest vegetation with downy oak (*Quercus pubescens*); calcareous fens with *Cladium mariscus*; mixed riparian forests with *Quercus robur*, *Ulmus laevis*, *Fraxinus excelsior* or *Fraxinus angustifolia* along large rivers (*Ulmion minoris*); Pannonian and western Pontic steppe grasslands on sands; communities of salicornia (*Salicornia europaea*) and other annual species colonizing wet and sandy soils; fixed dunes with perennial herbaceous vegetation (grey dunes); Ponto-Sarmatic steppes; *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*). The species *Marsilea quadrifolia*, *Aldrovanda vesiculosa* and *Echium russicum* clearly indicate these are components of the Habitat C1.226 Floating *Aldrovanda vesiculosa* communities.

The discussed territory is in the south of the Republic of Moldova. From the administrative viewpoint, it is part of the city's Territorial Administrative Unit of Cimișlia, located 0.8 km from the town of Cimișlia and 2.3 km from the village of Ecaterinovca. The area is geographically positioned between 46°32'28.9" latitude N, 28°45'27.5" longitude E and 46°34'03.5" latitude N, and 28°47'09.3" longitude E, at 250–280 m from the national road M3 Chisinau-Cimișlia. From an orthographic viewpoint, it presents a hilly plain on the right bank of the Cogâlnic River¹⁷. It is practically a flat land, slightly decreasing from the absolute elevation in the direction from northwest to southeast. The difference in altitude is 1–2 m.

At the same time, the presence of Habitat C1.226 in other locations along the Cogâlnic River is not excluded, which can be demonstrated by additional assessments.

The second example refers to the connection to the Tețcani Landscape Reserve¹⁸ in the upper part of the Prut River (70 km), which would constitute the Emerald (MD0000062) - Tețcani site, harboring several important habitat types.

The Tețcani Landscape Reserve is a protected area in the lower course of the Vilia River, north of the village of Tețcani, Briceni district (Lipcani and Tețcani forest bypass, plot 35), with an area of 133.2 ha. The property is administered by the Edinet Forest Unit (114 ha) and the Tețcani Village Administration (50 ha). It is the westernmost landscape reserve in the country. According to available information, the forest ecosystems in this area are quite rich in ephemeral and ephemeral plant species. They contain trees and shrubs traditional to the forest area, rarely also exotic species. Among rare species, which are the basis of the scientific argument for the protection status, there are several valuable plants (*Vitis sylvestris*, *Padus avium*, *Rhamnus tinctoria*, *Galanthus nivalis*) and many rare animal species (*Nyctalus noctula*, *Eptesicus serotinus*, *Pipistrellus nathusii*, *Columba palumbus*, *Dendrocopos medius*, *Dendrocopos minor*, *Lullula arborea*, *Turdus pilaris*, *Turdus viscivorus*, *Certhia familiaris*, *Carduelis chloris*).

The habitats found in this portion of the Prut River are: D5.2 - Beds of large sedges normally without free-standing water, G1.11 - Riverine *Salix* woodland, and G1.22 - Mixed *Quercus* - *Ulmus* - *Fraxinus* woodland of great rivers. However, all this requires further assessment and confirmation.

¹⁵ EUNIS Floating *Aldrovanda vesiculosa* communities (<https://eunis.eea.europa.eu/habitats/2639>)

¹⁶ http://cimislia.md/upload/Documenta%C8%9Bia%20Iazul%20lui%20Iepure.%20Evaluarea%20Impactului%20Asupra%20Mediului%203.0_compressed.pdf

¹⁷ Râul Cogâlnic (https://ro.wikipedia.org/wiki/R%C3%A2ul_Cog%C3%A2lnic)

¹⁸ Rezervația peisagistică Tețcani (https://ro.wikipedia.org/wiki/Rezerva%C8%9Bia_peisagistic%C4%83_Te%C8%9Bcani)

Table 8: Biogeographic status of efficiency of Habitats

Code	Habitat name	Bio geo	Final conclusion previous	Final comments previous	Habitat assessment 2018	Draft conclusion comments 2019	Draft conclusion 2019	Description of proposals 2023	Conclusion 2023
Habitats 2023 (Emerald)									
C1.222	Floating <i>Hydrocharis morsus-ranae</i> rafts	CON	SR REF			No site, no explanation. Widespread habitat, occurring in surrounding biogeographic regions, high probability of occurrence in MD/CON. Therefore, conclusion is SR REF.	SR REF		
C1.223	Floating <i>Stratiotes aloides</i> rafts	CON	SR REF	Connectivity with Natura 2000		No change.	SR REF		
C1.224	Floating <i>Utricularia australis</i> and <i>Utricularia vulgaris</i> colonies	CON	SR REF			500 ha of Habitat mentioned in site MD00000013. The habitat distribution in surrounding countries and occurrence of related habitat 3150 in Romania bordering with Moldova, occurrence of the habitat in MD/CON is highly probable.	MD/CON	Estimates of 40-50 ha floating colonies found in low-flow, neutral to weakly acidic, nutrient-enriched aquatic pools.	
C1.226	Floating <i>Aldrovanda vesiculosa</i> communities	STE	IN MIN			No site. Lozan et al. (2017) ¹⁹ reported the occurrence of <i>Aldrovanda vesiculosa</i> along the Dniester River. Because a large part of the river is in existing Emerald sites, there is a good chance to add the habitat to an existing site, hence the IN MIN status. The potential occurrence of habitat in MD/CON is to be discussed as well.	IN MIN	The habitat C1.226 in the literature is indicated in the meadows of the Cogâlnic River; it passes through the MD00000004 - Codru area and around the Emerald areas MD00000019 - Hâncești Forest, the village of Stolniceni and MD00000016 - the Bugeacului Steppe, the villages of Bogdanovca Veche and Sadaclia. We assume it is found in at least 3–4 places.	IN MOD
C1.25	Charophyte submerged carpets in mesotrophic waterbodies	STE	SR REF				SR REF		

¹⁹ Lozan, A., Tofan-Dorofeev, E., Cotofana, I., 2017: Threatened plant species included in the Emerald network in Moldova. - International Scientific Symposium "Conversation of Plant Diversity", 5th edition, 1-3 June 2017, Chișinău: 41

Code	Habitat name	Bio geo	Final conclusion previous	Final comments previous	Habitat assessment 2018	Draft conclusion comments 2019	Draft conclusion 2019	Description of proposals 2023	Conclusion 2023
C1.32	Free-floating vegetation of eutrophic waterbodies	CON	IN MIN	1 site		No site. The Natura 2000 site which extends along a significant portion of the border with Romania suggests that habitat may also occur in MD/CON; the habitat can also occur in another part of the region; the habitat is listed in the reference list for MS/CON. Conclusion: IN MIN/IN MOD.	IN MIN/IN MOD		
C1.33	Rooted submerged vegetation of eutrophic waterbodies	CON	SR	Distribution	(1C)	SDF: 150 ha. Added to one existing site. Low representation of the habitat in Emerald Network. The habitat presence in a bordering Natura 2000 site in Romania (Prut River) suggests occurrence of this area in MD/CON. Conclusion: IN MIN/IN MOD	IN MIN/IN MOD		
C1.33	Rooted submerged vegetation of eutrophic waterbodies	STE	IN MOD		(1B 2C)	SDF: 435 ha. 2 new sites, deleted from one site. If site evaluations are correct, 1B 2C sites represent between 2 percent and 19 percent of total coverage in the country. This is not sufficient. The habitat presence in a bordering Natura 2000 site in Romania (Prut River) suggests occurrence of this area in MD/CON. Conclusion: IN MIN/IN MOD.	IN MIN/IN MOD		
C1.3411	Ranunculus communities in shallow water	CON				Distribution of habitat in UA/CON and Natura 2000 sites in Romania at border with MD/CON suggests habitat occurrence in MD/CON	SR REF		
C1.3413	<i>Hottonia palustris</i> beds in shallow water	CON				No site. The habitat occurrence in Natura 2000 sites in Romania at Moldova border suggests habitat occurrence in MD/STE.	SR REF		
C1.3413	<i>Hottonia palustris</i> beds in shallow water	STE	SR			No site. The habitat occurrence in Emerald site in Ukraine and in Natura 2000 sites in Romania at Moldova border suggests habitat occurrence in MD/STE.	SR		
C1.4	Permanent dystrophic lakes, ponds, and pools	CON				The habitat occurrence in Natura 2000 site(s) in Romania along river Prut at RO/MD boundary suggests habitat occurrence in MD/CON.	SR REF		
C1.4	Permanent dystrophic lakes, ponds, and pools	STE				The habitat occurrence in Natura 2000 site(s) in Romania along river Prut at RO/MD boundary suggests habitat occurrence in MD/STE.	SR REF		
C2.33	Mesotrophic	CON				The sites in Ukraine along the Dniester River	SR REF		

Code	Habitat name	Bio geo	Final conclusion previous	Final comments previous	Habitat assessment 2018	Draft conclusion comments 2019	Draft conclusion 2019	Description of proposals 2023	Conclusion 2023
	vegetation of slow flowing rivers					suggest presence of this habitat in MD/CON.			
C2.33	Mesotrophic vegetation of slow flowing rivers	STE	SR REF			The sites in Ukraine along the Dniester River suggest presence of this habitat in MD/STE.	SR REF		
C2.34	Eutrophic vegetation of slow flowing rivers	CON				Because of the habitat presence in Ukraine close to border of Moldova, it is possible to assume occurrence of the habitat in MD/STE.	SR REF		
C2.34	Eutrophic vegetation of slow flowing rivers	STE				Because of the habitat presence in Ukraine at Dniester River on border of Moldova, it is possible to assume occurrence of the habitat in MD/STE.	SR REF		
C3.4	Species-poor beds of low growing water-fringing or amphibious vegetation	STE				The occurrence of related habitat 3130 in Natura 2000 site in Romania along river Prut suggests occurrence in MD/STE.	SR REF		
C3.51	Euro-Siberian dwarf annual amphibious swards (but excluding C3.5131 Toad-rush swards)	STE				The occurrence of the habitat in Emerald site at Dniester River in Ukraine and occurrence of related habitat 3130 in Natura 2000 site along river Prut in Romania suggest occurrence of the habitat in MD/STE.	SR REF		
D2.226	Peri-Danubian black-white-star sedge fens	STE	SR	Definition	(1B 1C)	SDF: 2,619 ha. No change. 1B 1C sites represent 2 percent to 17 percent of total habitat coverage. SR: Definition.	SR		
D5.2	Beds of large sedges normally without free-standing water	CON	IN MOD/CD		(1B 6C) + (1B)	SDF: 1,300 ha. 4 new sites added to 2 existing sites. 1B 6C sites represent 2 percent to 27 percent of total national habitat coverage. All sites at state boundaries, no occurrence inside? Probably IN MIN?	IN MIN	Habitat D5.2 is found in the new proposed area MD0000062 - Tețcani along the Prut.	IN MOD
D5.2	Beds of large sedges normally without free-standing water	STE	IN MOD		(1B 5C)	SDF: 2,847 ha. 2 new sites. 1B 5C sites represent 2 percent to 25 percent of total national habitat coverage. Probably broader occurrence in existing sites. Probably IN MIN?	IN MIN		
E3.4	Moist or wet eutrophic and mesotrophic grassland	CON	IN MOD/CD		(3B 8C)	SDF: 398 ha. 5 new sites. 3B 8C sites represent 6 percent to 61 percent of total national habitat area. Possibly not sufficient coverage. The Emerald site in Ukraine along Dniester suggests occurrence of habitat in this	IN MIN/MOD		

Code	Habitat name	Bio geo	Final conclusion previous	Final comments previous	Habitat assessment 2018	Draft conclusion comments 2019	Draft conclusion 2019	Description of proposals 2023	Conclusion 2023
E3.4	Moist or wet eutrophic and mesotrophic grassland	STE	IN MIN	Lower Prut	(1B 8C)	area in Moldova. IN MIN/MOD SDF: 302 ha. 2 new sites. 1B 8C sites represent 2 percent to 31 percent of total national habitat area. Two small sites added, the distribution of habitat along lower Prut is probably larger; therefore, IN MIN.	IN MIN		
E3.5	Moist or wet oligotrophic grassland	STE	IN MIN	Lower Prut		Deleted from one site. Currently no site. Habitat listed as present in reference list for MD/STE. The conclusion repeated: IN MIN for lower Prut.	IN MIN		
E5.4	Moist or wet tall herb and fern fringes and meadows	CON			(1B)	No change. 1B site represents 2 percent to 15 percent of total national habitat area. The site is not displayed on the map because it was not included in the GIS layer delivered by Moldova. Bordering Natura 2000 sites in Romania (Prut River) and Emerald sites in Ukraine (Dniester River) suggest more broad distribution of habitat in MD/CON; therefore, IN MOD.	IN MOD		
E6.2	Continental inland salt steppes	STE	IN MIN	3 sites	(4C)	SDF: 80 ha. 5 new sites, added to 1 existing site. 4C sites represent 0 percent to 8 percent of total national habitat area. Habitat presence in bordering sites in Romania and Ukraine might suggest presence in Moldova. IN MIN/IN MOD.	IN MIN/IN MOD		
F9.1	Riverine scrub	CON				The bordering Emerald sites in Ukraine suggest occurrence of habitat in MD/CON.	IN MOD		
F9.1	Riverine scrub	STE				The bordering Emerald sites in Ukraine suggest occurrence of habitat in MD/STE.	IN MOD		
G1.11	Riverine Salix woodland	CON	IN MOD/CD		(4B 12C) + (1B)	SDF: 6786 ha; habitat added to 8 sites and 8 sites unchanged. Possibly SUF.	Probably SUF	Habitat G1.11 is found in the new proposed area MD0000062 - Tețcani along the Prut.	SUF
G1.11	Riverine Salix woodland	STE	IN MOD		(5B 3C)	SDF: 5510 ha; habitat added to 3 sites and 5 sites unchanged. Possibly SUF.	Probably SUF		
G1.21	Riverine Fraxinus-Alnus woodland, wet at high but not at low water	CON	IN MOD/CD	1 site	(3C)	SDF: 323 ha; habitat added to 2 sites and 1 site unchanged. Is the site assessment correct? Only 5C sites for whole country represent low coverage?			
G1.22	Mixed Quercus-	CON	SUF		(2B 3C) + (1B)	SDF: 375 ha; habitat deleted from 6 sites in		Habitat G1.22 is found in	

Code	Habitat name	Bio geo	Final conclusion previous	Final comments previous	Habitat assessment 2018	Draft conclusion comments 2019	Draft conclusion 2019	Description of proposals 2023	Conclusion 2023
	Ulmus-Fraxinus woodland of great rivers					the north, added to 2 sites in the south of the region and 3 sites unchanged. What is the influence on the previous conclusion SUF? Was the indication in the north a misinterpretation of the habitat definition?		the new proposed area MD0000062 - Tețcani along the Prut	
G1.22	Mixed Quercus-Ulmus-Fraxinus woodland of great rivers	STE	IN MIN	Prut	(4C)	SDF: 615 ha; habitat added to 3 sites and 1 site unchanged. Previous conclusion 'IN MIN, Prut' seems to not be fulfilled? Still IN MIN?	Still IN MIN		
G1.41	Alnus swamp woods not on acid peat	STE				In 2018, the Standing Committee adopted a revised Annex I of Resolution 4 (1996). The higher level G1.41 is now listed which includes the previously listed subtypes G1.4115 and G1.414. The site data for these two habitats need to be reviewed and evaluated against the higher level.			
G1.414	Steppe swamp <i>Alnus glutinosa</i> woods	STE	IN MIN	2 sites		Previous conclusion 'IN MIN, 2 sites' not resolved. No sites. Data to be reviewed against higher level G1.41.	CD		
G1.7	Thermophilous deciduous woodland	CON	SR	Bordering area	(1B)	SDF: 100 ha; habitat added to 1 B site indicates the SR was resolved.			
G1.7	Thermophilous deciduous woodland	STE	IN MOD		(2B 2C)	SDF: 570 ha; habitat added to 2 sites and 2 sites unchanged. Is the habitat present in southwest of steppe region?			
G1.A1	Quercus-Fraxinus-Carpinus betulus woodland on eutrophic and mesotrophic soils	STE	IN MIN		(3B 3C)	SDF: 15,874 ha; habitat added to 3 sites and 3 sites unchanged. Possibly SUF.	Probably SUF		
G1.A4	Ravine and slope woodland	CON	IN MIN		(6B 7C)	SDF: 19,488 ha; habitat added to 4 sites and 9 sites unchanged. Possibly SUF.	Probably SUF		
G1.A4	Ravine and slope woodland	STE			(2C)	SDF: 80 ha; habitat added to 2 sites. Habitat not mentioned for this region during previous seminar? Possibly SUF.			
H1	Terrestrial underground caves, cave systems, passages, and	CON	IN MOD		(1B 4C)	SDF: 459.5 ha; habitat added to 4 sites and 1 site unchanged. 1B 4C sites represent between 2 percent and 23 percent of national total, suggesting more sites are available. Still IN MOD			

Code	Habitat name	Bio geo	Final conclusion previous	Final comments previous	Habitat assessment 2018	Draft conclusion comments 2019	Draft conclusion 2019	Description of proposals 2023	Conclusion 2023
	waterbodies								
H1	Terrestrial underground caves, cave systems, passages, and waterbodies	STE	IN MAJ	1 site	(1C)	SDF: .5 ha; species added to 1 site as indicated in previous conclusion. Single site split over 2 biogeographical regions, largest part in STE region. Possibly SUF.			
X18	Wooded steppe	CON	SR REF			Was the SR REF resolved? What actions have been taken?			

Notes: STE = Steppe zone; CON = Continental zone, IN MIN = Insufficient – minor, IN MOD = Insufficient- moderate, IN MAJ = Insufficient – major, SR = Scientific reserve, SR REF = Scientific reserve on the reference list, SUF = Sufficient, CD = Correction of Data.

Conclusions and identified gaps

The current document identifies a list of gaps that can be useful for the continuous improvement of both legal and institutional aspects, as well as of the monitoring system and conservation measures of the Emerald Network in the Republic of Moldova. The table below highlights these gaps.

Level of gaps	Gap details
Legal	Law No. 1515/1993 on the Protection of the Environment, which is the basic legal framework for the elaboration of special normative acts and instructions on particular issues in the field of environmental protection, does not contain any legal norm on the Emerald Network and does not highlight the importance of the protection of the Emerald Network for the Republic of Moldova.
	Law No. 1538/1998 on the Fund of Natural Areas Protected by the State does not comply, from a legal technical viewpoint, with the legal provisions set out in Law No. 100/2017 on Normative Acts. Thus, the exposition of the articles in the concerned law is in contradiction with the legislative technique currently applicable in the Republic of Moldova. According to Law No. 100/2017, Art. 51, the basic structural element of the laws is the article. The article's name includes the word 'article' and its serial number as well as succinctly expresses the object of regulation, without having its own meaning in the article's content. In Law No. 1538/1998, the articles are displayed without a name that would determine the regulatory object of the article, making it difficult to identify the necessary legal provisions.
	Based on the fact that the Emerald sites are designated for the imposition of special measures to conserve natural habitats and/or wild species of community interest, in the case of their overlap in the protected natural areas of national interest, the management of the site can be admitted in accordance with the provisions of Law No. 1538/1998, but with the condition that the most restrictive protection functions will be respected. This condition needs to be included in the current legislation, which mandates that a site of European importance will be managed under the same conditions as for a site of national importance, which is contrary to the purpose for which Emerald sites are designated.
	At the same time, there are discrepancies between the provisions of Law No. 1538/1998 and Law No. 94/2007 that need to be addressed. Addressing the legislative gaps identified in relation to the above laws and described in this study will help ensure the effective management of the Emerald Network and that the place of the Emerald Network in relation to state protected natural areas is defined.
	The legislation of the Republic of Moldova does not expressly regulate the liability for the destruction and damage of species of wild fauna and flora as well as of protected habitats within the Emerald Network. This particularly only concerns the conservation of natural areas protected by the state.
	The lack of legislation on liability for illegal acts committed in relation to wildlife species and protected habitats within the Emerald Network negatively affects the process of deterring and preventing illegal acts in this area.
	At the same time, to prevent new crimes against wildlife and protected habitats within the Emerald Network, it is necessary to supplement Article 235 of the Criminal Code with provisions on the Emerald Network.
	There is lack of an Emerald Sites Management Methodology to ensure the conservation and protection of ecologically important areas known as Emerald sites. In the absence of this methodology, there is no systematic approach by the relevant authorities to manage and conserve these sites, safeguard their unique natural and cultural heritage, and protect species and animals of international importance.

Level of gaps	Gap details
	The applicable national legal methodologies and instructions for calculating payments for environmental damage do not estimate the real cost of environmental damage and do not correspond to the socio-economic reality of the Republic of Moldova, requiring a full revision. These methodologies are extremely important for assessing the negative impact of human activities on the environment and for applying appropriate penalties for breaches of environmental legislation. At the national level, there is a need to develop a regulation on how to maintain the register of sites in the Emerald Network, which will help ensure efficient and transparent management of these sites, including the associated information and data. The lack of such a regulation makes it difficult to define the criteria and procedures for registering and managing sites and the type of information to be collected and recorded in this register. With the operation of the amendments to Law No. 94/2007 by Law No. 225/2022, the legal provisions regarding the designation of Emerald sites at the national level disappear. It would be appropriate to develop a guide regarding the procedure carried out to establish the Emerald Network, intended for the relevant authorities and other actors involved in the process.
Institutional and capacity building	Lack of qualified personnel with studies in the field. Lack of institutional memory, generated by the frequent turnover of staff, which reduces the level of institutional expertise. Lack of technical personnel, who would ensure the operation and maintenance of digitized information systems. Lack of experience in the management and protection of special conservation areas of international importance.
Management and conservation	Lack of an approved methodology (format) on development of the Emerald management plan. Lack of management plans for all 61 designated Emerald sites in Republic of Moldova, and lack of site-oriented conservation measures. Emerald site-specific conservation objectives that are specific and measurable should be established and made available to the public for all Emerald sites without delay. Conservation objectives must specify the targets to be achieved for each of the attributes or parameters that determine the conservation status of the protected features.
Current state of the Emerald species, habitats, and sufficiency index	The Emerald Network process, 10 years after starting the biogeographical process, showed that the coverage of proposed sites was similar - Moldova versus other non-EU countries. Still, the average sufficiency index was substantially higher in the EU countries than in the non-EU contracting parties. It can be explained either by poor quality information about the presence of species and habitats in non-EU countries (thus not indicated in SDFs) or because the best and most representative sites have not been selected for the network or, most likely, a combination of both. The assessment of the updated sufficiency status of Emerald species and habitats in 2023 would provide a base for the argument needed to extend the Emerald Network sites coverage in Moldova. The assessment will complete the road map with measures that can raise the sufficiency index. The analysis of the conclusions of the biogeographical seminars includes information on where Emerald species can be found outside of the Emerald Network. Accordingly, assessing and proposing for inclusion in the Emerald Network may be recommended.

Level of gaps	Gap details
	Based on the analysis, recommendations are extracted that can be transformed into measures and included in the road map. It is recommended that a new round of biogeographic seminars be organized as well as bilateral meetings with Bern Convention to clarify and agree with the new status of species of plants, animals, and habitats before the country submits an official request to the Standing Committee of the Bern Convention for their adoption. The proposed measures and recommendations would bring an increase in the sufficiency index (for IN MOD: new sites) in 2030. There must also be a middle step - 2026 (SR, CD, IN MIN). There is potential to extend the total area of Emerald sites in Moldova based on the updated scientific information on Emerald species and habitats and reassessment of their biogeographic status. This exercise would be suggested to be included in the Emerald Network Road Map for 2023–2030. It would be relevant to recommend a new round of field research and desk study of scientific information to identify new Emerald sites and extend the surface of the adopted Emerald sites in such a way that sufficiency index would be increased to reach conformity with the target of sufficiency index (for IN MOD: new sites) in 2030.

Specific recommendations for improving the Emerald-related legal framework

Targeted legal act/document	Proposed recommendations with explanations of what changes or improvements should be done
Law No. 94 from 2007 on the Ecological Network (Official Gazette of the Republic of Moldova, 2007, No. 90-93 Art. 395)	Article 1: Under '<i>ecological corridor</i>' the following text to be added: "these natural areas, such as rivers with their banks or forest canopies, natural shrublands and vegetation on the margins of agricultural land, along road and rail networks, and small areas of forest or wetlands, are essential for migration, dispersal of wild species and genetic exchange between populations of the same species." The following definitions shall be included: • Conservation measures - actions aimed at maintaining and restoring or enhancing the biotic or abiotic features that form the natural habitat of the species and includes activities to control the factors that cause habitat damage. • Emerald site conservation objects – "habitat types of European importance" and/or "species of European interest" (including birds), listed in Annexes 1, 2, 3, and 4 to this Act occurring in a particular site. • Emerald sites conservation objectives - the target status of the species and/or habitat type within the site in a long-term perspective, ensuring that the favorable conservation status is maintained or achieved. The term 'Emerald Network' shall be amended to read as follows: • "Emerald Network - a coherent network of sites of Community importance comprising special protection areas for birds established following Directive 79/409/EEC on the conservation of wild birds and special areas of conservation designated by the European Commission and Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora." The term "site of national importance" is recommended to be replaced by the term "site of community importance" with the following content: • "Site of Community Importance means a site in the biogeographical region that is significant for the maintenance or recovery to an appropriate conservation status of a natural habitat type or species of flora or fauna of Community importance for the natural habitat type and which may play an important role in the coherence of the Emerald network and/or is important for the maintenance of biodiversity in a particular biogeographical region. Where animals occur over a wide area, sites of Community importance correspond to places in the natural area of these species where the physical or biological factors necessary for their life and reproduction are present." • Regarding the notion of a "state of conservation of a natural habitat," the words "the totality of factors acting" will be replaced by the words "the results of the effects of all factors." In Article 5(o), the words "included in the Emerald Network and for the species for which those areas have been designated" will be replaced with the words "special protection areas for birds." Article 12² will be complemented with paragraphs 7 and 8 with the following content: • "(7) Owners and users of land allocated as Emerald sites shall receive compensation for complying with the restrictive provisions of the Emerald Network Sites Management Plan. The government shall

Targeted legal act/document	Proposed recommendations with explanations of what changes or improvements should be done
	establish the method of application, calculation, and granting of compensation. • (8) The updating of information on the Emerald network territory, including changes to its boundaries or recognition that the territory has lost its status as an Emerald network site, shall be carried out in the manner set out in paragraph 1. (1)-(3)." Article 12⁴ paragraph 4, the text shall be modified as follows: 'Law No 1538/1998 on the Network of State Protected Natural Areas' is replaced by the words "present Law." Article 12⁶ will be modified as follows: • In paragraph 1, after the word "Emerald," the words "in accordance with their conservation objectives" will be added, and the words "conservation objectives of" will be deleted. • In paragraph 2, after the word "Emerald" is inserted, the words "in accordance with their conservation objectives" and "conservation objectives of" will be deleted. • is supplemented with paragraph (2)¹ with the following content: ○ "(2)¹ The policy and planning document or planned activity may be approved for development only if it is determined that it does not adversely affect the integrity of the site in question and, if necessary, after obtaining public opinion." • In paragraph 3, the text "(1)" is replaced by "(2)."¹
Law 1538/1998 on state-protected natural areas network (Official Gazette of the Republic of Moldova 1998, No. 66-68 Art. 442)	Article 1 will include the following content: • "Art.1 This law regulates the system of protected areas, including those part of Emerald sites and related public relations, the legal bases for designation and establishing protected areas, changing boundaries, changing status, protection, management, and control." Article 3 is amended as follows: • "Art. 3 Protected areas shall be established to conserve the habitats and species for which the Emerald site has been designated to a favorable conservation status, including territorial complexes and objects of natural and cultural heritage, landscape and biodiversity, ensure the ecological balance of the landscape, the sustainable use, and restoration of natural resources, creating conditions for ecological tourism, scientific research and observation of the state of the environment, promoting territorial complexes and objects of natural and cultural heritage." Article 7 paragraph 3 will have the following content: • "(3) Private land may also be included in the protected area estate. Owners or concessionaires of land from protected natural areas, whether privately owned or under concession, shall be compensated for compliance with the restrictive rules laid down in the management plan of the protected area concerned. The Government approves the modalities of application, calculation, and granting of these compensations." Article 98 should be repealed. Art. III. – (1) This Law shall enter into force one month after its publication in the Official Monitor of the Republic of Moldova. (2) The Government shall, within 6 months from the date of publication of this Law in the Official Monitor of the Republic of Moldova, bring its normative acts in conformity with it.

Annexes

Annex 1: Proposed new Emerald site - Tețcani site

Description

The Tețcani landscape reserve (164 ha) is a protected area, situated in the lower part of the Vilia River, north of Tețcani village, Briceni district (Lipcani forest unit, Tețcani). The site is administered by the State Forestry Enterprise Edineț (114 ha) and by the Tețcani Village's Mayory (50 ha).²⁰ A geological monument 'Tortona stratotypical section' is situated in the territory of this landscape site.

Woodlands are of interest by the presence of natural-forest type composed of pedunculate oak (*Quercus robur*) with sessile oak (*Q. petraea*)²¹, including wild cherry (*Cerasus avium*) or maple species (*Acer campestre*, *A. platanoides*, *A. pseudoplatanus*) and many others. The meadow areas also include such tree species as poplar (*Populus alba*, *P. nigra*, *P. tremula*), willow (*Salix alba*, *S. fragilis*), ash (*Fraxinus excelsior*), etc.

Forest ecosystems provide habitats for many important species protected by the Red Book of the Republic of Moldova²², such as:

- Rare plant species: European wild grape (*Vitis sylvestris*), European bird cherry (*Padus avium*), liverwort (*Hepatica nobilis*), common snowdrop (*Galanthus nivalis*).
- Rare animal species: parti-coloured bat (*Vespertilio murinus*), European pine marten (*Martes martes*), European wild cat (*Felis silvestris*), booted eagle (*Hieraaetus pennatus*), common European viper (*Vipera berus*).²³

The anthropogenic impact comes from about 10 unauthorized municipal landfills located on the slopes and banks of the Vilia River.

Excessive chemical treatments against diseases and pests in orchards (especially apple orchards) can affect species and natural habitats directly.

The encroachment of exotic species, such as American maple (*Acer negundo*) or desert false indigo (*Amorpha fruticosa*) or black locust (*Robinia pseudoacacia*), causes serious distortions in natural ecosystems.

²⁰ https://web.archive.org/web/20100513002700/http://bsapm.moldnet.md/Baza_de_date/Roman/Rezerv/Rezerv%20peisaj.html

²¹ These forests have been significantly depleted by the over-exploitation and encroachment of exotic species.

²² https://ro.wikipedia.org/wiki/Cartea_Ro%C8%99ie_a_Republicii_Moldova

²³ https://ro.wikipedia.org/wiki/Rezerva%C8%9Bia_peisagistic%C4%83_Te%C8%9Bcani

Annex 2: Proposed new Emerald site - Sărata Nouă site

The Sărata Nouă Lake is an average-size lake located in the middle course of the river Sărata, which is a tributary of the Prut River in the Republic of Moldova. The Sărata River has a total length of 59 km, while the Sărata Nouă Lake has a water surface of 139.50 ha, according to Agency Apele Moldovei. The Sărata Nouă Lake is located near the village of the same name, situated in the Leova country. In the Sărata river meadow and on the related slopes, there are 14 villages with a total population of over 16,000. The river basin is located in the northern part of the Bugeac steppe, with its springs from the village Sărata-Mereșeni (Hîncești county). The river's upper course has a southern direction, while the middle is oriented southeast. Near the place where it flows into the Prut River (Nicolaevca village, Leova county), it turns sharply to the west. The lake is located on the middle course of the Sărata River.

During 2016–2021, we documented the occurrence of 126 bird species, of which 109 were migratory, 75 were breeding, and 37 were wintering. These 126 species represent around 46 percent of the total number of bird species registered in the Republic of Moldova. Taxonomically, the 126 bird species recorded during our study are distributed in 16 orders of the Aves class, the Passeriformes order being the most well represented (37 species).

Due to the multitude of habitats during the nesting period, we have registered various types of bird species: aquatic, woodland, and farmland species as well as birds that adapted to open spaces, meadows, and pastures. In summer, regular breeders are Mallard (*Anas platyrhynchos*), Common coot (*Fulica atra*), and Moorhen (*Gallinula chloropus*). The marshes provide a suitable habitat for the Great reed warbler (*Acrocephalus arundinaceus*), Eurasian reed warbler (*A. scirpaceus*), and Savi's warbler (*Locustella luscinioides*). In the forest strips along the lake, hosts are breeding pairs of Wood pigeon (*Columba palumbus*), Turtle dove (*Streptopelia turtur*), Eurasian golden oriole (*Oriolus oriolus*), Red-backed shrike (*Lanius collurio*), and Lesser grey shrike (*L. minor*). The nearby poplar stripe hosts a vital breeding colony consisting of 200 nests of Rook (*Corvus frugilegus*) and Hooded crow (*C. cornix*), in which the Eurasian hobby (*Falco subbuteo*) is known to occupy empty nests. We documented the breeding of this species in 2017 and 2019. In the neighboring villages of Cazangic and Seliște, there are several White storks (*Ciconia ciconia*) nests. Among the birds that show a sporadic breeding character are the following species: Ruddy shelduck (*Tadorna ferruginea*), Black-winged stilt (*Himantopus himantopus*), Little ringed plover (*Charadrius dubius*), and Mute swan (*Cygnus olor*). A breeding pair of Ruddy shelduck was documented in 2016 in a nearby meadow between Sărata Nouă and Romanovca. The breeding evolution of this species needs to be further monitored since its current area is expanding in the southern region of the Republic of Moldova. In recent years (2020 and 2021), we documented the nesting of the Black kite (*Milvus migrans*) on the strip of tree lines situated on the farmlands close to the lake. However, several Black kite adults were often spotted hunting on the lake or nearby. The Great white pelican (*Pelecanus onocrotalus*) is a regular visitor in this area, but currently no population of this species is breeding on the lake or in its vicinity. We encountered flocks of various sizes in the summer months of different years, but the highest number of great white pelicans was observed in the summer of 2016 when 120 birds were spotted feeding on the lake for a few days. During the breeding season, the Sărata Nouă Lake is also visited by various wader species that delay or still continue their spring migration: Ruff (*Calidris pugnax*), Common sandpiper (*Actitis hypoleucos*), Common greenshank (*Tringa nebularia*), Spotted redshank (*T. erythropus*), and Wood sandpiper (*T. glareola*). The birds observed at the beginning of the breeding season have probably not yet reached their sexual maturity. In contrast, the birds seen later in the breeding season could be the ones that start descending immediately after mating.²⁴

²⁴ The Inventory of the Ornitofauna of Sărata Nouă Lake, Leova County, Republic of Moldova from 2016 – 2021. Vitalie Ajder, Silvia Ursul. Sustainable Use and Protection of Animal World in the Context of Climate Change.

Annex 3: Emerald sites

Site code	Site name	Site area (ha)
MD0000001	Prutul de Jos	1,721
MD0000002	Pădurea Domnească	6,113
MD0000003	Plaiul Fagului	5,850.
MD0000004	Codru	6,498
MD0000005	Unguri-Holosnita	11,180
MD0000006	Caracusenii	6,992
MD0000007	Codrii Orheiului	28,640
MD0000008	Bahamut-Hirjauca	13,260
MD0000009	Codrii Tigheci	6,466
MD0000010	Codrii Strasenilor	18,500
MD0000011	Prutul de Mijloc	32,770
MD0000012	Lacurile Prutului de Jos	16,440
MD0000013	Nistrul de Jos	11,160
MD0000014	Stincile Nistrene	4,458
MD0000015	Rezina	3,898
MD0000016	Stepa Bugeacului	49,610
MD0000017	Stepa Baltiului	12,460
MD0000018	Padurea Hirboveti	3,756
MD0000019	Padurea Hincești	11,350
MD0000020	Poiana Curatura	695
MD0000021	Climauti de Jos	1,482
MD0000022	Carbuna" Natural Reserve	678
MD0000023	Lunca Baraboi"	330
MD0000024	Luncile Bursuceni"	30
MD0000025	Luncile Draganesti"	46
Md0000026	Pădurea Molesti-Rezeni	386
MD0000027	La Castel	760
MD0000028	Vila Nisporeni	5,451
MD0000029	Zabriceni	595
MD0000030	Fetesti	754
MD0000031	La 33 de vaduri	265
MD0000032	Lunca mlastinoasa Maramonovca-Cubolta	212
MD0000033	Lunca mlastinoasa Maramonovca-Cainari	108
MD0000034	Aria Naturala Protejata Mestecanis	50
MD0000035	Aria Naturala Protejata Ocnita	101
MD0000036	Aria Naturala Protejata Telita	616
MD0000037	Zberoaia-Prut	380
MD0000038	Ostianova	211

Site code	Site name	Site area (ha)
MD0000039	Macaresti-Prut	188
MD0000040	Aria Naturala Protejata Trebujeni	1,064
MD0000041	Rezervatia Naturala Seliște-Leu	286
MD0000042	Aria Naturala Nemteni	288
MD0000043	Lunca Ialpug	62.
MD0000044	Lebada Alba	100
MD0000045	Lunca Antonesti	177
MD0000046	Canionul Varancau	731
MD0000047	Dancu-Prut	177
MD0000048	Chizlar – stepa	301
MD0000049	Zoloceni	225
MD0000050	Dubasarii Vechi	1,114
MD0000051	Aflorimentul Goian	313
MD0000052	Cimiseni	661

Annex 4: List of Emerald habitats

	Habitats	Description		Biogeographic region	
1	A1.11	Mussel and/or barnacle Communities	MD	CON/STE	
2	C1.222	Floating <i>Hydrocharis morsus-ranae</i> rafts	MD	CON/STE	IN MOD
3	C1.223	Floating <i>Stratiotes aloides</i> rafts	MD	STE	IN MOD
4	C1.224	Floating <i>Utricularia australis</i> and <i>Utricularia vulgaris</i> colonies	MD	STE	IN MOD
5	C1.225	Floating <i>Salvinia natans</i> mats	MD	STE	IN MOD
6	C1.226	Floating <i>Aldrovanda vesiculosa</i> communities	MD	STE	IN MIN
7	C1.32	Free-floating vegetation of eutrophic water bodies	MD	CON/STE	IN MIN / IN MOD
8	C1.33	Rooted submerged vegetation of eutrophic water bodies	MD	CON/STE	SR/IN MOD
9	C1.3411	Ranunculus communities in shallow water	MD	STE	IN MIN
10	C1.3413	<i>Hottonia palustris</i> beds in shallow water	MD		SR REF LIST
11	D2.226	Peri-Danubian black-white-star sedge fens	MD	CON/STE	IN MOD/SR
12	D4.1	Rich fens, including eutrophic tall herb fens and calcareous flushes and soaks	MD	CON/STE	IN MOD/CD
13	D5.2	Beds of large sedges normally without free-standing water	MD	CON/STE	IN MOD/CD
14	E1.11	Euro-Siberian rock debris swards	MD	CON	IN MAJ
15	E1.2	Perennial calcareous grassland and basic steppes	MD	CON/STE	IN MOD
16	E2.2	Low and medium altitude hay meadows	MD	CON/STE	IN MOD
17	E3.4	Moist or wet eutrophic and mesotrophic grassland	MD	CON/STE	IN MOD/IN MIN
18	E3.5	Moist or wet oligotrophic grassland	MD	STE	IN MIN
19	E 5.4	Moist or wet tall-herb and fern fringes and meadows	MD	CON/STE	IN MOD/ SUF
20	E6.2	Continental inland salt steppes	MD	CON/STE	SUF/IN MOD
21	F3.247	Ponto-Sarmatic deciduous thickets	MD	CON/STE	SR/IN MIN
22	G1.11	Riverine Salix woodland	MD	CON/STE	IN MOD/CD
23	G1.21	Riverine Fraxinus-Alnus woodland, wet at high but not at low water	MD	CON/STE	IN MOD/CD
24	G1.22	Mixed Quercus-Ulmus-Fraxinus woodland of great rivers	MD	CON/STE	SUF/IN MIN
25	G1.3	Mediterranean riparian woodland	MD	CON/STE	IN MOD/CD
26	G1.414	Steppe swamp <i>Alnus glutinosa</i> woods	MD	STE	IN MIN
27	G1.6	Fagus woodland	MD	CON	IN MOD
28	G1.7	Thermophilous deciduous woodland	MD	CON/STE	SR/IN MOD
29	G1.A1	Quercus-Fraxinus-Carpinus <i>betulus</i> woodland on eutrophic and mesotrophic soils	MD	CON	SUF
30	G1.A4	Ravine and slope woodland	MD	CON/STE	IN MIN
31	H1	Terrestrial underground caves, cave systems, passages and waterbodies	MD	CON	IN MOD
32	X18	Wooded steppe	MD	STE	IN MOD

Notes: STE = Steppe zone; CON = Continental zone, IN MIN = Insufficient – minor, IN MOD = Insufficient-moderate, IN MAJ = Insufficient – major, SR = Scientific reserve, SR REF = Scientific reserve on the reference list, SUF = Sufficient, CD = Correction of Data.

Annex 5: List of protected Emerald species

No	Code	Species name	ISO	Biogeographical region	Final conclusion
Plants					
1.	1902	<i>Cypripedium calceolus</i>	MD	CON	IN MOD
2.	2093	<i>Pulsatilla grandis</i>	MD	CON	IN MOD/CD
3.	2116 -	<i>Schivereckia podolica</i>	MD	CON	IN MAJ
4.	2249	<i>Carlina onopordifolia</i>	MD	CON	IN MIN
5.	4087	<i>Serratula lycopifolia</i>	MD	CON	IN MOD
6.	4091	<i>Crambe tataria</i>	MD	CON	IN MOD
7.	4097	<i>Iris aphylla ssp. Hungarica</i>	MD	CON	IN MIN
8.	1428	<i>Marsilea quadrifolia</i>	MD	STE	IN MIN
9.	1516	<i>Aldrovanda vesiculosa</i>	MD	STE	IN MIN
10.	1898	<i>Eleocharis carniolica</i>	MD	STE	SUF
11.	2287	<i>Colchicum fominii</i>	MD	STE	IN MIN
12.	2139	<i>Genista tetragona</i>	MD	CON/STE	IN MOD
13.	4067	<i>Echium russicum</i>	MD	CON/STE	
14.	4068	<i>Adenophora liliifolia</i>	MD	STE	
Mammals					
1.	1303	<i>Rhinolophus hipposideros</i>	MD	CON/STE	IN MOD/CD
2.	1304	<i>Rhinolophus ferrumequinum</i>	MD	CON	SR
3.	1307	<i>Myotis blythii</i>	MD	CON	IN MIN/CD
4.	1308	<i>Barbastella barbastellus</i>	MD	CON	SUF
5.	1318	<i>Myotis dasycneme</i>	MD	CON	IN MOD
6.	1323	<i>Myotis bechsteini</i>	MD	CON	SUF
7.	1324	<i>Myotis myotis</i>	MD	CON	SR
8.	1335	<i>Spermophilus citellus</i>	MD	CON	IN MOD
9.	1352	<i>Canis lupus</i>	MD	CON	IN MIN
10.	1355	<i>Lutra lutra</i>	MD	CON	IN MOD /IN MIN
11.	1356	<i>Mustela lutreola</i>	MD	CON	SUF/CD
12.	2608	<i>Spermophilus suslicus</i>	MD	CON	IN MAJ
13.	2633	<i>Mustela eversmanii</i>	MD	CON	IN MOD
Reptiles					
1.	1220	<i>Emys orbicularis</i>	MD	CON	IN MOD/ IN MIN
2.	1279	<i>Elaphe quatuorlineata</i>	MD	CON	IN MOD
Amphibians					
1.	1166	<i>Triturus cristatus</i>	MD	CON	IN MOD/ IN MIN
2.	1188	<i>Bombina bombina</i>	MD	CON	IN MIN
3.	1993	<i>Triturus dobrogicus</i>	MD	STE	IN MIN
Fishes					
1.	1105	<i>Hucho hucho</i>	MD	CON	IN MAJ
2.	1130	<i>Aspius aspius</i>	MD	CON	IN MAJ/ IN MIN
3.	1134	<i>Rhodeus sericeus amarus</i>	MD	CON	IN MIN
4.	1138	<i>Barbus meridionalis</i>	MD	CON	IN MOD
5.	1145	<i>Misgurnus fossilis</i>	MD	CON	IN MAJ/ IN MIN
6.	1146	<i>Sabanejewia aurata</i>	MD	CON	IN MAJ/ IN MIN
7.	1149	<i>Cobitis taenia</i>			
8.	1157	<i>Gymnocephalus schraetzer</i>	MD	CON	IN MIN
9.	1158	<i>Zingel asper</i>	MD	CON	
10.	1159	<i>Zingel zingel</i>	MD	CON	IN MAJ/ IN MIN
11.	1160	<i>Zingel streber</i>	MD	CON	IN MAJ
12.	1163	<i>Cottus gobio</i>	MD	CON	IN MAJ
13.	2011	<i>Umbra krameri</i>	MD	STE	IN MIN

No	Code	Species name	ISO	Biogeographical region	Final conclusion
14.	2484	<i>Eudontomyzon mariae</i>	MD	CON	SR
15.	2511	<i>Gobio kessleri</i>	MD	CON	IN MAJ/ IN MIN
16.	2522	<i>Pelecus cultratus</i>	MD	STE	IN MAJ
17.	2555	<i>Gymnocephalus baloni</i>	MD	STE	IN MAJ/ IN MIN
18.	4126	<i>Alosa maeotica</i>			
19.	4127	<i>Alosa tanaica</i>	MD	STE	IN MAJ/ IN MIN
Invertebrates					
1.	1014	<i>Vertigo angustior</i>	MD	CON	SR
2.	1016	<i>Vertigo moulinsiana</i>	MD	CON	SR
3.	1032	<i>Unio crassus</i>	MD	CON	IN MOD/IN MIN
4.	1042	<i>Leucorhina pectoralis</i>	MD	STE	IN MAJ/IN MOD
5.	1044	<i>Coenagrion mercuriale</i>	MD	CON	SR
6.	1052	<i>Hypodryas maturna</i>	MD	CON	IN MAJ
7.	1060	<i>Lycaena dispar</i>	MD	CON	IN MAJ
8.	1078	<i>Callimorpha quadripunctaria</i>	MD	CON	IN MOD/CD
9.	1083	<i>Lucanus cervus</i>	MD	CON	SUF
10.	1084	<i>Osmoderma eremita</i>	MD	CON	SR Ref List
11.	1086	<i>Cucujus cinnaberinus</i>	MD	CON	IN MOD/CD
12.	1087	<i>Rosalia alpina</i>	MD	CON	IN MOD
13.	1088	<i>Cerambyx cerdo</i>	MD	CON	IN MOD/CD
14.	1089	<i>Morimus funereus</i>	MD	CON	IN MOD/CD
15.	4011	<i>Bolbelasmus unicornis</i>	MD	CON/STE	IN MIN
16.	4013	<i>Carabus hungaricus</i>	MD	CON	IN MIN
17.	4014	<i>Carabus variolosus</i>	MD	CON	IN MOD
18.	4028	<i>Catopta thrips</i>			
19.	4030	<i>Colias myrmidone</i>	MD	CON	IN MIN
20.	4036	<i>Leptidea morsei</i>	MD	CON	IN MOD/CD
21.	4045	<i>Coenagrion ornatum</i>	MD	CON	SR
22.	4053	<i>Paracaloptenus caloptenoides</i>			
23.	4064	<i>Theodoxus transversalis</i>	MD	STE	IN MIN
Birds					
1	A001	<i>Gavia stellata</i>	MD	NJ	
2	A002	<i>Gavia arctica</i>	MD	PJ, NJ, PM	
3	A019	<i>Pelecanus onocrotalus</i>	MD	PJ, NJ	
4	A020	<i>Pelecanus crispus</i>	MD	PJ	
5	A021	<i>Botaurus stellaris</i>	MD	PJ, NJ	
6	A022	<i>Ixobrychus minutus</i>	MD	PD, StBug, PM	
7	A023	<i>Nycticorax nycticorax</i>	MD	PJ, NJ, PM	
8	A024	<i>Ardeola ralloides</i>	MD	PJ, NJ, UH	
9	A026	<i>Egretta garzetta</i>	MD	PJ, NJ, UH	
10	A027	<i>Egretta alba</i>	MD	PJ, NJ, UH	
11	A029	<i>Ardea purpurea</i>	MD	PJ, NJ	
12	A030	<i>Ciconia nigra</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN	
13	A031	<i>Ciconia ciconia</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN	
14	A032	<i>Plegadis falcinellus</i>	MD	PJ, NJ, UH	
15	A034	<i>Platalea leucorodia</i>	MD	PJ, NJ, UH, PM	
16	A037	<i>Cygnus bewickii</i>	MD	SR	
17	A038	<i>Cygnus cygnus</i>	MD	PJ, NJ, UH, PM	

No	Code	Species name	ISO	Biogeographical region	Final conclusion
18	A060	<i>Aythya nyroca</i>	MD	PJ, NJ	
19	A068	<i>Mergus albellus</i>	MD	Nistru, Prut	
20	A071	<i>Oxyura leucocephala</i>	MD	PJ	
21	A072	<i>Pernis apivorus</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN, Tig, Carb	
22	A073	<i>Milvus migrans</i>	MD	PJ, Tig, NJ, PM	
23	A075	<i>Haliaeetus albicilla</i>	MD	PJ, NJ, UH, PM	
24	A080	<i>Circus gallicus</i>	MD	PJ, PM	
25	A081	<i>Circus aeruginosus</i>	MD	PJ, NJ	
26	A082	<i>Circus cyaneus</i>	MD	PJ, NJ, PD	
27	A084	<i>Circus pygargus</i>	MD	UH, NJ, Rez.	
28	A089	<i>Aquila pomarina</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN	
29	A090	<i>Aquila clanga</i>	MD	Cod, PF, PJ, NJ, UH, Orh, BH	
30	A092	<i>Hieraaetus pennatus</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN, Tig, Carb	
31	A094	<i>Pandion haliaetus</i>	MD	PJ, NJ, UH, PM	
32	A097	<i>Falco vespertinus</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN, Tig, Carb	
33	A098	<i>Falco columbarius</i>	MD	StBug, NJ, PJ	
34	A103	<i>Falco peregrinus</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN, Tig, Carb	
35	A119	<i>Porzana porzana</i>	MD	PJ	
36	A120	<i>Porzana parva</i>	MD	PJ	
37	A121	<i>Porzana pusilla</i>	MD	PJ	
38	A122	<i>Crex crex</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN	
39	A127	<i>Grus grus</i>	MD	NJ	
40	A131	<i>Himantopus himantopus</i>	MD	NJ, PM, StBug	
41	A132	<i>Recurvirostra avosetta</i>	MD	PJ	
42	A133	<i>Burhinus oedicephalus</i>	MD	SR	
43	A140	<i>Pluvialis apricaria</i>	MD	PM	
44	A151	<i>Philomachus pugnax</i>	MD	PJ, NJ, UH, PM	
45	A166	<i>Tringa glareola</i>	MD	PJ	
46	A167	<i>Xenus cinereus</i>	MD	SR	
47	A177	<i>Larus minutus</i>	MD	NJ	
48	A193	<i>Sterna hirundo</i>	MD	PJ, NJ, PM, SN	
49	A195	<i>Sterna albifrons</i>	MD	PJ, NJ	
50	A196	<i>Chlidonias hybrida</i>	MD	PJ, NJ	
51	A197	<i>Chlidonias niger</i>	MD	PJ, NJ	
52	A198	<i>Chlidonias leucopterus</i>	MD	SR	
53	A215	<i>Bubo bubo</i>	MD	UH, Pm, Pd, Orh, BH, SN, StBalt	
54	A220	<i>Strix uralensis</i>	MD	Cod, PF, Orh, BH, CS, SN	
55	A222	<i>Asio flammeus</i>	MD	PF, PJ, NJ, UH, Pd, Orh	

No	Code	Species name	ISO	Biogeographical region	Final conclusion
56	A224	<i>Caprimulgus europaeus</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN	
57	A229	<i>Alcedo atthis</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Hirb, Carb, Pm, Pd	
58	A231	<i>Coracias garrulus</i>	MD	Cod, PF, PJ, NJ, UH, Hin, BH, CS, SN	
59	A234	<i>Picus canus</i>	MD	PJ	
60	A236	<i>Dryocopus martius</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN	
61	A238	<i>Dendrocopos medius</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN	
62	A239	<i>Dendrocopos leucotos</i>	MD	SR	
63	A246	<i>Lullula arborea</i>	MD	CD, PF, UH, Hin, Orh	
64	A255	<i>Anthus campestris</i>	MD	Cod, PF, Carb, Orh	
65	A272	<i>Luscinia svecica</i>	MD	SR	
66	A293	<i>Acrocephalus melanopogon</i>	MD	SR	
67	A307	<i>Sylvia nisoria</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN, Tig, Carb	
68	A320	<i>Ficedula parva</i>	MD	CD, PF, UH, Hin, Orh, BH, CS	
69	A321	<i>Ficedula albicollis</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN, Tig, Carb	
70	A338	<i>Lanius collurio</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN, Tig, Carb	
71	A339	<i>Lanius minor</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN, Tig, Carb	
72	A379	<i>Emberiza hortulana</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN, Tig, Carb	
73	A393	<i>Phalacrocorax pygmaeus</i>	MD	PJ, NJ, UH, PM	
74	A396	<i>Branta ruficollis</i>	MD	PJ, NJ, PD	
75	A397	<i>Tadorna ferruginea</i>	MD	PJ, StBug	
76	A402	<i>Accipiter brevipes</i>	MD	SR	
77	A403	<i>Buteo rufinus</i>	MD	PD, PM, Ctig	
78	A429	<i>Dendrocopos syriacus</i>	MD	Cod, PF, PJ, NJ, UH, Hin, Pm, Pd, Orh, BH, CS, SN	
79	A511	<i>Falco cherrug</i>	MD	PJ, NJ, UH, Orh, PD, SN	
80	A533	<i>Oenanthe pleschanka</i>	MD	PM	

Notes: STE = Steppe zone; CON = Continental zone, IN MIN = Insufficient – minor, IN MOD = Insufficient-moderate, IN MAJ = Insufficient – major, SR = Scientific reserve, SR REF = Scientific reserve on the reference list, SUF = Sufficient, CD = Correction of Data, NJ = Nistrul de Jos ((Lower Dniester Emerald site), PF = Plaiul Fagului Emerald site, PJ = Lacurile Prutului de Jos (Lower Prut Emerald site), PM/Pm = Prutul de Mijloc Emerald site, PD/Pd/Orh = Pădurea Domnească Emerald site, StBug = Stepa Bugeacului Emerald site, UH = Unguri-Holoșnița Emerald site, Cod = Codrii Orheiului Emerald site, Hin = Pădurea Hâncești Emerald site, BH = Bahmut-Hârjauca Emerald site, CS = Codrii Strășenilor Emerald site, SN = Stâncele Nistrene Emerald site, Tig/Ctig = Codrii Tigheci Emerald site, Carb = Cărbuna Emerald site, Rez. = Rezervația Naturală Seliște Leu Emerald site, Hirb. = Pădurea Hârbovăț Emerald site.



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Status of Emerald Species and Habitats in the Republic of Moldova: A Legal and Institutional Framework Assessment

This report aimed at assisting the Moldovan authorities in effectively managing Emerald sites as well as establishing conservation measures together with gradually increasing the sufficiency index.

The document constitutes a coordinated management tool for central and local public authorities and other interested parties in strengthening the Emerald Network in the Republic of Moldova through legislative, social, and conservation actions. Apart from the analysis of the existing regulatory framework in the country, this document aims to identify gaps and barriers, whether legal or institutional, that impede the protection, conservation, and effective management of these sites. In addition, the analysis contains a separate chapter that provides an overview of the status of Emerald species and habitats in the Republic of Moldova. The result of the assessment is to form a reasoned opinion regarding the update of the sufficiency index for the Republic of Moldova, from an expert knowledge of species and habitats, actions required to reach around 80 percent of Moldova's Emerald Network sufficiency index by 2030 (for IN MOD: new sites), with a first proposed intermediate timeline to reach a sufficiency index of approximate 60 percent by 2026 (for SR, CD, IN MIN).

By implementing these recommendations, Moldova can enhance its conservation efforts and protect its valuable species and natural habitats.

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