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The Ramsar Convention and the protection of wetlands with reference to Hutovo Blato Nature Park

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Abstract: Wetlands are among the most productive and most threatened ecosystems on the planet. This paper analyzes the Ramsar Convention, the first global international treaty dedicated to the protection of wetland ecosystems, and explores its application using the example of Hutovo Blato Nature Park in Bosnia and Herzegovina. The paper provides a detailed description of the historical development of the Convention, the definition and classification of wetlands, the ecological functions of wetlands, and the criteria for inclusion in the Ramsar List. Special attention is given to Hutovo Blato as an example of the successful implementation of the Ramsar Convention, with a detailed presentation of geographical characteristics, biodiversity, management, and conservation challenges of this unique wetland ecosystem. The analysis demonstrates that effective wetland protection is crucial for biodiversity conservation, climate change mitigation, and sustainable development.

Keywords: Ramsar Convention, wetlands, Hutovo Blato, biodiversity conservation

Ramsarska konvencija i zaštita močvarnih područja s osvrtom na Park prirode Hutovo blato

Sažetak: Močvarna područja predstavljaju jedne od najproduktivnijih i najugroženijih ekosustava na planeti. Ovaj rad analizira Ramsarsku konvenciju, prvi globalni međunarodni ugovor posvećen zaštiti močvarnih ekosustava, te istražuje njezinu primjenu na primjeru Parka prirode Hutovo blato u Bosni i Hercegovini. Rad detaljno opisuje povijesni razvoj Konvencije, definiciju i klasifikaciju močvarnih područja, ekološke funkcije močvara te kriterije za uvrštenje na Ramsarsku listu. Posebna pozornost posvećena je Hutovom blatu kao primjeru uspješne implementacije Ramsarske konvencije, s detaljnim prikazom geografskih karakteristika, bioraznolikosti, upravljanja i izazova zaštite ovog jedinstvenog močvarnog ekosustava. Analiza pokazuje da je učinkovita zaštita močvara ključna za očuvanje bioraznolikosti, ublažavanje klimatskih promjena i održivi razvoj.

Ključne riječi: Ramsarska konvencija, močvarna područja, Hutovo blato, zaštita bioraznolikosti

1. INTRODUCTION

Wetlands cover only about 6% of the Earth's land surface, yet they play a disproportionately large role in global ecological processes. These dynamic ecosystems represent transitional zones between aquatic and terrestrial habitats, providing irreplaceable ecosystem services that include water regulation and purification, carbon storage, and biodiversity conservation. Ecosystem services are the benefits that people receive from natural ecosystems. These are the functions and processes in nature that contribute to human well-being and survival. Despite their critical importance, wetlands are among the fastest disappearing ecosystems in the world—it is estimated that 64–71% of global wetland areas have disappeared since 1900.

Concern over the rapid loss of wetland ecosystems led to the signing of the Ramsar Convention in the Iranian city of Ramsar in 1971. This convention is the first global treaty dedicated to the conservation and sustainable use of this specific type of ecosystem. Today, 172 countries are contracting parties to the Ramsar Convention, encompassing more than 2,500 protected wetland areas that cover over 250 million hectares. The Ramsar Convention has become one of the most important instruments of international nature protection.

Bosnia and Herzegovina acceded to the Ramsar Convention in 1992, and in 2001, Hutovo Blato Nature Park was included in the Ramsar List as a wetland of international importance. Hutovo Blato is a unique example of a Mediterranean wetland ecosystem in a karst area and one of the last remaining wetlands in a karst field in this part of Europe.

The aim of this paper is to provide a comprehensive overview of the Ramsar Convention, its mechanisms, and implementation, with particular emphasis on Hutovo Blato Nature Park as a practical example of the successful implementation of international wetland protection standards.

2. RAMSAR CONVENTION - LEGAL AND INSTITUTIONAL FRAMEWORK

2.1. History and development of the Convention

The Ramsar Convention, officially known as the "Convention on Wetlands of International Importance, Especially as Waterfowl Habitat", was signed on 2 February 1971 by representatives of 18 countries at a conference held in the Iranian resort of Ramsar on the shores of the Caspian Sea. The Convention entered into force on 21 December 1975, when seven countries ratified the agreement. The signing date of the Convention (2 February 1971) is today celebrated as World Wetlands Day. Concern for the fate of wetland habitats began to emerge in the mid-20th century, prompted by ornithological research that documented a dramatic decline in waterfowl populations across Europe and Africa. It was precisely these scientific warnings that served as the starting point for international negotiations, but even in the early stages of discussion it became clear that wetland conservation could not be limited solely to birds. Wetlands perform a range of vital ecological functions—from water purification and flood control to biodiversity conservation—which have made their protection a matter of broader, global interest. Although waterfowl remain embedded in the Convention’s title, its scope was intended to be much broader and more comprehensive from the outset. The Convention has been continuously evolving since its establishment. The first meeting of

the Conference of the Contracting Parties (COP) was held in 1980, and has since been held regularly every three years. At these meetings, the member states review the implementation of the Convention, adopt guidelines, and seek solutions to new challenges in wetland conservation.

2.2. Objectives and principles of the Convention

The main objectives of the Ramsar Convention can be summarized in three key areas of action:

1. Designation and inclusion of wetlands of international importance in the Ramsar List
2. Promoting the wise use of all wetlands within national territory through sustainable planning and management
3. Strengthening international cooperation, particularly in the case of transboundary wetlands and shared aquatic ecosystems

A central principle of the Convention is the concept of "wise use", defined as the maintenance of the ecological character of wetlands, achieved through the implementation of ecosystem approaches within the context of sustainable development (Gardner and Davidson, 2011). This concept recognizes that human society depends on wetlands and that their sustainable use is consistent with the preservation of ecological functions.

2.3. Obligations of the Contracting Parties

The Contracting Parties to the Ramsar Convention undertake a number of obligations that can be summarized into the following categories:

Designation and management of Ramsar sites: Each Contracting Party undertakes to designate at least one wetland site for inclusion in the Ramsar List. Inclusion implies an obligation to preserve the ecological character of the site through appropriate management plans and protective measures.

National policies: States are required to promote the conservation of wetlands by including their conservation in national spatial plans, which entails developing national wetland conservation strategies and incorporating wetland protection into the policies of all relevant sectors, such as agriculture, water management, spatial planning, etc.

Research and monitoring: Contracting Parties undertake to promote research and exchange of data on wetland habitats in their territory. This includes monitoring the ecological status of Ramsar sites and reporting on changes that have occurred.

International cooperation: States are invited to collaborate in the conservation of transboundary wetlands, coordinate the management of shared water systems and provide technical assistance to each other.

2.4. Organizational structure

The implementation of the Ramsar Convention is supported by an organizational structure that includes the Conference of the Contracting Parties (COP) as the highest decision-making body, a Standing Committee that operates between COP meetings, a Scientific and Technical Review Panel (STRP) that provides expert advice, and the Secretariat based in the United Nations Environment Programme (UNEP) in Geneva that coordinates day-to-day activities.3. DEFINITION AND CLASSIFICATION OF WETLANDS

3.1. Ramsar definition of wetlands

The Ramsar Convention uses a very broad definition of wetlands. According to Article 1.1 of the Convention, wetlands are areas of marsh, fen, peatland or other water areas that may be: 1. natural or artificial, 2. permanent or temporary (seasonal), 3. with water that is static or flowing, 4. fresh, brackish or salt, including 5. areas of marine water the depth of which at low tide does not exceed six meters.

This definition is deliberately broad and encompasses a wide range of aquatic and wet habitats. The key characteristic of wetlands is the presence of water—whether permanent or temporary—which determines the characteristics of the soil and vegetation. Wetlands represent transitional ecosystems or ecotones, between terrestrial and aquatic environments, where the characteristics of both ecosystems meet and intermingle.

3.2. Types of wetlands

The Ramsar Convention recognizes 42 different types of wetlands, grouped into three main categories:

Marine and coastal wetlands include coral reefs, coastal lagoons, estuaries, mangrove forests, seagrass meadows, and intertidal zones.

Inland wetlands include rivers and streams, lakes and ponds (permanent and temporary), peatlands, floodplains, alluvial forests, and thermal springs.

Human-made wetlands include fish ponds and aquaculture facilities, rice fields, artificial canals, reservoirs, and water storage areas.

The inclusion of human-made wetlands in the Convention's definition recognizes their potential contribution to biodiversity conservation and the provision of ecosystem services, provided that they are managed sustainably.

4. ECOLOGICAL FUNCTIONS AND VALUES OF WETLANDS

4.1. Water regime regulation

Wetlands act like a "natural sponge" in the landscape, absorbing large amounts of water during rainy periods and gradually releasing it during dry periods. This water regulation ability is crucial for preventing floods, maintaining river flows during droughts and recharging groundwater aquifers. Studies show that wetlands can retain 1 to 1.5 million liters of water per hectare, thereby significantly reducing flood peaks and extending the period of water runoff.

4.2. Water purification and nutrient retention

Wetlands naturally purify water through a number of physical, chemical and biological processes. The vegetation and soil in wetlands act as filters that remove sediments, nutrients (nitrogen and phosphorus), heavy metals and organic pollutants. Microorganisms in wetland soils break down

organic matter and transform nutrients into forms available to plants. This purification function is so effective that artificial wetlands are increasingly being used as part of wastewater treatment systems.

4.3. Carbon storage and climate regulation

Wetland habitats, particularly peatlands, are the most significant terrestrial carbon stores on the planet. Although covering just 3% of the Earth's land surface, peatlands contain about 30% of the planet's terrestrial carbon—more than all the world's forests combined. Anaerobic conditions in wetland soils slow down the decomposition of organic matter, thus allowing carbon to accumulate over millennia. The conservation of wetlands is therefore crucial for mitigating climate change, while their destruction releases huge amounts of stored carbon into the atmosphere.

4.4. Biodiversity and habitats

Wetlands support a disproportionately high biodiversity in relation to the area they occupy. It is estimated that wetlands provide habitat for about 40% of all plant and animal species in the world, including many endemic and endangered species. Waterbirds are particularly dependent on these habitats, especially for their nesting, feeding and resting during migration. Wetlands also serve as fish spawning grounds and as places where juveniles spend the early stages of their lives. It is estimated that two-thirds of the world's fisheries depend directly on preserved wetland ecosystems.

4.5. Economic and social values

In addition to ecological functions, wetlands provide numerous direct economic benefits. Fishing, rice cultivation, game and plant resource gathering constitute important sources of income and food for millions of people worldwide. Wetlands also support recreation and tourism, with particular growth in ecotourism and birdwatching.

The cultural values of wetlands include their spiritual significance to many communities, as well as their aesthetic and educational values. The economic value of wetland ecosystem services is estimated to be between 3,000 and 15,000 USD per hectare per year, Ramsar Convention Secretariat (2018).

5. CRITERIA FOR DESIGNATING RAMSAR SITES

The Ramsar Convention has developed nine criteria for designating wetlands of international importance. A wetland can be included in the Ramsar List if it meets at least one of these criteria. The criteria are divided into two groups: (1) criteria based on the representativeness or uniqueness of the wetland (criteria 1-4) and (2) specific criteria based on biodiversity (criteria 5-9).

5.1. Criteria based on the uniqueness of the wetland (1-4)

Criterion 1: The wetland is a representative, rare and unique example of a natural wetland type within the appropriate biogeographical region.

Criterion 2: The wetland supports vulnerable, endangered or critically endangered species, as well as threatened ecological communities.

Criterion 3: The wetland supports populations of plant and/or animal species important for maintaining the biodiversity of a particular biogeographic region.

Criterion 4: The wetland supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse living conditions.

5.2. Specific criteria based on biodiversity (5-9)

Criterion 5: The wetland must regularly support 20,000 or more waterbirds.

Criterion 6: The wetland regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

Criterion 7: The wetland supports a significant proportion of indigenous fish species and subspecies, thereby contributing to global biodiversity.

Criterion 8: The wetland is essential for the survival of fish populations by providing them with food, spawning grounds, nurseries, and migration paths.

Criterion 9: The wetland regularly supports 1% of the individuals in a population of any species or subspecies of wetland-dependent non-avian animals.

6. HUTOVO BLATO NATURE PARK – A PRACTICAL EXAMPLE

6.1. Geographical and hydrological characteristics

Hutovo Blato Nature Park is located in southern Herzegovina, about 30 kilometers south of Mostar, in a Herzegovinian karst field with a total area of 7,411 hectares, of which 7,366 hectares are under protection. Hutovo Blato Nature Park is one of the most important wetlands in the Mediterranean and one of the few remaining wetlands in a karst field in this part of Europe.

The area lies at a very low altitude of 1 to 3 meters, which makes it susceptible to seasonal variations in water level. The hydrological system of Hutovo Blato is exceptionally complex and includes two main lakes – Svitavsko and Deransko – connected by a network of natural and artificial channels. The system is fed by numerous karst sources (springs) that emerge from the underground system of the Neretva River, thus ensuring a constant presence of water throughout the year.

The average water depth in the lakes ranges from 1 to 3 meters, although there are some deeper zones of the water column. The water quality is exceptionally high thanks to the cold karst springs that bring clean water directly from the underground water systems. The water temperature is relatively stable throughout the year, with fewer extreme deviations than in other similar wetlands.

The area is characterized by a Mediterranean climate which, according to the Köppen climate classification, falls into group Cs—a temperate climate with hot or warm dry summers and mild, wet winters. It is precisely the combination of karst relief, permanent springs and such a climate that enables the survival of diverse wetland flora and fauna.

6.2. Biodiversity

6.2.1. Ornithofauna

Hutovo Blato is one of the most important ornithological areas in the Mediterranean. More than 240 bird species have been recorded to date, accounting for about 40% of European bird species (Škorić et al., 2005). This exceptional bird diversity is a consequence of the area's strategic location on the migration route between Europe and Africa, as well as the diversity of available habitats (Tucker and Evans, 1997).

The area is of particular importance for the nesting of several endangered and rare bird species. According to the Important Bird Areas (IBA) database of BirdLife International, two species of global conservation importance regularly nest at this site. Hutovo Blato is the most important breeding site of the ferruginous duck (*Aythya nyroca*) in the entire Mediterranean basin—a species classified as Near Threatened (NT) on the IUCN Red List due to a moderate but continuous decline in population numbers. This globally threatened species finds optimal conditions for reproduction here. In addition, BirdLife International confirms the breeding of the little egret (*Egretta garzetta*), purple heron (*Ardea purpurea*), squacco heron (*Ardeola ralloides*) and Eurasian spoonbill (*Platalea leucorodia*) at this site—species classified as Least Concern (LC) by the IUCN at a global level, but whose populations in the Mediterranean context require continuous monitoring. During the winter months, the area serves as an important wintering ground for a large number of waterbirds. Winter bird counts regularly record several thousand individuals, including ducks, herons, geese, and coots.

During spring and autumn migrations, the area is used by tens of thousands of birds as a resting and feeding site on their journey between Europe and Africa.

6.2.2. Ichthyofauna

A total of **43 fish species**, divided into 36 genera and 19 families, have been recorded in Hutovo Blato. Of these, autochthonous species account for 63% of the ichthyofauna, with **15 species endemic** to a very narrow distribution range, while 15 species are allochthonous (introduced). A significant number of endemic species from this list are on the IUCN Red List of Threatened Species (Glamuzina et al., 2007; Glamuzina et al., 2012). Among the most endangered are endemic species such as the Neretvan nase (*Chondrostoma knerii*), Neretva chub (*Squalius svallize*) and softmouth trout (*Salmo obtusirostris oxyrhynchus*), which according to the IUCN classification, are listed in categories ranging from Vulnerable (VU) to Critically Endangered (CR). The presence of invasive allochthonous species poses a serious threat to the survival of autochthonous ichthyofauna, and the overall status of the wetland and its fish stocks in the wider area can be described as endangered (Dulčić et al., 2008).

Barbel (*Barbus barbus*), roach (*Rutilus rutilus*), carp (*Cyprinus carpio*) and wels catfish (*Silurus glanis*) are also present. Traditional fishing is an important part of local culture and economy, and is regulated to ensure the sustainability of fish populations. The abundant fish stocks attract large numbers of piscivorous birds, thereby contributing to the overall biodiversity of the ecosystem.

6.2.3. Flora and vegetation

The flora of Hutovo Blato is exceptionally rich and diverse, with more than 760 species and subspecies of vascular plants recorded. This biodiversity reflects the transitional character of the area between the Mediterranean and Mediterranean-montane climatic zones, as well as the diversity of microhabitats from open water to dry elevations.

The vegetation is organized into clearly defined zones depending on the water depth and soil moisture. Submerged vegetation dominates the deepest parts of the lake. The shallow zones are characterized by reed (*Phragmites australis*), which forms dense stands, providing important nesting sites for birds. Also present are the species of cattail (*Typha* sp.), water chestnut (*Trapa natans*), white water lily (*Nymphaea alba*) and yellow water lily (*Nuphar luteum*).

Flood forests of black alder (*Alnus glutinosa*) and willow (*Salix* sp.) have developed on the elevated parts of the terrain. The slopes around the wetland are covered with Mediterranean vegetation, including eumediterranean and submediterranean forests, maquis, as well as thickets and scrub with characteristic Mediterranean and submediterranean woody species (Rogošić, 2000). This diversity of vegetation types contributes to a rich diversity of habitats for animals.

6.3. Protection status and legal framework

Hutovo Blato benefits from multiple forms of protection at both national and international levels. At the national level, the area was legally declared a Nature Park in 1995 (Anonymous, 1995). This status ensures the highest level of nature protection in Bosnia and Herzegovina and entails strict regulation of all activities within the boundaries of the Nature Park.

At the international level, Hutovo Blato was included in the Ramsar List of Wetlands of International Importance on 7 March 2001. The inclusion was made on the basis of fulfilling Criterion 1 (representativeness of the Mediterranean wetland ecosystem in karst), Criterion 2 (presence of endangered species), and Criterion 4 (important habitat during critical stages of the life cycle)."

The area has also been declared an Important Bird Area (IBA, 2024) under the code BH007, thereby confirming its international importance for birds.

Additionally, Hutovo Blato is part of the Emerald Network (areas of special importance for conservation under the Bern Convention) under the code BA0000002.

These multiple protection statuses provide a comprehensive legal framework for the conservation of this wetland.

6.4. Management system and protection zones

The management of the Hutovo Blato Nature Park is entrusted to the Public Institution “Hutovo Blato Nature Park”, founded by the Government of the Herzegovina-Neretva Canton. The institution is based in nearby Čapljina and is responsible for implementing the management plan, monitoring the ecological status, regulating tourism and fishing, and carrying out protective measures.

The area is divided into four zones according to the protection level and permitted use (Figure 1). The strict protection zone covers the most vulnerable parts of the ecosystem, particularly the

nesting sites of endangered bird species. The strict protection zone prohibits all activities except scientific research. The active protection zone also covers areas where specific management interventions are required to maintain or restore environmental conditions. The use zone includes areas where regulated tourist access and traditional activities, such as fishing, are permitted. The protection zone serves as a buffer between the central parts of the Park and the external environment.

Key management objectives include biodiversity conservation, maintenance of the hydrological regime, sustainable use of resources (especially fisheries), development of eco-tourism and provision of education to the general public. Park management is based on the principle of natural ecosystem functioning, which takes into account the interconnectedness of all ecosystem elements and human activities.

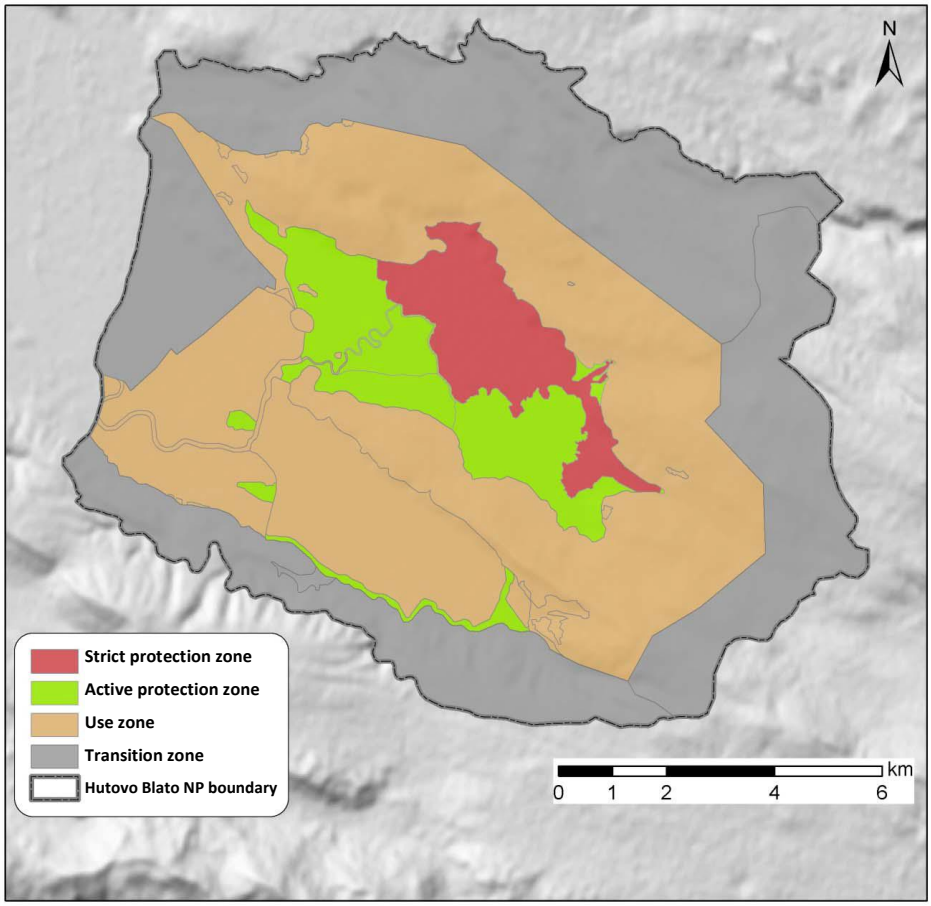

Figure 1. Map of the protected zones of Hutovo Blato according to the level of protection and permitted use

6.5. Tourism and education

Eco-tourism is an important aspect of Hutovo Blato management, providing an economic incentive for conservation, simultaneously raising awareness of the value of wetland ecosystems. The park is

visited by more than 30 thousand visitors annually, making it one of the most visited natural attractions in Bosnia and Herzegovina.

The tourist offer includes rides in traditional wooden boats ('lađas') through the canals and lakes, bird watching from specially positioned observation posts, walks along educational trails, and nature photography. The visitor center provides information on the ecology of wetland ecosystems, the area's biodiversity, and the region's cultural heritage through interactive displays and audiovisual materials.

Educational programs target different age groups, from school excursions to specialized workshops for biology and ecology students.

The park collaborates with educational institutions in developing curricula on wetland ecosystems and offers a platform for field classes and research. Volunteer programs allow for active participation in protection and monitoring.

The best time to visit Hutovo Blato Nature Park is in spring (March to May), when birds are nesting and vegetation is in bloom, and in autumn (September to November), during the bird migration season. Summer offers a perfect opportunity to enjoy the full bloom of wetland vegetation.

7. THREATS TO WETLAND ECOSYSTEMS

7.1. Global threats

Wetlands are among the most endangered ecosystems on the planet. According to the 2018 Global Wetland Outlook, about 35% of wetlands were lost between 1970 and 2015, while Davidson (2014) estimates that 64–71% of natural wetlands have disappeared since 1900, with an acceleration of loss in recent decades. Similar estimates are also reported by Zedler and Kercher (2005): half of global wetland area has been lost. We are losing wetlands three times faster than forests, a worrying trend with far-reaching consequences for biodiversity and human well-being.

The main causes of wetland degradation and loss include drainage for agriculture, urbanization and infrastructure projects, excessive water extraction, pollution, invasive species, and climate change. These threats often act synergistically, amplifying their harmful effects.

7.1.1. Habitat loss and conversion

Drainage of wetlands for agricultural use has historically been the single largest cause of wetland loss. In many parts of the world, wetlands were considered 'unproductive' land that could be 'improved' by converting it into arable land or pastures. Widespread drainage projects in the 19th and 20th centuries resulted in the loss of millions of hectares of wetlands in Europe, North America and Asia.

Urban and infrastructural development pose a growing threat, particularly in coastal areas and around large cities. Wetlands are being drained and converted for residential development, industrial estates, ports and airports. Road and railway construction often cuts through wetlands, altering hydrological regimes and fragmenting habitats.

7.1.2. Hydrological alterations of wetland areas

River diversion, dam construction and groundwater extraction significantly affect wetland ecosystems by altering natural water flow regimes. Dams retain sediment and nutrients that would otherwise reach downstream wetlands, altering their ecological character. Excessive water extraction for irrigation, industry, and urban supply lowers the levels of groundwater that feeds many wetlands. Climate change further complicates the hydrological situation. In precipitation patterns, increased frequency of droughts and floods, and rising sea levels in coastal areas directly affect wetland ecosystems. Many wetlands that depend on specific hydrological conditions may disappear or change dramatically.

7.1.3. Wetland pollution

Wetlands are particularly vulnerable to pollution due to their position in the landscape—they often receive water that has passed through agricultural and urban areas. Excessive amounts of nutrients (nitrogen and phosphorus) from agricultural fertilizers and wastewater cause eutrophication, which leads to excessive algae growth, reduced oxygen concentrations in the water, and the degradation of aquatic ecosystems.

Pesticides, heavy metals, industrial chemicals, and microplastics accumulate in wetland ecosystems, affecting the health of organisms and entering food chains. Oil and chemical spills can have catastrophic effects on wetland biodiversity.

7.1.4. Invasive species

Invasive alien species pose a serious threat to wetland ecosystems worldwide. All over the world, invasive plant species threaten wetland habitats by forming dense monocultures that displace native species. In tropical regions, these include, for example, water hyacinth (*Eichhornia crassipes*) and water lettuce (*Pistia stratiotes*). Invasive species, especially fish from the Danube basin and American predators, pose a growing problem for the Hutovo Blato ecosystem. Invasive plant species that probably came from the Trebišnjica basin also threaten the native wetland vegetation. The Nature Park is currently developing an action plan for the systematic monitoring and removal of invasive species.

7.2. Specific threats to Hutovo Blato

Despite its high protection status, Hutovo Blato faces a number of threats that require continuous attention and active management. The hydrological balance of the area is sensitive to changes in the flow regime of the Neretva River and its tributaries. Hydraulic engineering interventions outside the boundaries of the Nature Park, including water abstraction for irrigation and hydropower projects, can affect the level and quality of water in the lakes.

Agricultural activities in the surrounding areas are a source of diffuse pollution. The use of pesticides and mineral fertilizers in agricultural production can lead to the influx of nutrients and chemicals into Hutovo Blato. Inadequate disposal of wastewater from nearby settlements further contributes to the pressure on water quality.

Although currently managed, tourism pressure poses a potential threat if not carefully controlled. Excessive numbers of visitors can cause bird disturbance, degradation of trails and vegetation, and environmental pollution. Balancing tourism development as a source of income and environmental protection requirements is a constant challenge.

Illegal fishing and poaching pose a threat to the conservation of fish and animal populations. Despite the efforts of the Park management, occasional cases of regulatory violations indicate the need for increased monitoring and raising awareness among the local community.

Climate change may have a long-term impact on the hydrological regime of Hutovo Blato. Changes in the amount and distribution of precipitation, increased temperatures and prolonged dry periods may change the ecological character of the wetland. Adapting the management strategy of Hutovo Blato Nature Park to climate change represents an important challenge for the future.

8. CONCLUDING REMARKS

The Ramsar Convention is a key instrument for the global protection of wetland ecosystems, providing a legal and institutional framework for the conservation of these vitally important habitats (Zedler and Kercher, 2005). Through the concept of wise management, the Convention successfully balances the need to preserve original wetland habitats with the sustainable use of natural resources, recognizing that people and wetlands can coexist in a mutually beneficial manner.

Hutovo Blato Nature Park illustrates how the principles of the Ramsar Convention can be successfully implemented at the national level. Multiple levels of protection, structured management, area zoning and involvement of the local community through eco-tourism create a sustainable model for the protection of this wetland. The exceptional biodiversity of Hutovo Blato, with more than 240 bird species and rich flora and fauna, testifies to the importance of this area for the preservation of Mediterranean natural heritage.

However, the success in protecting Hutovo Blato must not overshadow the real possibility of increasing pressures and threats facing wetlands worldwide. The loss of 64-71% of wetlands since 1900 is an alarming statistic that calls for urgent action (Davidson, 2014; Mitsch and Gosselink, 2015). Climate change, excessive exploitation of water resources, pollution, and habitat degradation threaten the remaining wetland ecosystems, including Hutovo Blato, on a daily basis.

Based on the analysis presented in this paper, the following key recommendations can be highlighted:

1. Expanding the network of protected wetlands on the Ramsar List, with a particular focus on underrepresented regions and wetland types,
2. Strengthening transboundary cooperation in the protection of wetlands shared by several countries, such as the Neretva River water system,
3. Integrating wetland protection into broader water resources management, spatial planning and climate change adaptation policies,
4. Continued monitoring and research of wetland ecosystems to better understand their functions and responses to change,
5. Restoring degraded wetlands as a natural solution to climate change and water management,
6. Strengthening education and raising public awareness about the value of wetlands.

Specifically for Hutovo Blato, recommendations include continuing rigorous monitoring of water quality and the hydrological regime, further developing eco-tourism with careful management of visitor capacity, strengthening cooperation with the agricultural sector to reduce diffuse pollution, and developing climate change adaptation strategies.

In conclusion, wetlands are among the most productive and valuable ecosystems on the planet, but also among the most threatened. The Ramsar Convention provides a strong framework for their protection, but its successful implementation requires political will, adequate resources and the active participation of all stakeholders—from governments at all levels and the scientific community to local communities and civil society. Hutovo Blato demonstrates that effective wetland protection is possible and brings multiple benefits—for biodiversity, for the local community and for society as a whole. Wetland conservation is not only a matter of nature protection, but an imperative for sustainable development and the future of humanity.

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