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## The system of nature and geoheritage conservation in Great Britain: experience for Ukraine

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**Abstract.** The issues of development of nature reserves of each country combine consideration of the current state of the natural environment and the requirements of international institutions regarding conservation categories. The publication is based on a comparative geographical analysis of the structure and functioning of the nature reserve fund of Great Britain and Ukraine. In these two countries, nature conservation is at a different level of development and is characterized by a different spectrum of conservation categories.

In Great Britain, a rather original system of protected objects and territories has been developed and their functioning has been ensured with the involvement of state and local authorities, scientific organizations and environmental public organizations. At the present stage, the functioning of certain groups of protected categories has been ensured in Great Britain. Among them: a group of reserves, a group of protected marine territories, a group of park territories and a group of picturesque objects. These groups simultaneously reflect the pan-European conservation categories, as well as its island position with adjacent seas.

Ukrainian typification of nature reserves has a pronounced transitional nature – “Soviet” and European approaches are combined. Protected areas are divided into two groups: natural and artificially created. It is important for Ukraine to adopt the British experience for the needs of modernizing the protected area fund to ensure the joint activities of government bodies, scientific and public organizations. Among the protected categories that can be introduced in Ukraine are reserves of living and non-living nature and sites of scientific interest. They would expand the range of protected objects in Ukraine.

The British experience of geoheritage preservation is especially indicative. The categories of preservation constitute a certain range: geological reserves, sites of scientific interest and status regional objects (RIGS). To expand the range of protected geological and geographical objects in Ukraine, it is possible to introduce geological reserves and sites of scientific interest. This diversifies such a category characteristic of Ukraine as geological monuments, depending on their scientific significance and accessibility. On the agenda for Ukrainian realities is the introduction of status categories, such as geoparks. There are several dozen geoparks in Britain, including those of global importance. In Ukraine, the introduction of geoparks of local (regional) and national importance is underway. Here it is possible to use the British experience of implementing this innovative category through the activation of local communities or through the initiative of state bodies to implement geoparks.

**Key words:** protected areas and objects; nature conservation units; geoheritage; protected area categories; geopark.



## Система охорони природи та геоспадщини у Великобританії: досвід для України

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**Анотація.** Проблематика розвитку природоохоронних територій кожної з країн поєднує врахування сучасного стану природного середовища та вимог міжнародних інституцій щодо категорій заповідання. В основі публікації порівняльно-географічний аналіз структури і функціонування природно-заповідного фонду Великобританії і України. В цих двох країнах природоохоронна справа знаходиться на різному рівні розвитку та характеризується відмінним спектром заповідних категорій.

У Великобританії напрацьована досить оригінальна система заповідних об'єктів та територій і забезпечено їх функціонування із залученням державних і місцевих органів влади, наукових організацій та екологічних громадських організацій. На сучасному етапі у Великобританії забезпечено функціонування певних груп заповідних категорій. Серед них: група резерватів, група заповідних морських територій, група паркових територій та група мальовничих об'єктів. Ці групи одночасно відображають загальноєвропейські заповідні категорії, а також її острівне положення з прилеглим морями.

Українська типізація природоохоронних об'єктів має виражено перехідний характер – поєднуються “радянські” і європейські підходи. Заповідні території поділяються на дві групи: природні і штучно створені. Для України важливо перейняти з британського досвіду для потреб модернізації заповідного фонду щодо забезпечення спільної діяльності органів влади, наукових і громадських організацій. Серед заповідних категорій, які можна впровадити в Україні – резервати живої і неживої природи та сайти наукового інтересу. Вони б розширили спектр об'єктів охорони України.

Особливо показовим є британський досвід заповідання геоспадщини. Категорії заповідання складають певний спектр: геологічні резервати, сайти наукового інтересу та статусні регіональні об'єкти (RIGS). Для розширення спектру заповідних геолого-географічних об'єктів в Україні можливо впровадити геологічні резервати і сайти наукового інтересу. Це диверсифікує таку характерну для України категорію як геологічні пам'ятки в залежності від їх наукового значення та доступності. На порядку денному для українських реалій впровадження статусних категорій, таких як геопарки. У Британії налічується кілька десятків геопарків, в тому числі і глобального значення. В Україні впровадження геопарків локального (регіонального) і національного значення. Тут можливо використати британський досвід впровадження цієї інноваційної категорії через активізацію локальних громад або через ініціативу державних органів щодо впровадження геопарків.

**Ключові слова:** заповідні території та об'єкти; природоохоронні одиниці; геоспадщина; категорії заповідних територій; геопарк.

**Introduction.** In recent decades, Ukraine's priority in the field of environmental policy development and protected areas establishment is to implement the experience of European countries. In particular, nature conservation involves alignment with the

requirements of international categorization of protected areas and objects, as well as the implementation of protected areas in accordance with EU target programs and regulatory frameworks and those of other countries (e.g., the Habitats Directive, the Ramsar Convention on Wetlands, the UNESCO Global Geoparks Programme, etc.) (Prots et al., 2011; Kagalo & Prots, 2012; Zingstra et al., 2012; Prots & Kagalo, 2016).

The system of protected areas in Ukraine reflects its transitional nature: from a centralized Soviet approach toward the incorporation of categories derived from international practice, including European models. Among these are biosphere reserves (UNESCO MAB Programme) and regional landscape parks (a traditional European category).

A particular situation in Ukraine concerns the preservation of geoheritage – geological and geomorphological sites of significant scientific and educational value. According to the current legal framework, such sites are represented only by “zakaznyks” and geological natural monuments. In European countries, these objects are represented by a comprehensive system of various legally defined categories. In Ukraine, however, conditions have not yet been established for the introduction of a new regulatory category within the nature reserve fund that would combine conservation, recreational, environmental education, and awareness-raising functions related to geoheritage – geopark (Shevchuk, 2010; Kravchuk et al., 2013).

For the reorganization of the system of protected areas in Ukraine, including the modernization of its categories, improvement of the management practices, and the enhancement of monitoring systems for protected sites and territories, it is essential to draw upon the experience of European countries. United Kingdom has a successful experience of conservation policies implementation and effectively combines traditional conservation practices with new (cutting-edge approaches) approaches in international environmental policy and active conservation management. In particular, the United Kingdom possesses extensive historical experience in geoheritage conservation, supported by a well-developed network of both formal and informal categories for the protection of geological and geomorphological sites, as well as the active implementation of the Global Geoparks concept in accordance with the UNESCO Geoparks Programme (Countryside Commission for Scotland, 1978; Scottish Natural Heritage, 2006; United Kingdom National Commission for UNESCO, 2012; Burns et al., 2018).

The aim of this study is to provide a comprehensive analysis of the system of nature conservation, including geoheritage protection, in the United Kingdom in order to adapt its organizational experience to the modernization of nature conservation practices in Ukraine.

The study addresses the following objectives:

- 1) to analyze the approaches to the establishment and functioning of the main protected area categories in the United Kingdom;
- 2) to examine the specific features of the formation of a network of geoheritage conservation sites and areas in the United Kingdom;
- 3) to assess the potential for applying the British experience in the nature conservation system of Ukraine.

**Review of previous research.** The nature conservation literature in the United Kingdom is notable for its wide thematic diversity. It addresses issues such as the

conservation movement, key stages of its development, the system of protected area categories, and the frameworks of governmental and public management (Litke, 1998; McMillan, 2008; Butler, 2018; Dunlop, Larwood & Burek, 2018). The practical aspects of conservation activities are also comprehensively analyzed, including the implementation of national and international nature conservation programs, as well as approaches to monitoring the functioning of protected sites and areas (DEFRA, 2003; JNCC, 2003; Northern Ireland Environment Agency, 2006, 2009; Bainbridge et al., 2013; HM Government, 2018, 2023; Rees et al., 2019). The successful development of nature conservation in the United Kingdom has been supported by a well-established legislative and regulatory framework that has guided this activity since the mid-20th century (HM Government, 1949, 1981, 2000, 2006; Countryside Commission for Scotland, 1978; JNCC, 2022). In the field of geoheritage conservation, the United Kingdom serves as a model for the successful implementation of a variety of formal and informal approaches to the organization and functioning of protected sites, as well as for effective cooperation among governmental institutions, the scientific community, and the public both across the UK as within its constituent countries (JNCC, 1977, 2004; Natural England, 2010; Silcock et al., 2013; Wimbledon & Smith-Meyer, 2013; Northern Ireland Environment Agency, 2016; Dunlop et al., 2018).

Scientific, educational, and methodological support for the development of nature conservation in Ukraine is associated with the substantiation of the network of protected areas and the requirements for their establishment, as well as with extensive educational activities and attempts to adapt international conservation programs to Ukrainian conditions (Kukurudza, 2003; Nature Conservation in Ukraine, 2003; Stetsiuk, Silchenko, Bilichenko, 2011; Kravchuk et al., 2013; Grytsenko et al., 2019; Bortnyk et al., 2020; Hrynychshyn, 2024). In Ukraine, a legislative and regulatory framework for the establishment and functioning of protected areas has been put in place. Publications on geoheritage inventory are becoming increasingly widespread, including Geological Monuments of Ukraine (2006), as well as studies focused on the development of new formal and informal forms of Earth heritage conservation (Wimbledon et al., 1999; Shevchuk, 2010).

**Research methodology.** The article has a clearly defined comparative geographical and functional-methodological approach to the analysis of protected area systems in two countries. It examines issues related to the system of protected area designation, groups of conservation categories, and the specific features of their formation and functioning, as well as their correspondence to IUCN categories in the United Kingdom and Ukraine. The study also analyzes the historical development of certain categories of protected sites and the role of governmental, scientific, and public organizations in their implementation. Methods of inventory-based description and spatial analysis of individual protected areas and sites are applied, with particular attention to geoheritage sites.

**Results of the study.** *The state system of nature conservation institutions and categories of nature protection in the United Kingdom.* The United Kingdom is a unitary state with devolved governments, meaning that part of the central government's powers has been transferred to the regional administrations of Scotland, Wales, and Northern Ireland (Kozak, 2002). Accordingly, environmental policy in the country is decentralized. The Department for Environment, Food and Rural Affairs (DEFRA)

operates directly only in England, while maintaining close cooperation with the devolved administrations in Wales, Scotland, and Northern Ireland. Nature conservation responsibilities in each constituent country of the United Kingdom are assigned to the relevant governmental departments; in practice, these tasks are implemented by executive non-departmental public bodies in each jurisdiction (HM Government, 2006):

- In England – Natural England (<https://www.gov.uk/government/organisations/natural-england>).
- in Wales – Natural Resources Wales (<https://naturalresourceswales.gov.uk/>).
- in Scotland – NatureScot (Scottish Natural Heritage / Scotland’s Nature Agency) (<https://www.nature.scot/>).
- in Northern Ireland – Northern Ireland Environment Agency (NIEA) (<https://www.daera-ni.gov.uk/northern-ireland-environment-agency>).

The provisions of EU environmental directives, namely the Habitats Directive (Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) and the Birds Directive (Directive 79/409/EEC, codified as 2009/147/EC on the conservation of wild birds), have been transposed in the United Kingdom through the Conservation of Habitats and Species Regulations 2017 (HM Government, 2017). These regulations govern the designation and protection of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), which correspond to the conservation objectives of the Habitats and Birds Directives, respectively. These regulations govern the designation and protection of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), which correspond respectively to the sites protected under the Habitats and Birds Directives. In 2019, amendments were introduced to the above regulations (HM Government, 2019), aimed at ensuring transitional arrangements following the UK’s withdrawal from the European Union and integrating nature conservation legislation into the national legal framework of the United Kingdom.

In connection with Brexit (the United Kingdom’s withdrawal from the EU), which took effect in 2020, the need arose to develop new environmental legislation to replace the EU directives (Burns et al., 2018; UK Regulations after Brexit, 2022). In 2021, the Environment Act 2021 came into force (HM Government, 2021), which ensures the integration of environmental principles into policy-making processes and the development of legislation (HM Government, 2019, p. 25). This Act covers a wide range of areas, including water resource conservation, air quality protection, waste management, biodiversity conservation, and related environmental domains.

The nature conservation system of the United Kingdom is distinctive in that the legal basis and approaches to the designation and management of protected areas and sites differ across all four constituent countries of the United Kingdom. The main exceptions are categories of sites of European and global importance, which are implemented under international conventions and frameworks, including:

- Biosphere Reserves (UNESCO “Man and the Biosphere” Programme).
- Wetlands of International Importance (Ramsar Convention).
- Special Areas of Conservation (SAC) (under the Habitats Directive 92/43/EEC; initially designated at the EU level as *Sites of Community Importance* before being formally adopted as SACs in the UK system).
- Special Protection Areas (SPA) (under the Birds Directive 79/409/EEC, later codified as 2009/147/EC).

- UNESCO World Heritage Sites (natural and mixed properties).

One of the tools for conserving and enhancing biodiversity at regional and local levels is the development of Biodiversity Action Plans (BAPs). The concept of such plans originates from the Convention on Biological Diversity (CBD). The United Kingdom has developed a national-level Biodiversity Action Plan, while local and regional authorities prepare Local Biodiversity Action Plans for their respective areas. The development of BAPs is regulated by the Natural Environment and Rural Communities Act 2006 (HM Government, 2006, Section 40A).

**Local-level protected areas.** In addition to protected areas of national importance, the United Kingdom has a well-developed network of sites of local significance. These are established by local authorities, conservation organizations, and other stakeholders with the aim of preserving important local natural features, and are used for environmental education activities, tourism development in the region, and other purposes.

Alongside nationally designated sites and categories specific to the constituent countries of the United Kingdom, there is also a range of non-statutory sites of local and regional importance. Their presence is taken into account in spatial planning processes and they are supported by local communities. To identify and manage local conservation sites, both local and national criteria and methodologies have been developed (DEFRA, 2006; Scottish Natural Heritage, 2006).

- in England – “Local Wildlife Site”
- in Northern Ireland – “Site of Local Nature Conservation Importance” and others (<https://www.daera-ni.gov.uk/articles/when-niea-consulted>)
- in Scotland – “Local Nature Conservation Site”
- in Wales – “Site of Importance for Nature Conservation” (<https://www.wildlifetrusts.org/local-wildlife-sites>)

A list of protected areas categories of national and local importance, as well as some prerequisites of their formation and current development trends, are provided below (Table).

Table. Categories of protected areas in the United Kingdom and their characteristics (after Poore & Poore, 1987 and Litke, 1998, with additions)

<b>Categories of protected areas in the United Kingdom and their characteristics</b> (after Poore & Poore, 1987 and Litke, 1998, with additions)
<b>National Nature Reserve (NNR)</b>
United Kingdom
<p>National Nature Reserve (NNR) is a designated area established for “the conservation of flora, fauna, or geological and physiographical features of special interest in the area, and/or for providing opportunities for the study and research of such features” (HM Government, 1949). The Wildlife and Countryside Act 1981 strengthened the role of NNRs in the protection and management of limited wildlife resources and formalized the transfer of NNR lands to the management of statutory conservation bodies (Statement of Compliance for UK’s National Nature Reserves).</p> <p>NNRs constitute the core areas for the conservation of natural and semi-natural terrestrial and coastal habitats in the United Kingdom. (Marine NNRs represent a separate category within the protected area system; currently, Marine Conservation Zones are being established). These reserves represent areas of high biodiversity value and function as reservoirs for native wildlife. NNRs preserve representative natural and semi-natural terrestrial and coastal ecosystems</p>

Table (continued 1)

<p>of the UK, thereby providing conditions for long-term research on natural processes and for the study of species habitats (Northern Ireland Environment Agency, 2016).                  In England, 224 NNRs have been established, covering a total area of approximately 94,000 hectares, under various management regimes. In Scotland, there are 46 National Nature Reserves with a total area of around 100,000 hectares. In Wales, 76 NNRs have been designated.</p>
<p><b>Marine Nature Reserve (MNR)</b></p>
<p><b>United Kingdom</b></p> <p>Marine Nature Reserves are designated in accordance with the Wildlife and Countryside Act 1981 in England and Wales (HM Government, 1981) and the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 in Northern Ireland. They represent the marine equivalent of National Nature Reserves.                  The primary objective of their designation is the conservation of marine species, as well as geological and physiographical features of special interest within the area.</p>
<p><b>Area of Outstanding Natural Beauty (AONB)</b></p>
<p><b>England, Wales, Northern Ireland</b></p> <p>This protected area category was first introduced under the National Parks and Access to the Countryside Act 1949 (HM Government, 1949). Currently, aspects of AONB management in England and Wales are regulated by the Countryside and Rights of Way Act 2000 (CRoW Act) (HM Government, 2000).                  The primary objective of designation is the conservation and enhancement of natural beauty (HM Government, 2000). Unlike other categories of protected areas, AONBs are not primarily designated for biodiversity conservation, cultural heritage protection, or recreation, although these aspects may be indirectly supported (Butler, 2018).                  AONBs are designated with the consent of landowners whose land is proposed for inclusion within the designated area.</p>
<p><b>Site of Special Scientific Interest (SSSI)/Area of Special Scientific Interest (ASSI)</b></p>
<p><b>England, Wales, Scotland, Northern Ireland</b></p> <p>A Site of Special Scientific Interest (SSSI) (Area of Special Scientific Interest (ASSI) in Northern Ireland) refers to protected areas designated for their particular scientific interest due to their flora, fauna, geological, physiographical, or other natural features.                  The management of SSSIs (ASSIs) is based on the principles of sustainable development and aims to maintain effective cooperation between landowners and statutory conservation bodies in order to ensure compliance with the required conservation measures. In cases where land-use activities may cause damage to an SSSI (ASSI), the responsible statutory authority may provide compensation to landowners for losses incurred, particularly where traditional land-use practices are restricted (DEFRA, 2003).                  Guidelines for the selection of geological SSSIs were established in 1993 and are based on the findings of the Geological Conservation Review (GCR) project (JNCC, 1977). Approximately 75% of SSSIs are of European conservation importance and therefore also hold the status of Special Protection Areas (SPAs) or Special Areas of Conservation (SACs) (Bainbridge et al., 2013, p. 6, section 2.4).                  As of March 2022, the total area of 394 ASSIs in Northern Ireland amounted to 111,159 hectares (Northern Ireland Environmental Statistics Report, 2022).</p>
<p><b>National Park (NP)</b></p>
<p><b>England, Wales, Scotland</b></p> <p>National Parks in the United Kingdom were established under the National Parks and Access to the Countryside Act 1949 (HM Government, 1949). Their objectives, including amendments introduced by the Environment Act 1995 (HM Government, 1995), are:</p> <ul style="list-style-type: none"> <li>• to conserve and enhance natural beauty, wildlife, and cultural heritage;</li> </ul>

Table (continued 2)

<ul style="list-style-type: none"> <li>• to promote opportunities for public understanding and enjoyment of the special qualities of these areas (HM Government, 1949, 1995).</li> </ul>
<p>In the development and implementation of economic activities within National Parks (such as recreational infrastructure development, souvenir trade, etc.), the so-called Sandford Principle (1974) must be applied. This principle states that where conflicts arise between conservation objectives and public enjoyment, priority should be given to nature conservation.</p> <p>English National Parks are largely the result of thousands of years of human activity, primarily through livestock grazing (cattle and sheep) and other land uses such as forestry management (Silcock et al., 2013, p. 32).</p> <p>In total, there are 15 National Parks in the United Kingdom (10 in England, 3 in Wales, and 2 in Scotland).</p> <p>Land within National Parks is not removed from landowners; instead, each park is managed by a dedicated administrative body known as a National Park Authority.</p>
<b>Local Nature Reserves</b>
<b>United Kingdom</b>
<p>Local Nature Reserves (LNRs) are designated by local authorities (or managed by non-governmental organizations with the consent of local authorities (Scottish Natural Heritage, 2006, p. 11) under Section 21 of the National Parks and Access to the Countryside Act 1949 (HM Government, 1949). The purpose of designation is the conservation of natural, geological, physiographical, and cultural features of importance to local communities.</p> <p>The first LNRs were established with the support of the Royal Society for the Protection of Birds (RSPB), which in 1929 proposed granting local communities in Scotland the authority to establish bird reserves on the outskirts of towns in order to protect bird populations and raise public awareness (Scottish Natural Heritage, 2006).</p> <p>To establish a Local Nature Reserve, the local community must:</p> <ul style="list-style-type: none"> <li>• obtain agreement from landowners;</li> <li>• notify the relevant statutory conservation body (e.g., Natural England) of the designation;</li> <li>• ensure public access and, where necessary, apply appropriate restrictions to safeguard natural values.</li> </ul> <p>The first LNR in the United Kingdom was Aberlady Bay in Scotland, established in 1952 to protect wild birds from uncontrolled shooting. Later, the site was designated as a Site of Special Scientific Interest (SSSI), and there were even proposals to establish it as a National Nature Reserve. Early LNRs in Scotland were created to resolve conflicts between stakeholders (e.g., hunters and birdwatchers) and to protect sites of special interest.</p> <p>An important aspect of LNRs is the involvement of the public in recreational and conservation activities. Local Biodiversity Action Plans (LBAPs) emphasize the importance of LNRs for the conservation of local biodiversity and geoheritage as part of local natural heritage (Scottish Natural Heritage, 2006, p. 11). The establishment of LNRs is an effective tool for fostering cooperation between local authorities, NGOs, communities, landowners, and volunteers (Scottish Natural Heritage, 2006, p. 13).</p> <p>Buffer zones of LNRs may include adjacent areas that do not necessarily possess conservation value but are incorporated into management plans if they help reduce recreational pressure or function as ecological corridors (Natural England, 2010, p. 9; Scottish Natural Heritage, 2006, p. 16).</p> <p>Agreements with landowners are generally flexible in form but must clearly define land ownership rights, stakeholder responsibilities, and arrangements between all parties involved (Scottish Natural Heritage, 2006, p. 16).</p>
<p>As of February 2016, 31 LNRs had been designated in Northern Ireland, covering a total area of approximately 950 hectares (Northern Ireland Environment Agency, 2016, p. 52).</p>
<b>Regional Park</b>
<b>Scotland, Northern Ireland</b>

Table (continued 3)

<p>In accordance with the Countryside (Scotland) Act 1967 (as amended in 1981) (Countryside (Scotland) Act 1967), a Regional Park is a large area, part of which is designated for public recreation and managed by local authorities. The establishment of three Regional Parks was initiated by the then Countryside Commission for Scotland (CCS).</p> <p>The objectives of Regional Parks are outlined in the 1974 strategic document A Park System for Scotland, which also describes other categories of parks (Countryside (Scotland) Act 1967). Regional Parks are designated to conserve the countryside while providing recreational opportunities for the public. For this reason, they were established in close proximity to major urban areas in Scotland.</p>
<b>National Scenic Areas (NSA)</b>
<b>Scotland</b>
<p>In 1978, the report of the Countryside Commission for Scotland, “<i>Scotland’s Scenic Heritage</i>” first identified and described 40 National Scenic Areas, covering approximately 12.7% of Scotland’s territory (Scottish Council for National Parks, 1974; Countryside Commission for Scotland, 1978).</p> <p>From 1980, these areas began to be taken into account in spatial planning, and since 2010 they have been granted a legally defined status as areas of national importance, with the possibility of implementing conservation measures. According to legislation, the designation of National Scenic Areas must consider the natural beauty of the landscape, as well as its historical, cultural, or ecological value, architectural features, flora and fauna, and physical-geographical characteristics, regardless of the degree of anthropogenic transformation of the landscape (Planning etc. (Scotland) Act 2006). The boundaries of the National Scenic Areas have remained unchanged since 1978.</p> <p>Between 2007 and 2009, a review of all National Scenic Areas was conducted, during which the so-called “special qualities” of each area were identified. These “special qualities” serve as the main basis for their designation, as well as for their management and protection.</p> <p>Some National Scenic Areas have management plans developed by local communities. Certain types of economic activity are restricted within these areas (National Scenic Areas: background, guidance and policy   NatureScot). They are analogous to Areas of Outstanding Natural Beauty (AONB).</p>

Only certain protected areas and sites in the United Kingdom correspond to the categories of the International Union for Conservation of Nature (IUCN). In particular, the UK does not include any category equivalent to strict nature reserves. National Parks in the United Kingdom do not fully meet the criteria of IUCN Category II (National Parks); instead, they more closely correspond to Category V – Protected Landscape/Seascape. The closest match to IUCN Category III (Natural Monuments) in the UK system is represented by geological and geomorphological Sites/Areas of Special Scientific Interest (SSSI/ASSI), which are designated due to their particular scientific importance. Finally, many UK protected areas correspond to IUCN Category IV (Habitat/Species Management Areas). These include National Nature Reserves, Marine Nature Reserves, and biological Sites of Special Scientific Interest, all of which are actively managed to maintain specific habitats and species (Crofts, Nigel Dudley et al., 2014).

#### **Comparative analysis of protected areas in the United Kingdom and Ukraine.**

A comparative analysis of protected (nature conservation) sites and areas in the United Kingdom and Ukraine reveals a significant divergence in their core categories. In the United Kingdom, due to its insular position and high level of land use, an important role is played by landscape and aesthetic conservation areas (such as Areas of Outstanding

Natural Beauty and National Scenic Areas), as well as marine-based designations (including Marine Protected Areas, Heritage Coasts, and Marine Nature Reserves). At the same time, the specificity of conservation sites in the UK is also shaped by purpose-oriented designations, such as Sites of Special Scientific Interest and the regional network of geological and geomorphological sites.

The Ukrainian classification of protected areas, as noted earlier, is rather transitional, combining both “Soviet” and European approaches. In particular, protected sites and areas are divided into two groups: natural and artificially created ones (Article 3 of the Law on the Nature Reserve Fund). Among the natural categories are strict nature reserves, national and regional parks, protected tracts, nature reserves (“zakaznyks”), and natural monuments. The group of artificially created sites includes botanical gardens, zoos, dendrological parks, and parks-landscape art landmarks.

As noted above, Ukraine’s nature conservation system is currently undergoing modernization, with a focus on international and European conservation practices. Regarding the potential transfer of British experience in nature conservation, it is appropriate to consider both its organizational and categorical approaches (HM Government, 2018).

In addition to its strongly regionalized approach to the establishment of protected areas, the United Kingdom is distinguished from other European countries by the well-developed cooperation between governmental bodies, scientific institutions, and public organizations. Many protected areas have been established as a result of joint efforts among these stakeholders. Such an approach is important to adopt and implement in the practice of nature conservation in Ukraine.

It is important to note the significant contribution of local communities in the United Kingdom to the establishment and management of protected areas of local importance, which are becoming part of the Nature Recovery Network (HM Government, 2019, 2023), as well as to the development of the RIGS network for the conservation of geological and geomorphological sites (Royal Society for Nature Conservation, 1999–2001; Scottish Natural Heritage, 2006). In addition, the experience of developing Local Biodiversity Action Plans can substantially improve nature conservation at the local level in Ukraine.

The United Kingdom is a global leader in implementation of conservation initiatives aimed at protecting the marine environment and regulating (planning) human activities in marine areas in line with the Sustainable Development Goals (HM Government, 2019, p. 171). It is a party to numerous international agreements and conventions related to marine conservation. Each constituent country of the United Kingdom also implements its own marine conservation initiatives. A key role in marine protection is played by the designation of marine protected areas of various statuses (such as Marine Protected Areas, Marine Nature Reserves, SSSI/ASSI, etc.) and ownership forms (including private). Additionally, a strong contribution is made by numerous volunteer, conservation, and environmental education initiatives (HM Government, 2019, pp. 171-191).

Regarding the potential introduction of certain British conservation categories in Ukraine, particular attention should be given to such a target-oriented category as Sites of Special Scientific Interest (SSSIs). These sites are recognized for their conservation and scientific value due to their geological, floristic, or faunal characteristics. This category plays an important role in the development of regional land-use planning.

SSSIs can be designated on land under any form of ownership and are accompanied by management plans. Agreements are concluded with landowners to regulate specific types of activities and, where necessary, to compensate for certain costs or restrictions (DEFRA, 2003). In the Ukrainian context, such a form of protection could be applied to some existing natural monuments and “*zakaznyks*” that possess significant scientific and educational value.

At the same time, the United Kingdom can serve as a model for Ukraine in implementing international conservation programs and their respective designation categories. This is particularly relevant to the EU Habitats and Birds Directives, as well as to the development of geoparks of national and international significance.

**Geoheritage conservation in the United Kingdom.** The first geological site to receive official protected status in the United Kingdom was the 45-metre-high Salisbury Crags in Holyrood Park, Edinburgh, Scotland. These cliffs were formed through the intrusion of magma into sedimentary rocks and were historically exploited for dolerite used in road construction and paving (Edinburgh Geological Society). The local community initiated the protection process of Salisbury Crags in 1819; however, quarrying activities ceased definitively in 1831 (reference in bibliography).

The National Parks and Access to the Countryside Act 1949 (HM Government, 1949) created the legislative basis for geoconservation in the United Kingdom through the designation of protected areas as Nature Reserves and, later, Sites of Special Scientific Interest (SSSI). During initial assessments of areas proposed for protection, 390 geological sites were identified in England and Wales (as potential Geological Nature Reserves), and 60 sites in Scotland (McMillan, 2008). Subsequent research has expanded these inventories (McMillan, 2008).

The first geological National Nature Reserve, Wren’s Nest National Nature Reserve, was established in 1956 and later expanded with the inclusion of Mons Hill in 1957. The designation was based on exceptionally well-preserved Silurian fossils (Wenlock epoch) of international significance (Cutler, Oliver & Reid, 1990). Today, this reserve forms part of the Black Country UNESCO Global Geopark.

In 1977, the Joint Nature Conservation Committee (JNCC) initiated the Geological Conservation Review (GCR) project in England, Wales, and Scotland (with a corresponding initiative in Northern Ireland known as the Earth Science Conservation Review (ESCR)). The aim of the project was to identify and describe Earth science sites of national and international importance, including both geological and geomorphological features (McMillan, 2008). As a result of this project, a comprehensive register of scientifically significant geological and geomorphological sites was established across the United Kingdom. Subsequently, the majority of these sites were designated as geological Sites of Special Scientific Interest (SSSIs) (or ASSIs in Northern Ireland). The outcomes of the GCR also provided a foundation for the development of Global Geoparks and for the nomination of natural sites for UNESCO World Heritage status.

The next major initiative in geoconservation was the establishment of a network of Regionally Important Geological and Geomorphological Sites (RIGS) across the United Kingdom.

The project was launched in 1990 on the initiative of the Nature Conservation Council (NCC), a governmental conservation body that operated in the UK until 1990. The development of this network was also outlined in the strategic document Earth

Science Conservation in Great Britain: A Strategy (1991) (Royal Society for Nature Conservation, 2000; Crowther, 2001).

The main objective of RIGS is the identification, protection, and promotion of public awareness of the geological and geomorphological value of sites of local and regional importance. Although sites included in this network do not possess formal statutory conservation status, their educational, historical, and recreational significance is considerable at regional and local levels.

The RIGS network is coordinated by the Association of Geoconservation Groups and consists of regional groups that include scientists, representatives of conservation organizations, local authorities, and other stakeholders. There are approximately 50 regional RIGS groups operating across England, Wales, and Scotland.

Overall, geological and geomorphological sites of local (regional) importance are designated under different names in various parts of the United Kingdom:

- In England – Local Geological Sites;
- In Scotland – Local Geodiversity Sites;
- In Wales – Local Geodiversity Sites (also used for regionally important geodiversity sites) (<https://geoconservationuk.org/geoconservationuk-documents/local-geological-geomorphological-sites-logs/>).

Some geological conservation sites that have the status of Sites of Special Scientific Interest (SSSI) or Special Areas of Conservation (SAC) / Special Protection Areas (SPA) may correspond to IUCN categories. For example, the Isle of Rùm National Nature Reserve (Scotland), covering approximately 10,000 hectares and protected for its unique geological structure and high biodiversity, is assigned to IUCN Category II (Roger Crofts, Nigel Dudley et al., 2014).

Traditionally, the primary focus of geoconservation has been on terrestrial sites. However, the presence of marine geological and geomorphological features of high scientific value provides sufficient justification for the designation of Marine Protected Areas (MPAs). During the assessment of coastal (intertidal and shoreline) and seabed geological and geomorphological features, approximately 6,500 features were identified, belonging to the following categories:

- indicators of glacial processes;
- indicators of marine processes;
- indicators of mass movement;
- indicators of sea-level change;
- indicators of geological processes (e.g., volcanism, diapirism, etc.).

This assessment also identified 12 sites of high conservation value that may serve as a basis for the establishment of Marine Protected Areas (Natural England, 2010, p. 67).

A special conservation status in England and Wales is assigned to limestone pavements (karst pavements). These are systems of small depressions formed on the surface of soluble rock masses (limestone, gypsum, salts), consisting of grooves, fissures, channels, and hollows ranging from several centimetres to 1–2 metres in depth. They occur in parallel rows and are typically oriented along slopes. These landforms are primarily formed by the action of atmospheric water and represent an early stage of karst development (<https://geodictionary.com.ua/>).

The conservation of limestone pavements is provided for under Section 34 of the Wildlife and Countryside Act 1981 (HM Government, 1981) through the designation of

Limestone Pavement Orders (LPOs). These orders prohibit activities involving the removal or disturbance of limestone pavement features.

In addition to their geological and geomorphological importance, limestone pavements are recognized as priority (rare) habitats under the UK Biodiversity Action Plan (BAP) (UK Biodiversity Action Plan, 2008) (Fig.). Further information is available at: <https://sac.jncc.gov.uk/habitat/H8240/>

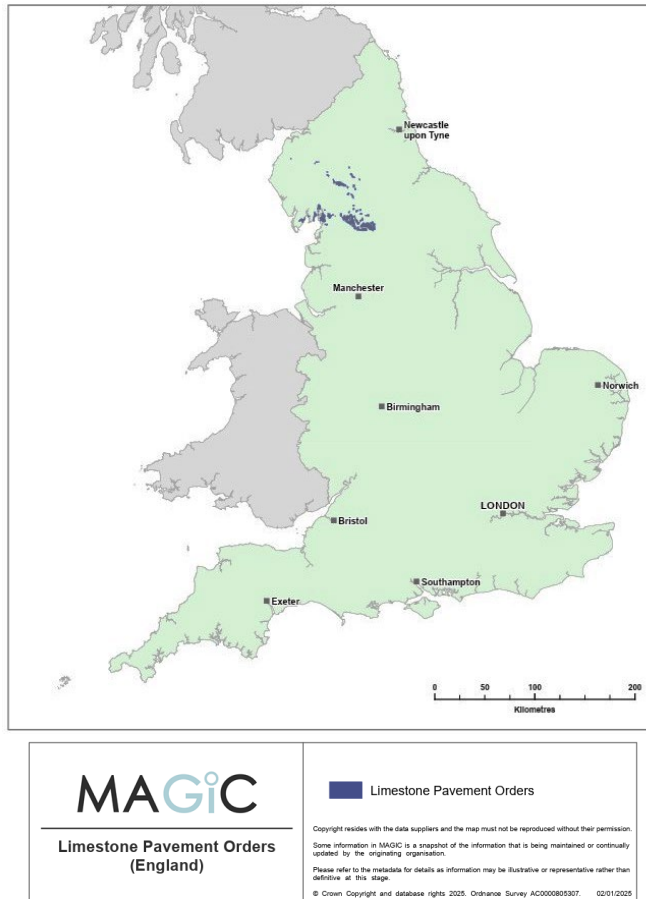


Fig. Distribution map of the Limestone Pavement Orders in England – chrome-extension://cfaidnbmnnnibpajpcglclefindmkaj/https://magic.defra.gov.uk/StaticMaps/Limestone%20Pavement%20Orders%20(England).pdf

One of the key roles in geoconservation in the United Kingdom has been played by the British Geological Survey (BGS) – one of the oldest geological survey organizations in the world. The scientific and technical infrastructure of this institution (including museum and exhibition collections, as well as archival resources) and its specialists have played an important role in the preparation of the Geological Conservation Review (GCR), as well as in the development of the RIGS network and the designation of Sites of Special Scientific Interest (SSSI). The British Geological Survey (BGS) has also provided an important advisory role in the establishment of European Geoparks and UNESCO Global Geoparks (Lawrence et al, 2007; McMillan, 2008).

*Geoparks of the United Kingdom.* The establishment and management of geoparks in the United Kingdom are coordinated by the UK Committee for UNESCO Global Geoparks. As of 2026, the network of UNESCO Global Geoparks in the United Kingdom comprises ten geoparks.

- **Black Country UNESCO Global Geopark** - designated as a UNESCO Global Geopark in 2020. The territory contains 99 geological sites of international and regional significance (The Association of Black Country Authorities, 2015, p. 15).

- **English Riviera UNESCO Global Geopark** - designated as a UNESCO Global Geopark in 2007. The territory of the “English Riviera” Geopark contains a high concentration of protected geological sites in the United Kingdom, including 16 Geological Conservation Review (GCR) sites, 6 County Geological Sites (CGS), and a further 10 potential CGS, many of which are located within 11 Sites of Special Scientific Interest (SSSI). The administration of the English Riviera Geopark actively cooperates with the local authority of the Torbay region in the protection of natural heritage, taking into account geological features of both regional (County Geological Sites, CGS) and national significance (Torbay Council, 2010). One of the most important achievements of the geopark and local authorities is the development of the Torbay Coast and Countryside Trust Policy on Fossil and Mineral Collection. These regulations require a mandatory written permit for the collection of fossils and minerals, and specify methodological requirements for extraction activities. They also require detailed field documentation, including precise recording of the sampling location, stratigraphic horizon, and other relevant geological information.

- **Forest Fawr UNESCO Global Geopark** – designated as a UNESCO Global Geopark in 2005. The entire territory of the geopark lies within the Brecon Beacons National Park. Between 2008 and 2012, a geological audit of South-East Wales was conducted, during which 47 Regionally Important Geological and Geomorphological Sites (RIGS) were identified and studied, along with numerous locally important sites designated as Sites of Importance for Nature Conservation (SINC) (<https://www.fforestfawrgeopark.org.uk/looking-after/>).

- **GeoMôn UNESCO Global Geopark** – designated as a UNESCO Global Geopark in 2009. It is located on the island of Anglesey (Ynys Môn), Wales. The island's diverse geology includes rocks from four eras and twelve concentrations of geological periods, creating geological features in a compact area. The coastal landscape geopark showcases volcanic deposits from ancient plate boundaries, metamorphic rocks from deep subduction zones and large glacial deposits from the last ice age.

- **North Pennines AONB UNESCO Global Geopark** – designated as a UNESCO Global Geopark in 2004. The North Pennines Area of Outstanding Natural Beauty (AONB) was originally established in 1988, covering an area of approximately 2,000 km<sup>2</sup>. In 2003, the North Pennines AONB became the first area in the United Kingdom to receive UNESCO-endorsed status as a European Geopark in June 2003 (North Pennines AONB Partnership, 2010). Following a detailed geodiversity audit, the first comprehensive action plan for the conservation and development of the area was prepared for the period 2004–2009 (North Pennines AONB Partnership, 2018). The geopark and AONB contain approximately 40% of the UK's upland hay meadows and 27% of its blanket bog habitats. In addition, 36% of the area is designated as Sites of Special Scientific Interest (SSSI) (North Pennines AONB Partnership (2008).

- **Shetland UNESCO Global Geopark** – designated as a UNESCO Global Geopark in 2009. The geopark territory includes: 2 National Nature Reserves (important for the conservation of seabird populations), 78 Sites of Special Scientific Interest (SSSI), 12 Special Areas of Conservation (SAC), 12 Special Protection Areas (SPA), and 1 wetland of international importance (Ramsar site). Locally designated conservation sites within the geopark include: 4 Marine Consultation Zones, 4 RSPB reserves, and 49 Local Nature Conservation Sites, of which 9 are geological. In addition, the area includes 2 Nature Conservation Marine Protected Areas and 1 Demonstration and Research Marine Protected Area (Shetland Islands Council, 2017, para. 1.7).

- **North West Highlands UNESCO Global Geopark** – designated as a UNESCO Global Geopark in 2005. The geopark includes: The Wester Ross Marine Protected Area (MPA), 3 Special Areas of Conservation (SAC, which are also part of SSSI), 2 Special Protection Areas (SPA), 12 Sites of Special Scientific Interest (SSSI), and 1 National Nature Reserve – Ben Mòr Coigach, which is the largest reserve (approximately 6,000 hectares) owned by the Scottish Wildlife Trust (SWT). The southern part of the geopark lies within the transition (buffer/economic) zone of the Wester Ross Biosphere Reserve (<https://www.nwhgeopark.com/theme-five-a-place-to-care-for/protected-areas-in-coigach-and-assynt/>).

- **Cuilcagh Lakelands UNESCO Global Geopark** (transboundary geopark; administered by Fermanagh and Omagh District Council, Northern Ireland, UK / Cavan County Council, Republic of Ireland). The core area of the geopark is **Cuilcagh Mountain Park** (Cuilcagh – a mountain 666 m high located on the border between Northern Ireland and the Republic of Ireland), situated in County Fermanagh. The park was established in 1998 to restore peatland ecosystems (this area is also designated as a Ramsar site). Another key feature is the **Marble Arch Caves**, opened to visitors in 1985. Due to the high geological value of the area, one of the first European Geoparks – **Marble Arch Caves Geopark** – was established here in 2001, and in 2004 it received UNESCO Global Geopark status. Initially covering only 1,600 hectares and considered one of the smallest geoparks in Europe, it was expanded in 2007 by an additional 18,000 hectares, incorporating territory in County Cavan (Republic of Ireland) and forming the first transboundary geopark in Europe ([https://www.europeangeoparks.org/?page\\_id=443](https://www.europeangeoparks.org/?page_id=443)) (Fermanagh District Council, 2008).

- **Mourne Gullion Strangford UNESCO Global Geopark** (Northern Ireland) – designated as a UNESCO Global Geopark in 2023. The geopark covers an area of approximately 2,000 km<sup>2</sup>, including around 300 km<sup>2</sup> of marine environments. A geodiversity audit of the region was conducted in 2013, revised in 2018, and updated in 2021. The geopark includes three Areas of Outstanding Natural Beauty (AONBs): Mourne AONB, Ring of Gullion AONB, and Strangford Lough and Lecale AONB, each of which encompasses a range of protected areas and sites of international, national, and regional importance (<https://mourgullionstrangfordgeopark.com/things-to-do/geosites/>).

- **Arran UNESCO Global Geopark** (Scotland) – designated as a UNESCO Global Geopark in 2025. The island is often referred to as “Scotland in miniature” due to its remarkable geological diversity, which reflects a complex geological history – from ancient metamorphic formations to igneous intrusions.

The United Kingdom represents an example of a systematic approach to the identification, description, and conservation of geological and geomorphological sites through the Geological Conservation Review (GCR) in England, Wales, and Scotland (with a corresponding initiative – the Earth Science Conservation Review (ESCR) – in Northern Ireland). These projects formed the basis for the inclusion of the most valuable sites into the SSSI/ASSI system, while locally significant sites became part of the network of Regionally Important Geological and Geomorphological Sites (RIGS) across the United Kingdom.

The network of non-statutory (informal) conservation sites enables the protection of a larger number of areas, since the selection criteria, unlike those for statutory sites, are not strictly scientific (Crowther, 2001).

The combined framework of **RIGS, SSSI, and GCR sites** forms an integrated network that ensures the conservation of geodiversity at both national and local levels (Royal Society for Nature Conservation, 1999–2001, para. 1.7.1). Regionally Important Geological and Geomorphological Sites (RIGS), in particular, play a crucial role in safeguarding locally significant Earth science sites (geological and geomorphological features) beyond legally protected areas such as Sites of Special Scientific Interest (SSSI).

The **Ulster University Economic Policy Centre (UUEPC)**, commissioned by the Department for the Economy of Northern Ireland, conducted a study on the economic value and impact of the geosciences sector on the regional economy, as well as its future development potential. According to the UUEPC report, in 2018 the geoscience sector in Northern Ireland comprised approximately 6,150 enterprises, representing about 8.6% of all businesses in the region. The sector employed around 34,000 people, accounting for 4.6% of total employment, and generated a Gross Value Added (GVA) of £2.1 billion, which corresponds to approximately 5.8% of Northern Ireland's total GVA (Northern Ireland Environmental Agency 2021, p. 7).

*Comparative analysis of geoheritage conservation in the United Kingdom and Ukraine.* The UK experience in protecting geologically and geomorphologically significant sites of scientific and educational value can serve as a model for many countries, including Ukraine. Its main distinguishing feature is a well-structured system for identifying and designating geoheritage sites. This system is based on close cooperation between state and local authorities, scientists, and non-governmental organizations. A key example is the Geological Conservation Review (GCR), implemented in the late 1970s, which significantly expanded the number of geological monuments – sites of special scientific interest. This review was carried out by scientific institutions and units of the Geological Survey with the support of local authorities.

In addition, an important contribution to geoheritage conservation in the UK was made by the initiative of geologists and environmental NGOs to establish the network of Regionally Important Geological and Geomorphological Sites (RIGS). During the 1990s, scientists, local authorities, and conservation organizations collaborated within the RIGS Group initiative. This group also played a key role in developing Geodiversity Action Plans, aimed at systematic conservation and management of geological diversity.

This British experience of active cooperation among different social sectors, with a leading role of the scientific community, represents a valuable model for geoheritage protection efforts in Ukraine (Burek & Potter, 2004a, 2004b, 2006; Burek & Prosser,

2008).

In essence, the evolution of geoheritage conservation in the United Kingdom – from geological monuments, through regional groups for the protection of geological sites, to the establishment of formalized geoheritage structures such as geoparks – demonstrates a gradual shift from purely conservation-oriented functions toward the integrated use of valuable Earth science sites for education, tourism, and sustainable development.

In contrast, geoheritage protection in Ukraine is mainly focused on a single conservation category – natural monuments – which are differentiated according to their national or regional (local) significance. The identification and inventory of geological monuments are carried out by geologists from universities, academic institutions, and the State Service of Geology and Subsoil of Ukraine. Their proposals are subsequently submitted to regional geological authorities (at the oblast level) for official designation as protected sites.

The most recent comprehensive compilations of geological monuments in Ukraine have been published by the State Service of Geology and Subsoil of Ukraine in the form of the Catalogue of Protected Sites of Ukraine’s Main Regions (oblasts) (<https://pzf.land.kiev.ua/kat-pp2.php>).

Regarding the implementation of the geoheritage conservation category of geoparks, Ukraine is currently at an early stage of development. Ukrainian researchers define this category as an instrument for the integrated use of geoheritage, combining geoconservation, geoeducation, and geotourism. Scientists from Ivan Franko National University of Lviv have developed a scheme of potential geoparks in Ukraine, as well as a draft framework for their establishment and functioning.

For the effective conservation and use of Ukraine’s geoheritage, original British experience in this field can be applied in several directions:

- expansion of conservation categories, including statutory ones, aimed at the protection and educational and tourism-oriented use of valuable geological and geomorphological sites. The introduction of a “sites of scientific interest” category (similar to “documentation sites” in Poland) appears particularly promising, as it would significantly enhance their scientific and educational value.
- in organizational terms, it is important to establish groups similar to RIGS that would bring together scientists, educators, and public environmental organizations for the identification of new valuable geological and geomorphological sites, as well as for their consideration in spatial planning processes;
- the British experience in establishing geoparks is particularly valuable, as several of them have been incorporated into international geopark networks. For Ukraine, it is important to apply two organizational approaches. The first approach, which has proven effective in the United Kingdom, involves the integration of spatially related protected areas, including geological ones, into a geopark structure. This “top-down” approach can be based on both large and small protected areas with rich geoheritage, such as national and regional parks, nature reserves, and natural monuments. The second, “bottom-up” approach is based on local community initiative, where geoheritage forms an important part of the territory’s identity. In this case, the development pathway of geoparks can be structured as follows: local geopark – regional geopark – national geopark.

**Conclusions.** 1. A comparative analysis of nature conservation systems in the United

Kingdom and Ukraine has revealed both similarities and differences in the organization and functioning of protected areas and sites. From an organizational perspective, the United Kingdom is distinguished by strong cooperation and partnership between national and local authorities, scientific institutions, and environmental NGOs in the establishment and management of protected areas. This organizational model is highly relevant for Ukraine, particularly in the context of modernizing its protected area system in line with European approaches.

2. It should be especially noted that in Great Britain, similarly to the countries of the European Union, the habitat approach to the selection of protected areas retains a significant role. In this context, Ukraine lags significantly behind not only Great Britain, but also European countries in general. Ukrainian environmental legislation lacks norms that would define a “habitat” or a certain “habitat type” as a unit of protection, on a par with species or plant communities. In this aspect, many changes need to be made to Ukrainian legislation. This is possible, in our opinion, primarily through editorial changes to the Laws of Ukraine “On the Red Book of Ukraine” and “On the Nature Reserve Fund of Ukraine”. In addition, an additional path is possible to adopt legislative acts similar to the Habitats Directive or relevant regulatory documents of Great Britain.

3. The unique system of protected area categories in the United Kingdom reflects both the specific condition of its highly anthropogenically transformed natural environment and broader European conservation approaches. It should be noted that the island nature of the country has led to the development of numerous conservation categories related to marine environments. This is evident in the existence of distinct groups of protected categories, such as scenic landscapes and marine areas.

A comparison of the protected area systems of the United Kingdom and Ukraine indicates a relatively low level of similarity. Both countries share such categories as national and regional parks, as well as natural monuments. At the same time, the UK’s experience in the selection and management of certain conservation categories – such as nature reserves and sites of scientific interest – should be taken into account in the modernization of Ukraine’s protected area system.

4. Significant progress in the United Kingdom has been achieved in the conservation of geoheritage. The country has developed an extensive network of geological reserves and sites of special scientific interest, which has formed the basis for the establishment of integrated geoheritage conservation and use structures – geoparks. The United Kingdom is among the world leaders in terms of the number of global and national geoparks.

The British experience of cooperation between scientists and environmental NGOs in the creation of protected geological and geomorphological sites is particularly noteworthy. To expand the range of such protected objects in Ukraine, it would be important to introduce a category equivalent to “sites of special scientific interest” (documentation sites) into the national classification system. Another key priority is the establishment of formal geoheritage conservation categories in Ukraine, particularly geoparks. These could be developed at both local (regional) and national levels. In this context, it is important to adopt the British experience of geopark development through both “bottom-up” approaches-driven by local communities, and “top-down” approaches-initiated and supported by state institutions.

5. In addition, regarding the conservation of geoheritage, along with the obvious

importance of borrowing the British experience of identifying relevant territories – both at the initiative of local communities and centrally – it is necessary to note a number of problems of its direct use in Ukraine. The history of environmental protection in Great Britain and in Ukraine is significantly different. In the near future, it is unlikely that such an environmental protection category as a geopark will be officially introduced into the legal framework of Ukraine in the status of an organization. Therefore, the authors analyze the experience of other countries, not limited to the European continent. Currently, the authors are completing a similar review of China's organizational, legal and practical experience in preserving geoheritage. Some elements of the organization of this process in this country seem more suitable for Ukrainian realities. In the near future, a corresponding review will be published, and on the basis of all these materials – an analytical work, the purpose of which will be to substantiate practical proposals for environmental protection practice in Ukraine.

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