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# Restitution of Wisents in Poland: The Activities Aimed at Wisent Protection

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**Abstract**—The Białowieża Forest is a compact forest complex situated on the border between Poland and Belarus. The Białowieża National Park is the largest and the oldest natural area in Europe under strict protection. It is assumed to be first established in 1921, while in 1947 this entity was re-established as the Białowieża National Park. The park covers an area of 10 517.27 ha, which accounts for 1/6 of the Polish part of the Białowieża Forest.

of nature and interdependence between, among other things, the condition of natural resources and economic development [4]. As defined in the Polish Act on Nature Protection, nature protection involves maintaining, sustainable use and renewal of its particular resources, formations and components. To meet the goals so defined, the application of legal institutions established by the provisions of the Act, such as forms of nature protection, is of paramount importance [5]-[9].

## II. THE BIAŁOWIEŻA FOREST AND WISENTS

The Białowieża Forest is a compact forest complex situated on both sides of the border between Poland and Belarus. The Belarusian part is wholly protected as a national park. The Polish part covers 62,000 ha, of which 10,500 ha is the area of the Białowieża National Park [10]-[11], 12 thousand ha is a network of nature reserves, while the remaining part is economically exploited [12].

The unique nature of the Forest, its special character in terms of biodiversity preservation, ecological and biological processes that are important for the evolution and development of natural ecosystems, and unmeasurable scientific value, have been appreciated in the international arena [13]. It was listed as the "UNESCO World Heritage" in 2014 as the first cross-border (Polish-Belarusian) in Europe. The registration did not cover only its outskirts in the immediate vicinity of the village of Hajnówka and the villages located along the western border of the Forest [14].

Nature of the Forest is protected under applicable regulations of ordinances concerning the protection of species of plants, animals and fungi, and under planning documents containing protective tasks for Białowieża, reserves, habitats and species subject to protection in the area of Natura 2000 covering the whole area of the Forest [15]. Additional recommendations and protection priorities for this area are formulated in the economic and protective program for the forest promotion complex "Białowieża Forest" for 2012-2021 [16], and a re-nomination application to UNESCO regarding the recognition of the whole Białowieża Forest as a human heritage site [17]. It is noteworthy that the criteria for the recognition as a UNESCO World Heritage Site clearly express the priorities which include the protection of spontaneous natural processes taking place in habitats that are representative for the protection of biodiversity on the site [18].

According to the standard data form for the area "Natura 2000 Białowieża Forest" area, the object of protection covers 10 natural habitats, including 5 non-forest and 5 forest habitats. The latter account for 67.53% of the Natura 2000 area of 63,177.88 ha established within the forest complex that contains the best preserved and stable forest vegetation having the characteristics of primeval plant communities [19].

One of the main priorities of nature protection in the Białowieża Primeval Forest is the protection of the wisent (European bison), for which the Forest is the basic refuge. This is mainly due to the history of the species – it was here that the last free-living survivors were found and here the population was reproduced, first by breeding, and finally in free-living herds [20]. The current scientific research undermines the earlier views, according to which wisents were considered to be animals strongly associated with forests. The wisent is a ruminant associated with open grasslands [21]-[22], which determines, among other things, the provisions of the protection plan for the Białowieża National Park. One the conditions for the conservation of objects of protection is

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Under a royal decree, the wisent was already protected in the 16th century (during the reign of Zygmunt Stary, under the Statutes which became effective in the Grand Duchy of Lithuania in 1526). In 1803, Tsar Alexander I issued a decree prohibiting hunting wisents. On 2 June 1923, J. Sztolcman presented the Polish project to save the wisent from extinction and on the experience of the American Bison Society. The wisent was strictly protected under a special ordinance of the Minister of Religious Denominations and Public Education dated 1904, 1938.

Nowadays Poland carries out activities aimed at the protection of endangered and critically endangered species and their habitats, as well as conducting educational activities and disseminating information on the protection of wild fauna and flora and international cooperation aimed at the protection of cross-border species, including the wisent.

The latest report containing full data concerning wisent population worldwide was developed in 2017. The figures relating to the animals show that the population was about 6000 of which nearly 1880 lived in Poland. In June 2019 the national State Forests office revealed that the number of wisents in Poland is 1863. It was achieved mainly by international cooperation and project implementation (including the latest: „Complex wisent protection program in Poland 2019-2023”).

**Keywords**—Endangered species national park, nature, wisent.

## I. THE NATURA 2000 NETWORK IN POLAND

The Polish legislation on nature conservation has a long tradition, as these activities were undertaken as early as in the Middle Ages [1]–[3]. However, it was not until the second half of the 19th century and early 20th century that nature protection became one of the factors influencing the culture of almost all countries of the world. This period saw the development of the concept of biodiversity conservation based on the principle of sustainable development, which allowed us to see the complexity

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The assumptions of this and other projects are similar. The migration of particular wisent individuals between subpopulations (setting the migration corridors). This would be made easier by prohibiting, during periods of increased reproductive activity, the general access to parts of the forest constituting a wisent refuge.

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(signed in Bonn on 23 June 1979) [45] and the Convention on Biological Diversity (signed in Rio de Janeiro on 5 June 1992) [46].

The preparations for the establishment of the Natura 2000 network in Poland began as early as at the end of the 1990s. Preliminary analyses of resources were carried out at that time, and negotiations were held on the inclusion into the EU law of habitats and species requiring protection in Poland, and absent in the countries of the old European Union and, therefore, not protected by EU law at that time. By the end of 2008, the Council of Ministers set in an ordinance, 141 special protection areas and sent to the European Commission 364 proposals for special areas of conservation. The proposals have been adopted and function as areas of Community interest, becoming "full-fledged" Natura 2000 sites. Currently, the Natura 2000 network occupies almost 1/5 of the land area of Poland, comprising 849 habitat areas and 145 bird areas [47]-[50].

The protected areas within the Natura 2000 network are designated by EU Member States in accordance with the provisions contained in the above-mentioned directives [51]-[52]. The designation is only based on scientific and natural criteria [53]-[54]. The boundaries of Natura 2000 areas are not subject to change due to economic, social or industrial reasons. Local economic and social conditions are taken into account only at the stage of network functioning and management of particular Natura 2000 sites (when formulating conservation plans or protection paragraph) of the act on nature protection, the network of Natura 2000 sites (specific Natura 2000 sites). Pursuant to Article 25 paragraph 1 of the act on nature protection, areas designated on the basis of the Birds Directive, special areas of conservation designated under the Habitats Directive, areas of Community interest under the Habitats Directive.

Some of the plant and animal species and natural habitats listed in the Habitats Directive have been marked as a priority. These are the habitats for which Europe bears special responsibility due to the fact that their larger parts remain within the administrative borders of the European Union. One of the priority species of animals occurring in Poland is the wisent.

The occurrence of the wisent in the Natura 2000 areas in Poland is confirmed in five free-living herds: Bieszczady, Mirosławów, Białowieża Forest, Borki Forest and Knyaszyn Forest. There are also four large Wisent Breeding Centres in Poland, established specifically to run closed breeding of this species. These include centres located in Białowieża, Niepolomice, Paszczyzna and Smardzewice, as well as large demonstration farms: Ośrodek Kulturalny Leśnej w Goluchowie and Międzyzdroje. In particular, wisents are kept in several zoological parks [55]-[56].

Despite the tremendous effort of foresters, scientists and enthusiasts, wisents are struggling with numerous problems. The most serious threat to the contemporary wisent seems to be population variability and isolation of existing herds within inbreeding, i.e. reproduction of closely related individuals within tightly closed and isolated population [57]-[58]. They are also threatened by diseases (mainly tuberculosis) [59]-[60]. Poland coordinates of breeding and protective activities (fragmentation of habitats and neighboring countries; progressive fragmentation of habitats [61] and loss of pasture areas due to human activities [62]).

Systematic actions aimed at the protection of the wisent have various forms and diverse scale. For example, in 2017, the project "Comprehensive protection of the wisent by Lasy Państwowe [State Forests]" was commenced, whose main goal is to ensure the sustainability of the wisent population and its development. The activities undertaken as part of the project are planned for 2017-2020. The partners jointly implementing the project are 22 forest districts; 5 regional directors of Lasy Państwowe; Forest Bank in Kostrzyca; Centre for Forest Culture in Goluchów; Warsaw University of Life Sciences; Association of Natural Enthusiasts and the Białowieża National Park. The organizational coordinating and supervising the implementation of the project is the Department of Nature Conservation of the General Directorate of Lasy Państwowe [State Forests].

simply "the maintenance of non-forest ecosystems that constitute a place of for wisent pasturing" [23].

Wisents (Latin: *Bison bonasus*) are the largest European mammals. They were almost completely eradicated on the European continent, although they once inhabited it in quite significant numbers. During the nineteenth century, they were seen on the territory of Poland and in the Caucasus, but as early as in 1919 it was made public that the last wild lowland wisent died in the Białowieża Primeval Forest. The same happened to the Caucasian wisent six years later [24].

The fate of these animals caused that the Poles presented a wisent restoration project during the International Congress of Conservation of Nature held in 1923 [25]. At that time, the Society for the Protection of the European Bison was founded [26]-[27]. The success of the project depended on a small number of individual animals that survived in zoological parks and private managers. In 1966, the wisent as a species threatened with extinction was listed on the Red List [28] and was subject to strict species protection.

In Poland, pursuant to the provisions of the Act on nature protection of 16 April 2004 and the Ordinance of the Minister of Environment of 16 December 2016 on species protection [29], the wisent is covered by strict protection [30]. Wisents are also directly protected under the provisions of the Bern Convention [31] and the Habitats Directive [32].

**III. PROTECTION OF THE WISENT AS PART OF THE NATURA 2000 NETWORK**

The world's wisent population in 2017 was about 6000 individuals, with nearly 1700 in Poland [33]-[34]. This state is a result of the implementation of many projects for the protection of the species, as well as close international cooperation [35]. The significant increase in the number of herds and the population indicates the effectiveness of the activities carried out and the need to continue them. For many years, joint efforts have been carried out by Lasy Państwowe (Polish state-owned forest administration), national parks, scientific institutions and non-governmental organizations [36].

By signing, on 16 April 2003, the Treaty of Athens which constituted the legal basis for joining the EU [37], Poland agreed, among other things, to designate the Natura 2000 network areas on its territory [38]. The Community law forming the basis for the creation of the Natura 2000 network was implemented into the Polish legislation by the Act of 3 October 2008 on sharing information on the environment and its protection, public participation in environmental protection and environmental impact assessments [39] and the Act of 16 April 2004 on nature protection, making Natura 2000 the newest legal form of nature protection in Poland.

The idea of the Natura 2000 network assumes increasing the effectiveness of protective measures by creating an additional, a complete and methodically consistent, system of protection of the natural heritage of Europe, which overlaps the already existing area and species protection systems by complementing and strengthening them. It is a globally unique solution in the field of international area protection of nature [40]. The basis for its operation are two EU directives - Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds [41] (referred to as the Birds Directive) and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora [42] (referred to as the Habitats Directive). Pursuant to the provisions of the Directive, each EU Member State is obliged to provide natural habitats and species of plants and animals referred to in these directives with conditions conducive to protection or ensure their good (proper) condition, including by designating special protection areas (SPAs) and special areas of conservation (SACs) [43]. The directives are also intended to fulfil the obligations under ratified international agreements: on the protection of species of wild fauna and flora (Bern Convention) [44]; on the conservation of migratory species of wild animals

