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MANAGEMENT OF NATURE CONSERVATION IN SOUTHERN POLAND BY THE REGIONAL DIRECTORATE FOR ENVIROMENTAL PROTECTION - CASE STUDY FROM THE MAŁOPOLSKA VOIVODESHIP

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Abstract

The study combines considerations that fall within the scope of institutional management of nature conservation in the Małopolska region, situated in southern Poland, regarding the issue of protected xerothermic plant communities (Festuco-Brometea class). The latter, are considered to be one of the richest in number of vascular plants species. However, as semi-natural habitats, they need livestock grazing in order to stop natural plant succession. Such protective actions are organised by the Regional Directorate for Environmental Protection. These unique thermophilic steppe communities, located north of Krakow, are covered by Special Protection Areas, within Natura 2000 European network. An active protection of these grasslands is implemented mainly by providing financial support for sheep grazing. Therefore, efficient management means firstly introducing a complex system of selecting the areas, especially those which particularly deserve protection. Then, there is the issue of selecting farmers who would carry out sheep grazing in such habitats, but also who will be able to cope with a rather difficult management of the grazing process itself. Thus,

the crucial task for that institution is organizing financial support for farmers who decide to do such work. This includes the analysis of costs related to the protective actions with respect to the size of such habitats, as well as the number and abundance of protected plant species in particular areas. Results of the research show that institutional protection of xerothermic habitats, in the face of frequent abandonment of animal production by farmers, is especially important nowadays. It also seems there is no other alternative to it. However, the most problematic aspect seems to be the duration of such initiatives, which depend on repetitive financial support from various grants concerning nature conservation.

Keywords: *institutional level, Małopolska region, nature conservation*

JEL classification: *Q, Q5, Q57*

1 Introduction

Successful management of environmental protection and nature conservation is nowadays increasingly becoming the basis for the success or failure of economies and social systems in many European countries. New technologies for environmental protection are being applied, as well as great economic and social changes are being made for enhancing nature conservation in some agricultural and rural ecosystems. Moreover, environmental awareness affects more effectively the implementation of natural resources protection and its management (Dimitrov & Ivanova, 2017; Seroka-Stolka & Jelonek, 2013). On the other hand, unsustainable land management is considered to be one of the main factors of land degradation resulting from the lack of incentives to invest in sustainable land management. In recent years in Poland, a major issue seems to be a progress in deagrarianisation process in the agricultural production area e.g. in southern part of the country. That is leading to reduction of the biodiversity on arable land and grasslands, resulting from the discontinuation of agricultural use. Thus, scientists see conservation agriculture as an effective and sustainable practice for agricultural production (Daujanov, Groeneveld, Pulatov & Heijman, 2016; Musiał & Musiał, 2017). This issue applies to an environmentally sustainable economy as well, that requires that the principles of ecology establish the framework for the formulation of economic policy, and work in this regard is implemented by specific institutions (Brown, 2001; Hahn & Stavins, 1991; Power, 1996).

Solving such difficult issues, in the field of broadly understood environmental protection is largely the competence of the European Union member states. However, the perimeter of common arrangements made within the EU is constantly expanding in this respect. Also nature conservation, which is a component or

a subsystem of environmental protection, is the responsibility of national authorities, and as such depends on the organisation and efficiency of the broadly understood institutional system. This system is composed of the law on environment and nature protection, funds for protective activities, institutional structures and staff. The most important institution in this respect is the General Directorate for Environmental Protection (GDEP), along with its regional branches, i.e. the Regional Directorates for Environmental Protection (RDEP). GDEP is responsible for pursuing the environmental protection policy as regards managing the nature protection, also on the Natura 2000 areas, including the tasks related to preventing and repairing the damage done to the environment. This institution also manages the information about the environment, registers organisations that protect the environment in the national management and audit system, and also coordinates the network of national institutions that promote environmental protection. It coordinates the activities of implementing institutions as regards the use of European funds as well (The General Directorate for Environmental Protection, 2018).

The purpose of this paper is to indicate the position and organisational structure of the Regional Directorate for Environmental Protection and the area of its influence, on the example of selected Natura 2000 areas in the Małopolskie Voivodeship.

2 Data and Methods

The paper combines considerations in the field of institutional economics and management with the issue of nature conservation, with reference to the selected, protected plant habitats. The analysed example of managing the high-quality conservation sites, was a set of activities aimed at protecting the xerothermic grasslands within the Special Areas of Conservation, included in the Natura 2000 network. This is done through organising and funding the protective activities, including i.a. grazing of sheep and goats. The input material for these considerations was the analysis of the activities pursued by the Regional Directorate for Environmental Protection. In the period 2013-2017, this institution completed a project titled "Protecting xerothermic habitats in the Natura 2000 areas on the Miechów Upland" - LIFE12 NAT/PL/000053 (LIFE+ Xerotherms PL., 2018). The project covered the activities performed in 12 "nature" areas, located in 4 communes in the Miechów poviat, in the northern part of the Małopolska Voivodeship.

Geomorphologically, these areas are located within the Miechów Upland mesoregion, included in a bigger unit referred to as Niecka Nidziańska (the Nida

Basin). It is a fertile agricultural land with highly productive types of soil, such as *cambisols* and *leptosols*, which are also a good foundation for thermophilic plant communities (Bednarek & Prusinkiewicz, 1997; Bednarek, Charzyński & Kabała, 2009; Kondracki, 2009). A synthetic analysis of such protected thermophilic communities was performed, as they are the focus of the activities assigned by the RDEP. Latin names of the species were given according to a checklist of flowering plants of Poland (Mirek, Piękoś-Mirkowa, Zając, A. & Zając, M., 2002).The protected plant species occurring in the area were defined pursuant to the Regulation of the Minister of Environment on the protection of plant species (Journal of laws.., 2014). The phytosociological affiliation was given according to Matuszkiewicz (2002).

3 Results and Discussion

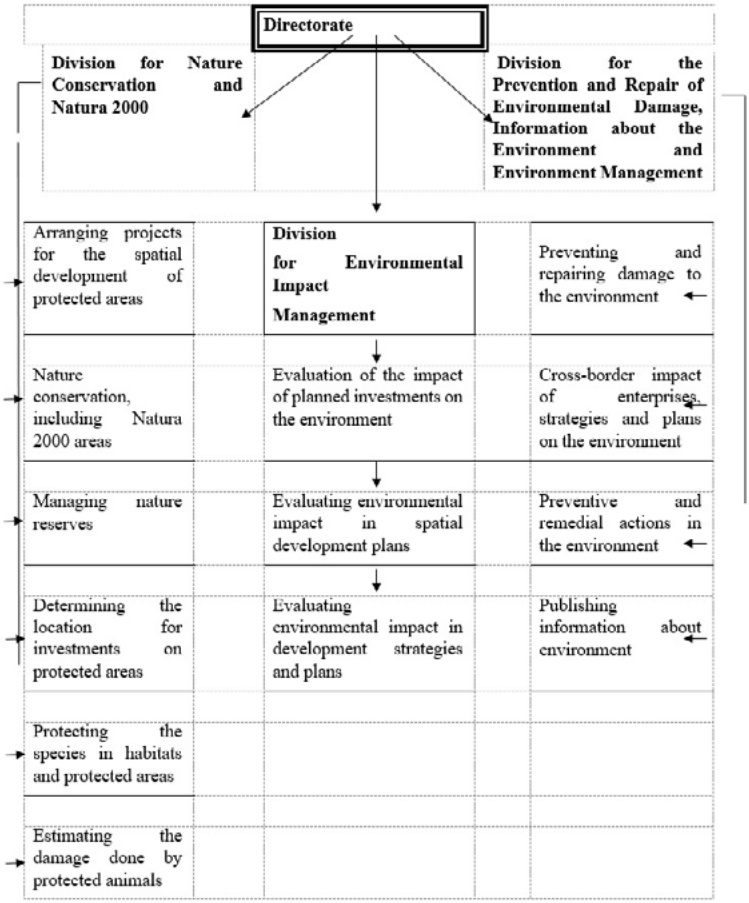
3.1 The essential impact and activities of the Regional Directorate for Environmental Protection

On the regional level there are various activities regarding nature conservation, resulting of legal requirements performed by the Regional Directorate for Environmental Protection, that are recommended by its Regional Director. This institution was established pursuant to the "Act of 3 October 2008, on publishing information about the environment and its conservation, public participation in the environmental protection and environmental impact assessment". This unit, as part of non-associated government administration, is responsible for pursuing the national policy in the area of environment and nature conservation on the Voivodeship level (Journal of laws.., 2017). The tasks resulting of that act, are implemented by the regional director for environmental protection along with the Directorate office. These tasks are performed in cooperation with the directors of landscape parks. Nature conservation in the region is the responsibility of the deputy regional director, who is at the same time the regional nature conservationist. The operational functions of the regional directorate are multifaceted, and they are pursued within the structure of this institution (Figure 1).

In the section of the first deputy director, who is at the same time the regional nature conservationist, general tasks assigned to nature conservation are pursued. The scope of action for the Division for Nature Conservation and Natura 2000 is preparing various regulations concerning the protection plans and tasks for Natura 2000 areas and nature reserves. Administrative activities and attention also focus on landscape parks and protected landscape areas. For such areas, the office pursues activities aimed at defining various projects and plans related to

their spatial development. This also refers to the location of new public investments and issuing decisions related to land development conditions. The main tasks, that are currently of major significance are: protection of plant, animal and fungal species, protection of natural and semi-natural habitats, such as various grasslands and woodlands, as well as estimating the damage done by protected animals. These activities substantially focus on pursuing the changeable state policy in this respect.

Figure 1 **Main tasks pursued by the Regional Directorate for Environmental Protection**



Source: Data from the RDEP in Cracow and the Act of 3/ 10/2008

The Division for Environmental Impact Management, copes with administrative procedures and the progress of the evaluation of impact of the enterprises, that may significantly affect the environment. This refers e.g. to the planned investments in transport, commercial investments and various infrastructural projects. Measures are also taken here, to ensure strategic evaluation of environmental impact related to the spatial development plans (e.g. municipal plans), and other local and regional strategies, plans and development programmes. The third substantive section of this institution, is the Division for the Prevention and Repair of Environmental Damage, Information about the Environment and Environment Management, performs four groups of tasks. If there is a direct threat of damage to environment, a decision is issued that obliges business entities to implement preventive and remedial measures, and it is in this section that the conditions for implementing such measures are defined. This is also where the proceedings are conducted, as regards the cross-border impact on the environment, of which the General Director for Environmental protection is notified when necessary. Remedial and preventive actions are taken here, when damage has been done to the environment and there is a risk to human life or health, and the perpetrator of the damage has not been determined. Apart from the tasks divided among the three analysed divisions located in the office of the Regional Director, there are two field branches in the Małopolska Voivodeship: in Tarnów and in Nowy Sącz. The Regional Director regulates their competences, considering the nature of the tasks to be implemented locally. In the implementation of these activities, the Regional Directorate also cooperates with numerous institutions, especially on the regional level whose competences include environmental protection, as well as with agricultural institutions.

3.2 Institutional protection of precious xerothermic habitats

In the Małopolska Voivodeship there are many Natura 2000 areas with xerothermic habitats, for example in the Małe Pieniny mountain range and the Ojców National Park. The Natura 2000 areas have been established also for the numerous xerothermic grasslands on the Miechów Upland. The latter grow in the isolated habitat sites, one separated from the others like mosaic of islands, located on the southern slopes of the hills made of cretaceous marl. Thanks to the presence of fertile soils, this mesoregion is a typically agricultural land, but due to the strongly undulating landscape, with steep and short slopes, scarps and ravines, the numerous enclaves or scrapes of fields have lost their productive functions. This process in the Miechów region has been rather intense for the past 30-40 years and it is strongly related to the fact that the minor farms in the region have ceased to breed ruminants. As a result, some arable fields, especially those further from the farms,

have gradually become useless for intense farming and returned to their natural, wild state. However, the semi-natural ecosystems created by the thermophilic grassland habitats have taken centuries to appear in the interaction with extensive farming and their existence depends on the sustained animal production.

Xerothermic grasslands of the Miechów Upland have been formed thanks to such human activities like grazing, especially using sheep. The local breed of sheep from this region is the Olkusz sheep (Murawski, 2011). As follows from the current state of knowledge and the so called "good practice", grazing small ruminants in various types of grasslands is in general the most effective and the cheapest way of providing long-term protection to the plant species. Thanks to the grazing, it is possible to keep the xerothermic grasslands in a proper condition, including maintenance of the significant orchid sites, which are priority habitats within the Natura 2000 network. Livestock grazing in these semi-natural habitats, is aimed for maintaining the succession process on the level, that is desirable from the perspective of biodiversity. However, since the economy and farming were brought to the market in 1989, and especially since Poland integrated with the European Union in 2004, along with the changes in economic relations and farming methods, regular grazing on relatively small, dispersed and isolated xerothermic grasslands has ceased to become profitable. As a result, over the past few decades, the phenomenon of productive deagrarianisation has been observed in this region (Musiał, 2017). This process also upsets the local migration paths of xerothermic species among the existing patches of grasslands. As a result, the advanced succession towards bushlands and forest habitats is becoming a considerable problem, because such habitats cannot sustain themselves in the landscape when left intact (Kostuch & Misztal, 2006; Loster & Gawroński, 2005; Xerothermic flora.., 2012; Musiał & Grygierzec, 2017; Musiał, Szewczyk, Walczak & Grygierzec, 2017). Maintaining their natural values requires currently extensive measures related to active protection, that is managed by the Division for Nature Conservation and Natura 2000, within the RDEP (Figure 1).

The LIFE12 NAT/PL/000053 Project is an example of such activities, implemented by this institution in the Małopolska Voivodeship. In Miechów Upland it was initiated in 2013, with the budget of 6.5 million PLN, 75% of which comes from the European Commission sources, and 25% from the Fund for Environmental Protection. Protective activities include a total of 12 areas within the Natura 2000 network (tab. 1). Individual areas are relatively small, from 3.70 ha (Uniejów Parcele) to 25.60 ha (Kalina Mała), and all of them have a total area of 136.87 ha. These areas are usually compact and dense, although some of the enclaves may be dispersed, e.g. the Natura 2000 Poradów area. These "nature" areas

are usually intertwined with small arable fields, where mainly cereal is grown, and forest edges. The structure of land ownership is just as diverse and often complex: it can be private ownership, land cooperatives, land owned by the State Treasury and land managed by communes. These areas also include the land purchased by the RDEP from the funds coming from the Life Project, and this is a total area of 18.2 ha, i.e. 13.3% of the total area covered by the project.

Table 1 **Selected characteristics of the Natura 2000 areas where xerothermic habitats are actively protected (Project LIFE12 NAT/PL/000053)**

Name and symbol of the Natura 2000 area		Area in ha.	Share in %	Number of vascular plant species	Number of protected plant species	Commune
1.	Cybowa Góra PLH120049*	18.18	13.26	308	14	Słaboszów
2.	Grzymałów PLH120053*	15.23	11.13	327	22	Słaboszów
3.	Giebułtów PLH120051*	6.38	4.66	235	17	Książ Wielki
4.	Kalina Mała PLH120054*	25.60	18.71	303	12	Miechów
5.	Kaczmarowe Doły PLH120062*	12.62	9.22	197	11	Miechów
6.	Sławice Duchowne PLH120074*	4.41	3.22	143	3	Miechów
7.	Komorów PLH120055*	4.91	3.59	162	3	Miechów
8.	Widnica PLH120076*	7.89	5.74	171	4	Miechów
9.	Pstroszyce PLH120073*	19.44	14.20	176	4	Miechów
10.	Chodów-Falniów PLH120063*	7.27	5.13	147	7	Charsznica
11.	Uniejów Parcele PLH120075*	3.70	2.70	203	8	Miechów
12.	Poradów PLH120072*	11.30	8.26	180	8	Miechów
-		136,87	100,0	-	-	-

Source: data from the RDEP in Cracow

Explanations to the table: *Code of the area assigned by the European Commission

These Natura 2000 habitats are unique on the scale of the whole country, and are assigned to the class *Festuco-Brometea* (Br.-Bl. et. R.Tx. 1943). The most frequently represented association within this class is here *Inuletum ensifoliae* (Kozł. 1925) (Matuszkiewicz, 2002). Despite the anthropogenic origin, both the class and association are of high natural importance, due to the unique composition of plant species. Among them, there are many species not observed in any other habitats in Poland, including those that are protected and referred to as rare elements of the Polish flora, e.g. : *Adonis vernalis* (L.), *Allium rotundum* (L.), *Aster amellus* (L.), *Linum hirsutum* (L.) and *L. flavum* (L.). These are so called steppe species, which came to the area of our country from the south-east during the late glacial period, ca. 9-10 thousand years ago, when there was no forest cover in this area yet. Thus, it is believed that the growth of numerous grasslands in the Central Europe was directly related to the alternating agricultural and shepherding activities in the periods from the Bronze Age to the early Middle Ages. In these Natura 2000 sites there are also some rare orchid species, e.g.: *Ophrys insectifera* (L.), *Orchis millitaris* (L.), *Gymnadenia conopsea* (L.), and *Cypripedium calceolus* (L.). Richness of plant species from this class is confirmed by numerous studies (Kostuch & Misztal, 2006; Loster & Gawroński; Musiał & Grygierzec, 2017). Moreover, in some of those "nature" sites, there were more than 300 vascular plant species: in the area of Grzymałów (327), in Cybowa Góra (308) and in Kalina Mała (303) (tab. 1). There were also many plant species under legal protection, in this respect the most numerous in such species were the area of Grzymałów (22) and Giebułtów (17), first located in Słaboszów and second in Książ Wielki Commune. To support that habitats, it is necessary to maintain proper habitat conditions, regarding level of light intensity and temperature in the thermophilic bushlands. That is essential not only for plant species, but also for many rare animals, especially invertebrates. Thus, it seems crucial to promote the traditional, extensive economy and local breeds of animals in that territory (Loster & Gawroński, 2005; Misztal & Bedla, 2013).

When analysing the process of managing the discussed xerothermic grasslands, one should note three parallel forms of protective activities. These are: cutting the bushlands and woods, mechanical mowing or cutting with scythe and grazing maintenance, especially with small ruminants, such as goats or sheep. The last form may be regarded as basic in this case. It is however, rather complex from the institutional perspective, as it is organisationally challenging and rather expensive. Under a project developed by RDEP in Cracow, 152 Olkusz sheep and 12 goats were purchased, which were then handed over for grazing to the farmers

who undertook to perform maintenance on the xerothermic grasslands by controlled, supervised grazing. In each of the 12 "nature" enclaves, protective activities are performed by one farmer-nature conservationist, who usually drives the sheep or goats to a specific area with grassland habitats and arranges the grazing by dividing the enclave into quarters and separating them with a fence. Then he supervises the animals and provides supplementary feed.

The proportion of animals intended for grazing is 0.4 LSU/ha, which follows from the general requirements for protecting compact habitats in agricultural-environmental and climate-related programmes: PROW 2014-2020. The farmers-nature conservationists are selected from among those who expressed interest in grazing and participated in a tender. The criterion for the tender is the proposed rate for the service. As a rule, the farmer should obtain at least the minimum wage for the grazing period, which is paid under a concluded mandatory contract. Apart from the remuneration for working with the animals and driving them to the grazing site, the farmer also receives funds to cover the maintenance of the animals throughout the year. The contracts are individual, though, and refer to a specific mini-herd, i.e. 5-10 sheep or goats, rather than a whole herd, which is usually increasing and becomes the property of the farmer, such a herd may participate in the maintenance grazing programme to a limited extent. Contracts for the grazing are concluded with the farmers for three years and a lump-sum payment is made for this period.

Although the project for protective activities covering the xerothermic grasslands was formally finished in 2017, the services offered by the farmers will continue for two more years. This briefly presented form of protecting xerothermic grasslands through controlled grazing may be an example of an advanced form of active protection of such assets. However, it is not permanent and not foreseeable in the years to come and for the future, because it relies on budget funding in the form of grants. Also on private land it is possible to implement optional plant protection, i.e. when the farmer who owns the land agrees to it. The non-financial, intangible aspect is of importance here namely the environmental awareness. Although it is on the increase, especially among younger people, it could still be a lot better. It would require extensive cooperation among institutions, non-government organisations dealing with environmental protection and ecology, associations of farmers, local authorities and schools. It is important that the issue of protecting living natural resources, also those that are part of the relationship between agriculture and ecosystem protection, be understood and acknowledged by farmers themselves. Such protection should be of interest to them. Active protection of the "nature" areas should still be treated as an important public service and as such it should obtain permanent funding addressed to the entities that

provide such a service (e.g. farmers) and various statutory institutions that implement activities related to environmental protection.

4 Conclusion

Deagrarianisation processes that have recently been occurring in Poland, including in particular productive deagrarianisation, usually mean that the land is no longer farmed. This is especially true in the case of low-quality, difficult and technologically challenging land, e.g. in the places where the area is sloping and the land is far from the farm itself. More and more farms cease to breed ruminants, which makes some of the grasslands useless from the agricultural point of view. These processes cause changes in the ecosystems shaped through extensive farming, and such changes include: the expansion of bushlands, forests and reduced biodiversity.

Especially in the Natura 2000 areas, it is vital to keep cultivating the farmland, including the grasslands. This way it is possible to preserve biotic abundance, also with reference to protected vascular plant species. In the xerothermic grasslands of the Miechów Upland, the Life Project was implemented in the years 2012-2017. The project funded various activities aimed at preserving the biodiversity and protected plant species. Active protection involved the choice of one out of three protective activities or a combination of them, i.e.: cutting down excess trees and bushes, mowing, and most importantly, controlled grazing of small ruminants, i.e. goats and sheep. As part of the project, the RDEP in Cracow implemented protective activities in 12 Natura 2000 areas, with a total area of 136.87 ha, i.e. most of the fields were the private property of individual farmers. Ca. 18.2 ha of land were purchased, all of this area is now managed exclusively with protective activities in mind. 152 sheep are grazed in this area as well as 12 goats, which are maintained and taken care of by the farmers, who also act there as nature conservationists. These farmers are paid for the service they provide.

This was accomplished thanks to the project with the budget of 6.5 million PLN. The adopted organisational solution is not permanent, as it relies on grants, but it is a precious form of protecting xerothermic grasslands and an example of an innovative approach combining institutional actions with protective initiatives implemented by farmers and based on commercial principles. It seems especially important, as this semi-natural xerothermic flora has considerable natural values, but it is also a living monument of the farming culture in this particular region, and a proof of the history of communities that used to live there.

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