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THE REALIZATION OF THE AGRI-ENVIRONMENTAL MANAGEMENT SCHEME IN THE AREA OF NATURA 2000 IN THE VALLEY OF BIEBRZA RIVER

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Abstract. The aim of the research was to analyse the functioning of agricultural farms located in the areas of Natura 2000 network. The research was conducted in 2015 among 70 farmers whose lands were located in the Valley of Biebrza River in Podlaskie Voivodeship. The main research method was a questionnaire. According to the results of the research, the agri-environmental scheme is a proper tool that combines the environmental protection and local producers' interests; however, it requires the implementation of a supplement adjusted to the nature of the areas. It is also indicated that even though the economic part of the program does not raise any doubts, the natural effects are practically not recognized, which may lead to an incomplete protection of precious species and habitats.

Key words: the Valley of Biebrza River, Natura 2000, an arable farm, an agri-environmental management scheme

INTRODUCTION

Signing the Treaty of Accession in 2003 obliged Poland to create areas that would make up a network of nature protection areas Natura 2000. As a matter of fact, the beginning of building the network dates back to the end of the 1990s, however, in 2001 the first study concerning the scope of the network was created (Analiza koncepcji..., 2001). Natura 2000 network got its legal status

in 2004 together with the moment the law about environmental protection was taking the effect¹.

Building the network was finished in 2012. Currently, it includes 849 areas created on the basis of the Habitats Directive and 145 areas connected with the Birds Directive. Both those two types of areas combine 20% of the area of Poland².

Naturalists took the setting up of a new form of environmental protection with contentment; however, local governments and sole traders were anxious. Also the owners of arable farms were concerned, which was not a surprise, as one third of the area of the network are agriculturally productive lands. The tool that was supposed to reconcile the protection of natural resources and the functioning of arable farms and, what is connected with that, prevent potential conflicts from arising, is the agri-environmental scheme. Since 2007 it is possible to realize a package “dedicated” to Natura 2000 areas called: “The protection of bird species and natural habitats located in the area of Natura 2000”.

The aim of the research was to know the functioning of arable farms located within Natura 2000 network

¹ The Act on the environmental protection of the 16th April 2004, Polish Journal of Laws 2004 no. 92, item 880.

² <http://natura2000.gdos.gov.pl/strona/natura-2000-w-polsce> (access: 11.10.2015)

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area, the Valley of the Biebrza River in which the agri-environmental scheme is being realized.

THE AREA AND RESEARCH METHOD

The Valley of the Biebrza River is a wide flat depression filled with peat located between a dozen or so to several dozen meters below the nearby Grodzieńska, Sokólska, Goniądzka, Wysokomazowiecka i Kolneńska uplands. The valley is surrounded by moraine uplands, apart from the north and north-east side where it is surrounded by Augustowski, Rajgrodzki and Ełcki sandrus. One can distinguish three lower geomorphological units called basins: the northern – it covers the valley to the east of Sztabin, the central – it stretches from Sztabin to Osowiec, and the third, the southern one – from Osowiec to the mouth of the Biebrza River where it flows into Narew. The Valley of the Biebrza River is a bird sanctuary of a European E25 rank. The region is set into Ramsar Convention. There are at least 36 bird species listed in the annex to the Directive on the Conservation of Wild Birds (The Annex to 79/409/EEG Directive) and 23 species from The Polish Red Data Book of Animals (PCK). About 179 bird species nest there (Natura 2000, Standardowy formularz danych).

Farming in the valley is the main economic activity of the inhabitants in the area. It is characterized mainly by a fragmented farms structure and mosaic nature of the arable lands (Perspektywy wdrażania..., 2004).

The field study, in which a questionnaire was used, was conducted between March and April 2015 in the area of Natura 2000 of the Valley of the Biebrza River. The study included 70 owners of arable lands who participate in the agri-environmental scheme.

RESULTS

The average surface of the analysed farms was over 33 ha. A great range of the farms size, between 3.8 ha to almost 182 ha, was noticed. Due to the location of the researched farms in the Valley of the Biebrza River, the main form of the use of land were grasslands which is the result of the big share of hydrogenic soils that are the best for sod. Additionally, the researched area is characterized by a little profitable condition for agriculture. The Agricultural Valorization Index is 52.8 points when the average of Poland is 67 points (Gotkiewicz, 2005).

Table 1. Surface of the analysed farms (ha)

Tabela 1. Powierzchnia badanych gospodarstwa (ha)

Inventory Wyszczególnienie	X	Min.	Max.
Total area Powierzchnia całkowita	33.5	3.8	181.7
Arable lands Grunty orne	11.3	1.8	54.2
Grasslands Trwałe użytki zielone	17.0	2.9	121.2
Forests and tree-covered areas Lasy i grunty zadrzewione	4.7	0.1	36.2
Others Inne	1.0	0.0	6.8

Source: own study.

Źródło: badania własne.

In the analyzed farms, 7 out of 9 available packages were realized. Altogether, in 70 farms 124 packages were realized. The data presented in Table 2 show that the most popular was “The protection of bird species and natural habitats located in the area of Natura 2000”, which was realized in over 74% of the analysed farms. The area of the Valley of Biebrza River is particularly preferable for the package. The farm may benefit from the package if one of the key species listed in the annex 79/409/EEG Directive lives there. The list of species includes a montagu’s harrier, a corn crane, a dunlin, a great snipe and an aquatic warbler. Additionally, the species that were not listed in the annex should be protected as well: a peewit, a common snipe, a black-tailed godwin, an Eurasian curlew, a red crossbill (Jobda, 2009). On the basis of own observations, the author can state that, apart from a dunlin, all of the species are more or less common in the Valley of the Biebrza River.

Other packages were realized on a similar level, apart from the activities connected with retaining endangered plants and animals genetic resources that were done only in two farms. On the one farm, there was a small herd of 5 Polish red cattle and on the second one, there was a 0.2 ha of apple orchard. A small popularity of the “animals” package is characteristic for the whole country. According to Szulc (2011), it is motivated mainly by economic factors. The native breeds have smaller

Table 2. Packages carried out in the analysed areas
Tabela 2. Pakiety realizowane w badanych gospodarstwach

Inventory Wyszczególnienie	No. Liczba	% resp. % odpowiedzi
Sustainable agriculture Rolnictwo zrównoważone	21	30.0
Organic farming Rolnictwo ekologiczne	16	22.9
Protection of endangered species of birds and their habitats outside Natura 2000 areas Ochrona zagrożonych gatunków ptaków i ich siedlisk poza obszarami Natura 2000	14	20.0
Protection of endangered species of birds and their habitats in Natura 2000 areas Ochrona zagrożonych gatunków ptaków i ich siedlisk na obszarach Natura 2000	52	74.3
Retaining endangered plants genetic resources in agriculture Zachowanie zagrożonych zasobów genetycznych roślin w rolnictwie	1	1.4
Retaining endangered animals genetic resources in agriculture Zachowanie zagrożonych zasobów genetycznych zwierząt w rolnictwie	1	1.4
Soil and water protection Ochrona gleb i wód	19	27.1
Buffer zones Strefy buforowe	–	–

Source: own elaboration.
 Źródło: opracowanie własne.

productivity and consequently there is a lower profitability in comparison to breeds used in intensive production.

None of the analysed farms realized “The Buffer Zone” package. It appeared that in order to realize the package, the baulk between fields must have from 2 to 5 meters, which, according to the respondents, was completely unprofitable.

The results of the research do not totally coincide with the all-Poland trends. The analysis conducted by Pawlewicz and Bórawski (2013) shows that between 2007 and 2011 the most frequently used packages in the country were “The Sustainable Agriculture” and “The Protection of Soils and Waters”. It may then result from the above-mentioned unique nature of the Valley of the Biebrza River.

On average, the biggest areas realized “The Sustainable Agriculture” and “Organic Farming” packages. In the second case, the packages applied mostly to grasslands. The activities connected with the protection of endangered species of birds and their habitats outside Natura 2000 areas were taken in the average of 13.8 ha, however,

if considering the maximal surfaces, the packages were realized on even 112 ha (Table 3). Probably, the proportions will change due to the fact that Natura 2000 on the Valley of the Biebrza River area was approved only in 2008 so when the Polish Rural Development Program (PRDP) 2007–2013 had already been implemented.

The most important factor, which encouraged farmers to participate in the agri-environmental scheme, was the will to gain more income. A few respondents (Table 4) only mentioned other issues such as agri-environmental protection or an advisor’s encouragement. Borkowska et al. (2013) got similar results in the research conducted in Radomszczański County. According to the author, 87% of farmers decided to participate in an agri-environmental scheme due to financial reasons, and only 4% were driven by the need to protect the environment. It indicates that with a relatively low level of ecological consciousness of country dwellers, subsidizing the activities connected with environmental protection on arable areas is the only way to achieve the environmental aims.

Table 3. Surface where given packages are carried out*

Tabela 3. Powierzchnia, na której realizowane są poszczególne pakiety*

Inventory Wyszczególnienie	X	Min.	Max.
Sustainable agriculture Rolnictwo zrównoważone	22.9	13.8	32.1
Organic farming Rolnictwo ekologiczne	16.9	4.6	49.7
Protection of endangered species of birds and their habitats outside Natura 2000 areas Ochrona zagrożonych gatunków ptaków i ich siedlisk poza obszarami Natura 2000	2.3	0.4	5.4
Protection of endangered species of birds and their habitats in Natura 2000 areas Ochrona zagrożonych gatunków Ptaków i ich siedlisk na obszarach Natura 2000	13.8	0.9	112.0
Retaining endangered plants genetic resources in agriculture Zachowanie zagrożonych zasobów genetycznych roślin w rolnictwie	6.1	0.0	15.9
Retaining endangered animals genetic resources in agriculture Zachowanie zagrożonych zasobów genetycznych zwierząt w rolnictwie	4.9	1.0	12.8

Source: own elaboration.

*Table does not include packages where meters and items are the units of measurement.

Źródło: opracowanie własne.

*W tabeli nie uwzględniono pakietów, w których jednostkami miary są metry i sztuki.

Table 4. Motives for participating in the program

Tabela 4. Motywy przystąpienia do programu

Inventory Wyszczególnienie	No. Liczba	% resp. % odpowiedzi
Additional income Dodatkowy dochód	68	97.1
Environmental protection Ochrona środowiska	5	7.1
Advisor's encouragement Namowa doradcy	4	5.7
Lack of possibility of intensive farming Brak możliwości intensywnego gospodarowania	4	5.7
Will to develop Chęć rozwoju	3	4.3
Location of the land within Natura 2000 area Położenie gospodarstwa na obszarze Natura 2000	3	4.3
Taking the obligations from parents Przejęcie zobowiązania po rodzicach	2	2.9

Source: own elaboration.

Źródło: opracowanie własne.

Similar, though expressed in a different way, answers were gained by asking the respondents about their motives while choosing given packages. Additional income was this time on the second place. The first place was the location of the farm in Natura 2000 area. The adjustment of the package to the owned agricultural land was the third most frequently presented motif. However, an advisor's encouragement was located on the fourth place (Table 5).

In general, apart from 10 cases, all motives were purely economic. The benefactors chose packages considering the rates, lowering costs and compensation of the lost profits due to the location of their farms in the Natura 2000 area.

A definite participation of arable farms owners, who claimed they were satisfied with the fact they took part in the agri-environmental scheme, proves so. The beneficiaries indicated mainly to a small range of obligatory activities connected with the realized packages and additional income. Few negative aspects connected with participating in the program included most of all the necessity to prepare and carry out the agri-environmental documentation (Table 6).

Table 5. Motives for choosing the packages
Tabela 5. Motywy wyboru pakietów

Inventory Wyszczególnienie	No. Liczba	% resp. % odpowiedzi
Location of a farm within the Natura 2000 area Położenie gospodarstwa na obszarze Natura 2000	48	68.6
Additional income Dodatkowy dochód	32	45.7
Adjusted to the unique nature of a land Dostosowany do specyfiki gospodarstwa (tuz)	17	24.3
Advisor's encouragement Namowa doradcy	11	15.7
Environmental protection Ochrona przyrody	10	14.3
Lack of necessity to implement changes in a farm Brak konieczności zmian w gospodarstwie	9	12.9
Lower costs Mniejsze koszty	4	5.7

Source: own elaboration.
Źródło: opracowanie własne.

The agri-environmental scheme, in its assumptions, was supposed to contribute or improve the condition of environmental resources in rural and arable areas. Provided that the economic effects of the implementation of the scheme are known and easy to estimate, the environmental effects are still little recognized in Poland³. There are no researches (or if they have been conducted, they are very selective) that could show positive (or neutral) influence of the agri-environmental scheme on natural environment. A contrary situation can be seen in Ireland, where the effects of the agri-environmental scheme have been included in integrated monitoring that covers the biological, spatial, historical, and socio-economic situation (Brodzińska, 2008).

Considering the above, it was particularly interesting to learn the opinions of farms owners located in the

³ http://potob.cba.pl/index.php?option=com_content&view=article&id=36:ocena-skuteczności-pakietów-przyrodniczych-programu-rolnorodowiskowego&catid=9:teksty-eseje&Itemid=9

Table 6. Satisfaction from participating in the program
Tabela 6. Satysfakcja z udziału w programie

Inventory Wyszczególnienie	No. Liczba	% resp. % odpowiedzi
Yes, because: Tak, ponieważ:	67	95.7
it is easy in realization jest łatwy w realizacji	39	55.7
it compensates the expenditures rekompensuje poniesione nakłady	38	54.3
it creates perspectives for development stwarza perspektywy rozwoju	21	30.0
it is an additional income of a farm stanowi dodatkowy dochód gospodarstwa	15	21.4
it reinforces the farm position in the market umacnia pozycję gospodarstwa na rynku	6	8.6
No, because: Nie, ponieważ:	9	12.9
too much of bureaucracy zbyt duża biurokracja	7	10.0
too low financial support zbyt niskie wsparcie finansowe	4	5.7
too frequent changes of the conditions zbyt często zmieniające się warunki	3	4.3
it limits the possibility of fast development ogranicza możliwości rozwoju gospodarstwa	2	2.9

Source: own elaboration.
Źródło: opracowanie własne.

Valley of the Biebrza River. The conducted research showed that the vast majority of respondents thought that the realization of the program “protects the environment really well” and it contributes to the “ecologization of farming.” However, farmers could not give precise examples that would prove their opinion, which was considered as problematic. One may think that in such a situation the respondents who claimed that the program equals only subsidizing arable farms and its agri-environmental effectiveness is pure fiction were closer to the truth (Table 7).

Table 7. Respondents' opinions about the environmental effects of realizing the program

Tabela 7. Opinie respondentów na temat środowiskowych efektów realizacji programu

Inventory Wyszczególnienie	No. Liczba	% resp. % odpowiedzi
It is effective Jest efektywny	65	92.9
it creates favourable conditions for the ecologization of agriculture sprzyja ekologizacji rolnictwa	37	52.9
it provides constant agricultural use zapewnia ciągłość rolniczego użytkowania	31	44.3
it protects the environment well dobrze chroni środowisko przyrodnicze	42	60.0
there is no better tool nie ma lepszego instrumentu	6	8.6
It is not effective Nie jest efektywny	8	11.4
it is realized for financial profits only jest realizowany wyłącznie dla korzyści finansowych	5	7.1
it is fiction jest fikcją	1	1.4
it is carried out by too few farms realizuje go zbyt mało gospodarstw	3	4.3

Source: own elaboration.

Źródło: opracowanie własne.

For a long time naturalists had called for expanding the agri-environmental schemes with packages that would protect also other natural resources. In case of The Valley of the Biebrza River, even before introducing the program, they were suggesting broadening it with a “meadow with removing invasive plants” package (Perspektywy wdrażania..., 2004). Unfortunately, their efforts brought only a partial effect. The agricultural-environmental-climate packages (RDP 2014–2020) are close to those that farmers were realizing between 2007 and 2013.

Interestingly, the need to protect all of the natural resources is noticed by arable farms owners. In their opinion, a program should be broadened with adding the

activities that aim to preserve marshes, baulks, and the tree-covered areas and shrubs that are located on their lands (Table 8). One can certainly surmise that such an attitude may result from the desire to get more profits; however, looking from the possibility to retain a biological variety in the Valley of the Biebrza River, the attitude is valuable.

The introduction of a new form of environmental protection in Poland, Natura 2000 Ecological Network, has in numerous places become the reason of social conflicts on ecology, especially around the ways of farming in the areas which are in partial or even complete economic stagnation (Głogowska et al., 2013; Mickiewicz and Gotkiewicz, 2010). On the other hand, the legally protected areas may be the chance for the development based on the alternative or additional sources of income. The location on Natura 2000 area may contribute to: the development of farm tourism, including the qualified tourism, production of traditional food, cooperation of farmers with the administration of the protected area, etc.

Table 8. Respondents' opinions about the protection of other elements of the environment

Tabela 8. Opinia respondentów na temat objęcia ochroną innych elementów środowiska

Inventory Wyszczególnienie	No. Liczba	% resp. % odpowiedzi
Marshes Mokradła	65	92.9
no nie	4	5.7
Baulks Miedze śródpolne	43	61.4
no nie	21	30.0
Woodlots and shrubs Zadrzewienia i zakrzaczenia	50	71.4
no nie	13	18.6
Valuable natural wastelands Cenne przyrodniczo nieużytki	61	87.1
no nie	8	11.4

Source: own elaboration.

Źródło: opracowanie własne.

There is one condition, the farmers themselves must be convinced to the idea.

The research conducted in the Valley of the Biebrza River area showed that almost 83% of respondents see the influence of the location of a farm in the area of the protected land on their activity. Interestingly, the vast

majority of the respondents took the influence as positive, however, again in most cases that resulted from the possibility to get additional funds from the agri-environmental scheme (Table 9).

CONCLUSIONS

An agri-environmental scheme is currently the best tool to reconcile environmental protection with agricultural activity. Special importance of the agri-environmental activities can be seen in the legally protected areas including the areas included in Natura 2000 network. Researches showed that an economic factor is practically the only way to encourage farmers to implement restrictions in the activities that have negative influence on natural environment.

The program in its current shape has, however, several deficiencies. At first, the demands of naturalists to broaden the range of agri-environmental activities and adjust them to the nature of the given areas, in this case the Valley of Biebrza River, are still not considered. Research showed that even farmers notice that necessity. Additionally, there are no broad studies that would explicitly prove the effectiveness of agri-environmental schemes in protecting natural resources (the economic effects are, however, well perceived). In case of the Valley of the Biebrza River, it applies mainly to the package connected with the protection of birds that dominate in the region. Considering the necessity to prepare ornithological documentation before starting the realization of the package, there are initial materials that can be used, so this type of work does not seem to be too complicated.

The fact that the owners of farms located in the Valley of the Biebrza River also see the positive sides of functioning in the legally protected area is important information. The unique nature of this region, in the scale of whole Europe, requires constant protection of its natural resources that are fragile to changes and that cannot be done without active participation of local societies.

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Table 9. Positive and negative aspects of the location of a farm in Natura 2000 area

Tabela 9. Pozytywne i negatywne aspekty położenia gospodarstwa na obszarze Natura 2000

Inventory Wyszczególnienie	No. Liczba	% resp. % odpowiedzi
Influence Wpływ	58	82.9
Lack of influence Brak wpływu	12	17.1
Positive influence: Wpływ pozytywny:	52	74.3
higher subsidies wyższe dopłaty	48	68.6
retaining natural landscape zachowanie walorów przyrodniczych	4	5.7
effective environment al protection skuteczna ochrona środowiska	1	1.4
running agri-tourism prowadzenie działalności agroturystycznej	13	18.6
Negative influence: Wpływ negatywny:	14	20.0
late time of harvest późne terminy koszenia	4	5.7
limitations in using pesticides ograniczenia w stosowaniu środków ochrony roślin	1	1.4
limitations in the use of land ograniczenia w użytkowaniu gruntów	1	1.4
limitations in increasing production ograniczenie powiększania produkcji	2	2.9
obeying the environmental protec- tion regulations przestrzeganie przepisów ochrony środowiska	2	2.9

Source: own elaboration.
Źródło: opracowanie własne.

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REALIZACJA PROGRAMU ROLNOŚRODOWISKOWEGO NA TERENIE OBSZARU NATURA 2000 SOO „DOLINA BIEBRZY”

Streszczenie. Celem pracy była analiza funkcjonowania gospodarstw rolnych położonych na obszarze Natura 2000. Badaniem przeprowadzonymi w 2015 roku objęto 70 rolników, których gospodarstwa położone były na terenie SOO „Dolina Biebrzy” w woj. podlaskim. Podstawową metodą badawczą była metoda kwestionariuszowa. Badania wykazały, że program rolnośrodowiskowy jest dobrym instrumentem godzącym interesy ochrony przyrody i lokalnych producentów rolnych, wymaga jednak uzupełnienia o pakiety dostosowane do specyfiki terenu. Wykazano również, że o ile ekonomiczna część programu nie budzi żadnych wątpliwości, o tyle efekty środowiskowe są praktycznie nierozpoznane, co może skutkować niepełną ochroną cennych siedlisk i gatunków.

Słowa kluczowe: Dolina Biebrzy, Natura 2000, gospodarstwo rolne, program rolnośrodowiskowy

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