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SOCIAL OPINION ON THE NEEDS OF LANDSCPAE CONSERVATION OF THE WEST POLESIE BIOSPHERE RESERVE

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Summary. The European Landscape Convention (2000) obligates authorities of each European signatory-countries to retain or attain high landscape quality of European continent. The tool to achieve this goal is landscape quality objectives defined as 'formulation by the competent public authorities of the aspirations of the public with regard to the landscape features of their surrounding'. In accordance with the Convention, the first stage of work on identification of these objectives should be establishing of social rank of characteristic features of land relief, land cover, land use and cultural heritage as well as threats to landscape quality of particular regions. This paper presents results of such analysis with reference to area of the West Polesie Biosphere Reserve (ca 140.000 ha). The public opinion was yielded from 220 respondents, representing eight socio-professional groups of people which have the greatest impact on landscape conservation and transformation of the study area. The results of the research allowed to indicate which landscape features representatives of local society, nature conservation staff, tourists and NGOs consider to be particularly worthy of conservation in the aim to preserve the identity of the investigated biosphere reserve.

Key words: The European Landscape Convention, landscape quality, social opinion, Biosphere Reserve, West Polesie

INTRODUCTION

Every physical-geographic region is characterized by certain, key features which distinguished it from surrounding areas. Among them, the most fundamental are those concerning land relief (plain, up-lands or mountain areas), land cover forms (domination of forests, peatbogs, meadows or fields), character of land use (diversity and structure of land cover patches) and cultural heritage (traditional forms of settlements, regional architecture, historical sites and monuments of architecture). These landscape characteristics decide about the unique atmosphere of a given place and form its physiognomy which is directly per-

ceived by people. These features are often the results of historical layers and should be treated as a basis of research rules aiming at protection and shaping identity of the place [Dourish 2006].

In the process of landscape quality conservation and design, it is vital to identify which of this characteristic features are the most important to be preserved and attained in the opinion of representatives of local societies. Moreover, in the aim to fulfill the Council of Europe Recommendations [2008] which stands that *Every planning action or project should comply with Landscape Quality Objectives, aiming to improve landscape quality or at least prevent a decline* (§I.1) it is essential to define which processes and forces have major influence on landscape shape. Very important role in research concerning public opinion on the actual quality of landscape plays the assessment of main environmental threats and changes of scenic beauty [Chmielewski 2012]. The review of scientific literature concerning landscape quality issues, revealed that to this end commonly the public opinion poll was used [Arriaza *et al*. 2006, Chmielewski and Sowińska 2006, 2008, Naguė and Sala 2006, Olmo *et al*. 2006, Antrop 2010]. This method was applied to the West Polesie Biosphere Reserve. This region was nominated as the second study area (after the future Roztocze-Solska Forest Biosphere Reserve) for identification of the regional landscape quality objectives in Poland.

THE GENERAL CHARACTERISTIC OF THE STUDY AREA

The reserve includes almost the whole physiographic mesoregion: Łęczna-Włodawa Lakeland. The location of the reserve's external points is: from latitude 51°43'25'' north and from longitude 22°42'5'' east [Chmielewski (ed.) 2005]. It stretches from the River Bug below Wola Uhruska in the south-east to Siemień Ponds in the Tyśmienica River valley in the north-west. Total area of the reserve is ca 140.000 ha.

The Łęczna-Włodawa Lakeland is the largest in Poland grouping of lakes occurring outside the areas formed by glacial morphogenesis of the last glaciations. The flatness of the terrain and shallow-lying first level of ground waters cause that considerable parts of the Lakeland are permanently or temporarily water-logged. Broad peatbogs and marshes have developed on the wetlands. Lakes are the characteristic element of the landscape. It is estimated that they are 11.300 years old. Until now 61 lakes with the surface over 1 ha have survived. Particular lakes are in various stages of succession and contain water of different trophy. Next to the lakes with hardly any plants and mesotrophic waters there are reservoirs slightly eutrophic and strongly eutrophic as well as dystrophic. Parts of this area are a miniature of European tundra and forest-tundra which is here the farthest advanced to the south-east in Europe. This is the area of unusual variety of highmoors, transitional moors, lowmoors and – in some places – very unique carbonate moors. Large collection of northern plant species (150 species)

and simultaneous presence of many plants from Atlantic zone (25 species), east continental zone (43 species) create a curiosity on the European scale. In the region of Łęczna-Włodawa Lakeland there appear 1466 species of vascular plants from European CORINE list and species from „Polish Plant Red Data Book" [Chmielewski (ed.) 2005].

The mosaic arrangement of forests, peatbogs, grasslands, waters and cultivated fields is the source of great biological and landscape variety of this region.

The animal life is also abundant here. According to the research in the lakes of Łęczna-Włodawa region there are 350 species of water non-vertebrates. In the ichtio-fauna of Łęczna-Włodawa Lakeland 35 species were registered in standing waters as well as in running waters. The curiosity among the reptiles is the mud turtle (*Emys orbicularis*). Its population in Łęczna-Włodawa Lakeland is the most numerous in Poland and one of the largest in Europe. Avifauna, represented by at least 150 breeding species, is also very valuable. Out of mammals otter, wolf and elk are worth mentioning. Moreover, 98 species of the region's fauna are listed on the European CORINE list and 25 are in the „Polish Red Book of Animals" [Chmielewski (ed.) 2005].

In the center of Biosphere Reserve is located Polesie National Park. It is surrounded by 3 landscape parks: Łęczna Lakeland L.P., Polesie L.P. and Sobibór L.P., joined with Polesie Landscape Protected Area. Two more landscape parks are projected in this area: Włodawa Forests and Parczew Forests Landscape park. Moreover, in the Biosphere Reserve structure there are also 9 Natura 2000 sites and 12 nature reserves (Fig. 1, Photo 1, 2).

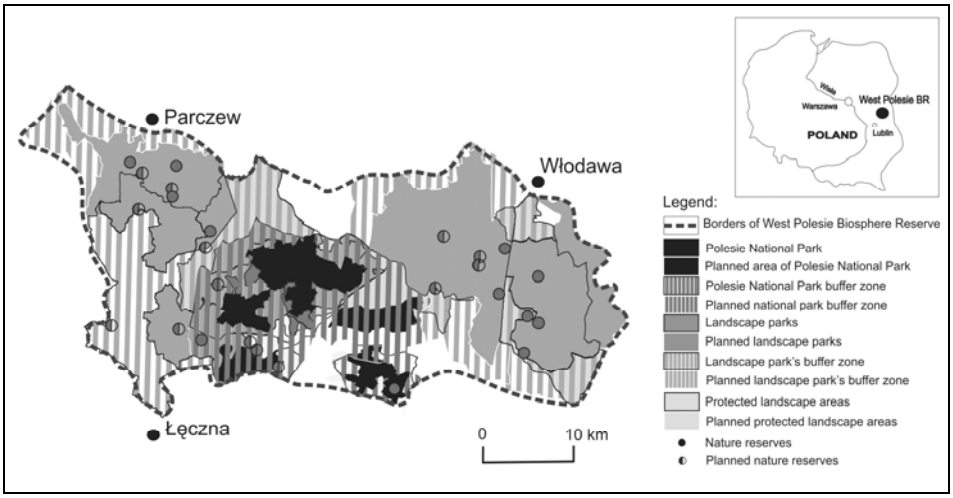

Fig. 1. System of protected areas of the West Polesie Biosphere Reserve

Photo 1. Moszne peatbog (T.J. Chmielewski)

Photo 2. Płotycze lake (T.J. Chmielewski)

METHODS

The research was conducted using a survey method. The structure of the questionnaire was analogues to this applied in the case of the Roztocze-Solska Forest region [Chmielewski and Sowińska 2006, 2008]. The respondent were to asked four questions:

1. Which feature of natural relief and land cover do you consider the most important to be conserved?
2. Which feature of land use do you consider the most important to be conserved?
3. Which feature of cultural heritage do you consider the most important to be conserved?
4. Which threats to the quality of landscape do you consider as the most dangerous?

Authors of the questionnaire proposed four answers to each question as a multiple-choice test. After selecting the feature which was preferable in the text, the interviewees were also asked to write some new features on the list. Upon each landscape feature/threat respondents were asked to write a certain number of points: from 1 till 5 according, to the rule: 5 points for the most important feature/threat and 1 point for the less important feature/threat.

The questionnaire was conducted among 8 socio-professional groups of people: (1) farmers; (2) expert-scientist; (3) employees of the national park, landscape parks and Public Forests; (4) representatives of local governments; (5) members of pro-ecological and art organisations; (6) tourists and owners of summer houses; (7) teachers working in the regions under study; (8) students from those regions. The polls yielded the opinions of 30 for each social group, apart from the group of members of pro-ecological and art organisations which was presented only by 10 persons (220 persons in total).

RESULTS

1. Which feature of natural relief and land cover do you consider the most important to be conserved?

In response to question no. 1, vast majority of points were given to the feature abundance of lakes and wetlands (1224) (Tab. 1). Other features of characteristic forms of land relief and cover were given much less points. In order of gradation there were: vast complexes of great varieties of natural forests (1079), dense mosaic of small patches of water, peatbog, meadows, fields ecosystems (1042) and vast, open, plain areas without buildings (900). Respondents have also wrtten 14 own proposals of features which in their opinion decide about the unique character of natural landscape components of the West Polesie region. Those own suggestions gained 131 points in total. Among them the highest grade was given to the biodiversity of landscape forms (48) and the picturesque

location of lakes (27 points). This both features were especially pointed by tourists. This social group has also written the most own proposal of features (10) which should be taken into consideration while identification landscape quality objectives.

Table 1. The results of the questionnaire – question no. 1

Selected features \ Groups of respondents		1. Farmers	2. Experts-scientists	3. Employees of national and landscape parks	4. Representatives of local governments	5. Tourists	6. Members of NGO	7. Teachers	8. Students	All respondents
A	Abundance of lakes and wetlands	106	166	158	112	196	112	126	248	1224
B	Vast complexes of great varieties of natural forests	48	144	140	108	162	81	130	266	1079
C	Dense mosaic of small patches of water, peatbog, meadows, fields ecosystems	76	184	130	98	182	84	94	194	1042
D	Vast, open, plain areas without buildings	72	138	132	106	138	120	90	104	900
E	0ther features	6	26	21	5	43	5	16	9	131

2. Which feature of land use do you consider the most important to be conserved?

In response to question no. 2 respondents from the examined groups expressed significantly different opinions (Tab. 2). Groups of: representatives of experts-scientists, employees of the national park, landscape parks and Public Forests and students given the most points to feature: very high biodiversity (unique richness of fauna and flora habitats), which also gained the highest grade in analyzed question (1221). In contrast, this feature was given only fourth ranking position in opinion of representatives of local government and NGO organizations. Similar situation concerning the feature: inaccessible, non-transformed lakes, which gained the second position to the number of points (1220). This land-use characteristic was particularly appreciated by groups of tourist, representatives of NGO organizations and students and low-rated by farmers and eemployees of national and landscape parks. Points difference between the four most mentioned characteristic features of land use was very high and came to 20% (natural, not drained wetlands and peatbogs – 1039 points; vast, open areas of meadows and fields – only 788 points). One should emphasise that in response to analysed question additional features listed by the respondents were given the highest number of points in all the questionnaire – 183. The most frequently mentioned was different types of protected areas of fauna and flora species (83 points).

Table 2. The results of the questionnaire – question no. 2

Selected features \ Groups of respondents		1. Farmers	2. Experts-scientists	3. Employees of national and landscape parks	4. Representatives of local governments	5. Tourists	6. Members of NGO	7. Teachers	8. Students	All respondents
A	Very high biodiversity, unique richness of fauna and flora habitats	88	202	156	92	196	81	124	282	1221
B	Inaccessible, non-transformed lakes	74	160	136	104	204	130	126	266	1200
C	Natural, not drained wetlands and peatbogs	94	190	146	116	166	105	106	116	1039
D	Vast, open areas of meadows	54	108	142	104	108	84	48	140	788
E	0ther features	1	22	25	29	66	4	16	20	183

3. Which feature of cultural heritage do you consider the most important to be conserved?

As the most characteristic feature of cultural heritage of the West Polesie region five of the seven of examined social group of people (apart from the teachers and the students group) mentioned: regional wooden cottages with house gardens. This feature was given the highest number of points in the analyzed question (1142) (Tab. 3). Very high rank (1081 points) was also given to the fea-

Table 3. The results of the questionnaire – question no. 3

Selected features \ Groups of respondents		1. Farmers	2. Experts-scientists	3. Employees of national and landscape parks	4. Representatives of local governments	5. Tourists	6. Members of NGO	7. Teachers	8. Students	All respondents
A	Regional wooden cottages with house gardens	90	175	146	118	171	140	102	200	1142
B	Significant places for cultural heritage	84	120	135	91	166	112	133	240	1081
C	Historic sites, in particular connected with January uprising and World War II	78	138	140	110	152	64	90	246	1018
D	Remains of historical park complexes and granges	66	144	162	94	181	75	84	202	1008
E	0ther features	2	7	3	0	6	2	2	1	23

ture: significant places for cultural heritage (including the evidences of ages-long coexistence of three cultures and religions – Catholic, Orthodox, and Judaist). Two, next in the order of scoring features were given similar number of points: historic sites, in particular connected with January uprising and World War II (1018) and remains of historical park complexes and granges (1008). In response to this question interviewees wrote only 6 own proposals such as: archaeological sites, traditional customs and occupations and water cranes and windmills. Most of them were mentioned only be two or three people. That is why total number of points gained by these additional features was very low and come to 23 points.

4. Which threats to the quality of landscape do you consider as the most dangerous?

Among the major threats to the quality of landscape of the region were mentioned: disappearance of wetlands, drying of peatbogs and bogs and regulation of river beds (1181 points), location of tourist housing in lakesides (1138), the spread of habitable buildings and summer cottages over open space of fields and meadows (1030) and disappearance of open-space peatbogs and meadows, taken over by forests and construction (968) (Tab. 4).

Table 4. The results of the questionnaire – question no 4

Selected features / Groups of respondents		1. Farmers	2. Experts-scientists	3. Employees of national and landscape parks	4. Representatives of local governments	5. Tourists	6. Members of NGO	7. Teachers	8. Students	All respondents
A	Disappearance of wetlands, drying of peatbogs and bogs and regulation of river beds	90	190	162	122	170	65	134	248	1181
B	Location of tourist housing in lakesides	80	162	140	98	184	112	106	256	1138
C	Spread of habitable buildings and summer cottages over open space of fields and meadows	74	152	124	110	168	82	80	240	1030
D	Disappearance of open-space peatbogs and meadows, taken over by forests and construction	70	136	140	92	168	58	106	198	968
E	0ther threats	3	11	0	8	18	1	3	6	50

Interviewees also written 15 additional threats, such as: improper management of environment of sites of historical value (14); contamination of the com-

ponents of environment (13); illegal dumping grounds in forests (8). The most own proposal of threats to landscape values were written by tourists (7 suggestions/18 points) and experts-scientists (5 suggestions/11 points). Surprisingly, employees of national and landscape parks did not indicate any own proposal of threats to landscape quality of the West Polesie Biosphere Reserve.

CONCLUSIONS

1. The results of the research revealed that almost all landscape features proposed by the authors of the questionnaire were considered to be particularly important. Other features pointed by respondent enrich this list.
2. None of the respondent acknowledge that characteristic landscape features of the West Polesie region are not worthy of conservation.
3. Respondents had written the most own suggestions with reference to landscape threats (14) and the less with reference to characteristic feature of cultural heritage (6).
4. The differences of opinion expressed by people from different social and work groups were quite big and ranged from 9 till 15%. The most significant different opinion presented representatives of NGO organizations and students.
5. Tourists and expert-scientists displayed the greatest initiative in filling in the questionnaire, whereas farmers, representatives of NGO organizations and representatives of local government were the least interested in the survey.
6. Collected results will make a basis for description of landscape quality objectives and elaboration of landscape conservation strategy for the West Polesie Biosphere Reserve.

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SPOŁECZNA OCENA POTRZEB OCHRONY KRAJOBRAZU REZERWATU BIOSFERY „POLESIE ZACHODNIE”

Streszczanie. Europejska Konwencja Krajobrazowa (2000) obliguje władze poszczególnych państw sygnatariuszy do utrzymania bądź osiągnięcia wysokiej jakości krajobrazu kontynentu europejskiego. Narzędziem służącym realizacji tego celu mają być standardy jakości krajobrazu (landscape quality objectives) czyli: „sformułowanie przez właściwe organy publiczne aspiracji społeczeństwa w odniesieniu do cech otaczającego je krajobrazu”. Zgodnie z tą konwencją pierwszym etapem prac nad ustaleniem standardów powinno być określenie społecznego rankingu charakterystycznych cech ukształtowania i pokrycia terenu, struktury użytkowania ziemi oraz dziedzictwa kulturowego, jak również wskazanie głównych zagrożeń dla jakości krajobrazu określonych regionów. Artykuł przedstawia wyniki takich analiz w odniesieniu do obszaru Rezerwatu Biosfery „Polesie Zachodnie” (ok. 140 000 ha). Zastosowano metodę badań ankietowych skierowanych do 220 reprezentantów z ośmiu grup społeczno-zawodowych, mających największy wpływ na ochronę krajobrazu i przemiany fizjonomii tego obszaru. Wyniki badań pozwoliły wskazać, które cechy krajobrazu społeczność lokalna, służby ochrony przyrody, turyści i przedstawiciele organizacji pozarządowych uważają za szczególnie godne ochrony dla zachowania tożsamości krajobrazu badanego rezerwatu.

Słowa kluczowe: Europejska Konwencja Krajobrazowa, jakość krajobrazu, opinia społeczna, Rezerwat Biosfery, Polesie Zachodnie