

**TOURISM AND LEISURE AT LOWER SILESIAN
NATURA 2000 SITES ON THE BASIS OF STANDARD
DATA FORMS**

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A b s t r a c t

Natura 2000 sites can be very attractive for leisure and tourism activities. However, these activities can have a negative impact on protected habitats and species. The main aim of this study was to analyze what forms of tourism and recreation have been developed at Lower Silesian Natura 2000 sites, and what are kinds of their impact and what is their intensity. The main research materials are Standard Data Forms. Among the 13 main types of tourism and leisure activities, found in analyzed sites, hiking, cycling, leisure fishing, hunting and their related infrastructure are the most frequently recorded.

The results show that low intensities are most often described. The frequency of occurrence of neutral or negative environmental impacts of these activities is the same. However, no examples of positive impact have been recorded.

**TURYSTYKA I REKREACJA NA DOLNOŚLĄSKICH OBSZARACH NATURA 2000
W ŚWIETLE STANDARDOWYCH FORMULARZY DANYCH**

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A b s t r a k t

Obszary Natura 2000 cechują cenne walory do rozwoju turystyki i rekreacji. Jednakże te formy aktywności mogą wpływać niekorzystnie na chronione siedliska oraz chronione gatunki roślin i zwierząt. Celem pracy było zbadanie, na przykładzie województwa dolnośląskiego, form turystyki i rekreacji, rodzaju ich oddziaływań na środowisko oraz intensywności tych oddziaływań. Materiałem źródłowym były standardowe formularze danych. Wśród 13 głównych form działalności turystyczno-rekreacyjnej, zidentyfikowanych na badanym obszarze, najczęściej wskazywano na oddziaływania związane z turystyką pieszą i rowerową (oraz infrastrukturą do ich rozwoju niezbędną), a także z wędkarstwem i myślistwem.

Wykazano, że dominują oddziaływania o niskiej intensywności. Rodzaje wszystkich stwierdzonych oddziaływań na przyrodę (neutralnych i negatywnych) rozkładają się po równo. Brak jest z kolei oddziaływań pozytywnych.

Introduction

The European Ecological Network Natura 2000 is a coherent strategy of nature conservation in all European Union Member States. The object of the program is to ensure the long-term survival of Europe's most valuable and threatened species and habitats, while taking into consideration economic, social, cultural, and regional requirements at the national level (EVANS 2012). This aim is in accordance with the European Council's goal of halting biodiversity decline (Commission of the European Communities 2006, European Commission 2011a) and fulfils a Community obligation outlined under the UN Convention on Biological Diversity (United Nations 1992).

The network is based on two EU directives: the Birds one and the Habitats one. The first is Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (commonly known as the Birds Directive), which was superseded with a new consolidated version in 2009 (European Communities 1979, 2009). This Directive refers to specific bird habitats as Special Protection Areas (SPAs). The Habitats Directive, the official name of which is Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (European Communities 1992), initially lead to establishing of a list of proposals. After evaluation and selection process on European level, each site is referred to as Site of Community Importance (SCIs), which is then eventually designated as Special Area of Conservation (SACs) by each EU Member State.

Currently, the Natura 2000 network comprises over 27 221 sites and covers 18.16% of the territory of all 28 EU Member States (European Commission 2014). The network seems to be the best integrated vision of nature conservation in European countries, which is a key issue in terms of effective management (NOLTE et al. 2010). It is also the largest network of protected areas in the world (SUNDSETH and CREED 2008).

The European Ecological Network Natura 2000 has been functioning in Poland since 2004, when the country accessed the European Union. The Natura 2000 program differs considerably from the traditional Polish protection system in that there are no *a priori* prohibitions and obligations of new activities or developments within designated sites (HABUDA 2013). According to Polish law, only those human activities can be forbidden that, which single or together with other ones, leave or could possibly leave a significant negative impact on protected subject-matters of Natura 2000 sites (Nature Conservation Act, Article 33, point 1).

The General Directorate for Environmental Protection (GDEP) and its representatives in each voivodeship (province), i.e. Regional Directorates for Environmental Protection (RDEPs), are responsible for the implementation of the Natura 2000 strategy and management of these areas. However, the monitoring of flora and fauna species are tasks of Inspection for Environmental Protection (IEP). Fulfillment of these responsibilities is often seen to be in conflict with the interests of local communities and stakeholders in most EU countries (JULIEN et al. 2000, Commission of the European Communities 2004, PALONIEMI and TIKKA 2008, KEULARTZ 2009, GRODZINSKA-JURCZAK and CENT 2011). In some new EU Member States, such as Poland, the designation and implementation of the Natura 2000 program is still a source of social conflicts (PIETRZYK-KASZYNSKA et al. 2012, WOŁOSZYN et al. 2012). As in other Central and Eastern European countries, the Natura 2000 system in Poland is often perceived as a threat to local and regional socio-economic development (GRODZINSKA-JURCZAK et al. 2012).

Currently, the Natura 2000 network comprises over 983 sites and occupies 19.6% of the territory of Poland (European Commission 2014).

Each Natura 2000 site has got its own documentation. The basic documents, obligatory for all sites, are the Natura 2000 Standard Data Form (SDF) and a digital map. Article 6.1 of the Habitat Directive defines the conservation measures that are required to be taken, among them establishing management plans (European Communities 1992). Although Natura 2000 site management plans are recommended, they are not obligatory in all EU Member States (EVANS 2012). In Poland, 10-year plans of protection tasks or, if it is necessary, 20-year protection plans have to be developed for both SPA and SAC areas. Due to the complicated procedures and high decision-making costs (WÄTZOLD et al. 2010), only 6.5% Polish Natura 2000 sites have had their management plans approved since 2004 (Platforma komunikacyjno-informacyjna 2014). Therefore, Standard Data Forms are often the only documents in which it is possible to find some information concerning impacts and activities influencing the conservation status of protected subject-matters.

130 types of human activities have been recognized which can influence Natura 2000 sites. 'Leisure and tourism' is one of the most frequently reported category (TSIAFOULI et al. 2013). Tourism, one of the largest and fastest-growing economic sectors in the world (UNWTO 2013), is perceived as a key driver of socio-economic progress, also at Natura 2000 areas (PRÖBSTL 2003, KAMIENIECKA and WÓJCIK 2010). However, unsustainable tourism is also associated with negative effects (PSTROCKA and RAK 2006).

The main goal of this study was to determine, on the basis of Standard Data Forms, human activities and impacts connected with tourism and leisure within Natura 2000 areas and their surroundings. In particular, the interest in this study has focused on:

1. What kind of human activities and impacts are recorded?
2. What is their frequency of occurrence?
3. What are kinds of their impacts and intensity?
4. How can areas most exposed to impacts be best defined?

Materials and Methods

The main research materials were Natura 2000 Standard Data Forms (SDF) completed for Lower Silesia province. As they are updated frequently, SDFs are one of the key instruments in the effective management of nature conservation (Nolte et al. 2010). SDFs provide information on the conservation status of the protected habitats and species at SCI/SAC and SPA sites. Together with information on the species and habitats SDFs include general information on the site (location, date of designation and updating, site description, relation with Corine biotope sites etc.) and on impacts and activities in and around the site (European Commission 1997). In 2011 a new revised version of SDF was approved by the Habitats Committee (European Commission 2011b). The first new SDFs for Polish Natura 2000 sites were accepted in May 2013 (Generalna Dyrekcja Ochrony Środowiska 2014). There were only 14 new SDFs (out of 100) for Lower Silesia province when we started this analysis (December 2013). For this reason and due to important changes between the new and old versions of SDFs, only old ones were analysed. The main source of Standard Data Forms has been the official web site of the General Directorate for Environmental Protection (Generalna Dyrekcja Ochrony Środowiska 2014).

Human activities and impacts are classified into 130 types and grouped in eight categories (European Commission 2000). One of these is 'Leisure and tourism', where 20 types of impacts and activities influencing the conservation status of a site have been distinguished. Nevertheless, there are some other

tourism and leisure activities and impacts which have been included under different headings. Paths, tracks, cycling tracks (code 501), leisure fishing (code 220) and hunting (code 230) have been added to the above-mentioned group. Fishing and hunting are primarily recreational activities in the majority of EU-protected areas, in contrast to protected areas on other continents, such as Asia or Africa, where these activities are engaged in mainly for subsistence or livelihood purposes (TSIAFOULI et al. 2013). Activities and impacts which are not directly connected with tourism and leisure, e.g. autoroutes, railway lines, and vandalism, have not been analyzed in detail.

The main research method was analysis of information given in the SDFs, in particular:

- impacts observed in Natura 2000 sites and their intensities related to tourism and leisure activities that may have an influence, either positive, neutral or negative;

- the impacts and activities in the surroundings of the Natura 2000 site. The surroundings comprise the area where external impacts and activities may affect the integrity of the site (European Commission 2000);

- features of the sites, where a negative influence is medium or high.

The study area was Lower Silesia province, located in the south-western part of Poland. The most characteristic features of the region include well developed and varied industries and agriculture, as well as related urbanization. These characteristics have been influencing the nature of the area since the eighteenth century, when the Industrial Revolution started. Concurrently Lower Silesia is a region of very different types of mountainous and lowland environment, which together with its cultural assets make the region very attractive for mass tourism. The tradition of tourism development dates back to the nineteenth century, and even the Middle Ages for spas. Simultaneously, according to GDEP data, the province ranks 3rd in Poland in terms of numbers of Natura 2000 sites.

There are 100 Natura 2000 sites in Lower Silesia province. Ten Special Protection Areas (SPAs) cover 18.1% of the province's territory. There are ninety areas linked to the Habitats Directive, which occupy 19.1% of Lower Silesia (natura2000.gdos.gov.pl). Due to the fact that SPAs comprise only 10% of all numbers of Natura 2000 sites, they were treated together.

Results and Discussion

In Lower Silesia province 92 categories of impacts and activities have been recognized, out of the 130 types formulated in the explanatory notes for SDF. Natural processes comprise only 15% of the analyzed impacts. The remaining

78 types are connected with human activities. These have been studied further.

There are 79 Natura 2000 sites (out of 100) in Lower Silesia where some general impacts or human activities have been determined. ‘Agriculture and forestry’ and ‘Leisure and tourism’ are the most frequently reported categories of human activities at the analyzed sites (Figure 1).

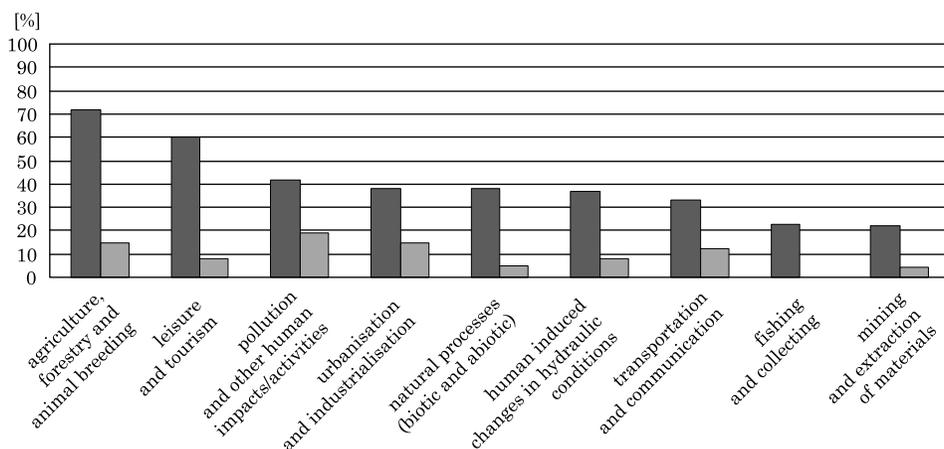


Fig. 1. Distribution of categories of impacts and human activities at Natura 2000 sites (dark colour bars) and in their surroundings (bright colour bars)

In the case of activities in the surroundings of Natura 2000 sites ‘Pollution and other human impacts/activities’ is the most often recorded category. These impacts occur in 19% of all Natura 2000 sites. Activities related to ‘Leisure and tourism’ concern only 8 sites (Figure 1).

Subdividing general categories, we can distinguish 22 individual impacts and activities which have occurred at 10% or more Lower Silesian sites (Table 1). None of them have exceeded this frequency of occurrence in the surroundings of Natura 2000 sites. The most often recorded impacts there were connected with routes and autoroutes (code 502) and water pollution (701), which concern only 9 sites each.

Leisure and tourism impacts have been found at 60 Natura 2000 sites (133 records) and in 8 their surroundings (15 records). Some of these concern the influence of infrastructure (especially paths, tracks, cycling tracks – code 501) while others are connected with human activities: hunting (230), leisure fishing (220), walking and horse-riding (622). These are the most often recorded (Figure 2).

Table 1

Impacts and human activities at Natura 2000 sites

Code	Impacts and human activities	Distribution of impacts and human activities at Natura 2000 sites [%]
160	general forestry management	44.0
501	paths, tracks, cycling tracks	30.0
102	mowing/cutting	29.0
166	removal of dead and dying trees	26.0
502	routes, autoroutes	26.0
954	invasion by a species	23.0
164	forestry clearance	22.0
230	hunting	22.0
701	water pollution	22.0
220	leisure fishing	21.0
141	abandonment of pastoral systems	19.0
403	dispersed habitation	19.0
622	walking, horse-riding and non-motorised vehicles	18.0
100	cultivation	17.0
620	outdoor sports and leisure activities	17.0
101	modification of cultivation practices	16.0
161	planting	16.0
301	quarries	16.0
421	disposal of household waste	16.0
140	grazing	13.0
702	air pollution	13.0
180	burning	12.0
952	eutrophication	11.0
200	fish and shellfish aquaculture	10.0

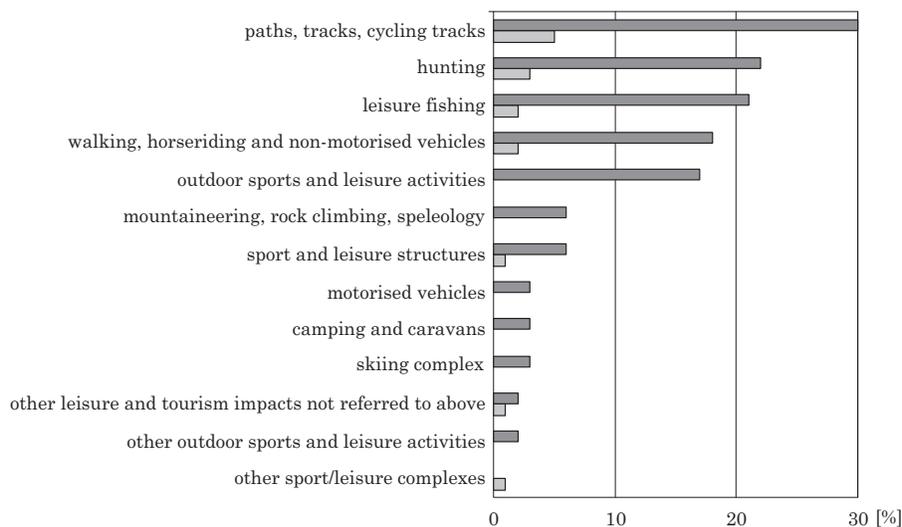


Fig. 2. Distribution of 'Leisure and tourism' impacts and activities at Natura 2000 sites (dark colour bars) and in their surroundings (bright colour bars)

Furthermore these leisure and tourism activities and infrastructure can have different environmental impacts: negative, positive or neutral. These influences can also be described in terms of their level of intensity: high, medium or low. According to the authors of Lower Silesian SDFs, there are no positive impacts either inside or outside any sites. Half of the authors cite negative impacts on habitats and species. The influence of the same number of activities is regarded as neutral by them (Table 2). Most leisure and tourism impacts (63.2%) are kept low. Only 6% of negative impacts are at the highest level of intensity.

Table 2
Influence and intensity of 'Leisure and tourism' activities at Natura 2000 sites in Lower Silesia province

Specification		Intensity of the influence				
		high (A)	medium (B)	low (C)	total	% of all records
Influence	positive (+)	0	0	0	0	0.0
	neutral (0)	2	15	49	66	49.6
	negative (-)	8	24	35	67	50.4
	total	10	39	84	-	
	% of all records	7.5	29.3	63.2		

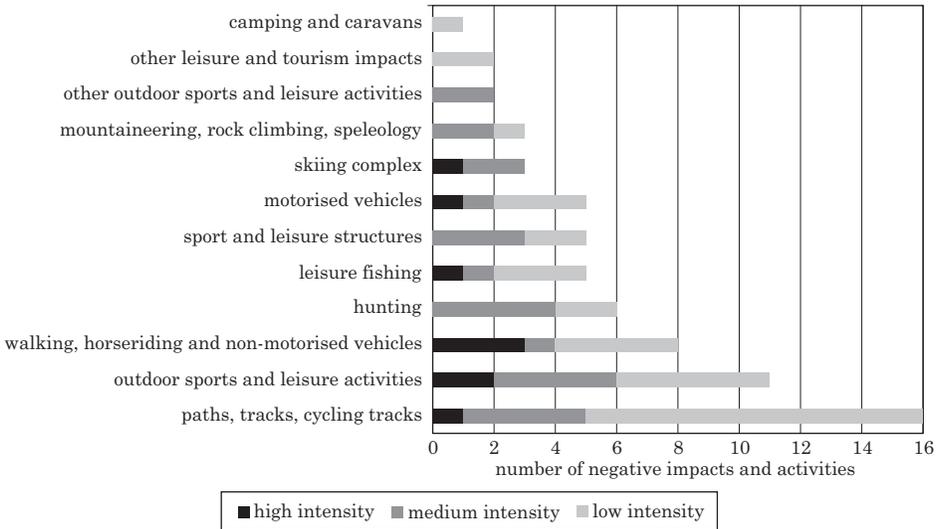


Fig. 3. 'Leisure and tourism' negative impacts and activities at Natura 2000 sites

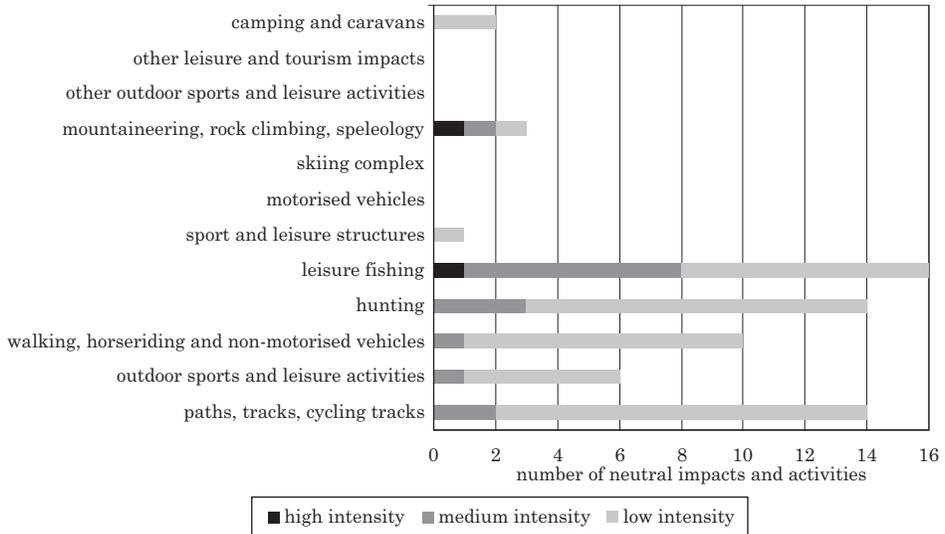


Fig. 4. 'Leisure and tourism' neutral impacts and activities at Natura 2000 sites

Figure 3 and Figure 4 show that the same structure elements (e.g. trails) or the same activities (leisure fishing, hunting, walking etc.) can have different impacts (negative or neutral) regardless of their intensity. The reason is that the evaluations of the influence are carried out on particular habitats and species (different subject-matters of Natura 2000 sites), in contrast to general assessments of the environmental impact of tourism and leisure. However,

there are some impacts which are described only as negative, such as skiing complexes and motorized vehicles.

Studying the data in detail, it is noticeable that medium and high intensive negative influences are mostly observed at medium-sized (average area: 19519.4 hectares) mountainous Natura 2000 sites with a wide variety of habitats (both wildlife and semi-natural) and species (mean number: 19.1 per site), e.g. Karkonosze (PLH020006, PLB020007), Góry Stołowe (PLB020006), Góry Złote (PLH020096), Góry Orlickie (PLH020060), Masyw Ślęży (PLH020040). These areas can also be characterized as being very attractive to tourists.

The sites where the influence is mainly low and neutral are usually small-sized (average area: 3986.7 hectares) with a fewer number of species (mean number: 10.2 per site) related to a narrow type of environment and with some leisure attractions, mostly for local residents, e.g. Czarne Urwisko koło Lutyni (PLH020033), Dąbrowy Kliczkowskie (PLH020090), Góra Wapienna (PLH020095), Kamionki (PLH020005).

The results of the most often reported categories of human activities correspond with the results of similar research carried out in 20 EU Member States (TSIAFOULI et al. 2013). They show also the significant role of tourism and leisure activities at Natura 2000 sites.

The analysis showed that the main types of leisure and tourism impacts at Natura 2000 sites are exactly the same for Lower Silesia province and for the Polish part of the Carpathian region. In spite of the fact that SDFs were analyzed for two different areas of Poland, the low intensity and division of types of environmental impact (neutral and negative) are very similar (WITKOWSKI et al. 2012).

Conclusions

The Lower Silesian Natura 2000 sites are frequently attractive for nature conservation as well as for leisure and tourism activities. There are 13 main types of tourism and leisure impacts. The most frequently recorded activities were hiking, cycling, leisure fishing and hunting. However, these activities and the infrastructure necessary to develop them influence the environment inside and outside the sites. Nevertheless, in view of research results of standard data forms their type and intensity are not often harmful. A high intensity of negative environmental influence is rare. Overall, we can conclude that these two important functions of Natura 2000 sites, i.e. nature conservation and tourism/leisure, can be fulfilled simultaneously in the Lower Silesia province.

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