

Management strategies for outdoor recreation in Central European high-mountain national parks

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High-mountain ranges are unique features of the landscape in Poland, Austria, Czech Republic, Germany, Slovakia and Slovenia. They are also one of the main tourism destination in the respective countries. Traditional outdoor activities i.e. mountaineering and alpine skiing are extremely popular there although in the last two decades new forms of outdoor sports and recreation have gain significant importance, e.g. ski-touring, rock climbing, mountain biking and other (see Zinser 1995). There is a broad knowledge of tourism impact on mountain environment in general (e.g. Rixen, Rolando 2013) but various management strategies and regulations are applied in response to this impact (Eagles et al. 2002, Manning, Anderson 2012, Mason 2005).

In the Western Carpathians and in the Giant Mountains (the Bohemian Massif) the entire area above timberline is protected within national parks as well as the other protected areas such as Natura 2000 sites or UNESCO Biosphere Reserves. It relates also to the most of the high-mountain ranges in the Eastern Alps (e.g. Julian Alps, High Tauern, Bavarian Alps). Level of restrictions differs in respective mountain ranges however value conflicts between nature conservation and outdoor recreation are observed in all of them (see Prato, Fagre 2005).

The study area encompasses 8 national parks (category II in IUCN classification) in the high-mountain ranges of Central Europe. These are: Tatra National Park (Poland and Slovakia), Karkonosze National Park (Poland and Slovakia), Low Tatra National Park (Slovakia), Berchtesgaden National Park (Germany), High Tauern National Park (Austria) and Triglav National Park (Slovenia). All of these national parks are visited by a vast number of tourists, exceeding 100 000 visitors per year. The aim of the study is to analyse efficiency of applied management strategies as well as determinants for managing outdoor recreation in respective national parks. These are: forms of outdoor recreation and number of visitors, characteristics of the environment and environmental impact of various recreation forms, legal basis as well as social and economic issues. Management plans, access rules and strategies for nature conservation of respective protected areas were analysed. Additionally, interviews with national park administration and opinion leaders representing various stakeholders groups as well as query of social media and discussion forums were carried out.

Various restrictions are implemented in national parks as a part of management strategies. These are spatial, temporal, quantitative and qualitative limitations. The first are the most common and consists in limiting particular activities to designated areas, trails or objects. Seasonal closures are usually applied to protect wildlife and are generally accepted by visitors. Qualitative regulations are relatively rare and are related to concept of carrying (ecological) capacity of environment. However, it

is hard to establish precise number of visitors allowed to enter trail or area. Thus, it is often considered to be arbitrary. Additionally, wide range of detailed regulations is established in studied national parks. These may response to environmental impact but also to risk management.

Table 1. Selected outdoor activities in Central European high-mountain national parks – rules and regulations

	Ski-touring	Climbing	Caving	Mountain biking	Paragliding
Tatra NP (Poland)	only on marked trails, seasonal closure – protection of marmots	only in designated areas, regulations on placing bolts, obligatory auto-registration	only in designated caves, must be a member of speleological club, obligatory auto-registration	only on few designated trails below timberline	forbidden
Tatra NP (Slovakia)	only on marked trails; above timberline – only on 10 designated trails and in 1 ski-touring area	only in designated areas (some of them only in winter), must a member of mountaineering club	only in designated caves, must be a member of speleological club	only on designated trails below timberline	4 designated places for departures, allowed from 9AM to 4PM
Giant Mts. NP (Poland)	only on marked trails	only in 2 designated areas (in winter), individual permit must be obtain	-	only on few designated trails below timberline	1 designated place for departure, individual permit must be obtain
Giant Mts. NP (Czechia)	only on 8 designated trails above timberline, seasonal closures	rock climbing – in few designated areas, ice climbing – only in one area, daily limit of climbers, obligatory auto-registration	-	over 400 km designated biking trails and downhill slopes	designated places for departures and landing, designated flying corridors
Low Tatra NP (Slovakia)	on marked trails and in 2 designated skitouring areas, seasonal closures (also due to avalanche risk)	only in few areas, seasonal and temporal closures	only in designated caves, must a member of speleological club	only on designated trails	designated places for departures and landing, designated flying corridors, seasonal closures

	Ski-touring	Climbing	Caving	Mountain biking	Paragliding
Hohe Tauern NP (Austria)	allowed	allowed	allowed	allowed	designated places for departures and landing, designated flying corridors, seasonal closures
Berchtesgaden NP (Germany)	only on designated trails above timberline	regulations on placing bolts	allowed	only on designated trails	forbidden

Analysis of case studies from Central European national parks indicates that stakeholders' participation in management process is a key-factor to ensure its efficiency. Otherwise, attitude toward regulations is strongly negative and applied restrictions are commonly flouted. Additionally, educational and informational actions as well as visitors' monitoring are crucial to build trust and establish co-operation between national parks authorities, rangers and various groups of visitors.



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