

# Visitor risk management in core zones of protected areas: First results from a survey of European park administrations

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**Abstract** - Effective visitor risk management practices play an important role in the management of outdoor recreation. Many forms of outdoor recreation have inherent risks associated with them, indeed for many recreational activities risk and challenge are integral components. In many European countries, the administrations of protected areas are legally liable for some kinds of visitors' injuries, e.g. caused by falling trees or damaged handrails. Sometimes this liability may cause legal problems for the managers, as management measures (e.g. removal of trees) might be in conflict with conservation regulations. These problems are particularly serious in core zones of protected areas, because of their stronger conservation status.

In this study, visitor safety management and likely conflicts with conservation regulations in different European protected areas has been surveyed.

The findings imply that today visitor risk management is not considered as an important aspect of the management process in core zones of protected areas. This might change in the future: In many core zones of European parks regular forest management for timber production has only recently been discontinued, which will lead to an increased visitor risk when natural processes of ecosystem development take over.

**Index Terms** - Conservation regulations, European Protected Areas, Questionnaire, Visitor Risk Management

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## 1 INTRODUCTION

The link between protected areas and tourism is as old as the history of protected areas. Protected areas normally achieve recognition and enhanced protection when sufficient numbers of people visit them, appreciate them, and take political action to assure their survival. Park tourism is a critical component of protected area establishment and management.[4]

All outdoor recreation involves some level of risk. Dealing with such risk is an important component of park tourism management. Visitor risk management is the systematic identification, analysis and control of the broad range of visitor risks, which threaten an agency or its ability to achieve its objectives.

Visitors should return home safely and satisfied with their experiences. There is a moral obligation to consider their safety, and protect them from unnecessary or unreasonable risk. [3]

Sometimes developing tourism in protected areas causes conflicts between the managers' legal liability and conservation laws. For example, according to Bell et al. (2007), in the Central European Continental Region (i.e. Poland, the Baltic states, the Czech Republic, Slovakia and others) the main conflict

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area is between recreation and nature conservation. Most of the protected areas in this region have been established during the last 20 or 30 years, many of them in traditional recreational locations, for example in Latvia and along the Baltic coast line and in mountainous areas. The mountainous areas of the Czech Republic, Slovakia and southern Poland are facing increasing problems, especially with ski touring, cross country skiing, snow shoeing and snow mobiles as well as rock climbing and mountain biking.[1]

In the Benelux countries and in the U.K. the combination of intensive recreation and nature conservation also poses a special challenge. [2], [5]

Managing visitor risk may also cause legal problems for the managers, as management measures (e.g. removal of trees) might be in conflict with conservation regulations. These problems are particularly serious in core zones of protected areas, because of their higher conservation status.

## 2 STUDY METHOD

A digital questionnaire concerning visitor risk management in European protected areas, was developed. Questions were designed to gather information about the following aspects:

- General character of the protected areas and their core zones
- General visitor management strategies in core zone(s) of the protected areas
- Potential hazards and reported accidents in the core zones
- Visitor risk management legislation and measures

The questionnaires were sent out via email to about 300 National Parks and Biosphere reserve in Europe, in particular national parks and biosphere reserves.

All information collected from the received questionnaires was entered into a database.

As the questionnaire included some open ended answers and comments, this information was categorized and coded, and finally all data were exported into an SPSS data sheet. The analysis used frequencies, cross-tabulations, and multiple response tables to explore the patterns and relationships among the data.

## 3 RESULTS

58 area administrations (= 19.3% return rate) completed and returned the questionnaires.

### 3.1 Type and IUCN Management Category of Respondents

The majority (66%) of the returned questionnaires was received from national parks. Biosphere reserves represent a 12% share in the sample. In 64% of the responding protected areas core zones are belonging to the IUCN management category II (National Parks). Category Ia (Strict Nature Reserve) refers to 16% of the core zones.

### 3.2 Visitor Access to Core Zones

The results show that in 88% of the responding protected areas visitors are allowed to enter the core zones in some way, so only in 12% of them visitor access to core zones is totally banned.

Hiking is the most frequent (78%) activity that is allowed for visitors in the core zones, followed by mountain biking (43%) and horse-back riding (40%).

### 3.3 Potential Hazards and Actual Visitor Accidents in Core Zones

50 protected area administrations specified the existent potential hazards in their core zones. Table 1 presents the most frequently mentioned categories.

TABLE 1.

POTENTIAL HAZARDS IN CORE ZONES OF RESPONDENT PROTECTED AREAS (N=50)

Hazard	Count
Falling trees	27
Bad trail condition	22
Windstorm	21
Rock fall	18
Dangerous terrain (e.g. swamps)	16
Avalanches	13
Lightning	13
Floods	12
Bad infrastructure condition	10
Landslides	7
Wildfire	6
Toxic or aggressive animals	5

Only 22% of the respondents keep official records of incidents related to visitor safety in their core zones. The most frequently reported cases are typical mountaineering accidents (fractures, sprains after falling from rock or slipping from trails), heart attacks or just getting lost. Accidents from falling trees or branches have so far only rarely been an issue, despite the high score in Table 1.

### 3.4 Legal Liability for Visitor Safety in Core Zones

Interestingly, only 41% of the respondent protected areas answered the question about the legal liability for visitor safety in their core zones (see Table 2).

TABLE 2.

LEGAL LIABILITY FOR VISITOR SAFETY IN CORE ZONES OF RESPONDENTS PROTECTED AREAS (N=36)

Legal Liable for Visitor Safety	Count
Protected area administration	20
Land owner	13
Visitors	9
Others	8

### 3.5 Visitor Risk Management Strategies

17 respondents (29%) declared that they have an explicit visitor risk management strategy, but only about one half of them have a structured process for identification and mitigation of visitor risks. There is also little systematic training of staff with regard to visitor safety management. 26 respondent protected areas (45%) specified management measures that are carried out in their core zones in this connection. The most frequently mentioned measures are shown in Table 3.

TABLE 3.

MANAGEMENT MEASURES TO IDENTIFY EXPOSURES TO PROBABLE RISKS IN CORE ZONES (N=26)

Management Measures to Identify Exposures	Count
Regular Monitoring of Trail Conditions and Infrastructure	23
Assessing Natural Risks in Terms of Impact on Visitors	14
Regular Monitoring of Tree Conditions	13
Determining Necessary Control Measures	12
Review the Degree of Success of the Control Measures Implemented	10

### 3.6 Managing tree related risks

46 protected area administrations answered the question regarding the management of tree/branch fall risks in core zones. The relevant management measures are presented in Table 4.

TABLE 4.

MANAGING TREE/BRANCH FALL RISKS IN CORE ZONES OF RESPONDENT PROTECTED AREAS (N=46)

Managing Treefall/Branchfall Risks	Count
Tree Felling/Branch Cutting Without Removing of Material	24
Warning to Visitors	20
No Action	18
Tree Felling/Branch Cutting With Removing of Material	5
Trail closure	1

Only 12% of the respondents reported that there are conflicts between conservation laws and visitor safety in the core zones of their protected areas, mostly related to tree felling and removal. However, 16% of the respondents reported some resistance of visitors against management actions for decreasing natural risks.

#### 4 DISCUSSION AND CONCLUSIONS

The findings imply that in the majority of the protected areas in Europe visitor risk management, both generally and in particular in core zones, is not considered as an important part of the management process. The low return rate of our survey can also be seen as an indicator for this.

However, some problems may be left unknown as a result of the lack of systematic visitor risk management procedures. In most protected areas visitors are allowed to enter the core zones, so their safety must also be considered, in particular with regard to the special conservation status of a core zone. Although it is accepted that visitors have a responsibility to look after their own wellbeing and safety, our survey results show that protected area administrations are usually also legally liable for visitor safety. Court cases where protected area administrations were held to account for neglecting visitor safety are still rare in Europe, however, the current trend to cease forest management for timber production in protected areas, even close to urban settlements, might change this situation in mid future, as a natural dynamic vegetation development (which includes collapse and decay) will most probably lead to a higher degree of risks related to tree fall.

An efficient visitor risk management requires the development of a systematic visitor risk management program. The design of such a program in a protected area varies based on the respective natural, conservation, legal and cultural conditions, but there are some common bases for every visitor risk

management program. According to the West Australian Department of Conservation and Land Management [1] a visitor risk program should involve the following stages:

- Identify the risks.
- Assess the risks.
- Determine what control measures to take.
- Review, apply and monitor control measures.

Risks encountered by visitors cannot be managed unless they are identified and understood. In each area potential visitor risks depend on a broad range of different natural, managerial and infrastructure factors. Determining current visitor activities in the area and risks associated with them is essential for the identification process. To investigate and record the visitor incidents can provide a broader understanding of the potential risks in different locations and at different times.

Once a risk has been identified, an assessment should be carried out in order to determine its extent. Determining the likelihood of incidents associated with each risk and their probable consequences for visitors construct the bases of any risk assessment process.

Using the results of the risk assessment, the appropriate control measures can be determined, or the necessary action taken in order to eliminate or reduce the risks.

Effective and regular risk inspection is necessary to detect and manage hazards before visitors are injured, thereby minimizing the frequency of incidents.

It is clear that installing a Visitor Risk Management Program in a protected area means an additional administrative task for the management. Therefore pragmatic approaches will be needed in order to minimize the expenses and the bureaucratic effort.

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