

# Evaluation of Integrated Protected Area Management in Slovakian National Parks

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## Abstract

National park management institutions must adapt as society's goals and preferences change. This is especially true in countries that recently joined the European Union and have undergone rapid institutional change. Tools for evaluating national park management are important for guiding such institutional changes. We evaluate the ability of the integrated protected area management (IPAM) toolbox to identify areas of management that should be targeted for improvement. We find that the IPAM toolbox breaks the complex task of protected area management into specific tangible action areas, and that IPAM assessment can aid managers in identifying specific areas of protected area management that need revisiting. We conduct an IPAM assessment for all nine Slovak national parks and identify commonalities among the assessment results. These commonalities point to necessary institutional changes beyond the control of individual park administrators. The IPAM toolbox is a useful tool to help national protected area institutions adapt to changing social and environmental conditions. Ultimately, such adaptation will lead to more efficient and effective park management.

**Keywords:** evaluation, integrated protected area management, national parks, IPAM toolbox

## Introduction

Protected areas – areas set aside to maintain ecosystem function, act as refuges for species, and to maintain ecological processes that are not compatible with intensely managed landscapes and seascapes [1] – play a critical role in the conservation of biodiversity. They are the cornerstones of many national and international conservation strategies. Protected areas are considered the most promising and effective response strategy to mitigate and prevent biodiversity loss [2]. Management effectiveness evaluations of protected areas are vital for the functioning of protected areas.

The IUCN protected area management categories provide a global framework that is recognized by the Convention on Biological Diversity for categorizing protected area management types. Over 60% of the more than 117 protected areas worldwide are classified under the IUCN system [3]. The IUCN defines six protected area categories based on the primary management objective. However, on-the-ground management within these protected areas varies greatly.

Evaluating protected area success in Europe is challenging. Europe's unique characteristics (e.g., its relatively high population density and the long history of human modification of the landscape) complicate the designation of protected areas that are large and sufficiently undisturbed to fulfill the IUCN criteria for national parks (category II) [4]. This category is vital for ensuring the protection of

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Europe's natural heritage. The primary issues faced in Europe are the size of protected areas, zoning within protected areas, clear jurisdiction of management responsibility, land ownership, regional variations, multiple classifications, the areas around protected areas, and international designations. These constraints need to be considered during protected area planning [5]. Bishop et al. [6] recommends focal areas for protected area improvement: monitoring and management, capacity building, and public outreach to increase awareness, and clarification of the guidelines for protected area categorization.

In many areas, protected area management means making tradeoffs between conservation of biotic and abiotic natural capital, including biodiversity, and capitalizing on the ecosystem services provided by the area, some of which invariably require a reduction in the stock of natural capital [7]. In populated areas, participatory management is important for balancing current period benefits with conservation for the future; e.g., UNESCO Man and Biosphere program provides an example of successful participatory management (see [8] for other examples of successful participatory management). These areas combine biodiversity protection and sustainable development and provide excellent cases for studying coupled human-natural systems.

Planning and managing protected areas involves many different legal, administrative, and technical issues. Numerous protected area management instruments have been developed, e.g., PAN Parks, the Seville strategy, and the Ramsar Convention to aid in protected area management [9]. New approaches are characterized by managerial control of the areas, protection of species and processes, and connection conservation with economic development. These new approaches aim to implement a network of sites that provides regional economic benefits, cooperative management, and financial stability for protected areas.

Synge [10] describes four critical aspects of protected area management: zoning, monitoring, collaborative management, and management of visitors. Management planning can further be broken into 13 basic steps [11]. But, ultimately it is critical to evaluate the management effectiveness of a protected area. Hocking et al. [12] states that the basic reason for evaluating management effectiveness in protected areas is to improve management, effectively reallocate resources to their best use, increase transparency, involve local communities, and clearly communicate the benefits of the protected area. However, evaluations are only useful if they are used in an adaptive management process [13] that makes learning and process improvement a management goal. Multiple methods are available for evaluating the management effectiveness in protected areas, e.g., WWF Rapid Assessment and Prioritization Methodology [14], the Management Effectiveness Tracking Tool developed by the World Bank and WWF [15], and assessment based on the World Commission on Protected Areas (WCPA) framework [16]. A recent addition to this tool kit is the Integrated Protected Area Management (IPAM) toolbox (developed by Jungmeier [17]). The benefits of the IPAM toolbox are sovereignty, interactivity, and integration of best practices.

Table 1. Overview of study areas (including year of establishment and size).

National Parks (NP)	Year established	Area (ha)		
		Area of NP	Buffer zone	Total
Tatranský NP	1949	73.800	30.703	104.503
Pieniny NP	1967	3.750	22.444	26.194
Nízke Tatry NP	1978	72.842	110.162	183.004
Slovenský Raj NP	1988	19.763	13.011	32.774
Malá Fatra NP	1988	22.630	23.262	45.892
Poloniny NP	1997	29.805	10.973	40.778
Muránska Planina NP	1997	20.318	21.698	42.016
Slovenský Kras NP	2002	34.611	11.742	46.353
Veľká Fatra NP	2002	40.371	26.133	66.504

We employ the IPAM tool box to assess the Slovak national park system. This contributes to the literature on protected area management in two ways. First, we test the IPAM toolbox and demonstrate how it can be used to conduct both local and systemic assessment. Second, we show how the IPAM toolbox clearly identifies systematic weaknesses within the Slovakian national park system. Finally, we make recommendations for addressing these weaknesses based on IPAM assessment results.

### Study Areas

Slovakia is a geographically small country that is rich in biodiversity. The present system of regional nature protection areas in Slovakia is a result of historical path dependencies [18]. Joining the EU brought a large increase of investments in industrial production, tourism development, and agriculture intensification. These investments have increased the pressure to conserve Slovak natural heritage.

In recent years the Slovak nature conservation system has undergone rapid change. The national system of protected areas currently consists of 9 national parks, 3 of which are biosphere reserves (Table 1), 14 protected landscape areas, and 1 073 small-scale protected areas, including national nature reserves, natural reserves, national nature monuments, nature monuments, and protected distribution ranges (according to Act of the National Council of the Slovak Republic No. 543/2002 on nature and landscape protection). Twenty-three percent of the land area in Slovakia, 1,135,209 ha, is currently under some form of protection. Furthermore, the NATURA 2000 process motivated the declaration of 38 protected bird areas, 1,236,000 ha or 25% of Slovakia's land area, but these areas only have a 55% overlap with a network of existing protected areas. The NATURA 2000 process also established 382 areas of European importance, 570,000 ha or nearly 12% of Slovakia's land area. These areas have an 86% overlap with the network of existing protected areas. In light of this rapid expansion, it is important for Slovakia to reeval-

uate the national system of protected areas including the current zoning strategy, the development of a system of research, and monitoring of protected and indicator species, a strategy for implementing management plans, and improvement of instruments for cooperation with landowners and land-users within protected areas [19, 20]. These overlapping systems complicate management. Most Slovakian national parks have evolved from protected landscape areas, which correspond to IUCN category V.

The legislative mandate of Slovak national parks corresponds to the IUCN criteria for national park protected areas. However, Tatranský National Park continues to suffer from extractive exploitation within the park and underinvestment in environmentally and culturally compatible, spiritual, scientific, educational, and recreational and visitor management programs [21]. This is a general trend in Slovakia, and similar statements can be made about the other national parks [14]. The most significant pressures and threats to Slovak national parks are forestry, excessive tourism and recreation, building and infrastructure development, agriculture, and hunting and poaching. Tatranský, Slovenský Raj, Malá Fatra, and Poloniny National Parks are the most biologically and socially significant parks, but also the most vulnerable. In 2005, the supreme audit institutions of Poland and Slovakia performed a parallel audit of national parks on the Polish-Slovak border that focused on preservation, sustainable use, and restoration of natural resources [22]. The systems of management of wildlife conservation in the two countries differ from each other and certain modifications are necessary to ensure that the objectives of national parks are met. Over the past year the situation in national parks has deteriorated despite attempted intervention by the European Commission and the IUCN.

### Methodology and Experimental Procedures

The Integrated Protected Area Management (IPAM) toolbox is a knowledge-based expert system that combines expert knowledge with information technologies. It provides a dynamic, interactive consulting process to identify problems, focus questions, and find solutions. The toolbox combines know-how and best practices based on the explicit criteria of the IUCN, the UNESCO Man and the Biosphere Program, and the Convention on Biological Diversity. It is designed for use by planners, managers and consultants of protected areas [23]. The IPAM toolbox consists of three components: a self-assessment, a knowledge base, and recommendations. The toolbox is accessed through the IPAM-homepage ([www.ipam.info](http://www.ipam.info)).

The self-assessment has three goals. First, the self-assessment identifies the current state of the protected area. Second, self-assessment opens a direct route to suitable, condensed information that enables comparisons with the previous stages of the development of the protected area, as well as comparisons with other protected areas. Third, self-assessment provides an overview of the activities required for planning and evaluating future activities (e.g., improving the effectiveness of management).

The knowledge base is created following self-assessment by dividing the management of protected areas into three phases and 25 fields of activity (Table 2). The phases map to the life-cycle of a protected area and the management requirements, which fundamentally differ at each stage of the protected area's lifecycle. The status of each park is ranked with regards to phases and fields of activity shown by a percentage value. The lowest entities in the toolbox hierarchy are actions. Three to six actions form a field of activity. The actions within a field of activity are classified as not started, started, or complete (Table 3). The toolbox calculates an index between 0% and 100% to indicate how much of each field of activity has been completed.

The Integrated Protected Area Management (IPAM) toolbox was used to evaluate protected area management in

Table 2. Overview of the fields of activity in protected area management [23].

Phases		Fields of activity
Pre-phase		Development of idea and vision
		Feasibility check
		Communication and participation I
		Incorporation into PA-systems
Planning phase	Basic planning	Planning handbook
		Communication and participation II
		Basic investigation
		Implementation planning
		Designation and establishment
	Detailed planning	Mission statement and basic concepts
		Ecosystem-based management plans
		Design of (regional) economic programs
		Specific planning (subsidiary plans)
Implementation phase		Personnel and organizational development
		Evaluating management effectiveness
		Financing (business plan)
		Impact assessment and limitation
		Data and information management
		Research setting and monitoring
		Communication and participation III
		Development of protected area's region
		Co-operation design
		Information, interpretation and education
		Visitor management, services and infrastructure
		Marketing and public relations

Table 3. An example of evaluation of particular activities.

Status			Phase – Fields of Activity – Action
Completed	Started	Not started	Pre-phase – Development of Idea and Vision
X			Gain an overview of all relevant stakeholders, groups and institutions that may be affected, inspired by, or involved in the development of a protected area
X			Initiate and promote a process of discussion in order to draw up common visions and perspectives for the future
	X		Establish a discussion process, based on professional expertise, that will prevent early misunderstandings concerning constraints, financing, or categories

Slovakia. Interviews with national park managers were used to collect information to complete the self-assessment. Interviews were designed around the IPAM cross-checking questions (85 overall). The interviews were conducted over the phone and by e-mail from 2008 to 2009. Interviews were semi-structured, allowing managers to explain their responses (though this information was not used in the IPAM assessment). After completing the self-assessment, the IPAM toolbox generated a report based on the interview responses in the form of a summary. The IPAM toolbox provides three options: the progress report, an overview of the state of progress (aggregate information on activities); the detailed report, an overview of answers (for further checking, discussing or storing answers); and the recommendation report, a set of standardized recommendations and the focal output of the self-assessment.

### Results

We conducted IPAM assessments for all nine Slovakian national parks. In the interest of space we only present detailed results for Tatranský National Park. Results for the other national parks were qualitatively similar.

The assessment of Tatranský National Park revealed that the protected area generally had conducted the pre-planning phase, with the exception of the feasibility check, and had made progress in the area of basic planning (Fig. 1). However, detailed planning was lacking, which likely contributed to low implementation phase scores. The results and graphic display (Fig. 1) can aid managers in prioritizing future management activities.

We hypothesize that the overall poor performance of Tatranský National Park is a reflection of overarching insti-

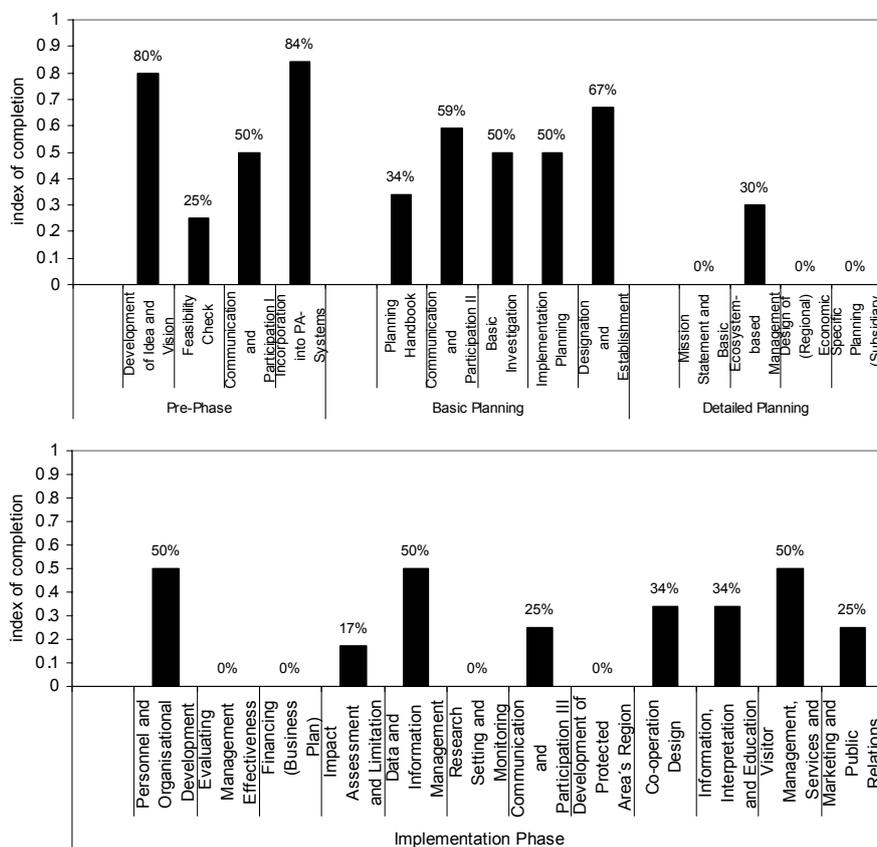


Fig. 1. Progress report for Tatranský National Park.

tutional arrangements in the Ministry of the Environment, and legislative authority provided to the national park administrations. No park had an overall score above 50% (Fig. 2), and detailed planning was noticeably weaker for most parks (Fig. 3). We hypothesize that the lack of detailed planning is a result of the fragmented management authority within Slovakian national parks, where many different agencies are involved with some level of management. This high number of agencies with different mandates and constituencies provides a critical challenge to detailed planning. Furthermore, though the IPAM toolbox presents these four phases as a linear process, in actuality they are iterative. Pre-phase and basic planning can only be improved once it is realized that they are not adequate for detailed planning and implementation. Currently in Slovakia this cycle is broken because park management authorities cannot get through the detailed planning phase, but institutional arrangements do not permit greater success in the earlier phases.

It is important to note that various parks have had tremendous success within specific fields. These successes are largely the result of interactions with non-governmental agencies that provide additional capacity to coordinate the many stakeholders involved in Slovakian protected area management. For example, a 2-year project, "Participatory and Sustainable Management of Tatranský National Park," initiated public participation as a part of the preparation for a new management plan in close cooperation with the

national park administration, NGOs, and consultants. Another example is the 4-year project, "Conservation of Habitat Diversity in Slovenský Raj National Park." The overall objective of the project has been to conserve and restore habitat diversity of the National Park through enhancement and implementation of a management plan for sites of ecological communities of interest using collaborative partnerships with relevant stakeholders.

### Discussion and Conclusions

All the evaluated protected areas were established during the communist era, with a top-down approach and with minimal public discussion [24]. Such discussion may have been less critical with a strong central controlling authority. Management became significantly more complex when power and landownership were decentralized. There is an urgent need to initiate activities that were missed in pre-phase and basic planning phase so that detail planning can take place. For example, only 1 out of 9 national parks has approved zoning.

Communication and participation is critically lacking from the basic planning phase. There is no platform for involving the range of stakeholders in the planning process. Hesselink et al. [25] introduce many effective communication, education, and public awareness strategies that could

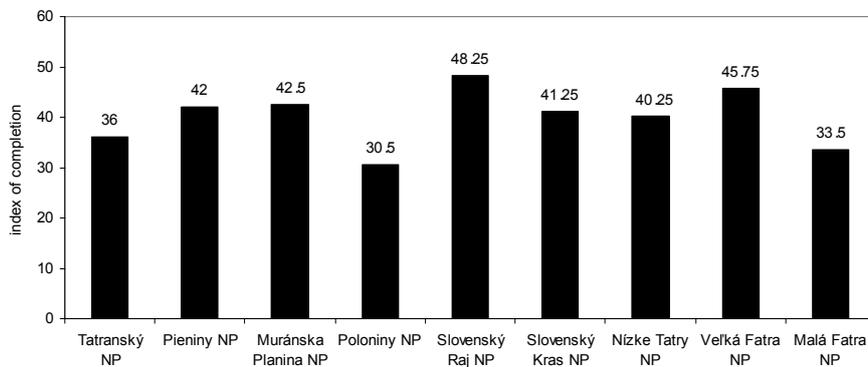


Fig. 2. Comparison of overall management in Slovakian national parks.

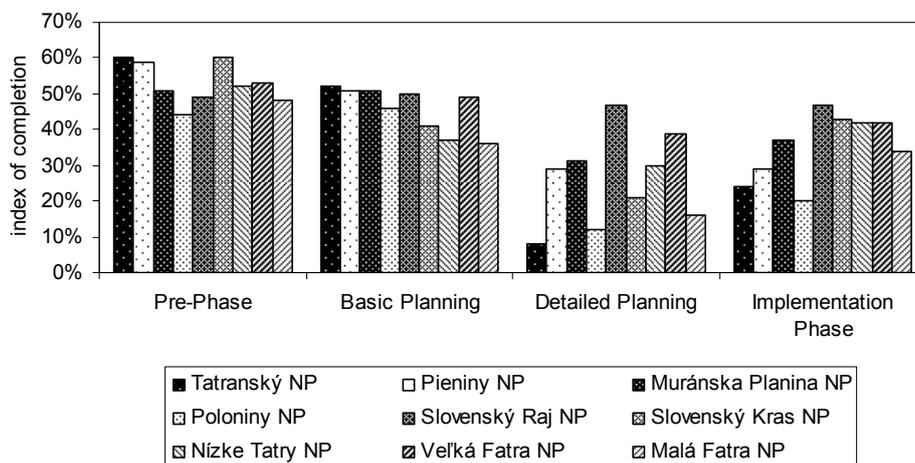


Fig. 3. Comparison of management of Slovakian national parks in each phase of planning.

Table 4. High priority recommendations for Tatranský National Park.

Field of Activity	Recommended Action
Feasibility Check	Transparency of process
	Acceptance zoning
Planning Handbook	Technical backbone
Communication and Participation II	Regular news
Mission Statement and Basic Concepts	The site's mission
	The site's strategy
	The site's appearance
Ecosystem-based Management Plans	Calculation of costs and finances
	Communication of the plan
Design of (Regional) Economic Programs	SWOT – Analysis
	Product/Service – Portfolio
	Product/Service – Platform
	Impulses for investment
Specific Planning (Subsidiary Plans)	Overview specific plans
	Interface specific plans
Evaluating Management Effectiveness	Management cycle
	Indicators of success
	Monitoring and benchmarking
Financing (Business Plan)	List of benefits
	Business plan
	New incomes
	Financial plan
Impact Assessment and Limitation	Precheck
	Transparency
Research Setting and Monitoring	Research profile
	Research concept
	Monitoring concept
Communication and Participation III	Permanent communication
Development of Protected Areas Region	Regional Economic Program
	Info-Platform
	Partnerships
	Trademark
Co-operation Design	Institutional partnerships
Information, Interpretation, and Education	II&E – concept
Marketing and Public Relations	Protected area's brand
	Staff enthusiasm

be used to stimulate and engage stakeholders in protected area planning.

Slovakian national parks are weakest in the detailed planning phase. There is no developed common mission statement or long-term perspective based on a participative process. Management plans are not based on an ecosystem approach, and existing management plans are outdated. Above all, the existing management plans lack indicators to evaluate success and tools to communicate with stakeholders. Finally, there is virtually no connection between park management and regional economic development, and no recognition of the interdependencies between protected area success and the local economy. There is lack of studies on the economic impact of national parks and perception of key actors in national parks. Elsewhere in Europe (e.g. Austria, Germany) protected areas generate considerable benefits for regional economic development [26], and methods for conducting such assessments are well developed, e.g., [27].

In the field of implementation planning, zoning is a weak spot that needs to be improved in order to align the parks with the requirements of the internationally recognized categories. Previous evaluations of parks have emphasized that decision-making processes, including compensation issues, but these have not been fully resolved.

The Implementation phase is largely incomplete. This is reasonable, given the failings in the planning stages. The IPAM assessment revealed that there is little investment in professional or organizational development.

Financing is one of the weakest areas for Slovakian national parks (Fig. 1). In 2008, the Slovak State Nature Conservancy prepared a strategy that proposed a new financing strategy. This strategy resulted in complete dependence on the state budget and nearly all money goes to the operational costs of administration, with little money left for practical measurements. The failure of the financing strategy is likely a result of poor pre-phase, basic, and detailed planning. It illustrates the result of cutting corners in the park development life cycle. Had the pre-phase, basic, and detailed planning been adequate, then alternative financing instruments might have been identified [28].

Data and information management has improved as a result of preparation for the NATURA 2000 network, but there are still problems with updating and availability of some types of information that are relevant for protected areas. NATURA 2000 imposed an external force that led to moderate success in the information management field, but it is important to recognize that this capacity was not built organically as a result of earlier planning phases. The need to rapidly develop data and information management systems limited transparency. Research and monitoring is insufficient, especially related to long-term monitoring programs, and research related to social and economic issues is lacking. None of the nine national parks promote the protected area as trademark and brand for local products and services. National and international cooperation is poor, and is largely based on personal contacts. Information,

interpretation, and educational activities do not reach all target groups; outreach is based on old knowledge and approaches without any new didactic approaches and educational methods. National parks still use mostly reactionary visitor management (e.g., “do not enter”) rather than proactive approaches (e.g., new routes attracting visitors to hot-spots). There is lack of a well balanced network of infrastructure (interpretive trails), activities, and programs for visitors, including the interpretation of ecological processes.

It is possible to improve Slovakia’s national park system of management by realizing tangible steps. There are over 40 different methodologies applied in more than 100 countries to assess the effectiveness of protected areas management. IPAM lays out a conceptual argument for why failures happen and directs managers to re-think the evolution of the protected area. This often means repeating earlier steps (e.g., basic planning). A strength of the IPAM method is that, even with the subjectivity of self-assessment, managers must confront realities related to the basic building blocks of protected area management. For example, if managers are dissatisfied with the implementation phase results, then this suggests that planning phases were inadequate. Specifically, if there are not obvious resolutions to failures in the implementation phase, the IPAM approach instructs managers to re-evaluate the planning phases. Therefore, in the long-run high marks in the planning phases are inconsistent with low marks in the implementation phases. Indeed, the evidence from Slovakia demonstrates this point.

This paper analyzes management in Slovakian parks using the IPAM toolbox. This paper contributes to the literature at two levels. First, it tests the IPAM toolbox usefulness for individual parks. Second, combining individual park IPAM assessments provides a clear assessment of the Slovakian conservation system.

The recommendations that result from the IPAM assessment are intuitive and consistent with the history of the Slovakian conservation system. The parks have a long history and tradition that has helped conserve Slovakia’s natural heritage. However, as society changes, new fields of management activity become relevant. Many of these fields are not part of the protected area management tradition in Slovakia. Logically, Slovakian national parks scored poorly in these IPAM fields.

Generally, protected areas face broad challenges for the future, e.g., uncertainty about local politics, climate change, economic conditions, and geo-politics; and moral values, guiding relations with neighbors, visitors, and decision-makers, compounded by the dilemma as to whose values should dominate [29]. Slovakian authorities should take action and revisit the pre-planning phase and basic planning phase to ensure successfully detailed planning that ultimately leads to improved implementation and the conservation of Slovakian natural heritage. Without such a strong foundation it will be difficult for Slovakian conservation authorities to cope with, prepare for, and adapt to this broad range of uncertainties.

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