INNOVATIVE APPROACHES TO MANAGE PROTECTED AREAS

Michael Getzner,
Michael Jungmeier (eds.)

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To our kids

FOREWORD

As the former co-director of the M.Sc. programme "Management of Protected Areas" – together with my colleague, Michael Jungmeier – it is a great pleasure for me to present the third volume of the book series called "Proceedings in the Management of Protected Areas". The proceedings started right after the graduation of the first class of the master programme with the first volume presenting the management of protected areas (PA) as a new discipline, and describing the diverse approaches in PA management for improving biodiversity conservation. The second volume entitled "People, Parks, and Money" offered a discussion of stakeholder participation and regional development over the life-cycle of protected areas. The current volume tries to discuss PA management further by stressing the innovative contents of protected areas in manifold dimensions.

Personally, I was co-director of the master programme from 2005 to 2010 during my career at Klagenfurt University. In September 2010, I changed my affiliation to become professor of public finance and infrastructure policy at Vienna University of Technology. While the origins of the programme still lie in Klagenfurt, my collaboration with the master programme is ongoing.

In my new role as professor at Vienna, I am still very eager to edit and write in the fields of PA management, especially when it comes to presenting international contributions of our former students and colleagues. Thus, the proceedings series will hopefully continue to function as an international forum for PA management.

I thank my new university for financially supporting the current volume, especially the Centre of Public Finance and Infrastructure Policy (Vienna University of Technology) and the Department of Spatial Development, Infrastructure and Environmental Planning (Vienna University of Technology). Financial support by the E.C.O. Institute of Ecology, Klagenfurt is also thankfully acknowledged.

I also thank the authors for their innovative contributions, Prof. Hans-Joachim Bodenhöfer and Dr. Michael Jungmeier for this careful leadership in managing the master programme, and Sigrun Lange, Elisabeth Kreimer and Gerald Grüblinger for their help in managing the type-setting, pictures and graphs of this volume.

Michael Getzner
Vienna University of Technology

INSTEAD OF A FOREWORD

Official Welcome to the Graduation Ceremony of the MSc programme „Management of Protected Areas", Klagenfurt, 26 June 2009

Dear colleagues,
Ladies and gentlemen,

Welcome to the graduation ceremony of our Master Programme "Management of Protected Areas" at the end of the "Klagenfurt Days of Protected Areas", and in a certain way at the culminating point of these days.
The University of Klagenfurt is proud to host this programme, and we are especially grateful to Michael Getzner and Michael Jungmeier who designed and organised it.
As Michael Getzner told me there are students from 27 countries from all over the world with us now, and this is the best message a Vice-Chancellor for International Relations could ever expect or hope for.
Our president, Prof. Heinrich C. Mayr, who is away on an excursion, also extends his greetings and congratulations.
We are convinced that the intention and the topics of this programme are of greatest relevance for the future of mankind, and the people who graduate from this course will fulfil one of the most urgent tasks of our global society.
Protected areas in my imagination are islands of undisturbed natural tranquillity in an ocean of destruction and exploitation.
These areas, as I understand, have to be managed, like everything else in the world has to be managed. It is obviously not sufficient anymore to leave nature alone and not to molest her with our hopes, wishes and desires.
The world is crammed with commodities (as Karl Marx once said), commodities that we gain through the exploitation of nature; it is also crammed with laws and rules and regulations concerning nature. I took that notion from the titles of some

of the master's theses. This makes management necessary, though I am in doubt whether nature is a commodity. It is sometimes being treated (or managed) like that. To my simple mind it is something like love or friendship or solidarity that cannot be possessed, bought or sold but requires a certain way of behaviour in order to be sustained.

Before we reach that stage of conscience, and that kind of behaviour, we obviously have to manage nature in the form of establishing protected areas, in the same way we manage love or solidarity by laws and regulations concerning marriage or social behaviour.

The list of titles of the master theses that are concerned with these aspects, and with the design of and work in protected areas is impressive, and the papers certainly are valuable and necessary contributions to the final goal of respecting nature. She is the vast treasury of resources we all, the whole mankind, have to rely on.

The final goal of your and our work, however, can only be to consider and treat the whole world as a protected area.

The guiding principles of management of protected areas will therefore in a way have to applied to our whole way of life.

The master candidates of this programme have done their job and they have done it well. I congratulate you with all my respect for your past and future work and with all my heart.

The rest of us still have their jobs to do: to care for a sustainable development in their own lives and surroundings, and to change the world outside the protected areas for a better life for us all.

Hubert Lengauer
Vice-Chancellor for International Relations,
University of Klagenfurt

CONTENTS

1 Introduction, Intent and Structure of the Book

Michael Getzner, Michael Jungmeier

The current book presents and summarizes works and projects finalized during the second course of Klagenfurt University's postgraduate M.Sc. programme on "Management of Protected Areas" (2007 to 2009). The book is also the third volume of a series entitled "Proceedings in the Management of Protected Areas" edited by Michael Getzner and Michael Jungmeier.

With the documentation of the graduates' projects and works, it becomes clear that the claim of the management of protected areas (PAs) being a new emerging scientific discipline (Getzner and Jungmeier, 2009) is clarified and extended to new directions. One of the forming principles of the new discipline discussed in the earlier paper was "innovation". While the first volume in this proceedings series presented the focus on approaches for *improving* protected areas, the current volume develops the understanding of PA management further to emphasize the dynamic aspects of management in terms of *innovative* and new approaches and scientific results.

The current volume starts with an introductory chapter 2 on innovation in protected areas. The dynamic aspect in the management of protected areas is described, not only in terms of ecological dynamics. The social, political and economic context in which protected areas are embedded, is rapidly changing. Vice versa, protected areas are also ventures to change their environments regarding, for instance, public awareness, regional development, and sustainability science.

Chapter 3 presents papers and case-studies, based on the graduates' thesis works that highlight practical innovative approaches in protected areas. It becomes clear that 'innovation' in protected areas is not only meant to develop new scientific (ecological) knowledge but that also the development of new methods, as well as the adapted application of already existing methods to new research questions and contexts. A first sub-section deals with new approaches towards management planning and assessment of management effectiveness in three European (Croatia, Serbia, Slovakia) and one African countries (Tanzania).

The second sub-chapter applies economic valuation tools to new fields of research. The valuation of livehoods and ecosystem services in Kenia and Uganda leads to innovative insights into the importance of conservation in terms of securing ecosystem goods and services for the benefit of local residents in villages in and around protected areas. Another study from South Africa values the national heritage of ancient San Rock Art, and based on this valuation exercise, develops a range of recommendations for the management of these numerous sites.

A third sub-chapter deals with institutions and new approaches in the cooperation of protected areas. Transboundary cooperation – studied by examples in Germany, Austria, Slovenia, Italy, Poland, and Belarus – as a way to increase ecological effectiveness and to enhance economic, social and cultural exchange between countries emphasizes the important role of protected areas besides conservation goals. Institutional frameworks are also studied by an example of a protected area in Montenegro for which the "appropriate" conservation status is still in discussion.

A final sub-chapter applies marketing and development approaches to protected areas. One study on branding in Austrian national parks explores the status of branding and comes to interesting conclusions regarding the positioning of national parks. Finally, a study on the regional economic impact of a Carinthian nature park finds that – while regional development is enhanced by establishing a nature park – there are also internal barriers that prevent a further spread of economic benefits based on the park.

The book finishes with an overview of the study programme itself, and of a presentation of the network in which the students, the programme, and all stakeholders are embedded. We hope that the book is received well in the community, and that one of the main aims and visions of our programme, the effective and efficient conservation of biodiversity worldwide, is supported by our and the students' works.

2 INNOVATIONS AS DRIVING FORCES OF PROTECTED AREAS

Michael Getzner, Michael Jungmeier

2.1 Introduction

It is by now an established knowledge that protected areas may serve as an important tool as well as a precondition for sustainable development. Especially regarding the embeddedness of protected areas in regional and local contexts, nature conservation contributes in at least three directions to sustainability. First, protected areas, of course, contribute to the conservation of biodiversity. Second, they also adress social issues by including stakeholders in decision-making processes (participation), and by a fair sharing of benefits of conservation. Third, they contribute to economic efficiency in terms of costs and benefits of the use of natural resources, and often to regional development as many protected areas are located in peripheral regions with a high density of biodiversity.

It has been put forward that the management of protected areas (PAs) is emerging as a new emerging scientific discipline (Getzner and Jungmeier, 2009). One of the forming principles of the new discipline is the innovative character of protected areas. The dynamic aspect in the management of protected areas is of crucial importance, not only in terms of ecological dynamics. The social, political and economic contexts in which protected areas are embedded, are rapidly changing. Vice versa, protected areas are also ventures to change their environments regarding, for instance, public awareness, regional development, and sustainability science

Protected areas contribute in manifold aspects to innovations, both ecological, technical, social, and economic. From the viewpoint of ecological innovations, protected areas have provided substantial incentives for new approaches. For instance, new ecological methods such as zoning as well as the spatial dimension of ecological management were stressed by del Carmen Sabatini et al., (2007). Innovations can also be detected in protected forest ecosystems by supporting a variety of new approaches in commercial forestry (Kubeczko et al., 2006).

From an economic viewpoint, protected areas have contributed to new forms of tourism and recreation models, for instance, regarding tourism enterprises and nature-based tourism, and to new tourism management models (Nybakk and Hansen, 2008). Bionic research – adapting ecological models and dynamics – has lead to innovative product and process designs (Wen et al., 2008).

Regarding social innovations, protected areas have proved to be large-scale social "experiments" both in terms of inclusion of stakeholders, participation, empowerment of marginal groups, as well as governance structures and models leading to efficient, effective, and fair management approaches and tools. Governance issues in the context of protected areas are certainly one of the most important contributions of protected areas to the social sciences (cf. Lockwood, 2010). Protected areas have also contributed to social innovations in the sense of new institutional frameworks and legal (national and international) approaches (Schliep and Stoll-Kleemann, 2010).

From the technical and pedagogical viewpoint, protected areas are laboratories for new forms of visitor management, such as smart technologies for guiding and informing visitors, for data collection on visitor movements benefiting ecological planning (cf. Orellana et al., 2011), or enabling visitors to see landscapes and ecosystems from so far unknown perspectives (Schmid, 2001; Macfarlane et al., 2005).

2.2 Spreading innovations: a case study

In 1991 Josef Lange, a sociologist, assessed the *acceptance* of the newly established Hohe Tauern National Park (Austria). Besides a considerably positive acceptance he found something surprising. Based on in-depth interviews with a sample of different stakeholders, he considered the national park to be a "programme of modernisation" (Langer, 1991, 8) for less favoured and disadvantaged regions. He stated that in view of globalisation the traditional processes and institutions were overburdened, and that a national park was a possibility to "consolidate the collapsing rural society" (Langer, 1991, 97). In those days his indication met no response, since national parks deemed to be the opposite: areas of a *bell jar*.

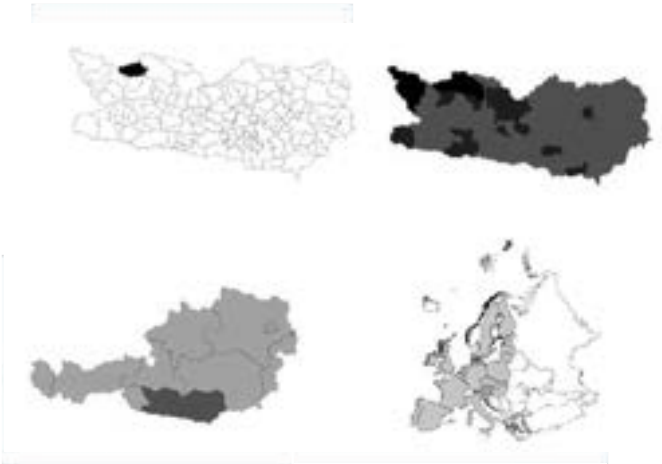
However, some 20 years later, the national park seems to have initiated, triggered and implemented quite substantial innovations in the park's region. Most visibly, new infrastructures for visitors and environmental education are established (www.hohetauern.at). They combine spirited architecture, attractive designs and new way of presenting the region and its nature. Interpretive trails are awarded to be of outstanding quality (Kreimer et al., 2011). Ecotourism packages

have been developed, merging the components of adventure, nature and culture with existing tourism offers and attractions (Mussnig, 2011). It is easy to argue that these ecotourism offers would not exist without the park. Getzner (2010) could prove that the tourism development in the region is considerably advanced compared to other regions of Carinthia following a more traditional track. In addition to that, it shall be illustrated by example of one of the park's programme that innovations triggered by the park go much further, respectively, *deeper* than this.

Exactly in the year of Langer's investigation the Hohe Tauern National Park started a programme for maintaining its cultural landscapes. The landscapes of the park's region, as cultivated and shaped by human uses for centuries, were subject to rapid changes. Mechanisation had substituted human labor, the characteristics of *handmade landscapes* (Jungmeier et al., 1991) had started to disappear. The concerns of nature conservation were mainly the loss of characteristic species and habitats linked to the practices of traditional land-uses, such as wet, dry or nutrient-poor meadows and pastures, hedge-rows, *Bergmähder* (high-altitude grasslands), *Schneitelbäume* (ash trees used for production of leaves for fodder), *Lärchweiden* (bright larch-forests used as pastures) or *Klaubsteinmauern* (dry stone walls), to give just a few examples. The cultural landscape programme addressed these issues and gave way to discussions and solutions that have become common sense in nowaday's conservation management.

The programme's design (Jungmeier et al., 1993; Jungmeier, 1995) had three key elements. It should be *based on evidence* of the most relevant features of the landscape. Thus, an investigation was carried out, the national park's region was mapped and documented in detail. An implementation of conservation measures should be *based on conservation contracts*. These needed to be voluntary and therefore economically attractive for the farmers. Thirdly, the implementation should be handed over to NGOs, formed by the farmers. The *production of landscape* was to be *based on local implementation structures* and self-control by the farmers. After countless hours of preparation and negotiations the programme started to work, emerged successfully and later on was transferred to other regions of Carinthia (Carinthian cultural landscape programme). In 1995, the Austrian accession to the European Union immediately stopped the concept of local implementation structures and self-control. However, many elements and measures were integrated into the Austrian agro-environmental scheme, where they have *survived* until today. Also the local NGOs found new perspectives; they are still active nowadays. Since an Austrian was EU commissioner for agriculture from 1995 to 2004 some elements of the Austrian understanding found way to the European agro-environmental policies.

Figure 1: The cultural landscape programme as an innovation impulse.



Source: Jungmeier, 2005.

From today's perspective, this programme might not look too exiting. But it catalysed irreversible developments that now have become visible in the distance of time. First of all *programmatic innovations* can be identified. The programme's intention was to find new solutions in the conflicts between land users and conservation efforts. In the years prior to the programme the clash had escalated because of a new law for nature conservation and the establishment of the national park. Generating revenues from conservation measures was a self-evident approach. When developing this solution two innovation principles were applied. The programme was developed strictly *bottom-up*. It started in a very local context and was enlarged by means of setting a positive example. Secondly, it referred to *local traditional knowledge* merged with ecological sciences.

Furthermore, the programme initialised *institutional innovations*. NGOs as local cooperative implementation structures are familiar to the farmers, since many joint activities are carried out that way. However, the intention of these organisations was new and has, during a time span of 20 years, created awareness and *implicitness on the matter*. In addition, the development of the programme, surveys and action planning, needed additional capacities. Neither universities nor individual conservationists who had supported the park so far could fill this gap. This gave way to young professional teams, who later on founded environmental

consulting or planning *companies*. Nowadays, this is a well established economic sector. An early stimulus for its development was the demand generated by the national park through this and similar programmes.

Also the programme provoked *technical innovations*. Archaic cadastre maps (1:2,880), teeny-weeny black and white areal photographs and a planimeter were no appropriate tools for mapping a large region. Thus, the national park was the first region in Carinthia to get a digital cadastre, and high-resolution IR-orthophotographs and GIS-maps. These experiences have prepared for today's standards of the park's *high-tech planning and documentation tools*. Also, some of the farmers invested in particular equipment and machinery to implement the conservation measures.

Therefore, the Hohe Tauern National Park turns out to be a supportive, if not driving factor for innovations. The list of activities can be extended, but at least the example of wildlife management must not be neglected: For developing acceptable standards with regards to IUCN's criteria, the hunting issue was the most critical one. A traditional hunting regime needed to be transferred to an ecologically sound wildlife management scheme. The efforts lead to respectable changes, culminating in the termination of trophy hunting in the park's core zone. This brings to an end a use that was considered to be the oldest human intervention into nature and symbolises a most elementary change in human attitudes.

2.3 Summary and conclusions

Summarising it can be stated that protected areas are in need for permanent innovation processes. Most of the problems and conflicts may also occur in other regions, but in the *pressure* to develop good solutions is quite high. A park's management is an institution, where the problems can be addressed from manifold perspectives. Since public attention is usually higher than in other regions more resources (in terms of staff, expertise, also financing) are available. In many peripheral regions the park's management is one of few, if not the only, institution that has or gives access to academic networks.

By creating a unique demand for knowledge and solutions related to sustainable development protected areas appear to trigger innovations in a way no other kind of institution is capable to do. Being a link between regional requirements and international standards they need to refer and combine both, *localised* and *international knowledge*. The merging of *traditional knowledge* and understandings and *state-of-the-art scientific* methods is a permanent process of innovation. Since the demands in a protected area are very practical, the feedback-loop between *theory* and *praxis* is very tight.

Therefore, Weixlbaumer (2005) identifies protected areas as "*innovative conservation landscapes*", playing with the semantic contradiction in terms. However, the innovation impulse deriving from protected areas have not yet been researched systematically. One impulse shall be given by a global awarding scheme for *Innovation in Conservation* which was developed by Kirchmeir et al. (2009) for the Austrian Ministry of the Environment.

3 Innovative Approaches in the Management of Protected Areas

3.1 Management planning and management effectiveness

3.1.1 Evaluation of wolf management effectiveness in Croatia

Ana Štrbenac

In the last few decades, the number and area of protected areas have significantly increased (Dudley, 2008), along with the number of species protected under international treaties and national legislation. At the same time, biological diversity has decreased substantially. Only since 1970, the Living Planet Index measuring the trends in the Earth's biological diversity, decreased by 30% (WWF Living Planet Report, 2008). One of the reasons for such a trend is inefficient management. So far, management effectiveness assessment has been exercised only for the evaluation of protected areas management. The current study presents one of the first attempts to assess effectiveness of single species management. The main objectives are: to elaborate methodology applicable for assessment of species management, in particularly for "problematic" species management, and to evaluate wolf management in Croatia.

The wolf (*Canis lupus*) is an important part of biological diversity (Figure 2). However, wolf conservation is challenged by complex socio-economic considerations including damages on livestock, impact on game species, and negative public perception of wolfs as large predators. Many efforts have been invested to maintain viable wolf population in Croatia. The study provided a unique opportunity to understand whether existing management practices are sufficient and what should be improved.

Figure 2: Grey wolf (Canis lupus) – one of the top predators of the northern hemisphere

The IUCN/WCPA evaluation effectiveness framework and corresponding "Enhancing our Heritage – World Heritage Sites Management" assessment methodology were chosen and adapted to the specific context, especially taking into account the need for comprehensive and detailed quality assessment. Major adjustments refer to the exclusion of the assessment of spatial features related to protected areas.

The author's experience with wolf management, available stakeholders' opinions highlighted in several wolf management planning processes, along with available time and funds, formed the basis of the current study.

The wolf population and human acceptance and positive attitudes are the main values that should be maintained within the wolf management context. The overall management objective is to ensure the long-term survival of the wolf population in qualitative and quantitative terms, and in harmonious coexistance with humans as possible. This objective is support with 10 specific management objectives derived from the first Wolf Management Plan for Croatia.

Construction of roads and illegal killings of wolves are the main threats, causing habitat fragmentation and reduction of number of wolves due to lower reproduction rates. Negative public attitudes towards wolves are the major threat

of social nature. These threats are mainly caused by economic and development interests, and economic loss due to livestock damages. In addition, wolves hunt wildlife prey thus conflicting with interests of the hunting community.

The most active stakeholder groups are nature conservationists, the scientific community, and hunters, the latter having the strongest political power. The livestock breeders' group is – in contrast – poorly organised, and like nature conservation NGOs, they are not sufficiently active.

National legislation and institutional frameworks are set. Relevant international conventions were ratified.

All in all, management planning is carried out properly. The wolf in Croatia has been managed according to corresponding management plans. Plans were developed with a high level of stakeholder participation, with competent authority sharing its power of decision-making with stakeholders. Still, there is a lcak of mechanisms to sufficiently integrate plans into other sectors.

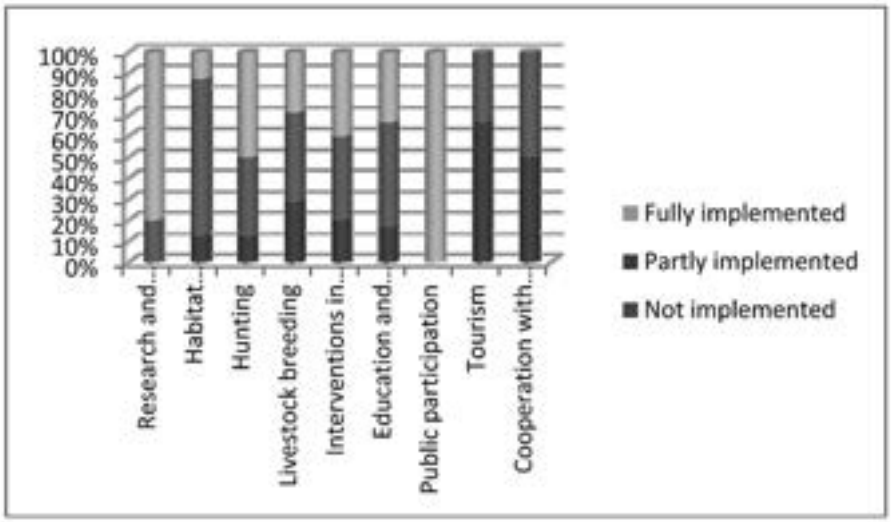


Figure 3: Overview of the first Wolf Management Plan Implementation according to specific chapters

Altogether, 72.2% of needed human capacities, as one of the inputs, are fulfilled. However, there is also a serious lack of manpower regarding wolf researchers and regional coordinators, responsible for communication and implementation of different management activities at the local level. Funds are

mostly ensured by the government's budget. In addition, the EU LIFE III – Third Countries programme provided significant funds for the project "Conservation and management of wolves in Croatia" (2002-2005). The financial needs have almost completely being met until 2009, when it decreased for 30.6%.

The management process was mostly carried according to the best standards. Lack of developed annual plans, lack of adequate systems monitoring implementation and ineffective implementation of mechanisms for controlling illegal killings are the main setbacks. However, through functioning of the Committee for Monitoring Large Carnivore Populations of the competent ministry, mechanism exists to enable active participation of stakeholders in management decisions.

Altogether 80% of the activities stipulated in the first Wolf Management Plan are implemented (Štrbenac et al., 2010), showing a very good level of delivered outputs. The best implemented activities are public participation in decision making, and research and monitoring, while those related to tourism, cooperation with neighbours and livestock breeding were the least well implemented (Figure 3).

These results correspond with the best specific management objectives. The overall level of achievement of these objectives is above average (Table 1). As an outcome of wolf management practice in Croatia, viable wolf population and sensitive balance of human acceptance have been maintained.

Despite the satisfying effectiveness of the existing management, there are several issues that could be improved in the future. The main recommendations for future wolf management effectivness evaluation refer especially to dynamics and evaluation.

- Evaluation of management effectivness should be practised regularly and linked to the development of new wolf management plans.
- Stakeholders should be informed about evaluation processes and be directly involved, both to provide basic information and at least to assess outputs and outcomes of current management.
- When appropriate, evaluations should be performed by a neutral evaluator.

Table 1: Assessment of achieving the overall management objective

Values	*Indicators*	*Methods*	*Current state*	*Rate*[a]	*Comments*
Wolf population in Croatia	Population size	Telemetry, evidence of tracks in snow, estimation of local experts, damages on livestock, mortality monitoring	200-260 (est.)	VG	Wolf population is maintained at biologically and socially acceptable level.
	Overall population trend		Slight increase in 2006 and currently stable		
	Known wolf mortality rate		Average of 15 annually[b]		
Positive human acceptance	Public attitude toward wolves	Survey of public attitudes towards wolves	Slightly positive (compared to past years)	G	Accepetance is slightly positive; there is a space for improvement.
	Reported illegally killed and injured wolves	Mortality monitoring network	11 illegal killings (2005-2009)[c]		

[a] Values of rates: VG = over 75% achieved, G = 50 – 75% achieved, F = between 25 -50% achieved, P=less than 25 % achieved.

[b] Based on data collected until 2010.

[c] Between 2005 and 2009 altogether 11 illegal killings were recorded (Štrbenac et al, 2010). It is assumed that most of illegally killed wolves are not recorded. It is suspected that illegal killings are twice as much as recorded. Two cases of injured wolves were reported. The finding of injured wolf named Mane (Štrbenac et al., 2005) was reported, and female wolf Eva, who was caught in an illegal trap, was saved by a local inhabitant in Dalmatia.

The pre-condition to improve the wolf management itself is at least to ksustain the existing level of implemented management practices. Further actions should be targeted to improve human and financial capacities and give more power to the nature conservation sector. In this regard, the following recommendations are proposed.

- Human capacities for research, communications with local stakeholders and support to management activities at local level and law enforcement should

be increased. In addition, a monitoring coordinator should have a permanent employment.
- The responsibility for coordination of the implementation of management plans should be determined within the competent governmental body.
- Financial plans should be developed to investigate other funding possibilities.
- Wolf conservation projects should be prepared in cooperation with other stakeholders; funding from national and international funds, in particularly transboundary projects, should be addressed.
- The awareness of the tourism sector about possibilities to develop tourism based on large carnivores should be raised.

The results of this wolf management effectiveness evaluation provide the decision-makers with a clear insight about the cost-efficiency of the decisions and warns about possible and potential problems if management is not changed. Stakeholders involved in management process should also learn whether their efforts are used sufficiently.

On the broader scale, methodology used and the results of this assessment could be useful to wolf managers and conservationists at the European and even global level. In addition, the methodology can serve as starting point for the evaluation of efficiency of management of other species, including those that are less complexed to manage.

3.1.2 Assessment of protected areas management effectiveness in Serbia[1]

Ivana Grujičić

Protected areas (PAs) are an inseparable part of the social context and besides conservation of biodiversity and natural values, they should contribute to the welfare of society. They are key element in biodiversity conservation, maintaining genetic resources, conserving of ecosystem functions and means to protect human and cultural values.

Around 12% of the earth's land surface lies in protected areas, and 10% of the world's forests are to be found in protected areas. Many protected areas (PA) have been created quite recently; very few are more than fifty years old (Dudley et al., 2007).

[1] Application of WWF/World bank management effectiveness tracking tools in protected areas managed by public enterprises for forest management, "Srbijašume" and "Volvodinašume".

Despite the fact regarding increasing trends of establishing protected areas in the last few decades, the loss of biodiversity is continuing. One reason is that in most cases there is not much information on effectiveness of the protected area management. There is a growing awareness that evaluating management effectiveness and applying the results is a useful instrument for significant protected area management improvements.

Managing protected areas is a great challenge because of increasing pressure on protected areas (PAs). Many PAs are not managed well due to cuts in their subsidies. Managers are therefore forced to find new ways of raising revenues (e.g. by putting pressures on the resources). Local communities who feel that they have been dispossessed of their land, and industries and development initiatives (e.g. agricultural land, roads, settlements) are big threats for PAs.

The current chapter preents the results of a comprehensive assessment of protected area management effectiveness covering 18 protected areas (4 general nature reserves, 5 special nature reserves, 2 landscapes of extraordinary characteristics, 3 nature parks and 4 monuments of nature) in Serbia. These protected areas are managed by Public Enterprises (PE) for forest management named "Srbijašume" and "Vojvodinašume".

The assessment included 2 parts, inside (internal) assessment (self-assessment) and outside (external) assessment. While the inside assessment (based on World Bank Management Effectiveness Tracking Tool) has been done by the staff responsible for protected areas management from both enterprises for each PA, external assessment was done by representatives of other relevant institutions (national and international ones) involved in nature conservation in order to get informed opinions regarding management of protected areas by Public Enterprises "Srbijasume" and "Vojvodinasume" in general.

Developed by the WWF and World Bank, the Management Effectiveness Tracking Tool is designed to track and monitor progress towards worldwide protected area management effectiveness. The Management Effectiveness Tracking Tool (METT) is a simple, site-based tool that relies largely on multiple-choice questions and thus on the opinion of whoever fills in the form.

Evaluations should not only identify problems and their causes but also highlight what is working well. A learning environment is created to share knowledge and experience, and to ensure that lessons learned are not lost nor mistakes repeated.

The METT is currently the largest assessment of individual protected areas using a single methodology. It is able to supply consistent data to allow tracking of progress over time. It is also relatively quick and easy to be complete by protected area staff.

Major strengths of above-mentioned mentioned protected areas management bodies, identified during the assessment, are natural resources, human capacities, added values of protected areas as well as lessons learned during 18 years of experience in managing of PAs, legal status and clear boundaries, clear internal organization of the protected area administrations and increasing interest on the protected area management effectiveness shown by other groups (non-governmental organizations, universities and experts, individuals).

The major weaknesses of the surveyed management authorities consist of: lack of protected areas management concepts, frequent top management changes (political instability), long term financial instability, lack of human capacities educated on protected areas issues, insufficient communication with other responsible institutions and local communities, and lack of legal frameworks.

Inside assessment results show that, at the aggregate level (grouped threats), most serious threats identified by protected areas staff are pollution, use of biological resources, human intrusions and disturbance as well as climate change. Individually, highest scored threats (most dangerous) are tourism and recreational activities, logging and wood harvesting, fires, invasive species (weed) and solid waste. In order to find appropriate solutions to diminish and/or eliminate threats it is extremely important to identify their root-causes (Figure 4).

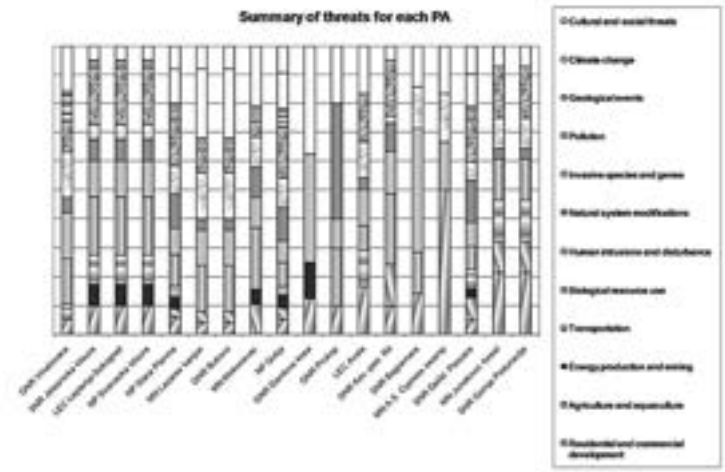


Figure 4: Summary of threats for each protected area in Serbia

The majority of highlighted threats are consequence of human activities. Current social conditions of local inhabitants that live within or in the vicinity of protected areas are reflection of a weak regional and local economy, insufficient investments and small own resources. This situation leads towards increasing pressure on natural resources. Also, many protected areas suffer from their latest popularity.

Beside the threats listed, respondents emphasize additional threats that have not been listed in the questionnaire. Those are ownership rights and changing of land purpose (Figure 5).

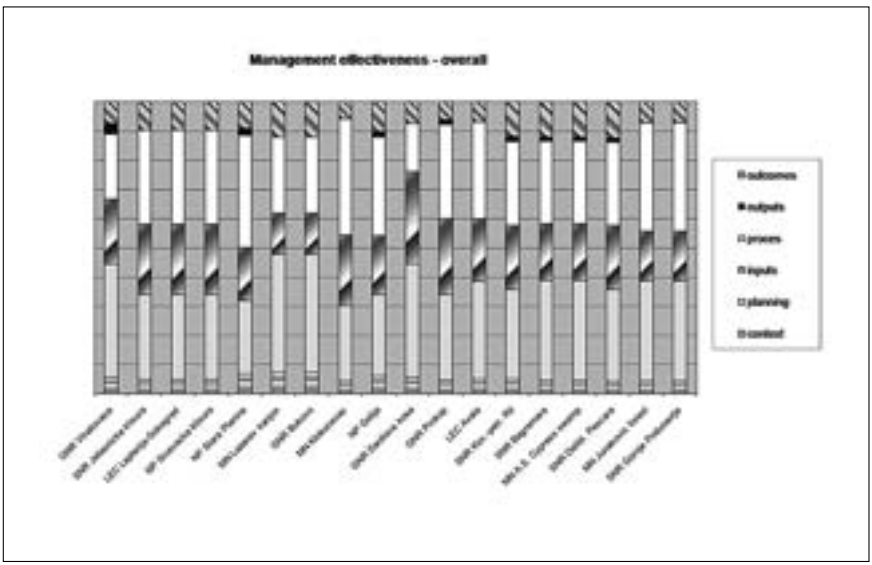


Figure 5: Overall management effectiveness of surveyed protected areas in Serbia

Regarding specific management elements some issues are better addressed than other. Issues related to legal establishment, boundary demarcation, protected area design, condition assessment and objective setting have been relatively well addressed, while activities related to people (indigenous people, local communities and visitors) are generally less well addressed and also less effective (have greater variability), as are the management of budget and the work on education and awareness.

According to the results, more variability with regard to management elements is presented in PAs that are managed by PE "Srbijasume", especially with regard

to planning, process and inputs. Some major lacks in management of surveyed PAs, according to results, are financial stability and continuity, cooperation with local communities and inhabitants, visitor facilities and educational activities. Some of them are out of scope and impact of PAs management authority.

Despite the fact that a RAPPAM (Rapid Assessment and Prioritization of Protected Area Management) process in Serbia has been performed earlier in this year and that it did not target the same PAs as METT, it is obvious from the comparative analysis that the range and trends of certain elements of PA management are very similar.

According to the results, more variability with regard to management elements is presented in PAs that are managed by PE "Srbijasume", especially with regard to planning, process and inputs. The explanation for such situation could be that PE "Srbijasume" manage greater and diverse (by categories) number of protected areas.

Some major lacks in the management of surveyed PAs, according to these results, are financial stability and continuity, cooperation with local communities, visitor facilities and educational activities. Some of them are out of scope and impact of PAs management authority.

In general there is no big difference between two PEs in the management of PAs. Maybe the greatest difference is seen in delivering economic benefits to the local communities. PAs in Vojvodina showed the highest degree of providing benefits to the local community which is a consequence of intensive communication with local stakeholders in the last few years.

External assessment shows almost the same results as the inside (internal) assessment regarding context and planning issues. Some differences and more critical reflection can be seen with regard to inputs (particularly staff) and outputs and outcomes (education and current PAs values). These 3 issues (PAs' staff, education and current PAs values) make the difference between inside and outside assessment results. A major objection for PAs' (PEs') staff is that they are overburdened many other activities which complicate the implementation of PA management objectives. Education is a very challenging and demanded task but with a appropriate strategy it can be improved in the near future. Current PA values are a matter of subjective evaluation and recent field insights.

Inside and outside assessments also show that both public enterprises, in accordance with the national nature conservation system, manage protected areas quite well with a great possibility for its improvement.

Regarding recommendation for improvement of PAs management, these results highlight some ideas with regard to financing aspects, communication and education.

In order to achieve an actual improvement of the management effectiveness within protected areas it is very important that significant financial resources are allocated by the public budget, funds that may be further increased from other sources, to allow the full implementation of the management plans. Results from these assessments could serve as arguments for decision makers to provide financing continuity and transparency. In line with this, it is highly important to provide capacity building of PAs (PEs) staff for identifying and using of all possible sources of financing.

Communication with local communities is of vital importance for every PA. Lack of exchange of information and common planning created a quite passive attitude of both actors, PA management bodies and local communities. Cooperation with local communities is thus very important for future development and should be stimulated through common planning models, socio-economic research projects and new ways of participation. In practical work, the additional role of regional PA bodies should lie in the advisor function on the land management, and on the use of natural resources, on the maintenance of cultural heritage. All this requires improved skills in collaboration, communication and deeper knowledge.

For successfully managing PAs, besides capacity building and additional education of managing staff, it is extreme important to provide necessary education for local communities and visitors on broader conservation aspects as well as on concrete management activities. It is very important to educate local inhabitants in legal regulations, their duties and responsibilities.

This project therefore provides a good basis for tracking the PE "Srbijasume" and "Vojvodinasume" PAs status over time. It is proposed that the following assessments should be repeated once every 3-5 years. Regular assessment can encourage and help inform adaptive management.

Recommendations for METT improvement are related both to the threats and assessment form and can be present as following.

- The threats data sheet can be supplemented with an additional group of threats, i.e. legal-ownership aspects and changing of land purpose.
- The assessment form presents a comprehensive overview of all assessment elements. The author of this work found very useful groupings of question into particular sections (context, planning…), which allow comparison of results (by evaluation elements) with other types of evaluation methodologies.
- Based on personal experience, it is recommended that performing METT assessment should be done in form of workshops or seminars.

At the end, the author decided to critically review this approach and show clearly its strengths, weaknesses and limitations.

Strengths of this approach are reflected through research of a quite new domain in management of protected areas in Serbia, comprehensive assessment, availability of all necessary data and information as well as willingness for participation in the research.

Weaknesses of such approaches are the lack of workshops or similar events and the fact that questionnaires were mainly delivered by e-mail to all examinees. Outside (external) assessment could target more decision makers and more persons from same institution.

The approach used opened just one segment of assessment of PAs management effectiveness and for sure gives opportunity for further research. Obtained results can be interpretate in many ways. This paperwork gave some interpretative possibilities (which can be also considered as weakness).

In case of threats, one of them can be a too optimistic picture (due to subjectivity by respondents) of the results presented.

3.1.3 Evaluation of integrated protected area management in Slovak national parks

Juraj Švajda

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 experienced 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 the IPAM assessment can aid managers in identifing 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 (Table 2). These commonalities point to necessary institutional changes beyond the control of individual park administrators. The IPAM toolbox is a useful tool to aid national protected area institutions adapt to changing social and environmental conditions. Ultimately, such adoption will lead to more efficent and effective park management.

Table 2: Overview of case study areas in Slovakia (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

All the evaluated protected areas were established during the communist era with a top-down approach and with minimal public discussion. Such discussion may have been less critical with a strong central controlling authority. Management became significantly more complex when power and land ownership were decentralized. There is an urgent need to initiate activities that were missed in pre-phase and basic planning phases so that detail planning can take place. For example, only 1 out of 9 national parks has approved zoning plans (Figure 6). 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. Slovak 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 a 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, and methods for conducting such assessments are well developed. In the field of implementation planning, zoning is a weak spot that needs to be improved in order to align Slovak national parks with the requirements of the internationally recognized categories.

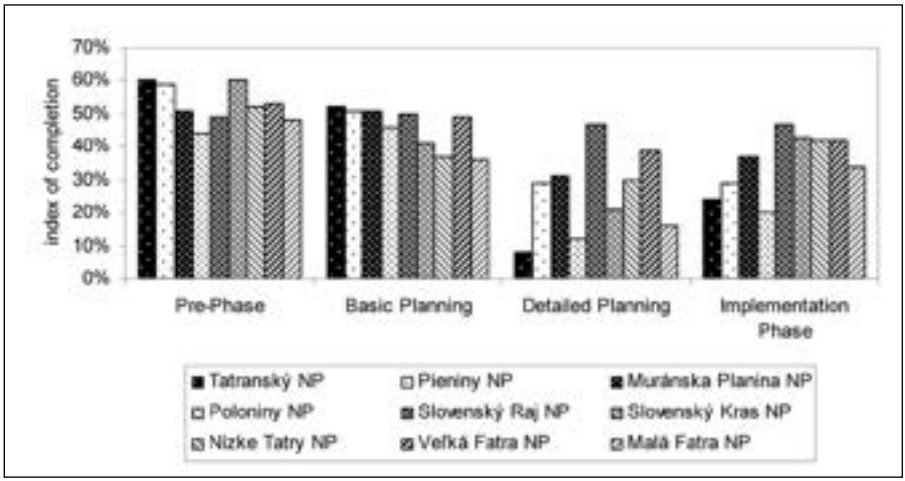


Figure 6: Comparison of management of Slovak national parks in each phase of planning

Previous evaluations of Slovak national parks have emphasized that decision-making processes, including compensation issues, have not been clearly 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 Slovak national parks. In 2008, the Slovak State Nature Conservancy prepared a strategy that proposed a new financing strategy. This strategy resulted in a 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 may have been identified. Data and information management has improved as a result of preparation for the NATURA 2000 network, however, 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 lead 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. Research related to social and economic issues is still 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 education 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 the Slovak 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, 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 Slovak national parks using the IPAM toolbox and thus contributes to the literature at two levels. First, it tests the IPAM toolbox usefulness for individual Slovak parks. Second, combining individual park IPAM assessments provides a clear assessment of the Slovak conservation system. The recommendations that result from the IPAM assessment are intuitive and consistent with the history of the Slovak conservation system. Slovak national 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, Slovakia 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. Slovak 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 Slovakia natural heritage. Without such a strong foundation it will be difficult for Slovak conservation authorities to cope with, prepare for, and adapt to this broad range of uncertainties.

3.1.4 Species management: Absence of lions in Arusha national park

Emanuel Martin

The african lion (*Panthera leo nubica*) is the largest cat found in Africa. As one of the top predators and its important role of regulating the population of large herbivores, the lion has been considered as a keystone species in balancing the ecosystem. The species is categorized as vulnerable by the IUCN red list of threatened species of the world. Its preferred habitat includes open grassland, savanna woodland, thick shrubs and dry forest. Due to habitat loss, shrinking prey population and direct persecution its population has decreased dramatically in Africa.

Due to the big influence lions have in any given ecosystem, these animals have been referred to as keystone species (Ikanda, 2008). In Arusha National Park (ANAPA) which forms part of the large regional ecosystem of Mount Meru-Kilimanjaro and Amboseli in northern Tanzania and southern Kenya respectively, lion sightings have been very rare with most having happened in 1972 and 1997-8 since its formation (Anapa GMP, 2003). In a situation whereby top predators such as lion are absent or rarely present in a park with sizeable numbers of most of the savannah species such as spotted hyena (*Crocuta crocuta*), buffalo (*Cyncerus caffer*), zebra (*Equus burchelli*) and giraffe (*Giraffa camelopardalis*) just to name a few, suggests that something should be wrong. Despite this observation there has never been any research or published report explaining the situation. It is therefore the intention of this research to find out "what could be wrong" or possible factors responsible for the absence of lion in the park and come up with recommendations that could help mitigate or rectify the situation.

The general objective of the study is to understand the factors responsible for the rareness or absence of the lions in ANAPA. To meet this general objective, specific objectives were as follows:

1. To document the existing facts, figures and other indicators confirming the absence of lions in the area. Periodic presence of the lions in the park have only been reported in the ANAPA GMP of 2003 and other park reports, but its impacts to the ecosystem has never been documented, it is therefore the intention of this objective to document all those missing facts and indicators confirming the absence of lions.

2. To identify both the natural and manmade features affecting the population of lions in the area. The relevance of this objective is to find out whether the absence of, or periodic presence of lions in the area is mainly affected by anthropogenic factors such as poaching, human settlements etc or natural factors such as diseases, competition or unsuitable habitat.

3. To assess the condition of the existing migratory corridors and the buffer zones around the park. The status of migratory corridors is so important in determining the free movements of animals including lions while the buffer zones act as transitional or "cushion" zone between human settlements and strict conserved areas. It is therefore important to determine whether these areas do exist and serve their purpose or have been affected by human development activities.

4. To assess the habitat requirements for the lions within the park. The importance of this objective is to understand whether the optimal habitat requirements for the lions are found within the park. Lions are known to prefer plain grasslands, open woodland and dry forest where they can easily hunt.

5. To determine whether the management of Tanzania National Parks Authority (TANAPA) has specific objective of lions population management in the area. ANAPA has a good number of large herbivores such as buffalo, giraffe, waterbuck and zebra just to name a few and lions are known to be the best (naturally) in regulating the populations of these animals and assisting in balancing the ecosystem. So it is important to understand whether the management has any specific intention of targeting a comeback of lions in the area.

6. To determine various measures needed to rectify the problem. The intention of this objective is to come up with the suggestions or measures against the problems associated with the absence of lions in the area.

ANAPA is one of the 15 national parks in Tanzania managed by TANAPA (TANAPA, 2008). It is classified under category II of PAs according to the IUCN 2003 criteria. The park is located north east of the Arusha town in northern Tanzania (region of Arusha, Arumeru District) and lies between latitude 3°15´0 S and longitude 36°45´0 E .The country is generally rugged resulting from past volcanic activity and the altitude ranges from 1,400 m above sea level, in the Momella Lakes and Ngongongare section, to almost 4,565 m at the summit of Mount Meru which is Africa's fifth highest mountain (Anapa GMP, 2003).

Following the annexation of the surrounding forest reserves in 2005, the size of the park has increased more than three times from 137 km² to 552 km² (Government Notice, 2005). The climate of the park is highly influenced by the altitude and has two rainy seasons; the short rains which begin in November until December and the long rains which begin mid March till late May (Anapa GMP, 2003). The hottest season is in January and February with temperatures rising to about 27°C, while the cold season is from June to August with temperatures at midday not dropping just below 15°C (Beesley, 1972). The park contains remarkable diversity of habitats in a small area, ranging from open glade to montane forest, heath and moorland, primary and secondary vegetation, from freshwater to strongly alkaline lakes and swamps (Veseyfitzgerald, 1975). Currently the park is home to a good number of both the flora and fauna species. At least 950 species of flowering plants and ferns are found in the park. Whereas animals ranging from fish to amphibians (10 species), reptiles (24 species), birds (500 species) and mammals (40 species) have been recorded (Anapa GMP, 2003).

Various methods were explored in order to gather enough data needed. Secondary data on lions' habitat and threats were obtained by reviewing different publications, management plans, research and annual reports for the park. Actual data were obtained through direct field observations whereby road networks and some trails in the park were used as walking transects. In addition, the Delphi method was used to get detailed and well sort-out information from the lions' experts across the region. Under this method two sets of questionnaires were developed, the first set was designed to seek each expert's opinion as why lions are absent in the Park whereas the second set was designed based on the answers obtained from the first set of questionnaires and focused on possible recommendations and ways forward to rectify the problem.

Based on the overall observations, interviews and experts' opinions, the study found out in the order of importance that four main factors were responsible for the absence or periodic presence of lions in the park (Figure 7). These included (i) increase of the human population in the areas adjacent to the Park, (ii) Blockage of key migratory corridors, (iii) Presence of unsuitable habitat for the lions in the park (iv) Human wildlife conflicts (see Figure 7 for human wildlife conflict) and (v) poaching. In addition the Park has no buffer zones and only three corridors have been left operating namely Kitendeni, Kisimiri and Kitilwa.

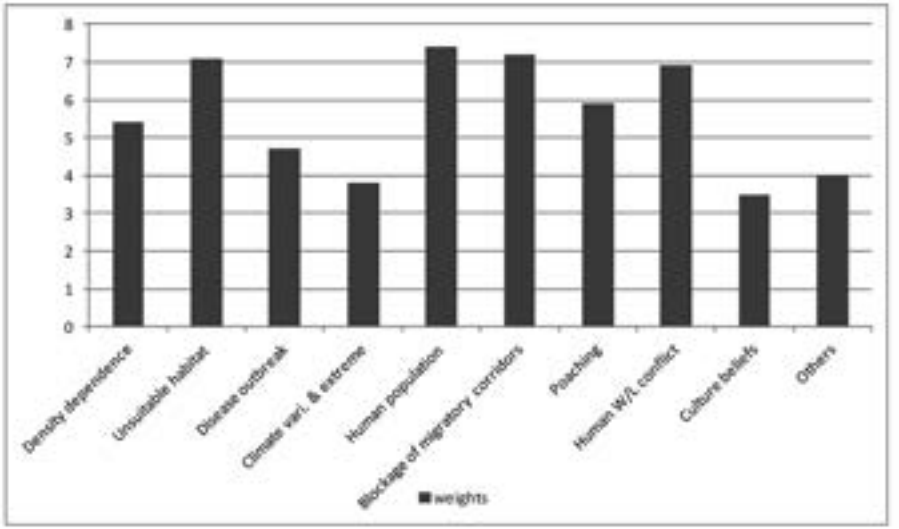


Figure 7: Factors responsible for the absence of lions in the Park based on experts' opinions

Both practical and theoretical conclusions can be drawn from this study. Practically the park has no buffer zone which acts as cushion between strictly conserved areas and human settlements. The park is almost completely isolated due increased human settlements around it. The wildlife migratory corridors linking the park and the nearby ecosystems are threatened by increasing human activities such as livestock keeping, farming, charcoal burning and human settlements. The last time lions were spotted within the boundary of ANAPA was in 1998. There is no clear information on what really had happened to them thereafter. Two lions were spotted in 2007 in a nearby village heading to the park and one of them was killed by villagers. Evidence of the presence of lions in Ngasurai plains near the park has been reported. Absence of lions in the park is a result of combination of factors though differs by weights according to the experts.

Theoretically, the spotted hyenas have dominated the key role of top predator in regulating the population of large herbivores especially buffaloes due to the absence of lions. Lions are known to be the archrivals of hyenas in competing for food and space. The docile behaviour of resident animals inside the park such as giraffe, buffalo, and waterbuck are likely to be clear signs of little or no potential enemies such as lions. The absence of lion as a keystone species has potential impact on the natural balancing mechanism of the ecosystem inside the park.

In order to rectify or mitigate the problems associated with the absence of lions in the Park, the following recommendations have been made:

- To tackle the issue of increase of human populations around the park, various institutions such as TANAPA, The government of Tanzania, NGOs and International agencies should work together in providing public education on family planning and environmental education. In addition spatial and land policies which are compatible with PA requirement should be formulated.
- To save the problem of blockage of migratory corridors, TANAPA through consultations of all stakeholders and following all legal procedures should secure and maintain all lands which act as corridors linking the park and the adjacent ecosystems. This will allow freely movements of animals between the park and the surrounding ecosystems.
- Since the presence of unsuitable habitat for the lions in the park is a natural phenomenon, it is therefore recommended to leave nature to take its own course.
- To tackle human lion conflict, it is recommended that livestock keeping communities around the park and wildlife corridors should be provided with enough education on how to build Predator proof kraals for their livestock and to peacefully co-exist with wildlife around their areas, for example by keeping well trained guarding dogs who will help to alert people when there is a danger around.

3.2 Economic valuation and livelihood in protected areas

3.2.1 Livelihoods and ecosystem services around protected areas: Ugalla Game Reserve ecosystem

Zuwena Kikoti

Despite the role and importance they have to local people, ecosystem services are still under tremendous pressure worldwide. There are a number of factors contributing to this, first, the increase in population which demand more than it was before, and second, unrecognized values of these ecosystem services. In most cases local people around protected areas claim for the benefits from protected areas around them. These claims come without acknowledgement that almost all aspects of their wellbeing and livelihoods depend on the services provided by the ecosystems and biodiversity conserved and preserved by respective

protected areas. Therefore it is the aim of this study to explore the importance of ecosystem services for livelihood of local people living around protected areas. This could help local people to be aware of what protected areas provide to them through ecosystem services and make them change their attitudes from destroying the natural systems towards conserving, preserving and protecting it.

The overall objective of this study was to examine the livelihood needs for ecosystem services of local people around protected areas. For the achievement of this objective, the following specific objectives accompanied the overall objective,

- to identify ecosystem services of Ugalla ecosystem;
- to find out what are the basic livelihood needs for local people within the ecosystem;
- to find out to what extent they depend on ecosystem services for sustaining those livelihood needs.

The Ugalla Ecosystem covers an area of about 30,000 square kilometers (3,000,000 ha). It lies in four administrative districts of Urambo, Sikonge, and Uyui in Tabora region and Mpanda in Rukwa region. There is a number of Protected Areas which form part of Ugalla ecosystem, the other part of the ecosystem is formed by 65 villages with a population of approximately 450,000 people, with very high expectations of benefiting from the goods and services provided by the ecosystem. And it is surrounded by four GCRs, seven Forest Reserves and two WMA (Uyumbu and Ipole WMAs). This study had been done in 9 villages in Sikonge and Urambo districts surrounding the ecosystem.

The selection of surveyed villages were based on the nearest of those villages from the core protected area (Ugalla Game Reserve) and other PAs within the ecosystem, and also whether a village forms a part of Wildlife Management Areas or not (IPOLE and UYUMBU WMA) in both districts.

Both primary and secondary data were collected. Primary data were obtained through focus group interview and house hold surveys that involved in-depth personal interviews. Secondary data was collected by going through various documents and reports found in Ugalla Game Reserve, AFRICARE-Tabora, Western zone Antipoaching Unit, Regional Natural Resources Office and Forest Regional Office (Tabora). Both excel and statistical package for social sciences (SPSS) were used for analyzing data obtained during the field survey. SPSS was used for the descriptive analysis of data, while excel for providing graphs, and charts.

The results showed that local people within Ugalla ecosystem depend highly on ecosystem services for their livelihood. These services play a vital role in their livelihood socially, economically and ecologically. The services sustained agriculture activities as a major economic activity through providing rainfall, fertile soil, and pollinators. 100% of respondents are involved in cultivation of both cash and

subsistence crops. These crops have been produced and being used as a source of income and supply food to the local people as shown in Figure 8. Maize was the leading food crop with 100% followed with Paddy (72.2%), G/nuts (70.7%), S/potatoes (53.3%) and cassava (30.7%) (Figure 8).

Beekeeping and fishing were other economic activities conducted apart from agriculture within Ugalla ecosystem. Beekeeping is the second largest economic activity (33.3%) after agriculture (Figure 9)**;** it was mainly carried out by local people within the ecosystem as a source of income.

Fuel wood (21.5%) and charcoal (97%) were the main source of energy used by respondents. Availability of these two sources of energy is mainly dependent on the forestry and bushes within the ecosystem. 100% of this energy used for daily cooking, 24.4% used for tobacco curing and 10.0% used for drying fish. Poles, fibres and thatching grasses were the main construction materials used within the ecosystem. These materials are used to construct houses, toilets and livestock cells. 91.1 % of the respondents need poles, 91.1 % need fibres and 39.6 % thatching grasses (Figure 10), for construction of houses.

Mushrooms, bush meat and fish are the main sources of protein within the ecosystem; Mushroom is a leading source of protein which accounts for 70%, followed by bush meat (24.4%) and fish (10%). Mushrooms are collected from village bushes, forest reserves and some time in game controlled areas.

77.0% of respondents depend on traditional medicines found within the ecosystem. These medicines have been traditionally applied to cure several of diseases not only those affacting human beings but also animals (livestock's) and plants. Only 0.7% need sacred place within the ecosystem for prayers and communion with ancestors. Ugalla ecosystem has many important species of medicinal plants, animals, and insects, a total of 57 species were found to be common medicinal plants used in Ugalla ecosystem (Africare Tanzania, 1999).

Other ecosystem services needed for livelihood include wood products which account for the 24.4 %, grazing area (10.4%), wood for canoes (9.7%) and beehives (35.2%), grasses for making local products such as brooms, baskets and local carpets (2.2%).

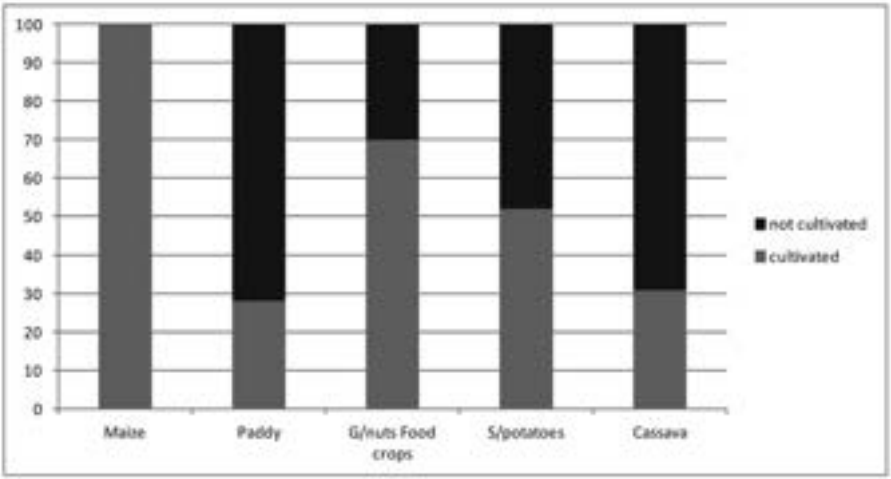


Figure 8: Food crops cultivated within Ugalla ecosystem

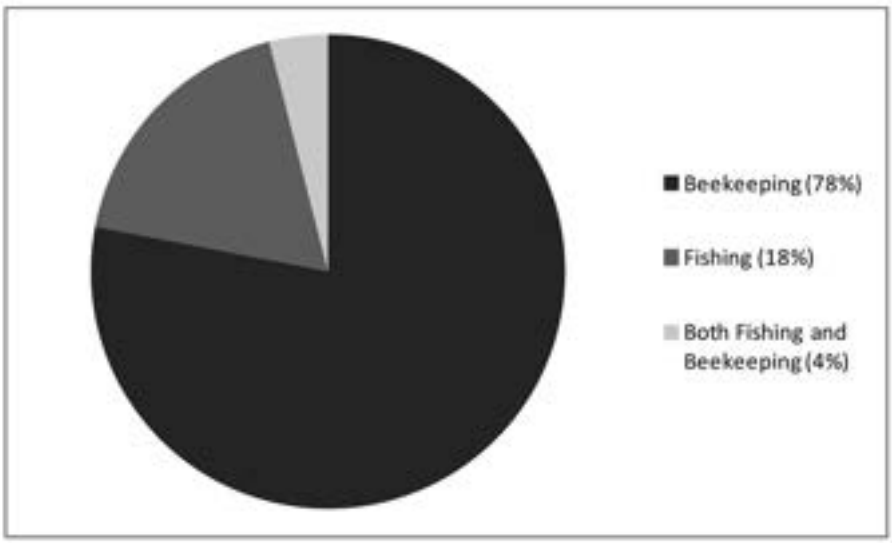


Figure 9: Beekeeping and fishing, other economic activities conducted by local people apart from agriculture within the ecosystem.

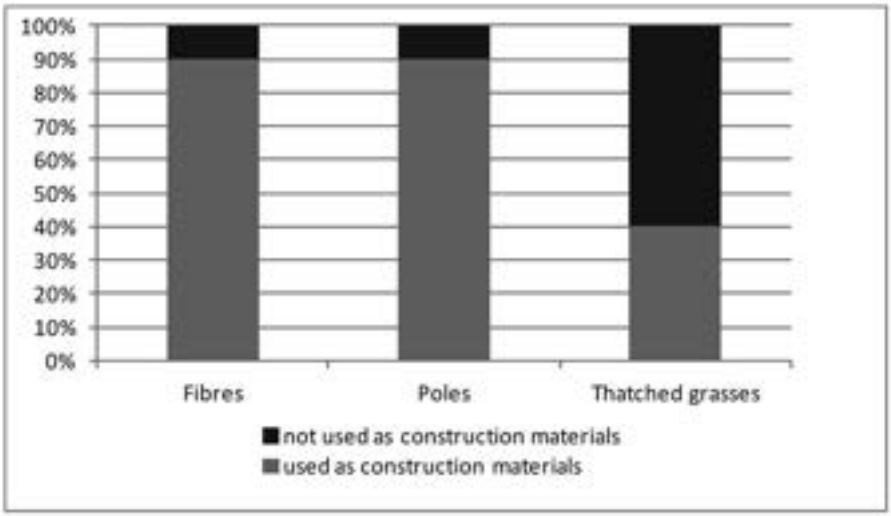


Figure 10: Materials used from the Ugalla ecosystem for construction purposes

The value of the ecosystem services within Ugalla ecosystem is estimated by analyzing the number of respondents that mentioned to use or benefit such specific services or goods (Figure 11). The value obtained corresponds to each service either directly or indirectly provided by the Ugalla ecosystem and which have impacts on the livelihood of local people in those villages according to the results obtained. The estimation of value is based on its market price, the local price within the surveyed villages or alternative services which are not produced and/or delivered by the ecosystem. For the alternative services, the estimations are made through market prices of those alternative services which are not delivered by the ecosystem (non-ecosystem services), i.e. how much would households spend in order to get such alternative services. A good example is the use of electricity or gas for cooking instead of firewood, i.e. how much would households spend for electricity or gas for cooking if they decide not to use firewood.

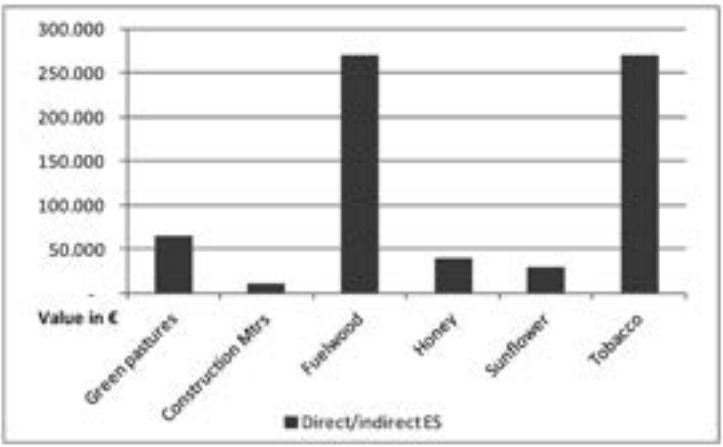


Figure 11: Estimated value of ecosystem services within Ugalla ecosystem

The major sources of livelihood of local people within Ugalla ecosystem rely and remain at the hand of ecosystem services available within the ecosystem. Based on the results and subsequent discussion, these services play a key role on maintaining local people's lives and well-being as well. Ecosystem services are the major sources of income generating activities for these people within the ecosystem. Cash crops, fishing and beekeeping have been used by local people to earn some cash income which they need to support their daily lives, for instance, buying food, clothes (basic human needs), paying for school fees and other accompanied expenses in human daily life. Firewood is the major source of energy used by local people within the ecosystem for cooking, tobacco curing and drying fish. Poles, thatched grasses and fibres were mainly used in the study area as building materials for houses. Traditional medicines, grazing area, and other needs like protein, handcraft materials, and logs were also needed to sustain livelihoods of local people within the ecosystem. Therefore the need for ecosystem services within Ugalla ecosystem is generally high and totally depends on the natural resources available either within protected areas (FRs, GR, GCAs, WMAs) or around village land (village bushes) within the ecosystem.

- It is recommended that UGR and FRs within the ecosystem be empowered to make their own rules, regulations and policy instruments that meet the uniqueness of the area. It is thus easier to make a strategic plan that meets locally promulgated policies.

- In order to reduce the amount of wood used for fuel, more sources of power such as solar, wind and gas would be used for cooking. And for the case of tobacco curing, the researcher recommends the establishment of private cultivated forests, which will compliment fuel wood from the natural forests. By doing so pressure on the natural forests within the ecosystem will be lowered, therefore ensure the survival of these natural forests.
- Local and customary laws should be used instead of relying on courts of law for resolving raising conflicts due to unsustainably use of natural resources. It is vital to respect and protect the interests of local people because they are custodians of the area and will be there long after government officials have been transferred or retire.
- Protected areas should be managed jointly between local people and the government. Management of these areas should be decentralized so as to give local people or local authority sense of ownership of these areas, doing so they will be willing to protect, preserve and conserve these areas for the benefit of current and future generations. Participation of Civil societies including NGOs and CBOs should also be encouraged and promoted. By doing so, local communities will be not only *beneficiaries* of ecosystem services through such programs as Wildlife Management Areas (WMA) and Community Forest Reserves but more importantly, they will be *co-managers* or partners in the day to day running of these areas. The current conservation philosophy as healed by article 8(j) of the CBD requires countries members to the CBD to empower local and indigenous community to enhance conservation.

3.2.2 Value of the San Rock Art in the uKhahlamba Drakensberg World Heritage Site

Tommy Topp

The area known as the uKhahlamba Drakensberg World Heritage Site in South Africa (referred to as the Park), is 243,000 ha of pristine wilderness condition that offers wilderness experience, recreation and spiritual inspiration. It also plays a large role in supplying high quality water to the province of Kwa-Zulu Natal and other parts of the country, and supports a diverse range of ecological niches resulting in a rich biodiversity and a high number of endemic species.

The Park was designated as a Ramsar Site in the year 1997 and inscribed as a World Heritage Site for both nature and culture in the year 2000.

From the time of the Middle Stone Age (200,000 to 30,000 years ago) until the latter half of the 19th century the area had been used by the Bushmen, also known as the San people. The San people are the oldest living group of peoples who populated most of Southern Africa; they were Stone Age people who practised a hunter-gathering existence.

Although the San (very few in number) are still in existence in the inhospitable (desert/very dry) regions of Namibia and Botswana, the San people that inhabited the Drakensberg mountains are long gone. The story of their extinction, at the hands of the European settlers, is certainly a very sad period of South African history and all that is now left behind of these peaceful people, who lived in harmony with nature, are their paintings.

"G. W. Stow, a 19th century 'explorer' to whom we owe much of our present knowledge of these people, recorded that a 'Bushmen' who was shot dead in about 1866 was probably one of the last of the San artists. He was carrying a belt to which were attached ten antelope horns, each filled with a different pigment – perhaps his equivalent of an artist's palette." (Irwin, 1992).

The Park contains the largest concentration of rock art in South Africa with between 25,000 and 40,000 paintings at between 550 and 600 sites.

From these paintings one can see and learn much about how the San people lived, how they hunted, the clothes they wore, their religious beliefs and practices, their weapons and even historical events.

The Park with its many caves and rock shelters is home to the thousands of San Rock Art paintings, "with the largest and most concentrated group of paintings in Africa south of the Sahara, made by the San people over a period of 4,000 years." (UNESCO).

The main purpose of the current project was to find ways in which to contribute towards the protection of this valuable cultural heritage. As such the author decided that by valuing the paintings in monetary terms it would place a clearer perspective on their market value and so add to their long term protection.

The research was done over a period of 3 months where the author spent time in the field and held meetings with stakeholders, carried out 214 visitor surveys, had a number of ad-hoc meetings and discussions with visitors and Park employees, checked existing documentation and other relevant administration systems and procedures.

The research focused on assessing, locating and describing the existing rock paintings in the Park with the aim of providing for a foundation of information for conserving this prehistoric cultural heritage.

Figure 12: One of the many thousands of San rock art paintings in the Park

Furthermore, the cultural heritage was to be valued in money terms in order to describe the potential value for conservation, for tourism, to local business, and to provide the necessary data for further analyzing potential conservation policies and strategies by establishing;

- Visitors willingness to pay to protect the paintings;
- Visitors willingness to pay to see the paintings;
- Overview of tour operators value, park officials value perspective, and Cultural Authority's value perspective.

It was envisaged that the results, recommendations and conclusions of this project should be of value to the management of the Park, giving a 'snapshot' of the current awareness, contributing to future protection methods and assisting the management with regards to goals, objectives and future planning of this valuable cultural heritage.

The results of the visitor's survey dealt primarily with the issue of visitor's awareness of the paintings and their willingness to pay for either a guided tour or to protect the paintings (Table 3).

Table 3: Visitors' awareness and willingness to pay for the protection of San Rock Art

Visitor Awareness regarding the paintings	
Knowledge of the Paintings	*76%*
Visitors who have seen the rock art in the Park	62%
Visitors that would like to visit the paintings	86%
Visitors that go to the Park to visit the paintings	27%
Visitor's 'Willingness to Pay' (WTP)	
Willing to Pay to protect the paintings	79%
Amount they are willing to pay to protect the paintings	R14.47
Willing to Pay for a guided tour	76%
Amount they are willing to pay for a guided tour	R13.26

Overall the demographics showed that: - the age group 31-50 yrs made up for 48%; - 56% were from the private sector or were self employed; - 57% earned above R20,000 p.a.: - 83% had a College education or higher: and 67% were South African Citizens.

On the issue of the monetary value of the paintings in the Park we have two categories to consider. Firstly the value that visitors place on the paintings to either protect them (a non-use value) or to visit them (a use-value), and secondly that of the existence value of the paintings to all South Africans.

The visitors have said they are willing to pay to protect and visit the paintings. Whilst this monetary value equates to an income that the paintings generate to the Park, the existence value calculation indicates a hypothetical value of the paintings in the Park.

Taking the average number of visitors per year to the Park which is 400,000 and multiplying this by the R14.47 indicates that the visitors are in total willing to pay *R 5,788,000 per year* to protect the paintings

According to the visitor's surveys 76.39% of the respondents said they are willing to pay R13.26 for guided tours. As a percentage of the total visitors this means that 305,560 visitors are willing to pay the R13.26 per visit the rock art, and this is equal to *R 4,051,726 per year* to visit the paintings

So the potential annual monetary value of the San Rock Art in the Park is in total *R 9,839,726 per year* from the perspective of visitors to the park.

The San Rock Art is a national heritage to the people of South Africa, as is demonstrated by the fact that in the new 'coat of arms' which was adopted after the first multi-racial election in South Africa in 1994, includes; San Rock Art figures and the Khoisan language which is used in the scroll (Figure 13). In addition to this the story of the Bushmen is included in the school curriculum for all children in South Africa.

Figure 13: Coat of Arms for South Africa

The importance of the San to all South Africans gives these paintings in the Park its existence value. The very existence of this rock art creates value to South Africa as a whole; with the country using rock art to attract visitors, business uses rock art in their advertising, also to attract visitors.

To calculate the 'existence value' into monetary terms the author has taken the information from the visitors survey and calculated it based on the economic income groups of the South Africans surveyed and their willingness to pay the R14.47 to protect the paintings. This showed that visitors are willing to pay 0.075% of their monthly income to protect the paintings.

The average monthly household income of all South Africans is R14,176.47 per month, and by taking this amount and multiplying it by the 0.075% we see that South Africans would be willing to pay R10.63 as a monetary amount per year to protect the paintings. When this R10.63 per year is multiplied by the total estimated current population of 48,4m, it gives the paintings a hypothetical existence value of *R 514,492,000*.

Based on the work done on this project and the financial calculations above, it is quite clear that the San Rock Art does have a monetary value and can further generate enough finance that will allow for its sustainability and long term protection.

The main recommendations for the Park are centered around three main topics

- Management of the Cultural Heritage;
- Guided tours (Figure 14);
- Bushmen Painting Levy.

The management of the cultural component of the Park needs to be addressed as soon as possible. As such the Park should appoint a Cultural Manager to drive

the cultural component of the Park's management plan. This person should further be given a budget and staff that would be adequate enough to implement and drive the Cultural Resource Management Plan for the Park.

Figure 14: Raymond, the accredited Amafa guide explains a panel of rock art at Game Pass Shelter.
"Amafa" is the heritage authority for the Province which drives the issue of guided tours to open rock art sites

The issue of guided tours is complicated and not uniform and as such the Park together with the heritage authority needs to re-evaluate these with a view to improving the visitor experience as well as improving the employment status of the guides. Further to this the introduction of a guided hiking trail, to be known as the 'Bushmen hiking trail' which has an international status was also proposed and has been accepted by the Park.

The third main recommendation is that of 'Bushmen Painting Levy' which could be used to finance the cultural component of the Park's management plan (which at the moment has no dedicated budget) and as such supply the vitally needed finance for the protection and sustainability of the paintings.

The current financial climate in the province (that funds up to 70% of the Park's needs) is not good. They have huge financial demands to upgrade the living standards of its inhabitants (health, housing, schooling, infrastructure upgrades

and job creation), and less and less financial resources to fund conservation and in this case the cultural heritage in the Park.

It is clear from what the visitors have said that the paintings do have a value to them and that they are willing to pay to protect and/or visit these.

Therefore in order for the paintings to be made financially sustainable the author believes that the 'Levy' and the 'Guided Tours' should be used as financial generators that will ultimately make the San Rock Art in the Park sustainable.

3.2.3 Economic valuation of Mabamba Bay wetland system of international importance

Simon Akwetaireho

Wetlands are amongst the Earth's most productive ecosystems. They have been described as "the Kidneys of the landscape", because of the functions they perform in the hydrological and chemical cycles, and "biological supermarkets" because of the extensive food webs and rich biodiversity they support (Barbier et al., 1997) Wetland systems directly support millions of people and provide goods and services to the world outside the wetland. People use the wetland soils for agriculture, they catch wetland fish to eat, they cut wetland trees for timber and fuel wood and wetland reeds to make mats and to thatch roofs. Direct use may also take the form of recreation, such as bird watching or sailing, or scientific study. Peat soils have preserved ancient remains of people and track ways which are of great interest to archaeologists.

Despite their importance, wetlands through out the world are being modified and reclaimed. Wetlands are being rapidly modified, converted, over-exploited and degraded in the interests of other more 'productive' land and resource management options which appear to yield much higher and more immediate profits (Emerton 2003). Dam construction, irrigation schemes, housing developments and industrial activities have all had devastating impacts on wetland integrity and status, and economic policies have often hastened these processes of wetland degradation and loss. At the same time conservation efforts have traditionally paid little attention to economic values − as a result it has often been hard to justify or sustain wetlands in economic terms, or for them to compete with other, often destructive, investments and land uses. Such concerns have led to an explosion of efforts to value natural ecosystems and the services they provide. Valuation studies have considerably increased our knowledge of the value of ecosystems. Economic valuation can provide a powerful tool for placing wetlands

on the agendas of conservation and development decision makers. Economic valuation also aims to quantify the benefits (both marketed and non-marketed) that people obtain from the wetland ecosystem services. This makes them comparable with other sectors of the economy, when investments are being appraised, activities are planned, policies are formulated, or land and water resource use decisions are made.

Wetland ecosystems not only generate valuable goods and services but also give rise to economic costs which include among others expenditures on the physical inputs associated with resource and ecosystem management, opportunity costs and economic losses to local communities arising from crop raiding wild animals (Emerton et al., 1999). The establishment of protected areas precludes land and resource uses. Protected areas such as wetlands permit restricted resource utilization, and wholly prevent cultivation and grazing. Either of these losses represents the opportunity cost of biodiversity conservation in terms of economic activities (such as agriculture) foregone.

In the light of this, a study was undertaken to assess the present economic value of Mabamba Bay wetland system of international importance, Wakiso district, Uganda. The study was done between October and December 2008.

The objectives of the study were;

- to identify and quantify the benefits (both marketed and non-marketed) that people obtain from Mabamba Bay wetland ecosystem;
- to assign monetary values to identified ecosystem goods and services produced by Mabamba Bay wetland system;
- to determine the annual TEV of Mabamba bay wetland ecosystem in its present form;
- determine the opportunity costs of conserving Mabamba bay wetland in terms of benefits foregone and other economic activities.

Mabamba Bay Wetland System is Ramsar Site No. 1638 and covers an area of 2,424hectares, 32°14N' – 32o 27'E and 00o02' – 00o12'N. It lies west of Entebbe International Airport along the Lake Victoria shores and south of central Uganda, 35 kms south west of Kampala, the capital city of Uganda (Figure 15) at an elevation of 1,150m above sea level. It was added on a List of Wetlands of International Importance in 2006 along side other 8 Ugandan wetlands because of its immense biodiversity conservation values and its significant contribution to the livelihood of local people. It is an Important Bird Area and an extensive marsh stretching through a narrow and a long bay fringed with papyrus towards the main body of Lake Victoria. This site support an average of close to 190,000 birds and is part of the wetland system which hosts approximately 38% of the global population of Blue Shallow as well as globally threatened Papyrus Yellow Warbler and other birds of global conservation concern (Byaruhanga et al. 2005).

It is a stopover for migratory birds and supports the existence of globally threatened birds. The site is the only swamp close to Kampala where one can easily find the globally threatened Shoebill anytime of the day.

Figure 15: Map of Uganda showing the location of Mabamba Bay Wetland System (Source: E.C.O., based on Google Earth)

The methodology for the current study included:

- A household survey using stratified random sampling technique was carried out in 5 parishes surrounding Mabamba Bay wetland. Only heads of households were targeted in face to face interviews. A total of 320 households (representative sample of 3,777 households) were interviewed.
- Reviewing of relevant secondary data e.g. policy documents, reports, students Theses/dissertations, development plans, internet search.
- Valuation using market prices (for marketable wetland goods and services that are traded in the market e.g. fish, water, sand and recreational activities)
- Face to face discussions with stakeholders e.g. government officials, local politicians, farmers, fishermen, boat owners, opinion leaders.
- Focus group discussions of 6-25 people.
- The benefit transfer method was used to estimate the economic values for some ecosystem services (specifically the carbon storage and sequestration values) by transferring available information from studies already completed in another location and/or context.

- Contingent valuation method (CVM) was used to estimate the economic values of wetland ecosystem services which were non-marketable or whose market substitutes could not be found. CVM was specifically used to measure existence value, option values, indirect values and non-use values. People revealed their value for the benefits derived from a wetland through their Willingness To Pay (WTP) for those benefits. People also revealed their value for wetland benefits through their Willingness To Accept (WTA) compensation for foregoing the benefit. WTP and WTA were elicited thorugh payments cards in local currency with amounts from about USD 0.5 to 100 (per month as maximum willingness to pay, or minimum willingness to accept).

The data gathered in the household survey was then statistically analyzed using SPSS. The analysis indicated; the mean house hold size of 5 people, 68% of the households engaged in subsistence farming, an annual average household income of US$276, and mean daily household water consumption as 87 litres. The aggregate annual water consumption for all 3,777 households was estimated to be 119m litres. Poultry was the most owned (12,200 chickens) livestock among households. It was found out that the monthly mean household WTP for ecosystem services stood at US$7.2 while the mean household WTA for loss of access to wetland goods and services was US$ 196 per month (Table 4). Table 5 shows identified ecosystem services and goods and their estimated annual monetary values.

With the establishment of Mabamba Bay wetland and its subsequent maintenance together with its biodiversity gives rise opportunity cost i.e. exclusion of other land uses which are incompatible with biodiversity conservation. Some community members may view the establishment of the wetland as a lost opportunity for example in terms of uncontrolled hunting, harvesting of handcraft materials, charcoal burning and wetland edge cultivation among others. This represents the opportunity cost of biodiversity conservation in terms of economic activities foregone. The opportunity cost of the benefits foregone was determined in a contingent valuation study which asked respondents the monthly WTA as a compensation for loss of access to ecosystem services in Mabamba Bay wetland. The monthly mean household WTA to tolerate a cost was quantified as US$196. Therefore aggregate WTA for 3,777 households was US$ 8,883,504 per annum.

Table 4: Summary of descriptive statistics for household WTA and WTP (US$) per month

CVM	*n*	*Range*	*Min.*	*Max.*	*Sum*	*Mean*	*Std. Error*	
WTA (US$)	320	2,778	0	2,778	62,681	195.88	21.61	
WTP (US$)	320	1,111	0	1,111	2,314	7.23	3.56	

Table 5: Estimated annual Total Economic Values (TEV) of Mabamba Bay wetland

Type of ecosystem service	**Quantity of ecosystem service obtained per year**	**Valuation method**	**Monetary value (US$) per annum**	**% of total value**	**Beneficiary**
Domestic water supply	119,249.33m³ of water	Replacement Costs/Expenditure Avoided	889,222	24.9	Household, Local community
Source of Sand for construction purposes	237,250 tonnes	Market prices	757,633	21.24	Local economy, National economy
Source of fish	349,155 pieces of tilapia, 8,760 pieces of lungfish	Market prices and literature review	561,088	15.7	Household, Local community, National Consumers
Carbon storage and sequestration	24,160 tonnes	Benefit Transfer technique, literature review	483,200	13.5	Global community
Cultivation of cocoyams and sugarcanes	349,539 corms (yams), 84,076 stems of sugarcane	Household survey, market price, productivity and literature review	433,083	12.4	Household, Local community
Indirect, option& non-use values)		Contingent Valuation survey to determine WTP	326,333	8.9	Households, Local community, National economy
Recreation and tourism	709 tourists visited Mabamba in 2008	Secondary data, Focus group discussions	68,386	1.92	Local economy, National economy, Global consumers
Water-based transport		Focus group discussions, Market prices	57,497	1.61	Local community, National community, tourists
Papyrus harvesting	30 mats	Market prices, face to face meetings with harvesters	167	0.01	Household, Local community,
Annual TEV			**3,576,609**	**100**	

Concludingly, Mabamba bay wetland system contributes significantly to the livelihood of local communities in adjacent villages through provision of ecosystem services and goods vital for human well-being. It is also a source of income and employment for the local residents working in tourism, fishing, sand mining and water transport. In its present form the wetland contributes goods and services worth US$ 3,576,609 per annum. The services vary from freshwater supply, support for agriculture, source of fish for domestic and commercial consumption purposes, recreation and tourism, source of sand for housing industry, water transport role, source of materials for mats, mitigation of global warming, trapping of incoming sediments and silt, and flood regulation to supplementing the water supply of Lake Victoria.

The ecosystem services are not only beneficial to households and local communities around the wetland but also to the national and international communities, e.g., mitigation of global warming through carbon storage and sequestration. It is also a tourist destination for mostly foreign tourists who have enthusiasm for bird watching especially the rare shoebill stork. The wetland also supports approximately 38% of the global population of the blue swallow (stopover for migratory birds) as well as well as supporting one other globally threatened bird, the Papyrus Yellow Warbler, and other birds of global conservation concern. Because of this biodiversity conservation value, Mabamba wetland site assists the government of Uganda in delivering on its international conservation obligations such as those under United Nations Framework Convention on Climate Change, The Ramsar Convention on Wetlands, Convention on Biological Diversity and Convention on the Conservation of Migratory Species of Wild Animals just to mention a few.

To ensure better deliverance of ecosystem services; and improved management and conservation of Mabamba Bay wetland system, the study came up with the following practical recommendations:

- All sand mining activities be halted and thereafter restoration measures undertaken in areas in the degraded areas. This will repair the environmental damage and eventually lead to restoration of ecosystem functions, attributes and processes.
- Environmental Impact Assessment should be mandatory for all future sand mining operations within the vicinity of Mabamba Bay wetland. This will help avoid irreversible changes and serious damage to the wetland; and safeguard valuable resources, natural areas and ecosystem components.
- Local communities and their local leaders should be sensitized on policies and laws governing environment management in Uganda, conservation values of Mabamba Bay wetland, dangers of wetland degrading activities and wetland edge farming, and also on the principles of Ramsar Convention.

- Motivation of local communities to conserve Mabamba Bay wetland ecosystem through offering economic and financial incentive such as engaging local communities in ecologically sound and culturally acceptable tourism enterprises, and offering grants or other financial incentives to private forest owners around Mabamba wetland as a motivation to conserve biodiversity in their forests.
- Need for stakeholders to assist local communities to develop alternative sources of the products currently taken from the wetland. Alternatives may include fish farming (pond aquaculture), bee-keeping, woodlots for fuel wood, income generating products, e.g., fruit garden and medicinal gardens. This may in the long run reduce pressure on the wetland resources and ultimately lead to conservation of the wetland biodiversity.
- Because of the role played by Mabamba wetland in mitigating global warming (through sequestering and storage of carbon), Wakiso district local government and other key stakeholders like Nature Uganda can secure financial resources from international carbon markets under say the World Bank Bio Carbon fund to fund wetland management activities.
- Management of Mabamba Bay wetland system should be strengthened. This should among others include formulation of the site management plan to guide the management activities of the site, directing an annual public expenditure towards its (wetland) management, and incorporating Mabamba wetland issues in to other development activities, policies and plans.

3.3 Protected area management and institutions

3.3.1 Transboundary cooperation in PA management

Sigrun Lange

Little disagreement exists about the need of conservation measures at the ecosystem level. As mountain ranges or water bodies do not end at administrative borders, neighbouring countries ideally have to coordinate their activities. Many international organisations strongly recommend the establishment of transboundary protected areas (e.g. Council of Europe, UNESCO, IUCN, Ramsar Convention). However, cross-border cooperation adds another layer of complexity to the already difficult task of managing a protected area (Zbicz 2003). 'Still protected areas are being established near borders without any thought of coordinating measures with the neighbouring country to ensure an effective protection' (Brunner 2006). Experiences of concerned stakeholders and the

application of principles of change management may help to find new approaches for a successful and sustainable cooperation.

The study, carried out between May and September 2009, surveyed the factors for success or failure of transboundary cooperation as perceived by stakeholders in three case study sites with different levels of cooperation (Figure 16):

- Interstate Nature Park Maas-Schwalm-Nette between Germany and The Netherlands with one management unit responsible for both sides of the frontier (high cooperation level),
- National Park Triglav in Slovenia and (almost) adjoining Regional Nature Park Prealpi Giulie in Italy (medium cooperation level) and
- the mountain range „Karwendel" between Tyrol (Alpenpark Karwendel which currently is transformed into a Nature Park) and Bavaria (nature conservation site), where stakeholders have made an effort towards an institutionalised cooperation since 20 years, however so far without success (low cooperation level).

Two central research questions were examined:

(1) Can the recommendations (established by international organisations) on how to facilitate transboundary cooperation in protected areas management be approved in the chosen case study sites?

(2) Under which circumstances is transboundary cooperation worth the investment? May the principles of change management in organisational development be applied in order to facilitate decisions on whether to establish and how to handle transboundary cooperation in protected areas management?

The results are meant to add to the international discussions and facilitate transboundary cooperation in protected area's management.

In a first step, the guidelines of IUCN (Sandwith et al. 2001), UNESCO (2000) and EUROPARC (2000) and some previous studies (Zbicz 2003, Lanfer et al. 2003, UNESCO 2003) have been compared in order to identify the most important and commonly agreed criteria for a successful cooperation in transboundary protected areas.

In a second step, representatives of relevant interest groups (e.g., conservationists, mayors, tourism experts, land users) have been chosen in the case study sites on both sides of the border and questioned about their experiences with transboundary cooperation. In total, 30 guided (phone or face-to-face) interviews have been carried out.

Figure 16: Location of the selected case study sites in Europe

In a third step some basic principles of change management have been applied to analyse the cooperation processes in the case study sites. It has been evaluated if they may help to find new approaches of how to establish or handle transboundary protected areas.

International organisations and previous studies agree on some basic recommendations such as specifying common visions or (written) agreements, establishing coordinative structures, encouraging personal meetings between all levels of staff members, finding a way of how to deal with language barriers, harmonising regulations and management practices, developing common external communication, realising joint projects and finally guaranteeing a particular budget for transboundary activities (Figure 17).

According to the surveyed stakeholders cooperation brings some benefit not only for nature conservation, but rather for increasing the popularity of the area and strengthening tourism activities. Motives behind the cooperation are (amongst others) increasing revenues, maintaining historic relations and creating a European feeling. Personal contacts are considered a key factor for the success of cooperation. However, these contacts should not only occur on the staff but also on local level (e.g., exchange of farmers, children, tourism associations). Further the importance of informal events (like cultural events, competitions, having a beer together) was stressed to allow for building trust and friendship. Differences

between neighbouring countries will always occur. However they rarely have been perceived as being a decisive obstacle but rather an enriching source for new learning experiences. Shall joint projects be implemented successfully, there has to be a key person who is familiar with the different structures, regulations and attitudes on both sides of the border in order to guarantee a smooth flow of the project.

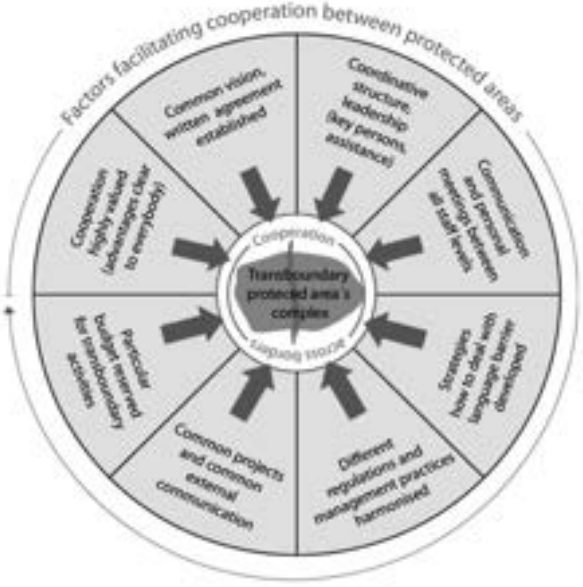


Figure 17: Factors facilitating transboundary cooperation in protected area management

Source: Author's draft, based on the recommendations of international organisations and the results from former studies).

Even if already some important aspects of how to organise transboundary cooperation have been identified, they still do not answer the question under which circumstances transboundary cooperation is worth trying. Change management principles deal with the question of how people can be motivated to give up familiar habits and accept changes. One of these principles is summed up in the following "change equation":

D[issatisfaction] x V[ision] x F[irst step] > R[esistance] to Change

It reveals that dissatisfaction with the current situation is a key driver for changes. Developing a common vision is important to agree on what shall be achieved in the future. Concrete first steps have to be taken in order to demonstrate the progress towards the vision. The change formula is multiplicative, which means that if any factor is missing or poorly developed, resistance will be greater and positive change will not take place (Beckhard & Harris 1987).

Can this be applied to transboundary protected areas? Does it explain, for example, why an institutionalised cooperation in the Karwendel mountain range still has not worked out yet, whereas the cooperation between Triglav National Park and Prealpi Giulie Regional Nature Park seems to be exemplary without having installed stringent structures for cooperation?

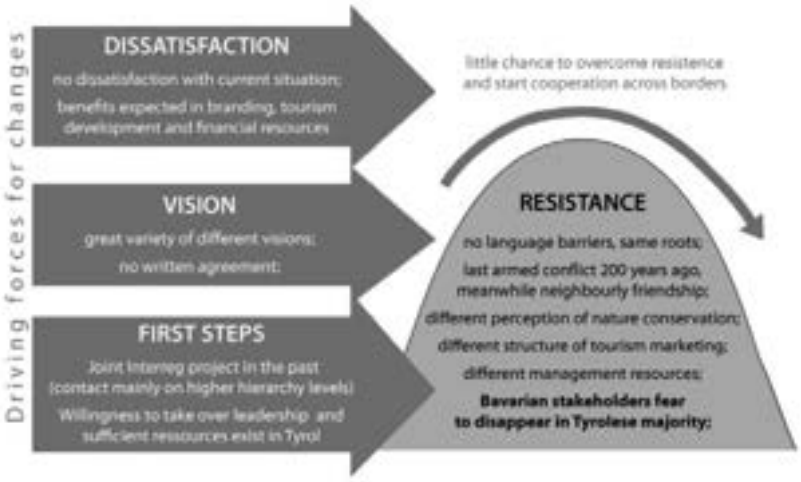


Figure 18: The basic principles of change management, applied to the transboundary cooperation process in the Karwendel mountain range

The cooperation between Tyrol and Bavaria could be easy as there is no language barrier and the last armed conflict happened 200 years ago (Figure 18). Until 2009, the main resistance came from the Bavarian stakeholders (representing the smaller part of the Karwendel). They feared that their interests may be ignored by the Tyrolese majority. Additionally the driving forces for cooperation are not well developed. Some benefits are expected from the cooperation, but the majority is not at all dissatisfied with the current situation of not sharing the responsibility

for the mountain range in a transboundary institution. They do not share a common vision of how to develop the region. The first steps taken in form of a joint INTERREG project have been realised mainly on the upper management and expert level with the consequence that no contacts on the local stakeholder level have been triggered. The establishment of a transboundary protected area was therefore not imaginable until 2009.

In comparison to the Karwendel region, greater resistance would have been expected for the cross-border cooperation between the Slovene and the Italian park: The people speak different languages, the last armed conflict between the countries occurred only about 60 years ago, 18 years ago the regions still belonged to different political systems (European Union versus socialistic Yugoslavia) and even nowadays minority problems sometimes constrain the cooperation on the political level. Initially the most important driving force for the young Italian Nature Park obviously was to benefit from the experiences and popularity of Triglav National Park. The official contacts quickly developed to amicable relations amongst the directors which nowadays seem to be a fundamental driving force for transboundary activities. It seems that once good personal relations are established, potential constraints are easily resolved. In several agreements, the parks expressed their common vision to stimulate a mutual understanding and to promote a culture of peace by organising regular meetings between the staff members, but also the local stakeholders (e.g. school children). In 2004, after Slovenia joined the European Union, the cooperation was intensified in two major EU projects, both involving different stakeholder groups from the region. A joint vision, the effective implementation of concrete first steps, and the personal experience of friendship and trust obviously resulted in a motivation towards cooperation prevailing the potential resistance, for example from political tensions (Figure 19).

Altogether the results of the survey affirmed the significance of the recommendations given by the international organisations for transboundary cooperation. However, they do not sufficiently stress the necessity of building trust and friendship amongst the neighbours which seems to be crucial to allow for a sustainable cooperation outlasting e.g. the end of INTERREG funding periods (which is amongst the main driving forces for cross-border cooperation in European parks). Applying the principles of change management helps to understand the underlying causes for success or failure of transboundary cooperation. Thus, recommendations for improvement could be given for the three case study sites (Table 6).

Figure 19: Driving forces for transboundary cooperation between Triglav National Park and Regional Nature Park Prealpi Giulie

Table 6: Recommendations for the surveyed case study sites (based on the comparison and the results of the expert interviews)

Cross-border Nature Park Maas-Schwalm-Nette (NL/DE)	***Triglav National Park (SI) and Nature Park Prealpi Giulie (IT)***	***Karwendel mountain range (AT/DE)***
• Stronger focus on benefits of cooperation to increase willingness to pay for coordinating unit • Increased involvement of local stakeholders (e.g. owners of guest houses) in cooperation • Organisation of informal events for target stakeholder groups to allow for trust and friendship	• Improvement of common external communication (e.g. cooperation efforts visible on the web sites; Italian version of Triglav NP web site) • Check potential benefits of defined structures for cooperation (committees, appointed coordinators) • Specification of a defined budget for cooperation	• Discussion of potential benefits and problems related to TB cooperation • Organisation of social events to build trust and friendship amongst relevant stakeholder groups (e.g. mayors, tourist associations) • Agreement on common objectives and implementation of first steps towards their achievement

NP: National Park, TB: Transboundary

Even if the results of the survey cannot be considered generally accepted for the respective regions or beyond they allow for an interesting insight in the ongoing

processes of transboundary cooperation, direct towards good practice and hopefully may stimulate the transboundary cooperation processes in other regions.

3.3.2 Creating an inter-national park in Poland and Belarus

Hanna Vasilevich

The Biełavieża/Białowieża Forest is the largest part of the ancient vast primeval lowland forests of Europe that were typical for the continent's nature since the times immemorial. Biełavieża/Białowieża represents the last truly natural and authentic primeval remnants of this type of forest that have been preserved more or less intact on a large scale. Therefore it is counted amongst the most important and unique natural sites in Europe.

Located in Belarus and Poland Biełavieża/Białowieża Forest is home of two National Parks granted with a European Diploma, and is a Biosphere Reserve as well as the UNESCO's World Heritage Site. It is one of the most prominent and unique protected areas of the world.

Formerly having been protected as a single royal hunting spot, the Forest nowadays is a trans-boundary site between Belarus and Poland which is being managed by two completely different political regimes (authoritarian Belarus and democratic Poland which is a EU member-state). However, despite these significant differences the issue of conservation of this unique trans-boundary forest as well as the problem of the development of the adjacent areas remain topical. These problematics are also important for the development of bilateral cooperation between Belarus and Poland within the framework of trans-boundary Euro-region created nearly ten years ago.

Despite such significant differences between Belarusian and Polish parts of the forest which influence almost all dimensions of the protected area's vitality there is a definite need for closer cooperation since one part of the trans-boundary protected area cannot ensure its sustainable existence without the coherent development of the other part.

The paper examines whether it will be possible to establish an interstate protected area which could bring two parts of the same ecosystem under one managerial structure.

Therefore the project consists of five contentual chapters, summary, introduction and conclusion. Relevant maps and pictures are provided to illustrate contents of the thesis. Additionally, there is a list of references that covers

Belarusian, Polish and foreign titles and includes books, reports, guidelines, articles and a documentary film.

A short summary in the beginning of the paper is followed by the introduction. The first contentual chapter is the chapter number three that provides a general information on the Biełavieża/Białowieża primeval forest, including brief history, ways of development and major natural characterisctics of the site. Chapter four concentrates on the Polish part of the Białowieża Forest. Current situation in the Białowieża National Park, its legal status, structure, managerial activities, main challenges and threats are being depicted in the chapter. In the chapter five the main focus is made on the Belarusian part of the Biełavieża Forest. Similarly as in the previous chapter, this chapter contains the analysis on the legal status, international obligations, current structure and management situation, its threats and challenges of the Belarusian part of the Biełavieża Forest. Chapter six predominantly concentrates on the cooperation between both parts parts of the Biełavieża/Białowieża Forest. The main emphasis is made on scientific cooperation as well as on discussing collaboration and its perspectives both on the regional (cooperation between municipalities on both sides of the border) and the international level (under UNESCO, European Council Diploma, etc.). The final contential chapter (chapter seven) includes a comparative analysis of two parts, with the assesment on the current and potential cooperation, It also contans expanded answers to the main question of the thesis whether it is possible to establish an interstate protected area which could bring two parts of the same ecosystem under one managerial structure. It is followed by the conclusion

The conclusion is formulated in ten points that cover major problems the management of both Belarusian and Polish parts of the Biełavieża/Białowieża Forest. Bringing all those relevant factors together, it seems obvious that the creation of the interstate protected area in a short or even medium time is impossible. Since there is a strong political obstacle regarding the possibility to create an interstate protected, for the time being it would be more beneficial to concentrate on closer trans-boundary cooperation between Belarusian and Polish parts of the Biełavieża/Białowieża Forest. Transboundary cooperation already exists in different levels of intensivity. It starts with simple communication, sharing of information on the issues which belong to the common intersts of the parties involved and notifiying on the actions which may have influence on the both sides of the border. As an intermediate stage regular consultations and meetings may be outlined. This could be accompanied by joint activities in the spheres of scientific cooperation, tourism, etc. Further stage can be marked by advance cooperation and coordination of activities on the both sides of the border which is characterised by joint planning and same level of nature protection. Finally, the full-fledge cooperation may be seen as the most advanced level of the

cooperation which leads to the creation of an effective trans-boundary protected area. Coordinated management and combined efforts in joint nature protection are main characteristics of this stage. Moreover, joint protection also means harmonised development of both parts, including infrastructure, management and research technologies.

3.3.3 Assignment of a protected area management category to the National Park Lovcen, Montenegro

Katharina Vuksic

Protected areas are commonly established in order "to maintain functioning natural ecosystems, to act as refuges for species and to maintain ecological processes that cannot survive in most intensely managed landscapes and seascapes" (Dudley, 2008). Conservation objectives of protected areas may vary, hence different management approaches exists in order to achieve conservation objectives. Moreover, it is essential that the measures and activities that are implemented in a given protected area are in accordance with the local conditions and regional settings.

The objective of the thesis was to find the most appropriate international management category for the National Park Lovcen in view of its current conservation status, its management objectives and future plans and developments. More precisely, the research question focused on the compliance of the NP Lovcen with IUCN category II. Furthermore, the purpose was to give recommendations for management: to clarify priorities, define activities and actions which should be taken and implemented by the NP administration in order to make a solid base for further management and to achieve the primary management objective.

In addition, the objectives of study include assessment of applicability of the biosphere reserve concept, as an international designation within the UNESCO MAB Programme, for the wider Lovcen region, which is recognized as an area of outstanding landscape characteristics, with rich natural values and cultural heritage.

Lovcen Mountain is situated in the southwest of Montenegro (Figure 20), encompassing the central and the highest part of Lovcen Mt massif and covering an area of 6,220 ha. It was proclaimed a national park in 1952, in accordance with the national legislation on nature conservation. On the international level, NP Lovcen is included in the list of Emerald sites (ASCIs) for Montenegro, in

accordance with the requirements of the Bern Convention, as well as in the list of Important Plant Areas (IPA) of Montenegro, as an area important for rare, endemic and endangered species.

The protected areas area is managed by the Public Enterprise National Parks of Montenegro, a state institution which is responsible for the management of four Montenegrin national parks.

Due to the specific geographic position, climatic conditions and geo-morphological characteristics, the vegetation of Lovcen is very rich and diverse. There are about 1,300 species of plants in the territory of the NP Lovcen, many of them endemic and relict species. Forests are dominant ecosystem in the NP Lovcen, covering 70% of the NP territory (4,950 ha). The remaining 1,920 ha refers to the bare rocky ground, meadows, pastures, agricultural land and construction land. Fields and meadows can be found only on the fertile soil of narrow valleys and karst depressions.

National park Lovcen was designated due to its exceptional natural, landscape and cultural characteristics, and in accordance with the national legislation. However, the history of Lovcen NP management is marked by lack of continuity and consistency that its natural values and associated cultural heritage deserve. Lovcen NP is in the vicinity of the very touristic coastal zone, therefore it is expected that it faces pressures of development as well.

Figure 20: Protected areas of Montenegro (existing and planned)
Source: E.C.O., based on Stanisic, 2009.

Nature protection system of Montenegro is currently facing significant changes since the country is going through the process of transition and approximation to the European Union.

The system of protected areas categorization of Montenegro is not harmonized with the IUCN system at the moment (Figure 20). Although Lovcen NP is listed as the IUCN category II in the World database of Protected Areas, formal assessment and assignment of the category has never taken place for neither Lovcen nor any other Montenegrin protected area. Having in mind this, together with the historic land use of the area (logging for firewood), the emphasized cultural component of the area (it is a part of cultural identity of Montenegrin people) and the plans for future developments, the suitability of IUCN category II for the current management for Lovcen area is questionable.

There are disputes that the management category V would be more appropriate for Lovcen NP. However, the management objectives of categories II and V are different. Consequently, the measures and activities that are supposed to be applied in order to achieve the management objectives in these two categories are different.

Moreover, the region surrounding Lovcen NP, including slopes of mountain Lovcen, Boka Kotorska and immediate coastal zones, is widely recognized as an area of outstanding landscape values, with rich natural values and cultural heritage. Therefore, the Biosphere Reserve concept might be a good model for the NP Lovcen wider area, having in mind the potentials of the surrounding region and existence of other protected areas in the vicinity.

The proposed IUCN methodology for assignment a management category to a protected area was a framework for the research. Due to the previous knowledge of the current state of nature conservation system, more precisely, on the characteristics of the protected area system in Montenegro, the research was designed in the following manner:

1. Analysis of the nature conservation system of Montenegro: Thorough analysis of the available literature concerning strategic directions, legislative and institutional frameworks for nature protection, with an emphasis on the protected area system.
2. Analysis of the current management of the Lovcen NP– management objectives, its zoning and protection regimes: Detailed analysis, with a focus on the most relevant and key management documents of NP Lovcen, Spatial Plan for the Area of Special Purposes for Lovcen NP and Programme for Protection and Development (Management Plan).
3. Exploring the visions and objectives of the management agency (PE National Parks of Montenegro) for the NP Lovcen: future plan and projects;

Interview with the director of the Lovcen NP and the coordinator of the visitors' center.

4. Assessment of applicability of the IUCN protected area management categories to the Lovcen NP.
5. Assessment of applicability of an international designation for the wider region of Lovcen NP: The region surrounding NP Lovcen, including slopes of mountain Lovcen, Boka Kotorska and immediate coastal zone, is widely recognized as an area of outstanding landscape values, with rich natural and cultural heritage. Therefore, the thesis included discussion about appropriateness and possibility of applying an international designation for a wider region – the biosphere reserve concept.
6. Recommendations and guidelines for management measures, actions and priority activities in accordance to the proposed category.

The analysis of actual situation in the land uses and activities in the national park, as well as the zoning (Figure 21), regimes and regulations has shown that NP Lovcen does not correspond to the requirements of the IUCN category II, but revealed a mixture of management objectives. The zoning is not clearly defined, and regimes and regulations are not in accordance with requirements of the IUCN guidelines.

Figure 21: Zoning of the Lovcen NP

Source: E.C.O., based on materials by NP Lovcen administration.

More precisely, total area of the zones with strict protection, which to large extent corresponds to requirements for zones with primary objective of IUCN category II, is 1,664 hectares, or 26 % of NP territory. Furthermore, the strictly protected zones are not clearly defined in the planning documents and the ecosystems that should be conserved are unrepresented. Protection regimes for each of the zones as set in the current management plan are to large extent weak and ambiguous.

In addition, there is a lack of scientific research of the area, and lack of data is a substantial problem. Limitations of financial resources, lack of expert staff, as well as low participation of local stakeholders are the main constrains to effective management of NP Lovcen.

Moreover, the current key management documents, management plan and spatial plan, are not appropriately addressing the specific issues of the NP Lovcen management. More precisely they are rather descriptive and general documents, with ambiguous guidelines and non-target oriented measures and activities for management.

In regard of regulation of activities, there are incompliances with the management of category II, such as logging for subsistence and sanitary cutting in, as well as forest hygiene activities (removal of deadwood) and pest management.

The proposals for future projects, such as cable car and eco-adventure park which are planned within the NP boundaries, present additional challenges for management.

However, having in mind the management intents, as well as the characteristics of the prevailing ecosystems, there are potentials for applying IUCN category II to the management of NP Lovcen. Furthermore, despite the insinuations the available data on natural assets of Lovcen, state and development of its ecosystems and species revealed that the management objectives of category V are not appropriate for NP Lovcen.

The primary management objective for the NP Lovcen, as stated by the NP administration, is to preserve its ecosystems and to restore them to their primary, natural state. The forest ecosystems, on the other hand are, are rather fragile due to long period of unsustainable use, and require restoration measures to regain their stability.

Assigning an appropriate international scheme (management category or designation) for a given protected area implies that certain standards and criteria have to be fulfilled. In order to be recognized as an IUCN category II protected area, there is a series of issues that have to be solved in the management of NP Lovcen.

First of all, it is essential to have clear management objectives which are in compliance with category II - protecting natural biodiversity along with its

ecological structure and supporting environmental processes - in order to conserve present biodiversity values and the associated cultural values in NP Lovcen. Based on that, the management priorities have to be defined, as well as the activities relative to the main objective.

In order to follow the management activities that are in accordance with the IUCN category II protected areas it is essential to clarify zoning, protection regimes and regulations for each zone. The guiding principle for zoning should be that the NP core zone with primary objective of category II, i.e. maintenance of ecological processes, covers two-thirds of the total NP territory. Subsequently, identification of new areas for core zone is a requirement, and the borders of the NP and each zone should be unambiguously defined and marked in the field.

A new management plan, a target oriented document with measurable objectives, should be prepared and adopted. Scientific research of key species and habitats is a necessity, as well as implementation of biodiversity monitoring.

A more strict control of land-uses and visitor management is especially important in light of the planned projects and predicted increase in visitations. Proceeding with these tasks is not easy and will require not only clear vision for the NP Lovcen, but a committed and capable NP administration and increased participation and communication with relevant stakeholders to implement the plans.

Moreover, protected areas are not isolated entities; they are ecologically, economically, politically and culturally linked to their surroundings. NP Lovcen is embedded in the surrounding that has been recognized long time ago as a region of outstanding landscape characteristics, natural values and cultural heritage that should be carefully used and well managed. With a number or existing and planned protected areas in the immediate vicinity, there are significant potentials for applying a biosphere reserve concept for the wider region of Lovcen, as an international designation concept within UNESCO MAB Programme. However, designation of a biosphere reserve requires detailed feasibility study and a highly participative process of planning and designation.

Management of a protected area is without a doubt a sovereign responsibility and decision of a state. However, application of international standards in their management gives credibility to a state. For the protected area itself, application of an international category or designation, in addition to clarifying management aims, gives recognition in terms of accountability, an additional argument for receiving funds from donor agencies and can give a basis for cooperation with other protected areas with similar objectives.

Assignment of a management category or international designation is a complex work and in official circumstances it would require a project team and participative approach with involvement of many stakeholders. The work on thesis

was concentrated on exploring the intentions of the management agency – NP Lovcen administration in regard to the objectives of management and visions for the future.

3.4 Economics of protected areas: branding and regional development

3.4.1 Brand analysis of Austrian national parks

Anna Drabosenig

The purpose of this project is to improve the communication of national parks by analysing the brand 'national park' and suggesting how to market it effectively. The objectives are

- a detailed assessment of the three examples of national parks,
- recommendations for Austrian national parks in general,
- a practical tool that enables the national parks to evaluate their branding on their own.

"A brand is not a logo, a product or a company. A brand is a person's gut feeling about a product, a company, a service, a hotel. It is a gut feeling because we are all emotional, intuitive beings, despite our best efforts to be rational" (Neumeier, 2006).

Corporate Design is a brand's form of expression. A symbol that matches its attitude.

Logos are graphical design. They work with pictures and imagery.

Marketing is a one-way communication. Only the company side communicates along the 4 Ps (Promotion, Product, Price, Placement), they do not recognize the customer:

- "Push" approach: The company goes to the market. 'I tell you about me. I come to you.'
- "Pull" approach: The customer comes to the company.

Public Relations use a third party. Others tell good things about the company.

Advertisement is a big "machine" that inundates the customer with its message. It is repeated countless times until the customer believes it. It works because a company has to be present, but sometimes it is too much (Petzl, 2009).

The aim of branding is that the customer thinks that there is no substitute for a specific brand, a monopoly position in the psyche of the customer (Domizlaff, 1982).

The subconscious controls 80% of our actions. Brands focus on that and appeal to our deepest psychological levels: basic needs and culture (Röchert et al., 2003).

There are three principles of a brand (Petzl, 2009):

1. Orientation: Brands offer customers orientation in a complex world full of products and advertisement.
2. Identification: Successful brands are like people. They have a strong identity. You can like them or not. ('It is part of my life.')
3. Trust: Brands satisfy the human need for safety and security. ('I know what I get.')

The study area consists of three out of six Austrian national parks: Hohe Tauern, Gesäuse and Neusiedler See-Seewinkel.

Figure 22: Structure of the Brand Score Card

The brand analysis starts with an anonymous blind trial that tests the performance of the national parks regarding customer orientation and customer service. Therefore, four fictitious customer types were created according to different target groups of national parks. Each of these customers wrote an email to the national park administration asking for further information. The reactions of the national parks were recorded and the material sent was gathered.

The available material including the homepage was analysed according to a Brand Score Card (Figure 22). The Brand Score Card is based on the three main pillars that build up a brand: image, trust and performance. Each category is specified by several sub points that are scored with marks from one to five points at the best. In the end, the final score allows a direct comparison of the different national parks.

To compare the results of the national parks to today's state-of-art in branding, a benchmark was chosen. This benchmark was an organisation that also protects public weal: Doctors Without Borders, an international humanitarian NGO that works in developing countries.

In each national park five qualitative interviews were carried out – two with the national park administration and three with opinion leaders from the region.

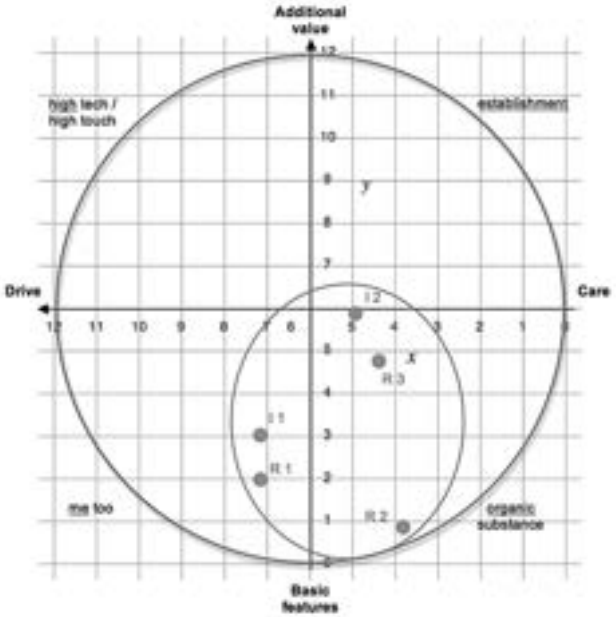


Figure 23: Example of the use of Braunegger Positioning Model
I1 – I2 are the postions of the park administration (Insiders); R1 – R3 are the postions of the opinion leaders from the region (Region)

Figure 24: Images of the three national parks

At the beginning, the person who was interviewed was asked to imagine the national park as a water body and as a person (Personal Description File). Out of this unusual description of the national park, unconscious opinions became visible.

The results of the Personal Description File were used as data basis of the Braunegger Positioning Model. There the whole national park is scored on the X-axis from 'Care' to 'Drive' and on the Y-axis from fulfilling 'Basic needs' to having an 'Additional value' (Figure 23).

These two numbers result in the coordinates of the position of the national park. Altogether, the different signals from the interview give a more or less clear and consistent picture of the position of the national park in the whole market.

In addition, from each interview the core messages were extracted and condensed into the individual strengths and weaknesses of the national parks.

The example above (Figure 24) shows pictures of the three Austrian national parks in each column. Although their natural values are very diverse, they all use the same pictures and imagery. This represents the overall impression of Austrian national parks.

The national parks already have:

- good scientific work,
- broad offer of excursions.

The national parks still have to:

- sharpen their profile,
- improve their customer care.

The following recommendations are intended to improve the branding of national parks:[2]

- For an expressive but serious appearance, strong and characteristic pictures should be used.
- New and diverse ways of communication should be implemented to reach a broader public. WEB2.0 and Social Media should be offered as virtual possibilities to join in.
- The key messages should be stated more clearly and more often. Only a small number of technical terms should be used and maintained.
- History can be used as an evidence for success if it is presented in an exciting way with lots of pictures and visual effects.
- Innovation requires courage. National parks should be successful through brave actions, commitment and perseverance. Environmental problems should be made visible for the public.
- Pictures and introductions of the whole personnel put a face on the organisation. Public access to as many as possible documents about ongoing work creates transparency.

[2] A practical tool for self-evaluation of branding of national parks is available as download at http://mpa.e-c-o.at/index.php/plain/content/view/full/864.

- Only a few powerful colours should be used and everything should be designed very light and serious. It is important to stick to the design consistently in each material.
- Easy figures and diagrams should be used to illustrate complex topics clearly. Technical terms should always be explained (e.g. in an online-dictionary).
- Individual (first) answers should always be sent to customer requests, e.g. a short personal note with postal consignments.
- Quick answers are important for using online correspondence. The contact should be kept and customers should be added to the address lists.

3.4.2 Contribution of the Dobratsch nature park to regional development

Astrid Fuchs

The purpose of this contribution is to strengthen regions with a weak local economy by the inquiry of possible impacts of the Nature Park concept to the regional development. The objectives are:

- the identification of impacts from the Nature Park to the regional development;
- identification of potential development projects;
- provision of an information base for mayors for the enhancement of the common welfare.

The Nature Park Dobratsch serves as a case study area and was officially founded by the Carinthian government in 2002. It is geographically located in the south of Carinthia between the four member communities of Arnoldstein, Bad Bleiberg, Nötsch and Villach.

The Nature Park includes "Villacher Alpe", which is a Nature 2000-site, nature protection area and landscape conservation area, and in addition some parts of the Natura 2000-site "Schütt-Graschelitzen" and the landscape conservation areas of "Schütt-West" and "Schütt-East".

The land use of this area is constrained with almost 5% in the Natura 2000 region of Schütt-Graschelitzen. About 9.41 hectares of the hillside area are owned by the Arge Naturschutz, who plans to buy additional forest properties of about 14,5 hectares. The rest of the protected area is owned by private persons, mostly farmers, with whom leasing and utilization contracts are done.

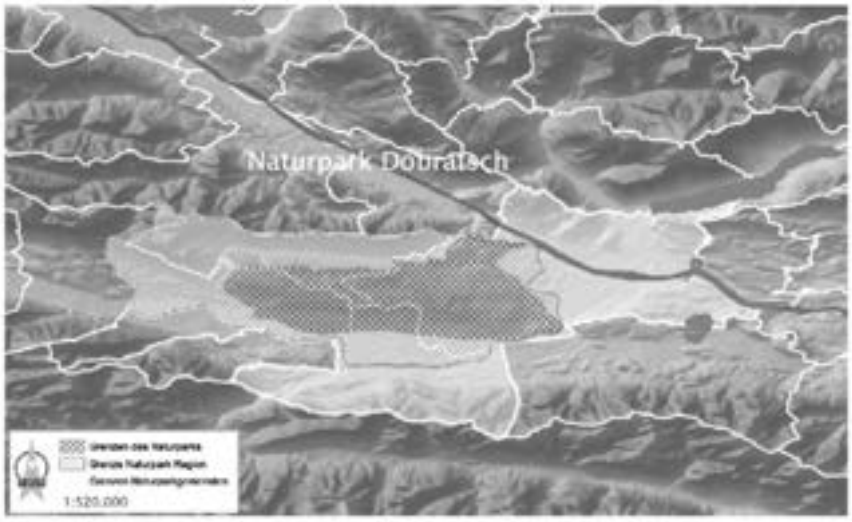


Figure 25: Location of the Dobratsch Nature Park (Carinthia, Austria)
Source: E.C.O., based on materials by Dobratsch Nature Park

The unique visual nature in the south of this mountain was formed from several landslides. In the year 1348 the biggest part of the mountain broke down. This debacle created one of the most exiting landscapes. The landslide area, called Schütt, is the biggest in Europe. Caused also by the specific climate, it is habitat for a unique flora and fauna with many rare plant and animal species, which are domestic now.

The purpose of a Nature Park is to create a region for sustainable development, taking into account the togetherness of recreation, regional development, education and protection.

The author used a comprehensive questionnaire and individual interviews to explore whether there is a contribution of this Nature Park to the regional development of the four adjacent communities, especially for Nötsch in the Gail valley on the sunny side of the mountain and Bad Bleiberg in the shadow of the mountain, as they differ considerably from the economic point of view.

Both communities have approximately 2,200 inhabitants. The population structure in Bad Bleiberg persisted mostly of work people, because mining has been a major economic factor for more than 2,000 years. Nötsch is known for its famous artists and a big mill, which still runs today. Due to the wide and open space, the farmers were rich.

The results and the conclusion of this thesis will also be offered to the mayors of both communities for their future plans. Both mayors are contact persons for Nature Park issues.

To get information about a possible contribution of the Nature Park Dobratsch to the regional development lots of interviews on the basis of a questionnaire were made.

The methodology used for this project was firstly to create a comprehensive anonymous questionnaire on the basis of the source "Methoden der empirischen Sozialforschung (Peter Atteslander)" consisting of four main parts:

- personality of the respondents,
- level of information,
- acceptance,
- future possibilities to encourage a sustainable development of the region.

Fifty questionnaires per community were collected.

To get meaningful answers the interviewed persons were chosen from different groups to get diverse opinions and feedback. Beside farmers and private persons, teachers, politicians, employees of the community, entrepreneurs and manual workers were respondents. Especially with the first part of the questions concerning the personality the respondents had problems despite of the anonymity. After explaining the reason that the statistically evaluation also needs the determination of age, income and education they were willing to answer.

Besides personal discussions some respondents took the survey documents to fill in the questions without the author's presence. A few days later the completed questionnaires were collected.

Most of the people were very mistrustful and declined the questionnaire but after a briefly report about the content of this work most of the respondents were really supportive and answered almost all questions of the questionnaire. Only one family took a really long time for discussion, asked questions and talked about their opinion but at the end they did not fill in the questionnaire.

The analysis of the questionnaires, especially part three (acceptance) and the part four (future possibilities to encourage a sustainable development of the region) led to interesting results.

More than 85 percent of the respondents were accepting the Nature Park (question 3b) as 'positive' or 'rather positive'.

The question 3e) (multiple solutions for different projects were possible) asked, if the respondents work on a common strategy to enhance the quality of live by a sustainable regional development.

56% of the respondents elected several of the offered possibilities to collaborate active. 33% dismissed a common work and 10% elected invalid. The conclusion

of this question is a high willingness to actively change the current situation in the Nature Park.

Regarding the fourth part and question number 4c) some respondents had good ideas to improve the situation of the Nature Park region if they had the possibility to do it.

The last question 4d) was modified in an evaluation marked from one to five after two conversations with the old and new mayor of one adjacent Nature Park community, namely if a personnel lift to the top of the Dobratsch mountain would bring benefits for the region. Analysis of this question before modifying it: 50% answered with Yes, 37,5% answered with No.

After modifying the question by grading the answers from one to five the outcome was as following (Table 7).

Table 7: Perception of benefits of a new ski lift at Dobratsch

Would a personnel lift bring benefits to the region?	
Grade (1=strongly agree; 5=strongly disagree)	number of respondents
1	10
2	5
3	8
4	5
5	3

Many questions were asked regarding the brand of the Nature Park. A short telephone call with the responsible Nature Park coordinator was not very satisfying. To obtain the permission using the brand for (own) manufactures a declaration of accession in the community is a precondition. The official meeting of the local county will be held approximately once a year. Admittance as "Nature Park Partner" will be voted there. This long procedure is to hold memberships wilfully down. The statement of the responsible person is: "Wir Naturpark Partner wollen klein aber fein bleiben." ["We as the group of partners of the Nature Park want to stay small and cosy."]

Is the meaning of an EU-developed Nature Park the development of some private partner companies or should the population take part in the value creation?

4 AN EDUCATION PROGRAMME FOR PROTECTED AREAS MANAGERS

Michael Getzner, Michael Jungmeier

4.1 " An outstanding educational offer" – Overview of the programme

Promoting sustainability, handling conflicts, increasing benefits, conserving biodiversity – the planning and management of Protected Areas involves many different legal, administrative and technical realities. The demand for highly skilled experts is growing immensely.

Our vision is to promote biodiversity conservation and regional sustainable development in Europe and worldwide by educating and training efficient and effective managers of Protected Areas (Figure 26).

The learning goals are:

- an excellent and comprehensive understanding of the aims and roles of Protected Areas in relation to the conservation of biodiversity and (integrated) regional development.
- detailed knowledge when applying the full range of tools available for the management of Protected Areas so that they can effectively fulfil their aims.
- an ability to analyse and solve problems encountered when establishing, planning and managing Protected Areas, to conduct inter- and transdisciplinary dialogues with all stakeholders and to develop and implement appropriate integrated solutions.
- the development of hard and soft skills to create mutual benefits of nature conservation on the one hand, and for the local population on the other hand, particularly in peripheral regions as well as in developing countries with the aim of sustainable regional development.

The management of Protected Areas is considered in an integrating way. The management shall account for all three "pillars" of sustainability to make Protected Areas to regional "cornerstones" of global sustainable development

Figure 26: Sustainability approach to managing protected areas

The lecturers of the education programme developed at Klagenfurt University together with E.C.O. Institute of Ecology are internationally acknowledged experts from organisations and institutions. By attending the programme, the participants become part of an international network of experts that enables them to solve the complex problems in everyday life in Protected Areas.

1st term: Theoretical and scientific fundamentals of the management of Protected Areas

2nd and 3rd term: Practical aspects of the management of Protected Areas (toolbox & best practice)

4th term: Supervised implementation of applied and/or scientific research projects

The programme has a focus on:

- European and international categories of Protected Areas
- Nature conservation strategies in Central and Eastern Europe
- Integration of socio-cultural, economic and ecological aspects
- Participative approaches in the management of Protected Areas
- New technologies and methods
- Strategies and instruments for communication, participation and benefit sharing.

The programme's patron is Prof. Michael Succow, holder of the Alternative Nobel Price 1997, who has said that, "the M.Sc. programme 'Management of Protected Areas' is an outstanding and innovative educational offer intended for

managers and planners of Protected Areas. It not only provides important training but also professional impetus for nature conservation in Europe".

4.2 "A network to work with" – Partners

Besides the Advisory Board the MSc programme is embedded into a network of partners.

- Alumni Club: The alumni, the lecturers and the advisory board of this post-graduate education programme are building up a globally active personal network for protected area experts. Via regular meetings, workshops, excursions and an interactive platform the members stay in contact, study further in the field of protected area management, exchange opportunities and support each other. Moreover, the Alumni Club is open for external protected area experts.
- Central European Initiative: In the frame of this initiative scholarships for participants are financed in cooperation with some CE Universities.
- CBD Memorandum of Understanding: By invitation of the CBD (Convention on Biodiversity) the University of Klagenfurt joined a memorandum, linking the MSc programme to some very distinguished educational and scientific institutions.

4.3 "Knowledge to protect and innovate" – Start 2007

In June 2007 the first turn of the Msc programme has been finalised successfully. During the academic ceremony at Klagenfurt University, Michael Getzner and Michael Jungmeier, directors of the programme, thanked participants, lecturers and members of the advisory board for their contributions and their dedication: "We are happy and proud of what has been achieved".

Three months later, in September 2007, the second round of the programme started. 18 participants from 13 different nations have been accepted and welcomed in Klagenfurt (Figure 27). "Managing Protected Areas is always dealing with diversity", said Michael Jungmeier during the reception. "We are happy that we managed to bring these experts together who are coming from diverse professional backgrounds and have a high level of experience and dedication."

Figure 27: Welcome to the M.Sc. programme "Management of Protected Areas"

Michael Jungmeier, Michael Getzner and 18 young professionals are on their way to shape the future of Protected Areas (left to right): Vuksic Katarina (Montenegro), Unterköfler Anna (Austria), Martin Emanuel (Tanzania), Battuvshin Chimeddorj (Mongolia), Grimanis Konstantinos (Greece), Strbenac Ana (Croatia), Akwetaireho Simon (Uganda), Svensson Asa (Sweden), Kariara Julius (Kenia), Kuzmitch Sergei (Belarus), Kikoti Zuwena (Tanzania), Vasilevic Hanna (Belarus), Zupan Irina (Croatia), Fuchs Astrid (Austria), Gasser Peter Franz (Austria), Lange Sigrun (Germany); not on the photo: Grujicic Ivana (Serbia) & Svajda Juraj (Slovacia).

4.4 "Working on a tight schedule" – the Programme 2007

Module 1: 21. – 27.09.2007, Klagenfurt

The first module took place in Klagenfurt in September 2009. It focused on the functions and categories of Protected Areas in a changing society. International lecturers as Christoph Imboden, Marija Zupancic-Vicar or Vesna Kolar-Planincic presented the global perspectives of managing Protected Areas. In addition to the theoretical part, in pouring rain the participants visited the valley of the Seebach in Nationalpark Hohe Tauern. A nice lunch in an alpine hut was hosted by the Park.

Excursions:

- 26 September 2007: Seebach Valley, Hohe Tauern National Park, Austria

Module 2: 31.01. – 8.2.2008, Klagenfurt

The participants met again in Klagenfurt in February 2008. Besides the basics of ecology and nature conservation, they were introduced to the business and administrative aspects of Protected Areas. The excursions to the snowscape of two Austrian mountain parks were not only challenging for the African colleagues who partly experienced their first snow in life, but also for the other participants who sledded down icy tracks after having something to eat and drink in a mountain hut. But at the end of the day everybody came home safely.

Excursions:

- 1 February 2008: National Park Nockberge, Austria
- 7 February 2008: Nature Park Grebenzen, Austria

Module 3: 24.4. – 4.5.2008, Klagenfurt and UNESCO Office in Venice, Italy

The third module was two folded: one part took place in Klagenfurt, the other one in Venice. Engelbert Ruoss, Director of the UNESCO Venice office, welcomed the participants to the fabulous Palazzo Zorzi. He and his team gave first-hand information on tasks and activities of UNESCO, about Biosphere Reserves and World Heritage Sites. The guests stayed in Venice for five intensive days with seminars, discussions and an excursion to the lagoon.

Excursions:

- 27 April 2008: Nature Park Dobratsch, Austria
- 3 May 2008: Lagoon of Venice

Module 4: 3. – 13.7.2008, Klagenfurt and Mallnitz, Hohe Tauern National Park, Austria

The fourth module was dedicated to communication processes and planning of Protected Areas. The first part, realised in Klagenfurt, was concluded with an excursion to Triglav National Park, a marvellous mountain region in Slovenia. Afterwards the participants moved to the little village of Mallnitz in Hohe Tauern National Park where the impressive mountain scenery and the interaction with the local population fascinated the participants.

Excursions:

- 7 July 2008: Triglav National Park, Slovenia
- 10 July 2008: National Park Hohe Tauern around Mallnitz

Module 5: 18. – 27.9.2008, Vienna, Austria

The fifth module took place at the Institute for Social Ecology (IFF) in Vienna. The focus on planning protected areas was deepened. In pouring rain the participants did a boat trip in the floodplains of the Danube which was great fun but at

the end everybody was quite happy to warm-up at the visitor centre of the National Park. Another excursion led to Lake Neusiedl. Once separated by the iron curtain, this ecosystem is protected by two National Parks on both sides of the Austrian-Hungarian border which closely cooperate in order to ensure the protection of this exceptional landscape.

Excursions:

- 30 September 2008: boat trip in the floodplains of the Danube in Danube National Park, Austria
- 23 September 2008: visit of Neusiedlersee and Fertö National Park, Austria and Hungary

Module 6: 9. – 18.1.2009, Klagenfurt und Gesäuse National Park, Austria

The sixth module was dedicated to the implementation phase in the protected areas life cycle. The participants started the module in Klagenfurt. From there they visited Logarska Dolina Nature Park in Slovenia, a very interesting example of a park run by the local communities. Afterwards they moved to Admont in Gesäuse National Park. They were accommodated in a castle and enjoyed excursions to the mountains in Gesäuse National Park and the old library of the monastery of Admont. It was quite obvious that, after almost 1.5 years in Austria, even the African colleagues were already familiar with snow, cold and sledging.

Excursions:

- 10 January 2009: Logarska Dolina Nature Park, Slovenia
- 17 January 2009: Gesäuse National Park, Austria

Module 7: 26.3. – 1.4.2009, Krasno, Velebit Mountains National Park, and Zagreb, Croatia

The penultimate module was organised by the Croatian participants Ana and Irina, both collaborators at the Croatian State Institute for Nature Protection. They did a great job in hosting the group in their country. The first part was hold in Kranos, a very little village in Velebit Mountains National Park. The local community was quite astonished to meet such a diverse group of English speaking people during that time of the year. Two excursions led us to Krk and Plitvice Lakes National Parks, which were a great experience, even during rainfall. The last day of the module, dedicated to the thesis topics, was hold at the office of their institute in Zagreb.

Excursions:

- 30 March 2009: Krk National Park, Croatia
- 31 March 2009: Plitvice Lakes National Park, Croatia

Module 8: 24. – 28.6.2009, Klagenfurt Days of Protected Areas

The last module in June 2009 was part of the Klagenfurt Days of Protected Areas, which already have become a known meeting place for professionals dealing with Protected Areas. Some 150 guests, amongst them high representatives of IUCN, Ramsar-Convention, Convention of Biodiversity and WWF, participated in different seminars and discussed issues such as climate change, soft mobility and innovation in nature conservation. Finally, 14 participants of the MSc programme presented their thesis to the international audience. A graduation ceremony followed in the University of Klagenfurt. At the end of the day it was time to celebrate.

4.5 Lecturers

(in order of their appearance in the courses of the programme)

Univ.-Prof. Dr. Michael GETZNER; Vienna University of Technology (formerly Klagenfurt University, Department of Economics, Austria)
Mag. Dr. Michael JUNGMEIER; Alpen-Adria-University Klagenfurt, Department of Economics; E.C.O.- Institute of Ecology, Austria
Mag. Dr. Christian LACKNER; University of Klagenfurt, Department of Organisational Development and Group Dynamic, Austria
Dr. Christoph IMBODEN; Sustainable Development Biodiversity Conservation, Switzerland
M.S. Vesna KOLAR-PLANINSIC; Ministry of the Environment and Spatial Planning, Slovenia
Dr. Marija ZUPANCIC-VICAR; IUCN Regional Councillor, Slovenia
Univ.-Prof. Dr. Paolo RONDO-BROVETTO; University of Klagenfurt, School of Management and Economics, Austria
Mag. Kristin DUCHATEAU; Austrian Development Agency (ADA), Austria
Dr. Rainer HARMS; University of Klagenfurt, Department of Innovation Management and Entrepreneurship, Austria
Ass.-Prof. Dr. José VICENTE de LUCIO, University of Alcalá, Spain
Dr. Hanns KIRCHMEIR; E.C.O - Institute of Ecology, Austria
Dr. Ladislav MIKO, Directorate General for Environment of the European Commission
Zoltan KUN; PAN Parks Foundation, Hungary
Univ.-Prof. Dr. Marina FISCHER-KOWALSKI, University of Klagenfurt, Austria
Roger CROFT, Leadership and management advisor, environmental policy and strategy advisor, United Kingdom
Dr. Bernard LANE; Red Kite Environment Ltd, United Kingdom
Prof. Dr. An CLIQUET; University of Gent, Department of Public International Law, Belgium
Dr. Francis VORHIES; Earthmind, Switzerland
DI Wolfgang SUSKE; Suske Consulting, Austria
Dr. Philippe PYPAERT; UNESCO Office in Venice, Italy
DI Dr. Hannes SCHAFFER; mecca environmental consulting, Austria
Jernej STRITIH; Sustainable Development Consulting, Slovenia
Dr. Frits HESSELINK; HECT Consultancy, The Netherlands
Dr. Gloria PUNGETTI; Cambridge Center for Landscape and People, United Kingdom

Richard CLARKE MSc., Birkbeck University of London, Centre for European Protected Area Research, United Kingdom
Prof. Dr. Wolfgang SCHRÖDER; Technische Universität München, Wildlife Biology and Management Unit, Germany
Dr. Tobias SALATHE; The Ramsar Convention Bureau, Acting Head Regional Unit Senior Adviser Europe, Switzerland
Mag. Dr. Christian KOMPOSCH, ÖKOTEAM, Austria
Prof. Dr. Ingo MOSE; University of Oldenburg, Regional Sciences Working Group, Germany
Dr. Peter ZIMMER; FUTOUR Environmental, Tourism and Regional Consulting Ltd., Germany
Mag. Peter RUPITSCH; Hohe Tauern National Park, Austria
Ass. Prof. Robert S. POMEROY, PhD; University of Connecticut - Avery Point, Department of Agricultural and Resource Economics, USA
Dr. Carl MANZANO; Danube Floodplains National Park GesmbH, Austria
DI Robert UNGLAUB; Archi Noah, Austria
Dr. Helmut FRANZ; Berchtesgaden National Park, Department Research and EDP, Germany
MSc. Barbara MÜLLER, Free Lance Consultant, Austria
Mag. Christian LANG & Mag. Ameli PAULI; Pronatour Outdoorsolutions, Austria
Zeljko KRAMARIC, MSc.; Free Lance Consultant, Croatia
Markus PETZL; Institut für Markenentwicklung Graz, Austria
Martin SOLAR, Triglav National Park, Slovenia

4.6 International Advisory Board

Mag. Peter RUPITSCH; Hohe Tauern National Park, National Park Administration Carinthia, Austria
Prof. Dr. Michael SUCCOW; Michael Succow Foundation for the Protection of Nature, Germany
DI Günter LIEBEL; Federal Ministry of Agriculture, Forestry, Environment and Water Management, Abt. II/4, Austria
Dr. Marija ZUPANCIC-VICAR; IUCN Regional Councillor, Slovenia
Zoltan KUN; PAN Parks Foundation, Hungary
Dr. Christoph IMBODEN; Sustainable Development Biodiversity Conservation, Switzerland
Dr. Tobias SALATHE; The Ramsar Convention Bureau, Acting Head Regional Unit Senior Adviser Europe, Switzerland
Dr. Guido PLASSMANN; ALPARC - Reseau Alpin des Espaces Protegés, France

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Mag. Bernhard GUTLEB; Federal Government of Carinthia, Department for Nature Conservation, Austria

Kalemani Jo MULONGOY; Secretariat of the Convention on Biological Diversity, Principal Officer - Director of the Scientific, Technical and Technological Matters Division, Canada

Philippe PYPAERT, UNESCO Office in Venice, Italy

Patrizia ROSSI, Parco Naturale Alpi Marittime, Italy

Dr. Martin SOLAR, Europarc Federation, Council member, Slovenia

DI Gerald STEINDLEGGER, WWF International, European Forest Programme, Austria

Dr. Christian WIESER, Museum of the Federal State Carinthia, Austria

4.7 Directors and Editors

Michael Getzner

„As an economist, and having worked in the context of biodiversity and Protected Areas management for quite some years, I am glad that the master programme 'Management of Protected Areas' has been established to increase efficiency and effectiveness of nature conservation by educating professionals and striving for a better understanding of the importance of biodiversity conservation."

- Field of expertise: Professor of Economics, specialised in Environmental and Ecological Economics, Regional Economics, Public Finance and Economic Policy, Infrastructure Economics
- Vienna University of Technology, Department of Public Finance and Infrastructure Policy, Austria
- michael.getzner@tuwien.ac.at

Michael Jungmeier

„The programme 'Management of Protected Areas' has become a unique platform for researching, learning and discussing for, in and about protected areas. Developing and running this programme is most interesting, challenging and rewarding. I find myself substantially supported by the Advisory Board and the international team of lecturers. The alumnis of the programme have already started to influence and shape the future of many protected areas in many regions of the world."

- Field of expertise: Ecology, human geography, planning and preparing PAs, capacity building and training
- C.E.O. of E.C.O. – Institute of Ecology, Austria; senior scientist at the Department of Economics, Klagenfurt University
- jungmeier@e-c-o.at

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5.3 Tables

5.4 Figures

5.5 Photo credits

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6 AUTHORS

Simon Akwetaireho holds MSc. Degree in Protected Area Management, 2009 (Klagenfurt University, Austria), BSc. Forestry (Makerere University, Uganda) and Diploma in Endangered Species Management (Durrell Wildlife Conservation Trust/University of Kent, UK). After his studies in Austria, he acquired a career opportunity with Wildlife Conservation Society (WCS) for 2 years as a Project Manager for WCS's ecological corridor conservation component of the UNDP/GEF funded and WWF implemented project "Conservation of Biodiversity in Albertine Rift Forests of Uganda". He is presently working for Jane Goodall Institute (JGI) in Uganda, which he joined in March 2011 as a Programme Director for REDD Carbon Project in Murchison –Semliki Landscape. He possesses eight years hands-on experience in protected area management, and Integrated Conservation and Development approaches derived from working with Uganda Wildlife Authority as Community Conservation Warden in Kidepo Valley, Murchison–Falls, Lake Mburo and Queen Elizabeth Wildlife Conservation Areas respectively. At JGI, Simon is charged with a major function of providing overall guidance and supervisory oversight for the implementation of the technical, financial and administrative aspects of the carbon project. This includes among others providing strategic, policy, procedural and operational advice and guidance to project stakeholders as well as coordinating with local, national and international project partners. The carbon project will ensure that privately and communally owned natural forests (conservation corridor forests) in Masindi and Hoima Districts are sustainably conserved for genetic connectivity to chimpanzees inhabiting Bugoma, Wambabya and Budongo Central Forest Reserves in Uganda.

Anna Maria Drabosenig (former Unterköfler), born 1987 in Villach, Austria. She holds a Bachelors' degree in Agricultural Sciences and a Masters' degree with honors in Wildlife Management and Wildlife Ecology from the University of Natural Resources and Life Sciences in Vienna. As a graduate from the MPA programme, she is an active board member of the MPA Alumni Club. Currently, she is working at the Division for Nature and Species Protection, National parks in the Austrian Ministry of Agriculture, Forestry, Environment and Water Management.

Astrid Fuchs, born 1964 in Villach, Austria. After school she attended the commercial academy. Later on she studied geography and sport. Since 1987 she is working in the Hypo-Bank. She worked in different departments and learned about the different bank operational procedures. For more than ten years she worked as an Assistant for our Management Board. Since her childhood she was interested in nature. During her holidays she worked with her uncle, who was a veterinarian. Currently, together with her boyfriend and three children, she is operating a small farm in the Gail valley. Her aim is to achieve a sustainable agriculture and raise old breeds of livestock animals.

Ivana Grujicic (Vasić) was born 1981 in Valjevo, Serbia. She completed forestry studies at the Belgrade University. During and after her studies she worked at the forestry project in the FAO UN office in Belgrade. Afterwards she switched to the Directorate of the Forests within the Ministry of agriculture, forestry and water management. Thanks to the MPA program, since 2009 she is working in the Public Enterprise "Vojvodinašume" in Novi Sad as a senior officer for protected areas. She leads several local projects and participates in different programs aiming at improving the management of protected areas.

Julius Kimani Kariara, holds an Msc. degree in management of protected area (Klagenfurt University, Austria) and a degree in forestry (Moi University, Kenya). He participated in numerous short training courses, e.g. on clean development mechanism projects, participatory forest management and project management. Until middle of 2011 he worked with Kijabe Environment Volunteers (KENVO) and participated in a wide range of conservation projects. His responsibilities included coordinating, planning and implementing environmental conservation projects and scientific research work. Currently he is employed by Nature Kenya (Birdlife partner Kenya) as a site project officer in a large scale GEF UNDP project. The project is about strengthening the protected area networks in the eastern montane forest hotspot of Kenya. He is involved in coordinating site staff, liaising with stakeholders, mobilizing the community among other roles.

Zuwena Kikoti, I am Zuwena Kikoti working with Tanzania Wildlife Division under research statistics and training Unit. Currently i am based at Tanzania Wildlife Research Institute where i work as a researcher responsible for developing and planning research proposals and participarting in research activities. I hold an MSc in Management of Protected Areas and BSc in Wildlife Management. I do also attending international course on Economic Tools for Conservation at Stanford University.

Sigrun Lange holds a diploma degree in Biology with focus on tropical high mountain ecosystems (University of Bayreuth, Germany) and an MSc degree in Protected Areas Management with focus on transfrontier parks (University of Klagenfurt, Austria). Since almost 20 years she works in the field of biodiversity conservation and sustainable development, with international field experiences in Papua New Guinea, Kenya, Ethiopia, Ecuador, Peru, and the Alpine Space. Since seven years she particularly deals with the broad field of protected areas management with an emphasis on the UNESCO concept of biosphere reserves. She coordinated the process of establishing national criteria for biosphere reserves in Austria, and edited books on the status quo of biosphere reserves in Austria and in the mountains of the world. As of 2008, she is CEO of E.C.O. Germany (based in Munich) specialised on communication, management and planning processes in protected areas. She is honorary communication coordinator of the Alumni Club of the international MSc Programme 'Management of Protected Areas' and also gives lectures in this course.

Emanuel H. Martin, I was born on the 24th of December 1977. I did my primary school education at Arusha Chini Primary school from 1985 to 1991 in Moshi Rural - Kilimanjaro. Thereafter I joined Kibo Secondary School for ordinary secondary education in Moshi - Kilimanjaro from 1992 to 1995 and Mazengo High School in Dodoma from 1996 to 1998 for Advanced Secondary Education. From 1999 to 2002 I joined Sokoine University of Agriculture, in Morogoro and pursued a Bachelor of Science Degree course in Wildlife Management. Between 2003 and 2007 I worked as a Conservation Officer in Mokolodi Nature Reserve – Botswana before joining University of Klagenfurt from 2007 to 2009 to pursue Masters of Science Degree course in Management of Protected Areas in Austria. In August 2009 I was hired as a Site Manager for Tropical Ecological Assessment and Monitoring – TEAM project in Udzungwa Mountains National Park in Tanzania, a position I am still serving until to date.

Ana Štrbenac, born 1972 in Zagreb, Croatia. Obtained the University degree in biology-ecology at the University of Zagreb – Faculty of Natural Science. Started her career in the State Directorate for Environmental Protection in 1997, working on public relations and cooperation with NGOs. Since 2000 involved in the nature conservation tasks in the Nature Protection Directorate of the Ministry of Environemntal Protection and Physical Planning. At that time mostly responsible for implementation of national biological diversity protection strategy and international agreements: Convention on Migratory Species of Wilf Animals (CMS), Bern Convention, CBD. Nominated focal point for the Agreement on conservation of cetaceans in the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS). Coordinator of Croatian Red books development. Actively involved in large carnivores conservation as a member and later co-chair of the National Committee for Monitoring of Large Carnivoree Populations.

Juraj Švajda, Ing. PhD. MSc., Assistant at the Faculty of Natural Sciences, University of Matej Bel, Banská Bystrica, Slovakia. He graduated at the Technical University in Zvolen (specialization: Nature Conservation). He has completed also doctoral studies at the same Faculty (field: Ecology). After completing university studies he worked for the Ministry of Environment, Bratislava (Department for Nature Conservation). He was working 7 years for the Tatra National Park & Biosphere Reserve Administration in Tatranská Štrba. Later he served 2 years at the Institute of High Mountain Biology in Tatranská Javorina. His career is devoted to scientific and educational activities in the protected areas. He is a member of Slovak Ranger Association, Slovak Ecological Society and Slovak Committee of the UNESCO Man and the Biosphere Program.

Hanna Vasilevich is currently pursuing her PhD in International Relations and European Studies at the Metropolitan University in Prague (Czech Republic). In addition to her first degree in International Tourism Management (Belarusian State University), she holds a MSc. in Management of Protected Areas (University of Klagenfurt, Austria), an MA in International Relations and Diplomacy (Anglo-American University in Prague, Czech Republic) and a joint M.E.S. in European Integration and Regionalism (Karl Franzens University, Graz, Austria, and the Autonomous University of Barcelona, Spain).

Katarina Vukšić was born 1981 in Kotor, Montenegro. After graduating at the pre-university IB programme of the Mahindra United World College of India, she studied Landscape architecture at the University of Belgrade, Serbia. During her enrollment at the MSc programme "Management of Protected Areas", she participated in several projects dealing with nature conservation in the Balkan countries, such as a WWF project on the implementation of RAPPAM methodology in the Balkans. Katarina is currently engaged in the EU funded Twinning project dealing with implementation and enforcement of Natura 2000 network in Serbia.

Tommy Topp has always worked in multi-cultural and multi-lingual environments. He has a working career that spans more than 40 years and includes; Soldiering, Human Resources management, General management, Entrepreneurship and Conservation. He is a founder member and executive member of SOS Parks and is the Vice President of the Klagenfurt University MPA Alumni Club. Over the last few years Tommy has worked in South Africa where he has been valuating cultural heritage, as well as leading a team in the field doing an inventory of archaeological (rock art) sites, training heritage authority staff and park rangers of the uKhahlamba Drakensberg Park World Heritage Site.